



Buckle Up Kids

CHILD PASSENGER TRAUMA PREVENTION PARTICIPANTS' MANUAL



U.S. Department
of Transportation

**National Highway
Traffic Safety
Administration**

From: US Fire Administration,
National Highway Traffic Safety Administration,
and American Academy of Pediatrics


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**Child Passenger Trauma Prevention
A Training Program for Fire and Rescue Personnel
Participants' Manual**



*National Highway Traffic Safety Administration
and
United States Fire Administration
with the
American Academy of Pediatrics*

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*October 1994
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and You!*, Transportation Safety Training Center, Virginia
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Introduction

Fire and rescue organizations have done an outstanding job in dealing with fire and burn prevention. These efforts, along with improved response and fire fighting techniques, have been effective, yet the need for services has not diminished. In fact, the fire, rescue, and emergency medical services (EMS) roles are increasing. Approximately 70% – 85% of emergency runs are now for medical calls. Of those, many are traffic-related injuries that are severe and life-threatening.

Because of the growing involvement of fire and rescue organizations with injuries, and the awareness that prevention must go hand-in-hand with treatment, the US Fire Administration (USFA) and the National Highway Traffic Safety Administration (NHTSA) have begun a collaborative effort. “Buckle Up Kids: Child Passenger Trauma Prevention” is a training program designed to encourage fire/rescue stations to become a community-based information and service center for life safety education and prevention issues.

These training manuals (one for instructors, the other for participants), written in conjunction with the American Academy of Pediatrics, provide the basis for the development of ten pilot projects. Two videos, on the collaboration of fire and rescue groups and law enforcement, are companion pieces for the training program.

With these materials and the enthusiastic involvement of child passenger safety advocates in communities, fire and rescue and EMS organizations and individuals can play an important role in child passenger safety.



Child Passenger Trauma Prevention

TRAINING PROGRAM FOR FIRE AND RESCUE PERSONNEL

Overall Goal:

To prepare fire and rescue organizations to work effectively in their communities to prevent child passenger deaths and injuries.

Objectives:

1. To understand primary prevention and the importance of preventing deaths and injuries to child passengers in motor vehicles.
2. To gain awareness of the factors that contribute to the continued high toll to child passengers.
3. To have the skills to develop a project or program that will address the issues effectively.
4. To have the technical knowledge to educate the public about the correct use of safety restraints.

For persons who plan to teach this course to others, an instructor's manual is available from NHTSA.

Buckle Up Kids

Participants' Training Manual Table of Contents

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Accident Prevention: The Next Paradigm

The fire service has changed very little fundamentally in the past 30 years. We still use large numbers of people in the difficult task of fire extinguishment. Only a few improvements in techniques (i.e., PPV) have been developed to support this basic function.

Fortunately, the need for fire suppression efforts has been dropping across the country. Both life and property loss numbers are ebbing to an all time low. So, how can a fire chief maintain or expand needed staffing levels when demand for our basic services is decreasing? The decreased number of fires does not decrease the needed personnel to conduct operations. In this editorial, I will discuss several strategies that have been implemented in our department to increase our value to and support from the community.

Most fire departments would describe themselves as "full service" agencies. The interpretation of "full service" varies, but typically that means the department responds to fire, medical and environmental emergencies. It appears that holding on to the emergency mentality might be our undoing. We must look beyond the red lights and sirens to find other service delivery opportunities. That's right, the time has come for the fire service to look beyond the current paradigm and take a different approach to public safety. I suggest that we become entrepreneurs and diversify.

Permit me to share a brief story about one of America's biggest industries' efforts to diversify. Think back a few years (perhaps 10 or so) to when you visited a fast food establishment. The choices you had were somewhat limited. The menu at most fast food restaurants did not consider the nutritional value of their products. Typically, the product line was a nutritional nightmare. Clear indicators to this industry to change showed up in the form of an informed and health conscious society. The message was simple; change and broaden the product line or go by the way of the dinosaur. In today's world, a wealth of nutritional information such as fat, sodium, sugar and calorie content is

To provide more services with our resources on an every day basis is the future.

available. Back then, who would have forecast that salad bars and yogurt machines would become a mainstay at the local burger joint? Through diversification, this part of our culture has been able to survive; in fact, it continues to thrive.

How does this story relate to the American Fire Service? We have got to look for new ways to touch the community to ensure our future success. Here are a few ways that the Chesterfield Fire Department is smashing the old paradigm.

In the past two years, our county suffered seven drownings and 20 near drownings. With a population of 220,000, this was an exceptionally high number. To combat this problem, we developed the "SWIM SAFE" program. The department provides a comprehensive educational program directed at adults relating to swimming pool safety. This program is supported by a videotape and an informational brochure. The program was featured in the April 1993 issue of *Firehouse*®.

Next, we are starting a program to help parents with the proper installation of state required child restraint seats. Two members of the department received detailed training on the topic from the Virginia Department of Motor Vehicles. Soon, our station personnel will be receiving this same information to prepare them to do public demonstrations and presentations. The state police statistics indicate that about 60-70% of all child seats used in the commonwealth are installed improperly. Additionally, child

restraint seats will be available at the local fire stations for loan. When out-of-town guests need this service, the fire department stands ready to help.

A few years ago, the county administrator's office received a phone call reporting an abandoned vertical shaft coal mine. The caller complained that this deep, open shaft presented a grave threat to the community. Some children were known to play around the site in question. The opportunity to help our citizens to mitigate this hazard was obvious. I assigned a staff officer to look into this situation and make recommendations. The department was successful in obtaining funding from federal and state sources to properly close and seal the open shaft. In fact, through this program, we have identified and corrected 32 abandoned sites. The cost savings to our citizens to date through federal and state assistance has been \$391,047.

Finally, we have implemented an informal policy to help stranded motorists on our highways. If citizens are broken down on the side of the road in Chesterfield, the odds are that a marked fire department vehicle will come to their rescue. Firefighters will change a tire or get them to a gasoline station and a phone. The public exposure that this simple and cost effective program has generated has been tremendous. I have received many notes and calls of thanks from citizens who were rescued from the roadside.

Well, there you have my vision of the next paradigm shift. We have to look for new opportunities to provide services to our citizens. Chesterfield Fire Department has chosen accident prevention programs as our first outreach effort. Who would have believed that firefighters would be helping with swimming pool safety, child restraint seat installations or helping disabled motorists. To provide more services with our resources on an every day basis is the future. Look for opportunities to logically expand your services. Try to help with high profile problems that will be noticed by the political body and the voting public. The days of hugging the coffee pot and waiting for the "big ones" are over.



Buckle Up Kids

Part I

Promoting Child Passenger Safety in Your Community

Goal

To create an understanding of the need for community activity by Fire & Rescue and EMS organizations to promote child passenger safety, and to provide the tools for groups to carry out such a program.

By the end of this session, participants will be able to:

1. State why child passengers are at risk today.
2. Describe the potential roles of Fire & Rescue and EMS personnel in prevention.
3. Identify major types of primary prevention of child passenger injuries.
4. Identify the steps in planning, conducting, and evaluating a community child passenger safety program.

Sections:

- A. Trauma Prevention in Fire, Rescue, and Emergency Medical Services
- B. Developing a Child Passenger Safety Program
- C. Tools for Successful Programs
- D. Strategies for Effective Programs



SECTION A

TRAUMA PREVENTION IN FIRE, RESCUE AND EMERGENCY MEDICAL SERVICES

*Overview of section
Crash scene from
"Buckle Up
Kids" video*

The first section of our training program looks at:

- Why fire/rescue and emergency medical services providers are becoming involved in injury prevention
- What primary prevention of injury means
- Child passenger protection as a part of injury prevention
- Why child passenger safety is so necessary
- Why and how fire/rescue/EMS can fit into child passenger protection

Why Me?

Fire & rescue organizations have done a terrific job in fire and burn prevention. These efforts, along with improved response and fire fighting techniques, have been effective, yet, the need for services has not shrunk. Your rescue and emergency medical services (EMS) role is increasing. Approximately 70% of emergency runs are now for medical calls and, of those, many for injuries that are severe and life-threatening.

Now your help is needed in areas of trauma prevention. Your training, skills, and positive role in the community, especially among parents and children, (see Table 1, next page) makes you particularly well-suited to become involved in child passenger safety. When you speak, people listen!

Because fire & rescue services are community-based, this shift in need for services leads to two mandates:

1. We must look for new ways to reach out in our communities to ensure our visibility and continued community role.
2. We must continue to do our best to reduce the threats to the health and welfare of the people in our communities.

The involvement of a fire & rescue organization in the prevention of trauma injuries fulfills both of these mandates. Fire/rescue/EMS providers, whether volunteer or paid, are empowered by their training, skills, and public roles in the community to be leaders in the growing area of injury prevention. Look at your state's laws and policies regarding responsibility and authority for becoming active in injury prevention.

*Fire & Rescue
Professionals –
natural leaders
in trauma
prevention*

Table 1
Individuals and groups that parents and children
would listen to most about childhood injury prevention.*

<u>Parents listen to:</u>	<u>1987</u>	<u>1992</u>
Doctors	5%	16%
Nurses	12%	3%
Own Parents	13%	4%
School Teachers	19%	14%
Police	20%	30%
Firefighters	12%	25%
<u>Children listen to:</u>	<u>1987</u>	<u>1992</u>
Doctors	18%	6%
Nurses	3%	1%
Own Parents	12%	9%
School Teachers	52%	33%
Police	34%	48%
Firefighters	18%	36%

* From Mickalide AD. Parents' Perceptions and practices concerning childhood injury: 1987 versus 1992. *Childhood Injury Prevention Quarterly* 1993; Spring: 32.

Primary Prevention — What Is It?

Injury and trauma have long been neglected as a target for prevention. For years researchers, educators, and health personnel have worked to prevent communicable disease, heart disease, and cancer. Until recently injury has received little attention.

Rescue efforts by you, as health care providers, focus on the injury that has occurred. By preventing further harm to the body once an injury has happened, you are providing **secondary prevention** — on the scene rescue and transport. Basic life support (BLS) or advanced life support (ALS) stop the injury process and improve the medical outcome, but cannot change the fact that the victim is already injured.

Modern medicine is finding better ways to treat trauma, but the cost is high and the degree of success is often questionable. In many cases, we now save victims who are left with devastating, long-lasting effects from their injuries as well as tremendous bills which they, or society, must pay. This is a cause of frustration for many in fire and rescue services.

What is the answer? When you stop to look at them carefully, injuries are not the result of "bad luck" or "accidents." They are caused by the interaction of many factors all coming together at a particular moment. Stopping this accumulation of factors before it results in trauma is known as **primary prevention**. This may mean stopping the event from occurring,

Injury Prevention:
Meeting the
Challenge,
pp 4-18

Secondary
prevention

High human and
financial cost
of injuries

Primary prevention

*Examples of
primary
prevention*

*Motor vehicle
crashes*

*Terminology:
"crash" instead
of "accident"*

*Matrix shows
what can be done
before and dur-
ing the event*

*Fire/rescue/EMS
make a
difference*

or stopping the injury from happening (or making it less severe than it would otherwise be) despite the event.

Think about the primary prevention work you have done related to fires. Educating children about the danger of fire and keeping matches away from them are methods of primary prevention that decrease the chance of a fire incident occurring. Having a working smoke detector and fire extinguisher in the house are examples of primary prevention that reduce the chance of major injury if an incident of fire occurs.

The subject of this course is prevention of injury in motor vehicle crashes. Most of you would probably agree that most frequent and most gruesome of emergency scenes are traffic collisions. And the worst of those are ones in which children are involved.

Why is An "Accident" not An Accident?

The "Haddon Matrix" chart on page I-5 shows many of the elements that play a role in the "accident" that causes injury. These elements show that this is not an uncontrollable occurrence. Therefore in the injury prevention field, the word "accident" has been eliminated. Instead, "crashes", "collisions" or "impacts" happen.

The matrix shows the many factors of primary and secondary prevention in a car crash involving a child. Many potentially can be controlled or altered in some way. Improving any of the factors before the event could have altered its outcome. Changing factors that occur during the crash can help lessen the injury itself. Altering the factors that occur after the crash can lessen the effects of injury on the person.

Think back to the crushed pile of glass, metal, and fiberglass, the blood, screams, and moans, and, amid the chaos, the whimpers of a baby. This crash and these injuries were preventable in many different ways. There are ways to limit the factors that made the collision happen and to minimize or prevent resulting injuries. This training program will give you insight into these factors.

Success Story

A paramedic in the state of Washington working with a car seat loan program was listening to a mother describe how her daughter hadn't liked her safety seat. The mother, therefore, had started putting her in a booster seat — too soon for the child's size. Taking children out of safety seats too early is a common misuse problem and a danger to the child.

The paramedic then talked with the mother on the potential dangers of using a booster seat prematurely and pointed out that her role as the parent was to safeguard her child. The mother, in turn, sat her daughter down for a "serious talk" and explained all the reasons why it was important for her to be in a safety seat. Grinning, the little girl replied, "Okay Mommy."

Factors Involved in Injury and Prevention*

(using a vehicle crash involving children as an example)

	Human Factors**	Vehicle/Equipment Factors**	Physical Environmental	Social/Economic
Before the Event (primary prevention)	<ul style="list-style-type: none"> • Driver experience • Driver intoxication • Knowledge of need for and correct use for child safety seats • Use of child safety seat or safety belt • Parenting skills to keep child seated in restraint 	<ul style="list-style-type: none"> • Vehicle condition • Vehicle size and type • Type of child safety seat used • Condition of child safety seat • Use of harness and belt to secure child in safety seat • Use of locking clip • Use of shoulder belt adjuster 	<ul style="list-style-type: none"> • Road and weather conditions • Road signals, signs 	<ul style="list-style-type: none"> • Availability of car safety seats at a reasonable cost • Ability of parents to read and follow car seat instructions • Driver/parent attitudes toward restraint use for children • Attitudes toward drinking and driving • Speed limit
During the Event (primary prevention)	<ul style="list-style-type: none"> • Child's health at time of crash • Child sitting in restraint at time of crash 	<ul style="list-style-type: none"> • Energy absorption of car body, structure of passenger compartment • Speed of travel • Deployment of air bag if present • Placement, sharpness, hardness of surfaces inside the car • Functioning of restraint system 	<ul style="list-style-type: none"> • Type/size of object or other vehicle struck • Guard rails or barriers • Roadside features 	<ul style="list-style-type: none"> • Laws concerning restraint use, speed, impaired driving • Enforcement of speed and restraint use laws
After the Event (secondary prevention)	<ul style="list-style-type: none"> • Type/severity of injuries sustained 	<ul style="list-style-type: none"> • Integrity of fuel system • Ease of extrication of child from vehicle • Availability of appropriate restraint to carry child to hospital 	<ul style="list-style-type: none"> • Distance of emergency response personnel from crash • Distance of crash from hospital 	<ul style="list-style-type: none"> • Trauma care system equipment, personnel, training • Use of pediatric EMS procedures, equipment

* Adapted from the Haddon Matrix (Haddon, W. Options for the prevention of motor vehicle crash injury. *Isr J Medicine*, 1980; 16:45-68)

** Examples — not intended to include all the possible factors involved.

Fire/Rescue and EMS and Child Injury Prevention

Fire and rescue organizations have spent many resources, and much training, development and equipment on rescue and care of adults. Now emergency medical services is beginning to look toward children and what can be done for the pediatric victim. EMSC (Emergency Medical Services for Children) programs are spreading. Training and special equipment suited to the young child victim are being disseminated through organizations nationwide.

Trauma system includes prevention

Primary prevention is the first step and an important component of the trauma system continuum of care which also includes prehospital care, hospital care, and rehabilitation. Injury prevention offers the best way to save lives and suffering, and to reduce costs. Rescue and EMS providers can play several vital roles:

Credible, knowledgeable advocates

1. Children need advocates to create a safe environment for them.
2. Fire and rescue personnel are credible spokespersons in the community.
3. Rescue and EMS providers, as the first to the injury scene, know the problem firsthand and can offer key information that will help develop better prevention methods.

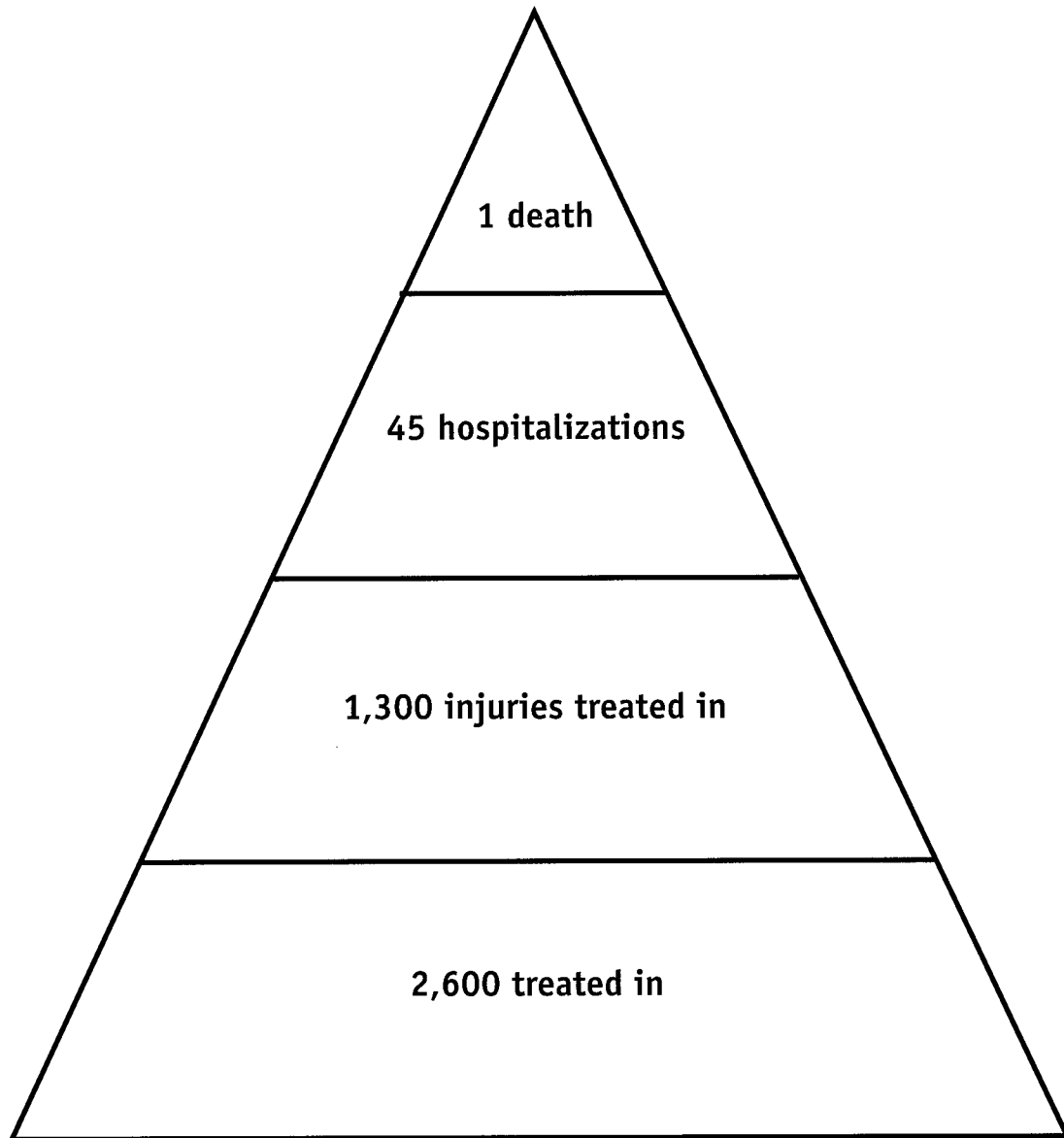
It has been estimated that 80% to 90% of pediatric deaths due to trauma occur immediately or within a few hours after the incident.* Life support techniques and rapid transport will not save all these children. Improved transport and initial aid might save about 2,500 of them, **but primary prevention could save 6,000 children** by avoiding or lessening the injury.*

Deaths only iceberg's tip

Injury deaths are only the tip of the iceberg. It has been found that for every injury-related death of a child, there are 45 children hospitalized, and many more who are treated in emergency rooms or doctor's offices. All of these add up to unnecessary suffering, concern, and cost. (See Figure 1 on the next page.)

* Seidel, JS, and Henderson, DP (Eds) 1991. Emergency medical services for children: A report to the nation. Washington, DC: National Center of Education in Maternal and Child Health.

Figure 1: The Childhood Injury Pyramid
Focus on preventing injuries as well as deaths



From Guyer B, Gallagher SS, An approach to the epidemiology of childhood injuries.
Pediatr Clin North Am 1985; 313:1285-6.

Unintentional injuries

Why Focus on Child Passenger Safety?

More children die as occupants in motor vehicle crashes than from any other type of injury. As Table 2 shows, of the 5,267 children under 10 who died due to unintentional injuries in 1990 in our country, 2,093 (39.7%) died due to traffic collisions. Of those who died in these crashes, 1,093 (53%) were vehicle occupants.

Table 2: Childhood Fatalities Due to Injury, 1990*

	Ages 0-4	Ages 5-9	Total
Motor vehicle occupant	1,123	970	2,093
pedestrian	649	460	1,109
bike	456	406	862
Fire/burns	18	104	122
Drowning	683	246	929
Falls	640	248	888
Firearms	110	18	128
Poisoning	103	121	224
	69	12	81

* National Center for Injury Prevention and Control, Centers for Disease Control and Prevention. Injury Mortality: national summary of injury mortality data 1984-1990. Atlanta: Centers for Disease Control, published in 1993.

Large numbers of injuries

In addition, there are large numbers of nonfatal injuries, about ten times the fatal injuries, and permanent disability often results. You can make a real difference in terms of dollars saved and in the prevention of pain and suffering, by not only the child, but the entire family.

Most child passenger deaths and injuries are considered preventable. A child safety seat correctly installed and used is the most effective means of reducing injury to that small passenger if the crash is going to occur — and so many do! And child safety seats are a proven method of prevention that is widely available and mandated under the primary laws of all 50 states, the District of Columbia, and Puerto Rico.

The effectiveness of correctly used child safety seats is estimated by the National Highway Traffic Safety Administration (NHTSA) to be:

- 71% for prevention of fatalities;
- 67% for prevention of hospitalization; and
- 50% for prevention of minor injury.

NHTSA has projected that if child safety seats had been used by all young children in 1993, 489 deaths and 52,500 injuries in motor vehicle could have been avoided.

Safety seats are very effective

The National Highway Traffic Safety Administration (NHTSA) is the federal agency that promotes occupant protection through safety standards, enforcement, research, and community/state/national programs. It provides materials and training to health and safety professionals and community advocates. In turn, it depends on advocates around the country to provide it with feedback from the field regarding the effectiveness of equipment like child safety seats and safety belts.

Why are Children Still Dying in Traffic Crashes?

Death and injuries have decreased due to safety seat and seat belt use but remain high. Why are children still suffering injury or death in traffic crashes if child safety seats are such an obvious and effective answer to the problem? There are a number of reasons.

First, not every child is in a safety seat every time he or she rides in a vehicle. By 1990 usage in selected urban areas across the country was over 80%, a dramatic rise from the 22 % of 1982. Yet, in a 1987 review of national data on fatal crashes, only 24% of the children riding in the involved vehicles were buckled up.

In California, over 85% of the children under age 5 who died in motor vehicle crashes from 1987-91 were in crashes considered by the highway patrol to have been survivable, had the children been properly buckled up. Of 56% of those children had no restraints available.

Many people still don't understand the need for safety seats, what to buy, how to use it, how to keep their child in it, what to do with an old one. On top of this, there are still many myths that still are widely believed. For instance, "My child is safer in my arms," or "We're only going on a short trip to the grocery store," or "It's safer to be thrown from the vehicle."

Lack of access to proper safety seats plays a role in many areas. For some families, the purchase of enough devices to properly restrain their growing families is a major financial burden. For others, it is not a priority. In some areas of the country, there is little selection available or no nearby stores that carry them at all.

Transporting children with special medical needs may require special seats or equipment. Often parents are not informed about the availability of these restraints or cannot find them in their area.

Second, misuse plays an important role. Poor choice of type of restraint, incorrect installation, and/or lack of or improper use has been shown to reduce the protection provided by child safety seats and safety belts. In some cases, misuse can be fatal. Anywhere from 25% to 95% of child safety seats are installed or used improperly, according to various studies.

Parental error very likely played a role in a recent child fatality in the Northwest. When the parents had moved their child from the rear-facing to the forward-facing position, they had not raised the shoulder straps to the upper slots. The shell around the lower slots (that are not intended for use with a child facing forward) fractured, allowing the child to be thrown against the interior of the car, suffering a fatal head injury.

Many children not protected

Non-use of safety seats

Myths, see CPS Resource Manual, pages 4-7

Lack of access to safety seats

Special restraints for children with disabilities

Misuse can be fatal

*Incompatibility is
a major issue*

*Ineffective
state laws*

*Lack of equipment
an issue in
ambulances*

*Training
Resource Kit*

The number and types of safety seats, the variety of vehicle seats and belts, and the way seats, belts, and vehicles fit together (“compatibility”), make this field particularly confusing to parents and professionals alike. Much of this course will be spent in training you on correct choice, installation, and use of safety seats. You, as technically trained individuals, can play a role in helping parents understand and use their restraints correctly.

Third, legal exemptions, loopholes, and lack of enforcement of laws influence restraint use. Although all 50 states have safety seat laws and almost all have safety belt requirements that cover some older children, these laws vary considerably. Some state laws are far more comprehensive and effective than others.

In addition, many vehicles are not equipped with safety seats. Take for instance rescue vehicles, taxis, rental cars, perhaps a grandmother’s car. In a number of states, such vehicles are exempt from the child restraint law — but not from the laws of nature.

Resources for You

This training manual will discuss many of these reasons and what fire and rescue personnel can do about them. However, we do not have time to cover everything in depth. This book contains appendices in the back that cover many topics in more detail. In addition, as part of your course, the training program will provide you with various resources, the **Resource Kit**. Its books and videos provide you with further information.

In most training programs, the training kit includes:

- *The Child Passenger Safety (CPS) Resource Manual*, NHTSA
- *Sudden Impact: An Occupant Protection Fact Book*, NHTSA
- *Protecting Our Own: Community Child Passenger Safety Programs*, NHTSA
- *The Manufacturers Instructions for Child Safety Seats* Notebook, NHTSA
- A video, *Buckle Up Kids*, which addresses the role of fire & rescue personnel in child passenger trauma prevention
- A variety of other materials, up-to-date **handouts** for parents, and resource lists for information on conducting programs

If you have not received all of the resources listed above, contact the Office of Occupant Protection at the National Highway Traffic Safety Administration for copies.

Where Do I Fit In?

Each person's strengths, skills and interests are different. Child passenger protection has so many different levels and aspects that there is a place for everyone. Everyone can contribute in some way that may save a child's life. For example, you could:

- **Advocate** for the safety of children. Advocacy can permeate everything you do, and your conversations and interactions everyday. Child passenger safety needs advocates.
- **Educate** — the public is in great need of education and has the right to know the risks of trauma and what they can do to reduce those risks.
- **Support** law enforcement's efforts for child passenger protection.
- **Organize** people in your community. Programs to get seats to people who can't afford them, a bounty program, a loan program — all need someone to get them going.
- **Check** for correct seat installation at a community safety seat check up and help install seats.
- **Provide** feedback to NHTSA by reporting potential problems with child safety seats and belts.

There are many activities that need to be done and many different levels of involvement. You could merely have informational brochures at the fire station or ambulance company, or run an entire loan program from the station or hospital emergency department. You could join a local coalition or start one. We'll be talking more about activities and how to accomplish them in your community in the rest of this presentation.

*A role for everyone
(CPS Resource
Manual,
pp 4-42)*

*More on activities,
see Section D*

SECTION B

DEVELOPING A CHILD PASSENGER SAFETY PROGRAM

How Do I Start?

There is a real potential for saving children's lives by preventing the kind of tragedies for families that you have undoubtedly seen in your work as rescue/EMS providers.

Before you rush out to do the first thing you think of, it will pay to step back and look at the potential solutions and the resources at your disposal. That way, you can work on a manageable piece of the solution and avoid many frustrations along the way.

To help you, this section will take you through the following steps for developing a child passenger protection program:

1. Gather and analyze data
2. Assess your community
3. Focus on a clear target
4. Develop a plan
5. Implement the plan
6. Measure your program's success
7. Keep the program going

Steps for Developing an Effective Program

Step 1: Know What's Really Going On

Any injury prevention program must begin with the factual knowledge that a problem exists which is killing and injuring people. Examining data is the best way to prove there is a problem and to discover the extent of the problem. Some types of injury are serious, causing death; others are less severe but more frequent, causing many moderate or minor injuries.

We know that the child passenger protection problem **nationwide** is both severe and frequent. State and local data will help you understand the dimensions of the problem in **your** community. The more you can find out about how many children have been in crashes, the number of deaths (mortality), and injuries (morbidity), the better. Also try to find out whether a safety seat was used. While it would be useful to know if the safety seat was installed and used correctly, this is probably not available.

*Overview of section
Protecting
Our Own,
chapters 1-2*

The facts you need

*Local data —
harder to get but
more convincing*

The numbers of fatalities will be very small for a town or city so aim for a larger area such as your county, state, or region. Where numbers are small, they are likely to vary widely from year to year, making it difficult to document true change. Data on injuries, emergency room visits, or observed usage rates of child safety seats and safety belts will be easier to find and to use.

There are many sources of data:

- State Office of Highway Safety
- Fire and rescue incident reports
- EMS run data
- State patrol, county sheriff, and local police traffic collision records
- County coroner or health department death certificates
- Emergency room and trauma center logs and records
- Hospital discharge data (if E-coded information on the external cause of injury is available)
- Observation survey of child safety seat and belt usage

These sources have different types of data, gathered in different ways. They may be inconsistent or overlap. For instance, if a child dies in a car that rolls into a swollen creek, the state police record may consider it a traffic crash fatality while the state health department death certificate may list the cause of death as drowning.

Consistent data is essential. Once you find a source, use it over time but do not mix it with data from other sources.

You must decide which source and data to use based on what is available and will help clarify the problem. What you discover helps you build a case for doing something about it and for choosing a particular course of action. It is worth taking the time at the beginning to find out what is really going on. When you can tell people in your community how many local children are being killed in cars and how many of them could have been saved, you will be well on the way to doing something about it.

Step 2: Assess Your Community

You may initially want to start your own separate program or project in order to give your organization a high profile and community recognition. Knowing what others are doing will help you do a project or program that will either build on or complement existing efforts. On the other hand, if you find that little or nothing is being done, you can invite other local interest groups and talent to join in.

An injury prevention project is most successful when done at the local level by people who have a vested interest in preventing the problem in their community. But you and your fire and rescue organization are likely to have a more successful and satisfying program if you work with others. A coalition of community agencies and people is, in most cases, the most

Where to find local information?

Data may conflict

Success through working together

effective in accomplishing a project. Also, by working with others, your organization's role of providing an important service in the community will be enhanced.

What is a coalition?

- A loosely or formally organized group working toward a common goal.
- Members contribute knowledge, skills, and action appropriate to their particular fields or interests.
- It extends expertise and resources further than any single member can contribute.
- The group enhances the credibility of the project by involving recognizable community agencies and groups.

Working in a coalition strengthens most efforts. If you want to work with other groups, you need to bring them into the planning phase early. They will be able to take part in the decision-making process and will have an investment in the outcome. This enhances participation and reduces competition.

It is important that the members of the coalition working on the child safety seat program be interested in it and have a commitment to reaching the goal. If the interest and commitment of others is not there, little will be accomplished no matter how hard you yourself may work.

Talk to people — some already may be doing a program or may want to join you in doing one. All the people listed below could have a reason and an interest for being involved in child passenger safety:

- Pediatricians, emergency physicians, and nurses at hospitals or clinics
- Law enforcement personnel
- Parent groups such as preschool parents
- Local businesses, including insurance offices (USAA, Primerica)
- Educators such as teachers and health educators
- Civic groups such as Kiwanis clubs and Rotary clubs
- State and local governmental entities

Ask these people:

1. What they know about the problem?
2. Are they involved in any existing educational programs?
3. What informational materials are being used? You may find a lot of misinformation and out-of-date printed material.
4. What efforts are being made to provide safety seats to those in need?
5. How well is the child restraint law being enforced?

A coalition enhances participation

Who is interested?

What's going on now?

As you talk to people you build awareness of the issue and support for a possible project. Ask people if they know of the following projects being done locally and if not, would they like to be involved in such an activity:

- Loan programs that fill the demand or other distribution programs for safety seats
- Safety seat inspections
- Speakers bureau
- Information and loan program for children with disabilities
- A bounty program for collecting and destroying seats that should no longer be used
- Programs that reach out to make seats available to new immigrants
- Legislative efforts to improve the state laws covering child passengers
- Educational efforts in childbirth classes, preschools, and daycare centers
- Offenders classes
- Violator report program
- Media recognition

As you can see, there are many activities that could contribute to improving child passenger safety. We will be discussing a number of these projects in detail in Section III. The materials in your **Resource Kit** give you directions on how to do them. As you begin, this fact finding and networking are extremely important to establish a base of knowledge on which to build and shape your prevention efforts.

How Big An Effort?

You may be wondering what level of involvement to attempt: whether to do a comprehensive program, a project, or an activity for child passenger safety. The terms designate different levels of commitment, work, and time. **Program** implies a comprehensive effort with a variety of activities taking place to accomplish the goal. A **project** is a more limited undertaking. An **activity** is smaller yet and less involved, or may be a single step in a larger project or program.

It is important to assess your and your coalition's time, energy, interest, and resources as well as the community's needs. This will lead you to a decision about how extensive your efforts will be and exactly what you will do. It is possible to have a large group of people working on more than one project but remember, **your efforts will be most successful if they are focused**. It is better to start with a small project you know will succeed and then move on to larger projects. Action statements which work toward accomplishing each objective and methods for the action are discussed. For more extensive instructions on the methods, refer to the materials and sources in your **Resource Kit**.

Existing programs may need your support

What is a realistic level of commitment?

Focus your efforts; see Section D

You can't hit a target unless you know what you're aiming at.

Target a change in behavior

Sample comprehensive goal

A narrower goal may work best in your area

Measuring success

Step 3: Focus on a Clear Target

Injury prevention is most effective when it targets high risk groups with effective interventions that are themselves targeted. Focusing your prevention efforts to a certain population and a specific change of behavior, will help structure what it is you are going to do and for whom. This will define your activities, direct you to people who can help you, and suggest ways to measure whether you are having success.

Child passenger safety efforts can be clearly targeted. For example, you may want to aim to affect:

- Children in the community from birth through age 4 (some groups might choose to expand upward to cover school-age children);
- By getting drivers to install safety seats correctly in their vehicles and secure children in them properly (this would include safety belt use for older children).

Therefore, the goal for a comprehensive program could be written like this:

Increase the correct use of appropriate restraints in (____) County among children 0-4 years of age (or higher) by 5% over the next 2 years.

However, in your community you may not have the resources to do a comprehensive program so you choose a more specific project. In that case, your goal might be something like this:

Increase to 100% the number of infants leaving the local hospital in child safety seats during the next 2 years;

or...

Increase by 25% the number of children arriving at _____ day care center correctly buckled up in the next year.

It is important that the goal be specific. A very general goal would give no specific directions for what to do. It could be a set-up for failure because a change in death and injury numbers may take years to become measurable and will be difficult to attribute to your particular program. Yet you know child safety seats are effective; increasing their correct use **will** result in lowering the mortality and morbidity due to traffic collisions.

Once you know what your goal and target group is, you need to know how you will measure whether your project is succeeding. In order to increase use of safety seats by 5%, for example, you need to know the current usage level of safety seats — before you try to make changes. The best way to learn this is to go out and count the restraint usage of children riding in cars **before you begin**. This will give you a baseline from which to measure program success. After you have been doing the

prevention activity for a certain period, redo the usage survey. This second count will show if there has been a change. How to do this kind of a usage count is explained in more detail in your **Resource Kit**.

An observational survey of child safety seat use is usually a real eye-opener for the observers. You and your colleagues may be very surprised when you discover how children ride out in the real world. You may find that one particular aspect of child passenger protection is most in need of attention. For example, you may find that most infants are riding buckled up, but there is a very striking drop off in restraint use among children at about age 2. This information would help guide your plan of attack.

4. Develop a Plan

An implementation plan maps out what, when and how you plan to accomplish your goal. It is the framework for the project based on the target injury, target group, the intervention method, and the strategy or strategies. The plan will help keep you and your colleagues on track and on schedule. Write it down and be willing to modify it as you go along.

The intervention method is the use of safety seats — what the goal doesn't tell you is **how** to increase their use. How the effort will work is the strategy, which follows the "3-E's", as adapted to child passenger safety:

1. Education/awareness
2. Engineering/equipment
3. Enforcement/advocacy

Find ways to use all three strategies *together* to accomplish your goal. This will greatly increase the success of your program.

For example: if your goal is to increase restraint use by children in preschools, your strategies might be:

Objective 1: Educate parents about why they should obtain safety seats and use them correctly (education/awareness)

Objective 2: Offer discount coupons for child safety seats to parents (engineering/equipment)

Objective 3: Give an incentive (coupons for free ice cream cones) to children observed correctly restrained (enforcement/advocacy)

These different strategies work together to make a more effective program than any one would alone.

There are many strategies and methods for increasing the correct use of safety seats that have been developed already. Materials in your **Resource Kit** will help you carry them out in your community.

Observing safety seat use and misuse

What, when, how - write it down

3-E's (see Section D for more ways to apply them)

Strategies work together

Focusing your program

Members of your group will want to choose methods they are interested in and that match their skills and resources. They will have their own ideas how to apply the three E's to their community. They may have new activity ideas. This enthusiasm is wonderful, but be sure that each method works toward the program goal. Remember, the more focused your program, the more easily it is accomplished, the more successful it will be, and the better all the participants will feel about their work.

***Summary:
Keep it Simple***

Summary:

Program Goal: what, who, where, and when

Objectives: steps toward the goal, based on the strategies of education/awareness, engineering/equipment, and enforcement/advocacy

Methods: action to be used to accomplish the objectives

Evaluation: how to know you've reached your goal

An organizer needed

Step 5: Carrying Out the Plan

Any program like this requires a lead organizer, someone who can organize others and keep the plan on schedule. This person may be you or a member of a collaborating organization. This person must be identified early and his or her role clearly defined.

Time line

A **time line** is an excellent organizing tool. Develop a time line with the other people you are working with and write it down. Deciding the activities of your plan and their completion dates will clarify what needs to be done. Work backwards from major events or deadlines, to make sure there is time to prepare adequately. This is a good time to match activities to local festivals and fairs or to particular weeks such as NHTSA's Buckle-Up Week in May or National Child Passenger Safety Awareness Week in February.

Commitments

The next step is to get **commitments** from volunteers who will take responsibility for each activity. If you are working with a coalition, all members should be involved in charting out these activities and volunteering to do them. A good technique is to use a large pad of paper at a meeting. Write on it what needs to be done so everyone can see the suggestions as they are made. Then write in the names of volunteers. Look for people who have skills needed for certain types of tasks. You will end up with a plan with steps and dates and next to each a written commitment of who will do each step.

Communication

Open **communication** between the coalition coordinator and those working on the project is also important. People must know what is expected of them and must be able to share their concerns and difficulties. Feedback to the coordinator and the coalition group as to the workability of methods and effectiveness of tools such as brochures, is important to the program's success. Ideas and suggestions for changes should be discussed by the working group.

You need to have a way of keeping track of what the group is doing. This is important for program management, liability, and evaluation. **Program management** requires being sure that what you had planned to do is in fact getting done and if not, knowing why not and what changes to make.

Three ways to keep track of your activities:

1. **Frequent contact** between the coordinator and each person or organization working on the project. This is a good informal way to be sure you know what is happening and at the same time give encouragement and suggestions.
2. **Meetings** are another good way to check on things and have the entire group communicating and sharing the program's successes and failures. Most decisions should be made by the coalition as a whole as members need to feel it is their program and their role is important.
3. **Simple reporting forms** that a person or agency fills out when they have completed an activity will show what was done, by whom, how many people it reached, and additional information such as the number of brochures passed out or seats loaned.

Training and Up-Dating is a Key to a Sound Program

Education and training for individuals is essential. Your networking has helped find people in the community interested in child passenger protection. However, many will probably know very little about it. Training is an essential part of any child passenger safety project. Make sure each person is educated about the issue and trained as much as necessary for whatever role they will play in the program. As people learn they become advocates and in turn will influence other people like rings rippling outward in a pool of water. Creating these advocates for child passenger safety is very important.

Because child passenger safety is a fairly technical field and one that is constantly changing due to new technology, you and the other members of your working group must keep current on information in the field. A good way to do this is to be on the mailing list of the main national organizations listed in your **Resource Kit**. Particularly important sources of current information and new developments are NHTSA, the child traffic safety newsletter, *Safe Ride News*, and the Insurance Institute for Highway Safety newsletter, *Status Report*.

Program management

Training

Keeping current is essential

Limiting Liability

Liability is an important issue in child passenger protection. You certainly do not want to provide incorrect information about safety seat installation or use. Nor do you want to produce materials that give incorrect advice.

Ways to minimize the chance of errors:

1. Make sure that the person or people involved have adequate training for the type of information they will give. They can keep current by reading *Safe Ride News* and going to conferences. Make sure they know the limits of their knowledge and are willing to say: "I don't know but I'll find out."
2. Follow certain procedures listed on check-off sheets so all points are covered. In the case of an inspection clinic, the people giving the information fill out an inspection sheet for each safety seat and installation they review at a checkup. The sheet becomes evidence of what was checked and the information that was given to help correct the problem. These sheets should all be saved as documentation by the agency conducting the checkup. They are also useful in showing just how many people were served in a given effort.
3. Check all materials you use to make sure they are up-to-date and accurate. Have any materials you prepare reviewed by a child passenger safety expert.

The bottom line is to provide thorough training, follow consistent procedures, and keep good records. If this is done, liability is minimized. If this concerns you, you may be glad to hear that, over the course of the past 15 to 20 years in which loan programs have operated, only one or two suits have been brought against them, none successfully. Also, the major child restraint manufacturers provide certain types of insurance to programs using their products.

Step 6: Measure Your Program's Success

This is important to the community, your coalition, and your sponsoring agency. Did your efforts make a difference? Were some activities more effective than others? Before you start the project is the time to plan how you are going to evaluate it. Once it is underway you have lost the chance to know what the situation was before you started and you will quickly miss opportunities to keep track of things that are happening. There are two kinds of evaluation, process and outcome, and both are important.

Evaluation of your process has been referred to under program management. It is the counting and listing of what is being done such as number of safety seats given out, number of seats seen at a community checkup, number of seats turned in to a bounty program.

Process evaluation is very useful for program management. It answers the questions: Who is being reached by the program? To what extent? Is the implementation occurring as planned? It will help you recognize

Minimizing liability

Offer training and technical support

Follow Procedures

Review materials regularly

Keep good records

Start before project begins

What has been done?

loopholes and weak spots of the implementation so you can revise the program to address them. Process evaluation will show there is, or there isn't, movement toward accomplishment of your program objectives.

Evaluation of the outcome is a measurement that tells if the methods are succeeding in accomplishing the program goal. It is a measurement of change. The goal of a program should be behavior change, not just knowledge change. Knowledge is an important step to behavior but unless there is behavior change, the safe action will not be taken and the injury not prevented. The public may "like" a program but that does not guarantee it is doing or has done any good.

The program goal should refer to a change in behavior. A baseline measurement by a usage observation survey must be done before the program begins and then at the end, or at yearly intervals if the program is long term. An increase in the number of correctly used safety seats in each year's survey will show that the methods are working. Although it may be small, a steady increase in what you are trying to do indicates success. Don't expect big changes but know that every bit helps if it saves even one child's life! You may never know when a brochure you have handed out or a conversation you have had with a parent, has improved a child's restraint use.

Step 7: The Future — Keep the Program Going

Programs come and programs go, money comes and money goes, and volunteers come and go. Yet new families continue to form and babies continue to be born; children will always need safety seats. It is very frustrating that programs often end after a few years even if they are successful. In order to continue high usage rates and lower fatalities, successful programs need to be continued. After you have evaluated your program and amended it as needed based on the evaluation, it may be time to institutionalize the program so it continues into the future.

It is important to be attuned from the beginning as to how your program may continue after you or the sponsoring agency moves on to other things. Situations vary and a perfect answer is difficult but here are a few suggestions:

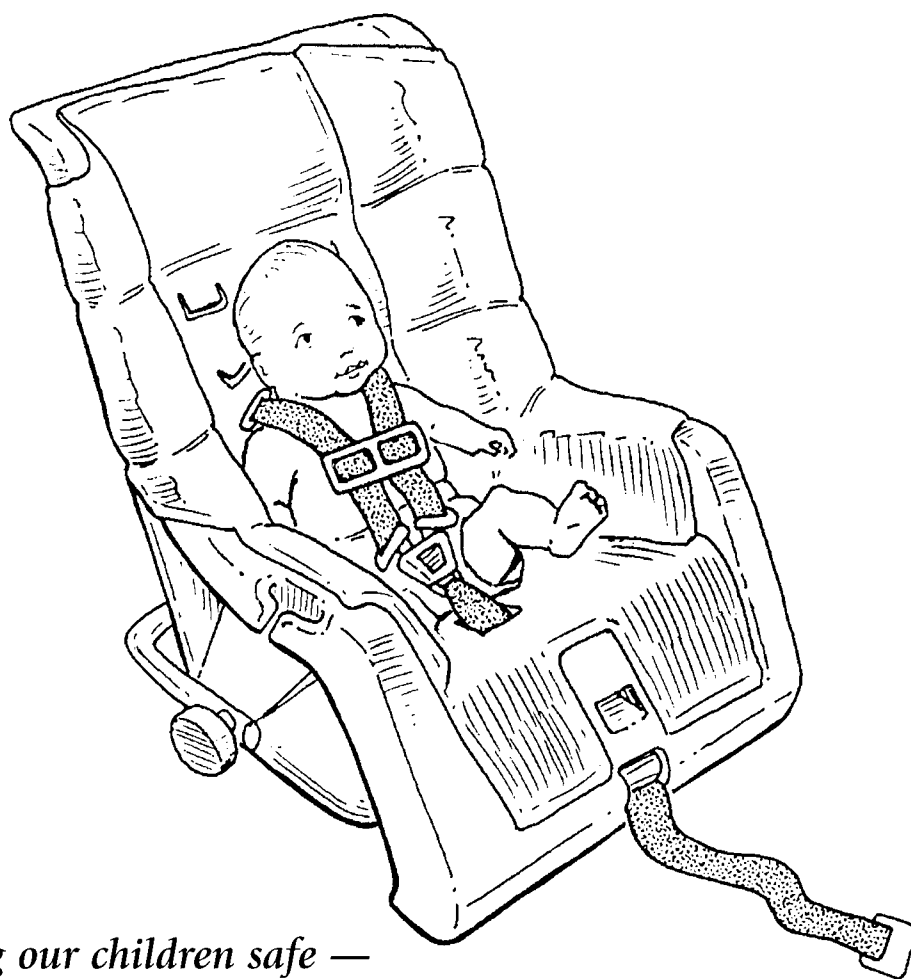
- Watch for another appropriate agency that may be interested in taking over the project.
- Divide the program into pieces (projects and activities) with each being done by different people/agencies who may continue their piece after the overall effort ends.
- Rotate the coordinating responsibility every year or few years.
- Look for new groups to take on roles and activities.
- Work to assure a guaranteed source of funding for the coordinator, an acceptance by the sponsoring agency that this is all, or part of, someone's job and an ongoing function of the agency. Injury prevention is too important to be an extra!

What's the effect?

Surveys can show behavior change

The need continues

Find a long-term home for child passenger safety activity



*Keeping our children safe —
This is what Buckle Up Kids is all about!*

SECTION C

TOOLS FOR SUCCESSFUL CHILD PASSENGER SAFETY PROGRAMS

Section III highlights several tools that are a useful and necessary part of all programs. These are:

1. Raising operating funds
2. Choosing or developing educational material,
3. Working with the media
4. Keeping people involved

These support activities are also discussed in more detail in the guide *Protecting Our Own* in your **Resource Kit**.

Operating Funds

A program will need funds to operate but this need not be an obstacle. Every successful community program will incur some expenses. However, **an effective program does not need to be costly** nor does the entire funding burden need to fall to one agency. The entire coalition and community can share in supporting this worthwhile local effort.

It is best to form a coalition before seeking funding as this shows potential funders that you are committed and organized and gives your group credibility. Also, the more people who are involved, the more impact you will have on the private sector. The most impact will be made by gathering a coalition of cross-organizational members who share the similar interest. Do your homework by researching local possible funding sources and developing a plan of action for approaching them.

Local businesses and service organizations want to be involved in community activities. Some businesses/groups will donate funds, others want to be active and would help at a bounty program to collect unsafe seats or some other project. In-kind contributions often take the place of cash.

The major expenses for a project are likely to be:

- S coordinator's time (unless a volunteer takes this task on)
- Materials and training equipment
- Safety seats (if a program plans to supply them)

Overview of section

Read Protecting Our Own, pages 9-16

Program need not be expensive

Coordinator's role

Coordination

The most important and perhaps largest expense is a coordinator, preferably one who is paid. The lead person needs to be committed, have definite time to spend on the program, and have an ongoing responsibility to encourage volunteers to participate. The coordinator's job, although interesting and rewarding for the most part, can be rocky and very time consuming at moments. A paid person has an incentive to stay involved, while a volunteer may leave or lose interest.

