

ALASKA LEGISLATURE COMMITTEE FILES 1981

1435 SHESS 1982 INTERIM: CHILD RESTRAI

- 1982 . 8672

PRINT DEVICES ANDH & FA TE

TABLE 1

## AVERAGE STATE COSTS PER HIGHWAY FATALITY AND INJURY

<u>COST COMPONENT</u>	<u>FATALITY</u>	<u>PERMANENT &amp; TOTAL DISABILITY</u>	<u>PARTIAL DISABILITY</u>	<u>NO PERMANENT DISABILITY</u>
Lost State Taxes	\$11,000 <sup>(A)</sup>	\$4500 <sup>(C)</sup>	\$900 <sup>(C)</sup>	140 <sup>(D)</sup>
Police Agencies	160	70	70	20
Legal and Court Costs	400	290	200	50
Probation Offices	115	115	115	115
Coroners/Medical Examiners	180	-	-	-
Motor Vehicle Departments	15	15	15	5
Hospital/Medical Costs (Borne by State)	35	900	350	60
Public Welfare Overhead	435	435	435	435
Rehabilitation	-	485	240	-
<b>TOTAL</b>	<b>\$12,340</b>	<b>\$6,810</b>	<b>\$2,325</b>	<b>\$825</b>

- (A) Based on loss of 10 years income  
 (B) Based on loss of 4 years income  
 (C) Based on loss of 10 months income  
 (D) Based on loss of 45 days income

Sources: 1975 Societal Costs of Motor Vehicle Accidents, National Highway Traffic Safety Administration (DOT-HT-802-119), 1976.

Wuerdemann, H.G., Joksch, H.C., National Indirect Costs of Motor Vehicle Accidents (Vol. 1)  
 Federal Highway Administration (DOT-FH-11-7773), 1973.

Joseph C. March, et al., Financial Consequences of Serious Injury, Highway Safety Research  
 Institute, University of Michigan (UM-HSRI-77-27), 1977.

To: Name Senator Charles Parr Title Senator Parr Date 12.16.82 Org/Rtg Symbol \_\_\_\_\_

Remarks: 950 Cowles St. Room 224 Fairbanks Alaska 99701

- Per Your Request
- For Your Information
- Per Our Conversation
- Note and Return
- Discuss With Me
- For Your Approval
- For Your Signature
- Comment
- Take Appropriate Action
- Please Answer
- Prepare Reply For Signature Of \_\_\_\_\_

Senator Parr,  
 It was a pleasure to have the opportunity to testify before your committee. attached is a copy of the ~~second~~ page of the National Highway Transportation Safety Board press release

From: Name Mike Saldini Title \_\_\_\_\_ Telephone 206.442.5934 Org/Rtg Symbol \_\_\_\_\_

The Board has been very encouraged by what can be achieved by such programs. Tennessee, the first state to undertake a broad-scale child passenger safety program, including mandatory use of child safety seats, reports impressive results. Since Tennessee began implementing its program nearly 5 years ago, child safety seat usage rates have tripled and crash fatalities to children in the age group affected by the law have been cut by more than 50 percent. Before the 1977 law, fatalities to child passengers averaged 20 to 25 annually. That number was reduced to 10 in 1981, and the fatality figures reported for the first 9 months of 1982 were 5.

In addition to recommending legislation, the Board urged the Governors to develop a statewide child passenger safety program to encourage compliance and to enhance the effectiveness of the law. According to the Board, this program should include visible and aggressive enforcement, public education and information activities, sufficient public and/or private loan or similar activities to assure the availability of seats for all members of the community, and an ongoing evaluation to analyze and improve child passenger safety policies.

Goldman stated that the Board's recommendation for mandatory use of child safety seats is only the Board's first step in its overall program to enhance child passenger protection. According to Goldman, the Board is continuing to conduct in-depth investigations of crashes involving young children and early next year will initiate a series of regional hearings across the nation to examine child passenger safety issues. The first of these regional hearings will be held in Dallas, Texas in January.

0 0 0

Press Contact: Barbara Dixon  
 (202) 302-6600



December 14, 1982

Senator Charlie Parr, Chairman  
Senate HESS Committee  
950 Cowles, Room 224  
Fairbanks, Alaska 99701

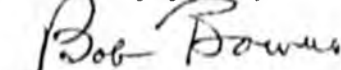
Dear Charlie:

As head of agency concerned about the welfare of children, I would like to support legislation mandating the use of child restraining devices in motor vehicles.

A few years ago friends of mine suffered the loss of their two-year old daughter when the family car had a head-on crash and the child was catapulted through the windshield. If the child had been restrained, she would still be alive.

I wholeheartedly support mandatory use of child restraining devices in motor vehicles and hope that you will be able to get legislation through the legislature this year.

Sincerely yours,



Robert D. Bowers  
Executive Director

RDB:dw

## PERTINENT MEDICAL INFORMATION (continued)

Gastrointestinal:

5. Mr. [REDACTED] states that since his accident, he has noticed some gradual problems with indigestion.

Phantom Pain:

6. Mr. [REDACTED] has episodes of phantom pain which apparently last two to three minutes when they occur, however, he has not required extensive treatment for management of the phantom pain.

In attempting to develop an estimate of Mr. [REDACTED] anticipated expenses, the following information was used:

- 1) Date of birth 9/27/56;
- 2) date of accident 2/29/76;
- 3) life expectancy determined from age 20 is 52.37 years with a time lapse of 6.59 years; and
- 4) total medical expenditures for the first 5 years = \$227,054.30.

Based on a review of case histories of individuals who have experienced catastrophic injuries, it appears that it requires 5 years to stabilize with the highest expenditures occurring within the first 5 years after the injury. The next 15 years the individual remains fairly stable with primary maintenance costs estimated at 25% of the 5 year cost. This 15 year stationary period appears to be rather constant despite the different age groups. Following the 15 year period of stabilization, deterioration continues (in Mr. [REDACTED] case, an approximate additional 5.78 years) at which time medical expenses accelerate to 50 to 100% of initial costs.