A coordinator should expect to spend one day per week (0.2FTE) to accomplish an entire community injury prevention program. A smaller project or activity would demand less. Often a sponsoring agency can set aside this time and salary as part of a regular paid position. Certainly the community recognition and accomplishment is well worth this investment for the agency. If there is additional salary money available, time could be spent expanding the child safety seat program or a second injury prevention program could also be undertaken.

Costs of Materials

Another major expense for the program is for educational materials. If you feel the need to develop materials yourselves, the best quality work will be from an advertising agency. This, however, can be very costly unless it is done on a "pro bono" basis. The ad agency may be glad to develop innovative materials for the program without charge. This type of project gives the agency staff more creative freedom than if they were being paid. They often get recognition by submitting the products to advertising contests. The alternative is to develop your own or use some of the many materials already in existence, as discussed in the next section.

Saving on printing

Depending on whether you develop materials or use already existing ones, there will be either printing or ordering expenses. The price normally decreases as you purchase higher quantities. Often community businesses will donate printing; larger ones may have their own print shop. The incentive for a business is to have its name on the brochure — good advertising for them.

Safety seats can be underwritten or sponsored

Purchase of Safety Seats

A child passenger protection program may want to raise money to buy safety seats for a loan program or to give away to low income families. Seats purchased in bulk can be obtained for relatively low prices. It is usually not difficult to raise funds for a tangible object that goes to children. Ask local businesses, foundations, and large corporations with facilities in your area for support.

Asking for Donations

Make a list of potential supporters. Call them to find out whether they are interested in your type of project. Some have very specific guidelines about what types of organizations they give to and for what sorts of things. Find out with whom to speak in the organization. Then, plans in hand, make a personal visit to the appropriate person to explain the program and its needs. Many agencies, such as your state Highway Traffic Safety Office and State Patrol, are very supportive of child passenger safety and will be interested in helping.

Types of companies/groups you might contact include:

- Foundation of the local hospital
- Insurance companies, either vehicle or health insurance, such as USAA, * Primerica*
- Banks and other large employers
- Toy and child equipment stores
- Automobile and auto supply dealers, (Midas Muffler shops*)
- Civic groups such as (Kiwanis, * Rotary, Lions Club)

** These groups have special initiatives on children's health or injury prevention.*

If you have coalition members with personal contacts with any of these groups, be sure to work with them. Have them make the first call and, if possible, take them along to meetings. Take with you a brief summary of the project, participants, and goals. Be specific about how you would use donations, in-kind contributions, or volunteer participation. Ask for things that you think they can deliver, or that would be in their best interest.

Examples of local business/organization involvement:

- The local hospital might want to sponsor and print the poster advertising monthly safety seat inspections.
- A large employer may want to offer convertible safety seats at a discount for their employees or be willing to provide matching funds for seats for a loan program to help economically-disadvantaged people.
- Toy stores may give small incentive gifts for people who come to have their seats inspected.
- A civic group with large numbers of volunteers could assist at a booth at the county fair if they were trained.

Assistance from other agencies

Don't hesitate to use your contacts

Many groups could get involved

Thank contributors publicly

Remember: if you have a big enough, exciting enough band-wagon, lots of people will want to jump on, for a short ride at least.

Be sure to publicize support and participation from donating groups. This is a good way to say "thank you." Everyone likes to see their name before the public for their commitment and help.

Know how your materials will be distributed before producing them!

Choosing or Developing Educational Materials

You will want some hand-outs for your program which explain the need for and the correct use of child safety seats. There are many such brochures or flyers available that others have produced. Using one of these will be less time consuming and expensive than developing one yourself. Some can be customized with your project name imprinted or stamped on the piece.

Make sure the item will be distributed and used. Materials do no good unless they get out to the public and spread the message. Your coalition members will all have avenues for distribution.

Developing a written piece of material takes time and planning, technical knowledge, a certain amount of cleverness and writing skill, graphics and lay-out skills, and careful checking for accuracy. However, when you create your own piece you and your group can get exactly what you want. Items that are unique to your project, such as a pamphlet explaining your coalition's effort, or that use a local theme, such as a banner or bus sign, may have to be developed. Or you may want to use your imagination on something creative but less technical than an instructional pamphlet, such as a poster, or bumper sticker.

Making your own unique items

Guidelines for Developing or Choosing Materials:

1. Get as many examples as you can so you have a real choice and can evaluate different approaches.
2. Make sure the words, pictures, and diagrams are technically accurate and up-to-date. Often out-of-date and misleading information is reprinted over and over again before someone catches the error. Certain child passenger safety experts around the country are qualified to review materials. (See the Resource Kit)
3. Know your audience. Make sure that the message, the visual appeal, and the reading level are appropriate for the people who will receive the piece. Pay special attention to ethnic groups in your area. Illustrations should be multi-cultural, and some materials may be needed in languages other than English. (See the Resource Kit for a listing of multi-cultural materials available.)

Technical accuracy essential

Multi-ethnic illustrations

Spanish & other languages

4. Decide what message you want to convey—a focused and positive one is best. “Put your child in a safety seat every time you drive,” is a more specific and action-oriented message than “Be careful in the car.”
5. The less text the better. Most people get discouraged when they have to read a lot of words. However, since child protection is somewhat technical, it may be difficult to have only a small amount of text. Be sure the words are simple and the sentences short.
6. Pictures and graphics should further explain the words and be simple and easily understood.
7. Colors, design, and placement of text on the page should be attractive and draw the reader into the educational message.

Be careful not to spend more money than necessary. The message and how it is put across are more important than whether the paper is glossy. Match your need to the quality. Your needs may vary. At a health fair booth the public tends to grab items off the display table that may never be looked at. For this you might want simple, low-cost flyers copied on colorful paper. Save the glossy brochures for one-to-one contacts such as in a medical clinic.

Finding Existing Materials

A number of sources exist and are listed with their addresses in the **Resource Kit**. They include the National Highway Traffic Safety Administration, the Emergency Medical Services for Children (EMSC) Product Catalogue, your state Highway Traffic Safety Office and health department, the American Academy of Pediatrics, SafetyBeltSafe USA, Shelness Productions, Shinn & Associates, and the National Safety Kids Campaign.

Working with the Media

The media is a powerful tool to use in raising public awareness about an injury problem. Many fire departments have frequent and direct contact with the media but if you have not done so, this should become part of your role as a child injury prevention advocate.

Despite the gulf many people see between themselves and the press, reporters are ordinary people, too. They have a job to do and are on the lookout for interesting stories and sources of information. It will be up to you to get them to include prevention in their reporting. Keep your eye out for a few sympathetic reporters on the local television, radio, or newspaper staff and give them a call. Introduce yourself and tell briefly what information you can provide. You will soon discover who is truly interested. Many reporters have struggled with safety seats themselves as parents or grandparents.

Clear, simple explanations and graphics are usually understood best

Excellent materials exist

Media need your knowledge and insight

*Accuracy in
the news*

Take the time to educate them about the issue of protecting children in crashes, not just about an event. You want them to report in a manner that will also raise the public's awareness about **the solution to the injury problem**. Help them realize that they must check with you or other experts regarding technical information they intend to publish (whether photos, graphics, or text) as it is easy to make inadvertent errors.

*Become a resource
for reporters*

Maintain an ongoing relationship with your key reporters. Call them with stories and send news releases. You can help the reporters by being expert sources of information. Above all realize that reporters are always under pressure to meet their media deadlines. You must respond immediately when they call or you will lose the opportunity. Think ahead about who in your group will respond to media inquiries and to whom they will refer reporters for expert advice.

News releases

Publicizing Events

Prior to a major event that is open to the public, write and mail a news release to the various media in your area. This might be an announcement of the first of a series of safety seat inspection days. (See last page of this section for a sample release.) The release does not have to be long or elaborate. It must simply state "who, what, when, where, and why." Make sure the event will have "photo opportunities," like kids and parents trying different seats.

Some media may run an announcement that the event will take place; others may want to come to the event and report on it. Both types of coverage are excellent. They bring the message that child passenger safety is important to a wider audience than your event will reach directly.

*Public service
announcements*

Newspapers and television are the most popular and widespread public means of communication. You may want to consider preparing public service announcements (PSAs) for television or radio as well as encouraging newspaper articles or TV reports. Radio stations want written scripts in 10, 15 or 30 second "bites."

Television channels will air PSAs for free but usually at low-viewer times. TV PSAs are also very expensive to make unless you can get the filming and acting donated, perhaps by a community college film and drama department or the TV station itself. Some PSAs are available nationally and can be tagged with the local station's logo.

*Local newsletters
look for good
information*

Newsletters can also be very influential. They go to a smaller but more targeted group such as a company's employees, many of whom may have small children. A newsletter article can usually go into more depth than a newspaper article. Putting an article in an organization's newsletter is an easy, effective and cost-free way to get your message out. If you draw from articles that have already been published, such as in the newsletter, *Safe*

Ride News, be sure to ask permission from the editor and give credit to the author and the original newsletter.

News Reports of Crashes

Crashes can be big news events. Encourage your media to report the use or non-use of a safety belt or using a child safety seat. A reporter who knows your program and what it is attempting to accomplish will pick out the most helpful facts and use stories to your gain. Give the reporter the names of contact people in the program and their telephone numbers. The reporter may want to use them for expert opinion.

Victim Stories, Success Stories

The media often jumps at a victim story. A victim story, an interview or article with an injured child or the parents, humanizes the injury problem and gives your program a “real” dimension. It is particularly effective in small local newspapers where readers may know the injured child. Some families may be eager to give the reporter an interview as it allows them to tell others how to avoid the injury. This type of reporting can be given a positive twist through stories of children who have been saved by use of restraints.

When a Child is killed in a Restraint

Many children walk away from very severe collisions in which other passengers are killed. Unfortunately, sometimes the child is injured or killed, despite the use of a child safety seat or safety belt. In Indiana, for example, in the past 10 years, 206 children under 5 were killed. Of those, 164 were unrestrained and 42 were buckled up at the time.

Children using restraints are more likely to be injured than killed. When used correctly, child restraints are most effective at preventing death (71%), and somewhat less effective at preventing injuries (50% to 67%). (By comparison, safety belts are considered between 40% to 45% effective in preventing death.) Some children are injured in serious crashes that would have killed them had they been unrestrained.

Various other factors come into play, over which you may have no control or knowledge. It is not uncommon to see children riding unrestrained in a car with a child safety seat. The parent or driver may insist that the child was buckled up (despite evidence to the contrary) out of feelings of guilt or to avoid liability under the child restraint law. The rescue crew on the scene may have accurate information about restraint

*Reporting
restraint use*

*Victims and
successes*

*The hardest
tragedy to
explain or accept*

*Child restraints
cannot prevent
all deaths*

Other factors

Why a Fatality May Occur When a Child is Buckled Up

- The crash was clearly unsurvivable, such as a tractor-trailer truck hitting a sub-compact car.
- The crash was a side-impact, in which the vehicle and restraint systems provide very little protection from intrusion.
- The restraint was misused in significant ways. Misuse is commonly found when safety seats are inspected, even when parents are trying hard to use them correctly.
- The restraint did not function as intended. Defects that could contribute to serious injury have been found in a few models.
- The child actually was not using the restraint at the time of the crash.

use. On the other hand, the child may have been removed from the child restraint before the crew arrives. You need to stay away from guessing what happened.

This can be very touchy to handle in the media, and reporters may not understand the technical ramifications. As an advocate, you will be anxious to avoid publicity that may make people doubt the benefits of restraint use. However, no restraint system is perfect, either.

What to Say?

The best way to approach this situation would be to remind the public that, **while child restraints are not perfect and cannot prevent injury or death in every possible situation, they do save significant numbers of children.** (Parents are not perfect either, although you wouldn't say that.) Again, you may find that some parents are willing help save other children's lives by talking about the mistakes they made. Others will

Some parents may want to help others avoid tragedy

too devastated to get involved or may automatically “blame the product,” which may or may not have contributed to the injury.

Note: if the product may have malfunctioned, a report to the NHTSA Hotline [1-800-424-9393] of a possible defect is in order. If a part like a locking clip or a shoulder belt adjuster may be involved, be sure to report it.

Fortunately, most of the news stories will be success stories, where the safety seat can be praised for saving the child and everyone will learn a positive lesson.

Keeping People Involved

Coalition members and people volunteering their time to work on child passenger safety need to feel their efforts are appreciated and their skills useful in accomplishing the goal, in order to stay interested and involved. Some ways to enhance each person’s contributions are:

- Matching jobs with interests and varying the tasks
- Making sure everyone has a voice in how the project runs
- Providing feedback on how the project is going and its successes
- Being sure people receive recognition for their help
- Planning some short-term activities that have an immediate pay-off
- Start with a project that is assured of success and not too difficult to accomplish

It does not take a lot of time and effort to work with people rather than direct them or “do it all yourself.” However, an open style of partnership will be rewarded with enthusiasm and involvement.

On the brighter side

Appreciate every contribution

Working together pays off

Sample News Release

News Release from the _____ Fire Department

For Immediate Release
_____ (date)

Contact: Chief John Prevention
Telephone: _____

Local Fire Department Holds Child Passenger Safety Seat Inspection

An inspection for child car seats, a vital life-saver for young children, will take place on Saturday, April 22nd, 1996. The _____ (your) Fire Department is sponsoring the event. It will take place in the parking lot next to the Fantasy Escapes movie theatre from 9:00 am to 4:00 pm. Families should bring their vehicle and the seat their child uses. The seat and its installation will be checked for safety by trained firefighters from the _____ (your) Fire Department and nurses from the _____ County Hospital.

Child safety seat use is important to prevent deaths and injuries from car crashes. However, many seats are defective or not installed in a vehicle correctly and may be useless in a collision. At the inspection, seats will be evaluated for defects, recall listings, suitability for the age and size of each child, and fit with the safety belt systems in each vehicle. Families will be given a completed checklist and educational materials about the importance of using child safety seats. Parents are encouraged to bring their children so everyone can learn about the safe way to ride in a car, truck, or van.

Andy The Talking Ambulance from the _____ Fire Department will be on hand to entertain and teach kids about emergencies and when to dial 911. Andy will also try to sit in a car seat and tell children the importance of car seats and seat belts.

The Fantasy Escapes Theatre will donate free admission to every tenth car that pulls in to its parking lot between nine and four o'clock to have the child passenger restraints inspected.

SECTION D

STRATEGIES FOR EFFECTIVE PROGRAMS

This section puts together all we have discussed and gives each participant a chance to begin thinking about building a program for child passenger safety. Setting down a goal, and building a strategy using the 3-E's of education/community outreach, engineering/equipment and enforcement/advocacy is a simple form a possible project plan.

Remember: using aspects of all of the three strategies will increase the effectiveness of any effort you undertake. Below are some examples of specific objectives within each strategy, along with possible methods or activities to accomplish them. This can help you get ideas for implementing your strategies.

Take some time now to brainstorm in groups about how to apply what you have learned to your own community.

First, write a suitable goal here:

Now review that following pages and list possible strategies leading toward that goal, through:

Education/awareness

Engineering/equipment

Enforcement/Advocacy

Overview

Brainstorm ideas as a group

EXAMPLES

Education/Awareness Strategies

This strategy could be directed at a number of target groups. The objectives depend upon who is to be educated. You might choose to do only one of these objectives.

*Targeting parents
and caregivers*

Objective 1: Make parents and care providers aware of the need for child restraint use

- **Develop or obtain informational literature** that lists specific safety seat brands and gives directions for correct use.
- **Distribute information to parents** via schools, physician's offices, clinics, toy stores, etc.
- **Develop a speaker's bureau** to appear before parent groups.
- **Write and distribute articles to newsletters** read by parents.
- **Work with local agencies/groups** to conduct their own project such as activities done by a local day care center which educates both the parents and the children.

*Involving health
care providers*

Objective 2: Make health care providers aware of the issue

- **Influence medical education**, including EMS training, by demanding more information and training on injury prevention and specific solutions such as safety seats.
- **Speak to groups** of health professionals about the importance of safety seat use and how they can influence their patients' behavior.
- **Educate the public and professionals** regarding the need for particular restraints designed for children with special health needs such as premature infants who are too small for a regular seat, children in hip casts, children with such problems as cerebral palsy who cannot support themselves in a regular seat, and those using a wheelchair.
- **Raise the awareness of rescue or EMS services** in your area about the need for correct use of child restraints in emergency transport vehicles.
- **Be a technical resource** for up-to-date information and local efforts.

Objective 3: Raise awareness in the mass media

- Be a source of information the media can turn to.
- Keep the issue before the public with articles, photographs, notices of upcoming events, safety tips.
- Be a resource for those in the community who may be looking for or preparing educational materials, such as schools, policy makers, and community groups.
- Set up a speaker's bureau to appear before community groups.

Objective 4: Raise the general public's awareness in your local community

- Stage local events during National Child Passenger Safety Awareness Week in February.
- Highlight child passenger safety in local events, such as health fairs, community days, county fairs.
- Provide safety seats as prizes at local events.
- Provide educational speakers for community groups.
- Encourage/assist local groups to take on projects that promote safety restraint use.
- Use local media to tell success stories.

Engineering/Equipment

This strategy points out the need for safety seats to be available to all children, and the importance of their correct use. Here are four objectives that can be translated into measurable action statements.

Objective 1: Reduce cost as a barrier to acquiring a child safety seat

- Make sure local stores carry a variety of child safety seats.
- Encourage stores to lower prices of seats through coupons and special sales weeks.
- Work with local businesses to subsidize safety seats. For instance, Midas Muffler & Brake Shops nationwide are conducting "Project Safe Baby" through which their shops sell seats at wholesale cost and reward families that return the used seats.
- Develop a loan program set up through a fire station, police station, hospital, or health department; alternatively, increase the number of loan seats available through existing programs.

*Targeting
the media*

*Reaching the
general public*

*Access to safety
seats for all*

Safety seats for all types of vehicles, including rescue units

- **Extend a loan program to include selected restraints** for children with special health needs.
- **Raise funds for safety seats for low-income families** and set up a distribution method. Health departments are good outlets as they know which families qualify for medical assistance. Families should be encouraged to pay a small fee, \$5 to \$15, for the seat, if possible. This enhances respect for the seat and its use. It also contributes to the fund for buying more seats.

Objective 2: Assure access to equipment (safety seats) in all vehicles

- **Encourage local rescue units** to have child safety restraints available for use in rescue vehicles. The use of child safety seats in ambulances is advised if the child's injuries do not require the child to lie flat.
- **Provide special restraint systems**, or information and support for obtaining or ordering them.
- **Advocate for high safety standards for day care, school, and youth transportation.** This includes the use of restraint systems in vans and other vehicles transporting groups of children.
- **Work with the taxi industry** in your area to have child safety seats available for cabs on a request basis;
- **Set up a local loan program for visitors** — the fire station is an excellent location for this.

Assure safety of seats and correct use

Objective 3: Increase the use of safe seats and correct installation

- **Work with loan programs** and any groups or businesses selling used seats to ensure the seats have not been used in a crash and that recalls have been taken care of.
- **Sponsor a bounty program** to encourage the turn-in of unsafe seats. Seats may be faulty from having been in a crash, they may be a recalled model, or they may be too old (made before 1981). Incentives must be available to pay for each seat turned in. (Five dollars per seat was used as an incentive for one program.) A disposal method (usually crushing) for the seats must be worked out and storage space may be required until the seats are destroyed.
- **Hold a child safety seat inspection day.** This could be held regularly such as one Saturday a month at the fire station, or it could be an annual or semi-annual event. More planning, publicity, volunteer help, and space are required for the larger-scale annual inspection. However, it can be a good project to educate and mobilize a lot of community people and attract media attention. It can be an enjoyable

and educational event centered around the technical activity of checking seats. Volunteer checkers must be carefully trained beforehand to do the inspections accurately and efficiently. See the **Resource Kit** for sources of how to set up and train people for an inspection.

- **Provide feedback to manufacturers and the NHTSA** regarding any possible defects found in inspections of child restraints. Not all new seats are tested for compliance with the Federal Motor Vehicle Safety Standard 213. If you spot a safety seat or belt system that appears to be defective, report it to:

NHTSA, Office of Vehicle Safety Compliance or
Office of Defects Investigation
400 Seventh St, SW
Washington, DC 20590 • 1-800-424-9393

Another organization involved with product design and testing is:

Child Passenger Protection Research Program
224 UMTRI
2901 Baxter Rd
Ann Arbor, MI 48109.

Objective 4: Provide training and equipment for training needs

- **Provide two levels of training:** 1) community education regarding types of safety seats available and installation for the individual vehicle owner; and 2) technical training for those wishing to perform safety seat checks for others.
- **Make sample seats and equipment available** for each level of training and education. These are invaluable for class demonstrations and to provide hands-on practice.

*Equipment for
community
education and
training*

Enforcement/Advocacy

This strategy includes projects to enhance the enforcement of child restraint laws. It supports but does not include the police's role as enforcers of restraint laws. The strategy also means advocating for increased enforcement and improved legislation regarding child passenger safety. Be sure to refer to the materials in your **Resource Kit** for more detailed descriptions.

Develop a positive relationship with local police

Objective 1: Work with law enforcement personnel to encourage child safety seat use

- **Conduct a “Thanks for Buckling Up” project** for parents and children. This positive enforcement program provides rewards (such as safety-oriented coloring books, videos, and puzzles) to children and recognition to parents.
- **Establish a “Please Be Seated” citizen reporting project.** In a number of states the public reports (by postcard or telephone) the license number of a vehicle in which a child who is seen riding unrestrained. The owner is then sent a polite and educational letter from the State Police or the Highway Safety Office about the need for child passenger protection, the state law, and a coupon to obtain a free or lower-cost safety seat.
- **Give talks to local schools, youth groups, parent organizations, and employee groups** to educate and train about the importance of the safety restraint laws.
- **Start a “Saved by The Safety Seat (or safety belt)” Club.** Families whose children have been in a vehicle collision but were saved by their restraint system fill out a questionnaire about their crash and receive a T-shirt and public recognition.
- **Serve as an instructor** for an offender class. This targets those who have been ticketed for violating the child restraint or safety belt law. All classes should include a child safety portion and checking of safety seats brought to class.

Objective 2: Advocate for the safety of seats and comprehensive usage laws

- **Work with national organizations** to encourage the development of effective standards for restraint systems.
- **Educate and work with your state legislators** to improve your state laws. Loopholes exist in many state laws, such as allowing children under four years of age to be restrained by lap belts. Older children are often not covered by seat belt laws that apply only to the front seat and permit only secondary enforcement by police.
- **Support EMS legislation** for additional training, funding and development of EMS programs to address child passenger safety and other injury prevention activity, as well as pediatric emergency medical services training.

Improve state laws, federal regulations

Your Personal Action Statement

The challenge is to work in your community, with your co-workers and others to develop a plan with the needs of children in mind. Take time now, while this information is fresh, to focus on how you could commit yourself to doing this, using the form on the next page.

In Conclusion

You, as Fire & Rescue personnel, can make a significant contribution to improving the use, and correct use, of child safety seats by our most vulnerable resource, our children. Children, and their parents and others who transport small children need local sources of accurate and up-to-date information on child passenger protection. You can make a difference!

Fill out Personal Statement individually or in small groups

PERSONAL ACTION STATEMENT

Determine five possible actions you can take to begin a child passenger safety program in your community.

Examples:

- One week: Begin identifying individuals in your organization who want to participate in the program.
- One month: Identify individuals in your community to make up the coalition that will be working with you on the program.
- Three months: Develop specific program activities for your department (i.e. public awareness campaign, loaner program, procedures for distributing seats by medical clinics, etc.)
- Six months: Attend additional training in advocacy and restraint use.
- One year: Have all phases of the initial program in place; evaluate results; modify existing program as needed.

Actions I will take to develop a child passenger safety program include:

One week: _____

One month: _____

Three months: _____

Six months: _____

One year: _____

Buckle Up Kids

Part II

Understanding Child Restraint Use

This section of the manual is the technical training package. It covers the use of child safety seats and other devices, or "restraints," including safety belts for older children.

The package includes:

1. Training Manual
2. Glossary
3. Child Safety Seat Practicals
4. Quiz
5. Manufacturer and Resource Lists
6. Appendices

More background information is found in the materials of the Resource Kit.

Preparation:

If you have the **Child Passenger Safety Resource Manual** in advance, please read Section II, pages 43-56 and 70-85 (or the entire section, if possible) before the training session. This book will become one of your most important references.

Get a head start!



Part II

Understanding Child Restraint Use

Goal

To create an awareness of the importance of technical assistance for families about restraint use for children and to enable trainees to provide basic assistance to families.

Outline

- How Safety Seats and Belts Work
- Using Child Restraints Correctly
- Compatibility: Using Safety Seats and Belts Correctly in Vehicles

Overview of Part II

Objectives

At the end of Part II, you will be able to

1. Describe four ways in which occupant restraints prevent or minimize injury.
2. Know the five types of restraints children may use and explain the appropriate size child for each.
3. Secure a child in a safety seat correctly and install a child restraint correctly in a vehicle.
4. Find the instructions for a particular model of safety seat.
5. Explain the four types of gross misuse and their consequences.
6. Know where to get information for parents about restraints for children with special needs.
7. Know the best ways to restrain a child in an emergency vehicle.
8. List three places to get further information.

Introduction

How can it take four or five hours to understand how child safety seats work? By the end of this session, you may wish you had more time! Some in-depth training programs on this topic run for two days. Child passenger safety is a highly technical subject, like many of the medical subjects you must master and use in your fire and rescue work. Your training will help you become a source of accurate information for your community.

The technical awareness that you will develop is essential to teach people correctly and give accurate advice. Correct advice is a key word; incorrect advice could be hazardous.

You will not know everything about child safety seats by the end of this course. It takes practice and continued learning to become a technical expert. You will, however, know enough to help convince people to use safety seats and belts for their children, and to use them correctly. You will know enough to recognize the limits of your own knowledge, to know when to say: "I don't know but I'll find out."

You'll learn where to find the information you need. The **Resource Kit** provides you with a number of good sources. There are also people in most states who have been trained in the last three years by technical experts from around the country. They can be a valuable resource.

This training can also be fun, as you try your hand at threading a harness or securing up a baby (or, more accurately, a baby doll) snugly inside its seat. Climbing around inside a vehicle to find a buried safety belt or move the vehicle seat back can have its moments of amusement! The hands-on part is perhaps the most important, so don't be afraid to get your hands dirty.

Materials

This course depends on the use of auxiliary materials for the technical background, particularly the **Appendices** at the end of this section and the **Child Passenger Safety Resource Manual (CPS Resource Manual)** contained in your Kit. This text puts that material into context and provides some more up to date information. It includes some information that supplements manufacturers' instructions, due to advances in knowledge and technology since many older child restraints were made. Use this section as a refresher.

The **Manufacturers' Instructions for Child Safety Seats** will be an important reference for you. A newsletter, *Safe Ride News*, is the main tool you will need to keep up-to-date. It is available for a modest subscription fee and is found in the Resource list.

If you plan to do **detailed** inspections of safety seats, you will need further training. More specialized programs may be available to you through your state highway safety office.

*Technical training:
essential —
and fun!*

*Risk of giving
incorrect advice*

*Knowing limits of
your expertise*

Essential resources

Further training

Focus on both child safety seats and safety belts

While we are focusing primarily on child safety seats (more technically called “child restraints”) that are designed for children under age 6-8, we will also discuss safety belt use for children. These topics go hand in hand, especially because many children small enough to benefit from child restraints are nonetheless riding in belts. Also, parents need accurate information on the transition from child restraints to belts.

Furthermore, injury prevention is a family issue. Proper use of safety belts by older members helps assure the safety of all, particularly because a significant proportion of injuries (about 20% in one study) are inflicted by one passenger being hurled into another. Even more important is ensuring the safety of parents as well as children. No one wants to arrive at a crash scene to find parents killed or seriously injured, leaving a child survivor in a safety seat. Yet some adults seem to take risks themselves despite buckling up their children.

Fire & Rescue Applications

This training will have the added benefit of making you more aware of the types of occupant injuries to look for in your work, and how they may relate to restraint use or misuse. For example, safety belts or airbags, if used incorrectly, may contribute to internal or spinal injuries that may not be immediately apparent to rescue personnel.

There are issues for Fire & Rescue and EMS practice related to occupant restraint use in rescue vehicles. One in ten ambulances is involved in a crash each year. We cannot deal with all the issues related to use of restraints in emergency vehicles, however, special restraints for children designed for emergency use are now available.

Restraint use a family concern

Training helps you relate restraints and injuries

Fire & Rescue, EMS must confront occupant injury issues in ambulances

SECTION A

● HOW SAFETY RESTRAINTS WORK

Any person inside a moving vehicle will continue moving with the speed of the vehicle toward the point of impact, until stopped by another object. That object may be the windshield, pavement, another occupant, or a relatively forgiving air bag, safety belt, or harness and shield of a child safety seat.

Estimate the force of the body during the crash by multiplying the weight of the body by the speed before the crash.

Example: 20 lb baby x 30 mph = 600 lbs of force!

Once the body has made contact, the shorter the stopping distance, the more injury will be done. The windshield or dashboard has very little “give,” permitting only a fraction of an inch of space to stop the body. The difference in speed is also critical. By the time the body hits the windshield, the windshield and the vehicle have slowed down considerably or stopped, while the person is still moving with the speed of the vehicle before the crash.

● A safety belt or child safety seat harness allows the body to slow down gradually, because:

1. The body contacts the restraint immediately and slows down with the restraint system.
2. The safety belt or child restraint is attached firmly to the frame of the vehicle, so it slows down as the vehicle crumples and stops, allowing the person to “ride-down” the crash.

Three collisions occur in succession:

1. **Vehicle collision** – into tree, bridge, retaining wall, other vehicle.
2. **Human collision** – Occupant hits the vehicle interior, often causing injury. If person is restrained, injury is much less likely. However, if restraint system is not located on strong hip and shoulder bones, internal injuries can occur.
3. **Internal collision** – in severe impacts, organs within the body can be torn or bruised from moving within the body and colliding with skeletal structures (closed head injury, for example).

CPS Resource Manual, Section II, chapters 1-2, pp 43-51

Sudden Impact,
pp 1-10

*“Riding down”
the crash*

*Three collisions in
a severe crash*

*Different crashes,
different risks*

*See CPS Resource
Manual*

*IIHS Video
"Children &
Infants in Car
Crashes: Re-
strained and
Unrestrained"*

*Answers on
next page*

Types of Crashes

- **Frontal crash:** the most common and often the most severe type, causing more than half of the fatalities and serious injuries. Safety seats are designed to protect primarily against the forces of this type of crash.
- **Rear-end collision:** vehicles are usually moving in the same direction or one is stopped, therefore this type is usually less severe than a frontal crash.
- **Lateral impact:** can be particularly severe due to crushing of the passenger compartment by the impacting vehicle. This eliminates both time and space for stopping within the car for passenger on impacted side, even if the occupant is restrained. This may be unsurvivable for the occupant closest to the point of impact but survivable for others in the vehicle.
- **Roll-over:** common cause of ejection of unrestrained passengers.

What happens to passengers in a crash?

The video, "Children and Infants in Car Crashes," shows graphically, but without blood and gore, the movement of dummies during 25 and 30 mph simulated crashes. It shows how an object moves toward the point of impact. The first and second collisions are clear, along with the consequences for infants and children riding unrestrained in the front seat and the cargo area of a van and station wagon. The many objects within the vehicle that can be hit are clear.

The video also shows how a baby riding on an adult's lap would serve as a cushion for the larger person. Even if the adult were restrained, research has shown that a strong person could not restrain a baby within his or her grasp during a crash.

Test Yourself:

1. If the 3-year-old in the video weighed 30 lbs, how can you estimate much force would be generated in a 25 mph crash?
2. If the mother holding the baby weighed 130 lbs, with how much force would she impact the baby in the 25 mph crash?
3. In what direction would a person be thrown if his moving vehicle is struck at a right angle by another vehicle impacting the door next to him?

Answers:

1. Multiply the person's weight by the speed of the vehicle to get an indication of the force the person would have when he hits the dashboard. In this case, the force would be 750 lbs.
2. 3250 lb. or 1.5 tons.
3. Forward and toward the door. If the impact is from the side, the bodies will appear to move at an angle. It combines the direction and speed at which they were moving before impact with the direction and speed of the striking vehicle.

How Restraints Prevent Injury

Principles of effective occupant restraint

1. Spread forces over wide area of the body
2. Restrain body at strongest points
3. Allow body to slow down gradually
4. Protect head and spinal cord

*Spread forces,
slow body
down gradually*

Child Restraints Proven Effective

Effectiveness has been estimated for child restraints — when correctly used — at 71% for prevention of death, 67% for prevention of hospitalization and 50% for prevention of minor injury.

*Child safety seats
are extremely
effective when
used correctly*

Because of the severity and frequency of frontal crashes, child safety seats (child restraints or car seats) are designed to protect primarily in this type of crash. The federal standard governing restraints for children under 50 lbs (FMVSS 213) includes a dynamic (simulated crash) test with an instrumented dummy at 30 mph.

FMVSS 213 applies to child safety seats made since January 1, 1981. Considerable changes were made from earlier standard; seats made before this date are not considered safe at this time. Some changes have been made since 1981, but the core requirements of the standard remain unchanged.

*See CPS Resource
Manual, Chapter
II-2, pages 52-56*

*Segment of Buckle
Up Kids video*

*Applying principles
Answers on
next page*

Assessment of crash scene for clues to restraint usage

Video discusses what to look for in the vehicle to help Fire & Rescue and EMS personnel assess restraint use and potential injuries.

There are special things to look for regarding children, such as:

- Was the child found in the seat belt or safety seat? Was the belt or harness adjusted snugly on the occupant?
- Was the safety belt tight around the safety seat? Is it compatible with child restraints? Were any special devices used to keep the belt tight? Was the restraint in position or displaced when found?
- What seating position was the child in? Was there intrusion into the vehicle or an airbag present.

Implications will become clear during the rest of this session.

Questions/Discussion

1. What are the three collisions that occur? Which ones do restraints prevent?
2. What is the most common, most severe direction of impact?
3. How does a safety seat provide restraint?

Answers:

- 1. Restraints prevent second collision into vehicle interior; limit force of third collision by slowing body down gradually.*
- 2. The frontal crash is the most common and severe, because the vehicle is usually moving faster than in other types. The severity is greatest between two cars colliding head-on or one car hitting a solid mass like a bridge abutment.*
- 3. A rear-facing infant's back and head is restrained against wide back of safety seat, spreading forces across the body and protecting the head and spinal cord. Harness is secondary, keeping baby down in the restraint and containing baby during rebound.*

A forward-facing toddler restrained at both shoulders and hips:

- Shoulder straps, hip straps, and shields spread forces across strong bones (shield does not protect child from intruding objects)*
- Crotch strap holds hip straps down on hips; if straps or belts ride up onto the abdomen, internal injuries can result.*
- A 5-point harness is sufficient for crash restraint; a shield takes place of hip straps, restraining the lower body.*

SECTION B

THE RIGHT RESTRAINT FOR EVERY CHILD

*There is no one
"best seat" for
all children
and vehicles*

*See CPS Resource
Manual, II-3,
pp 57-67*

*Safety seats must
be used correctly
to be effective*

*Variety of safety
seats and vehicles
compounds usage
problems*

The most common question you will get is "what is the best car seat." The short answer is "the best or safest seat is the one that fits the child properly, that fits in the vehicle properly, and the one the parents or other users will be able to use correctly on every ride."

As an advocate, it is best to avoid naming a specific product unless there is something uniquely useful about that item. You can tell people that newer products generally have been designed to be easier to use correctly than older ones. Used safety seats require special attention to make sure all their parts and instructions are included and that they have not been used in a crash.

Choice of the "best seat" is complicated by which features are most convenient to use, what restraints the family has access to, their resources to purchase a safety seat, and what restraints are available in the area for purchase or on loan.

All safety seats for children under 50 lbs must meet a federal motor vehicle safety standard, FMVSS 213, that is quite rigorous. Aside from a very occasional product that slips through the cracks and is found to not comply with the standard (such as a model sold in California a few years ago that had been imported from Taiwan) the safety seats on the market are well made and manufacturers make every effort to comply with the standard. Yet defects do come up, and many are spotted first by users or advocates.

Your training will help you notice any product in use that may not be operating correctly or may appear to have some other problem. Report product problems to NHTSA at the Auto Safety Hotline (1-800-424-9393); ask for the Child Safety Seat Questionnaire.

Child restraints are very effective in preventing death and injury — when used and used correctly. The catch is the words "used and used correctly." Getting people to use safety seats is one part of the problem. Here we will be talking about helping them to use them correctly.

The usage problem we face has many facets. One major cause is the wide variety of safety seats, vehicles, and safety belts available today. The number of possible combinations boggles the mind. Many of those combinations don't work very well together. Parents become confused or try to find their own shortcuts to make restraints work.

In this section we will look at the choice of types of restraints for a child of a particular size and age, the correct use of major varieties of safety seats and safety belts, common examples of serious misuse or incompatibility.

Four Basic Types of Restraints for Children

1. Rear-facing only
2. Convertible
3. Toddler or forward-facing only
3. Booster
4. Safety belt

Infant-only restraints (*birth to 18-20 lbs*)

- Rear-facing only
- Long babies may outgrow this seat before they reach the upper weight limit specified by the manufacturer.
- Use only until baby's head reaches the top of the shell; then move to a convertible seat, used facing the rear.
- 5-point harness usually fits a small newborn baby better than a convertible with a shield.
- Exceptions: one model can be converted to a car bed for an infant who must lie flat. It is secured laterally on a bench seat.

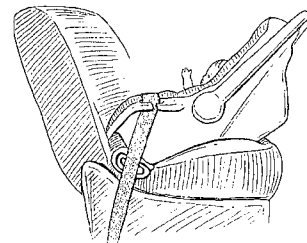
Convertible restraints (*birth to 40 lbs*)

- Rear-facing for babies under 20 lbs+ (most are rear-facing until 20 lbs; one model has a higher weight limit).
- Convert it for the forward-facing toddler position
 - turn the seat to face forward
 - move shoulder straps to higher (usually the top slots, following manufacturer's instructions)
 - put it in the upright position
- use until child's ears reach the top of the back or shoulders get too broad, at about 40 lbs

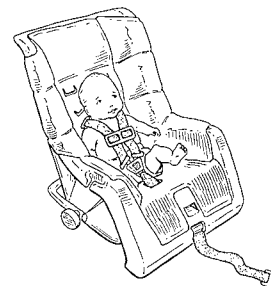
Toddler only restraints (*20-30 lbs to 40-45 lbs*)

- Upper-body and head protection of shoulder harness
- Forward-facing only
- Not recommended for under age 1 if child can be kept rear-facing, although instructions may suggest use at 20 lbs
- Some are combined with belt-positioning booster for the larger child

See "Infant and Child Restraints: Choosing the Appropriate Type" (next page)



Rear-facing seat

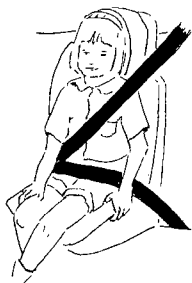


Rear-facing and forward-facing seat



Forward-facing only

**Booster seats
improve safety
belt fit**



**(above) Belt-
positioning booster
seat for lap/
shoulder belt fit**



**(above) Shield
booster seat for
lap belt fit**

**Built-in booster
seats are always
compatible**

Belt-positioning booster seats (30-35 lbs to 65-100 lbs)

- For the child who has outgrown a convertible or toddler-only seat (at about 35 to 40 lbs) used with lap/shoulder safety belt
- Improves belt fit, reducing potential for belt-induced injury
- Preferred to shield boosters, if lap/shoulder belts are available, because the shoulder belt provides better upper-body and head protection than the shield.
- Several belt-positioning boosters are marketed only for children over 50 lbs. A few have high backs, which may have some benefit in reducing potential whiplash injuries.
- Dual purpose boosters: these are belt-positioning boosters that have a removable shield, so they can be used with their shield when only a lap belt is available.

Shield booster (over 35-40 lbs, to a maximum of 60-65 lbs)

- For the child who has outgrown a convertible or toddler-only seat
- Used with lap belt only or lap/shoulder belt
- Provides better restraint than lap belt alone, does little to restrain upper body
- If shoulder belt is available, belt-positioning booster provides better protection for upper body than does the small shield
- Dual purpose boosters: several come with shields that can be removed for use with lap/shoulder belts

Built-in (integral) child seats, boosters (forward-facing only, for toddlers, older children)

- Some are for toddlers over 20 lbs
- Others are belt-positioning boosters (used with lap/shoulder belts) for children who have outgrown toddler or convertible seats
- They provide good protection because the restraint system is anchored directly to the vehicle. There is no additional slack due to a loose belt or possibility of error in securing the seat.

Infant and Child Restraints: Choosing the Appropriate Type

(shaded boxes are preferred selections)

						Lap belt — if fit is low and tight across thighs	
<i>Weights on specific products vary. Always follow manufacturer's instructions.</i>				(Shoulder belt adjuster — to aid fit <i>only</i> if no belt-positioning booster is available)			
<i>Use of safety belts varies with vehicle belt system and height of child.</i>				Lap/shoulder belt — if fit of shoulder belt is across chest,			
				Shield-booster — use only until lap belt fits			
				Belt-positioning booster with lap/shoulder belt — tall children may fit below 40 lbs			
			Toddler-only seat or vest — forward-facing only, weights vary				
Convertible safety seat — rear-facing to 20 lbs							
Infant-only seat rear-facing or car bed if necessary							

10 lb	20 lb	30 lb	40 lb	50 lb	60 lb	70 lb	80 lb
	Age 1		Age 4		Age 8		

Adapted from American Academy of Pediatrics, *Safe Ride News* – Updated 12/95

Lap and shoulder belts provide better head and upper-body protection

See CPS Resource Manual, pp 104-107

Lap Belts hold occupant in the vehicle

Restraints exist for most special needs

See CPS Resource Manual, Chapter II-9, pp 110-114

Special Securement hardware often needed

Lap/shoulder safety belts (over 50-70 lbs)

- For use when child is big enough for belts to fit properly — when child has outgrown conventional child restraints and boosters. (Shoulder belt on shoulder, not across the neck; lap belt against top of the thighs.)
- Preferable to lap-only belts if available because shoulder belt restrains the upper body and reduces the risk of the head striking the vehicle interior.
- If shoulder belt is too high (across face or throat) and/or the lap belt rides up onto the abdomen, the child should use a belt-positioning booster or a convertible or toddler safety seat.

Lap belts (over age 4: restraint of last resort)

- Must be adjusted to be very snug and as low as possible, on the top of the thighs. In **most** vehicles, it is hard to get a correct fit on many young children. Their legs are too short to hang over the edge of the vehicle seat, so they tend to slouch.

Children with Special Transportation Needs

Restraints for physically challenged children

In the past, children who did not fit into standard child restraints often had no satisfactory restraints available. Now there are few conditions for which protective restraints are not available — if parents know about them.

Some of the more common problems that require special solutions are:

1. Premature or low birth weight infants:
Infants who are born early or are very small at birth may have breathing problems that require them to lie flat in a car bed.
2. Small children in hip spica casts:
This type of cast spreads the legs out at a wide angle, so children do not fit into most safety seats. A restraint with very low sides is needed.
3. Larger children who have full body casts:
These children must lie flat, and can be restrained in a specially modified harness that also restrains the legs including the cast.
4. Children with poor trunk or head control, due to conditions such as cerebral palsy, may be able to use standard child restraints while they are under 40 lbs. When they outgrow these, there are some specialty models that have been designed and tested for crashworthiness.

Many of these devices require additional anchors, such as tether straps, to secure them to vehicles. Those for children under 50 lbs have been dynamically tested, but most are neither widely known nor widely available. Many for children over 50 lbs have been voluntarily tested but are not required to meet any motor vehicle standard.

It is important to be aware of these devices so you can inform parents who may be in need of help with their children's special needs.

Restraints in Emergency Vehicles

Emergency vehicles may be involved in collisions while carrying patients. Secure methods for transporting EMS personnel and patients in such vehicles is just beginning to be developed. In addition, well children may have to be transported with a sick or injured parent.

Research has shown that the typical anchor hardware that holds gurneys in place fails in a 30 mph crash test. Several child restraints have been tested while fastened onto gurneys, yet the gurneys or their anchors have failed. Isolettes tested at 30 mph also have failed.

When the patient's medical condition requires him or her to lie flat, transport on the gurney is unavoidable. If a small child's condition does not require use of the gurney, the best practice at this time is to use the child's own restraint, if available, on the captain's chair or on the right front passenger seat. Strapping it to the gurney is much less secure.

Some ambulance squads have access to special child restraints designed for emergency use, or have a captain's chair with an integral restraint to use if the child's own seat is not accessible. Such restraints should be tested and certified by their manufacturers according to FMVSS 213 before being purchased and used.

If a child is to be properly restrained on a rear-facing captain's chair, a convertible child restraint should be used, facing the rear of the vehicle, for either an infant or toddler.

You as a child passenger safety advocate can help your colleagues understand the need for special consideration for the child in the emergency vehicle.

*Passenger
protection an
issue for all
occupants in
emergency
vehicles*

*Video: Buckle Up
Kids, Child Safe
(Iowa)*

*Safe Ride News
articles, Winter
1994*

Appropriate Selection of Safety Products: The “Gray” Areas

The usual selection criteria refer to weight limits on the safety seats, set by the manufacturers. These are printed on the seat label. These apply to average size children, so there are many children who are either smaller or larger than the average at a certain age and developmental state.

Newborns in convertible safety seats

The “one-size fits all” approach has its drawbacks, despite the claim of most manufacturers that their convertible seats are usable from birth on. Some premature and low-birth-weight newborns are sent home from the hospital at 3.5-4 lbs. There is concern among pediatricians with experience caring that very small infants (under perhaps 7-12 lbs) do not fit well into convertible seats with shields. The shield is located too high for optimum fit and it holds the shoulder straps away from the body, so the harness cannot be made snug.

Many advocates advise that babies ride in a seat without a shield, if possible, for the first few months. This is one case in which a recommendation varies from manufacturers’ instructions, erring on the side of caution. If a family has purchased a convertible with a shield before the baby’s birth, encourage them to borrow an infant-only seat for the first few months.

Transitions are confusing

There is a tendency for parents to move children to the next type of restraint too early, risking injury due to less than optimal protection. The transitions from **rear-facing to forward-facing position** and from **convertible (or toddler) seat to booster or safety belt** are confusing especially because children come in such a wide range of sizes.

In most cases, all you can do is give parents the reasons for the correct advice and let them make up their own minds. In some cases there may be very few devices that can be used in certain ways, as in the case of the turn-around time (below).

Turn-around time

When should the baby be turned around from the highly protective rear-facing position to the forward-facing position? At one time, many safety seat instructions stated that the child could be turned around when he could sit well without support, or at 17 lbs. Now most instructions state a 20 lb turn-around weight. Parents tend to turn their babies around too soon, however.

Many advocates encourage parents to keep the baby rear-facing up to at least 20 lbs and age 1, if possible, in a *rear-facing restraint designed for bigger babies*. Cervical spinal cord injury has been found in babies under age 1 riding facing forward. This is because the baby’s head at this age is large

Convertible seats with shields do not fit newborns well

Provide facts so parents can make the decision

Spinal cord injury risk for babies facing forward

and heavy in proportion to the body, and the neck is relatively weak. If the child is riding forward-facing, the heavy head could snap forward on impact, possibly causing injury. Encourage parents to keep the baby rear-facing until the first birthday, if possible. If the baby outgrows an infant-only seat below 20 lbs, he or she should be moved to a convertible seat, used facing the rear.

Parents of babies who reach 20 lbs as early as 4-6 months, particularly, should be encouraged to carry their big babies rear-facing for a few more months at least, up to age 1 if possible.

Here is one situation in which you will have to recommend a specific product. The Sit'n'Stroll, the only restraint (at this time) that has been tested rear-facing up to 32 lbs, can work well for these big babies. Many do not mind their legs being folded in front of them, which does not cause any potential hazard. Other products with this feature may appear on the market in the future.

During 1996, standard 213 is expected to be changed to encourage — or require — new safety seats to be tested facing the rear for infants up to 22 lbs.

Transition from convertible or toddler seat to booster

The child should stay in a restraint with an upper-body harness for as long as possible. A harness with straps over both shoulders is best because it holds the upper body firmly in place. (This is what fighter pilots and race-car drivers wear.) However, when the child's ears get above the back of the child restraint the time has come to move into a booster seat.

Parents may want to move a toddler out of the convertible seat and into a booster or a safety belt when a new baby arrives. They may not realize the benefits to the older child of remaining in the convertible seat for as long as possible. They may be advised to get an infant-only seat for the new baby, or a toddler seat with full harness for the older child.

Choice of booster or safety belt

Although many parents do not think about using one, a booster seat is almost always needed before the child is large enough to fit the safety belt.

Most safety belts do not fit a 40 lb child well due to:

- Child's short height when seated, which causes the shoulder belt to cross the face or neck
- The child's short legs (which encourage slouching and allow the belt to move up on the abdomen)
- Variations in belt design that interfere with keeping the lap belt on the thighs rather than the abdomen.

A booster seat is a very useful transition between the convertible or toddler restraint and safety belts.

Keep baby facing the rear as long as possible

Shoulder straps provide head protection

See Belts, Boosters, and Kids, Safe Ride News (Appendix)

CPS Resource Manual, Chapter II-5 (p 93) and II-7 (pp 104-108)

Discourage second-hand seat use if the condition is questionable

Second-hand safety seats

Some second-hand seats may have no safety-related problems, especially if they are fairly new and have had only one user. However, any used seat may have multiple problems and should be checked before use.

Ask these questions:

- Has the seat been in use in a crash? (If so, it should not be used further, as it has done its job. Possible unseen damage may make it less effective in a future crash.)
- Does it have all its parts and its instruction booklet (instructions on the label are not adequate)?
- Does it meet the current standard (made since 1/1/81)?
- What is its general condition and structural integrity, based on inspection?
- Has it been subject to any recall? If so, has it been repaired?

Smash or crush unsafe seats

Destroying Unsafe Seats

Safety seats that do not meet the criteria above should be destroyed, not just thrown away. Too many seats are pulled out of the trash by unsuspecting individuals and reused.

Destroying a child restraint means taking it completely apart, smashing it, or crushing it. Just removing the harness or pad does not prevent others from attempting to use it.

Belt adjusters, pads, many other devices are not regulated in any way

Other Safety-Related Products

Shoulder Belt Adjusters

These devices are not child restraints. They are designed to help adjust the fit of shoulder belts to make them more comfortable for children and short adults. **None improve lap belt fit.**

These products should not be used if the child can fit into a safety seat or belt-positioning booster, which are designed to distribute crash forces to the hips and shoulders. If the lap belt is not snug and rides up onto the abdomen, serious injury could occur.

Several kinds of adjusters are available, such as:

- Adjustable shoulder belt anchor points built into the vehicle
- After-market devices — some are easier to use than others, a few have been dynamically tested, but no performance standards apply. Their use is controversial, because they may raise the lap belt onto the abdomen, and because they may encourage parents to stop using a toddler, convertible, or booster seat before the child has outgrown them. It is important to be wary of unknown products and safety claims.

Head-support pads to position a small baby

These are frequently used, but are not regulated for safety. Beware of:

- Those that place a thick foam pad behind the child's body, because they help create slack in the harness, which could lead to ejection.
- Those with no slots for the shoulder straps of the harness, because they prevent the harness from being positioned over the shoulders, also potentially leading to ejection.

Hands-on session with safety seats

Here is your opportunity to “play” with seats, see how they really work, try some models (older or newer) you may never have seen before, practice buckling harnesses and adjusting straps. You get a glimpse of what parents and other safety seat users work with every time they take their child for a ride.

Questions parents often ask — Can YOU answer them?

1. Which is the safest seat?
2. What kind of seat should I use for my baby who is 7-months old and has outgrown the infant safety seat?
3. Can I put my 3-year-old into a belt? Is a lap belt okay now?

*Appendix:
CU report*

*No regulations for
these products*

*Test yourself or
role-play*

*Answers on
next page*

Answers

1. *The one that fits the child properly, fits in the vehicle properly, and is easy enough to be used, and used correctly, on every ride. Also, a new or recently made safety seat is likely to have features that make it easier to use correctly, compared in older models.*
2.
 - *Ask how much the baby weighs. If under 20 lbs, tell the parent to use a convertible safety seat, facing rearward, until the baby reaches 20 lbs. Explain that the baby's head is still very large and her neck is not yet strong enough to withstand the stress if a crash occurs in the forward-facing position. It is advisable to keep the baby facing rearward until the first birthday.*
 - *If over 20 lbs, explain the value of keeping the baby facing rearward to age 1. You will have to say that only one convertible seat (Sit'n'Stroll) is available to hold a rear-facing child up to 32 lbs.*
3. *Your child is safest in a convertible or toddler safety seat up to 40 lbs, and after that, in a booster seat. At his age, he is unlikely to be able to sit on the vehicle seat with the lap belt properly positioned. A booster seat is preferable to a lap belt alone until his legs are long enough to hang over the seat so he can sit without slouching. If a lap/shoulder belt is available, it provides much better protection than a lap belt, especially with a belt-positioning booster seat.*

SECTION C

SAFETY SEAT USE AND MISUSE

Safety Seats do Save Lives

In one state, Virginia, in a 6 year period ('87-'93), 69 children under the age of 4 were killed in motor vehicle crashes. All but 12 (57) were not riding in safety seats or were in misused seats. If all of these children had been correctly buckled up, 41 of them might not have died.

Too often, misuse is the culprit. One 3-month-old baby died in Indiana after a crash on a snowy road. She was breathing normally 15 minutes after the crash and appeared to have superficial head wounds. Yet she died on the way to the hospital from internal bleeding due to a severely cut liver. She had been riding in a safety seat.

Her mother, who survived the crash, described the way she had put her baby in the safety seat. She had faced the seat forward, put the shoulder straps under her arms, fastened them together with the retainer clip, and bundled her in a blanket so thick that the harness could not be buckled. The injury was apparently caused by the impact of the baby's abdomen against the harness straps.

This mother had tried, but had not understood why her baby's safety seat was intended to be used in a certain way. You can help parents do better by understanding what is correct and WHY.

Using a Safety Seat Correctly

To talk with parents and others about safety seats, you will need to know the names of major parts and their functions:

- Harness (5-point, 3-point), Shoulder strap slots
- Shield (T-shield, tray-shield)
- Harness retainer clip
- Shell, pad and cover
- Metal frame (some plastic seats do not have this)
- Belt route or path (2 or more for convertibles)
- Harness adjuster slide or mechanism
- Buckle and latchplate(s)
- Tether (many pre-'85 models, some new convertible models, also forward-facing Canadian restraints)
- Labels, instruction booklet and storage location

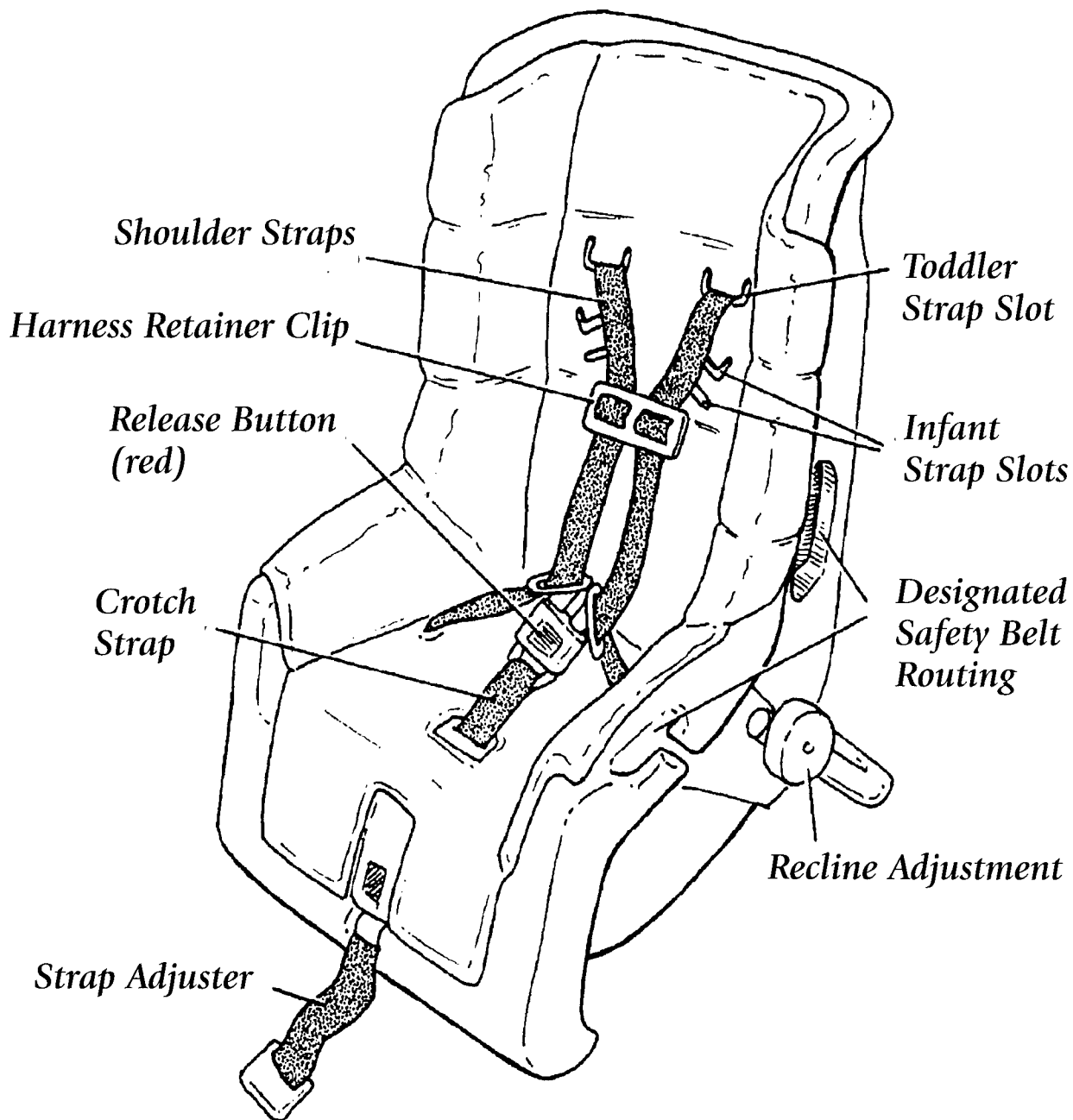
*Misuse can kill
See Part I, A*

*The importance of
knowing "why"*

**CPS Resource
Manual:
Chapter, II-6**

See next page

Parts of a Typical Convertible Safety Seat



Importance of Manufacturers' Instructions

Warning: No one can know everything about all the child restraints that are in use. Well over 100 models have been made since 1981. While there are general guidelines for use of various types of seats, each model has its own quirks and special features. Always refer to the instructions from the manufacturer when advising a user.

We always have to depend on the manufacturers' instructions to guide us. If you are in doubt, suggest that the safety seat user call the manufacturer's consumer relations office for advice. Another source of answers to the very tough or confusing questions is the SBS USA Help-Line (800/745-SAFE).

Use the Manufacturers' Instructions Notebook

The importance of having this reference is that none of us can know everything about every seat. While you may know approximately how they will work, there are quirks and odd things about many products. Therefore, to give accurate advice on specific products, you must refer to the instructions.

Misuse and its Consequences

Misuse is a problem among child restraint users of all social and economic groups. Even well-educated, concerned parents often do not use their children's restraints correctly. There are various degrees of misuse. When inspected, very few child restraints are found to be used completely correctly.

Gross misuse, which makes the restraint virtually useless, includes:

- not buckling child into restraint
- not anchoring restraint to the vehicle
- infant rear-facing with passenger-side air bag
- infant (under 20 lbs) riding facing forward

All but the first are errors related to use of the restraint in the vehicle. They will be discussed further in the next section. First we will explore the various serious errors that can occur in **choice** of restraint or **misuse** of the elements of the device itself.

Serious misuse includes:

- wrong size/type of restraint for child
- loose harness
- harness straps not back-threaded through adjuster slides
- shoulder straps in wrong slots
- loose safety belt
- wrong belt path used
- recalled seat not repaired
- restraint used on a side-facing seat

Instruction Manual for all safety seats back to 1981 is an invaluable resource

See Chart A, Misuse of Child Restraints, on the next page

These kinds of misuse can lead to serious injury, especially if combined

Misuse of Child Restraints: Problems and Consequences

(Copy and keep for review and reference)

1. Rear-facing restraint (under 20 lb to 25 lb — 1 year)

	Type of Misuse	Consequence of Misuse
Choice	• Use of household infant seat	Not designed for crash protection
	• Use of infant-only restraint in forward-facing position	Not designed for use in this position
Securing the baby	• Harness not used	High possibility of ejection and injury
	• Harness not snug	Increases possibility of partial or full ejection, risk of injury due to impact against harness
	• Convertible restraint with shield used for small newborn baby	Shield may prohibit harness from fitting close to a tiny baby's body; shield is located too high, close to baby's face, neck, or chest
	• Harness straps not over shoulders	Increases possibility of partial or full ejection
	• Harness retainer clip (if required) on the restraint) not used or not at armpit level	If too high, could cut off breathing if baby's head falls forward. If too low, does not hold harness straps on shoulders, could increase potential for ejection or injury to internal organs
	• Harness straps in slots above the shoulder level (instead of lowest slots) unless manufacturer recommends	In collision, baby will tend to slide up toward top of child restraint which could expose the head to impact with vehicle interior
	• Harness straps not doubled back through adjustor slides	Webbing may pull out of slide during impact, loosening harness
	• Cushioning added under baby's torso	Compression in crash may make harness loose, contribute to ejection or injury from impact against harness
Installation	• Bundling child in blankets under harness	Prevents harness from being snugly adjusted and positioned over baby's shoulders, may compress and loosen harness in crash
	• Restraint not anchored	High likelihood of injury from hitting interior of vehicle or from ejection
	• Restraint faced forward	Excessive stress on baby's neck leading to spinal cord injury. Shoulders too flexible to hold shoulder straps, potential for ejection through harness
	• Restraint reclined lower than 45°	Baby's head could strike vehicle interior
	• Vehicle belt incorrectly routed	Restraint may fail or allow excessive head excursion
	• Vehicle belt not tight or anchored below, rather than behind the vehicle seat	Restraint may move toward the point of impact before being anchored to the vehicle, increasing potential for head to strike vehicle interior or another passenger

2. Forward-facing conversion or toddler restraint (1+ yrs or 20 lbs to 40 lbs)

	Type of Misuse	Consequence of Misuse
Securing the toddler	• Harness not used, or not snug	May allow excessive head motion, so upper body and head may contact vehicle interior; or ejection
	• Harness retainer clip (if required) not used or not at armpit level	May allow excessive head motion, so upper body and head may contact vehicle interior
	• Harness not over shoulders	May allow excessive head motion, so upper body and head may contact vehicle interior; May allow partial or complete ejection
	• Crotch strap too long	Allows hip straps or shield to ride up onto child's abdomen or chest, potentially contributing to internal injuries
	• Harness in other than highest shoulder slots (in many models)	Lower harness slots not reinforced in most models; may break plastic shell under force and allow partial ejection; upper body and head may impact interior of vehicle
	• Harness straps not doubled back through adjustor slides	Webbing may pull out of slide during impact, loosening harness
	• Semi-reclined position used	May allow child's body to "submarine" (slide down and out feet first), potentially contributing to internal injuries (upright is better)
Installation	• Restraint not anchored with belt; tether not used where required	High likelihood of injury from contact with interior of vehicle or from ejection
	• Vehicle belt does not stay tight or is anchored forward of the seat crack, rather than behind and below the vehicle seat	Restraint may move toward the point of impact before being anchored to the vehicle, increasing potential for head to strike vehicle interior or another passenger
	• Vehicle belt incorrectly routed	Restraint may fail or allow excessive head motion

3. Booster Seat (over 30 lbs to 40 lbs)

Belt-positioning boosters	• Used with lap belt only	Likelihood of child's head striking interior of vehicle
	• Used by child too short, so shoulder belt crosses face or neck	Potential spinal cord injury
Shield or dual-mode booster	• Used without shield with lap belt only	Likelihood of child's head striking interior of vehicle
All types	• Booster without back used on low-back seat, so child's head rises above vehicle seat back	Possibility of additional risk of whiplash type neck injury

4. Safety Belts

Lap belt	• Lap belt rides up on abdomen, due to belt design or child's slouching	Potential internal and spinal cord injuries
Shoulder Belt	• Shoulder belt across face or front of throat	Potential spinal cord injury

Prepared by Deborah Davis Stewart. 4/94

Use NHTSA "Child Passenger Safety Tips" fact sheets (in Appendix) to explain misuse to parents

An up-to-date recall list is essential tool

Filing defect reports is important

Concern for so many aspects of misuse may seem excessive, but even one error can be fatal. In a recent crash, a 2-year-old riding facing forward was killed in the rear seat of a small car. She had head and abdominal injuries. The shoulder straps were in lower slots of the convertible restraint instead of the upper slots, which is correct for the forward-facing position. The force of her body on the straps broke the plastic shell around the slots, allowing the child's upper body to be thrown forward excessively.

Furthermore, the accumulation of several apparently "minor" errors can compound the problems and have much more serious consequences.

Defects & Recalls

Some problems with child restraints are discovered during government compliance testing for FMVSS 213, others through tests done by manufacturers, some through complaints from users. Recalls are done by manufacturers to correct safety-related defects. Some are for problems that are very serious, such as buckles malfunctioning. Others for relatively minor things, such as foam padding that a child can reach, tear off, and ingest.

An up-to-date recall list is an essential tool for people working with safety seat users. One is not reprinted in this manual because it changes frequently. Call the Auto Safety Hotline (800/424-9393) or one of the groups, such as SafetyBeltSafe USA, which provides condensed, user-friendly lists. (See Resources, Appendix C.)

It is important for you, or anyone working with child restraints, to report problems that show up during use. Some defects only become apparent after considerable use. A defects report form (Child Safety Seat Questionnaire) to be mailed to NHTSA should be distributed to anyone who perceives a problem. You also can report such potential problems to NHTSA through the Auto Safety Hotline (800/424-9393). The agency reviews these reports and takes action whenever a pattern of problems surfaces.

Hands-on session with safety seats

Look at labeling, move harness straps, adjust harness, find instructions for older models in Instruction Manual, check recall lists. This is one of the best ways to train yourself or refresh your knowledge.

As you work, remember that you need to know the limits of your own expertise. Learn not to guess. If you don't know, refer to the training materials.

Review questions:

1. Which way does a baby (under 1 year, 20 lbs) face in the car and why?
2. Why should a rear-facing baby not be reclined more than 45° ?
3. How do you double back the webbing and why?
4. What function does a shield serve and when is it not appropriate?
5. Is a booster seat appropriate for a 2-year-old, 32 lb child?
Why or why not?

*Use demonstration
checklists, at end
of section*

Test yourself!

Answers:

1. A baby under 20 lbs and 1 year of age faces the rear, so the force of the crash is spread over her back.
2. If a rear-facing seat is reclined too far, the baby may not be contained within the back of the shell. It is normal for rear-facing seats to recline further during impact, so a deeply reclined seat could become horizontal under crash forces. The baby could be forced out head first toward the dashboard. A baby's shoulders are not strong enough to hold the full force of the harness straps.
3. Under stress of a crash, webbing could be pulled out through the metal slide unless the end is doubled back through the slide. It can also loosen during normal use.
4. The shield helps spread crash forces over a broad area of the child's lower body, taking the place of hip straps. Shields are not recommended by the American Academy of Pediatrics for premature or very small, new babies: the shield is too high and holds the harness straps away from the infant's body.
5. Most children of this size can still fit into a convertible or toddler safety seat until close to 40 lbs. Generally, the child restraint with a full harness or harness/shield provides better protection. He should not be moved into a small shield booster until the other, full sized seat is outgrown, because the booster provides no upper body restraint. If you have lap/shoulder belts in the rear seat and have good reason to stop using the full restraint, you may move him into a belt-positioning booster, which provides upper body restraint.

SECTION D

SAFETY SEATS AND VEHICLE COMPATIBILITY

“Compatibility” between child restraints and vehicles is a major issue. After this course you will probably never look at safety belts or air bags in the same way again. Those simple devices that most people take for granted can cause headaches for users of child restraints.

A recent tragedy highlights the problem that safety belts can cause. A youngster was riding in the right front seat of a 1991 vehicle with an automatic shoulder belt because other children filled the rear seat. Her safety seat was buckled in with the lap belt, which had a switchable retractor to hold the restraint tightly. In a rainstorm the car hydroplaned and hit an oncoming pickup truck. Her head hit the dashboard and she suffered fatal head injuries.

What happened? It appears that the safety seat slid forward upon impact because the lap belt was anchored quite far forward of the seat bight or crack on the inboard side. The vehicle owner’s manual contained the suggestion that parents obtain a free supplemental belt buckle to use with child restraints, one that could be installed far enough back so the safety belt would hold the safety seat in place. The parents had realized that the seat belt needed to be tight but had missed the information about the supplemental belt. When they called their dealer later, the parts department knew nothing of this special belt.

Safety belts and automatic restraints have been evolving over the years; many varieties are found in the vehicles on the road. Some types developed to improve comfort or safety for adults and older children have been found to be less beneficial to children in child safety seats.

Vehicle Owner’s Manual: Another Tool

In recent model years, more and more vehicle manufacturers have included detailed information about the safety belts and air bags in particular models and their compatibility with child restraints. Be sure to look here — and encourage child safety seat users to do so too.

The Safest Place for Children in the Vehicle

A very common question is “where is the safest place for a child to ride in a vehicle?” The center of the second seat of a passenger car is generally the safest, being farthest from the point of impact from any direction. In many vehicles, that seat will also have a type of safety belt that usually works well with most restraints. However, some vehicles have no belts in the rear, or have a hump in the cushion so the safety seat cannot rest securely in that position.

*See Manual,
Chapter II-4,
pp 70-86*

*A tragedy of
incompatibility*

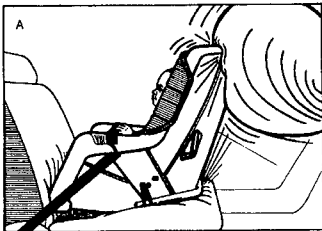
*Video:
“Child Restraints
and Automobiles:
At Times an
Uneasy Union,”
excellent resource
for this section*

*Don’t forget the
vehicle owner’s
manual*

*The safest place—
the center rear*

*Children in front:
a bigger issue
with passenger
air bags*

*Warning labels
have not been
effective*



*Impact of air bag
would seriously
injure or kill an
infant.*

Many people want to carry their infants and children in the front seat, so the driver can watch them and interact with them. Generally speaking, the rear-facing position is the safest way for a person of any age to ride. It is so secure, in fact, that parents have been told that the front right seat is acceptable for rear-facing infants. This brings up the first compatibility issue: what happens with a passenger-side air bag?

Air bags: Hazardous for Infants

Air bags have been accepted rapidly by consumers. During the next few years, more and more vehicles will be purchased with optional or standard passenger air bags. By 1999, they will be standard for drivers and front seat passengers in all new passenger vehicles, including pickup trucks and vans. This is beneficial for most passengers, who are seated facing forward and ride buckled up.

The presence of passenger air bags is critical, however, for infants who are riding secured in rear-facing safety seats in the front seat. By the fall of 1995, at least two infants had been killed by air bag impacts when riding in rear-facing safety seats. This happened despite the presence of warning labels on the infant restraints and on the vehicle visor. Several older children who were riding unrestrained also were killed, apparently because they had slid forward before the air bag opened.

Impact by the Air Bag can be Fatal to an Occupant Close to Dashboard

The air bag is propelled out of its housing in the dashboard at tremendous speed in order to fill completely and cushion the "adult" passenger moving toward it. The leading edge of the rear-facing child restraint is close to the dashboard. The force of the air bag impacts the back of the safety seat, giving the baby's head within the restraint a very severe impact and causing life-threatening injuries. (The same result would occur to an older child who is unbelted or leaning against the dashboard.)

The air bag deploys with the same force (almost 200 mph) whether the crash that triggers it occurs at 15 or 40 mph. Impacts at 15 mph are much more common than those at high speed, so the likelihood of infants being struck is considerable.

Put Infant in Rear Seat

Research is underway to find a solution. In the meantime, the only answer is to put the rear-facing infant (under 20 lbs) in the rear seat, still facing the rear. The important point is to **make sure that people keep their babies facing the rear, wherever they are placed.**

One problem without a good answer is how to carry infants in passenger air bag-equipped vehicles which have only a front seat, such as sports cars and pickup trucks. At present (10/94), the best advice a child passenger safety advocate can give is for families who have — or expect to have — young infants to use other vehicles whenever possible and be aware of the hazard when purchasing any new vehicles. One 1996-model small truck has an air bag shut-off switch for use when an infant must be carried in the vehicle. Future technology may provide an automatic sensor to shut off the air bag or make infant restraints air bag-resistant.

Children over 20 lbs or age 1, who can ride facing forward in a safety restraint are best protected in the rear seat. If, however, they must ride in the front seat, it is important to push the vehicle seat back as far as possible from the dashboard.

A massive education campaign has begun in late 1995, yet many parents still believe that the front seat is fine for their infant. Many child restraint instructions (those written before passenger air bags were installed in vehicles) state that the parent should always be able to observe the young child in the vehicle. In reality, the potential injury from the air bag is almost certain to be more devastating than anything else that could occur to the infant while riding in the car.

Anchoring Restraints Securely

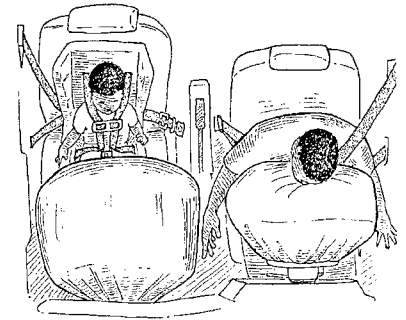
Child restraints are designed to be anchored to the vehicle with a very tight lap belt or lap-part of a lap/shoulder belt. To achieve this can be very difficult, as some types of belt systems do not stay snug during normal driving.

We do not have good evidence as to how often loose safety belts contribute to injury. It seems obvious, however, that the more slack in the belt, the farther forward the restraint could move in a crash and the greater the likelihood that the child's head will contact the interior.

Safety belts that do not stay tight around child restraints in normal driving will lock in a crash. However, for the most part, they lock with slack in the system. In the case of the child restraint, it could be knocked over or out of position during braking or in other maneuvers before the belts lock.

Parents should be shown how to press the child restraint into the seat cushion when tightening the belt (right). Most have no idea that this is necessary. If the belt holds the restraint firmly in place, there is no incompatibility. The problem arises when the belt system either does not tighten, or when it works loose through the safety belt latchplate.

Pickups and sports cars with air bags

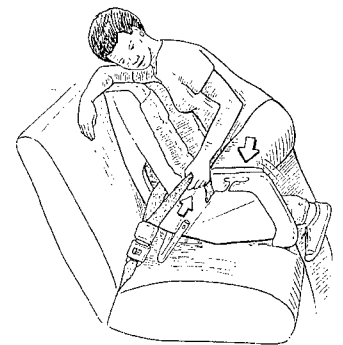


Forward facing child must ride with vehicle seat pushed back.

Public education materials must warn about air bags and children.

CPS Resource Manual, II-5, pp 87-98

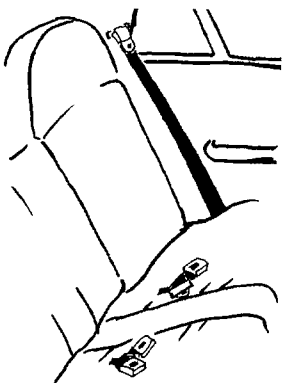
Use NHTSA Safety Tip flyer #6



Push safety seat into cushion

See CPS Resource Manual, Chapter II-4, pp 75-82

See article, "Uneasy Union," from Safe Ride News



Many forward-anchored belts do not hold safety seat in place.

Belts: Definitions & Relation to Safety Seat Use

Types of manual belt systems and automatic belt systems include:

- Lap belt
- Lap/shoulder belt (single piece of webbing or two pieces)
- Automatic 3-point (lap/shoulder) belt
- Automatic shoulder belt (manual lap belt)
- Supplemental belts (specially installed for child restraint compatibility in certain vehicles)

Retractors play a role in whether the belt stays snug during normal driving or only locks in an impact:

- Automatic locking retractors (ALR)
- Emergency locking retractors (ELR)
- Switchable (dual mode) retractors have features of both ALR and ELR (may or may not be labeled — see vehicle manual); most common in newer vehicles.

Latchplates help determine whether the lap part of the belt can be tightened and kept tight around the restraint:

- Locking latchplate: usually compatible
- Sliding latchplate: incompatible unless locking clip is used
- Sewn latchplate: often incompatible, unless it has a switchable retractor or a belt-shortening clip is used (see heavy duty locking clip, below)

Anchor locations also influence how far the child restraint could travel forward in the crash, even if the belt is tight. The lap belt anchors may be forward of the seat bight (where the seat and back cushions meet). This anchor location makes safety belts fit older passengers better, but child restraints less well. Some belts have both anchor points placed forward. Others are "asymmetrical," with one side of the belt anchored much farther forward than another.

Forward-anchored belts (FAB) are unable to hold the child restraint back against the force of a frontal crash. In the case described on page II-27, the front seat lap belt was tight in the Mercury Cougar, but it was asymmetrical. The seat, and the child in it, moved forward enough to allow the child's head to strike the dashboard. Investigations are underway concerning how far forward the belt anchor must be located for the child to be at high risk of injury.

Some vehicles with anchor locations that are very far forward and therefore completely unsuitable for holding child restraints can be modified. Mercury offered a free buckle that could be used to restrain a child's safety seat in the Cougar. Many other vehicles have forward anchored belts, yet offer no alternatives to safety seat users.

Correct use of belts with safety seats

The lap belt or lap-portion of a lap/shoulder belt must be tight around a child restraint to provide effective "restraint." Yet this is difficult to achieve, and in some vehicles may seem to be impossible. The compatibility chart provides a guide.

Locking Clips often needed to keep belt tight

- Heavy Duty Locking Clips (HDLC) – used to shorten the lap belt: some are 3" long, others are smaller and very harder to distinguish from regular locking clips; available from Ford, Toyota, Nissan (Kolcraft and Evenflo only child restraint companies currently supplying a HDLC). **Never use a locking clip as a belt shortener unless you are certain it is heavy duty.**
- Regular Locking Clips (RLC) – used to lock a sliding latchplate: supplied with child restraints (except Kolcraft, which is heavy duty), lighter-weight metal and slightly smaller (2¹/₂")

The HDCL is strong enough to be used as a belt shortener or to lock the sliding latchplate. **However, the regular clip should never be used as a belt shortener**, as it cannot take the stress of being used as a belt shortener. Regular locking clips have failed in dynamic tests when used as belt shorteners.

Tether straps add stability

Additional anchor straps (tethers) present on many older seats (before 1985) add stability and reduce head motion (excursion). They may be useful for forward-facing safety seats if there is no way to lock the belt systems (such as cases where the belt is anchored far forward of the seat bight).

One auto maker, Ford, recommends child restraints with tethers for use in all its vehicles, and requires tethers in some vehicles' seating positions. The problem with this recommendation is that only two US child restraint manufacturers, Evenflo and Gerry, now (as of 12/95) market tethers as an option. Experience in the 1970–80s showed that most parents did not install tethers for seats requiring them.

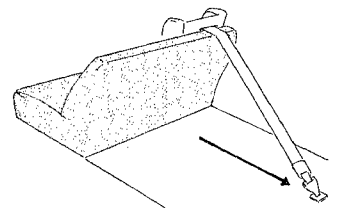
Tethers are widely used in Canada, because their child restraint requirements are stricter than in the US. Therefore, new vehicles made for sale there have anchor holes provided in which tether hardware can be attached. Many recent-model cars sold in the US also have them, due to the Canadian market.

Many restraints for children with special needs require additional anchors, such as tether straps, to secure them to vehicles.

*See next page,
"Vehicle/Child
Passenger Com-
patibility Issues"*

*See NHTSA Safety
Tips flyer #6*

*See Look-Alike
Locking Clips,
Safe Ride News,
Winter, 1991*



*Tether adds
stability*

*See Ford Instruc-
tions article,
Safe Ride News,
Summer 1993*

Vehicle/Child Passenger Compatibility Issues

(Copy and keep for review and reference)

Vehicle
Feature

Equipment

Considerations

1. Air bag for passenger seat

<ul style="list-style-type: none"> • Rear-facing child restraint in front seat 	Severe impact by air bag causes head/brain injury – very hazardous
<ul style="list-style-type: none"> • Forward-facing child restraint in front seat 	Seat pushed to rear-most position, benefit same as older passenger using safety belt

2. Child restraints and vehicle belts

Manual Adjustment	<ul style="list-style-type: none"> • Manually-adjusted lap belts 	Usually compatible, except may loosen when positioned at edge of seat frame
Retractors	<ul style="list-style-type: none"> • Automatic Locking Retractor (ALR) lap belts 	Compatible
	<ul style="list-style-type: none"> • Emergency locking retractor (ELR) lap belts 	Incompatible, except with heavy duty locking clip used as belt shortener — unless switchable retractor
	<ul style="list-style-type: none"> • ELR lap/shoulder belts 	
	Single retractor & sliding latchplate	Incompatible, except with locking clip used to lock latchplate — unless switchable retractor (see below)
	Single retractor & locking latchplate	Compatible (becoming more common)
	Two retractors & webbing stitched to latchplate	Incompatible, except with heavy duty locking clip used as belt shortener — unless switchable retractor
	<ul style="list-style-type: none"> • Switchable ELR-ALR retractor 	Use as ALR for child restraint — see belt label, vehicle manual
Automatic Restraints	<ul style="list-style-type: none"> • Automatic (passive) shoulder belt, separate ELR lap belt 	
	Dual-mode (switchable retractor) lap belt	Compatible if understood & used; most vehicle owners not aware that they have it
	Pull out left to switch	More common
	Push bottom to switch	Less common
	<ul style="list-style-type: none"> • Automatic (passive) lap/shoulder belt 	Very hard to use with child restraint
	Optional separate belt available to secure child restraint	Compatible, depends on parental action to order and install
Other Belt Issues	<ul style="list-style-type: none"> • Forward-anchored belts (FAB) 	Incompatible in many cases; a few vehicles with front seat FAB offer optional belt to secure safety seat
	Tether — recommended by Ford	Tether models not easily available (Evenflo, Gerry offer as an option); tether only for forward-facing child restraint
	<ul style="list-style-type: none"> • Buckle mounted on stiff stalk 	May prevent lap belt from being tightened around child restraint
	<ul style="list-style-type: none"> • Buckle too large 	Will not fit through belt path; uncommon but does occur with certain models of belts and restraints
	<ul style="list-style-type: none"> • Belt length too short 	Uncommon, except shoulder belt may not fit around back of rear-facing infant restraint for enhanced stability

3. Child restraint fit in vehicle

Cushion	• Slope of seat cushion	Steep slope tilts rear-facing restraint too high for new baby — must wedge padding under lower edge to level the base
	• Contour of cushion — humps and cavities	Base of child restraint may not fit with deep cavities or the hump in center rear seat
Space in Vehicle	• Narrow space between belt anchor points, especially in center front or rear seat	Belt cannot securely anchor restraint as anchors are too close together; it may be impossible to reach buckle behind safety seat
	• Limited space fore and aft	Limits possible seating locations for rear-facing convertible child restraints

4. Larger child and vehicle belt fit

Shoulder Belt	• Too high, cuts across neck	May lead user to put the belt behind the back or under their arm, both of which can increase injury potential
	• Shoulder belt height adjusters; built-in, or	Beneficial within limited height range; such products should not be used in child fits in convertible or booster seat;
	add-on products	No standards for add-ons; concern that they may raise lap belt onto abdomen or otherwise fail in crash
	• Retrofitted shoulder belts — various auto companies have different types	Some require manual adjustment, may not be adjusted properly
Lap Belt	• Buckle mounted on stiff stalk	Positions lap belt high on abdomen, hazardous, booster seat needed
Cushion	• Deep seat cushion (front to back)	Causes slouching, belt ride-up on children due to short legs, booster seat needed
	• Contour may bring belt attachment points high over child's abdomen	Belt rides up on abdomen, may not contact child's thighs at all

5. Larger child and seat-back height; using booster or belt

Seat Back Height	• Seat-back very low in station wagons and vans	Whiplash injury potential (not documented) — must be compared with documented cases of serious abdominal and/or spinal injury due to poor lap belt fit if child is placed down on seat cushion rather than up on booster.
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Prepared by Deborah Davis Stewart, 4/94; updated 12/95

Seat contours and types of belt mounts often cannot be corrected

Potential for whiplash injury to children unclear

See Belts, Boosters, and Kids, Safe Ride News, Spring 1994

Teach correct belt use also — a major problem for school-age children

Other Vehicle-Related Issues

Several other aspects of vehicles interfere with the use of child restraints or with belt fit. These include:

- Deeply contoured vehicle seats into which the bases of many child restraints do not fit. These seats often have belt buckles mounted so high that they do not fasten tightly around many restraints. These high-mounted belts also tend to ride up on the child's abdomen if the child is using the belt alone.
- Safety belts with buckles mounted on high stems. These offer the same problems as those described above.
- Interior compartments that have so little space fore and aft that a rear-facing convertible seat does not fit at a proper angle of recline between rear and front seats or between the front seat and the dashboard. (An infant-only seat will usually fit in these circumstances.)

Seat back height: An unclear issue for parents

No evidence has been collected showing that children whose heads are above the top of the vehicle seat back sustain whiplash type neck injuries in rear crashes. It seems likely that these injuries occur but have not been studied, possibly because they are seldom life-threatening.

The issue seems very real to parents who read in booster seat instructions that they should not use a booster seat if the child's ears are above the vehicle seat back. They may need help understanding the trade-offs. Potentially, whiplash injury could result if the tall child sits up on a booster, yet there is a well-documented risk of more serious lap belt-related internal injuries if the child is seated in a lap belt without a booster.

Let parents know that there are several booster seats on the market that have a high back, including the Century Breverra, Gerry BeltRight, the Volvo Child Cushion, and the Kangaroo. These are belt-positioning boosters and can only be used with lap/shoulder belts.* Unfortunately, many of the vans, station wagons, and hatchbacks used by parents (and others who transport children such as day care operators) have only lap belts in rear seats.

** Certain forward-facing seats combine harness for toddlers for use with lap belt, and can be used as a belt-positioning booster for older children.*

Misuse of Safety Belts

1. Lap belt up on abdomen
2. Lap belt loose
3. Shoulder belt loose
4. Shoulder belt behind back
5. Shoulder belt under the arm
6. Shoulder belt used without a lap belt

Hands-on in vehicles: Practice installing restraints in vehicles

Return Demonstrations

Problems to be demonstrated for the group include:

1. Infant-only Safety Seat Parts and Use
2. Convertible Safety Seat Parts and Use
3. Dual-Purpose Booster Seat Installation
4. Used Safety Seat Parts and Use
5. Infant-only Safety Seat Installation
6. Convertible Safety Seat Installation (toddler position)
7. Vehicle Safety Belt Identification
8. Safety Belt Use and Misuse
9. Safety Seat Misuse and Consequences

Review questions

1. Why do most convertible restraints have more than one belt path?
2. Name the two kinds of retractors and three kinds of latchplates. Which ones work well with child restraints?
3. Which part of the lap/shoulder belt must be tight to hold a child restraint securely?
4. What is the most common use for a locking clip, which kind of clip is needed, and where does a parent find this type?
5. How would you explain the hazard of air bags to a parent of a 3-month-old?
6. What roles do users, children, and equipment play in misuse?
7. What is the best way to restrain a child who is not seriously injured in an emergency vehicle?

Wrap up

Imagine arriving at the scene of a serious car crash and finding all the occupants safe! That would be a great return for the time and energy you have put into this training. Now you are armed with the tools to help this happen, so your community will be safer and your job will be even more rewarding.

Applying what you've learned; see drills and Demonstration Checklists at end of section

Test Yourself!

Answers on next page

Answers

1.
 - a. Most have separate places to put the safety belt for the two positions: rear-facing and forward-facing.
 - b. A few have two places for either forward- or rear-facing use, in order to provide better fit with some belt systems.
2.
 - a. Retractors: Automatic Locking (ALR), Emergency Locking (ELR), Switchable (Dual Mode)
 - b. Latchplates: Sliding, Locking, Sewn-on
3. The lap portion must be tight to hold the restraint down and back against the vehicle seat cushion. If the shoulder belt is also tight, it can increase stability of the restraint, but in most belt systems the shoulder portion cannot be made to stay tight during normal driving.
4. The most common use for a locking clip is for lap/shoulder belt systems that have an emergency locking retractor and a sliding latchplate. The regular metal clip locks the belt in place at the latchplate. This kind of locking clip comes with all new child safety seats today and can also be purchased from the safety seat manufacturers. It should only be used for this purpose.
5. If the infant is riding facing the rear in the FRONT seat of a vehicle with a passenger air bag, the impact of the airbag against the front of the safety seat would be strong enough to break the infant's skull and create brain damage. This could happen in a low-speed collision that would not harm a correctly restrained infant. Be sure your infant rides in back, facing the rear. The rear-facing position protects your baby's neck and spine from injury.
6. Users may fail to read or understand the instructions or may take shortcuts rather than following the instructions. Children may learn how to undo buckles or wriggle out of shoulder straps. Equipment often is complicated to use correctly and its instructions may be hard to understand.
7. Use a child restraint carried on board or use the child's own child safety seat. Secure the child in the right front passenger seat or the rear-facing "captain seat."

Buckle Up Kids

Appendices

A. Resources for Child Passenger Safety Information

B. Principle Manufacturers of Child Restraints

C. Glossary

D. Six Training Practicals for Child Passenger Safety

E. Program materials

Articles reprinted from *Safe Ride News*

Model Loan Program, Nebraska Cares

F. Technical materials

Child Safety Seat Questionnaire, NHTSA

Articles reprinted from *Safe Ride News*

"Add-ons make safety belts more comfortable," *Consumer Reports*

Parent handouts from *Safe Ride News*



APPENDIX A

RESOURCES FOR CHILD PASSENGER SAFETY INFORMATION – 1995

American Academy of Pediatrics
Publications Department
PO Box 927
Elk Grove Village, IL 60009-0927
847/228-5005; 800/433-9016

*Pamphlets on safety seat use and restraint choice
("Family Shopping Guide for Car Seats"
updated annually)*

Automotive Safety for Children Program
Riley Hospital for Children
534 N Clinical Dr, Room 118
Indianapolis, IN 46202-5109

*Children with special transportation needs;
Ambulance transport safety; Studies; flyers*

Center for Injury Prevention
c/o Elaine Kizewski & Company
(address below)

*BuckleBear preschool educational materials
and programs;
Related injury prevention materials and programs*

**Child Passenger Safety Electronic
Bulletin Board**
Elaine Kizewski & Company
1007 Ellis St
Stevens Point, WI 54481-2935
715/344-7583

*New on-line service for child passenger
safety information: call in to the service at
202/785-2546; \$100 per year*

Highway Safety Research Center
University of North Carolina
CB #3430
Chapel Hill, NC 27599
919/962-2202

Pamphlets; studies; Program manuals

Insurance Institute for Highway Safety
Communications Dept
1005 N Glebe Rd
Arlington, VA 22201
703/247-1500

*Newsletter: "Status Report" (free); injury &
vehicle safety studies;
Video: "Children and Infants in Car Crashes:
Restrained and Unrestrained" available
for \$25*

Mary Greeley Medical Center
Mobile Intensive Care Services
(attn: Paul Hudson)
117 – 11th St
Ames, IA 50010
515/239-2109

National EMSC Resource Alliance
REI/Harbor/UCLA Medical Center
1124 W Carson St, Building N-7
Torrance, CA 90502
310/328-0720

**National Highway Traffic Safety
Administration (NHTSA)**
Office of Occupant Protection, NTS-13
400 Seventh St SW
Washington, DC 20590
202/366-0910

NHTSA Auto Safety Hotline
(to report defects, get recall list)
800/424-9393
(Hotline from DC area: 202/366-0123)

National Safe Kids Campaign
111 Michigan Ave, NW
Washington, DC 20010
202/884-4993

SafetyBeltSafe USA (SBS USA)
PO Box 553
Altadena, CA 91003
310/673-2666
SBS USA National Help-Line:
800/745-SAFE (for advocates and users)
Spanish-language Help-Line:
800/747-SANO

*Video on safe transportation of children in
emergency vehicles, available for \$10*

*EMSC Product Catalogue (listing of materials,
including childhood injury prevention, developed
under the Emergency Medical Services for
Children program)*

*Pamphlets, technical reports; program manuals,
Manufacturers' Instruction Manual (1981-90)*

*Recall lists; motor vehicle standards
Basic information; Child Safety Seat Questionnaire
(for reporting defects)*

Local, state coalitions; media campaigns; brochures

*Pamphlet in numerous languages;
Flyers on correct use of safety seats
(English, Spanish);
Training courses and materials;
Supplement (Update 1991-94) to Manufacturers'
Instructions Notebook;
Condensed, up-to-date recall list*

Safe Ride News Publications

117 E Louisa Street, Box 290
Seattle, WA 98102

Shelness Productions

PO Box 326
New Milford, CT 06776
203/355-0323

Shinn & Associates

2154 Commons Parkway
Okemos, MI 48864
517/349-5575; 800/955-8870

Technical Newsletter: Safe Ride News

(quarterly, \$25 per year)

*Materials for consumer education regarding
child traffic safety*

Pamphlet: "Don't Risk Your Child's Life";

*Videos for consumers and training: "Don't Risk Your
Child's Life" and "Buckle Up and Do It Right."*

*Video for training: "Child Restraints and
Automobiles: At Times an Uneasy Union."*

Safety education materials



APPENDIX B

PRINCIPLE CHILD RESTRAINT MANUFACTURERS – 12/95

Century Products 216/468-2000
9600 Valley View Rd 800/837-4044
Macedonia, OH 44056

Cosco 812/372-0141
2525 State Street 800/544-1108
Columbus, IN 47201

Early Development Co 704/643-8400
1635 Park South Drive
Suite 420
Charlotte, NC 28210

Evenflo 513/773-3971
1801 Commerce Dr 800/233-5921
Piqua, OH 45356

E-Z-On Products* 800/323-6598
500 Commerce Way West
Jupiter, FL 33458

Fisher-Price 716/687-3000
636 Girard Ave 800/433-5437
East Aurora, NY 14052

Gerry Baby Products 303/457-0926
1500 E 128th Ave 800/362-3200
Denver, CO 80241

Kolcraft Enterprises 312/247-4494
3455 West 31st Place 800/453-7673
Chicago, IL 60623

Little Cargo 314/621-8580
100 N Broadway, #2000 800/933-8580
St Louis, MO 63102

Safeline Children's Products 303/455-8335
5335 W 48th Ave 800/398-5017
Suite 300
Denver, CO 80212

Snug Seat* 704/847-0772
PO Box 1141
Matthews, NC 28106

** Special Needs Restraints — list does not include all makers of special restraints*

Heavy Duty Locking Clips:
from Ford, Toyota, Mazda, Nissan dealers

Ambulance Transport Child Restraints:

(See *Safe Ride News* article, Winter 1994, in Appendix)

Carrie Life Seat: Preston 517/787-1600
or 800/631-7277
Pedi-Pal: Ferno 800/73-FERNO
Hi-Bac Safety Seat: 219/262-4675
Dygert Seating



APPENDIX C

GLOSSARY: WORDS ABOUT CHILD SAFETY SEAT USE

3-point harness

A harness on a child restraint with three attachment points, two at the shoulder and one between the legs.

3-point safety belt

A safety belt with both a lap and a shoulder portion, having three attachment points.

5-point harness

A harness on a child restraint with five attachment points, two at the shoulder, two at the hips, one between the legs.

Air bag

A bag that deploys during a crash to act as a cushion for the occupant.

Armrest

A U-shaped bar encircling the child on older models of child restraints; not connected to the shoulder straps and not part of the system intended to restrain the child. Not a shield.

Automatic locking retractor (ALR)

A retractor on a safety belt that locks after being pulled out, so it maintains a fixed length during use.

Automatic restraints

Restraint that require no action by the user; belts or air bags.

Belt anchor points

The points at which the safety belt is anchored to the vehicle structure.

Belt path or route

The place where the safety belt is wrapped around or through the child restraint. There is usually only one correct path when a restraint is used in the forward or rear-facing position.

Belt-positioning booster seat

A platform that raises the child up so the lap and shoulder belts will fit better; some have high backs as well.

Shield-booster seat

A platform that raises the child up, with a small convex shield that fits across the lap to restrain the child.

Car seat

Common term for a device that holds a child in a motor vehicle.

Child restraint

A device that is specially designed for crash protection for a child, usually under 50 lbs; a general term for all sorts of devices including those that are vests or car beds rather than seats.

Child safety seat

Another term for child restraint.

Children with special needs

Children whose physical or behavioral condition makes the use of particular, often specially-designed, restraints necessary.

Compliance tests

Tests done by NHTSA to assure that manufacturers are meeting the federal standards (in this case, FMVSS 213).

Convertible restraint

A child restraint that can be used in more than one mode; usually rear-facing for infants and forward-facing for toddlers.

Emergency locking retractor (ELR)

A retractor on a safety belt that locks only in a crash, due to pressure applied to the belt or the sudden change in motion of the vehicle or both.

Excursion

The amount of motion by occupant or test dummy in the direction of impact during a crash.

FAA approval

Certification that the child restraint meets the compliance test (within FMVSS 213) that is required for use on aircraft.

FMVSS 213

Federal Motor Vehicle Safety Standard that pertains to all seating systems for children under 50 pounds that are intended for use in vehicles.

Frontal collision/impact

Impact of the front end of the vehicle, the most common and usually the most severe type of collision. Impact with an oncoming vehicle or into a fixed object like a tree generates high forces.

Gross misuse

The most flagrant errors, those that completely negate the intended effect of the child restraint.

Harness retainer clip

A plastic (sometimes cloth) item that holds the two shoulder straps close together over the child's chest at armpit level; intended to keep the straps in position on the shoulders.

Head excursion

The distance forward that the occupant's head travels during an impact; an element of the federal motor vehicle safety standard 213.

Heavy duty locking clip (HDLC)

A flat, H-shaped metal item, intended for shortening a lap belt with an emergency locking retractor so it will secure a child restraint. Can also be used to prevent webbing from sliding through a sliding latchplate.

Incompatibility

The ways in which motor vehicle seats, safety belts, and other elements impede the correct use of child restraints, and visa versa.

Infant-only restraint

A restraint designed for use only by a baby (usually weighing less than 17-20 lbs) in a rear-facing position.

Integral (integrated) child seat

A child-sized restraint or booster built into a vehicle seat. Some have a full harness and hold children over 20 lbs; others are belt-positioning boosters for use with lap/shoulder belts.

Isolette

A container that provides a controlled environment for a premature infant in the hospital, in which an infant may ride during transport from one hospital to another. Not an adequate restraint.

Lap belt

A safety belt anchored at two points, for use across the occupant's thighs/hips.