RE: [REDACTED]

September 10, 1982  
Page 4

Date of Report: September 10, 1982  
SUMMARY OF MEDICAL EXPENSES  
Date of Billing: September 13, 1982

1st 5 years: \$227,054.30

Following 15 years:  
25% of 1st 5 year cost \$ 55,763.58  
Annually x 15 years  
\$851,453.70

Last 6 years:  
3 yrs @ 50% of 1st 5 years \$113,752.15  
3 yrs @ 100% of 1st 5 years \$227,054.30  
TOTAL \$340,806.45

Medical Costs:

1st 15 years = \$851,453.70  
Last 6 years = \$340,806.45  
Total anticipated expenses \$1,192,260.15 (in 1982)

In summary, the above figure of \$1,191,260.15 is based on the premise that Mr. [REDACTED] has multiple problems and has a tendency to seek out medical expert advice, and is most likely not going to make any effort to contain medical costs.

Submitted by,

\_\_\_\_\_  
Virginia M. Collins, R.N.  
Rehabilitation Consultant

VMC:lj

Medical science, through improved pediatric care and immunization, has unquestionably reduced the risk of childhood disease. And yet, children's lives are still threatened. Today, after the first critical days of life, a child is more likely to die or be crippled in an automobile crash than from any of the once dreaded childhood diseases.

Crashes are the leading cause of death for American children. This year alone, more than 1000 children under five will be killed. Sixty thousand other children will be injured, ten thousand of them severely. And many others will be hurt, not in crashes, but when the car they're riding in simply brakes hard or swerves to avoid an accident.

While the statistics are disturbing, the real tragedy is that most of these deaths and injuries are unnecessary. They could be prevented if parents protected their children in restraint systems, just as they now immunize them against the threat of childhood disease. Unfortunately, less than 10 percent of all children riding in cars are protected by child restraint systems.

### Why restraints are needed.

Children are particularly susceptible to crash forces. In a 30 mph crash, an unrestrained child will strike the dashboard, often head-first, with the equivalent velocity of a fall from the top of a three-story building. The alternative, of course, is a restraint system. For adults and older children, that means seat belts. For infants and young children, specially designed restraint systems provide life-saving protection.

To demonstrate just how effective they can be, here are summaries of real accidents in which child restraints provided excellent protection. In all of these cases, the child very likely would have been killed without a restraint.

### Actual cases.\*

A 1968 Chevy II Nova traveling at 55 mph collided head-on with a 1973 Camaro that had strayed into the lane of oncoming traffic. The two lap-belted adults in the front seat suffered multiple fractures and lacerations from contacts with the steering wheel, the instrument panel and the side doors. A seven-month-old baby, who was harnessed in a properly secured rear-facing infant restraint positioned in the center of the front seat was uninjured.

A 1977 Toyota Corolla, traveling at 35 mph, ran into the side of a 1979 Chevrolet Corvette which slid out of control and into its path. The driver of the Toyota, who was wearing a seat belt, struck the windshield with his head. An unbelted adult in the back seat was thrown forward between the two front seats into the dashboard and windshield. Both adults were seriously injured. Two small children in the car, who were restrained in child seats, were virtually uninjured. A one-year-old riding in the front seat in a rear-facing infant restraint received a facial cut

\*From a study conducted by the Highway Safety Research Institute for the Insurance Institute for Highway Safety.

# KIDS IN CARS

## A SAFETY PRIMER

from flying glass. A two-year-old in a child restraint in the back seat suffered only a cut on the face and a sprained arm, even though his restraint shoulder straps were not fastened.

A 1976 Cadillac left the roadway, struck a mailbox and a road sign, and crashed head-on into a large tree. The unrestrained driver suffered massive chest and abdominal injuries and died. A two-month-old baby riding in a rear-facing infant restraint in the center of the front seat was uninjured.

After a minor collision between two passenger cars on an icy roadway, both cars were struck by a tractor semi-trailer going 45 mph that was unable to stop due to road conditions. One of the cars was occupied by two unbelted adults in the front seat, both of whom suffered major injuries. A two-year-old child was riding in the left rear seat — the same side the truck crashed into. He was in a forward-facing child seat secured by a lap belt. Even though the restraint harness was not properly fastened, the child was protected from injuries, except for a few facial scratches.

### Restraint systems for infants.

All children need protection in cars, but infants require special care, beginning with their first ride home from the hospital. From birth to about 8-9 months (17-20 pounds), new-borns need a carrier which cradles the child in a semi-reclined position. Designed to face the rear of the car, infant carriers or convertible safety seats hold the child securely in a special harness that prevents ejection. In this position, crash forces are distributed across the infant's relatively strong back.

Infant carriers must be secured to the car, preferably on a rear seat, by a standard lap seat belt. Some parents are uncomfortable placing a baby in the back seat facing the rear where they cannot see the child. Since the rear-facing infant carrier is designed to protect a child's head from the dashboard and windshield, the front seat is a suitable alternative.

Two kinds of infant carriers are available. The first is designed for infants only. And, once outgrown, it must be replaced by a child safety seat. The second is a convertible carrier. With a few simple adjustments, this type con-

verts to an upright safety seat for toddlers. It generally can be used from birth up to about forty pounds. For economic reasons, a convertible may be a wise choice, since there is no need to buy a second seat when the child outgrows the infant mode.

Regardless of your decision, neither type of infant carrier should be confused with the lightweight plastic feeder seats or carriers designed solely for home use.

### Restraints for small children.

For toddlers and young children (17-20 pounds), three types of restraints are available. These systems all face forward and are designed for children who can sit up without support.

The safety seat restraint system consists of a seat and harness which is anchored by a seat belt, either fastened around the front of the seat or threaded through the back of the frame. An internal five-point safety harness secures the child in the seat with belts that come over the shoulders, across the upper thighs and up between the legs.

Some models (including some convertible types) require a top tether strap. In the back seat, this strap must be secured to an anchor installed on the rear window shelf or on the cargo area floor behind the rear seat. If used in the front seat, the tether must be secured to a rear seat belt. Correctly used tether straps add extra stability and protection, especially in side collisions. Do not purchase a safety seat that requires a tether strap unless you are willing to install and use it properly.