Lap/shoulder belt

A safety belt that is anchored at three points and restrains the occupant at the hips and across the shoulder; also called a "combination belt."

Latchplate

The part of the buckle mechanism that slides into the buckle; usually the part that affects the length of the belt.

Lateral collision/impact

Impact into the side of a vehicle. Current occupant restraints offer little protection when the side of the vehicle is crushed inward by the intruding vehicle or object.

Locking clip

A flat H-shaped metal item intended to clip together belt webbing at a sliding latchplate, to prevent the webbing from sliding through.

Locking latchplate

A latchplate that holds the lap belt snug after it has been adjusted.

Manual safety belt

A safety belt that must be fastened by the occupant.

National Highway Traffic

Safety Administration

NHTSA is the federal agency that regulates motor vehicles and products such as child restraints. It also promotes safety.

Passive restraints

Restraint systems that do not depend on action by the occupant; belts or air bags.

Rebound

Reactive motion in the opposite direction after initial impact has occurred.

Recalls

Actions to correct problems or deficiencies once products have been distributed or sold; manufacturers must offer free repairs or replacement for products recalled for violations of safety standards.

Retractor

A mechanism that rolls up the unused webbing of the safety belt when it is not in use and takes up slack around the user.

Retrofitted shoulder belt

A shoulder belt that is added to an existing vehicle, most often in the rear seat outboard position; most manufacturers make kits for older models.

Safety belt

The webbing, anchor, and buckle system that restrains the occupant in the vehicle.

Seat bight (seat crack)

The intersection between the bottom vehicle seat cushion and the back cushion.

Serious misuse

Errors in use that are likely to cause or contribute to serious injury.

Shell

The molded plastic structure of the child restraint. In most models, the shell is attached to or reinforced by a metal frame.

Shoulder belt positioners

Devices (some built in, some add-ons) that can be used to reposition shoulder belts so they fit across the shoulder rather than across the neck.

Shoulder strap slots

Slots in the back of the child restraint through which shoulder straps are routed. There may be up to three sets.

Sliding latchplate

A latchplate that slides on a long piece of webbing, making a one-piece lap/shoulder belt.

Structural integrity

Ability of a device to retain its structure in the stress of crash force.

Submarine

The motion of a body during a crash under certain conditions, sliding down and forward legs first which may cause the lap belt to ride up onto the abdomen.

Switchable Retractor

A retractor that usually functions as an emergency locking retractor, but can be transformed into an automatic locking retractor to secure a child safety seat.

T-shield

Part of a restraint system in a child restraint; a roughly triangular or "T"-shaped pad that is attached to shoulder straps, fits over the child's abdomen and hips and latches between the legs.

Tether strap

A strap that anchors the top of some models of (mostly older) child restraints to the vehicle body; keeps the restraint from tipping forward on impact; provides an extra margin of protection.

Toddler restraint

A restraint that is intended for use only in the forward-facing position for a child over age 1 or 20 lbs.

Tray shield

Part of a restraint system in a child safety seat; a wide, curved padded surface that swings down around the child's body, attached to shoulder straps and crotch buckle.

Turn-around time

The point at which the young child's body has developed enough so he or she can be turned to face forward after riding facing the rear during infancy. Also, the weight designated by the manufacturer at which the convertible restraint should be turned to face forward.

Vest

A restraint system that has shoulder straps, hip straps (and sometimes) a crotch strap, that can be used for child occupant securement.

Whiplash injury

Injury to the neck usually caused by sudden whipping of the head backward during a rear impact.

GLOSSARY: WORDS ABOUT COMMUNITY TRAUMA PREVENTION PROGRAMS

Activity

A defined step that moves toward the accomplishment of a project.

Baseline data

A measurement of the situation before a project is begun.

Coalition

A loosely organized group of individuals and representatives of agencies working toward a common goal.

Evaluation matrix

A chart developed by Dr William Haddon, a physician and engineer, to systematically consider all aspects of an injury problem. He was the first head of the agency that became the National Highway Traffic Safety Administration and founder of the Insurance Institute for Highway Safety.

Morbidity

Nonfatal injuries (or illnesses).

Mortality

Fatal injuries (or illnesses).

National Highway Traffic Safety Administration (NHTSA)

The public agency which regulates the safety function of vehicles and related products and is responsible for data collection, education and review of legislation related to traffic safety. It has ten regional offices around the country and funds many state injury prevention programs.

Objective

A measurable, attainable end result for a project or program.

Primary prevention

Stopping an incident before it happens or an injury from resulting from an incident that occurs.

Program

A community-wide effort of more than one project to accomplish a major goal.

Project

One comprehensive project that works toward an overall goal.

Secondary Prevention

Minimizing the harm to the body after an injury has occurred.

Strategies

Methods used to reach measurable objectives.



Child Safety Seat Practicals

Guidelines: Each participant rotates through six 10 to 15 minute practicals.

In the Classroom

- Infant-only Safety Seat Demonstration
Equipment needed:
 - 21 Teaching sheets: Infant-only Safety Seat Demo Checklist
 - 3 infant safety seats
 - 1 blanket
 - 3 dummies
 - 6 towels
 - 3 fingertip towels
- Convertible Safety Seat Demonstration
Equipment needed:
 - 21 Teaching sheets: Convertible Safety Seat Demo Checklist
 - 3 convertible safety seats
 - 3 dummies
- Used Safety Seat Demonstration
Equipment needed:
 - 21 Teaching sheets: Used Safety Seat Evaluation Demo Checklist
 - 3 used safety seats
 - 21 recall lists
 - 1 tether

Outdoors in the Cars

- Vehicle Safety Belt identification and Infant Safety Seat installation
Equipment needed:
 - 6 Teaching sheets: Car Drill Sheets
 - 21 Teaching sheets: Seat Belt Identification Checklist
 - 21 Teaching sheets: Infant Safety Seat Installation Checklist
 - 3 infant-only safety seats
 - 3 bath towels
 - Vehicle Safety Belt identification and Convertible Safety Seat installation using a Standard Locking clip
Equipment needed:
 - 6 Teaching sheets: Car Drill Sheets
 - 21 Teaching sheets: Seat Belt Identification Checklist
 - 21 Teaching sheets: Convertible Safety Seat Installation Checklist
 - 3 convertible safety seats in toddler position
 - 3 standard locking clips
- Vehicle Safety Belt identification and installation of a Safety Seat using a Heavy Duty Locking clip
Equipment needed:
 - 6 Teaching sheets: Car Drill Sheets
 - 21 Teaching sheets: Seat Belt Identification Checklist
 - 21 Teaching sheets: Locking Clip Teaching Sheets
 - 2 safety seats
 - 2 heavy duty locking clips
 - chalk

adapted from materials by NEBRASKA CARES



Car Drill

Remember

When you install a child safety seat in the car, it must be in a seat belt which holds it TIGHT under all driving conditions. All seat belts lock up in a crash, but some are loose in normal driving conditions. It is these belts which are incompatible with safety seats, but they aren't impossible. We're going to teach you how to identify and modify them for safety seats.

Points to keep in mind

- All seat belts lock. They either lock in the latch plate or the retractor. (Show what a latch plate and retractor are.)
- The easiest to identify are those that lock in the latch plate. They are called "locking latch plates." They have a distinctive bar across the back. (Show it.)
- Some lock in the retractor AUTOMATICALLY. They are called "Automatic Locking Retractor" or "ALRs" for short. They are great for holding safety seats tight.
- Some lock in the retractor only in an emergency — like a sudden stop or a crash. They are called "Emergency Locking Retractors" or "ELRs" for short. They don't hold a safety seat tight. You need to use a heavy duty locking clip with them.
- Some have a free-sliding latch plate on a continuous loop of webbing. These don't hold a safety seat tight. You need to use a standard locking clip with them.
- Some are switchable from ELR to ALR if you pull them out all the way to engage the ALR. In the ALR mode, they are great for holding safety seats tight.

We're going to identify the seat belts in this car by going through the identification checklist. Remember that this is a drill, for training purposes. Under normal circumstances, your first, best and safest choice would be the center of the back seat, which 99% of the time has a locking latch plate and is the safest seat in the car.

(Instructor proceeds to lead trainee through the "Seat Belt Identification Checklist" to identify every passenger seating position in the vehicle.)

adapted from materials by NEBRASKA CARES



Seat Belt Identification Checklist

(for installation of child safety seats)

Is the seat belt: Manual plus airbag? (go to "A") Manual? (go to "B") Automatic? (go to "C")

A. If there is a PASSENGER-SIDE AIRBAG, does the vehicle owner's manual allow (forward-facing) safety seat use in this position? YES NO

Caution: rear-facing safety seats must never be used with passenger side airbags! Move safety seat to vehicle back seat.

B. If it is a MANUAL seat belt, determine the type. Is it a —

1. Lap-only belt? YES NO

If it is a lap-only belt, does it have a —

a. Manually locking latch plate? (Okay for safety seats.) YES NO

Does the latch plate hold tight? (Okay for safety seats.) YES NO

b. Automatic locking retractor (ALR)? (Okay for safety seats.) YES NO

c. Emergency locking retractor (ELR)? YES NO

Caution: An ELR requires a HEAVY DUTY locking clip.

d. Switchable retractor (ELR to ALR)? (Okay for safety seats.) YES NO

2. Lap/Shoulder belt combination? YES NO

Is the seat belt retractor mounted in the door? YES NO

If yes, has a supplemental manual lap belt been installed? YES NO

Caution: Safety seats must not be installed with door-mounted seat belts!

a. Is the latch plate sewn on to the webbing? YES NO

If sewn on, does the lap belt have an —

i. ALR? (Okay for safety seats.) YES NO

ii. ELR? YES NO

Caution: An ELR requires a HEAVY DUTY locking clip.

iii. Switchable: ELR to ALR? (Okay for safety seats.) YES NO

b. Is the belt webbing a continuous loop with a locking latch plate? YES NO

(Okay for safety seats.)

Does the latch plate hold tight? (Okay for safety seats.) YES NO

c. Is the belt webbing a continuous loop with a free-sliding latch plate? YES NO

Caution: A free-sliding latch plate requires a STANDARD locking clip.

C. If it is an AUTOMATIC seat belt, determine the type. Is it an —

1. Automatic lap and shoulder belt? YES NO

If yes, has a supplemental manual lap belt been installed? YES NO

Caution: If belts are automatic, safety seats must be secured with a supplemental manual lap belt.

2. Automatic shoulder with manual lap belt? YES NO

If there is a manual lap belt, does it have a —

a. Manually locking latch plate? (Okay for safety seats.) YES NO

Does the latch plate hold tight? (Okay for safety seats.) YES NO

b. Automatic locking retractor (ALR)? (Okay for safety seats.) YES NO

c. Emergency locking retractor (ELR)? YES NO

Caution: An ELR requires a Heavy Duty locking clip.

d. Switchable retractor (ELR to ALR)? (Okay for safety seats.) YES NO

adapted from materials by NEBRASKA CARES



Infant-only Safety Seat Demonstration Checklist

- _____ Distinguish infant-only from convertible seats.
- _____ Distinguish infant safety seat from baby carrier.
- _____ Locate manufacturer's label and federal approval.
- _____ Check for recalls.
- _____ State weight and height guidelines for infant seats.
- _____ Explain how to determine when a baby has outgrown an infant safety seat.
- _____ Position harness straps through correct slots.
- _____ Demonstrate "double back" on strap system.
- _____ Demonstrate proper use of blankets.
- _____ Distinguish safe from unsafe safety seat liners.
- _____ Position infant in seat.
- _____ Position towel rolls laterally and in crotch area. Explain rationale.
- _____ Position and fasten retainer clip.
- _____ Demonstrate check for safe amount of slack in harness.
- _____ Demonstrate belt path.

Adapted from materials by NEBRASKA CARES



Convertible Safety Seat Demonstration Checklist

- _____ Locate manufacturer's label and federal approval.
- _____ Check for recalls
- _____ State weight and height guidelines for convertible seats.
- _____ State age and weight guidelines for riding rear-facing.
- _____ State guidelines for determining when a child has outgrown a convertible seat.
- _____ Adjust convertible to infant position.
- _____ Adjust harness through slots for infants who ride rear-facing.
- _____ Adjust convertible to toddler position.
- _____ Adjust harness through slots for toddlers who ride forward-facing.
- _____ Position and fasten retainer clip.
- _____ Demonstrate check for safe amount of slack in harness.
- _____ Demonstrate belt paths (2).

Adapted from materials by NEBRASKA CARES



Used Safety Seat Evaluation Demonstration Checklist

History of seat:

- _____ Is federal safety certification printed on seat?
- _____ Are make/model/date (post 1981) printed on seat?
- _____ Has seat been checked for recall notification?
- _____ Has the seat been involved in a crash?

Required components:

- _____ Is manufacturer's instruction sheet/booklet present?
- _____ Is harness retainer clip present and in good condition?
- _____ If seat requires a tether, are tether parts present?

Condition of seat:

- | | |
|-------------|---|
| Metal Frame | _____ Is it twisted or bent? |
| | _____ Are all screws present? |
| | _____ Are there any loose joints? |
| | _____ Are there any sharp edges? |
| | _____ Is there any corrosion? |
| Shell | _____ Is there any brittleness? |
| | _____ Are there visible breaks or cracks (even hairline)? |
| | _____ Is there any chemical erosion? |
| | _____ Are there any sharp edges? |
| Harness | _____ Are harness straps worn or frayed? |
| | _____ Are all slides, buckles and latchplates present and in working order? |
| | _____ Does buckle mechanism open and lock without difficulty? |
| | _____ Does harness stay buckled when you pull on straps? |
| Other | _____ Is recline mechanism present and in working condition? |
| | _____ Is there a choking hazard from rips in the lining? |

adapted from materials by NEBRASKA CARES



Safety Seat Installation Demonstration Checklist Infant: < 20 lbs/1 Year

- _____ Identify type of safety belt in position chosen.
- _____ Explain why a young infant rides observed by an adult.
- _____ Explain air bag danger.
- _____ Explain why the safety seat faces the rear of vehicle.
- _____ Demonstrate routing of vehicle seat belt through the belt path identified by safety seat manufacturer. Pull tight.
- _____ Demonstrate correction of safety seat angle to 45°. Explain rationale.
- _____ Apply locking clip, if appropriate. Explain rationale and type of locking clip chosen.

adapted from materials by NEBRASKA CARES



Safety Seat Installation Demonstration Checklist

Toddlers: > 20 lbs/1 Year to 40 lbs/4 Years

- _____ Identify type of safety belt in position chosen.
- _____ Explain considerations in positioning forward-facing safety seats with passenger-side airbags.
- _____ Explain why the safety seat should be in a fully-upright position.
- _____ Demonstrate routing of the vehicle seat belt through the belt path identified by safety seat manufacturer. Pull tight.
- _____ Demonstrate application of a locking clip, if appropriate.
Explain rationale for use and for type of locking clip chosen.

adapted from materials by NEBRASKA CARES



Vehicle Safety Belt Identification Demonstration

In your assigned vehicle(s), identify the following:

1. Front seat passenger position

- a. Type of seat belt: _____
- b. Type of retractor: _____
- c. Suitability for securing a child safety seat: _____
Rationale: _____
- d. Necessary modifications (explain and demonstrate): _____

2. Back seat outboard position

- a. Type of seat belt: _____
- b. Type of retractor: _____
- c. Suitability for securing a child safety seat: _____
Rationale: _____
- d. Necessary modifications (explain and demonstrate): _____

3. Back seat center position

- a. Type of seat belt: _____
- b. Type of retractor: _____
- c. Suitability for securing a child safety seat: _____
Rationale: _____
- d. Necessary modifications (explain and demonstrate): _____

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Child Passenger Safety Return Demonstration

- _____ Describe the correct use of vehicle lap and lap/shoulder belts by children and adults.
- _____ Describe and demonstrate the correct use of a vehicle lap/shoulder belt by a pregnant woman.

adapted from materials by NEBRASKA CARES



Child Safety Seat Misuse and Consequences Return Demonstration

Present each of the misuses below and state the potential consequences in the event of a crash.

1. **Misuse:** Harness retainer clip on infant-only seat is not used.
Consequence:
2. **Misuse:** Toddler is in a convertible seat which is installed in the vehicle seat belt.
The safety seat harness is not buckled.
Consequence:
3. **Misuse:** 5-month-old infant is in vehicle in forward-facing safety seat.
Consequence:
4. **Misuse:** Vehicle seat belt is incorrectly routed through safety seat.
Consequence:
5. **Misuse:** Rear-facing infant safety seat is reclined at lower than 45°.
Consequence:
6. **Misuse:** Convertible safety seat with a shield is used for a small newborn baby.
Consequence:
7. **Misuse:** Safety seat is not anchored by vehicle seat belt.
Consequence:
8. **Misuse:** A belt-positioning booster is used with a lap belt.
Consequence:
9. **Misuse:** Vehicle lap belt is secured over a child's abdomen.
Consequence:
10. **Misuse:** A safety seat liner does not have slits for harness straps, so harness straps are not over baby's shoulders.
Consequence:
11. **Misuse:** Infant is secured in a rear-facing safety seat in the front passenger seat with an airbag.
Consequence:

adapted from materials by NEBRASKA CARES

Child Safety Seat Misuse and Consequences

Answer Sheet

Present each of the misuses below and state the potential consequences in the event of a crash.

- Misuse:** Harness retainer clip on infant-only seat is not used.
Consequence: *Does not hold harness straps on shoulders; could increase potential for ejection*
- Misuse:** Toddler is in a convertible seat which is installed in the vehicle seat belt. The safety seat harness is not buckled.
Consequence: *Will allow partial or complete ejection.*
- Misuse:** 5-month-old infant is in vehicle in forward-facing safety seat.
Consequence: *Excessive strain on baby's neck leading to spinal cord injury. Shoulders too flexible to hold shoulder straps, creating potential for ejection through harness.*
- Misuse:** Vehicle seat belt is incorrectly routed through safety seat.
Consequence: *Restraint may fail or allow excessive head excursion.*
- Misuse:** Rear-facing infant safety seat is reclined at lower than 45°.
Consequence: *Baby could slide out head first during impact; head and back would not be cushioned within restraint.*
- Misuse:** Convertible safety seat with a shield is used for a small newborn baby.
Consequence: *Shield may prohibit harness from fitting close to a tiny baby's body; shield is located too high, close to a baby's face, neck or chest.*
- Misuse:** Safety seat is not anchored by vehicle seat belt.
Consequence: *High likelihood of injury from hitting interior of vehicle or from ejection.*
- Misuse:** A belt-positioning booster is used with a lap belt.
Consequence: *Likelihood of child's head striking interior of vehicle.*
- Misuse:** Vehicle lap belt is secured over a child's abdomen.
Consequence: *Potential internal and spinal cord injury.*
- Misuse:** A safety seat liner does not have slits for harness straps, so harness straps are not over baby's shoulders.
Consequence: *Increases possibility of ejection.*
- Misuse:** Infant is secured in a rear-facing safety seat in the front passenger seat with an airbag.
Consequence: *Deploying airbag will strike safety seat with great force, causing potentially severe injury.*

adapted from materials by NEBRASKA CARES

APPENDIX E

PART I: CHILD PASSENGER SAFETY PROGRAMS

Articles from past *Safe Ride News* issues
(those grouped together are on the same pages)

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safe ride news

Vol. XIII, No. 1: Winter 1994

American Academy of Pediatrics



Academy in Action

Peer Training Popular in PA

The first four of 12 peer-to-peer training seminars under the AAP mini-grant program in Pennsylvania have taken place. Physicians, physician assistants and nurses who have attended have found the basic (45 minute) course very stimulating.

Each session has one physician-instructor, one of four volunteers trained and backed up by the AAP chapter Traffic Injury Prevention Project staff. Physician instructors, all AAP fellows, are Jerry Aronson, Catherine Shaner, Lee Bass, and George Tenedios. The instructor presents a slide show that covers the Pennsylvania child restraint and belt use law, crash dynamics, the basics of child restraint types and usage, and a brief introduction to special transportation needs. The course car-

Continued on next page

Need for Cultural Adaptations Recognized

There is increasing recognition that educational materials must be accessible to people who do not read English well or at all. Organizations have responded to this challenge, creating child passenger safety materials in Spanish and other languages to address the ethnic diversity of the US population.

Providing effective access to information means more than just giving people materials in their first languages. English language materials that reflect cultural diversity must also be available, since the younger generation of immigrant groups that has been schooled here may prefer to use English. Also some peoples, such as the Hmong, may come from places where they were not schooled in their spoken languages. Audio or audio-visual materials may be needed in some situations. Illustrations that include various ethnic and racial groups indicate a recognition of diverse audiences and increase the effectiveness of the material.

Adaptation, as opposed to word-for-word translation, refers to making the information appropriate to the culture of the audience. This means finding ways to present information that the specific audience will find appealing. It also means realizing that some cultural beliefs may distort or contradict your message and finding ways to acknowledge and deal with them. In translating/adapting child

Continued on page 3

Bounty Programs Encouraged

Getting "no-longer-safe" child restraints out of the hands of users, an idea that originated in Washington state in 1990, is now being promoted by NHTSA. The 1994 Occupant Protection Idea Sampler includes details of ways for local or state-wide child passenger safety programs to collect old or damaged restraints.

The key element in this program is the use of an incentive or bounty to attract attention and reward participants. In Washington, the bounty was \$5 per seat, funded first by Traffic Safety Now and in 1993 by Pemco Insurance Company. Alternatively, it could be a coupon for free or discounted merchandise or a ticket for a prize drawing. The reward in Washington turned some people into "bounty hunters" who scoured garage sales and friends' basements for old restraints to turn in.

The program has the potential for attracting considerable media attention and encouraging parents to pay attention to the condition of the restraints they use for their children. In addition, the destruction of a huge pile of restraints by a garbage crusher is an exciting photo-opportunity.

Why not recycle seats instead?

Bounty programs have the goal of collecting restraints that should not be reused. Such seats may have an unrepairable defect or non-replaceable missing parts, be made before 1981, or have been used in a crash. Recycling programs that seek reusable seats have found that, upon close inspection, most of th-

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A Quarterly Newsletter for Health and Safety Professionals and Advocates

Cultural Issues, from p. 1

restraint materials, however, there is a need to be very careful to convey the technical information correctly.

Accessibility of materials (in English and other languages) also means presentation in a clear and easily understood form, preferably at a relatively low reading-level. A US Department of Education study found recently that one half of the workforce is functionally illiterate in English. Gearing safety materials to a fifth or sixth grade reading level will help assure wide comprehension of the message.

Spanish, Other Language Materials Proliferate

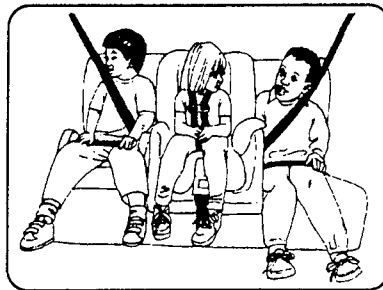
Two flyers done originally by the AAP have been translated by state highway safety offices. One done by the Oregon Traffic Safety Office and the Multnomah County Health Department, *Inspección de Seguridad de un Minuto*, (One Minute Safety Check), is reprinted as an insert in this newsletter. A translation of the AAP flyer on air bags and infants by the Arizona Governor's Office of Highway Safety is close to completion. Both will be available from the AAP Safe Ride program and can be reprinted with credit.

SafetyBeltSafe U.S.A. (SBS USA) provides its full-color brochure, *El Regalo Perfecto* (The Perfect Gift), and *Proteja a su Bebé Ahora... y Despues* (Protect Your Baby Now... And Later) in Spanish. A number of other materials are done in Spanish, including a flyer on car pool safety and a generic new release. "Keep Your Children Safe," the basic, low-reading-level, one-color pamphlet of SBS USA, is done in 13 languages. This and some other materials are available in Armenian, Chinese, Cambodian, Farsi, German, Hungarian, Japanese, Korean, Laotian, Rumanian, Tongan, and Vietnamese, as well as Spanish and English. Single copies of all pamphlets are free.

SBS USA also has developed a Spanish version of its set of eight tip sheets dealing with specific child restraint usage problems. *Consejos Acerca de la Seguridad de los Niños en los Autos* (Child Auto Safety Tips... From Someone Who Cares!)

was prepared in cooperation with the Arizona highway safety office. The eight tips have multi-ethnic illustrations (see graphics below and on p. 1). Tip topics are:

1. Quick Safety Seat Checkup
2. Where Should Your Child Ride?
3. How to Protect Your New Baby in the Car?
4. What to Use for a Big Baby or Toddler?
5. How should Preschool and School Children Ride?
6. Does Your Safety Belt Stay Tight Around Your Car Seat?
7. Harness Straps are Your Child's Link to Safety
8. What are Safety Seat Recalls?



from *Child Auto Safety Tips*, #2

The Kidsafe Program in Texas has produced several flyers in Spanish, including one regarding belt use for pregnant women and another on choosing used safety seats. It has also done a manual, "How to Conduct Rural Minority Child Passenger Safety Programs," that features working with Hispanics.

Several videos have also been produced in Spanish as well as English. *No Ponga en Peligro La Vida de su Niño* (Don't Risk Your Child's Life), from Shelness Productions is the standard. It covers choice and correct use of infant and child restraints and booster seats. Children of African-American, Hispanic and Asian backgrounds are shown. The accompanying fact sheet is also in Spanish. An Hispanic video-drama, *Es Una Salvavida* (It's a Lifesaver), produced by KidSafe Texas provides motivational support for infant restraint use. A very simple, basic video, "The Gift of Love," designed for Women, Infant & Children (WIC) programs, uses stills with a voice-over in Spanish or English. The pictures are ethnically diverse,

but do not, unfortunately, illustrate the material very well - ed.

It should also be noted that manufacturer instructions for child restraints are seldom available in other languages. Century publishes theirs in Spanish and French, as well as the labels on the restraints themselves. Safeline's Sit'n' Stroll instructions are in several languages, as are those of the Evenflo Dyn-o-Mite.

Note: If you know of additional materials available in other languages, please send copies to the Editor for inclusion in future newsletters.

Contacts:

- Arizona Governor's Office of Highway Safety, 3010 N. 2nd St., Suite 105, Phoenix, AZ 85012; 602/255-3216.
- AAP, Safe Ride Program, PO Box 927, Elk Grove Village, IL 60009-0927; 708/981-7933. Single copy of flyers are free and can be duplicated.
- KidSafe Texas, U.T. Health Sciences Center, 7703 Floyd Curl Dr., San Antonio, TX 78284-7788; 210/615-6993. The video, "It's a Lifesaver," (in English [21 mins.] or Spanish [24 mins.]) is available on loan and can be copied. The manual costs \$5 for duplicating and postage. Sample flyers are free?
- SafetyBeltSafe, U.S.A., PO Box 553, Altadena, CA 91003; (800) 725-SAFE or 310/673-2666. Write or call for a list of materials in various languages. Costs: for full-color brochures, "The Perfect Gift" and "Protect Your Baby Now... and Later," \$15/100. One-color pamphlet, "Keep your Children Safe": \$10/100. Spanish "Child Auto Safety Tips" are available in quantity for a requested donation of \$15 for 100 copies of each tip or \$100 for 100 copies of the complete set. (Spanish tips cannot be reproduced, as the translation was not underwritten and costs must be recouped.) (SBS USA prices for materials are requested donations.)
- Shelness Productions, PO Box 326, New Milford, CT 06776; 203/355-0323. Cost of the video, "Don't Risk Your Child's Life": \$93.75; inquire for volume discounts.
- Universal Health Associates, PO Box 65465, Washington, DC 20035-5465. Cost of the video, "The Gift of Love": \$69.

Q&A

Can a child safety seat be anchored securely on a rear-facing seat?

Child restraint devices (CRD) are not designed for use on rear-facing vehicle seats. Manufacturers of CRD all warn against using them this way, presumably because CRS are tested on a forward-facing seat to meet Federal Motor Vehicle Safety Standard 213. Yet the question comes up regarding carrying children in an ambulance or the third seat of a station wagon. Advocates can offer this information to parents, with the proviso that it is to be used as a *last resort*.

First, the use of the third seat of a station wagon for children young enough to use child restraints should be discouraged for several reasons.

- Adult supervision of the very young child is necessary but would be difficult in the rear of a station wagon.
- Parents must be aware that the third seat could be a risky place for anyone to ride. In a rear-end collision, this seat is very close to the point of impact.
- The glass in the rear window could shatter. Unlike the windshield, it is not required to be laminated glass.

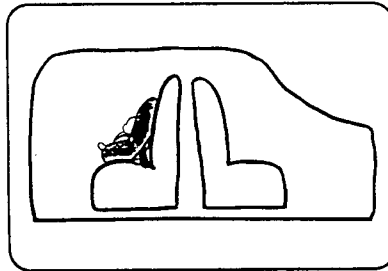
If it were necessary, in an emergency, for an infant or small child to ride on a rear-facing vehicle seat, these tips will help maximize the protection of the restraint.

1. Use a **convertible CRD** for either an infant or child (birth to 40 pounds).
2. **Install the convertible CRD facing the rear** of the vehicle for toddlers as well as infants (see illustration). Remember that this advice is based on providing restraint in a head-on crash, the most common type, which creates the highest impact forces.
3. **Put the safety belt through the path normally used for the forward-facing position** of the convertible CRD.
4. **Do not use an infant-only CRD on a rear-facing seat.** If faced rearward, the safety belt could not go through the belt path correctly and would not secure the restraint. If the infant-only CRD were placed so the baby faced forward, the infant's neck could be subjected to ex-

cessive stress in a frontal crash. (The forces of the rebound in the direction away from the impact point are much less severe than the initial crash forces.) Also, the safety belt through the belt path would not anchor the seat during frontal impact.

Other points to note:

- Recline the CRD for the infant (under 20 pounds) if necessary to provide head support. Use the upright position for a child over 20 pounds.
- The rear-facing position provides superior protection for head, neck and back for a child of any age - providing that the head is contained within the restraint. Children using boosters without a high back could be at serious risk of whiplash injuries in a frontal collision if seated facing the rear in a vehicle seat with a low back.
- Why should the infant not ride forward-facing? This would place the baby facing the front of the car. Facing forward in a frontal crash, the most common type, the stress on the infant's neck could be severe enough to cause spinal cord injury. Forces in a rear-end collision are generally much less severe.



An infant or toddler under 40 pounds should ride in a convertible car seat facing the rear if placed on a rearward facing vehicle seat.

AAP 1994 Shopping Guide Available

The 1994 Family Shopping Guide to Car Seats is available, with its list of current models and their features. The cost is \$22.50 per 100 for AAP members and \$27.50 per 100 for non-members. For a free single copy, send a self-addressed, stamped, business-size envelope to Shopping Guide, AAP, PO Box 927, Elk Grove Village, IL 60009-0927.

RECALL:

Kolcraft Auto-Mate, models #180-600 and 180-601 with T-Shield only.

Buckle tongue may rust. Crash performance is not in question, unless rusting causes a consumer to stop using the restraint. Two models will get different treatment. Model 180-600 owners will get a free replacement Auto-Mate with a 5-point harness. Model 180-601 owners will get a new buckle tongue and installation instructions.

Contact Kolcraft at 3455 West 31st Place, Chicago, IL 60623; 1-800-453-7673.

Bounty Program, from p. 1

seats turned in could not be reliably approved for re-use. The crash history of the seat was not known, the date of manufacture could not be ascertained from the label, or missing parts and instruction sheets were too expensive and time-consuming to replace.

The 1993 Washington state bounty program collected recyclable seats as well as no-longer-safe ones. According to Linda Galer of the Safety Restraint Coalition in Washington, from the total of 3300 collected at 255 drop sites, they obtained a total of 300 seats that could be reused. Most were from one large loan program that documented the crash history of each and had taken good care of them. If recycling is to be done, only seats with a reliable crash history can be considered. Then trained inspectors must thoroughly check and refurbish each seat. As Galer said, "You have to err on the side of throwing out anything questionable. Our inspection was very time-consuming and not cost-effective for the number of usable seats that we obtained. The program was great, however, for getting rotten seats out of circulation."

As with a child restraint loan program, there is always a remote risk of liability in recycling seats. Although no loan program is known to have been sued successfully, the only way to totally eliminate all liability is to destroy all seats collected.

Call your state office of highway safety for the program sampler.

Child Passenger Protection Laws Much Remains to Be Done



An analysis of child restraint and seat belt laws in the 50 states and the District of Columbia reveals that a great deal of work remains to be done to ensure the protection of child passengers. While some states began with laws that were better conceived than others, and many have upgraded theirs since first enacted, only one state, Alaska, has a statute on the books which can be regarded as "ideal." Oregon comes in a close second.

Many laws contain exemptions that may be unjustified, make no provision for protecting older children, or permit seat belt use at too young an age. It should also be taken into account that enforcement is a critical factor in compliance. Laws must not only be enforceable, but police have to be willing and able to enforce them. Inconsistencies are a hindrance.

The publicity alone which usually surrounds legislative activities would alert the public to the issues once more and help enlist police cooperation.

What Needs to Be Addressed

- ✓ Exemptions and loopholes included in laws
- ✓ At what age to switch from child restraint to belt
- ✓ Person responsible for child passengers
- ✓ Age and/or weight ranges covered by the law
- ✓ Vehicles operated by public or private agencies
- ✓ Applicability of law to out-of-state vehicles
- ✓ Penalties for violating the law
- ✓ Too few belts to restrain all children

The political climate has changed since the seventies when Robert Sanders, M.D., F.A.A.P., launched his campaign for child restraint legislation in Tennessee and that state became the first to adopt such a law. In the face of overwhelming opposition in that and many other states, compromises had to be made.

For example, the original Tennessee law allowed children to be held on the laps of adults. This was later eliminated. Today, there is far greater understanding and acceptance of the rationale for safety legislation. Discussed below are aspects of child passenger protection laws in need of attention.

Tending to the Child's Needs

This is one of the most glaring loopholes. Seven states allow removing children from the restraint to "attend to their personal needs." Some states specifically spell out breast-feeding. It can be presumed that

comforting a fussy child by holding him is also "legal."

While this is taking place, the child is riding at risk, either lying on the seat of the vehicle or, worse, held in someone's arms. Furthermore, no doubt this provision makes enforcement highly problematical, since the child may be receiving permitted attention at any time.

On-lap travel is still common today, even in states without the "personal needs" exemption. A recent study cites a 17 per cent incidence nationally. But for infants killed in crashes, 37 per cent were believed to be riding on someone's lap at the time. The authors project significant reductions in injuries to infants if on-lap travel were eliminated and call for renewed efforts for parent education and stricter enforcement of laws.*

Child Restraints or Lap Belts

In 18 states lap belts are permitted for children under age three, and 12 allow one-year-olds to use lap belts, though the latter is usually limited to back seats. Oregon, Washington, and Wyoming allow one-year-olds to be restrained with a seat belt in any seating position.

There is ample evidence that lap belts alone do not provide effective protection, regardless of the age of the child. In a serious crash, a lap belt does not provide optimal protection for an adult, either. The benefits of distributing crash forces over a large area of the child's body—a function superbly performed by correctly-used child restraints—has been well documented these past years.

Now that car booster seats are available, the requirement for the use of child restraints could be extended beyond age four and 40 pounds.

Adult Responsible for Child Passengers

In nine states the person responsible for children riding protected is not necessarily the driver of the vehicle. Only a parent, legal guardian, and in some instances the "person who regularly transports the child" in his or her own vehicle can be held accountable. Yet children often ride with grandparents, sitters, or family friends who would not be required to comply.

Five states make no mention of the person responsible for the protection of child passengers covered under the adult seat belt law.

*Agran, Phyllis F., MD, MPH; Diane G. Winn, RN, MPH; Dawn N. Castillo, MPH: On-Lap Travel: Still a Problem in Motor Vehicles. *Pediatrics*; 90:27-29.

Age and/or Weight Ranges Covered

Child restraint laws vary greatly in the ages they cover. Many states include older children in the adult belt law, instead of the child restraint law. The adult belt law is often limited to front seats and/or is enforceable only as a secondary offense, whereas child restraint laws apply to all seating positions and are enforceable as primary violations.

Currently belt laws in 32 states are enforceable only as a secondary offense; of those, 25 apply only to the front seats. Under "secondary" enforcement police are not permitted to stop a vehicle solely for non-use of restraints. But if stopped for another violation, a citation for failure to use restraints may be issued.

Ideally, children up to age 16 or even 18 should be included in an "all position," primary law. It seems consistent to cover all minors. Maine makes no provision for adult belt use, but has a restraint law which covers everyone under 19 and is enforceable as a primary offense. Alaska's restraint law, which covers all ages, is primary for all under age 16. Massachusetts, New Hampshire, Rhode Island and Vermont, all without adult belt use laws, include children up to age 12 in their child restraint statutes.

Day Care, Nursery School and Public Transportation

Three states specifically exclude day-care center vehicles from the law, one also exempts car pools.

Various classes of commercial, for-hire, and para-transit vehicles; taxis; and school buses are excluded from the child restraint requirement in 18 states. Yet taxis and vans have been equipped with seat belts for almost as long as passenger cars. Small (Type II) school buses made since 1977 also have lap belts in every seating position. These exemptions should, therefore, be reconsidered.

Ambulances pose a different, more complex problem, one of space and other restrictions. Some pilot programs are currently addressing passenger protection issues unique to ambulances. Until a workable solution is found, the exemption for ambulances may have to continue.

Out-of-State Vehicles

In 21 states the law applies only to in-state vehicles. Such exemptions are not justified. After all, speeding, drunk driving and other traffic violations apply to all drivers, regardless of their permanent residence or the state in which their vehicle may be registered.

The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in treatment that your pediatrician may recommend on the individual facts and circumstances.

Penalties

Fines range from \$25 or less in 29 states to a maximum of over \$100 in California, New York, and Hawaii. In some states court costs are added to the fine.

While some safety advocates believe that heavy fines are conducive to compliance, others insist that punitive fines may in fact deter enforcement: police officers may be reluctant to issue citations when large amounts of money are involved for what they may regard as a minor infraction.

Fines are waived in most states if the parent can show that a child restraint has been acquired. This provision may lend itself to abuse. A child restraint can be borrowed from a friend to present in court.

Violators are the target of education programs in some states. One approach is requiring those convicted to attend a class on belt and child restraint use. Another is "citizen reporting" of drivers observed with children riding unrestrained. Police send a polite warning letter explaining the importance of using child restraints and the consequences of violating the law.

Too Many Children—Too Few Belts

In many states children are exempted from restraint use if there are not enough belts available. An attempt to repeal this provision raises a dilemma. Today, especially, some families may lack the means to purchase and maintain a vehicle large enough to provide a belt for each child. Families struggling to put food on the table and keep a roof over their heads may not be able to protect their children in cars. But the exemption should apply only to children in the immediate family, otherwise it could lend itself to abuse.

Medical Exemptions

There no longer appear to be reasons for medical exemptions. At one time children in spica casts or suffering from spina bifida or other disorders could not be secured in child restraints. Now, however, child restraints meeting most medical needs are available.

Conclusion

This country has come a long way these past 15 years in recognizing that children must be protected. Every effort should, therefore, be made to bring laws in line with today's knowledge of the requirements of effective crash protection.

To assist advocates and professionals in working toward this end, a forthcoming packet will provide more detail. Write to:

Safe Ride Program, AAP, P.O. Box 927,
Elk Grove Village, IL 60009-0927

Cabs, Hotel Vans Atlantic City to Carry Car Seats

A new city ordinance requires taxicabs to provide child safety seats in Atlantic City, where about 25 percent of newborn babies leave the local medical center in cabs. Cabbies must pay fines and could lose their taxi licenses if they carry young children without car seats. The state child restraint law applies to all motor vehicles equipped with belts, and requires restraint use for children under age five.

Michael Schurman, director of the Atlantic County Office of Highway Safety, was inspired to focus on the taxi and hospitality industries by a frustrating experience trying to get a seat to use on a hotel van while taking his wife and baby to the Lifesavers/9 conference in Charlotte last May. While there, he persuaded hotels to provide car seats on their vans.

Back home, Schurman discovered that, in Atlantic City, four children under age 5 had been injured during an 18-month period while riding in cabs, along with 105 older people. None of the children had been restrained. While only one percent of all cab calls in the area involve children, almost all of those are for rides home from the hospital.

Schurman obtained 80 child safety seats and donated 60 to the three hospitals in the area and 20 to the taxi industry. The ordinance requires taxi fleet owners to have enough seats at a central depot to cover 25 percent of their fleets and independents to have at least one seat.

The Atlantic City Taxi Alliance has endorsed the program, but drivers have had mixed reactions, according to a *New York Times* report (November 17, 1991). Some are concerned about the additional time taken to install a safety seat and about the space a seat takes up in the trunk.

Schurman is also working with Casino Association, the local hotels and Marriott Corp. Contact him at 609-645-7000, ext. 4493.

"Please be Seated" Say Virginians

"I have sighted this child on over a dozen occasions, sometimes standing in back, sometimes in man's lap in front, and worst of all, often on dad's lap behind the wheel. Please help." So wrote a frustrated participant in the "Please be Seated" violator report card program.

The Virginia program, which got underway in early 1991, works this way. Post-paid report cards are distributed for people to use who observe children under age four riding unsafely. When reports are received, the owners of the vehicles spotted are mailed a polite letter informing them of the law, the correct use of safety seats, and how to keep children happy in their restraints. The letter includes a toll-free number at the Department of Motor Vehicles that parents can call to obtain a free safety seat if they cannot afford to purchase one. During the first six months of the program, over 5,500 post-paid report cards were received by the coordinating agency, the Children's Resource Center.

Pediatricians are actively involved, along with a wide variety of professionals and other citizens. The Virginia Chapter of the AAP distributed program packets and cards to pediatricians across the state. Rescue squad and medical personnel have been the most active reporters. Law enforcement personnel, child care workers, parents and others have also taken part. Many are pleased to be able to do something about the violations they see. Report cards are available in pediatricians' offices, from American Automobile Association offices, Safe Kids coalitions, Cooperative Extension offices and through the Department of Motor Vehicles.

Safety efforts, including this program, seem to be paying off. During the first six months of 1991, the number of fatalities to young children had dropped to 5 from 13 during the same period last year. Requests for free safety seats has risen markedly. Citations by law enforcement officers have risen markedly. During the first six months of 1991, there have been 3,460 convictions for child safety seat violations.

For more information, or to request report cards, contact Please be Seated, PO Box 1172, Richmond, VA 23286-0172; 804-786-5993.

Washington Collects A Bounty of Seats

In its second annual summer Bounty Program, the Washington Safety Restraint Coalition collected - and crushed - 1,800 seats in 1991. People who turned in obviously damaged or pre-1981 car seats received \$5 rewards. The drive even turned up some vintage seats that were much too "antique" to crush.

Arkansas Fines Used For Program Renewal

In Arkansas, a \$39,000 fund from fines collected from violators of the child passenger safety law since 1983 will be used to revitalize loan programs around the state and conduct education programs.

Safe Kids Coalitions Trained for Car Seat Safety Project

Over 100 leaders of Safe Kids Coalitions gathered in Washington, DC, in mid-November, 1991, to saturate themselves in child passenger safety programs and technical information. A technical training session was given for the group, some of whom had prior experience with child restraints, while others had never worked with car seats before.

Local Safe Kids groups will kick off child restraint projects in February in most areas. Safe Kids' emphasis will be on loan programs and educational services for low-income families and on closing loopholes in child restraint laws.

Contact the National Safe Kids Campaign at 202-939-4993.

Focus on Hospital-Based Programs

There is a resurgence of interest in child passenger safety activity in hospital settings. The AAP policies on safe discharge of newborns and premature infants were published just over one year ago. This issue includes a sample hospital discharge policy and recommendations for implementation. Below are a few recent efforts addressing hospital activities.

Model programs are underway in hospitals in five communities, due to the efforts of the National Easter Seal Society KARS/Special KARS project. Five new sites are to be announced shortly.

In Framingham, Massachusetts, Framingham Union Hospital has established a newborn discharge policy for premature infants and a nursing procedure to accompany it. Joel Bass, MD, FAAP, and Kishor Mehta, MD, FAAP, were involved in establishing the policy.

The "Nebraska Cares" Project (see page 1) has successfully used the policy statement on transportation of newborns throughout the state.

Questions Regarding Hospital Policies on Transportation Safety:

Can a hospital really require infants to leave in car seats?

Of course, no hospital can refuse to allow parents to take their infant from its facility in whatever manner they choose. It can make every effort, however, to meet the goal of having all children discharged safely buckled up. An educational program is essential to make the policy work. A loan program (even a short-term one) should be available for parents who, despite education and forewarning, are not prepared. Should a parent adamantly object, a waiver form, such as that drafted by "Nebraska Cares" could be used. H. Garry Gardner, MD, FAAP, in Hinsdale, Illinois, reports that, although his hospital policy states that infants and children

Child Passenger Safety Programs: An Acceptable Risk for Hospitals?

The actual risk of liability to a hospital for its participation in a child passenger safety program is relatively minimal. That is the major conclusion of a report to the National Easter Seal Society by a law firm specializing in the hospital insurance field. The society undertook an examination of the risks hospitals could face in providing educational and child restraint distribution programs, as part of its KARS/Special KARS model program.

The report describes the possible types of legal problems that could arise. It states, however, that up to January 1991 there had been no reported cases of suits against hospitals for participation in child passenger safety programs.

"should" leave in child restraints, most parents seem to believe that the hospital "requires" this and are very acquiescent.

Can a policy cover young children as well as infants?

Yes, just as state laws cover a wide age range, not just infants, the hospital's concern can, and many would argue it should, extend to all pediatric patients. The Hinsdale policy (see insert) was written to cover all the children required to buckle up under the Illinois law as it was written at that time, in 1983. Dr. Gardner reports that the policy works well today for children discharged from the pediatric department, although the hospital loan program only provides infant restraints.

Nebraska Hospitals, cont.

cians. Physicians of both groups are also supporting the project by providing increased in-office patient education.

Hospitals can minimize their legal risk by:

- providing proper education for clients;
- training staff appropriately;
- giving parents written instructions and document oral instructions;
- loaning or selling child safety seats that meet current safety standards and are in good condition;
- providing, in the case of a child with special needs, a safety seat suitable for his or her condition.

The report also assesses the liability of a hospital failing to provide either an education or distribution program. While this type of suit has not arisen, it could be raised, especially if the hospital provides other types of "new parent" information and education.

A copy of the report is available from Margaret Summerfelt, National Easter Seal Society, 70 East Lake Street, Chicago, IL 60601; 312-726-6200.

The Nebraska project includes:

- 1) An effort to get all Nebraska hospitals with services for newborns to adopt policies and support services that will ensure that all infants leave the hospital properly protected.
- 2) Education for nurses, through an accredited course of the Nebraska Nurses Association, along with new patient education materials.
- 3) The "Loan-Sell-Give-a-Seat Program" to encourage hospitals to make available safety seats for short or long periods. The project provides easy "how-to" information.

One year into the project, Diane Wolf, project director, reports that, of the 90 hospitals targeted, 22 have written discharge policies and another 21 are in process; 50 in-service training sessions have been held for nurses and another 19 are scheduled. Surveys are being done for all hospitals, and physicians, to ascertain their level of child passenger protection activity.

Contact the Safety and Health Council of Greater Omaha, 8710 F Street, Suite 122, Omaha, NE 68127-1532; 402-592-9004.

Washington State, cont.

Coalition. The Traffic Safety Now (TSN)-sponsored safety organization has conducted a technical training program for local child passenger safety advocates, as a funded project of the Washington Traffic Safety Commission, for the past three years. Most of the one-day sessions have been taught by Pat Vichas of Vancouver, Washington, whose years of experience with loan programs and car seat training have made her an expert. Recent sessions have been held at La Clinica in Pasco, Madigan Army Medical Center and Mary Bridge Children's Medical Center in Tacoma, and Children's Hospital Medical Center in Seattle. Many police officers have also been trained in two-hour sessions at the Criminal Justice Training Center. In all, over 600 people have been trained around the state since 1990.

Kathy Kruger, executive director of the coalition and director of the training project, is quick to point out that there are others in the state who, like Guthrie, have become technical resources to parents in their communities. For example, in Wenatchee, Lori Smith has worked with the local J.C. Penney manager who is a young father. Penney's has trained its baby-department staff and held an inspection during its baby products sale. The store offered a 20 percent discount on purchase of a new safety seat to parents whose safety seats had not passed inspection. Penneys and Sears both have been receptive all over the state.

High quality is the mark of the Safety Restraint Coalition's programs. TSN support for the organization ends this fall, but Kruger is determined to keep her organization alive.

For information about coalition activities, contact Kruger at PO Box 70277, Bellevue, WA 98007; 206-643-6223.

Violator Classes Popular with California Judges

Cheryl Kim, program coordinator for Passenger Safety Services, the pilot project for the SafetyBeltSafe U.S.A. (SBS USA) violator class program, says that the concept has met with enthusiasm and her classes are almost overwhelmed with referrals. The program was tested in Downey, Calif., in late 1991. In the first two months of 1992, the program has expanded to two other courts in L.A. County. People in several other parts of California have recently been licensed to set up the class in their areas as well.

Everyone who is found guilty of a seat belt or child restraint violation is required by the traffic court judge to attend the two-hour class, "Family Safety in the Car." The program is intended to motivate people to buckle up themselves and their children and to do so correctly. Half of the class period focuses on child safety, although most of those attending have seat belt violations. Kim says that many people who come expecting to be bored by the child safety segment become very "turned on" during the session.

Those with child restraint violations are required to bring the safety seat that they have obtained to class to be checked and approved by the instructor. According to Kim, most of these seats are quite old, and need to be inspected thoroughly. Those that have been recalled, need repair or require replacement parts must be fixed and brought back for a re-check. She offers to take any that are rejected outright, so that they can be destroyed.