The shield type of restraint system consists of a padded and slightly flexible impact shield that fits over a child's lap close to the stomach and bends away from the face and chest. It's held in place by an adult lap belt. The "C" shaped shell catches and cushions a child in a crash, evenly distributing impact forces over the child's upper body. This type of restraint has several advantages over other kinds of restraint systems. It's convenient to use because it doesn't require a harness or tether strap and it's easy to get into and out of. Shield restraints generally do not provide as much protection in side collisions, however, and should be used in the center of the rear seat.

The third type of restraint system combines the protective features of an impact shield with the harness, thereby providing the safety features of both designs in one system. For maximum protection, these restraints must be installed and used according to the manufacturer's instructions.

### Restraints for older children.

Once a child outgrows a safety seat or shield, usually by age 4 (40 pounds), or when no safety seat is available, an adult lap belt should be used. The belt must be correctly positioned below the abdomen, as low on the child's hips as possible, and adjusted for a snug fit. In the front seat, a shoulder belt should be used in addition to the lap belt, but only if it doesn't cross the child's face or neck.

Raising the child on a specially designed automobile booster seat may help position the shoulder belt correctly. If not, then do not use the booster seat. Instead, use only the lap belt and tuck the shoulder strap behind the child — never under an arm. Booster seats are unsafe and can be very dangerous if used without upper body support. They should never be used with a lap belt alone. For maximum safety, use the special body harness supplied with the booster seat.

### An expert's perspective

Aide interviewed Dr. Richard L. Stalnaker, a biomechanicist and noted authority on child restraint systems. Currently, he is a senior research engineer at the Southwest Research Institute in San Antonio.

Dr. Stalnaker has worked at the University of Michigan's Highway Safety Research Institute developing acceleration sled testing standards and has run restraint tests for automakers, the government, Consumers' Union and for several child restraint manufacturers. While working in Europe for Peugeot-Renault, he designed anthropomorphic dummies and developed a child restraint design which is now marketed in Europe.

Stalnaker also has participated in numerous investigations of actual accidents as part of the National Accident Survey. He shared with us the following observations about child restraints.

**AIDE:** Dr. Stalnaker, what happens to an unrestrained child in a crash?

**STALNAKER:** When a car hits another object, or when you brake suddenly, people in the car keep moving forward at the same speed the car was traveling until something stops them. This means that if you're driving along at 30 mph with an unrestrained child on the front



seat beside you and you brake suddenly, he will continue moving at 30 mph until he hits the dash or windshield. It takes less than a second to travel from a seated position into the dash. During that second, the child generally pivots over, striking the dash head-first. The forces of a crash, or even of severe braking, are so great that you can't grab him quickly enough to keep him from becoming a flying missile. Even if he's on your lap at the time of the crash, you won't be able to hold on to him. And if you're not wearing a seat belt, he'll be crushed between your body and the dash.

**AIDE:** *We've heard it said that "it's not the crash that kills." What does that mean?*

**STALNAKER:** That's right. Most passengers in car crashes could survive if they were subjected only to the same forces the car is subjected to. Most injuries and deaths occur because the occupants are subjected to even greater forces of impact. This is because they keep traveling after the car stops and then smash against something which causes them to stop moving in a much shorter distance than that of the car. This subjects them to greater forces than children in particular, can withstand.

**AIDE:** *What's the solution?*

**STALNAKER:** The best thing would be to bolt yourself down to the car as tightly as possible. Then you'll stop with the car and not be subjected to the greater forces. Professional car racers know this. They tighten their belts so tight it hurts. And most of the time they walk away from crashes that involve tremendous forces.

**AIDE:** *What does this mean where child restraints are concerned?*

**STALNAKER:** It means the child seat itself must be attached as securely and tightly as possible to the car itself. Also, (and this is where many parents make mistakes) the child must be as snugly belted in the seat as he will tolerate. For example, if the restraint has a crotch strap that goes between the legs, that strap should be as short and as close to the child's body as possible. It must be fastened snugly, not loose. If it's loose, Junior will smash into it if there's a crash. He can be quite seriously injured from "collision" with the straps themselves, if they're too loose. It's usually the parents who *think* Junior will be uncomfortable if his restraint straps are tightened properly — Junior won't complain if he's accustomed to always riding that way, provided he's not too big for the seat.

**AIDE:** *What other mistakes do parents make in the way they use child restraints?*

**STALNAKER:** Well, not using them at all is the biggest mistake. Any restraint, even if improperly used, is usually better than no restraint at all. But next to that, parents don't attach restraint systems to the car according to the manufacturer's instructions, and they don't belt the child in correctly. It's also a mistake to put a child in a seat that doesn't fit him — one that he has outgrown. But

again, if that's all that's available, it's better than no restraint at all in most crashes. A car's regular seat belts should definitely be used if no other restraint is available. In general, I'd say buy a restraint, use it and always follow the manufacturer's directions.

**AIDE:** *Are some brands of restraints better than others?*

**STALNAKER:** All child restraints made in the U.S. after January 1, 1981, have to meet a pretty tough standard. This means they should all give adequate protection if properly used. My advice would be to buy a restraint that's convenient for both parent and child to use. That is, if a seat is too complicated to use or difficult for the child to get into — to the point that it isn't used properly — then buy a kind that's more convenient.

I particularly like the shield-type restraint for toddlers and preschoolers that can be left belted to the car seat at all times because the child can simply crawl into it when he gets in the car.

**AIDE:** *What is the best place in the car for a child restraint system?*

**STALNAKER:** In the center of the back seat, provided the restraint can be properly secured to the car in that position. Children are almost always better protected in the back seat. The safest way of all for a child to ride is in the back seat, properly restrained. Of course, if your car doesn't have a back seat, or if you can't get a safety seat that can be properly secured in the back seat of your model car, then you'll have to position the child restraint in the front seat. But don't do it just because you like having the child near you, or because it's easier. Remember, your child is safer in the back seat.