Violators pay a \$15 fee for the class in addition to the court-imposed fines and costs. Community residents may also attend free of charge. In Downey, during the pilot phase, about 200 people took the class each month. Kim expects the demand to increase substantially as the program builds its capacity.

Changes in the California law seem to have helped the educational project, according to Kim. Now all violators of the child restraint law are

required to pay a fine of \$270 for the first violation, unless they plead economic disadvantage. A waiver for obtaining a safety seat no longer exists. The judges seem to appreciate that an educational program exists for those who are unable to pay the fine; otherwise their fines are waived with no penalty whatsoever.

How did she develop the program? Getting to the judges was the hard part, Kim says. Once she was able to speak with them, she found them very receptive. She spoke to a gathering of court administrators, who proved invaluable in opening the doors. Training for the instructors is a key element as well, particularly as instructors must be able to approve safety seats.

SBS USA, which owns the curriculum, offers a 20-hour, in-depth training course for people wishing to license the program and conduct classes in other communities. It includes observation of actual classes and hands-on practice with used, defective safety seats. The court program can be a self-supporting community service and is a fund-raiser for SBS, which gets a fee of \$1 per student. For more information, contact SBS USA, PO Box 553, Altadena, CA 91001; 213-673-2666.

Airport Program, cont.

Society says that he was surprised at how many parents who are leaving on a trip borrow seats. Apparently they do not have a car seat for every day use. Grandparents who are expecting their grandchildren to visit often use the service too.

This program is unique among Travels Aid organizations, according to Lindner. The national organization is in the process of providing information to the approximately 80 other societies around the country, to encourage them to emulate the program. For more information, contact Lindner at 412-281-5474 or, to reserve a seat in Pittsburgh, call 412-264-7110.

Good News: Fatalities Decline for Children in Traffic

The number of traffic-related fatalities among children under age 15 have declined significantly from 1975 to 1993. This promising report was presented by Susan C. Partyka of the NHTSA Office of Safety Performance Standards at the Symposium on Children in Traffic. The meeting was held in March, 1995, sponsored by the Association for the Advancement of Automotive Medicine.

A total of 23,293 children died in traffic-related incidents (occupants, bike and motorcycle riders, pedestrians) during the 19-year period. Despite the fact that the population of children in the 0-to-14 age range has increased by four percent, there was an overall 39 percent decrease in annual fatalities, from 2,047 in 1975 to 1,663 in 1993. Pedestrian deaths fell 58 percent and bicyclist deaths dropped 54 percent. Among vehicle occupants there was the smallest decrease in fatalities, only 19 percent.

The data pinpoints the children at the highest risk. Among pedestrians, the greatest number of fatalities were to six year olds. Boys in most ages were twice as likely to be killed while walking as girls. Among cyclists, the number of fatalities increased with age. About four times as many boys were killed as girls. Most motorcycle riders killed were male and few were under age 8; fully one-third were 14 years old.

A look at the child occupant fatalities from 1990 through 1993 showed that restraint use was over 40 percent among those under age 2. However, safety belt use was less than 20 percent for those aged 13 and 14.

Partyka speculated that these changes must be related, in part, to changes in travel patterns. She stated that detailed travel data is not available. Perhaps fewer children walk or ride bikes on the roads, and more are driven wherever they need to go. Whatever the reasons, the good news is that fewer children are being killed while they travel.

Reference: Partyka, S, Trends in Childhood Fatalities in Traffic, NHTSA ([how available?](#))

Literacy and Child Passenger Safety

Literacy has a major effect on health care, from history-taking, diagnosis, and informed consent to following instructions, keeping appointments, and understanding how to use child restraints. Many people in this country do not read well. Good readers as well as poor ones have been found to prefer and learn more from simple materials that are laid out to make reading easier and quicker.

The *National Adult Literacy Survey, 1993*,¹ showed that 47 percent of those over age 15 (about 80 million people) were in the two lowest of five levels of functional literacy. People at the two lowest levels had limited ability to understand a typical newspaper article or integrate information from various parts of a written piece. The average for people under 40 was on the borderline between levels 2 and 3. Only about 20 percent (34-40 million) functioned at level 5, the highest level.

"Literacy is a primary quality of care issue for every health practitioner and institution,"² reported Dr. Terry Davis from Louisiana State University at a 1994 conference of the American Academy of Family Physicians. For example, a study done in Oregon showed that 65% of adults could not determine from reading the label the correct dosage of Tylenol based on a child's weight and age.

Dr. Davis described how many people manage to hide their very low reading skill. They get through life by having a good memory for what they hear, asking their family and friends to read for them, and guessing or bluffing. Many say that they hide their problem because it is so humiliating.

While people may not understand the written language, they also may not understand the technical terms used in oral language. What is a "child restraint system" or a "harness retainer," for example? The educator or writer must know what level of language to use. In a face-to-face situation, it is important to ask questions to make sure the person has understood what has been said.

How does this affect child passenger safety? Child restraint pamphlets, instructions, and vehicle owner manuals may be misunderstood, or found too intimidating

to read at all. The format also can hinder comprehension and may be as important as the words themselves. While several current safety seat instruction booklets were analyzed and found to be written at only a 5th or 6th grade reading level, most were designed with tiny type crammed on the pages, with few illustrations.

Simplified materials work best for most people, according to Dr. Davis's research. Although the Department of Education study indicated that 20 percent function at the highest literacy level, a study of booklets for parents regarding polio immunizations showed that *even well-educated people (Junior League members, in this case) preferred—and learned more from—simpler materials*.³ To communicate effectively about child passenger protection requires that written material be planned and produced with care.

¹ US Dept. of Education: 1-800-424-1616, document #065-000-00588-3

² William Penn Foundation, 1993

³ Davis, TC et al, A study of parent comprehension comparing a short polio vaccine information pamphlet containing graphics and simple language with the currently available public health service brochure. Reprint requests: Dr. Davis, Dept. of Pediatrics, Louisiana State University Medical Center-Shreveport, PO Box 33932, Shreveport, LA 71130-3932.

⁴ Adapted from several sources, particularly Doak, CC, Doak, LG, Root, JH, *Teaching Patients with Low Literacy Skills*. Philadelphia, JB Lippincott Co., 1985.

Writing to be Understood⁴

1. Write short sentences (8-10 words)
2. Use active verbs ("Buckle up your child") rather than passive ones ("Be sure your child is restrained")
3. Use simple grammatical constructions
4. Use short words (1 or 2 syllables if possible)
5. Present ideas in logical sequence
6. Avoid slang words or professional jargon
7. Limit the number of concepts in one piece of written material
8. Put the most important concepts first
9. Use sub-heads to highlight topics covered
10. Limit lists to seven items or less
11. Use large type and plenty of white space
12. Use line drawings whenever possible

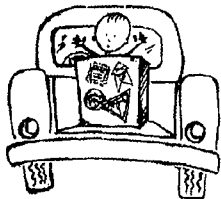
Excerpt from

safe ride news



Protecting Children in Traffic

Vol. XIV, No. 4: Fall 1995



kids aren't cargo

Pickup Safety Theme of Awareness Week

Pickup truck safety is the major theme of National Child Passenger Safety Awareness Week, that will be held February 11-17, 1996. The NHTSA "Safe & Sober" Sixth Quarter Planner contains legislative and background information, posters, hang tags, and citation holders. Request a copy from NHTSA by fax: 202-493-2062.

Cargo Area Alerts Coming from Feds, Dealers, Manufacturers

Karen Slay of Lubbock Texas petitioned NHTSA to take action on children's fatalities in pickup truck beds. In response, the agency has begun the education campaign starting with the Winter 1996 Safe & Sober kit and worked with manufacturers to warn purchasers and owners of pickups.

The American Automobile Manufacturers Association (AAMA) members will begin providing uniformly-worded warnings about riding in cargo areas no later than the 1997 model year. The warnings will appear in manuals for passenger cars, multipurpose vehicles, and light trucks manufactured by AAMA members: Chrysler, Ford, and General Motors.

Meanwhile, the National Automobile

Dealers Association (NADA) is developing "Kids Aren't Cargo" warnings in hang tag format for dealers to give to their customers. They will also include pickup truck safety information in an updated "Buckle Up Baby" brochure.

Contacts: AAMA: Vann Wilber, 313/871-6334; NADA: Ted Orme, 703/827-7401.

Pickup Truck Riders, Victims are often Children

Children eighteen years and younger accounted for 43% of the 211 pickup cargo area deaths in the US in 1993, according to pickup truck injury data compiled by the Pediatric Injury Prevention Research Group at the University of California, Irvine. About one million new small pickup trucks are purchased each year.

A common objection to outlawing passengers in cargo areas is that it is the only transportation available for some families. However, in a recent UC/Irvine study,* only 9 percent of the drivers interviewed who admitted carrying passengers in the back of a pickup said it was the only vehicle available in the household.

The UC/Irvine group also compared crashes involving passengers in the cargo area with those involving passengers in the cab.** The incidence of passenger ejection from pickup trucks was found to be "significantly higher for those in the cargo area, 25 percent, versus 4 percent for those in the cab." Sixty-four percent of those in the cargo area were injured, 1.2 percent fatally, compared with 51 percent of those in the cab, fewer than 0.5 percent fatally.

The researchers noted the considerable variation in state laws, and pointed

Continued on next page

Child Passenger Safety in Child Care Setting

The National Highway Traffic Safety Administration (NHTSA) has funded the Children's Safety Network at the National Center for Education in Maternal and Child Health (CSN/NCEMCH) to work with the child care community on child passenger safety issues. The project focuses on out-of-home child care settings (child care centers and family child care homes).

Goals of the project include: educating child care providers and encouraging them to educate children and parents about child passenger safety, ensuring that children transported by child care providers are transported safely, and linking child care providers with state and community child passenger safety resources.

In July 1995, the project provided two "train the trainer" sessions for fifty child care trainers in Georgia. Technical assistance and outreach on child passenger safety in child care is also provided to national, state and local child care agencies and associations, child care trainers, providers, licensing and regulatory agencies, and state MCH agencies.

A number of project materials have been developed or are in the process of being developed. Subscriptions to SAFE RIDE NEWS were provided to give ongoing technical support to new trainers.

For more information, contact: Esha Bhatia, Children's Safety Network, (703)524-7802.

A Quarterly Newsletter for Health and Safety Professionals and Advocates

Pickup Trucks

out that many states have rules regarding securing animals in the cargo area. They concluded: "In keeping with the American Academy of Pediatrics policy statement, children through 18 years of age should be prohibited from traveling in this non-passenger location." They also said manufacturers and salespersons "ought to warn consumers about the dangers of travel in the cargo area,...the increased risk of ejection and...that the cargo area...does not meet standards for the passenger compartment of motor vehicles."

References:

*Agran, P, Winn, D, Anderson, C. Who Carries Passengers in the Back of Pickup Trucks? *Accident Analysis & Prevention*, Vol. 27, No. 1, 1995.

**Agran, P, Winn, D, Anderson, C. Injuries to Occupants in Cargo Areas of Pickup Trucks, *Western Journal of Medicine*, November 1994. Contact: Patti Rhynders, Dir. of Education, Pediatric Injury Prevention Research Group, University of California, Irvine, CA 92717-5800; 714/824-5371.

Pickup Passenger Laws Languish in Florida, Texas

Despite strong advocacy, bills to restrict transportation of children in the open beds of pickup trucks died in the Florida and Texas legislatures this year. Both bills resulted from children's deaths.

Josephina McCarty of Homestead, Florida, wants the state's minimum age for pickup bed riders raised from six to eighteen. McCarty, who lost her own son in a car crash, has gotten a bill sponsored every year since 1991. The bills have never come to a vote.

Lubbock, Texas resident, Karen Slay, was moved to action by the July 3, 1994 collision of a tractor-trailer and a small pickup, in which eight of the 12 children riding in the cargo area were killed. With strong support from the Texas PTA, a compromise bill was formulated that would have strengthened the current law. It had just four bills ahead of it on the calendar when the 1995 legislative session ended. It was a double disappointment, Slay said, because the votes were there to pass it, but the legislature meets only every other year.

Only one state – New Jersey – prohib-

its anyone from riding in the open bed of a pickup truck. Twenty-two states permit passengers in the cargo area with certain restrictions, and 27 states and the District of Columbia allow it with no restrictions.

Resource: AAP, Children in Pickup Trucks, Policy Statement, 1991. Call the AAP for a copy: 708/228-5005.

Pickup truck articles by Gisela Moriarty

Excerpt from

safe ride news

MAKE EVERY RIDE



Vol. XIV, No. 2: Spring 1995

American Academy of Pediatrics



Safe Ride News Becomes Independent

The AAP's 14-year child passenger safety program has been scaled down, due to shifting priorities for funding. The major changes are:

▲ *Safe Ride News* will be produced as a subscription publication by Deborah D. Stewart, the current editor. It will be expanded to 12 pages, with additional coverage of bicycle and pedestrian safety. The Current readers are urged to subscribe, to assure that the newsletter can become self-sufficient and continue as a resource for medical and non-medical child passenger safety advocates and practitioners. See the back page to subscribe.

▲ "The Family Shopping Guide to Car Seats" will continue to be published by the AAP.

▲ AAP members can get child passenger safety information from the Traffic Injury Prevention Program of the Pennsylvania Chapter. Its telephone number is 610/520-9123.

▲ As of May 1, 1995, calls from the public will be handled via voice mail. A copy of the "Family Shopping Guide" and a resource list of other contacts around the country will be available to anyone sending a self-addressed, stamped envelope to AAP, Dept. C (Family Shopping Guide), PO Box 927, Elk Grove Village, IL 60009-0927.

Subscribe Now!

Use the form on page 8 to keep *Safe Ride News* coming to you. Your subscription will help assure that *Safe Ride News* can continue to provide the information that you know is needed.

Nebraska's Fire & Rescue Project Catches On

A child passenger trauma prevention program for fire and rescue departments is spreading like wildfire across the state of Nebraska in 1995. It began in 1994 as a pilot project, *NEBRASKA CARES*, in the Omaha Fire Department and the Papillion (an Omaha suburb) Volunteer Fire Department. Fire and rescue personnel were trained by the Safety and Health Council of Greater Omaha using an eight hour training course, "Pediatric Trauma, Immobilization and Transport." The course, developed by the council, combines primary prevention and emergency treatment of childhood injury. It meets the objectives of the 110 hour DOT EMT-A course. Recently the Nebraska EMT Association adopted the program as its statewide advocacy project.

This year, the *NEBRASKA CARES* Fire and Rescue Project is training the 200 EMS instructors throughout the state. The accredited trainings are being scheduled on a regional basis in cooperation with the Nebraska Department of Health Division of Emergency Medical Services. The training team is composed of a pediatrician, a paramedic, a pediatric nurse and the two project directors. Only 25 instructors are trained at one time. The NHTSA grant completely equips the EMS instructors with child safety seats, dummies, videos, slides and written materials to use in teaching the course to EMTs in Nebraska's 350 fire and rescue departments.

At the time of the training, all fire and rescue departments in the region are invited to become community advocates for child passenger safety. A *NEBRASKA CARES* Fire and Rescue "Idea Sampler" packet is sent to those interested. In it are

Continued, page 2

easily implemented program ideas including "Saved by the Safety Seat", bounty programs, "Please be Seated" and suggestions for EMS Week activities. Samples of child passenger safety materials are included, and fire departments are invited to order the materials in any quantity. Free videos are also offered. A newsletter keeps fire departments informed about what is happening in the project and spotlights outstanding local efforts.

The child passenger safety project is administered by the Safety and Health Council of Greater Omaha and is funded by a NHTSA Federal 402 grant through the Nebraska Office of Highway Safety. Project directors are Diane Wolf and Connie Marinovic. Contact *NEBRASKA CARES*, 8710 F Street, Suite 122, Omaha, NE 68127-1532; 402-592-9004 or (FAX) 402-592-8944.

A Quarterly Newsletter for Health and Safety Professionals and Advocates

NEBRASKA CARES
MODEL CHILD SAFETY SEAT LOAN PROGRAM

CHILD SAFETY SEAT LOAN POLICIES AND PROCEDURES

1. All loan program personnel will be trained on proper use of safety seats and rental procedures.
2. Staff should emphasize to those inquiring about safety seat rental that the person(s) coming to get the seat should be the person(s) who will be using the seat the majority of the time. For example, if a grandparent calls about obtaining a seat for a grandchild but you learn that the parent will be the one using the seat, the parent should be the one who comes in for the seat and the education.
3. It should also be stressed that the vehicle which will carry the seat the majority of the time should be the one brought in when picking up the seat, to assure proper safety seat/vehicle compatibility.
4. The deposit is \$____, with a yearly rental rate of \$____.
(Suggested: \$20 deposit and yearly rental of \$5 for a community program. These amounts depend on your community and the means of those who use your loan program.)
5. RENTAL PROCEDURE: The renter comes into the agency/office. The renter will view the video, "Don't Risk Your Child's Life - IV," * and will read safety seat instructions. The opportunity for questions will be given to the renter. The contract will be filled out by the renter and staff. The deposit and rent will be paid. The Safety Seat Installation Checklist will be reviewed with renter. THIS INCLUDES TAKING THE SAFETY SEAT OUT TO THE RENTER'S VEHICLE. Staff will verbally assist renter with installation of the seat according to the checklist guidelines. If a vehicle safety belt is incompatible with our safety seat, try other seating positions in the vehicle. If necessary, staff will utilize a standard or heavy duty locking clip, according to training protocol. Give renter locking clip teaching sheets, demonstrate locking clip installation, and have renter install the clip. Check the installation. If there are NO seats in the vehicle which are compatible with our safety seat, the safety seat will NOT be rented until the belt system is replaced with one which is compatible OR until a different vehicle with compatible safety seats is brought in by the renter.
6. If grandparents (aunt, etc.) need to rent the safety seat for a week (weekend, etc.), they will need to go through the same rental procedure and education as would be necessary for any other rental. A \$____ deposit will be taken, but no rent will be charged.
(Suggested amount: \$20.)

7. If there are no safety seats available, name, address and phone number will be placed on the waiting list.

8. Contracts will be filed according to the month the renter will need to have the safety seat evaluated and/or rented again. There will be an evaluation done 6 months after the rental, and seats will be rented for up to 1 year at a time. The 6 month evaluation will consist of a postcard being sent out to the renter, who will then fill it out and return it to the rental office. If renter does not return the card within 1 month, staff follows up with a phone call.

9. One month before the seat is to be returned, staff sends a reminder to renter. When the seat is brought back, renter will have the option of renting for another year. If this is desired, the renter must demonstrate to the loan program staff the way the seat is being used. This will give staff an opportunity for further education on the proper use of safety seats, if needed.

10. When the safety seat is returned, a payment authorization will be filled out in the amount of the returnable deposit. If necessary, some or all of the deposit can be withheld due to UNUSUAL wear and tear or excessive dirtiness of the seat. The Checklist for Return of the Safety Seat should be followed for every return.

* NEBRASKA CARES uses the safety seat video, "Don't Risk Your Child's Life - IV," (1990) from Shelness Productions.

NEBRASKA CARES
MODEL SAFETY SEAT LOAN PROGRAM

CHILD SAFETY SEAT RENTAL AGREEMENT

The undersigned renter hereby agrees to lease one (name and model number of safety seat) for a period not exceeding one (1) year for a charge of _____ rent and _____ deposit.

If this device is in good condition by _____, the deposit will be refunded. If this device is returned late, dirty, and/or in poor condition, the deposit will not be refunded. A late charge of \$1.00 per week applies to the return of the device after the date due. Renter may be granted an extended rental period for an additional fee and be renewing the rental procedure.

The safety seat being rented is required by law to meet performance standards. Both parties must initial the following statements only after reading and understanding each statement.

Renter LPR (Loan Program Representative)

- | | | |
|-------|-------|---|
| _____ | _____ | 1. I understand that it is important to use the safety seat correctly on every ride. I understand the failure to do so means my child will not be properly protected. |
| _____ | _____ | 2. I have been instructed and understand the correct way to secure a child in the safety seat according to _____ Company instructions and have been provided with a copy of these instructions. |
| _____ | _____ | 3. I have been instructed and understand the correct way to secure the safety seat in the vehicle according to _____ Company instructions. |
| _____ | _____ | 4. All straps, buckles and other items necessary for proper use of this seat as described in _____ Company instructions have been furnished to me. |
| _____ | _____ | 5. I agree that this safety seat is in good condition and in proper working order at the time that I receive it, and I agree to return this safety seat for immediate replacement in the event any parts fail to continue to function properly. |
| _____ | _____ | 6. I have read and fully understand _____ Company instructions provided to me. |

- _____ 7. I have watched the video, "Don't Risk Your Child's Life"* and have been given an opportunity to ask questions.
- _____ 8. I agree to use this safety seat correctly according to _____ Company instructions, on all occasions.

It is expressly understood and agreed by the undersigned lessee that the rental service provided by _____ (name of agency) is a gratuitous service and that the _____ (name of agency), its directors, officers, agents or employees are not dealers in this type of goods, and they make no warranty, expressed or implied, as to the fitness of said seat for the purpose it may be used by lessee.

The undersigned does hereby acknowledge receipt of this gratuitous service given by _____ (name of agency), and that in the event of any injury, it will not make any claim, at law or in equity against _____ (name of agency), its directors, officers, agents or employees for damages or other claims and that no claims will be made by lessee's successors, heirs, assignees or other parties in interest for any loss, injury, loss of companionship or expenses arising from the use of the motor vehicle child safety seats.

If I am involved in a motor vehicle accident while this seat is in use, I will immediately return the seat for replacement at no additional charge.

_____	_____	_____
Date of Rental	Date Due	Seat Number
_____		_____
Signature of Renter		Signature of Program Representative
_____		_____
Address of Renter		Phone
_____		_____
Drivers License Number		Social Security Number

Name, Address and Phone of Relative or Friend		

_____		_____
Safety Seat Make & Model #		Date of Manufacture

* NEBRASKA CARES uses the video, "Don't Risk Your Child's Life - IV," (1990) from Shelness Productions.

NEBRASKA CARES
MODEL CHILD SAFETY SEAT LOAN PROGRAM

SAFETY SEAT INSTALLATION CHECKLIST

INFANTS (Birth to age 1 year/20 pounds)

- Renter has read safety seat instructions.
- Harness is in lower harness slots.
- Harness straps are flat, not twisted.
- Harness length adjustment is demonstrated.
- Importance of a snug harness fit is stressed (harness first, then blankets).
- "Double back" is demonstrated.
- Chest clip is at armpit level.
- Safety seat faces the rear of the vehicle.
- Safety seat is reclined at 45 degree angle.
- Vehicle safety belt is compatible with safety seat.
- Vehicle is compatible with safety seat.
- Safety belt is routed through correct path.
- Safety seat is tightly secured with vehicle safety belt.
- Is there a passenger side air bag?
- Standard locking clip is applied to free-sliding latch plate.
- Heavy-duty locking clip applied to VSELR.

TODDLERS/PRESCHOOLERS (1 year/20 pounds to 4 years/40 pounds)

- Renter has read safety seat instructions.
- Child is within manufacturer's recommended weight and height.
- Harness is in highest harness slots.
- Harness straps are flat, not twisted.
- Harness length adjustment is demonstrated.
- Importance of a snug harness fit is stressed.
- "Double back" is demonstrated.
- Chest clip is at armpit level.
- Safety seat is forward facing and fully upright.
- Vehicle safety belt is compatible with safety seat.
- Vehicle is compatible with safety seat.
- Safety belt is routed through correct path.
- Safety seat is tightly secured with vehicle safety belt.
- Is there a passenger side air bag?
- Standard locking clip is applied to free-sliding latch plate.
- Heavy-duty locking clip is applied to VSELR.

NEBRASKA CARES

NEBRASKA CARES
MODEL CHILD SAFETY SEAT LOAN PROGRAM

CHECK LIST FOR SAFETY SEAT RETURN

- ____ 1. Ask renter: Has the safety seat been involved in a crash? If yes:
 - A. Any type of crash, even a fender-bender in a parking lot, would cause the seat to be retired from further use.
 - B. Full deposit is refunded.
 - C. Seat will be retired by (a) calling the local hospital or MD's office to see if they would like to use the seat for display with the sign, "This seat saved a child's life;" or (b) writing "DAMAGED" on the seat with permanent marker and destroying it per loan program protocol.

- ____ 2. Check shell of the seat for damage. If the shell is cracked, sun damaged, has chemical erosion or brittleness, the seat must not be used again. If the damage was not due to a crash or ordinary wear and tear, the deposit is not returned.

3. If any of the following are missing or damaged beyond reasonable wear and tear, some or all of the deposit may be withheld. This is handled according to loan program policy or left to the discretion of staff person. (A suggestion would be \$10 for a damaged pad and \$5 for other damages. Remember: if parts are damaged, they must be replaced.)
 - _____ Check the harness for fraying or other damage.
 - _____ Check the padding for rips and tears.
 - _____ Check to assure chest clip is present. (If damaged by bending, this is considered normal wear and tear.)
 - _____ Check to assure all screws are present.
 - _____ Check to assure buckle and latch plates are present and working properly.
 - _____ Check to assure recline adjustment mechanisms are present and in proper working condition.

- ____ 4. Check for cleanliness of the seat. If excessively dirty, some of the deposit will be withheld. (A good rule of thumb would be to ask yourself, "How much would they have to pay me to clean this?")

- ____ 5. Check to see that the instructions and locking clip are present. No part of the deposit is withheld if these are missing, but replacements must be in place before the seat can be rented again.



APPENDIX F

PART II: TECHNICAL BACKGROUND

Articles from past *Safe Ride News* issues
(those grouped together are on the same pages)

Article	Page
A. Child Safety Seat Questionnaire	A60
B. Air Bag Toll to Children Climbs, Brings Action	A61
C. Using Lockable Belts Training Video Focuses on Incompatibility	A62
D. Status Report: Ambulance Transportation How do I know if a recent-model car has air bags?	A63
E. Can a child safety seat be anchored securely on a rear-facing seat?	A64
F. Child Restraints and Automobiles: An Uneasy Union Ford Instructions Call for Tether Use	A65
G. AAP Policy Statement: Transporting Children with Special Needs	A67
H. Child Passengers at Risk in Pickups	A71
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J. On-Lap Travel Still Injures Children	A75
K. Air Bags and Infants Don't Mix Boosters and Whiplash Injury	A76
L. Safety Alerts: Look-Alike Locking Clips Pose a Hazard Shoulder Strap Slot Positions Clarified	A78
M. Add-ons make safety belts more comfortable (shoulder belt adjusters) from <i>Consumer Reports</i> April 1994	A80



U.S. Department of Transportation
National Highway Traffic Safety Administration

AUTO SAFETY HOTLINE
CHILD SAFETY SEAT QUESTIONNAIRE

NATIONWIDE 1-800-424-9393
DC METRO AREA 202-366-0123

FOR AGENCY USE ONLY

REFERENCE NUMBER

DATE RECEIVED

OWNER INFORMATION (Type or Print)

LAST NAME	FIRST NAME AND MIDDLE INITIAL	HOME	WORK PHONE
STREET ADDRESS	CITY	STATE	ZIP CODE
SIGNATURE OF OWNER			DATE

CHILD INFORMATION

CHILD'S NAME	AGE	HEIGHT/LENGTH	WEIGHT
--------------	-----	---------------	--------

CHILD SAFETY SEAT INFORMATION

MANUFACTURER	MODEL NUMBER/NAME	DATE MANUFACTURED
SEAT WAS <input type="checkbox"/> Purchased <input type="checkbox"/> Obtained through loaner program <input type="checkbox"/> Gift	SEAT WAS OBTAINED <input type="checkbox"/> New <input type="checkbox"/> Used	DATE SEAT OBTAINED

VEHICLE INFORMATION

MAKE OF VEHICLE	MODEL OF VEHICLE	YEAR OF VEHICLE
-----------------	------------------	-----------------

ACCIDENT INFORMATION (if applicable)

ACCIDENT? <input type="checkbox"/> Yes <input type="checkbox"/> No	NUMBER INJURED	NUMBER FATALITIES	POLICE REPORT FILED? <input type="checkbox"/> Yes <input type="checkbox"/> No
CHILD SEAT LOCATION: <input type="checkbox"/> Front <input type="checkbox"/> Right <input type="checkbox"/> Rear <input type="checkbox"/> Left <input type="checkbox"/> Center	FACING DIRECTION: <input type="checkbox"/> Forward <input type="checkbox"/> Backward		

DESCRIBE PROBLEM/DEFECT IN DETAIL (state method of securing child and seat)

SAMPLE
Contact the Auto Safety Hotline for original copies

CONTINUE ON BACK IF NEEDED

The Privacy Act of 1974
Public Law 93-579

This information is requested pursuant to authority vested in the National Highway Traffic Safety Act and subsequent amendments. You are under no obligation to respond to this questionnaire. Your response may be used to assist the NHTSA in determining whether a manufacturer should take appropriate action to correct a safety defect. If the NHTSA proceeds with administrative enforcement or litigation against a manufacturer, your response, or a statistical summary thereof, may be used in support of the agency's action.

● Excerpt from

safe ride news



Protecting Children in Traffic

Vol. XIV, No. 4: Fall 1995

Air Bag Toll to Children Climbs, Brings Action

Six children are known to have died from impact of passenger air bags, as of mid-October. Two infants riding restrained in rear-facing safety seats have been killed and two seriously injured, while four were older, unbelted children (ages 5-9). In response, two national agencies, the National Highway Traffic Safety Administration (NHTSA) and the National Transportation Safety Board (NTSB), have taken action in recent days.

NHTSA Warning Extended

NHTSA issued a warning on October 27 restating its advice that rear-facing infants should not be placed in the front seat with a passenger air bag. The agency also warned that children over age one should always be correctly restrained and ride in the rear seat whenever possible. If a child in a safety belt or forward-facing restraint must ride in front, the vehicle seat should be moved back as far as possible.

NHTSA crash investigators believe that all of the air bag-related fatalities to children (other than infants) involved unbelted or improperly belted children. Because of pre-crash braking, they probably were positioned on or very near the dashboard at the time the air bag deployed. They were injured by the force of the air bag or by being propelled by it against the interior of the vehicle.

There are approximately 11 million passenger air bags in vehicles today. NHTSA noted that 72 percent of children fatally injured in the front seat of a motor vehicle were riding unrestrained, according to recent crash data.

The agency has since issued a call for

comments from the public, asking for crash experience and suggestions.

Coincidentally, on October 24 Deborah Stewart, Editor of *Safe Ride News*, filed a petition asking NHTSA to take several actions to limit the risk of air bags to children including the installation of cut-off switches for parents to use when children must ride in the front seat.

NTSB Calls for Urgent Action

On November 2, 1995, the National Transportation Safety Board issued an "Urgent Recommendation," which urged a number of agencies and organizations to warn parents about the hazards of air bags to infants and to older children riding unrestrained or improperly restrained. The board had investigated the deaths of the same children mentioned above.

Major recommendations were addressed to NHTSA, the National Association of Broadcasters, and the Advertising Council; to auto and child restraint manufacturers; and to child health, hospital, and public health organizations. All were asked to conduct highly visible campaigns to reach recent and future customers/clients with clear warnings about air bag hazards for infants and children.

For a copy of the recommendations, contact: NTSB at 202/382-6735.

Air Bag Cutoff Switch in Ford, Mazda Pickups

The 1996 model Ford Ranger and Mazda B Series are the first small vehicles to have a cutoff switch to prevent the air bag from being deployed when a baby in a rear-facing restraint is riding in the passenger seat. The switch must be manually reset to turn the air bag back on..

————— A Quarterly Newsletter for Health and Safety Professionals and Advocates —————

Technical Report

Infant Killed in Car with Passenger Air Bag

Both the National Transportation Safety Board and National Highway Traffic Safety Administration are both investigating the death of a 20-day old baby girl in the front seat of an air bag-equipped car on the afternoon of July 18th, 1995, in Gilbertsville, PA. The infant was in the right front seat of a Ford Escort stationwagon. Both the vehicle sun visor and the child restraint had labels warning against use of a rear-facing Touriva (by Cosco) in the front seat.

The collision, with a 1991 Toyota Camry, was an off-set head-on crash (left-front to left-front) at moderate speed, which should have been survivable. The infant was riding facing the rear in a convertible seat that rested against the dashboard, although the passenger seat was moved back. Preliminary reports say that the infant suffered multiple skull fractures and crushing brain injuries. The mother, who was driving, survived with various fractures.

The Escort had both dual air bags and motorized shoulder belts, with separate emergency locking retractor lap belts.

Air bags found in some cars with motorized belts

The presence of a motorized or other passive belt system does not always indicate the absence of air bags. In the case of the 1995 Escort (in the article above), both exist in the same vehicle because the model is being phased out and the air bags were added to accommodate consumer demand rather than meet the standard.

Go Online With the Electronic Bulletin Board!

First time callers should dial 202-785-2546 using their modems. Settings to use: character length, "8"; parity, "n"; and stop bits, "1". After giving your name and organization, you will be asked to choose a password (any word) and then to register. You will have 30 days of access and during this time you will be billed \$100 for the year, and sent a manual. Contact E.K. and Company for further information at 715/344-7583.

Lockable Belts to Be Required, September 1995

Beginning in September of this year, vehicle belts installed in most new cars must be equipped with a built-in means of locking around child restraints. This is the result of years of discussion, pressure, and proposals. Some vehicle models, particularly from US manufacturers, have had lockable belts for years; others have voluntarily added this feature within the last few years. The standard (an amendment to FMVSS 208) eventually will eliminate the need for regular and heavy-duty locking clips, as older models are phased out of the vehicle fleet. It applies to all seats except the driver's, except for those right front seats equipped with automatic belts.

The standard requires a pull test of 50 pounds on the belt. During the pull, the belt cannot loosen more than two inches. Some may stay completely snug, but a belt may comply despite the fact that it loosens slightly. Instructions are required in the owner's manual. Users may not realize that their vehicle has switchable retractors or how useful they can be. Educators must alert parents to the presence of these features.

Training Video Focuses on Incompatibility Issues

Annemarie Shelness has produced a video for NHTSA, "Child Restraints and Automobiles: At Times an Uneasy Union," to help train educators and other advocates about various compatibility issues. **It is not intended for parent education.**

The intent of the video is to point out problems that educators must recognize so they can help parents with installation problems. It describes the use of the heavy-duty locking clip to shorten certain types of belts, for example. It also shows the auxiliary belts and the special child seat buckle needed in some vehicles with automatic safety belts. It also shows problems with vehicle seats and belts that so far defy easy solutions. These include deeply contoured seats, humps that render the center rear position hard to use, and belts anchored forward of the seat "bight" or cushion intersection. ➡

Using Lockable Belts

Current equipment that meets this standard:

1) **Locking latchplate:** this allows the belt to move through freely when the webbing is at a 90-degree angle to the plate. When webbing is parallel to the plate (as when buckled around a passenger), a sliding bar creates friction so that the lap part of the belt cannot be loosened. Some such latchplates are big and bulky; others are almost as narrow as sliding latchplates. Center rear lap belts usually have this type of plate. When installed on a lap/shoulder belt, the lap webbing is tightened by pulling up on the shoulder part.

2) **Switchable retractor:** this operates as an emergency locking retractor (ELR) that locks only from impact or pressure on the belt, unless it is converted into an automatic locking retractor (ALR), one that stays tight around a child restraint. In most versions, the retractor is converted by pulling the belt out to its full length, which activates a switch. When the belt is retracted part way, it locks. On a few models, the retractor is switched by pushing a button on it.

The switchable retractor is found on lap belts or lap/shoulder belts. On a lap/shoulder belt made of a *single piece* of webbing the switchable retractor is found in the shoulder end of the belt. The belt has a sliding latchplate, and looks as if it needs a locking clip. On lap/shoulder belts made of *two pieces* of webbing stitched to the latchplate, the lap belt retractor is switchable. Some belts with switchable retractors in current cars have a label explaining their operation but others have no label.

A guide was written to accompany the video, but some videos were distributed before the guide was printed. If you have received a video but not the essential written material, please contact NHTSA. For a copy of the guide and/or video, contact Veronica Ferguson, NHTSA, NTS-13, 400 Seventh St. SW, Washington, DC 20590, or fax a request to her at 202/493-2062.

Q&A

How do I know if a recent-model car has air bags?

Accurate identification of vehicle restraint equipment is critical for educators doing child restraint inspections or counseling users over the telephone.

All cars made since September, 1989, have been required to have either an automatic safety belt for each front outboard occupant or an air bag for the driver. No vehicles have both an automatic belt and an air bag for a single position. Until 1994, vehicles with driver air bags were allowed to have regular manual belts for the passenger side. 1994-model vehicles with driver-side air bags must, however, have either a second air bag or an automatic belt for the passenger.

Here are ways to tell whether a vehicle has air bags:

- Look for the letters "SRS" (or in some models, "IRS") imprinted on the center of the steering wheel and on the dashboard in front of the passenger seat. SRS means "supplemental restraint system" and IRS means "inflatable restraint system." For clarity, Chrysler uses "SRS - Air Bag." This logo on the right side of the dashboard indicates the presence of a passenger-side air bag.
- Look for a warning label about air bags, safety belts, and babies. This is usually on the back of the visor. New cars are required to have this label. Most older ones also have some type of warning.
- Look in the vehicle owner's manual.
- If both front outboard safety belts are attached to the door or run on a motorized track, they are automatic belts and no air bags are present.
- If both safety belts are attached to the pillar behind the door and are buckled manually, the car is equipped with at least a driver side air bag. It may or may not have a passenger air bag as well. If it is a 1994 model, it **must** have two air bags.
- If the driver's safety belt is manual and the right belt is automatic, then the vehicle has only a driver air bag.
- After September, 1998, all passenger vehicles must have air bags (see p. 4).

Status Report: Ambulance Transportation

"Until child passenger safety educators begin to question current practices and assumptions behind the transportation of children in emergency situations, [the ambulance] will remain excluded from consideration of transferring the gains in technology, research and experience achieved over the last decade," stated Karen Bruner Stroup, Riley Hospital, Indianapolis, in an article in the September 1993 issue of **Challenge**, the newsletter of the KARS/Special KARS program of the National Easter Seal Society.

Following is a summary of the status of ambulance safety in early 1994.

No accurate data exist on the occurrence of ambulance crash-related injuries.

No dynamic standards exist for cots and isolettes (incubators) used for transportation. A test done in 1990 of a child restraint on a commonly used cot showed that the conventional 3-point antler-rail clamps anchoring the cot failed under 30 mph crash forces. A test of a transport incubator showed that the anchorage system and frame, as well as the incubator itself, were heavily damaged.

The General Services Administration (GSA), which regulates ambulance equipment, requires only static tests. It has taken steps to allow ambulances to be equipped with seats with integrated child restraints; a seat designed for this purpose (Hi-Bac Safety Seat by Dygert Seating) is on the market and can be retrofitted.

Two restraints, the Carrie Life Seat and the Pedi-Pal, have been specially designed for use in ambulances on the cot or on a rear-facing or forward-facing seat. Cot anchorage is still questionable. Pedi-Pal (from Ferno) folds up for storage. (Other child restraints are certified under FMVSS 213 for use on forward-facing passenger seats. Some have been used in ambulances in various communities.)

Guidelines for emergency personnel generally suggest that children involved in crashes should be carried in their own safety seats unless there are medical reasons to remove them. Preferred places in the emergency vehicle for children to be restrained are the right front seat and the rear-facing seat behind the cab. (See p. 7 for a suggested method of using a child

restraint on a rear-facing seat.)

Half the states explicitly exempt ambulances from child restraint use laws. A few of those allow non-use in emergency or life-threatening situations, regardless of type of vehicle, yet only 10 states exempt ambulances from safety belt use laws.

A look at ambulance safety raises more questions than answers. Data on the extent of the problem and actual cases in which children riding in ambulances were involved in crashes are needed. The remedy is not clear, so upgrading state laws to include ambulances at this time poses problems. More communication between child safety advocates and EMS personnel and better training materials for these personnel are also important. Parents and caretakers need to be made aware of the benefits of keeping their child in the restraint after a crash if there is a possibility of injury, so EMS personnel can evaluate the child before moving him or her and can make use of the child's CRS.

The Automotive Safety for Children Program at Riley Hospital, Indianapolis, has taken the lead in investigating the problem and the solutions. For more information, contact the ASFC Program, Riley Hospital for Children, 534 N. Clinical Dr., Room 118, Indianapolis, IN 46202-5109.

Note: A video, "Child Safe," done in Iowa a number of years ago includes ambulance transport. For a copy, send \$10 to Mary Greeley Medical Center, 117-11th St., Ames, Iowa 50010 (Attn: Paul Hudson) or call him at 517/239-2109.

Carrie Life Seat, from Preston. 517/787-1600 or 800/631-7277.

Pedi-Pal, from Ferno, 800/73-FERNO.

Hi-Bac Safety Seat, Dygert Seating, 219/262-4675.

Heavy-Duty Locking Clips Provided by Kolcraft

Kolcraft has been providing heavy-duty locking clips strong enough for use as belt shortening devices with all its child restraints since May, 1992. A recent independent test by the University of Michigan confirmed that the clip is strong enough for use as a belt shortener. It is a small size clip marked with part number 840191.

Q&A

Can a child safety seat be anchored securely on a rear-facing seat?

Child restraint devices (CRD) are not designed for use on rear-facing vehicle seats. Manufacturers of CRD all warn against using them this way, presumably because CRS are tested on a forward-facing seat to meet Federal Motor Vehicle Safety Standard 213. Yet the question comes up regarding carrying children in an ambulance or the third seat of a station wagon. Advocates can offer this information to parents, with the proviso that it is to be used as a *last resort*.

First, the use of the third seat of a station wagon for children young enough to use child restraints should be discouraged for several reasons.

- Adult supervision of the very young child is necessary but would be difficult in the rear of a station wagon.
- Parents must be aware that the third seat could be a risky place for anyone to ride. In a rear-end collision, this seat is very close to the point of impact.
- The glass in the rear window could shatter. Unlike the windshield, it is not required to be laminated glass.

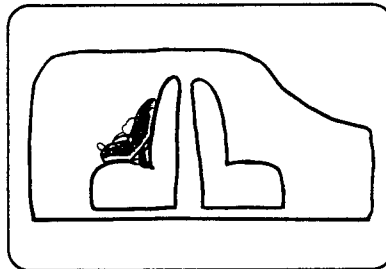
If it were necessary, in an emergency, for an infant or small child to ride on a rear-facing vehicle seat, these tips will help maximize the protection of the restraint.

1. Use a **convertible** CRD for either an infant or child (birth to 40 pounds).
2. **Install the convertible CRD facing the rear** of the vehicle for toddlers as well as infants (see illustration). Remember that this advice is based on providing restraint in a head-on crash, the most common type, which creates the highest impact forces.
3. **Put the safety belt through the path normally used for the forward-facing position** of the convertible CRD.
4. **Do not use an infant-only CRD on a rear-facing seat.** If faced rearward, the safety belt could not go through the belt path correctly and would not secure the restraint. If the infant-only CRD were placed so the baby **face**d forward, the infant's neck could be subjected to ex-

cessive stress in a frontal crash. (The forces of the rebound in the direction away from the impact point are much less severe than the initial crash forces.) Also, the safety belt through the belt path would not anchor the seat during frontal impact.

Other points to note:

- Recline the CRD for the infant (under 20 pounds) if necessary to provide head support. Use the upright position for a child over 20 pounds.
- The rear-facing position provides superior protection for head, neck and back for a child of any age - providing that the head is contained within the restraint. Children using boosters without a high back could be at serious risk of whiplash injuries in a frontal collision if seated facing the rear in a vehicle seat with a low back.
- Why should the infant not ride forward-facing? This would place the baby facing the front of the car. Facing forward in a frontal crash, the most common type, the stress on the infant's neck could be severe enough to cause spinal cord injury. Forces in a rear-end collision are generally much less severe.



An infant or toddler under 40 pounds should ride in a convertible car seat facing the rear if placed on a rearward facing vehicle seat.

AAP 1994 Shopping Guide Available

The 1994 Family Shopping Guide to Car Seats is available, with its list of current models and their features. The cost is \$22.50 per 100 for AAP members and \$27.50 per 100 for non-members. For a free single copy, send a self-addressed, stamped, business-size envelope to Shopping Guide, AAP, PO Box 927, Elk Grove Village, IL 60009-0927.

RECALL:

Kolcraft Auto-Mate, models #180-600 and 180-601 with T-Shield only.

Buckle tongue may rust. Crash performance is not in question, unless rusting causes a consumer to stop using the restraint. Two models will get different treatment. Model 180-600 owners will get a free replacement Auto-Mate with a 5-point harness. Model 180-601 owners will get a new buckle tongue and installation instructions.

Contact Kolcraft at 3455 West 31st Place, Chicago, IL 60623; 1-800-453-7673.

Bounty Program, from p. 1

seats turned in could not be reliably approved for re-use. The crash history of the seat was not known, the date of manufacture could not be ascertained from the label, or missing parts and instruction sheets were too expensive and time-consuming to replace.

The 1993 Washington state bounty program collected recyclable seats as well as no-longer-safe ones. According to Lin' Galer of the Safety Restraint Coalition in Washington, from the total of 3300 collected at 255 drop sites, they obtained a total of 300 seats that could be reused. Most were from one large loan program that documented the crash history of each and had taken good care of them. If recycling is to be done, only seats with a reliable crash history can be considered. Then trained inspectors must thoroughly check and refurbish each seat. As Galer said, "You have to err on the side of throwing out anything questionable. Our inspection was very time-consuming and not cost-effective for the number of usable seats that we obtained. The program was great, however, for getting rotten seats out of circulation."

As with a child restraint loan program, there is always a remote risk of liability in recycling seats. Although no loan program is known to have been sued successfully, the only way to totally eliminate all liability is to destroy all seats collected.

Call your state office of highway safe for the program sampler.

Child Restraints and Automobiles: An Uneasy Union

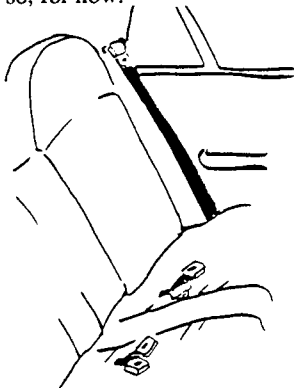
Annemarie Shelness

Many belt systems found in today's cars are incompatible with child restraints (CRs), but with the necessary know-how and a little effort most obstacles can be overcome. This is not so with the newest problem to come to light. Recent changes in the design of vehicle seats and seat belt anchorages make secure installation of some CRs at best questionable and in some vehicles virtually impossible. Solutions are being worked on in many countries and a number of approaches are on the drawing board.

The Problem

Safety belts are being anchored forward of the intersection between the seat cushion and the seat back, known as the "bight." Two of the "Big Three" U.S. auto makers, Ford and General Motors, and many foreign manufacturers are installing forward-anchored belts in the rear seats in a growing number of their models. Chrysler is not doing so, for now.*

Rear seat of current GM model, showing belts anchored forward of bight.



The farther the belt anchorage is forward of the bight, the less secure CR installation becomes. Even where the distance is no greater than two or three inches, this location, added to the "reel-out" and belt stretch which normally occur, could allow the CR to move forward a considerable distance in a crash. This could place the child's head at risk of striking the

* A few sporty, two-door imports sold under the Chrysler name have had such belts.

Annemarie Shelness was executive director of Physicians for Automotive Safety for 18 years and is a member of both the SAE Children's Restraint Systems Task Force and the ISO Working Group on Child Restraint Systems.

interior of the vehicle. In some instances, especially in small, two-door cars, where rear seat cushions are scooped out and belt anchorages are as much as eight or even 10 inches forward of the bight, correct CR installation becomes impossible.

The Reasons

Auto makers have sound reasons for making this change in belt geometry, which benefits children who have outgrown CRs as well as adults. Where belts are anchored behind the bight, there is a serious risk that occupants will slide down, feet first, under the belt, a phenomenon known as "submarining." This causes the lap belt to ride up over the abdomen. "Loading" soft tissue in this manner can cause spinal and other internal injuries.

By placing belt anchorages forward of the bight, the lap portion of the belt is routed over the upper thighs, below the pelvic bones, allowing the upper torso to move forward into the shoulder belt.

Using child restraints with these belt configurations presents a problem. Where belts are only two or three inches forward of the bight, some CRs may feel secure when hand pressure is applied. But head excursion, i.e., the distance the child's head moves forward, could increase significantly.¹

Recommendations Differ

Numerous discussions with safety engineers have pointed up the fact that major auto manufacturers do not agree on whether forward-anchored belts are, in fact detrimental for children in CRs. Owners' manuals for General Motors vehicles make no mention of it, whereas Ford's manuals recommend use of tethers

in its new vehicles and warns against the use of shield boosters in its vans (see p. 4).

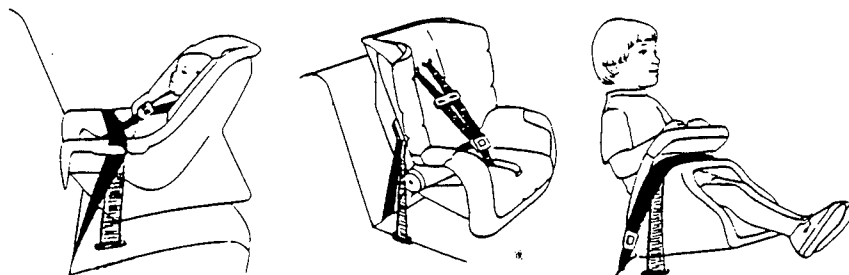
The prospect of returning to CRs with tethers is of grave concern to many safety advocates. First, only one CR manufacturer, Evenflo, advertises the availability of tethers for its convertible CRs in this country. Cosco and Renolux will supply them on request for their own products. Second, tethers are usable only for forward-facing CRs, although rear-facing CRs also may be affected. Third, in the 70's and early 80's when tether seats were on the market in the U.S., it was found that 85 percent of tethers were either not used at all or installed incorrectly.² In Canada, tethers have been used on forward-facing CRs for the past decade to meet stringent head excursion requirements. A recent, extensive Transport Canada study found the tether misuse rate was over 60 percent.