**AIDE:** *You've had a lot of experience investigating real accidents involving child restraints. What are your conclusions from that experience?*

**STALNAKER:** Well, I've become convinced that today's child restraint systems provide remarkably good protection for youngsters in crashes. In fact, I've seen many cases where a child restraint system afforded reasonably good crash protection when it had not been properly used. This has led me to believe that the more convenient systems may be the best, just because they're more likely to be used.

Properly used child restraint systems are sometimes called "orphan-makers" because they're so effective. A restrained child will often survive a crash that kills his parents. Of course, that usually happens when the parents were not wearing their own seat belts. So I tell parents to restrain their children in order to save their lives, and then buckle up themselves so they won't make orphans of their children.

#### **For more information.**

To order *Don't Risk Your Child's Life*, an instructional pamphlet with a list of safe child restraint systems, send 35¢ and a stamped self-addressed long white envelope to Physicians for Automotive Safety, Communications Dept. USAA, P.O. Box 208, Rye, NY 10580.

# Safety Tips

If a tornado warning is issued... this means that a tornado has actually been sighted in your area. The safest place in your home during a tornado is the basement. If you don't have one, take shelter in a bathroom or closet on the lowest level of your home or under a heavy piece of furniture. Stay away from windows. In an office building, go to the lowest floor and take cover in an interior corridor, away from all windows and exterior walls.

The Southwestern Insurance Information Service warns that, above all, you should never try to outmaneuver a tornado in your automobile. "When a tornado hit Wichita Falls, 26 of the 43 persons killed were attempting to flee the tornado in their cars." If you should happen to be in your car as a tornado approaches, get out and take cover in a ditch or depression, the Service advises

**Unruly children...** Accidents caused by lack of driver control have occurred when the driver turned around to discipline children. Children always should be restrained in a child restraint (or child seat) that meets Federal Safety Standards. A safety belt is adequate if no child seat is available or if the children are older. This primarily is for their safety if there should be a crash, but it also keeps children from interfering with the driver.

If you must discipline young children in the car, don't let go of the wheel and turn around. Pull off the road and switch off the engine before applying whatever discipline is necessary. And make the children fasten their safety belts despite any objections



**Child protection...** Crash tests conducted by the Insurance Institute for Highway Safety demonstrate the need to properly restrain children for protection in auto accidents, even at slow speeds. The test crashes used popular 1979 model vehicles and test dummies. The filmed results showed:

- An unbelted mother crushing her lap-held baby violently into the instrument panel and windshield of their sedan in a frontal crash of less than 25 mph.
- Unrestrained children ejected from the rear window of a station wagon when it was struck by another station wagon at only 30 mph. One test dummy smashed headfirst onto the pavement.
- Two youngsters, unrestrained, being violently thrown about when the van in which they were riding crashed at less than 25 mph.

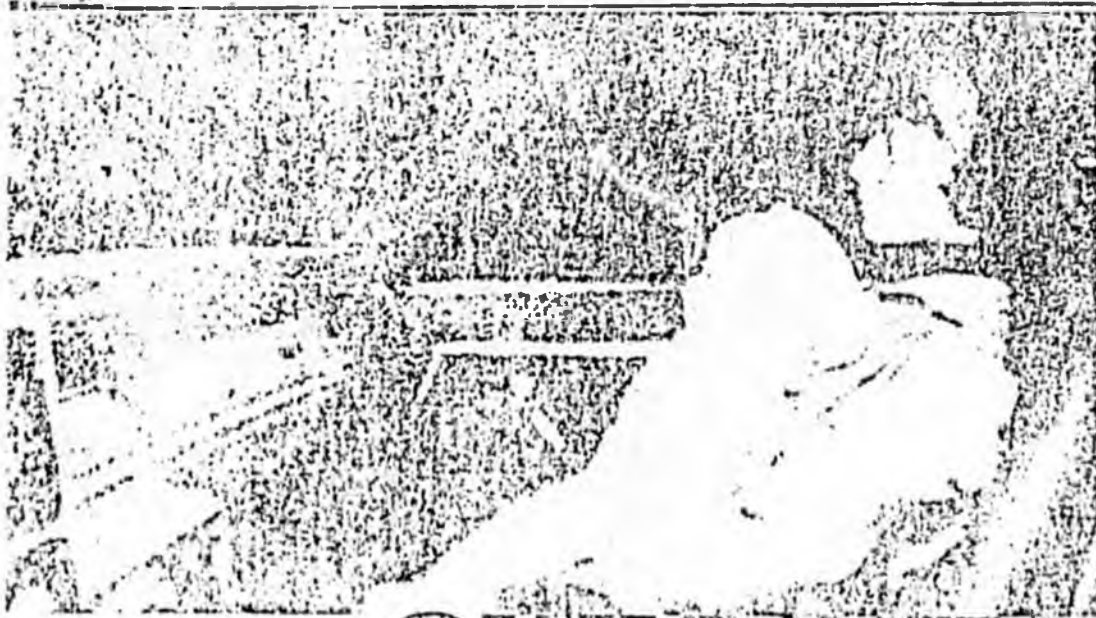
- An unrestrained infant, lying on the front seat beside its mother, hurled forward in a 25 mph crash to smash its face on the radio and air conditioning knobs.

Depending upon their age and size, always buckle children in or place them in properly-anchored child restraint seats.

Now is a good time... to check your home for electrical defects. Here are some electrical checkpoints from the National Fire Protection Association:

1. Look for frayed, cracked insulation and loose connections on lamp, appliance and extension cords, including cords behind furniture or otherwise out of sight. Never attempt repairs like taping over bad insulation. Be safe and replace the cord.
2. If you are running any cords under rugs, get rid of this hazard right away. Traffic and vacuuming will wear cord insulation to the danger point without your noticing it. If you need more outlets have a qualified electrician install them.