One Expert's View

Richard Stalnaker, Ph.D., is uniquely qualified to comment: In the seventies, as research scientist at the University of Michigan Highway Safety Research Institute (now The University of Michigan Transportation Research Institute or UMTRI) he was involved in the dynamic testing of child restraints. Now a professor at Ohio State University, specializing in accident investigation and reconstruction, he frequently serves as an expert witness in product liability cases involving child restraints.

Dr. Stalnaker explains: "Where belt anchor points have been moved forward, the lap belt attaches to the restraint in an almost vertical direction, instead of coming up from behind and securing the CR at

Continued on next page



Infant restraint, convertible and small shield booster, comparing installation with forward-anchored belt (light) and belt anchored behind the seat bight (dark). The latter holds the restraints back as well as down. (Illustrations by Kathleen Richards)

Uneasy Union, from p. 3

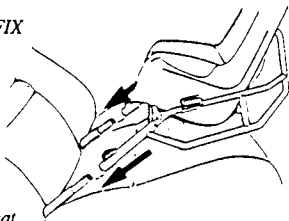
an angle. In a serious crash, a CR may not perform as designed." He expressed particular concern about shield boosters and those convertible restraints that are secured through the front, beneath the child's feet, when rear-facing. The farther forward the belt is anchored, the more questionable performance will be, he added.

A Promising "Fix"

In Europe, auto makers and child restraint manufacturers have long been aware of the problem. The International Standards Organization (ISO) Working Group on Child Restraint Systems has been trying to find a solution which would allow the installation of CRs independent of vehicle seat belts. The first such system was demonstrated at an ISO meeting in 1990 by the Swedish delegation. Named ISOFIX, it consisted of two sockets mounted in the bight, into which extensions on the CR "plugged in," locking the CR tightly in place.

Since this first demonstration took

Original ISOFIX concept, with extensions of CR plugging into sockets secured to the vehicle through the seat.



place, the British have pursued a somewhat different approach. The latest concept calls for three anchor points, two in the bight, one at the center front below the seat cushion. The CR would have projections terminating in spring-loaded "jaws" which would snap onto steel rods embedded in the vehicle seat. The locking mechanism would be similar to that of an automobile trunk latch.

How far are we in the US from making some type of universal "fix" a reality? It has been discussed at the Society of Automotive Engineers (SAE) Children's Restraint System Task Force meetings, but the major thrust is coming from Europe. Howard Willson, chairman of the task force, believes that, once Europe requires an independent CR attachment method, U.S. auto makers will follow suit.

Once the final version of ISOFIX has

been agreed on, one more step remains. CR manufacturers will have to do their part in providing models with corresponding connectors. ISOFIX would take care of the many interface problems which now make CR use so difficult at times and ensure that all CRs are tightly secured — provided, of course, that ISOFIX itself can be fail-safe.

There is little hard information on which to base guidance for parents at this time (see box). They should be warned to take a close look at rear seat belt configurations and try a child restraint before purchasing a new or used car.

¹ K. Weber (UM), and V.G. Radowich (NHTSA) "Performance Evaluation of Child Restraints Relative to Vehicle Lap-Belt Anchorage Locations." SP-690. Society of Automotive Engineers, Feb 23.-27, 1987, pp. 105-110.

² A. Shelness and J. Jewett, "Observed Misuse of Child Restraints," SAE Child Injury and Restraint Conference Proceedings, 11/83.

Ford Instructions Call for Tether Use

Ford is moving the belt anchorages forward on its passenger vehicles, according to Paul Butler, Principal Research Engineer. Ford instructions for all vehicles now include recommendations for tether use. He explained that tethers improve CR performance in front, side and angular crashes, regardless of belt location. The warnings for vans have the greatest urgency. The owners' manuals for Ford Econoline and Aerostar vans include a section that reads:

Most child safety seats can be used in this vehicle only in vehicle seating positions with lap-shoulder belts... The following instructions MUST BE FOLLOWED to reduce risk of injury from a safety seat tipping too far forward in a severe crash. A safety seat can appear to be securely fastened by the safety belts, but the high forces during a severe crash could tip it forward if held only by a lap belt.

The van instructions go on to state that:

- Forward-facing convertibles should only be used in positions equipped with lap and shoulder belts.
- Tethered seats are recommended in all seating positions and required for CRs in the center of the 2nd-row bench seat.
- In a 12- to 15-passenger Econoline Club Wagon, do not use any CRS in the rear-

CRS and Forward-Anchored Belts: What to tell parents?

Unfortunately, there is not much parents can do to counteract the effect of these safety belts, and real-world experience and test data are still limited. Here are a few tips on selection of vehicles and restraints.

1. When purchasing a vehicle, consider the anchorage placement of rear seat belts.

2. Features of CRS for use in a car with belts anchored forward of the bight:

- For infants riding facing the rear, avoid CRS with the belt path under the feet, close to the vehicle seat (see ill.).
- For forward-facing convertibles, a correctly-installed tether will help anchor the device at the top (see p. 3).
- In seating positions with lap/shoulder belts, a belt positioning booster will work better than boosters with shields.



most row of seats.

- No shield booster that routes the lap belt over the shield can be used in this vehicle. [Shield boosters that route the lap belt under the child's buttocks would also be incompatible with a forward-anchored belt.— ed.]

Butler explained that many factors contribute to the tether recommendation, including: anchorage position (distance forward and below the seat); seat stiffness, size and cushion angle; distance between vehicle seats; and stiffness of the back of the seat ahead. In particular, lap belts anchored forward do not hold the CRS in place as well as do combination lap/shoulder belts. The shoulder belt is anchored farther back and gives added stability.

Butler stated that Ford has tested both tethered and non-tethered seats in its vehicles. He expects more child restraint manufacturers to accommodate tethers in future models. Ford provides free tether anchorage hardware and has pre-drilled holes for installation in its vehicles. [Note that the Aerostar offers, as an option, the built-in child restraint. — ed.]

Policy Statement: Transporting Children With Special Needs

AMERICAN ACADEMY OF PEDIATRICS • Committee on Injury and Poison Prevention



A growing population of children with medical problems or handicaps has generated concern for the provision of safe and proper systems of occupant protection during transportation. Limited awareness of the resources, research, and safe practices for protection of these children has contributed to frequent reliance upon substandard products, makeshift restraint systems, and unsafe methods of securement in motor vehicles. Since all children with special needs should have access to proper resources for safe transportation, health care providers should be informed of basic guidelines for selecting restraints and positioning these children into them and for securing these restraints into all types of vehicles, primarily the family vehicle and school bus.

Currently, Federal Motor Vehicle Safety Standard (FMVSS) 213, which pertains to the design and performance of child restraint systems, only applies to children weighing up to 50 lb. The standard also does not recognize that many children with special needs weigh more than 50 lb and may require the use of special occupant restraint systems. The standard also does not identify specific design and performance criteria for occupant pro-

tection devices that can provide safe seating for children with disabilities. Crash-testing of car seats that meet FMVSS 213 has been done with test dummies representing children with no medical problems. The actual physical effects of a crash on a child with special needs in a restraint system have not been determined. Future research and development of test dummies to address these concerns by the National Highway Traffic Safety Administration are recommended.

Children with special needs should not be excluded from the requirements of each individual state's child restraint and seat-belt use laws. Pediatricians can serve as resources for information to legislators, policy makers, and law enforcement professionals who may not be aware of the importance and availability of occupant protection systems for children with special needs.

Guidelines for Protection

Although available research is limited, current information indicates the following guidelines should be followed when selecting and positioning a child with special needs into an occupant protection system:

1. Use a safety-tested and federally approved child restraint system whenever possible. Standard child restraint devices may be used for some children with special medical problems. Use of a "special" car seat for a child with medical problems may be postponed until a child exceeds the limits of a standard car seat.
2. A child safety seat should be crash-tested if used in a manner not specified by the manufacturer or if modifications to the device are made.
3. Child safety seats with a five-point harness (at both shoulders, both hips, and between the legs), can be adjusted to provide good upper torso support for many children with special needs. Infant-only car seats with recline capabilities are useful for many infants with medical problems, especially respiratory conditions.
4. Children with tracheostomies should avoid using child restraint systems with a harness-tray/shield combination or an armrest. Upon sudden impact, the child could fall forward and cause the tracheostomy to contact the shield or armrest, possibly resulting in injury and a blocked airway. (1) A child safety seat with a five-point harness should be selected for children with tracheostomies.
5. If the child safety seat is so upright on the vehicle seat that the

This statement has been approved by the Council on Child and Adolescent Health.

AAP Safe Ride News Insert • Winter 1993

child's head drops forward, wedge a cloth roll in the vehicle seat crease and under the child safety seat base at the child's feet, so that the child reclines to no more than a 45-degree angle.

6. For children who have poor head control and weigh more than 20 lb, use a convertible seat that can be semireclined when facing for-

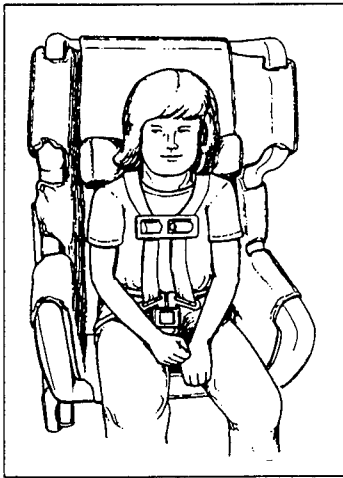


Fig 1. Child in convertible seat, with soft padding positioned behind the neck and on either side of the head to promote anatomical alignment.

ward. Soft padding may be positioned behind the neck and on either side of the head to promote anatomical alignment. This padding should not be placed behind the head itself or behind the trunk (Fig 1). Do not use head bands to restrain the child's head separately from the torso.

7. Only firm padding, such as a single folded sheet, should be used behind a child's back. No compressible padding should be placed behind or under the child in the seat. Soft padding (such as blankets, pillows, or soft foam) compress on impact and can prevent harness straps from maintaining a secure and tight fit on a child's body. A dangerous slack in the harness system on impact could result from the use of soft padding behind or underneath the child. (2)

8. Lateral support may be provided with rolled blankets, towels, or foam rolls (Fig 2).

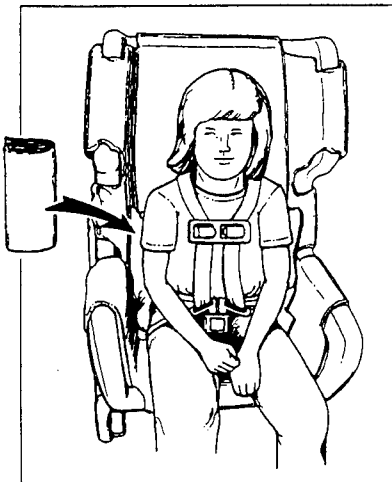


Fig 2. Child in convertible seat; rolled blankets, towels, or foam rolls can provide lateral support.

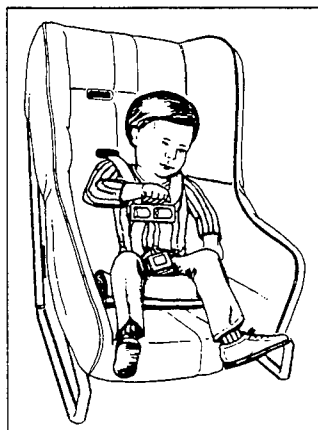


Fig 3. Child in convertible seat; foam roll or rolled blanket placed under knees can inhibit hypertonicity or opisthotonic positioning.

9. A foam roll or rolled blanket may be placed under a child's knees to inhibit hypertonicity or opisthotonic positioning (Fig 3).

10. Crotch rolls may be added between the child's legs and the crotch strap to keep the hips against the back of the seat and the child positioned upright (Fig 4).

11. For prone positioning in a restraint system, the child's height and weight must be evaluated. For instance, infants with Pierre Robin Sequence who must lie prone to maintain an open airway may be placed prone in the Dyn-O-Mite infant car seat by Evenflo (Piqua, OH) with specific modifications or the Dream Ride from Cosco (Columbus, IN). (3) Use of these two restraints, in this manner, however, is limited to infants under approximately 10 lb in order to be able to achieve a comfortable fit, although both restraints provide a fit for supine infants up to 17 lb. Children with neurologic, orthopedic, or respiratory problems who require a

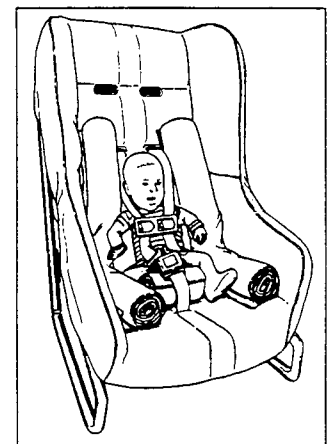


Fig 4. Infant in convertible seat, with rolls added between the legs and the crotch strap to ensure proper positioning.

prone or supine position also may be placed in the Swinger car bed from Snug Seat (Matthews, NC), which accommodates children up to 20 lb. Care must be taken, however, to evaluate the height of the child and the added space taken up by a cast or any other ancillary medical apparatus before determining if these can effectively secure the child.



Fig 5. Child with spica cast seated in modified seat with cut-away sides and seat bottom.

12. For children with spica casts, a specially modified Evenflo 410 convertible safety seat (Spelcast) has cut-away sides and seat bottom that provide room for a comfortable and snug fit into the restraint system (Fig 5).

13. Many toddlers, preschool, and school-aged children in body or hip spica casts have limited resources available to them for safe transport in motor vehicles. One resource, the modified E-Z-On Vest, has performed satisfactorily during dynamic crash-testing with a test dummy weighted to 105 lb and is available commercially. The E-Z-On Vest has been altered by adding double loops on both sides of the vest. Two sets of seat belts are used to secure the child at the side against the vehicle seat. An ancillary belt loops around the casted leg or legs at the knees and is routed through the other seat belt (Fig 6). When it is not possible to fit a child onto a vehicle seat, use of an ambulance for transport is recommended. For lateral positioning on the vehicle seat (eg, as required by car bed restraints or the modified E-Z-On Vest), position the child's head as far as possible from the side of the vehicle (Fig 7).

14. When in transit, ancillary medical equipment (walkers, crutches, oxygen tanks, monitors, etc) should be positioned and secured on the vehicle floor; underneath a vehicle seat or wheelchair;

or secured to the bus seat, bus floor, or bus wall below the window line.

15. Electrical equipment to be used during transit should have portable self-contained power for twice the expected transport duration. For improved safety, lead acid batteries on electrically powered wheelchairs or other mobile seating devices and respiratory systems should be converted, whenever possible, to gel-cell or dry-cell batteries. To house and protect batteries during everyday use, transportation, and collision, the use of external battery boxes is recommended.

16. Parents should be informed of the appropriate occupant securement system resources available to them for proper restraint of children with special needs during travel. (4)

Once a child has outgrown a c. safety seat, there are other choices available for proper and secure occupant restraint, depending upon the needs of the child for support. Some systems, such as the Britax (the Special Car Seat), the Orthopaedics Positioning seat, the Carrie Car Seat, the Carrie Bus Seat,

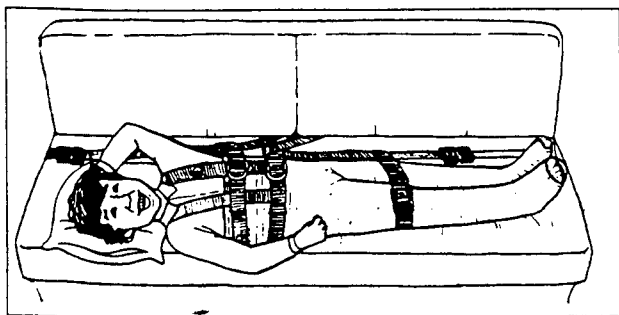


Fig 6. Child with modified E-Z-On Vest.

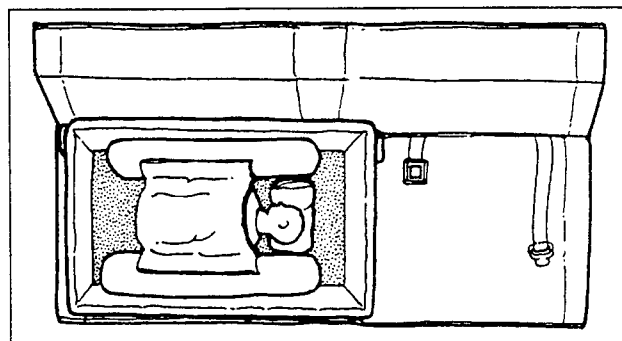


Fig 7. Infant in lateral position in Swinger car bed on the vehicle seat (tr view); note that the head is as far as possible from the side of the vehicle.

and the Snug Seat, provide for full support for the child's head, neck, and back. Others, such as the conventional E-Z-On Vest, can be used to provide additional trunk support for a child who already has stable neck control. Travel chair restraint systems are another choice for restraint that should be evaluated against the nature of the child's disability, individual positioning requirements, and types of motor vehicles used for transport. Willingness of the user to install tethers, add additional lap seat belts, or obtain appropriate tie-down systems for some of these devices should be a consideration for selection and proper use.

Some older children with disabilities can also be transferred to a conventional belt-positioning booster car seat for trunk support. A belt-positioning booster seat has a removable shield. The shoulder and lap belt are positioned across the child's chest and pelvis and secured through side arms on the booster seat. Older children with hyperactivity, autism, or emotional disturbances may require a restraint that is more difficult to release. Booster car seats with seat belts routed underneath the seat base may be helpful in reducing the child's likelihood of evacuating the restraint during travel.

In addition, use of conventional lap-shoulder systems may also be useful in providing for trunk restraint of some children with special needs. Lap-shoulder belts should be used properly. If a shoulder belt rests on a child's face, po-

sition the child toward the middle of the vehicle seat to lower the shoulder belt onto the chest. Do not place the shoulder belt underneath the child's arm or behind the vehicle seat back. Use of a belt-positioning booster seat may also help assure proper placement of the shoulder belt on the child's chest.

The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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Resources

Sources of information on research, products, programs, and materials for protecting children with special transportation needs:

American Academy of Pediatrics, 141 Northwest Pt. Blvd., PO Box 927, Elk Grove Village, IL 60009-0927; 708/228-5005. Additional policy statements on safe transportation of low-birthweight infants and children with special needs on school buses (forthcoming).

Riley Hospital for Children, Automotive Safety for Children Program, 702 Barnhill Dr., Rm. 1603, Indianapolis, IN 46202; 317/274-2977. Video: *Safely Home*; various research reports and instructional materials.

National Easter Seal Society, Kids Are Riding Safe (KARS)/Special KARS Program, Affiliate Services Dept., 70 East Lake St., Chicago, IL 60601; 312/726-6200. Hospital-based model program and training concerning education and distribution activities for conventional and special restraint devices for children.

Massachusetts Chapter, AAP; Slide show: *Transporting Children with Disabilities* (prepared in cooperation with Massachusetts Passenger Safety Program). Available for loan from Resource Center, MA Department of Public Health, 150 Tremont St., 3rd floor, Boston, MA 02111; 617/727-1246. To purchase, write to Paul Schreiber, MD, 28 Baltic Ave., N. Easton, MA 02356. Cost is \$70; make checks payable to Accident Prevention Committee, Mass. AAP.

safe ride news



Vol. XI, No. 4: Fall 1992

American Academy of Pediatrics



Academy in Action

Safe Ride Workshop

A session on child passenger safety was held at the annual meeting of the Academy in San Francisco on October 13, 1992. Howard Willson, safety engineer for Chrysler Corporation and chair of the Society of Automotive Engineers' Children's Restraint Systems Task Force discussed new products and other innovations in the field. Renee Cheney-Cohen of San Francisco SAFE KIDS shared some of the child passenger safety activities and events that have taken place recently in San Francisco.

AAAM Plans Child Protection Session

Share your research on medical, epidemiological, accident investigation, educational and usage aspects of child passenger protection. The Association for the Advancement of Automotive Medicine (AAAM) and the Stapp Car Crash Conference are cosponsoring a special joint session (and accompanying publication) on Child Occupant Protection, Sunday, November 7, 1993 in San Antonio, Texas. Submit abstracts for consideration to the AAAM. Call 708/390-8927 for information (fax: 708/390-9962). Abstracts are due by December 31, 1992.

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Beyond the Family Car

Child Passengers at Risk in Pickups

Concern for children whose parents use pickups for family transportation is growing as safety advocates focus on child passenger protection for rural and minority families. Trucks also are an increasingly popular type of vehicle for family recreational use. Occupant protection inside the cab is limited by a number of factors: space, the number of safety belts and the fact that pickup trucks are not required to meet all passenger car safety standards. Space limitations often lead passengers to ride in the cargo area.

Risks in the Cargo Area

The physical dangers to children riding in the cargo area was recognized in a policy statement from the AAP Committee on Injury and Poison Prevention released in May 1991. However, the public acceptance of passengers riding in the cargo area is typified by video footage seen on "Sesame Street" within the past year showing children riding this way. Few states have effective restrictions on passengers in the cargo area.

The cargo area of a pickup truck - with or without a canopy - has proven to be a source of injuries and death to children. A Washington state study* of 122 people involved in crashes while riding in the cargo area of pickup trucks found a fatality risk 10.4 times higher for them than the risk to the general population of people involved in collisions. Half of the 25 disabling injuries were to children under 17.

Studies referred to in the AAP policy statement showed that ejection during a collision was the major cause of injury and death. Most non-collision deaths were caused by falls due to swerving,

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Child Passenger Safety Summit/1993

Join your fellow child occupant protection advocates and professionals at this pre-Lifesavers meeting in Chicago, to discuss solutions to barriers identified at last year's symposium, identify new and innovative resources and develop creative strategies.

March 13-14, The Palmer House, Chicago, IL. For reservations, call 800/445-8667.

Contact: Cheryl Neverman, NHTSA, 202/366-2696.

FAA Fails to Require Restraints

The Federal Aviation Administration (FAA) has set aside several petitions that sought to require the use of appropriate crash-tested restraints for infants and young passengers. It has issued, instead, a rule that requires all airlines to allow families the option of using child restraints if they purchase a seat (see *Federal Register*, 9/15/92, pp. 44662-5). Most airlines already allow this.

Each item on board the 16,000 daily commercial flights in the United States is secured for take-off and landing, except passengers who are under the age of two. An article in the *Journal of Air Law and Commerce** spotlights this ironic situation and analyzes the constitutional issues, proposed legislation and the position of the FAA. A legislative effort to force the agency to change its position has made no headway.

The FAA refused to mandate child restraints despite tests showing a child riding unrestrained has no protection during a crash or severe turbulence and de-

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Pickups, continued from p. 1

were caused by falls due to swerving, braking or rough roads; in one-third of these cases, the victim was standing up, sitting on the tail-gate or "horsing around." They also noted that more than one-half of the deaths occurred to youths, most often males, between the ages of 10 and 19. This suggests that more education needs to be aimed at teenagers and their parents.

Another danger associated with the cargo area, one that some advocates use to convince parents not to let children ride there, is carbon monoxide poisoning. According to a study done at the Virginia Mason Medical Center in Seattle,** part of the danger is that people often don't realize the potential for poisoning from exhaust fumes. The study found that 20 of 68 children treated at the center for carbon monoxide poisoning had been riding in the beds of pickups. Three had been under tarpaulins and the remaining 17 were in hard shell canopies. All the trucks involved had either a faulty exhaust system or had exhaust pipes that exited at the back of the truck, rather than the side.

Extended Cabs: A Safe Option for Children?

Some pickup cabs have extended cabs with a narrow space behind the front seat containing either a narrow bench seat or two side-facing jump seats. These fit in a space measuring about 14 to 18 inches front to back. These rear seats are clearly intended for occupants, since they come equipped with belts: lap belts in the jump seats and lap or lap/shoulder belts in the bench seats.

According to an article in the *Wall Street Journal* (October 8, 1992), sales of extended cab pickup trucks account for 25% of the total pickup truck sales, and it is projected that this figure will rise to 40% by the mid-1990's. The report indicated that rear seating has increased the appeal of pickups for families.

Parents should be made aware that these rear seats may not serve their children well. Child restraints are designed for use on forward-facing seats, so jump seats are not suitable for them. Also, the jump seats are too small to support the bases of most child restraints. The rear bench seat in extended cabs must also be

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used with caution. Rear-facing seats would just not fit in the narrow space. For most - if not all - forward-facing child restraints, there would be too little room between the front seat and the back to allow for the expected forward movement of the child's head in a crash. A tether might help, if it could be properly installed.

For children who have outgrown child restraints, lap belts in the rear seat would not prevent the child's head from hitting the metal frame within the back of the front seat. Even shoulder belts may not prevent such an impact. Furthermore, the presence of glass windows directly behind the seat and on the side further diminish head protection. In one recent roll-over crash in Oregon, an 8 year old boy riding belted in the jump seat of a pickup was partially ejected out the side window and died of extensive head injuries. The three other truck occupants walked away with little or no injury.

A larger truck cab intended to hold four or five adults is the crew cab, a four-door model with a much more spacious rear seat and safety belts. The problem with the crew cab is not safety, but price and efficiency. The smallest truck available with this option is a 3/4 ton, through special order, and the cost is upwards of \$25,000. Fuel economy for this large,

heavy type of truck is likely to be very poor. It is questionable whether many families would purchase this large model, despite its better suitability for children.

The Dilemma of "Better than Nothing"

For economically strapped families with no other form of transportation, the most effective remedy may lie in trying to make what one has safer, since replacing one's vehicle is not always feasible. A small extended cab would certainly be safer for children than the cargo area. There is at least one after-market product (canopy with seats and belts) being advertised to carry passengers in the truck bed. These might (or might not) be better than nothing at all. As after-market products, they are not subject to the same safety requirements as factory-supplied options. Testing of such products would be useful. Safety advocates and users should understand their relative protectiveness.

On the other hand, more and more families are considering pickup trucks for family travel as a recreation choice rather than an economic necessity. These families need information on problems of safely transporting children in trucks in order to make an appropriate purchase.

The Minnesota child safety program has published a fact sheet on child safety in the cabs of pickup trucks. Single copies are free from the Center for Injury Preven-

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Committee on Injury and Poison Prevention

Children in Pickup Trucks

According to data collected by the Fatal Accident Reporting System (FARS) of the National Highway Traffic Safety Administration (NHTSA), 127 children and youth, aged 19 years or less, were killed in 1987 while riding in the back of pickup trucks.¹ Approximately 1000 more are injured yearly. The Committee is concerned about this largely preventable means of injury to children.

There are relatively few published data specifically dealing with the risk to children riding in the beds of pickup and other single-unit trucks. Data from studies of fatalities resulting from falls and jumps from motor vehicles indicate that these events are more likely to occur in persons riding in exterior locations, especially in the beds of pickup and single-unit trucks. Young people between the ages of 10 and 19 years represent more than half of the deaths occurring to people traveling in truck beds; males predominate. Most noncollision deaths are caused by falls; such falls occur because of the actions of vehicles such as swerving, braking, or traveling over rough roads. About one third of the time the person killed was standing up, sitting on the tailgate, changing positions, or involved in horseplay or fighting.^{2,3} Ejections during collision and rollovers are associated with the highest incidence of injury and death.⁴

Studies of children injured in noncrash motor vehicle injury events have shown that ejection from the vehicle contributes greatly to the seriousness of the injuries sustained. One such study revealed that half of the noncrash injuries to children occurred

as a result of ejections or falls from the vehicle, and that children who were ejected or fell were four times as likely as those who were not ejected to be riding on the exterior of the vehicle. Children who fell or were ejected sustained more multiple injuries, more extremity fractures, and more internal head injuries than those who were injured inside the vehicle.⁵ Passengers in pickup truck beds are at even greater risk of these ejection injuries than unrestrained passengers inside a vehicle.

Recently published data specifically about children injured in pickup trucks confirm the greater risk of noncrash injury, ejection from the vehicle, and more serious injuries.^{6,7} A retrospective review of patients admitted to a children's hospital after incurring injuries in the backs of pickups showed a 30% incidence of severe head trauma.⁷ Both of these studies suggest, from limited data available, that the presence of a camper shell offers little protection; severe injuries occurred with shells, and, in some cases, the shell itself caused injury.⁶

Few states have laws restricting the transportation of passengers in open truck beds. Two states presently prohibit riding in truck beds, and two others bar only young children from doing so.⁸ In one state, the prohibition does not apply if the child is accompanied by an adult.⁹ In some states, young children are prohibited by child restraint laws from riding in truck beds.⁷ Model laws "prohibiting riding in any area where passenger seats and seat belts are not provided" and "prohibiting passengers from riding in open-cargo areas of vehicles that are not being used for work-related purposes" have been suggested.¹⁰

Pickup trucks are becoming increasingly popular as family vehicles, particularly in rural areas where they contribute to the observed much higher mortality from motor vehicle crashes.¹⁰ Even in urban and suburban areas, more and more trucks are being used by families because of their interest in recreational activities.

This statement has been approved by the Council on Child and Adolescent Health.

The recommendations in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care. Variations, taking into account individual circumstances, may be appropriate.

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RECOMMENDATIONS

1. Additional data should be gathered to measure the impact of this type of injury, looking closely at those states which already prohibit riding in truck beds.
2. The Academy believes that the best way to reduce the incidence of injuries to children riding in pickup trucks is to prohibit all passengers from riding in truck beds, or in any area of a vehicle which does not have a seat and a seat belt. Such laws should not be directed only at preteenaged children, as they are in some states, because studies have shown that the highest risk is to teenagers and young adults. The Academy urges Fellows, through their state chapters, to work with lawmakers toward enacting acceptable legislation that effectively will prevent needless injury and death to children riding in light trucks.
3. Pickup truck manufacturers are encouraged to alter truck design to provide trucks with more secure passenger space, such as those with an additional rear seat available in some of the larger models.
4. Pediatricians should educate families about the dangers of riding in open truck beds and strongly recommend that parents never allow their children to do so. It may also be helpful to suggest that families considering purchasing a truck evaluate the risks and benefits involved before they do so. They may wish to consider trucks with an additional rear seat, and to let dealers and manufacturers know specifically why they are doing so.

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On-Lap Travel Still Injures Children

Injuries to infants riding on laps continue to occur, according to an study compiled by Phyllis Agran, MD, FAAP, Diane Winn and Dawn Castillo, despite years of child restraint laws and studies showing restraint use by infants to be higher than by older children. The authors suggested that advocates, especially pediatricians, to eliminate exemptions in state laws that waive child restraint use while "attending to the needs of the child" and to emphasize the hazard of this dangerous custom to parents.

They studied the cases of 389 children younger than 1 year of age seen in the emergency room or admitted to hospitals in Orange County, CA. Of these, 230 (59 percent) had been riding in restraints, 110 (28 percent) were on laps, 42 (11 percent) were completely unrestrained and 7 (2 percent) were in seat belts. Two of those in belts were sharing a belt with an adult.

Of the infants riding on laps, 64 (58 percent) were injured; 24 (22 percent) required hospitalization; 16 (15 percent) had an internal head injury. One injury was fatal. Comparing these figures to the injuries of the infants in restraints, the authors concluded that the use of safety seats could have lowered the overall injuries by 30 percent; reduced intracranial injuries by 69 percent, and decreased the need for hospitalization by 75 percent.

The data collected also indicated that most on-lap travel occurred in the front seat (83 percent) and was not due to overcrowding in the vehicle, since all seats were occupied in only 13 percent of the study cases.

The study also looked at the national Fatal Accident Reporting System (FARS) data for 1989. The system does not keep track of the on-lap position, but 27 percent of the 183 infant traffic fatalities in 1989 were noted as occupying the same seat location as an adult passenger. Additional review of the FARS data for this study found another 10 percent possibly riding on the lap. In 34 of the 183 crashes (18.6 percent), the infant was the only fatality. A smaller sample shows similar rates: records from California show that 9

Children's Special Transportation Needs

KARS Goes National

The National Easter Seal Society's Kids Are Riding Safe (KARS/Special KARS) program was introduced to all Easter Seal affiliates at the organization's national meeting in August. It is a hospital-based child passenger safety training, education and distribution program focusing on the need for all children - regardless of disability - to have safe transportation options. Andrea Spitzer, project manager, encourages advocates to contact their local Easter Seal affiliates to see how they can work together.

Contact: Andrea Spitzer, National Easter Seal Society, 70 East Lake Street, Chicago, IL 60601; 312/726-6200.

NJ Second State to Mandate Belts on Buses

All new large school buses ordered or purchased in New Jersey after September 8, 1992 must be equipped with lap belts or other restraint systems meeting federal standards. The new law, 20 years in the making, also requires the use of the belts and contains a clause removing the liability of the operator for a child's failure to use the restraint.

Other features of the package of school bus safety bills passed include the requirement for higher back seats (24 inches above the seating reference point or 28 inches from the seat cushion, 4 inches higher than the minimum seat back height required by Federal Motor Vehicle Safety Standard 222) and for two roof hatch emergency exits.

of the 24 infants who died in motor vehicle crashes (37.5 percent) in 1989 were riding on an adult's lap.

Applying the observed national rate for on-lap travel among infants to estimates of the number of infants injured in crashes annually, this study estimates 2,218 infants injured each year would have been on the lap of another occupant.

Reference: On-Lap Travel: Still a Problem. Agran, PF, Winn, DG, Castillo, DN. Pediatrics 90:1, July 1992, 27.

Idaho Hospital Starts Testing of Premies

St. Luke's Medical Center in Boise, Idaho, has formalized a policy requiring monitoring of all preterm infants for potential breathing problems while seated in an infant restraint. Matthew Sell, MD, medical director of St. Luke's, decided to institute the testing after receiving the AAP policy statement on safe transportation of premature infants from the hospital's director of volunteer services.

What began as a clinical testing program has evolved into a hospital policy and is now expanding into a community program. St. Luke's is a KARS/Special KARS child passenger safety pilot site for the National Easter Seal Society. The hospital's county-wide child restraint loan program is being augmented with car beds suitable for infants who must lie flat.

(Excerpted from *Challenge*, August 1992, National Easter Seal Society.)

Iowa Trains Police to Identify Restraint Use after Collisions

A course aimed at equipping law enforcement officers to identify restraint use at the crash scene has been developed in Iowa and is being incorporated in part into basic training and OBD training. Jan Goldsmith, RN, BSN, CPNP, and Occupant Restraint Coordinator for Iowa's Traffic Safety Bureau, who developed the course, says that "officers are pleased to learn that they don't have to take somebody's word for whether restraints were used or not."

Why should police have this skill?

1. Accurate restraint use information is essential for developing data on the effectiveness of safety belts and child restraints.
2. Correct media reports of restraint use are important for the public perception of the effectiveness of safety devices.
3. Evidence of restraint use or non-use helps in determining questions in legal cases.

Continued on next page

safe ride news



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American Academy of Pediatrics



“Cowa Buckle, Dude” say Ninja Turtles

The Teenage Mutant Ninja Turtles are now promoting child passenger protection, thanks to the brainstorm of a North Carolina traffic safety advocate, Carol Bosworth, of the New Hanover Memorial Hospital Traffic Injury Prevention Program in Wilmington, N.C. To call attention to Child Passenger Safety Awareness Week, Donatello and Michelangelo were featured at four press conferences around the state on February 7th. The functions also featured children who had been “saved by the safety seat” or belt. The turtles followed up with an appearance at a press conference in Washington, DC, to kick-off National Child Passenger Safety Awareness Week and the Safe Kids Buckle Up Campaign.

A “Cowa Buckle Dude!” coloring sheet (see illustration) was developed by the NC Highway Safety Research Center. For information on availability, Call Lauren Marchetti at 919-962-2202.



Ninja Turtle coloring sheet promotes belt use (courtesy of Surge Licensing, Inc.).

Air Bags & Infants Don't Mix

The National Highway Traffic Safety Administration (NHTSA) issued a warning in December, 1991, about the use of rear-facing safety seats in the front seats of vehicles with passenger-side air bags. In the 1992 model year, at least 13 vehicles have passenger-side air bags now, six as standard features. Within a few years many more will be equipped this way.

The basic problem is that the leading edge of the rear-facing safety seat is very close to where the air bag deploys from the dashboard, even if the vehicle seat is in its rearmost position. When the air bag inflates, it

Continued, p. 4

Washington State Investment in Training Pays Off

A local activist, Mary Guthrie, in Kittitas County, Washington, has been running safety seat inspection clinics on a regular basis for the past two years. She got her start at a technical training session given in early 1990 by the Washington Safety Restraint Coalition. Since then, she has been inspecting car seats for three hours every third Saturday from May through September each year. She holds the program in the parking lot of a major supermarket in Ellensburg, the major city in a largely rural county. “When I took the training, I wasn’t sure this was needed,” Guthrie said, “but I’m convinced now. Only about 10 percent of the seats I see are installed and used correctly. And many of them are on the recall list, but haven’t been fixed.”

A committed volunteer, Mary has help from her husband, a sergeant with the State Patrol, and several other local volunteers. She works to get good inspectors, but says that keeping them is difficult. Most feel that they will never know enough to inspect seats themselves, but, after working with Mary, many gain confidence and come to enjoy it. Few are able to stay involved for more than a few months, however, because they accept jobs or move away. Mary also is available during the fall and winter months to answer individuals’ questions and to inspect seats at her home.

The Kittitas County program is a success story of the Safety Restraint

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Air bags & Infants, cont.

emerges at a very high rate of speed and with tremendous energy, which quickly dissipates as it balloons out. Any object close to its point of origin would be subjected to very high forces. NHTSA's press release caused a stir because it indicated that - if it were necessary to put an infant in the front seat - the vehicle seat should be put in its rearmost position. Other experts disagreed, saying that there is **no safe location** for a rear-facing safety seat in front. Rear-facing restraints in both center and right passenger seats would be affected.

Data supporting the latter position has come from recent crash tests on the effects of air bags on infant dummies, however, no injuries in actual crashes have occurred to date. The tests that have been run on forward-facing conventional child safety seats and boosters have found no particular hazard in using them in the front seat, although the rear seat is still considered safer. The jury is still out on car beds. It is not yet clear if there could be problems for an infant lying in a car bed beneath a deflated bag.

A major concern in telling parents not to put their infants in the front seat is that they may then put them in the rear seat facing forward, a serious type of misuse. Parents of newborns, especially those with breathing problems, have been encouraged by advocates as well as the AAP, to put their babies where they are able to keep an eye on them in the car. If the driver is the only adult in the car, this would usually mean putting the infant in the front seat, because an infant riding rear-facing in the back seat is hard to see from the driver's seat. The Cosco "Dream Ride" infant car seat, used as a car bed in the rear seat, does offer the advantage of better visibility from the front.

In the past, advocates have considered the rear-facing position in the front seat to be a very low risk location, because crash forces are absorbed by the entire back of the body. It is

important that publicity about the hazards of the passenger side airbag for infants not inadvertently encourage parents to turn their infants around to face forward in the back seat, just so they can see them from the front.

Latest Concepts in Child Protection

Kathleen Weber of the University of Michigan Child Passenger Protection Research Program spoke on the latest research and developments regarding child occupant protection at a seminar in San Diego, "Accidental Injury: Biomechanics and Prevention," on November 16-17, 1991. She provided an intensive explanation of

the details of protecting child passengers. She explained clearly the reasons for the latest recommendations on child restraint design and use, including the delayed turn-around-time for infants and the recommendation not to use a shoulder belt in front of a child in a shield booster.

Weber called for research to determine the "conservative but practical threshold at which a young child may be restrained facing forward without undue risk of neck injury" and to discover features of forward-facing restraints that would further reduce the potential for such injury. For a copy, write to Weber c/o UMTRI, 2901 Baxter Rd., Ann Arbor, Mich., 48109.

Boosters and Whiplash Injury

Q. What can I do if my child's head is higher than the seat back when he sits in his booster seat?

A. There are two issues here. First, the chance of whiplash neck injury is likely to increase as the child gets taller and the midpoint of his head reaches the top of the seat back. To cover that possibility, booster seat instructions generally state that the child should not use the booster seat if the middle of his head has reached the top of the seat back. There is no actual injury data at this time that tells us what the risk of whiplash is to children in the rear seat.

The second issue is that of belt fit. Presumably, your child is using a booster seat because the belts do not fit properly when he or she sits down on the seat cushion. If the lap belt fits properly (low and snug across the top of the thighs) and the shoulder belt (if available) rides across the shoulder, not the front of the neck, it is time to move your child out of the booster.

If the lap and shoulder belts are available but do not fit correctly, the best choice would be to use a belt-positioning booster seat with a firm back. The Volvo Child Cushion has

an optional stiff back with a belt guide to help position the shoulder belt. The Kangaroo booster has a foam back that may provide some neck support. (Unfortunately, there is no standard to measure the effectiveness of the backs of these devices.) Both require a lap **and** shoulder belt.

If, however, there is only a lap belt available and it rides up onto your child's tummy, there is a known risk of serious lap belt-induced spinal cord or abdominal injuries. In this case, you will have to make your own choice among three less-than-perfect solutions:

- Retrofit your car with shoulder belts in the rear seat, so your child can use one of the boosters with a high back.
- Continue to use the shield booster to prevent lap belt injuries and accept the possible risk of whiplash injury. Remember that whiplash is a generally a less serious type of injury than that caused by a lap belt.
- Move your child down to the seat cushion and take your chances with a lap-belt injury.

Remember that a lap belt - even an ill-fitting one - is better than no restraint at all.

Safety Alerts

Look-Alike Locking Clips Pose a Hazard

Kathy Kruger and Pat Vichas of the Washington State Safety Restraint Coalition called attention to a potential source of confusion over the two types of locking clips now in use. An "ad hoc" committee of SafetyBeltSafe U.S.A. undertook to investigate and publicize the matter. Dynamic tests were recently conducted. Here is a report from the committee.

Two types of locking clips are in circulation today. They look similar and are used for the same basic purpose - to hold car seats securely in place.

The regular locking clip (RLC), with which child passenger safety advocates are most familiar, is supplied with almost all car seats sold today. It is used to keep a lap/shoulder belt with an emergency locking retractor (ELR) and a sliding latchplate tight around a car seat by locking the sliding latchplate in place.

Heavy-duty clip has two uses

Heavy-duty locking clips (HDLC) are supplied by Ford and Toyota and possibly other vehicle manufacturers. These can be used like RLCs, but also have a second function, to provide the only effective means of shortening lap belts with ELRs or the lap portion of lap/shoulder belts with sewn-on latchplates (figure A) and ELRs. Used as a belt shortener, the lap belt webbing is wrapped around the locking clip (figure B) to take up slack. ELR lap belts are commonly found in the front seats of cars with motorized shoulder belts as well as in the rear outboard positions in many cars. Lap/

shoulder belts with sewn-on latchplates can be found in both front and rear seating positions of some vehicles. (An HDLC from one vehicle maker can be used to shorten belts in another manufacturer's vehicle, if instructions are followed.)

Tests show potential risks

A potential hazard exists if parents use RLCs in the manner suggested by Toyota and Ford to shorten lap belts. Dynamic tests (at 30 mph) of RLC and HDLCs by the University of Michigan Child Passenger Protection Program, in January of 1991, showed that, when used as a belt shortener, RLCs bent and released the belts. HDLCs from Ford and Toyota performed well used in this manner. Clips that may be available from other vehicle manufacturers were not available at the time of testing, but will be reported on in the future, if possible. Therefore RLCs should **never** be used to shorten lap belts.

It must be made clear that none of the vehicle or car seat manufacturers have given incorrect information about the use of the clips they provide. Yet, since the two types of clips are so similar in appearance and have no distinguishing labels, an RLC may be mistaken for an HDLC and used in its place. It is easy to imagine that parents who read in their vehicle owner's manual that they can use a locking clip to shorten a lap belt will reach for the clip provided with their car seat. The fact that there are large numbers of RLCs in the hands of consumers increases the

likelihood of substitution.

How to tell the two types apart? Generally, they can be distinguished by measurement; most HDLCs are larger (2 3/4" or more in length) while all RLCs are 2 1/2" long. However, before 1990 Ford supplied a HDLC that was the same length at a RLC, but heavier and chromed. The shorter Ford HDLC has serial numbers stamped on it: (73402).

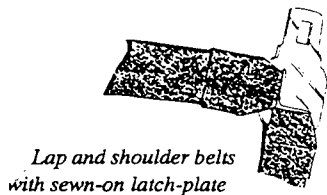
What should be done?

Child passenger safety educators must make sure that users understand that the clips currently sold with car seats are limited for use only to lock the sliding latch-plate in place on a lap/shoulder belt. If they recommend using a locking clip to shorten an ELR lap belt, they must provide or insist that the parent obtain an HDLC.

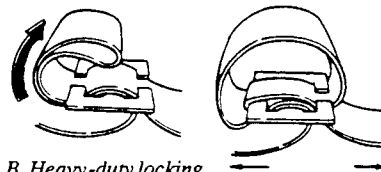
SafetyBeltSafe U.S.A. (SBS USA) has recommended for some time that professionals and retailers stock HDLCs for use with both types of belts, to cover the eventuality that parents might need a dual-purpose device. SBS USA distributes the instructions for the use of an HDLC as a belt shortener only to child passenger safety educators, not to parents, to reduce the possibility of misuse of RLCs. (The instructions are printed in some car owners' manuals, i.e. Ford Escort 1991, and are included with the Toyota clips.)

Education not sole remedy

SBS USA has called this problem to the attention of NHTSA, the manufacturers and the Society of Automotive Engineers Children's Restraint Systems Task Force. "We would like to see some differentiation between the two types of locking clips worked out between the auto and child restraint industries," commented Stephanie Tombrello, Executive Director. "When new vehicles conform



Lap and shoulder belts with sewn-on latch-plate



B. Heavy-duty locking clip as a belt shortener: loop of belt wrapped around clip, pulled tight.

Safety Alerts, *Cont.*

to the proposed lockability standard that will require belts to stay tight around safety seats, this problem will eventually diminish," she says. "We urge vehicle manufacturers to begin using lockable latchplates and retractors, as a few are doing, before the standard requires them to comply. In the meantime, educators must make parents aware of the differences between clips, and their uses."

Shoulder Strap Slot Positions Clarified

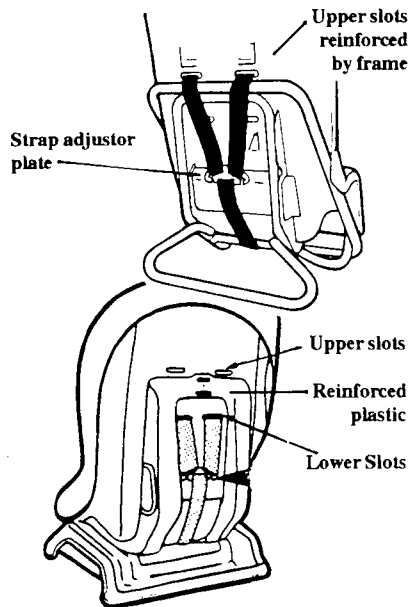
Use only the topmost slots for harnesses of newer forward-facing convertible car seats, those with strap adjuster plates. The uppermost slots on these models are the **only** ones reinforced to take crash loads in the forward-facing position. The lower or two lower sets of slots (in seats with three sets) are for use only in the rear-facing position, in which the straps do not sustain high loads in a crash. The illustrations (right) show that only the topmost slots have reinforcement below them, either a thick plastic section molded into the shell or a horizontal part of the metal frame around which the webbing is routed.

Instructions for the newer models state that the top slots are to be used when the seat is faced forward, but few emphasize it strongly. Many educational materials suggest using the slots closest to the child's shoulders, or "even with or directly above the shoulder level." Most confusion arises regarding seats with three slots, where the middle set may be closest to the level of the child's shoulders when the seat is first turned forward.

On older models, the middle slots can be used facing forward. On these models, in all slot positions, straps are either secured directly to or looped over the framework on the upper back of the seat.

Lockability Proposal Delayed

For those following the standard-setting process for compatibility of belts with car seats, implementation of the proposal by NHTSA to require "lockability" of seat belts, so that they will stay tight around car seats, has been postponed. A supplementary Notice of Proposed Rulemaking is expected to be released in the spring.



Rear views of Cosco Auto Trac (top) and Soft Shield seats, showing position of slots relative to reinforcement. (Drawings courtesy of Cosco.)

Belt Positioning Boosters for Kids over 30 Pounds

The AAP now suggests that belt-positioning boosters can be used for children who outgrow their convertible seats below 40 pounds. For families with rear seat lap/shoulder belts, this provides an alternative for the 30-40 pound child who is too tall or too plump to fit in a convertible seat.

A distinction should be made between shield boosters and belt-positioning boosters (BPB) when educating parents. The BPB (used without a shield) provides a substantially better margin of protection due to the use of the shoulder belt for upper body and head protection than does a shield booster with a lap belt. Yet shield boosters used with the shoulder belt routed in front of the child, as some manufacturers recommend, may not provide the same degree of benefit as a BPB because the shield may interfere with correct shoulder belt fit and crash performance. If a family has rear seat shoulder belts, a BPB is recommended.

New Products for 1991

Some useful and creative refinements of technology were in evidence at the Juvenile Products Show held in Dallas in October. More seats are easier to use, with one-step harness adjusters and simpler ways to rethread shoulder harnesses. Car seats on the market as of January 1991 are listed by the AAP in the **1991 Family Shopping Guide to Car Seats**.