# CHILDREN

...and parents  
...on the  
...and  
...are needed

# CAR CRASHES



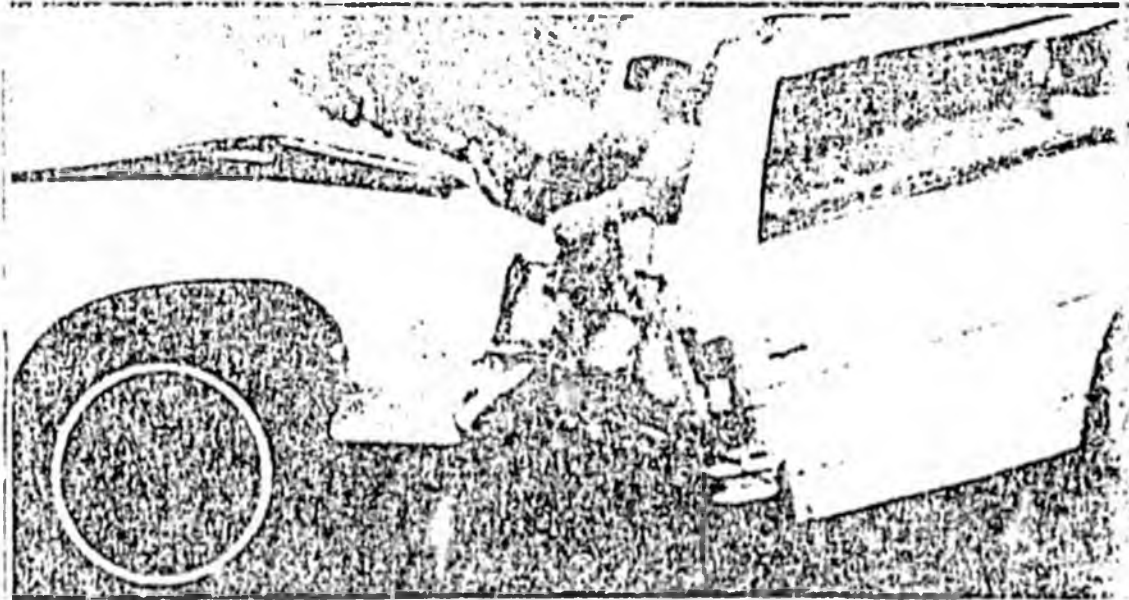
Effective January 1, 1981, a new federal standard for automotive child restraints has been adopted by the Department of Transportation.

This means that all child and infant car-seating devices manufactured after that date must meet more stringent DOT safety tests. Better restraints will give children protection appropriate to

the special risks they take when riding in a motor vehicle will be generally available.

However, the children can benefit from the protection only if adults are educated to use it, and if laws and regulations requiring its use are adopted and enforced at the state and local level.

Insurance people — particularly producers serving the public



Unrestrained child dummies in station wagon are catapulted through rear window.

By William Haddon, Jr. M.D.  
President  
Insurance Institute for Highway  
Safety

Each year nearly 2,000 American children who have not even reached the age of 15 are being killed when motor vehicles in which they are riding crash. Many thousands more are being seriously injured.

They are helpless victims, and most of their deaths and crippling are both preventable and inexcusable. By no measure can the children be held responsible for their pain, suffering and damage.

It is adults, not children, who design and manufacture the vehicles these children crash in — vehicles whose interiors commonly include sharp, hard, hostile structures unnecessarily placed, by the adults who design them, just where a small child's head or body may impact in a collision, vehicles whose doors and windows are designed and made in ways that actually encourage rather than prevent ejection of small (and large) bodies in crashes.

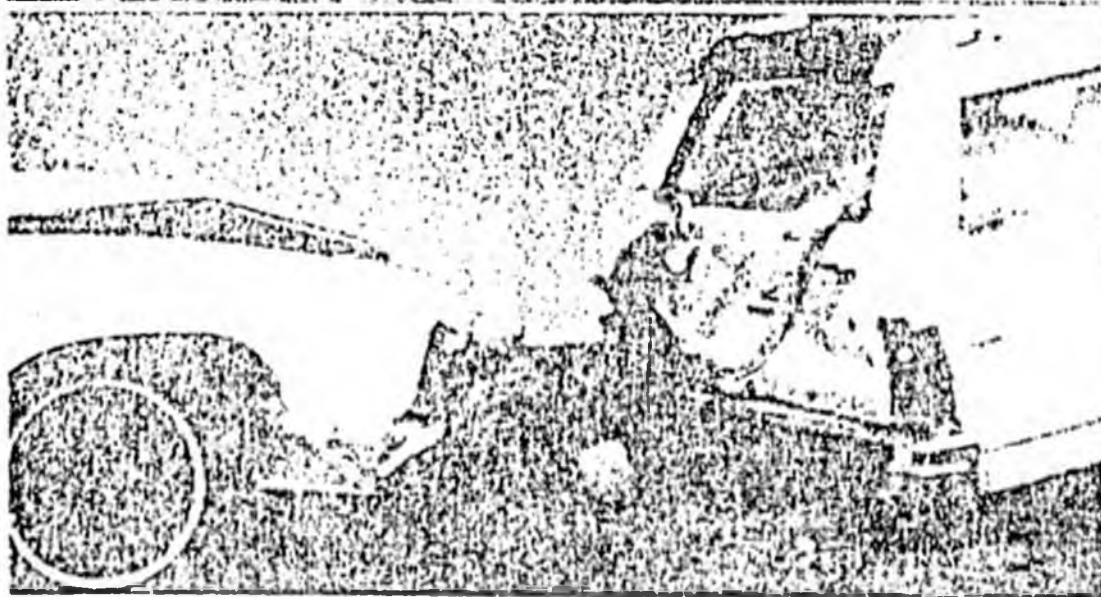
It is adults, not children, who drive or are passengers in the

directly — can play an important part in informing policyholders on the proper use of child restraints, and in making local lawmakers aware of the need for legislation.

The Insurance Institute for Highway Safety is leading the educational campaign on child restraints by releasing, in November and January, public

service television announcements, and by making available publications and films for distribution countrywide.

In the article below, Dr. William Haddon, president of IIHS, describes the hazards which face infant and child motor vehicle passengers, and what needs to be done to protect them.



Then they fell to pavement under wheels of oncoming vehicle. (IIHS photos).

motor vehicles in which the children are transported — and who therefore decide whether or not those children shall be held in place by manual safety belts or child restraints, and whether or not those children shall sit in the more hazardous front seat or the far safer rear seat of the automobile.