For infant-only seats, two manufacturers now have indicators for the position of correct angle of recline, to help parents achieve the correct back angle. All Century infant car seats have an indicator with a little ball that rolls on a curved track. Fisher Price Infant Car Seat has a line on its side that is horizontal when the seat is at the correct angle.

A number of convertible seats now have built-in support pads for infants and older children, and the Playskool infant and convertible seat, (made by Kolcraft) have inflatable side-cushions for adjustable support.

The dual-position crotch straps on all Century convertibles provide good fit and support for children of different sizes. The one closer to the crotch is for use by children up to 30 pounds.

Add-ons make safety belts more comfortable

When it comes to safety belts, one size does not fit all. Children and short adults often find the shoulder belt uncomfortable—it's mounted too high or too far back in many cars and so cuts annoyingly across the neck. As a result, some people wear the belt incorrectly—or they don't wear the belt at all.

We recently tested two add-on devices designed to make a shoulder belt accommodate people of below-average height. Not only did we ask staffers with children to assess the comfort and convenience of these shoulder-belt adjusters, we also did our own version of a 30-mph crash test to find out if the products affected safety.

The *Child-Safer* (\$25, from Westech U.S.A. Inc., 800 934-4646) is a two-foot-long piece of hard plastic with slots for both the lap and shoulder belts. The *SafeFit* (sold at Toys 'R' Us, Wal-Mart, and other retailers for about \$13), is a padded nylon sleeve through which you pass the lap-and-shoulder belt.

Neither device works with separate lap and shoulder belts or with motorized automatic belts; they're designed only for the "three-point" belts found on many cars. The *Child-Safer* claims to fit people between 38 and 60 inches in height; the *SafeFit* claims to fit small adults and children who have outgrown a child restraint but aren't big enough for a safety belt.

Neither product takes the place of a conventional child safety seat. The *Child Safer* claims to work in

conjunction with a booster seat, however.

With either product, it's important to be sure the safety belt still fits occupants properly: The lap portion should go across the lap and the shoulder belt diagonally across the middle of the chest. If the add-ons don't allow the belt to fit that way, they shouldn't be used.

Federal safety standards don't cover these shoulder-belt adjusters, but the manufacturers say the products have been tested for safety. Both the *Child-Safer* and *SafeFit* worked as they should in our crash tests.

We adapted the Federal safety test for child restraints, belting a dummy the size of a six-year-old into a rear seat mounted on an air-powered sled. Instruments on the dummy and high-speed cameras recorded the peak crash forces and the dummy's forward movement in each crash.

The *Child-Safer* requires a few inches of slack in the shoulder belt, so it allowed the dummy to move farther forward than did the *SafeFit*. But in all the tests, the dummy's movement and the forces it sustained were within acceptable criteria.

The *SafeFit* was easier to use than the *Child-Safer*. Staffers who used them judged the *SafeFit* sleeve easier to install, more comfortable, and better fitting. Most panelists needed about 20 minutes to figure out how to route the belts through the proper slots in the *Child-Safer*. The *SafeFit* could be put in place much more quickly; and because it slides along the belt, it allows a range of adjustments. The *Child-Safer* allows only three slots for the shoulder belt.

The best protection remains the standard safety belt alone. The *Child-Safer* and the *SafeFit* aren't ideal, though they can help make an otherwise ill-fitting belt comfortable. We favor the *SafeFit*, for its convenience and price.



Belt adjusters SafeFit sleeve (far left) and long Child-Safer stick can help make a belt fit better. Both have drawbacks: Some people didn't like the SafeFit pressing on the stomach, or the fact that the belt latch can slip into the sleeve. With Child-Safer, the belt doesn't retract fully, so the stick gets in the way.

CONSUMER REPORTS APRIL 1994

APPENDIX F, CONTINUED

REPRODUCIBLE HANDOUTS FOR CONSUMERS

Handout	Page
Handouts from <i>Safe Ride News</i> :	
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(Note: Spanish versions of these Tips are available from SafetyBeltSafe USA)





One-Minute Safety Checkup

Using a car seat correctly makes a **big** difference. Even the “safest” seat may not protect your child in a crash, so take a minute to **check to be sure . . .**

- ✓ **Do you have the instructions?**
 - Follow them and keep them with your seat for use as your child grows older.
 - Use your vehicle owner's manual for help in fastening the seat in securely.

- ✓ **Is your child facing the right way for both weight and age?**
 - If you use a seat made only for infants (A), **always** face it backward.
 - A baby should ride facing the back of the car up to at least 20 pounds and age one (B).
 - A child over age one faces forward (C).

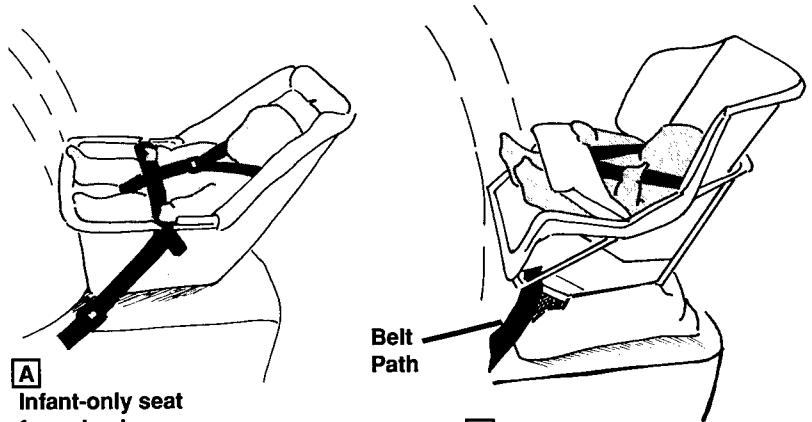
- ✓ **If you have a passenger-side air bag, does your infant ride in the back seat?**
 - The impact from an air bag can seriously injure or kill a baby riding in front in a rear-facing safety seat. Carry your baby in back, facing the rear.

- ✓ **Is the vehicle safety belt in the right place and pulled tight?**
 - The belt must go in the correct, marked path to hold the seat in place.
 - A convertible seat faces backward for an infant and forward for a toddler (B and C). It has a different belt path for each direction.

- ✓ **Is the harness snug; does it stay on her shoulders?**
 - Shoulder straps go in the lowest slots for babies riding backward, and in the top slots for children facing forward.
 - The retainer clip at armpit level (C) holds harness straps on the shoulders.

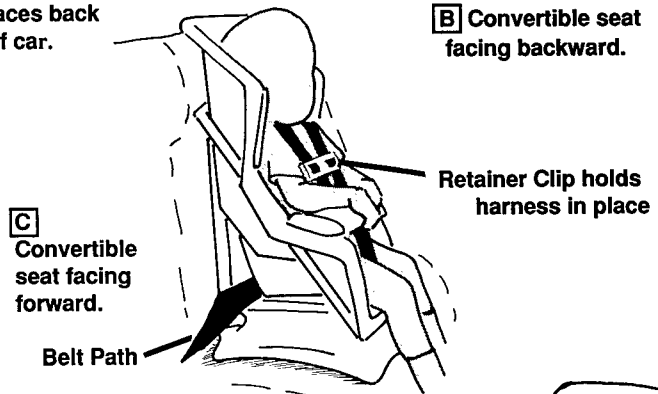
- ✓ **Does your child use a booster seat, if he is close to 40 pounds and has outgrown his convertible seat?**
 - A booster seat helps the safety belt protect your child until she grows big enough to fit in the belt alone.
 - A booster seat with no shield is used **only** with a lap and shoulder belt (D). Use a booster with a shield (E) if your car has only lap belts.

- ✓ **Has your child's car seat been recalled? Have you fixed it?**
 - Call the Auto Safety Hotline (800-424-9393) for a list of recalled seats.



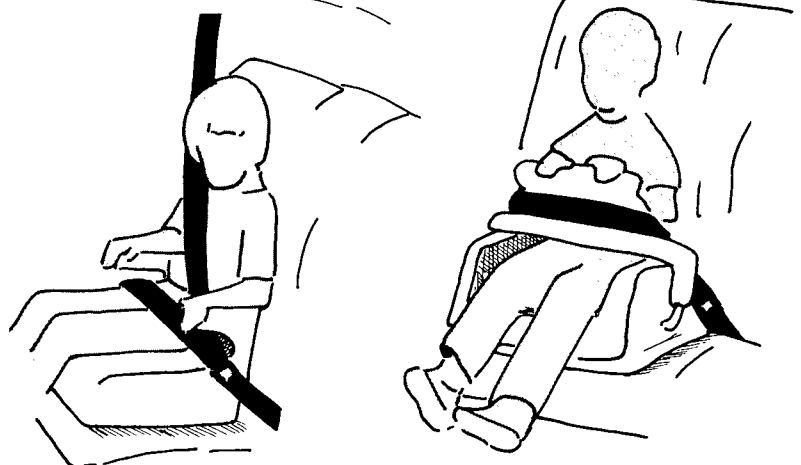
A Infant-only seat faces back of car.

B Convertible seat facing backward.



C Convertible seat facing forward.

Retainer Clip holds harness in place



D Booster seat for use with lap and shoulder belt.

E Booster seat with shield for use with lap belt.

Questions? Ask your health care provider or local safety group, or call the Auto Safety Hotline, 800-424-9393.

Originally published by the American Academy of Pediatrics, *Safe Ride News*, Fall 1991.

(Credit local source or sponsor here)

Fact Sheet from Safe Ride News Publications, 117 E. Louisa St., Box 290, Seattle, WA 98102; reproducible for free distribution • Updated 12/95



Does your car have a passenger-side air bag? Do you have a baby under age one?



If you answer “yes” to both questions, watch out!

- *Never* carry your baby in the front seat.
- The air bag can harm your baby in a crash - or even a low-speed collision.

Infants and Air Bags Don't Mix!

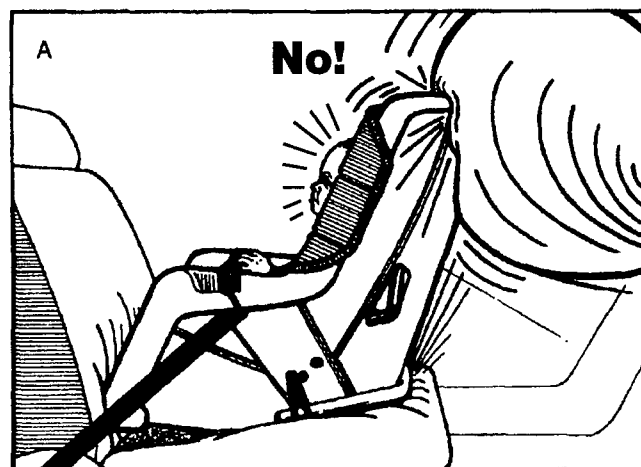
Why?

The back of the rear-facing safety seat (car seat) is located very close to the dashboard, where the air bag is housed.

The air bag is designed to inflate in any head-on collision over about 12 mph. When it starts to open, it has tremendous force.

As it opens, the air bag could hit the back of the safety seat very hard, as you see here (A). This impact would cause serious or fatal injury to the baby's head and brain.

This impact could be equally dangerous for an older child riding unbelted in front.



A passenger air bag could strike the back of a safety seat extremely hard. This would cause serious head injury or death.

What Can You Do? Put Baby in Back

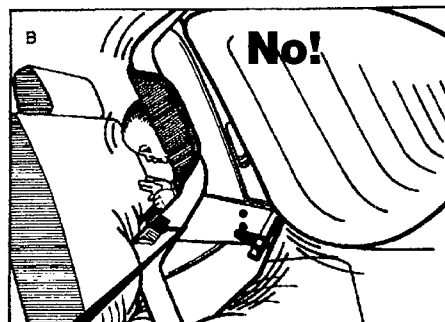
Always put your baby in the back seat, still facing the rear, until he or she is old enough and large enough to face forward (at least 20 pounds and age 1). *Never* turn a baby under 20 pounds to face the front of the car. This could cause spinal cord injury in a crash.

When possible, have an adult ride in back with any infant who has special medical problems.

Any child is protected best by riding in the rear seat in a safety seat or belt that fits correctly.

If a child over 20 pounds riding in a forward-facing safety seat must sit in front, slide the vehicle seat as far back as it will go. The child will be cushioned by the air bag when it has opened fully. Older children and adults in the front seat must use lap and shoulder belts to be protected.

Air bags can save lives and prevent serious injuries for people over age one who are riding properly restrained.



After the impact, the air bag would throw the safety seat against the back of the seat. This is not as dangerous as the first impact of the air bag.

**Read your vehicle owner's manual
for more information about
children and air bags.**

(space to credit local source or sponsor)



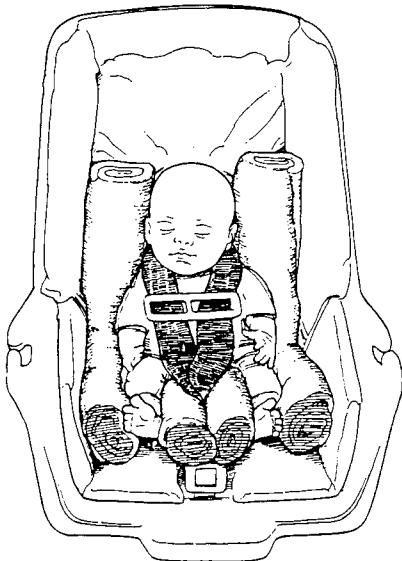
What Every Premature or Small Baby Needs to Know... Before Riding in the Car



Every baby deserves to be protected in case of a car crash. However small you are when you're ready to go home from the hospital, you can ride in a car seat or car bed that suits your size and your needs. The restraint device your parents choose is especially important if you weigh less than about five and one-half pounds.

Do you need to lie flat?

Most infants can ride semi-reclined in a car seat; however some babies born more than three weeks early may have trouble breathing when



A. Premature infant in convertible car seat with padded sides and crotch. No padding should be placed under the infant's buttocks.

they sit in a semi-reclined seat, like a car seat, feeding seat, or swing. Make sure that your parents ask your doctor about this. The American Academy of Pediatrics recommends that premature infants be tested sitting in a car seat before they leave the hospital.

If you have possible breathing problems, you should ride lying flat in a special bed made for use in the car. (Turn this sheet over for tips on using car beds and for a list of available models.)

How to be comfortable in a reclining safety seat:

- You should always ride facing the back of the car, up to 20 pounds.
- Your buttocks and back should be flat against the back of the car seat.
- Rolled-up diapers or small receiving blankets along the sides of the seat, around your head, and between your legs behind the crotch strap can make the seat fit better.
- If you have an add-on car seat pad, it must have slits for harness straps to be pulled through and no thick foam padding behind your back.
- You should recline half-way back, at a 45-degree tilt. If the vehicle seat slopes so that your head flops forward, your parents should tilt the car seat back just enough so your head rests comfortably without falling forward. To do this,

The Basics of Protection:

- The safety seat must be the right size for you.
- The seat must meet current federal motor vehicle safety standards and have been made after 1/1/81 - check the label.
- It must be used correctly, with you fastened into the car seat or car bed and the device fastened to the car.
- You should ride in a place where an adult can watch you.

they can wedge a firm roll of cloth or newspaper under the car seat below your feet.

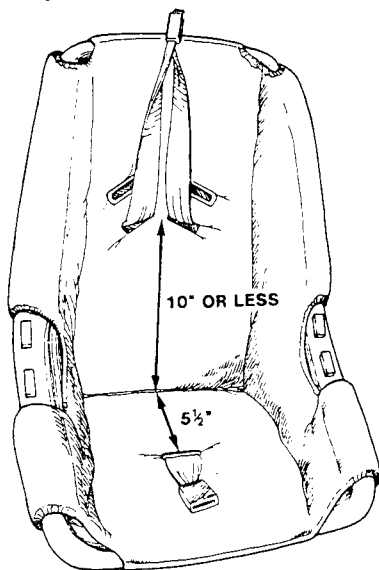
- Shoulder straps must be in the lowest slots, the harness must be snug, and the harness retainer clip at armpit level, not under your chin.

Infants and Airbags - A Warning

Do you ride in a car with a passenger-side airbag? Make sure your parents know that infants riding in rear-facing safety seats must not ride in the front seat where there is a passenger-side airbag. In a crash, the airbag would hit the back of the safety seat very hard and could seriously injure you. So, be sure you ride in back, facing the rear of the car. If you are lying in a car bed, the back seat is still better. Your parents should check their car owner's manual about babies and airbags.

What your parents should know before choosing a seat for you:

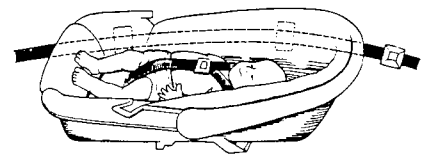
- If your parents already have a car seat, you may be able to use it when you are very small, depending on how it fits. Many models can be adapted with padding, as long as they don't have a shield.
- Car seats with shields in front should not be used when you are very small, because your face or chest could hit the shield in a crash.
- Car seats with a space of 5 1/2 inches or less between the crotch strap and the seat back will keep you from slouching too much. (picture B)
- Seat harnesses with shoulder strap slots located 10 inches or less above the seat bottom will work best to hold your body in place in a crash.
- Shoulder straps must be in the lowest slots.
- Household carriers or feeding seats are not strong enough to protect you in a crash.



B. Infant safety seat showing maximum recommended dimensions for correct harness fit on a very small baby.

If you are riding flat in a car bed:

- Make sure that your head is placed toward the center of the vehicle.
- If your car bed has a harness (picture C), it should be snug. If it is a Swinger Car Bed with a cloth bunting, you will fit best in the small size bunting. If you have to use the large bunting, padding (rolled towels) should be added inside it to fill in extra spaces.
- Your doctor will indicate whether you should lie on your tummy or back.



C. Dream Ride used as a car bed, with harness holding infant. Seat belt threads through loops on the back side of the bed.

Resources:

Safe Transportation of Premature Infants, Policy Statement of the American Academy of Pediatrics, PO Box 927, Elk Grove Village, IL 60009-0927; 708/228-5005.

Automotive Safety for Children Program, Riley Hospital, 702 Barnhill Dr., Room 1603, Indianapolis, IN 46202.

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The information contained in this publication should not be used as a substitute for the medical care and advice of your pediatrician. There may be variations in treatment that your pediatrician may recommend on the individual facts and circumstances.

If you use special medical equipment:

An apnea monitor, portable oxygen tank, or other equipment must be anchored to the floor of the car or under the seat, so it won't fly around in a crash and injure you or someone else.

Car Safety Devices Suitable for Premature Infants - 1992

This list is not all-inclusive. Other older models of car seats, or forthcoming models, may also fit these criteria and should be measured and considered for use.

Car Beds:

Swinger (discontinued); birth to 20 lbs.; (use with small bunting bag); requires two sets of seat belts.
Dream Ride, Cosco; birth to 17 lbs.; converts to rear-facing position (not listed below due to shoulder slot height over 10" in that position).

Rear-Facing Car Seats:

We have included only recent models with 3- or 5-point harnesses and a shoulder harness slot height of 10" or less, in conformity with the guidelines of the AAP. Seats with a crotch depth of more than 5 1/2" are listed because padding can be added to make the crotch strap fit better.)

Manufacturer & Model	Crotch Depth	Shoulder Slot Height
Infant-Only:		
Century 560	8"	7 1/2"
Cosco TLC	6"	9 1/4"
Evenflo/Dyn-O-Mite	5 1/4"	9"
Evenflo Infant Car Seat	5 1/2"	9"
Evenflo/Joy Ride	7"	8"
Kolcraft/Rock n' Ride	6"	9"
Convertible:		
Century 1000 (2-position crotch strap)	6", 8"	9 3/4"
Renolux GT 2000	4 1/4"	10"



Belts, Boosters, and Kids

When should my child move out of a convertible or toddler seat?

A child should use the convertible or toddler seat as long as it fits. The seat is outgrown when the upper weight limit is reached, the child's shoulders are too broad, or his or her ears are above the back of the restraint, usually close to 40 pounds. A restraint with shoulder straps and a shell is usually more protective than a booster seat or a safety belt, so the child benefits from staying in it.

Is it necessary to use a booster seat?

Safety belts are designed to fit adults. Children under 7, 8, or even 9 years of age will usually benefit from a booster seat to improve safety belt fit. Belt fit varies from one child to another and from one vehicle to another.

"Seat belt syndrome," which involves serious spinal and internal injuries, is usually related to poor lap belt fit. Stop and take a look at how the lap belt lies across your child's body (see below) and how the child sits in the vehicle. Shoulder belt fit is also important.

How should a lap belt fit?

The lap belt should fit low and tight across the top of the user's thighs, not up on the belly. The child should be able to sit comfortably with his or her buttocks against the seat back during the entire ride.

Children usually do not fit the vehicle seat well, which leads to slouching and poor lap belt fit. One reason they slouch is because their legs are short. When they sit on the bench seat, their knees cannot bend naturally. In addition, in many vehicles the child's feet hit the seatback and are forced downward, accentuating the slouch.

Other causes of poor belt fit are the location of belt anchor points and, in some cases, stiffeners on the buckles. When the lap belt comes from behind the seat, it tends to wrap around the belly rather than up and over the top of the thighs. If the buckle is stiff, the belt may not stay down on the child's thighs. Some even leave space between child and lap belt when fastened! All of these are reasons why a child may need a booster seat.

How should a shoulder belt fit?

The shoulder belt should cross the shoulder, not the throat or face. Short stature of the child contributes to poor shoulder belt fit, of course. Proper position of the

shoulder belt is important. Injuries can happen if the shoulder belt is too high.

Some vehicles have built-in guides or height adjusters to make the shoulder belt fit better. Add-on devices to reposition the shoulder belt may help but are not controlled by any federal standard. The April 1994 issue of *Consumer Reports* reported that two add-on devices, SafeFit and Child Safer, worked as they should in tests with a 6-year dummy. However, none of the shoulder belt repositioning devices make the lap belt fit better.

A belt-positioning booster seat (see below) raises the child up so that the shoulder belt fits better, while improving lap belt fit.

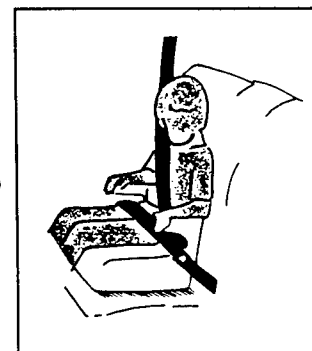
Can I put the shoulder belt behind my child?

This should be a last resort on occasional rides in unfamiliar vehicles, not a general practice. It is better to use a belt-positioning booster (see below) so your child has the benefit of the shoulder restraint. Also, most lap/shoulder belts work best when a crash occurs if both belts are snug against the body. It is generally considered better to use a lap belt alone rather than a lap/shoulder belt without the shoulder portion in place.

Which type of booster should I choose?

This depends on the safety belt systems in the vehicles in which your child will ride. These are the types and their features:

- **Shield booster** (upper right) is intended for use with a lap belt. Less effective as children get taller.
- **Booster with no shield** (called a "belt-positioning booster" or BPB, lower right) is designed for a lap and shoulder belt used together. The BPB provides better protection than the shield booster because the shoulder belt



Belts, Boosters, and Kids

reduces the distance that the child's head can move in a crash—and limits what it could hit.

- **BPB with a high back** is beneficial if your vehicle has low vehicle seatbacks.
- **Booster with a removable shield** can be used with either type of belt system. This is often convenient, especially if the shield is easily taken off and replaced.

What if I have a shield booster but my vehicle has shoulder belts?

If you want the best benefit for your child, switch to a BPB. If you choose to continue using the shield booster, it is generally best to put the shoulder belt behind the back rather than across the child's chest. Shield boosters are meant to work with the child's body wrapping around the shield in a crash. If the shoulder belt is in front, it may prevent the shield from functioning correctly.

Should I use a locking clip with a booster seat?

Yes, with a shield booster. The locking clip secures the restraint system by holding the lap belt tight around the shield or through the base of the shield booster.

No, with a belt-positioning booster. The BPB merely positions the child beneath the lap/shoulder belt. The belt is made to function properly without a locking clip. Lap/shoulder belts that do not lock in normal driving **do** lock up in a crash.

When should I move my child from a booster to a safety belt?

This will depend on when your child properly fits the lap (or lap/shoulder) belts in your vehicle. As your child grows, try him or her in the belts from time to time.

Most booster seat instructions state that a child should stop using the seat when his or her ears are above the seatback. This depends on the seated height of your child and the height of the seatback. In some vehicles, even a fairly short child may be too tall when using a booster. (See Whiplash, below.)

What about whiplash and kids?

If a child's head sticks up above the seat back there may be a potential for whiplash injury. However, there is no good evidence for how often this type of injury happens. Some belt-positioning boosters have high backs that may limit the potential for whiplash in rear-end collisions.

If your vehicle has seats with low backs and the fit of the lap belts in your vehicle are so poor that you want your child to continue using a booster seat despite his height, you could obtain a booster with a high back. Otherwise, you must weight the risk of injury due to the lap belt versus that to the neck. To summarize:

- Whiplash may happen to children, but is seldom life-threatening.
 - Seat belt syndrome is a well-documented problem in serious crashes, and can be life-threatening.
- You can make the choice that seems best to you.

Parents and Other Adults: Correct Belt Use is Important for You, Too

Wearing safety belts is important for everybody. Children learn good—and bad—habits from watching what adults around them do. Besides, children deserve to have their caregivers survive if a crash occurs. Furthermore, unrestrained passengers can cause injury to those who are riding buckled up.

Wearing a belt correctly means pulling the lap belt snug. Push it down to the top of your legs. If it rides up on your abdomen, you could be at risk for "seat belt syndrome" injuries. Keep the shoulder belt snug across your chest. If the shoulder belt cuts into your neck, **never** put it under your arm. This could cause fatal injuries to your internal organs. There are several ways to make the shoulder belt more comfortable:

- Buy a soft shoulder belt cover to protect your neck.
- Adjust the belt anchor to the lower position, if your car has this feature.
- Use an add-on belt repositioning device (see previous page).

Restraints prioritized for children from 40 lbs. to about 60-80 pounds:

with lap/shoulder belt:

1. Belt-positioning booster, with high back if needed.
2. Lap/shoulder belt (if *both* belts fit correctly) or with shoulder belt repositioner

with lap belt only:

1. Shield booster (most appropriate for shorter children)
2. Lap belt alone (if belt fits correctly)

Choosing a Vehicle for Family Safety

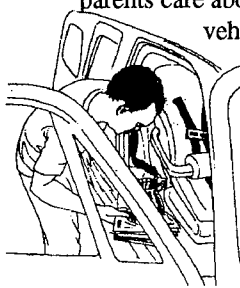


Tips You Won't Find in Consumer Magazines

Shopping for a used or new vehicle can be very confusing. Probably no vehicle will have all the features you want and need. The car you want may have certain safety innovations but may also have barriers to car seat (child restraint) use. Some problems can be overcome if you know how, but others cannot. Your dream car could turn into a nightmare if you don't take the time to understand these features.

Important safety information on all recent model vehicles is available. Look at crash test and real crash experience ratings, which help you compare vehicles of similar size. (You can find information on NHTSA "NCAP" test results and crash experience over the past few years in sources listed at the end.)

Ask your dealer for information on safety. Dealers need to know that parents care about this aspect of their vehicles. Realize,



Father tries safety seat in vehicle, using owner's manual.

however, that many dealers may not have all the facts on child restraint use, so trust the owner's manual, your intuition – and this flyer.

Newer vehicle owner's manuals contain very useful information on the specific

(Identify local program or contact here)

features, but older ones may not tell you all you need to know. If you have questions about vehicle safety features or need a copy of the owner's manual, call the manufacturer's customer service number listed.

Safety Standards Improving

Air bags and improved side-impact protection are becoming common in new cars, but not all 1996 vehicles have these features. Such safety standards are being applied more gradually to trucks, vans, and sport-utility vehicles, but some models now include them. A new federal requirement requires rear safety belts in 1996-model cars to lock tight around a child restraint, but the user has to know what to do. Some vehicles, however, have had this feature for many years (more below).

Passenger Air Bags Hazardous for Kids

Air bags can be lifesavers for adult vehicle passengers. Passenger-side air bags provide extra protection for a child in a forward-facing restraint or lap/shoulder belt, as they do for an adult. The side-impact air bags installed in some new vehicles do not interfere with child restraints.

Passenger air bags are hazardous for rear-facing infants or any unrestrained child.

An infant riding in the center or right front seat of a vehicle with a passenger air bag is likely to be very seriously injured or killed by the inflating air bag. At least two infants have been killed by air bags so far and

Family Safety Basics

- ✓ Bigger is safer; the larger and heavier the vehicle, the safer the people inside.
- ✓ A driver-side air bag is a real benefit, but a passenger-side air bag is hazardous for a rear-facing infant. **You must put the baby in the back seat.** Children over 1 must always use restraints, and have the vehicle seat pushed back.
- ✓ A safety belt for each passenger, including friends you take along, is essential.
- ✓ Access to the rear seat is very important. It is much easier to put your child in his restraint if your car has rear doors.
- ✓ Take your child's safety seat with you when you look at cars. Make sure there is enough space between seats to hold rear-facing child restraints, and that the safety belts fit.
- ✓ Bench seats are easiest for installing safety seats. Many safety seats are unstable on contoured bucket seats or the humps between them.
- ✓ Belts should lock to hold the child restraint tightly in place.
- ✓ Belts should hold the child restraint against the seat back.
- ✓ Shoulder belts in the rear seat are a real advantage for children who have outgrown child restraints.
- ✓ Always check the owner's manual for special information regarding "child restraints" (the technical terms for car seats) and safety belts.

More About Air Bags...

two more seriously injured in low-speed crashes. The back of a rear-facing restraint is so close to the air bag compartment that the deploying air bag hits it at a speed of almost 200 miles per hour. This impact can cause severe or fatal brain injury.

How can you tell if the vehicle has a passenger air bag? Some vehicles have the letters "SRS" or "SIR" molded into the dashboard. Look for a warning in the manual. Most vehicles also have a label on the top of the sun visor or on the side of the door frame.

If you buy a vehicle with a passenger air bag, your infant must ride in the rear seat.

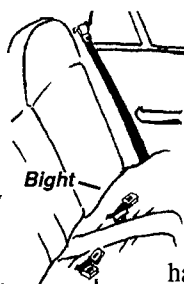
Many new parents want to have their baby ride next to them when they drive. However, riding in the rear is not usually a problem for healthy infants. Keep the infant in the rear-facing position up to at least 20 pounds and age one; this is essential to prevent possible spinal cord injury. (If you have a premature infant with possible breathing problems, have an adult ride in back with him or her.)

Most two-seat vehicles with passenger air bags have no safe place for an infant. However, two 1996 pickups (Ford Ranger and Mazda "B" Series) have a switch to disconnect the passenger air bag when the infant is in the front seat. Similar features may become available in other small vehicles.

It is safest for all children to ride in the rear seat.

If you must use a forward-facing child restraint in front, push the vehicle seat all the way back on its track.

Children large enough to wear safety belts are also safest in the rear seat. Lap and shoulder belts are a must. If a child were to ride in front without buckling up, he or she would slide forward during braking and be hit by the inflating air bag.



Major Issues for Vehicle Seats

Some features of safety belts and vehicle seats that aid adult comfort and protection make it hard to secure children's restraints. This means that, in some vehicles, a child restraint may not fit securely in some- or any - seating positions. Take a good look before you buy!

▲ Space for Child Restraints

Be realistic about the number of passengers that a vehicle can accommodate. Many cars that are sold as five or six-passenger vehicles have very little space between the two outboard seats in either the front or back. Belts anchored close together cannot secure a child restraint well.

Try installing your child's restraint in the positions where you want to use it.

Check belt length; width between anchors; head room; and if the rear-facing restraint fits in the back seat.

Extended-cab pickup trucks and sporty cars have very limited passenger space. Side-facing "jump seats" in pickups are not made to hold child restraints and should not be used.

▲ Forward-Anchored Belts

The location of the belt anchors is very important. Some safety belts come from the crease where the upper and lower cushions meet (called the bight, see illustration). These work best with child restraints, because they hold the restraint back in a head-on crash.

Belts that come up forward of the bight (as in the illustration) or at the side of a bucket seat may not hold child restraints back securely. Even if the belt locks tightly, the restraint could slide or tilt forward in a crash. Test by installing the child restraint and firmly pulling it forward and side-to-side.

If the vehicle you choose has forward-anchored belts, you may be able to use a tether to hold the restraint in place (see last page).

▲ A Child Restraint May Not Fit in Center Rear Seat

The center rear is generally the

safest spot in the vehicle, the farthest from any point of impact. If you wish to put your child there, check for a flat bench seat and a center belt anchored far enough apart to hold the restraint.

The center position may be unusable if the seat has a hump. The hump can make the center position uncomfortable for any passenger. It also may make the base of some child restraints unstable.

▲ Seat Contours

Bucket seats and contoured bench seats often do not provide a solid base for child restraints. The base may not fit into the hollow and may be unstable even if the belt is tight.

In some cases, the belts come out of the humps on the side of the bucket seats. This may prevent the belt from fitting through the child restraint belt path properly. It also can be a problem for older children. The safety belt may not lie snug across the lap of a thin school-age child whose body does not "fill the gap."

Most seats slope to the rear. This means that an infant in a rear-facing child restraint may be too upright. For the first few months, an infant must recline at a 45 degree angle, so his head does not flop forward. If the restraint is too upright, you can put a firm towel roll under the restraint to tilt it correctly. (Note that the seat should not be reclined more than 45 degrees; which could put the infant at risk in a crash.)

▲ Built-in Seats Have Benefits

Built-in child seats have the big advantage of eliminating problems securing the child restraint. Check the requirements for child's size and weight in the owner's manual. Built-in seats do not eliminate the need to have removable seats for rear-facing infants or for use in other vehicles.

Keeping the Safety Belt Tight Around a Child Restraint

A tight lap belt (or lap part of a lap/shoulder belt) is essential to hold the child restraint in place.

▲ Belts that Stay Loose During Normal Use Need Locking Clips

Many vehicles have lap/shoulder belts in front and rear that have emergency locking retractors. These are designed to lock only during a sudden stop or a crash. The lap part of the belt may loosen during cornering or swerving, or with the squirming of a toddler. Locking clips are needed for them, unless they have a locking latchplate (next column) or a switchable retractor (third column).

Locking Clips: 2 Kinds, Different Functions

1) Regular Locking Clip:

Each child restraint comes with one. It is used to lock a lap/shoulder belt (A) at the latch plate. The clip prevents the webbing from sliding through the latch plate. All child restraint instructions and some vehicle manuals tell you how to use this clip.

2) Heavy-Duty Locking Clip (HDLC): Lap-only belts or lap/shoulder belts with the webbing sewn to the latchplate (B) need a special HDLC to shorten the lap belt. This looks the same but is much stronger than the locking clip that comes with a child restraint. (Exception: Kolcraft locking clips made after late 1995 that are marked "heavy duty").

Never use the locking clip that comes with child restraints to shorten a belt. It could fail in a crash.

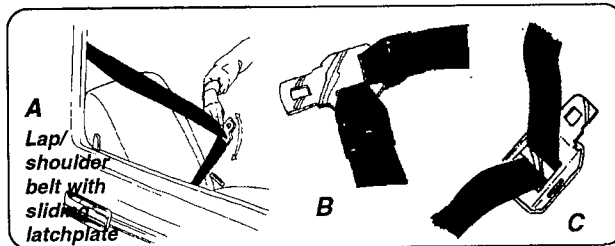
If you don't know which clip you have, do not use it to shorten a belt.

Some vehicle owner's manuals have information on this use of the HDLC, which can be purchased from Toyota, Ford, and Nissan dealers.

▲ Belts that Lock Work Best

Starting with 1996 models, all rear safety belts must stay snug around a child restraint without use of a locking clip. Look for this feature in older cars, too, as some manufacturers introduced belt-locking features in certain models during recent years. Others have almost always had lockable belts.

Three different kinds of hardware are generally used to lock the belts. Some belts have labels identifying them, but others do not. The owner's manuals in most new vehicles discuss this feature. If you don't find information there, here's how to tell if the belts lock. Remember that the lap part of the belt is the part that must be tight around the child restraint.



• A **locking latchplate** has a bar that grabs the belt so it cannot loosen (C). Some models are less bulky than that shown.

Test this yourself by:

- 1) Buckling the belt around your hips;
 - 2) Tightening the lap part by pulling up on the shoulder belt;
 - 3) Pulling forward on the lap belt;
- If the lap part doesn't loosen, the belt has a locking latchplate.

• An **automatic locking retractor** may be found on the lap belt or lap part of a belt with lap and shoulder belts sewn onto the latch plate (B). To test this:

- 1) Pull out on the webbing, then let it roll back;
- 2) Listen for clicks as the webbing retracts. It locks when you pull on it. If the lap belt holds firmly you have

an automatic locking retractor. To tighten this type around a child restraint, push the extra webbing back into the retractor.

• A **switchable retractor** does not lock routinely. However, it can be switched to hold tight during normal driving. To check:

- 1) Pull the belt completely out.
- 2) Let it go back in a bit, and then pull it out again.

If it has switched, the retractor will click as the belt goes in and will lock when you pull on it. It will return to normal function when rolled back in completely. (A few vehicles have retractors with a button switch.)

▲ Belts Mounted in Door or on a Track Need Extra Attention!

If you are considering cars with shoulder belts in the front seat that are attached to the door or run on a motorized track, understand that these belts should not be used to hold child restraints. These types of belts are present in many recent model cars.

The separate front seat lap belts in these cars usually

have retractors that lock only in a crash. This type must be shortened with a heavy-duty locking clip. If you want or need to carry your child in the front seat, check the owner's manual.

Special belts or buckles may be needed to adapt front seat safety belts for child restraint use.

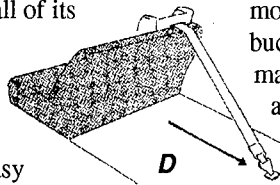
A few models, such as Mercury Cougar and Ford Thunderbird (1989-93) and certain Nissan cars, require a separate buckle to secure a child restraint properly in the front seat.

Where both the lap and shoulder belts are mounted in the door itself a separate "attaching belt" is needed for a child restraint. Many GM vehicles and a few Nissan and Honda cars have this type of belt system. See the owner's manual on installing this belt.

Tether Strap Gives Added Stability to Restraint

If you buy a vehicle with forward-anchored belts, contoured seat cushions, or belts that cannot be tightened sufficiently, you may find that no seating position will hold a child restraint securely. The only option may be to install a tether strap (D) available only for certain child restraints. However, tethers only work on forward-facing seats, so no additional stabilizing method is available for rear-facing restraints.

The tether strap anchors the top of a forward-facing child restraint to the vehicle. Ford recommends tethered seats for all of its vehicles. Many vehicles, especially in recent years, have pre-drilled holes for easy tether anchor installation. Some even come with tether anchors built in.



Evenflo and Gerry provide tether straps for their convertible child restraints at this time.

Few child restraints in the US have tethers because they must pass the federal standard (FMVSS 213) without a tether. Tethers do give extra protection. In Canada, the standard for child restraints is stricter and most forward-facing seats must use a tether to pass.

Concerns for Older Children

▲ Low Seat Backs and Whiplash

For children who have graduated from convertible or toddler restraints into boosters or safety belts, the low seat back of many station wagons, hatchbacks, and vans may be a potential safety problem. The back is not high enough to protect their necks from possible whiplash from a rear-end collision. However, belt-related

injuries seem to be much more serious than whiplash injuries.

A booster seat can provide protection from lap belt-related injuries. Therefore, it is important not to stop using a booster due to your child's seated height unless the safety belt fits low and tight on the child's thighs. Look for a vehicle with rear-seat head restraints, or buy one of the relatively new belt-positioning booster seats with a high back. The built-in head restraints would be the best choice in the long run, as they will protect your children long after they have outgrown the booster seat.

▲ Belts on Stiff Stalks

Some safety belt buckles are mounted on stiff stalks for easy buckling by adults. The stiff stalk may make the lap belt ride up on the abdomen of a child who has outgrown a convertible or toddler restraint. This high lap belt position can lead to serious spinal and abdominal injuries in a crash. For this child, a booster restraint would be a useful alternative.

The longer the stalk, the harder it can be to secure the belt tightly with many child restraint models.

▲ Shoulder Belts Height Adjusters for Older Children

Shoulder belt height adjusters are found on the front door pillar of some newer vehicles. They allow the upper attachment to be moved down a few inches so the shoulder belt fits short people better. Loops that reposition the rear shoulder belts are found in some vehicles. Look for details in the owner's manual.

Parents' Safety Tips

▲ If your vehicle has an air bag for the driver (and passenger), sit as far back as possible from the air bag compartment in the steering wheel or dashboard. Remember to wear your lap and shoulder belts, as air bags do not provide protection in rear or side impacts or during roll-overs.

▲ Look for head restraints high enough to fit the tallest family member. An adjustable head restraint should must go up at least as high as your ears and lock in place. Make sure it remains properly positioned.

▲ If you buy a vehicle with ABS brakes, learn how to use them. You must push on the pedal with constant pressure, not pump them.

Summary

Be an informed shopper! You can find a vehicle that will suit your desires and your children's safety needs at the same time.

Resources

For problems on installing child safety seats in specific vehicles, contact your vehicle manufacturer or SBS USA (310-673-2666 or 800/745-SAFE).

New Car Buying Guide, Consumers Union

Shopping for a Safer Car, booklet, Insurance Institute for Highway Safety; 703/247-1500

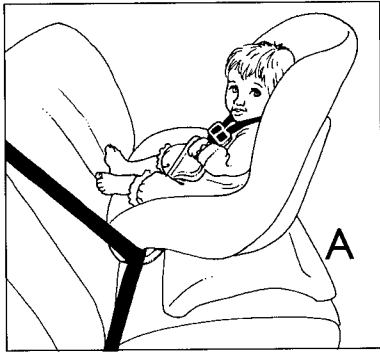
Buying a Safer Car, pamphlet, AAA; 1-800-305-7233

Is Your Safety Seat Secure in the Car? SBS USA, Child Auto Safety Tip #6; 310/673-2666 or 800/745-SAFE

Customer Service Numbers

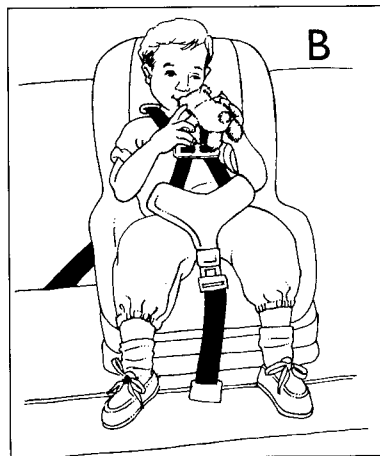
BMW	1-800-831-1117
Chrysler	1-800-992-1997
Ford	1-800-392-FORD
GM	
Buick	1-800-521-7300
Cadillac	1-800-458-8006
Chevy/Geo	1-800-222-1020
GMC Truck	1-800-462-8782
Oldsmobile	1-800-442-6537
Pontiac	1-800-762-2737
Honda	1-301-990-2020
Mazda	1-800-222-5500
Mercedes-Benz	1-800-FOR-MERCEDES
Nissan	1-800-NISSAN-1
Saturn	1-800-553-6000
Toyota	1-800-331-4331
Volkswagen of America	
Volkswagen	1-800-822-8987
Audi	1-800-822-2834
Volvo	1-800-458-1552

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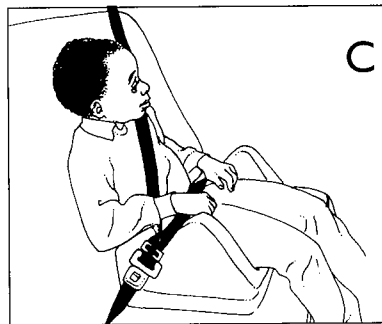


Baby under 20 pounds and one year faces the rear.

The safety seat harness holds the child in place, and the vehicle belt holds the seat in the car.



Child from 20 to 40 pounds faces the front.



Booster with no shield for use with both lap and shoulder belts.

Booster seats are for children over about 40 pounds.

Tip #1 quick safety seat checkup

Does your child ride in the back seat of your vehicle?

- The back seat is generally the safest place in a crash.

Does your child ride facing the right way?

- Babies up to 20 pounds and about age one ride facing the rear (A).
- Children over 20 pounds and about age one ride facing forward (B).

Does the safety belt hold the seat tightly in place?

- Put the belt through the right slot. If your safety seat can be used facing either way, use the correct belt slot for each direction.

Is the harness buckled snugly around your child?

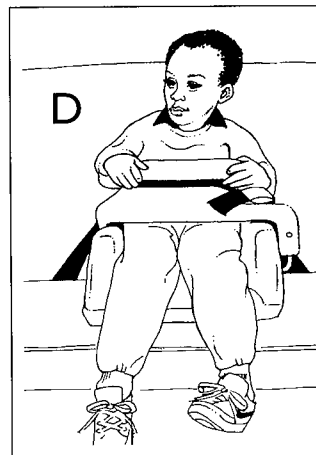
- Keep the straps over your child's shoulders.

Do safety belts fit your older child right?

- Children outgrow regular safety seats at about age four and 40 pounds, but they may be too small for auto belts to fit correctly for good protection.
- The lap belt must fit low and tight across the upper thighs. The shoulder belt goes over the shoulder and across the chest - never under the arm.
- A booster seat can help make belts fit better on your child.

Are you using the right type of booster seat?

- A booster seat without a shield (C) can only be used with both lap and shoulder belts.
- A booster seat with a shield (D) is for use if your car only has lap belts in back.



Booster with a shield works with just a lap belt.

For more information, read *Child Auto Safety Tips #2 to #8* and call your local safety group or the Auto Safety Hotline: 1-800-424-9393.

Even the 'safest' seat may not protect your child if it isn't used correctly.

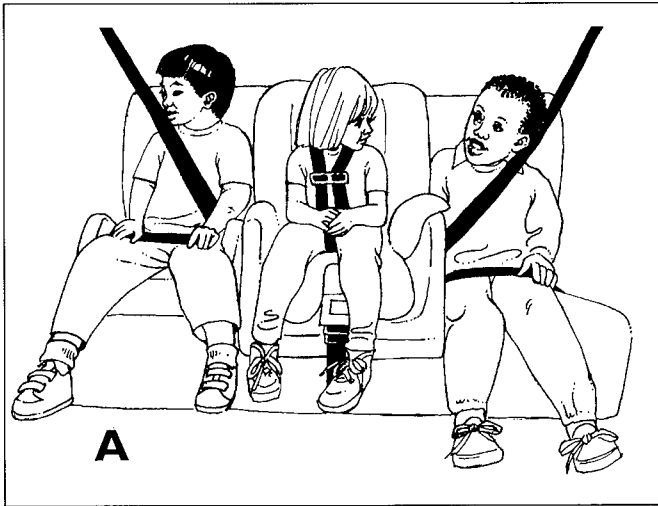




Tip #2

where should your child ride?

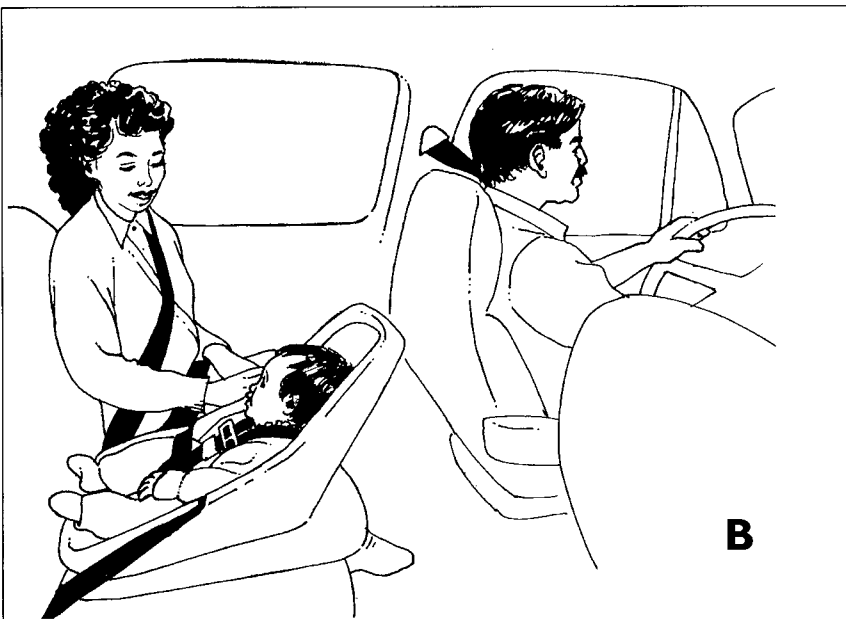
Everybody riding in a vehicle needs a safety belt or safety seat!



The back seat is safer than the front. The center belt works best for a safety seat. Older children should use lap/shoulder belts for best protection.

Basic Safety Facts to Remember

- Anyone who rides loose can hurt those who are buckled up by being thrown against them. People riding without belts or safety seats can be hurled out of the car and be seriously hurt.
- There must be one belt for each person. Buckling two people, even children, into one belt could injure both.
- A lap or lap/shoulder belt holds your child's safety seat in the vehicle.
- If no shoulder belt is available, it's much safer for anyone (except small babies who can't sit up) to use just a lap belt than to ride loose. Keep the lap belt low and snug across the thighs.
- The back seat usually is safer than the front. Head-on crashes are the most serious and the most common. The middle of the back seat is the safest spot because it is farthest from danger (A).
- Children who have outgrown safety seats are better protected by lap/shoulder belts than by lap belts alone. So if several children are riding in back, and there are shoulder belts there, let the older ones use the shoulder belts. Put the child riding in the car seat in the middle where there is only a lap belt (A).