That millions of motor vehicle crashes will take place annually in the United States is a certainty, but their all too often hurtful consequences for children need not be. Yet we run the danger as a society of learning to live with child

death, injury and mutilation on the highway — of not knowing how easily much of it could be avoided, of not caring enough to take the simple steps to stop the mayhem.

The lives of infants and small children are shattered in motor vehicle crashes in America each month and year. All too often they are dead or injured because even the most basic available steps were not taken, by adults whose actions could have made a difference, to properly protect the children against crash damage.

In a critically important sense, a

If you would like to join the campaign in your community or through your business or professional organization, you may find useful some of the following materials:

• *Kindness Can Kill and Saving a Child's Life*, two videotaped 30-second announcements for local TV station use. A limited number available from Communications Department, Insurance Institute for Highway Safety, Watergate 600, Washington, D.C. 20037 (202-333-0770).

• *Children and Infants in Car Crashes: Restrained and Unrestrained*. A five minute silent 16-mm. film suitable for showing to PTA's and other groups. Available for free loan on first-come, first-served basis, and for sale (\$80). Also on Super 8 cassettes (\$80) or 3/4-inch videotape cassettes (\$40). Communications Department, IIHS.

• *Child Restraint Systems for Your Automobile*, a brochure containing general information on types and uses of restraints. Available free (up to 50 copies) from Child Restraint Program, National Highway Traffic Safety Administration, Washington, D.C. 20590.

• *Don't Risk Your Child's Life*, a brochure containing comparative shopping information about child restraints. Available at 50 cents for a single copy (enclose stamped SAE), quantity prices on request, from Physicians for Automotive Safety, P.O. Box 208, Rye, N.Y. 10580.

• *Information Packets*, in bulk. For samples, lists and prices, write enclosing a stamped, self-addressed large envelope to Action for Child Transportation Safety, P.O. Box 266, Bothell, WA 98011

travelling motor vehicle is a package in which delicate, breakable human cargo is being shipped. The package often moves at high speed, and its exposure to being smashed against other packages or against rigid roadside obstacles is both well known and predictable.

A motor vehicle crash, even a so-called "minor" one, can be a very violent event. Thus, a car travelling down the road at even the seemingly moderate speed of 25 miles per hour (a typical speed limit in a residential area) carries the potential for releasing, in a crash, forces that can do serious or fatal damage to child occupants if they are not properly packaged.

#### Children unrestrained

In a direct observation survey conducted by the Institute, *ninety-three percent of children younger than 10 years old were found to be travelling about unrestrained or improperly restrained*. The same survey, of about 5,000 automobiles containing about 8,900 children less than age 10, also reached the following findings:

- Only 433 (about five percent) of the children were wearing safety belts — predominantly lap belts — of any kind. This tiny percentage is especially tragic because several subsequent studies have found that in the absence of specially designed child restraint systems, manual belt systems designed for adults offer protection even for younger children.
- About 560 child restraint systems — car seats, infant carriers, car beds and safety harnesses — were in use

among the 8,900 children. But of these, only 153 — about one in four — were being used correctly. In addition, 105 child restraint systems were observed being completely unused in cars carrying unrestrained children.

- o The picture was slightly better for children whose drivers were safety-belted — 22 percent of these children were properly belted or in a properly used child restraint system, compared to the two percent of children so protected when riding with unbelted drivers. But 78 percent of the children still remained unprotected even in the presence of belt-wearing adults, most of whom were their own parents!

An additional and particularly alarming finding of the survey was that the number of children observed to be travelling about with restraint protection (proper belt or child restraint use) was nearly equalled by the number of children travelling about in one of the most hazardous circumstances possible — in the lap of an adult.

In 1978 the Institute looked at in-depth investigation of 14 cases involving death or serious injury to lap-held children in car crashes. Our study — titled, appropriately, "Warning: In Cars, Parents May Be Hazardous To Their Children's Health" — found that in 10 of 14 investigated crashes in which children on laps were severely injured or killed, "the injuries were reported to be caused or aggravated by contact with other vehicle occupants. The study gave some examples:

#### A Desirable Child Restraint Law

The Insurance Institute for Highway Safety does not involve itself in the drafting of child restraint or any other type of legislation. However, studies suggest that the elements of an effective child restraint law are these:

- o Children younger than one year old should be required to be transported in an infant carrier which meets Department of Transportation standards.
- o Child passengers who can sit up unassisted in a vehicle should be required to use special child restraint devices or be restrained by car seat belts.
- o Child passengers should be required to ride in the back seat, in restraints, unless other children are already occupying all of the rear seating positions that have seat belts.
- o The holding of children on the laps of adults in vehicles is a hazardous practice which should be prohibited instead of encouraged.
- o Children should be prohibited from ever being carried in the cargo area of any motor vehicle. Children should specifically be banned from the cargo areas of station wagons, trucks, vans and hatchbacks.
- o The driver should be responsible for insuring that children being transported in a motor vehicle are restrained.

From *Children in Crashes*,  
IIHS, 1980



*This Toyota was struck by a pick-up truck, killing driver.*

- A car was struck by another oncoming car that crossed the center line. The unrestrained seven-month old infant, in his mother's lap in the right front seat of the struck car, continued to move forward, as did his unrestrained mother, who crushed him against the instrument panel, with fatal brain injuries the result. (The mother received multiple fractures.)
- An automobile was passed by another and forced off the side of the road, where it travelled along a ditch bottom, striking first a tree stump, and then a tree. A fourteen month old boy travelling in the right rear seat on the lap of an unrestrained 26 year old man was found face down with the adult on top of him, having received a fatal brain injury as well as multiple fractures and lacerations from contact with the back of the front seat and the adult. (The adult holder sustained various injuries including a ruptured spleen and a leg fracture, but survived.)

In this same crash a nine year old passenger in the rear center seat, restrained by a lap belt, was

not injured. This shows that the overall forces on the vehicle were not only well below fatal magnitude, but also below those required to produce injury to a properly crash-packaged infant.