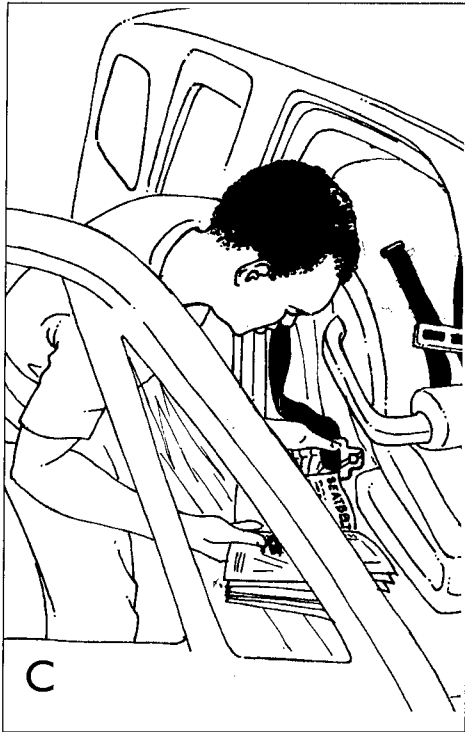


- A newborn baby should ride where an adult can keep an eye on him, especially if the baby was premature or has a medical problem (B). If you are driving and there isn't anyone else in the car, your new baby may ride safely in the front seat, but not if there is an air bag for that seat.

What if your car has an air bag for the front passenger seat? Turn this sheet over...

Everyone in the family buckles up. Mother sits in back beside her baby to watch and play with him.

Tip 2, Page 1



Always read the car owner's guide for advice on air bags for infants and small children.

Passenger-side air bags could injure infants riding facing the rear of the car.

Many new cars will have air bags for the right front seat. Air bags work with lap/shoulder belts to protect older children and adults who ride facing the front of the car. But air bags do not work with rear-facing safety seats.

In a crash, the air bag inflates very quickly. It could hit anything close to the dashboard very hard. A rear-facing safety seat could be struck hard enough to hurt your baby seriously. Therefore, infants must ride in the back seat, facing the rear (B). Never turn your baby to face forward in the front or back seat until he/she is over 20 pounds and one year of age.

If there is no room in back, a child over 20 pounds in a forward-facing child safety seat can be placed in the front with the vehicle seat as far back as possible. Read your vehicle owner's guide about the air bags in your car (C).

WARNING: If the front right seat has an air bag, a baby in a rear-facing safety seat must ride in the back seat.

Remember: One Person - One Belt

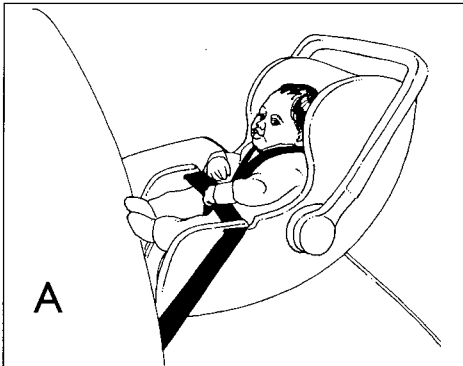
- Never hold a child on your lap because you could crush him in a collision. Even if you are using a safety belt, the child would be torn from your arms in a crash.
- Never put a belt around you and a child on your lap.
- Two people with one belt around them could injure each other.
- The cargo area of a station wagon or van is a very dangerous place for anyone to ride.
- Do not let anyone ride in the bed of a pickup truck, even one with a camper shell.

Parents who buckle up show their children that it is important to ride safely.

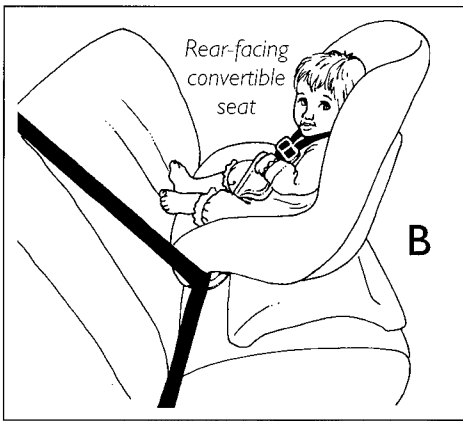


Tip #3

how to protect your new baby in the car

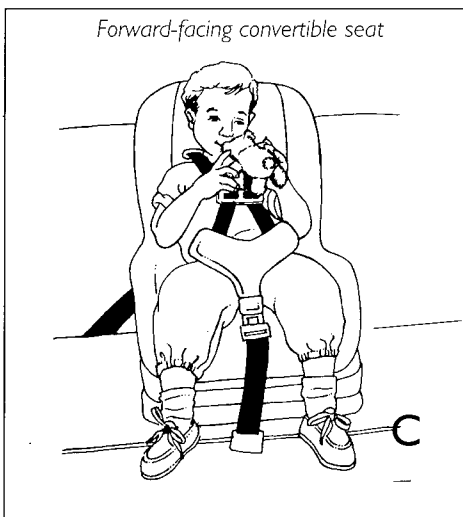


This kind of seat fits babies under 17-20 pounds only and always faces the rear.



Rear-facing convertible seat

▲ This seat fits an infant, facing the rear, and a toddler, facing the front. ▼



Forward-facing convertible seat

Everybody would be safest sitting backward in a car. Babies are lucky to have seats that work this way. So, whichever kind of seat you choose, your baby should ride rear-facing until at least 20 pounds and one year of age.

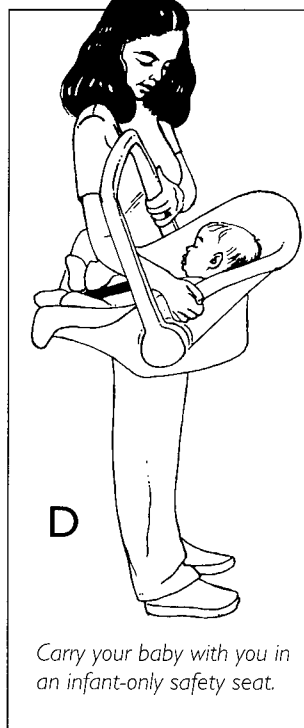
Two kinds of safety seats are made for babies:

1. Small, lightweight "infant-only" safety seats are designed for use rear-facing only. This kind can be used only as long as the baby's head is enclosed by the top rim of the seat (A). The label on the seat gives the upper weight limit (17 to 20 pounds).
2. Larger "convertible" seats usually fit children from birth to four years of age and 40 pounds. This kind is used facing the rear while your baby is under a year (B). It may be turned around to face the front when the baby is about one year old and over 20 pounds (C).

Which seat is best for a new baby?

Think about these points before you decide:

- You'll save a little money if you buy one seat to do the job from birth to 40 pounds, but an infant-only seat may be easier for you to use and may fit your newborn baby better.
- An infant-only seat can be carried with you wherever you go (D). Many attach to supermarket carts. All make sturdy seats for use at home.

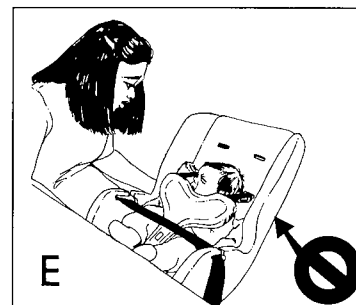


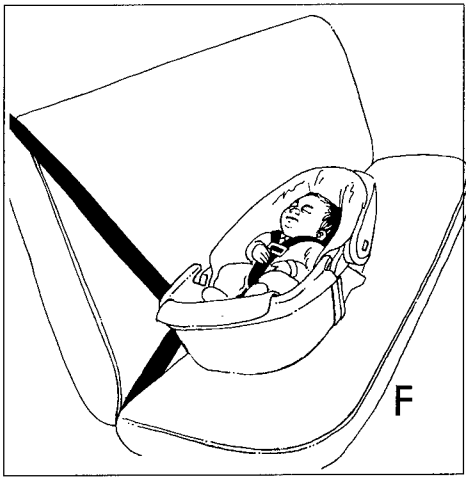
Carry your baby with you in an infant-only safety seat.

- Some infant-only seats come in two parts. The base stays buckled in the vehicle, and the seat snaps in and out. You may find these convenient to use.
- If you want to use a convertible seat for a newborn baby, choose one without a shield. Shields usually do not fit small or newborn babies properly. They come up too high, often hiding the baby's face, and make proper adjustment of the harness difficult (E).

Is one seat safer than another?

Turn this sheet over...





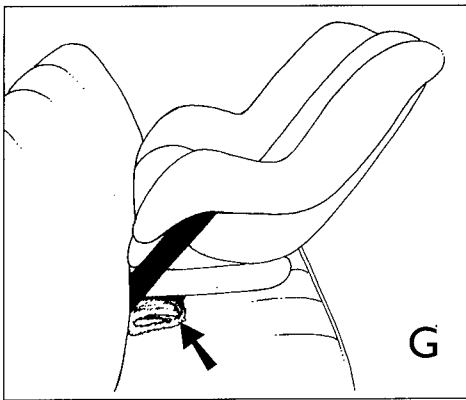
Your baby must ride facing the back of the car. In this crash-tested car bed, the newborn baby can ride lying flat.

Is one seat safer than another?

The simplest and least expensive model usually will work as well as one with fancy features. Choose a seat that you find easy to use.

- For a premature baby or one with medical problems, the doctor may suggest using a crash-tested car bed so the baby can lie flat for a few weeks or months (F). The baby's head must be placed toward the center of the car.
- Infant-only seats that come with shields are not safer than those with harnesses only. The shield may not fit well on a tiny baby.
- Babies who gain a lot of weight early need to use rear-facing convertible seats once they outgrow infant-only seats.

WARNING: Convertible seats must face the rear until the baby weighs at least 20 pounds and is one year old. Infants are safer riding facing the rear, because the back of the safety seat would support the child's back, neck, and head in a crash.



The rolled towel under the safety seat makes it tip back just enough so the baby's head lies back comfortably.

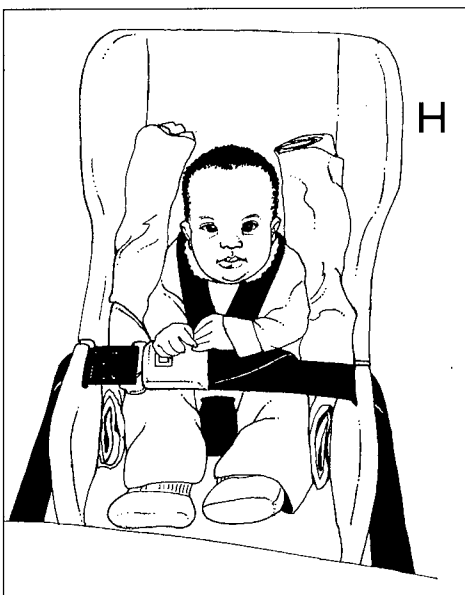
Does your baby's head flop forward?

It's important for an infant to ride sitting about halfway up. You may find that the safety seat stands too upright for a new baby who can't yet hold up his head. You may put a tightly rolled bath towel under the front edge of the safety seat to tilt it back a little so your baby's head lies back comfortably (G).

Do not recline it too far.

Harness straps must fit snugly on the body.

- It is very important for harness straps to fit properly over the shoulders and between the legs. Dress your baby in clothes that keep legs free. If you want to cover your baby, buckle the harness around him first, then put a blanket over him.
- To fill empty spaces and give support, roll up a couple of small blankets and tuck them in on each side of your baby's shoulders and head (H). If he still slumps down, put a rolled diaper between his legs and behind the crotch strap. Blankets should not be put underneath the baby.
- Use the lowest harness slots for a newborn infant. Keep the straps in the slots at or below your baby's shoulders for the rear-facing position.



If the baby needs support, put rolled-up towels or blankets on each side.

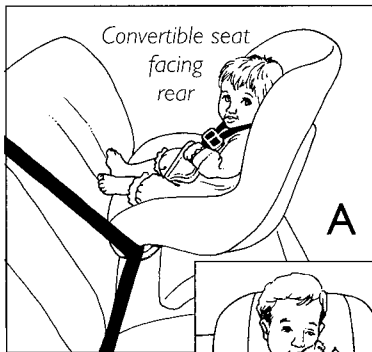
Tip 3, Page 2



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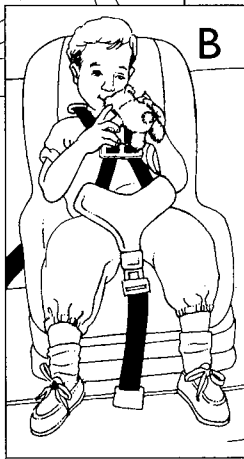
Tip #4

what to use for a big baby or toddler?

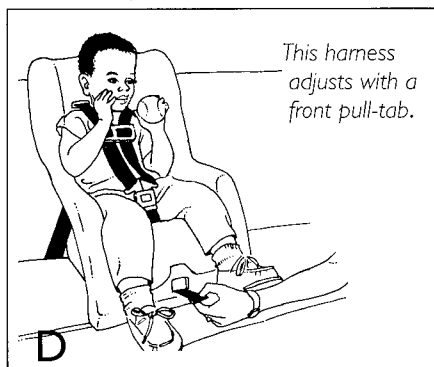


Convertible safety seats can be used for big babies and toddlers.

Same convertible seat facing forward ▶



Vest has shoulder, hip, and crotch straps. Vehicle belt goes through the back of the vest.



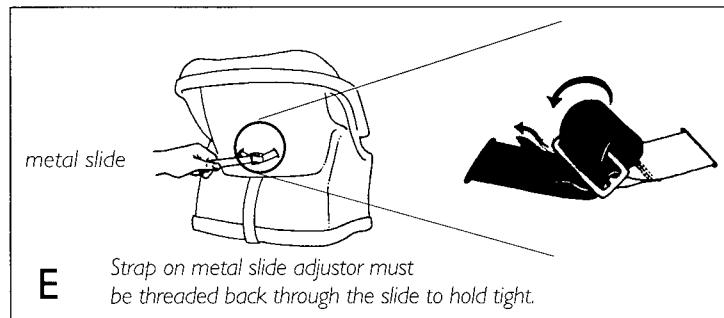
When your baby grows too tall or too heavy for an infant-only seat, you'll need a safety seat that fits toddlers.

There are three kinds of safety seats:

1. The familiar convertible safety seat, which fits babies riding rear-facing (A) and toddlers riding front-facing (B), has a padded shell and harness straps.
2. A built-in toddler safety seat with harness, found in some cars and vans.
3. A safety vest, which has a harness but no stiff shell around the child (C). A toddler over one year of age, weighing 20 to 40 pounds, is not big enough for a booster seat in the car. He needs the extra protection for his upper body and head that a harness with hip and shoulder straps can give.

When choosing a safety seat, remember:

- A seat that is easy for you to use will be the best for you and your child. Find and read the instruction booklet.
- Try locking and releasing the buckle in the store. In the car, you'll have to reach in and do that from the side. All car seat buckles are stiff to keep children from undoing them, but some are harder to work than others.
- Try changing the length of the straps. Some adjust automatically to fit the child. Many can be adjusted easily from the front or the side (D). Others have a metal adjustment slide through which you must pull the straps. Make sure the metal slide is in a spot you can reach once the seat is installed in the car and your child is in the seat.
- If the seat has a metal slide adjustor, you must thread the strap back over the slide (E) to "lock" it when you adjust the harness. If you don't, the strap could pull out in a crash, allowing your child to be thrown out of the seat and seriously injured.
- If the seat does not fit well in your vehicle, return it to the store right away and try another model.



Tip 4, Page 1

Which kind of harness is best?

There are three kinds. The basic harness type has shoulder, hip, and crotch straps. It will give your child excellent protection. A shield takes the place of hip straps to hold the lower body in the seat.

Special features to consider:

Harness Only

A harness-only type is preferred by many safety experts because the lap part of the harness fits over the child's strong upper thighs and hips. It can be adjusted to fit snugly. But the straps may twist and tangle, which doesn't happen with shields. If the straps are not kept flat, the harness won't work as well (F).

T-Shaped Shield

Shoulder straps are attached to a flat pad which rests as low as possible against the child's body. The shield can be buckled quickly with just one hand. Some have straps that adjust automatically to fit (G).

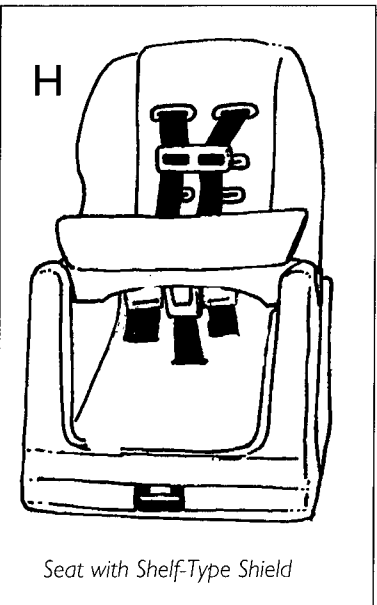
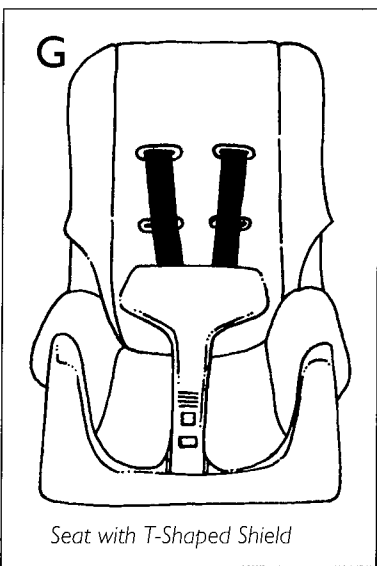
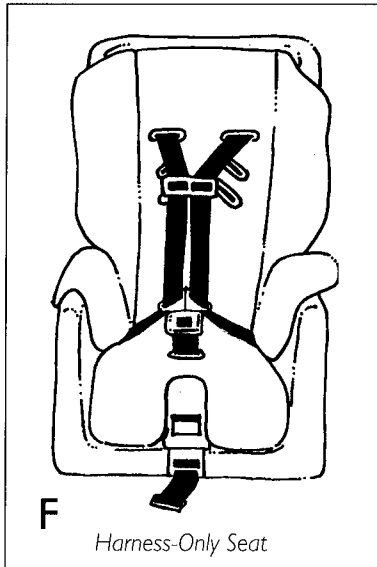
Shelf-Type Shield

Shoulder straps are attached to a wide, shelf-like shield that swings up or to the side. Some shields may not fit over the child's head without adjusting the straps each time. In some cars, the roof may be too low to allow you to raise the shield completely (H).

If you use a convertible seat, remember:

- Keep it facing the rear until your baby weighs 20 pounds and is about one year old. Then turn it around.
- Adjust it to sit upright when it is used facing forward.
- Move harness straps to the top-most slots when the seat is faced forward.

Keep your child in a safety seat with a harness for as long as possible, up to about 40 pounds and four years (I). When the harness is too short when fully extended, or the child's ears reach the top of the safety seat, then move him to a car booster seat or a safety belt that fits.



This 4-year-old girl still fits in her safety seat.

Tip 4, Page 2



Tip #5

how should preschool and schoolchildren ride?

Your child should stay in a regular car safety seat until it's outgrown. Although many children fit well up to about age four and 40 pounds, yours may not. When that happens, he's ready for a car booster seat.

Why use a booster seat instead of a safety belt?

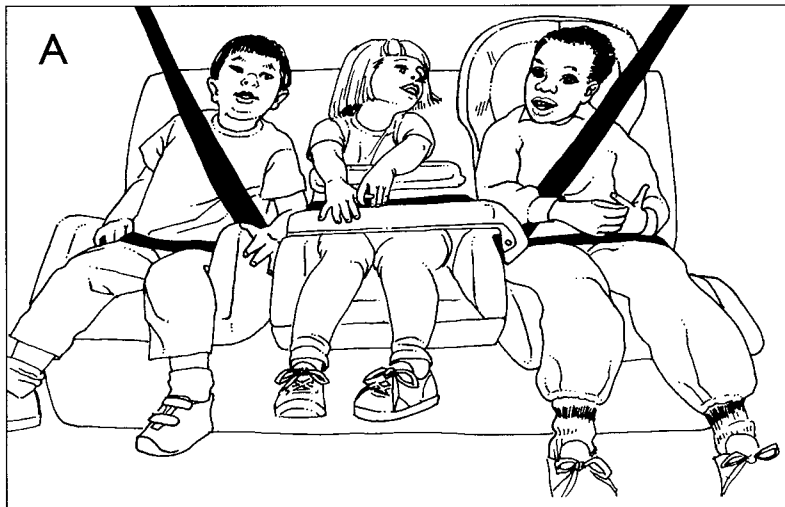
- Most 40-pound children are not tall enough for combination lap and shoulder belts to fit properly.
- Many young children will not sit still enough to keep lap belts low on their hips. Belts that ride up on their tummies can be hazardous.
- Boosters are comfortable for children because they allow their legs to bend normally.

Booster seats should be used until the vehicle belts fit correctly when used alone (see the back of this sheet).

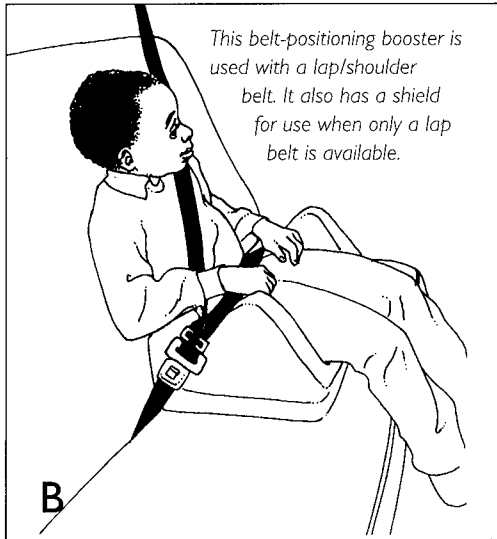
Three kinds of booster seats (A):

1. Boosters with shields, for use with lap belts alone (center).
2. Boosters without shields, for use only with the vehicle lap/shoulder belt. (left, right). Because raising the child up improves belt fit, these are called "belt-positioning boosters." These give better protection than boosters with shields.
3. Boosters with removable shields. Use without the shield to make combination lap/shoulder belts fit right (left). Put the shield back on when only a lap belt is available.

Which booster is best? Turn this sheet over...



All of these children fit in booster seats. The one with the shield (in the middle) is used with a lap belt alone. The booster on the right has an optional stiff backrest.

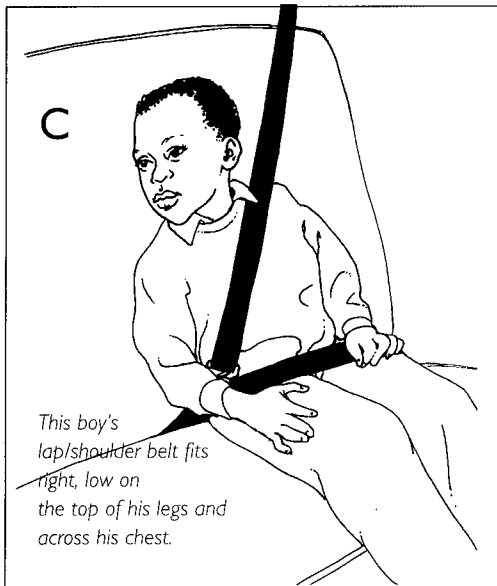


Which booster is best?

- The belt-positioning booster (B) is the best choice, if your car has combination lap/shoulder belts in the rear seat. In a crash, the shoulder belt keeps your child's upper body and head from hitting the inside of the car.
- A booster with a removable shield can be used in two ways. Use the shield if your car has lap belts only. Use the booster without the shield if you have lap/shoulder belts.

How long to use the booster?

- Try on the vehicle belts from time to time as your child grows taller. When the lap belt stays low on the hips and the shoulder belt crosses the shoulder, use the belts without the booster.
 - When your child's ears come above the top of the vehicle seat back, you may wish to move him to the safety belt instead. But if the lap belt doesn't fit right, you may decide to keep him in the booster a bit longer. Some belt-positioning boosters have a high back and offer better protection for a taller child.
- (A, first page, right)



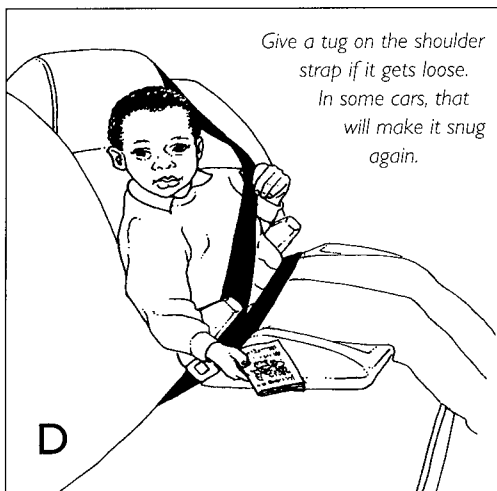
How should a lap belt fit?

The lap belt should fit low over a child's upper thighs (C). Make sure the child sits straight against the seat back. Keep the belt snug. It could cause serious injuries if your child slouches so it rides up onto his tummy.

How can you make a shoulder belt fit better?

The shoulder belt should stay on the shoulder and be close to the child's chest.

- If the shoulder belt rubs against the neck, it's uncomfortable for the child but not harmful. Try these suggestions to improve belt fit.
 - a. Fold a soft cloth over the belt or use a special belt cover you can buy from an auto supply or children's store.
 - b. If you have the kind of shoulder belt that stays slack when pulled out, put a very small amount of slack in it. This may help keep the belt away from the neck. But more than one inch of looseness would prevent the belt from working well.
- Teach your child to tug at the shoulder belt if it loosens (D).



- If the shoulder belt fits so badly that it hooks under the child's chin or goes across the face, raise the child up on a belt-positioning booster.
- Don't put a shoulder belt behind the child's back unless none of the other suggestions work and you don't have a booster seat.
- NEVER put a shoulder belt under the child's arm, so it crosses the lower chest. This could cause serious injury. The belt must go over the shoulder.
- Devices are advertised to improve fit for older children and adults. Some may work, but they are not covered by government standards.

Tip 5, Page 2



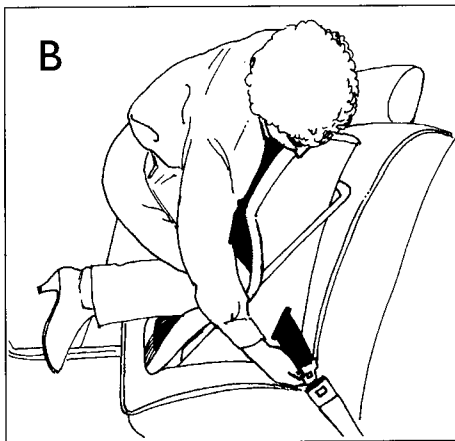
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Tip #6

does your safetybelt stay tight around your car seat?



Be sure to read your car owner's booklet for information on using the vehicle belts correctly with safety seats.



To make your child's safety seat secure, push down on it while you tighten the belt.



See how loose this belt gets when you pull on the safety seat. The belt needs to be made tight!

To do its job well, a child safety seat must be held tightly to the seat of the vehicle with a safety belt. If the belt is loose, the safety seat may not protect your child properly. Always read the instructions on child restraints in your car owner's booklet (A).

How Tight Should a Safety Belt Be?

The belt must hold the safety seat firmly in place. To make it tight, push the safety seat down into the seat padding while you tighten the belt around it. Pushing down on it with your knee will help to get a really tight fit.

How Can You Test Your Safety Belt?

To find out if the belt is holding tight, pull on the seat and push it hard from side to side. If the belt loosens (C) and lets your safety seat move, your child may not be protected well.

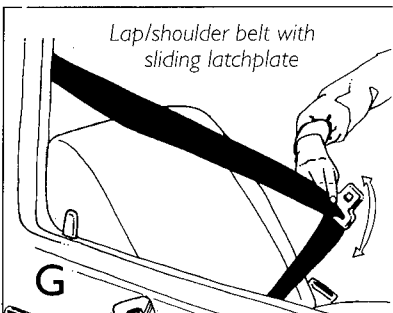
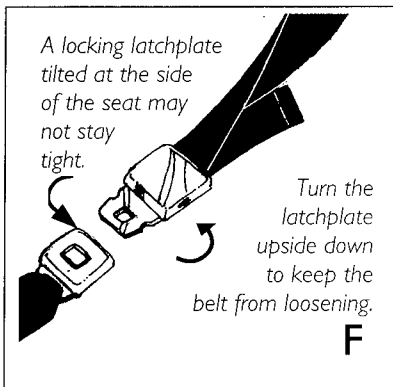
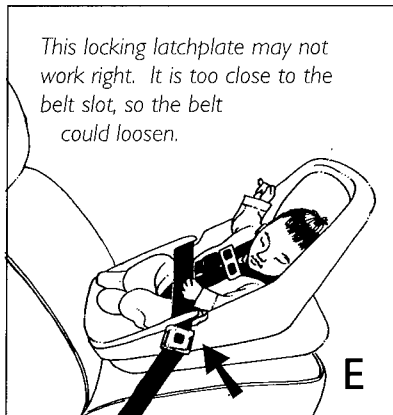
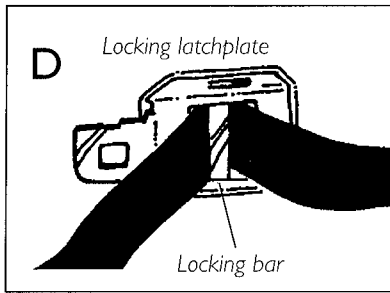
First, try another seat location in your vehicle. It may have a different kind of belt. The one in the middle of the back seat has a locking latchplate. Once tightened, this kind of belt usually will stay tight and keep your safety seat in place.

How to Check If Your Lap Belt Locks

If your belt does not have a latchplate that locks (picture D, page 2), it may have a locking retractor. To check it, pull the belt out and let it go back slightly. Then pull it out gently. If it locks, you have a retractor that will take up belt slack and hold the safety seat tightly. If you do not have a locking latchplate or a locking retractor, you have to find a way of keeping the belt tight.

For tips on this, read pages 2 to 4 . . .

Tip 6, Page 1



Which Kinds of Belts Are in Your Vehicle and How Do They Tighten?

There are many different kinds of belts, and they work in different ways. Some stay loose while you drive but are designed to lock up in a crash. These are safe and comfortable for adults and older children but do not work well with child safety seats. Most, however, can be made to stay tight, if you know how.

Belts with Locking Latchplates (D)

This is the easiest to lock around a child safety seat. Locking latchplates can be found on:

- lap belts in center rear seats and;
- some combination lap/shoulder belts.

To snug up the belt, pull on the end of the lap belt or the shoulder part of the lap/shoulder belt. The belt will stay tight.

To loosen it, the latchplate must be tilted. This could cause problems. The belt may loosen if the latchplate tilts at the spot where the belt goes through the slot in the safety seat (E). Test it as explained on page 1.

If it loosens, this is what you must do:

1. Snug up the belt around the seat; then unbuckle it.
2. Make a half turn in the end that has the latchplate (F).
3. Buckle the belt again.

Turning the latchplate over will keep the belt tightly locked in most vehicles.

One-Piece Lap/Shoulder Belt with Free-Sliding Latchplate

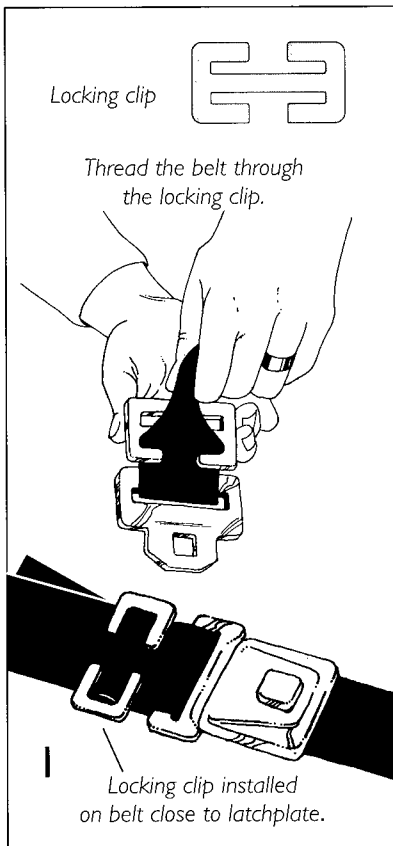
This kind of belt (G) stays loose except in a crash or sudden stop, but it is easy to fix. You need a metal "locking clip" to keep the lap part secured (see next page). But first check to see if the belt has a special "switching" feature that allows you to lock it.

Some Vehicles Have "Switchable" Belts

You may find that the belt in your car has a special feature that lets you switch it from one that stays loose to one that can be locked. The belt itself may have a label telling you this (H), and you can read about it in your vehicle owner's booklet. Pull the belt all the way out until it goes no farther. You may hear a click. When you let the belt roll back, you will find that it now locks every inch or so and will hold a safety seat tightly.

For more about locking belts, turn to the next page. . .

Tip 6, Page 2



How to Install a Locking Clip on a Belt with a Free-Sliding Latchplate

If the belt (G) does not have a switchable feature to lock it around a child safety seat, you should use a metal "locking clip" (I) to keep this kind of seat belt tight. You will find this clip attached to the side or underneath most new safety seats. If you do not have one, you can buy one in stores that sell safety seats or order it from a car safety seat manufacturer. Here is how to install the locking clip (I).

1. Put the belt through the correct path on the safety seat and buckle the belt.
2. Push down on the safety seat.
3. Pull up on the shoulder end of the belt until the lap belt is pulled tight.
4. Hold the two parts of the belt together at the latchplate and unbuckle the belt.
5. Thread the belt through the locking clip as shown. Put it close to the latchplate.
6. Buckle the belt again. If you put the clip on right, the belt will now stay tight around the safety seat.

The locking clip that comes with a child safety seat is intended to be used in this way only.

Other Belts That May Not Lock

Not all lap belts lock. Some stay loose and are not "switchable" (see page 2). You may find such belts:

- In front seats of cars that have automatic shoulder belts;
- In back seats of some older cars and;
- In front or rear seats as part of a lap/shoulder belt system.

These belts can be made to work with safety seats (see page 4).

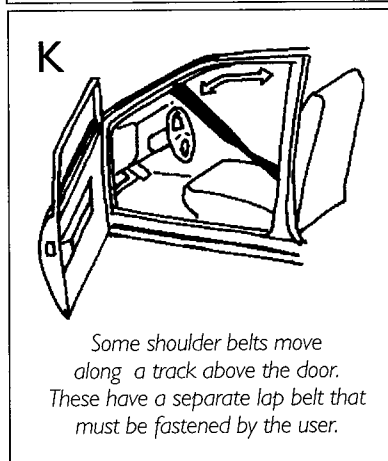
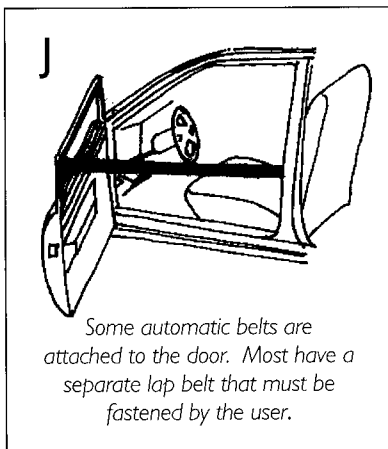
Automatic Safety Belts with Separate Lap Belts

Some "automatic" shoulder belts are attached to the door. They wrap around you when you close the door (J). Others have a motor which moves them along a track above the door (K) when you turn on the ignition.

Most automatic shoulder belts have separate lap belts. Some of these lap belts lock, most do not; and some are "switchable" (see page 2).

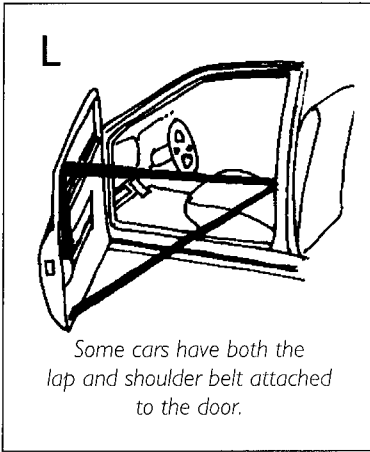
NEVER use a child safety seat in the front seat of a car if there is no lap belt. The safety seat cannot be secured with a shoulder belt alone.

For more on belts that may not lock, turn to page 4 . . .



Tip 6, Page 3

More on Belts That May Not Lock. . .

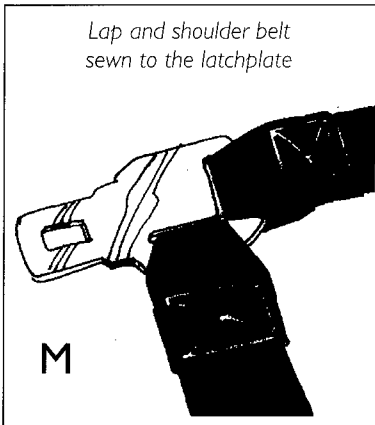


Front Seat Lap/Shoulder Belts Attached to the Door

When the lap belt is attached to the door (L), it will not secure a child safety seat easily. It is highly recommended that you get your car dealer to install a lap belt specially designed for securing a safety seat.

Lap and Shoulder Belts Sewn to the Latchplate

On belts that have the lap and shoulder parts sewn separately to the latchplate (M), the lap belt may not hold a safety seat tightly. First, check to see if the lap belt "switches" to one that locks, as explained on page 2. If not, keep on reading.



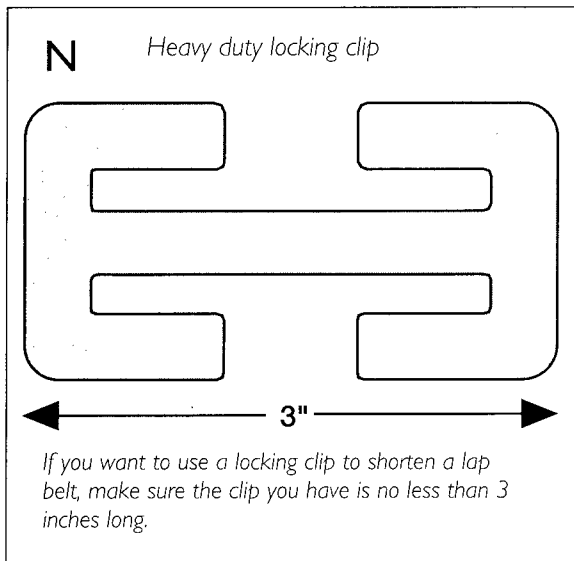
What to Do about Lap Belts That Do Not Lock

If a lap belt or lap part of a lap and shoulder belt does not lock and cannot be "switched," there is a way to fix it. You do it by shortening the belt to make it the right length to hold your safety seat tightly. Your vehicle owner's booklet may explain how.

You will need a special "heavy-duty" locking clip (N). This special clip is available only from Ford, Toyota, and Nissan dealerships.

This heavy-duty clip looks just like a regular locking clip, but it is made from extra-strong metal and is a little bigger. To make sure you have the right clip, try yours on the outline below (N). It must be no smaller than three inches. Do not use a locking clip that came with your safety seat or from a store or the child safety seat manufacturer. Only car dealers carry this kind of extra-strong clip.

Use ONLY a heavy-duty locking clip to shorten a lap belt. Using a regular locking clip to do this would put your child in serious danger in a crash. The regular clip could bend and release the belt.



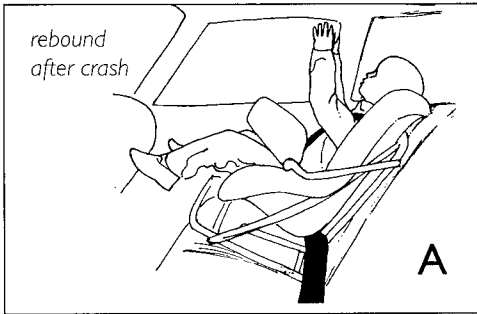
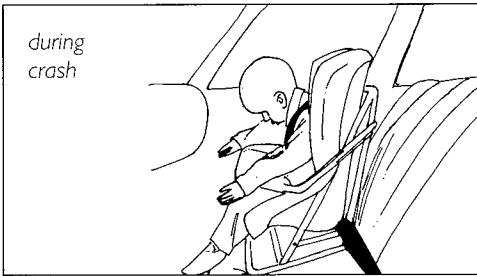
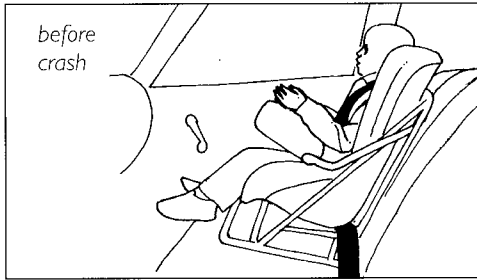
What can you do if your owner's booklet does not mention using the heavy-duty clip but you think you need one? What if your heavy-duty clip does not come with instructions for shortening a lap belt? If you have any questions about using locking clips, call the Auto Safety Hotline: 1-800-424-9393.



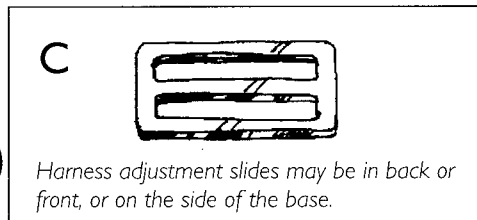
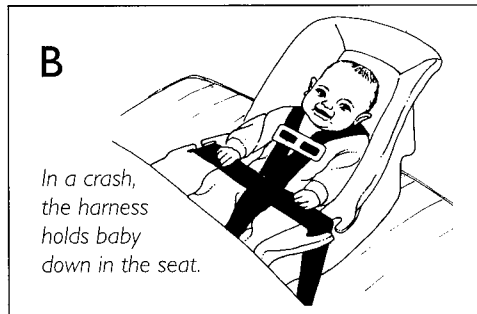
U.S. Department of Transportation
National Highway Traffic Safety
Administration

Tip #7

harness straps are your child's link to safety



Harness straps hold your child in his safety seat in a crash.



The harness that holds your child in his seat protects him in a crash (A). Some safety seats have just a harness; others have a harness attached to a shield.

Three points to remember about the harness

1. The straps must fit on strong parts of the body: the shoulders and hips.
2. It must be adjusted for a snug fit.
3. The shoulder straps must be in the lowest slots for rear-facing seats and in the highest slots for forward-facing seats.

Using Infant-Only Safety Seats

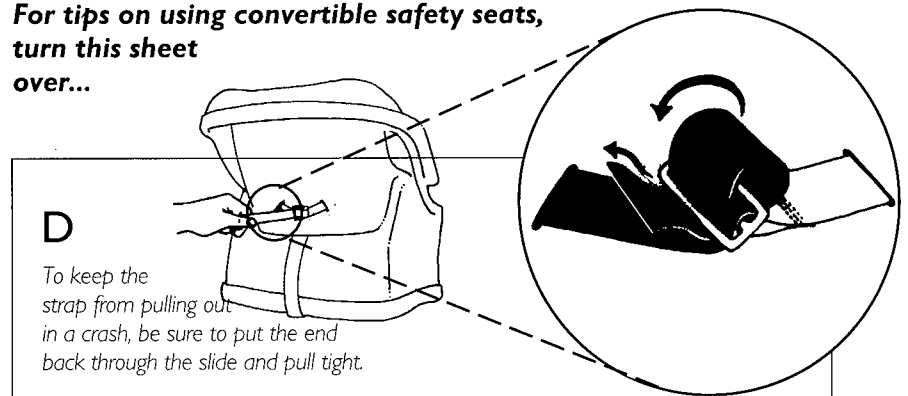
Infants ride facing rearward until they are about one year old and weigh at least 20 pounds. A snug harness is important in this position. In a crash, the shoulder straps hold your baby down in the safety seat.

Infant-only seats usually have just two straps which go over the shoulders and form a "V" when buckled between the legs (B). There may be one or two sets of harness slots. Shoulder straps must be in the lowest slots, below your baby's shoulders, if possible. For a newborn baby, even the lowest slots may be above the shoulders at first.

Use a plastic or fabric harness retainer clip to keep straps on your baby's shoulders. Put the clip at mid-chest, armpit level.

WARNING: When adjusting harnesses or changing strap positions, take extra care! A metal slide (C) on the straps of most infant safety seats (and some convertible models) is used to shorten or lengthen the straps. The end of the strap must be threaded back through it after adjustment (D). If you don't do that, the violent force of a crash could pull the strap out of the slide and allow your child to be thrown out of the seat.

For tips on using convertible safety seats, turn this sheet over...



Using Convertible Child Safety Seats

Remember that if your baby weighs under 20 pounds and is less than a year old, the convertible safety seat must be installed in the car facing the rear.

When your child is over 20 pounds, three adjustments must be made.

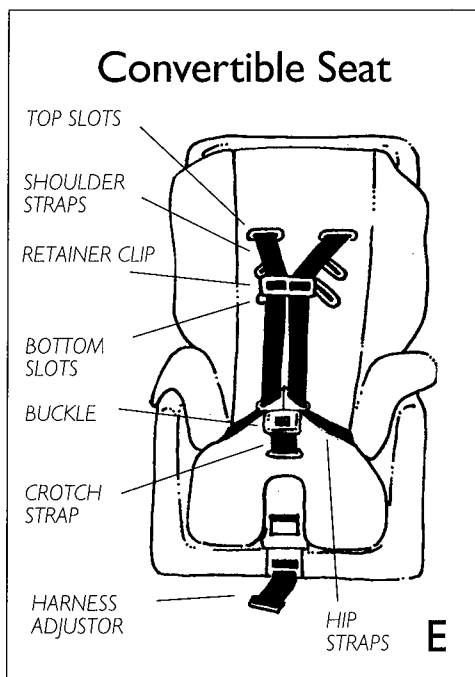
1. The seat is turned around to face forward.
2. The seat is put in the upright position, which gives the best protection for a forward-facing child.
3. The shoulder straps must be moved to the top set of slots (E).
(The middle setting on many convertible seats should not be used when the seat faces forward.)

When moving the straps up, be sure to thread them completely through the shell, not just behind the pad. Some must go over or around a metal bar on the frame, so check the manufacturer's instructions carefully.

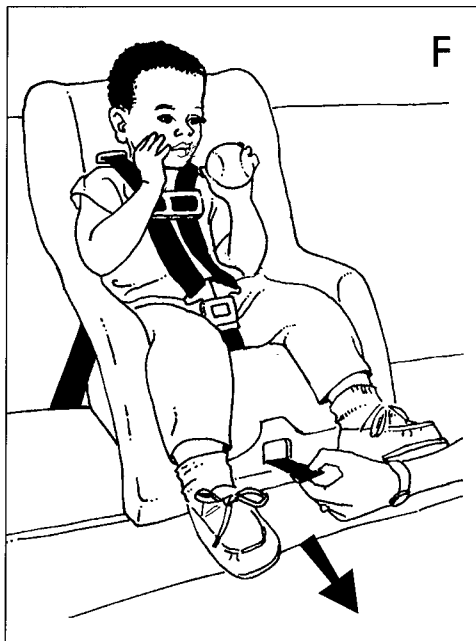
Harness straps are adjusted in different ways. Some tighten automatically to fit the child. Others have a wheel on the side which must be turned or have a strap to pull in the front (F). A few have a metal adjustment slide pictured for the infant-only seat. The strap must be doubled over the slide to prevent it from slipping in a crash (see side one, C and D).

If there is an adjustable crotch strap, keep it as short as possible to hold the harness or shield down low. And put the shoulder strap retainer clip at armpit level.

The way you install and use a safety seat can make the difference between your child being seriously hurt in a crash or coming out of it with only cuts and bruises or totally uninjured.



This convertible seat has a full harness to hold your child securely.



The harness on this seat is tightened by pulling on the strap between the child's feet.



Tip #8

what are safetyseat recalls?

Just like automobiles and many other products, including children's toys, a car safety seat may be "recalled" because of a defect which could cause injury to your child. Manufacturers are required to fix the problem free of charge.

When you hear about a seat being recalled:

- Find out which models and manufacturing dates are involved. Remember, the date of manufacture is the "birthday" of your seat. It helps you know if yours is one being recalled.
- Call the toll-free number of the company for more information.
- If you are not sure that your seat has been recalled or you don't know the correct telephone number, call the free Auto Safety Hotline: 1-800-424-9393.

Does the seat have to be sent back?

Not usually. Most problems can be fixed by replacing a part that the manufacturer will send you for free. Sometimes, with an older seat or when the company is out of business, you may be told to get rid of the seat.



Before you call:

Write down this information about your child's seat:

Manufacturer's Name _____

Model Number/Name _____

Manufacture Date _____

This is printed on a label attached underneath the seat, on the side, or the back. Some of the information may be in number codes. Bring the seat to the telephone so you can answer questions about it.

This seat meets all applicable Federal Motor Vehicle Safety Standards
 Manufacturer _____
 Model # _____
 Date of manufacture _____

Should I go on using a recalled seat?

Many defects are minor, but some are serious. All problems should be corrected as soon as possible.

- Unless you have another seat, you should go on using the recalled one while you are waiting for the repair kit. Using a recalled car safety seat is almost always safer than letting your child ride in a safety belt only.

Register any new seat. Newer safety seats come with registration cards. If your seat has one, be sure to fill it out and send it back to the manufacturer. That way, the manufacturer can let you know by mail if your child's seat has been recalled.

How do I destroy an unsafe seat?

If you throw it in the trash, someone else probably will take it and use it. To make sure it is not reused, take it apart completely, break it up with a sledge hammer, or take it to an auto wrecker. You should report problems you have with your seat. If you think your seat has a problem that could be a safety defect, call the Auto Safety Hotline to report it. Also call the safety seat manufacturer. Many serious problems are discovered from reports by parents.



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