These are graphic illustrations of just how hazardous travelling — and crashing — can be for lap-held infants. And the situation is little better when the child is be-



*A 16 month old child restrained in this seat survived the crash.*

ing held in the lap of a restrained adult; though a mother or father may feel that their baby is safe in the grasp of adult arms, the fact is that in even low-speed impacts, the strength of those arms is usually insufficient to restrain a small child from being smashed into the instrument panel or windshield.

In another Institute study, tests were conducted to measure the maximum forces that adults can exert to restrain infants in crashes. The tests employed a device for simulating typical crash forces by yanking an infant-sized doll attached to a cable from the arms of men and women who were exerting all of their strength to grasp the doll and prevent it

from moving forward. Based on the inability of these adults to restrain the doll under these conditions, the report concluded that:

*"It is possible that many adults would not be able to protect a 6 month old child from impacting the hard structures of the automobile even in low speed crashes. This analysis makes it clear that in moderate or severe crash situations it is not possible for adults to adequately restrain children in their laps by holding on to them. Those adults who attempt to restrain children by holding them in their laps expose the children to undue risk of injury and death."*

The principles of proper crash packaging include positioning the contents of the package — whether a porcelain doll in a box

*Two adults in this Chevrolet were seriously hurt in head on crash.*



• or a small child in a motor vehicle — so as to reduce the likelihood that it will be contacted by hostile interior structures or be ejected from the vehicle package in a collision. The results of an Institute study published in 1977 underscore how critically important

*A 7 week old infant riding in this rear seat was seriously injured.*

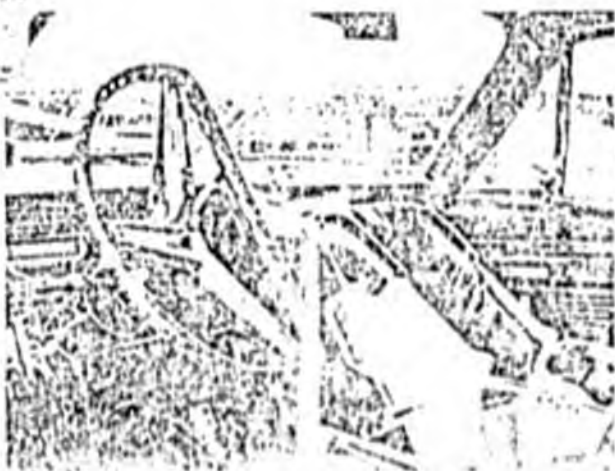
this is for children in car crashes.

The study looked at both the seating positions and the restraint use (or non-use) of all passengers younger than 15 years old involved in reported crashes in North Carolina during 1973 and 1974. The number of such child passengers totalled 26,971 — of whom only 1,946, or seven percent, were reported to have been restrained by a safety belt or child restraint system in the crashes studied. Overall, back seat child occupants were found less likely by far to be killed or injured than front seat occupants: restrained youngsters had a significantly lower death-injury rate by 39 percent in the front seat and 31 percent in the back seat.

#### Rear seats safest

The highest death-injury rates were for unrestrained youngsters in front seats, followed by unrestrained youngsters in rear seats, then restrained youngsters in front seats, and — with the lowest percentage of death or injury — restrained youngsters in rear seats.

It should come as no surprise that the rear seat is safer for a child in a crash than the front. A child in the front seat runs the risk of contacting and being se-



verely injured by such damage-inducing structures as radio and air conditioning control knobs and instrument panel edges, including those behind the right side of the steering wheel.

#### Standard inadequate

Federal Motor Vehicle Safety Standard (FMVSS) 201, first issued in 1967, prescribes performance requirements for occupant protection by some interior automobile structures in crashes. In effect, it forbids the presence of hostile, sharp, protruding structures in some of the locations, such as instrument panels, where adult heads and chests are likely to impact in forward crashes, and requires that those areas be covered with energy-absorbing material. But it fails to require the same protection for children, by remaining silent on the performance expected of major vehicle areas that the heads and chests of the infants and small children may strike, even in moderate-speed crashes.

#### Death rate high

As a recent analysis done for the Institute at Johns Hopkins University has found, the death rate for children in cars is "extremely high" in the first year of life, especially for children less than six months old. The analysis found, based on 1976 data, that children younger than six months had a death rate in cars of 9.1 per 100,000 population, as compared with a rate of 4.8 for one-year olds and even lower rates for children in the 2-12 year old age bracket. "The high death rate in infants may be partly due to a greater likelihood of being in the front seat and/or held in someone's

### ADEQUATE CHILD RESTRAINTS

From "Child Restraint Systems For Your Automobile"

National Highway Traffic Safety Administration

*For the infant — birth to 12 months old:*

Infant carriers or convertible child safety seats are the only types of child restraints recommended for use by babies. In these restraint systems, the baby faces backwards, in a semi-reclining position. The carrier is lined with soft padding, has an internal safety harness to keep the baby in the restraint, and is anchored to the car by the vehicle's safety belt.

There are basically two kinds of infant carriers. The first is designed for infants only. Babies outgrow this kind of seat and must move up to a child safety seat. The second is a convertible carrier. When babies get too big for the infant position, the convertible carriers can be changed into child safety seats which toddlers can continue to use until they're old enough to wear regular safety belts.

**WARNING:** Do not use flimsy, light weight car beds and plastic feeder seats that are designed only for household use, and not for transporting an infant in an automobile.

*For the toddler — 1-4 years old:*

#### *Child Safety Seat*

This restraint system is designed for children who can sit up without support. It faces forward and is anchored by the vehicle's lap belt, which is either

stened around the front of the seat, or threaded through the neck of the frame. It has a safety harness with two shoulder straps, a lap belt, and a crotch strap. This five-point harness reads the crash forces over the child's shoulders and hips. The crotch strap keeps the hip straps from riding up into the child's delicate abdomen. Some child safety seats also have a "top tether strap" that ties the top of the restraint to the structure of the car. A top tether strap is usually required on child safety seats which have been raised several inches so that the children riding in them do not see out the windows.

#### *Protective Shield*

This type of child restraint is over the front of the child's padded chest, and is designed to catch and cushion the child in a crash. It is a C-shaped shell with energy-absorbing padding on the upper part of the shield. The shield is anchored to the car by the lap belt which fastens around the front of the shield. In an accident, the shield reads the crash forces evenly over the child's head and upper body.

#### *Child Harness System*

This restraint consists of a five-point safety harness with a top tether anchorage strap. It is designed for children who can sit up without support. It faces forward, and is anchored to the car by the vehicle's lap belt and top tether strap. The vehicle's lap belt threads through the top of the harness. The safety harness does not provide side impact protection, and should, whenever possible, be used in the center of the rear seat.

arms; both front seat position and on-lap travel place children at increased risk of being injured or killed," the analysis concluded.

Children are dying and being maimed needlessly and inexorably on our highways. The bloodshed won't go away simply because we wish it would. It will go away, or at least diminish substantially, only if we apply the practical, simple technological answers that have been available in this field for years to better protect people — adults as well as children — in crashes.

#### **Local responsibilities**

But for that to happen, there is much to be done, and much responsibility to be assumed by all of us — by state and local governments who can mandate child protection laws, by federal officials who regulate the safety features of motor vehicles and child restraint systems, by the manufacturers who design and build the cars and other motor vehicles that should, but don't, properly package people in crashes, and by parents and other adults who can place children in restraints, but usually do not. There is much to be done, and no honest reason for delay. Children are dying, because adults are not properly doing their job of seeing to it that the new generation gets a healthy start in life, as free from unnecessary death and serious injury as humanly — and humanely — possible. ○

---

*The above article was condensed from testimony presented by Dr. Haddon before a Congressional hearing on Practices and Systems of Infant and Child Automotive Restraints.*



President  
Seymour Charles, M.D.  
Executive Director  
Annemarie Shelness

# Physicians for Automotive Safety

## PAS News

Winter 1981/82

More than four years have passed since Tennessee's child passenger protection law went into effect. This landmark event, for which Dr. Robert Sanders of the Murfreesboro County Health Department deserves the major credit, has resulted in other states following suit. Ten states have statutes on the books already, many others are in the process of considering legislation.

While it cannot be stressed enough that merely enacting a law is not likely to bring about lasting changes in the way children are being transported, the Tennessee experience has shown that educational campaigns, accompanied by police enforcement, can and do.

It now remains to persuade legislators in the remaining 40 states to pass bills the public is able to comply with and that address the problem in an informed manner. In some instances, statutes already on the books would benefit from amendments.

This issue of PAS News tackles the problem of legislation in depth, providing guidelines which will, it is hoped, be helpful.

### Consumers Union Rates Child Restraints

The April 1982 issue of Consumer Reports rated children's car safety seats on the basis of convenience -- a rating that has been badly needed. CU's "check-rating" was awarded to the Century 200. The seat has a small abdominal pad joining the shoulder belts together, and requires only a single buckling action, which the majority of parents find to be convenient. The seat was also rated high in child comfort.

Seats requiring top anchor straps were rated in the lower category because of the problems top anchor installation entails. The Stroelee Wee Care Seat, check-rated in CU's 1977 ratings, has been relegated to the lower category for that reason. (Experience has shown that the majority of top anchor straps are not used).

CU expanded on a government-funded study carried out by the University of Michigan Highway Safety Research Institute which

gave 32 parents a chance to make a choice from eight different model car seats.

At the end of the experiment, only three parents kept the seats they had first picked. CU contracted with HSRI to include every model seat on the market.

Although PAS raised objections to the check-rating -- doing so we believe, creates an unjustified gulf between the check-rated seats and other "acceptables" -- we are delighted that CU took a more pragmatic approach to child passenger protection. Many safety experts disagreed with CU's 1977 ratings (PAS News Summer 1977).

The enclosed special report from Aide, "How Safe Is Your Car?" is being sent to PAS members, courtesy of United Services Automobile Association.

## Car Booster Seats: a Mixed Blessing

At half the price of conventional children's car restraints, booster seats are an attractive buy. Three makes are currently on the market: Century's "Safe-T-Rider" #4760, and #4780, Kolcraft's "Tot-Rider" and Strolee's "Wee Care Booster." Boosters are particularly valuable for the child who has outgrown a car seat, but can be used from the time the child weighs 20 pounds. Properly used, they furnish crash protection in compliance with the federal standard.

What the average consumer does not appear to recognize is that a booster seat is not a satisfactory safety device when used with only the lap belt. The harness, which provides support for the upper torso, is an essential component of the system. (With lap belt only, the government-mandated "misuse" test calls for protection in 20 mph crashes as opposed to 30 mph protection afforded when the seat is used with the harness.)

Although a harness accompanies each seat (the Volvo booster is an exception to be discussed later), it is not attached to the seat; this may be the reason that, more often than not, the harness is not used.

Installation of the harness poses the same problems as installation of top anchor straps, and the non-use incidence is probably similar, also. Since correct use of booster seats is possible only in cars equipped with top anchor brackets, these seats are not suitable for car pool situations.

Instead of using the harness supplied with the seat, the booster may be used with combination lap/shoulder belts. These are present in all front outboard seats of American automobiles manufactured since 1968. In some luxury imports shoulder belts are also provided in rear outboard seats. Raising the child up on a booster makes it possible to use shoulder belts at an earlier age.

A shoulder belt can only be used if it positions across the child's chest and not the face or neck. There are no hard and fast rules concerning the height the child must be to assure a correct fit. It varies from car to car, depending on the location of the anchorage point. Some belts are attached to the door pillar, others along the roof frame. The higher and more

perpendicular the anchorage location, the taller the child will have to be before the belt can be used. Moving the child closer to the center of the vehicle may help improve the fit.

Some stores are unfortunately contributing to misuse by advertising just the seat and not the harness. Several branches of Child World, an East Coast chain, have been advertising the Kolcraft Tot-Rider showing a child seated in the booster, secured with only a lap belt. Parents may not take the time to read the instructions that accompany the seat, warning against such use.

Two factors contribute to increased head excursion when only the lap belt is used: 1) The elevation of the booster; 2) The fact that the lap belt positions across the thighs rather than the pelvis -- a preferred and safer location -- providing, of course, the upper torso restraint is used also.

The Volvo safety seat is in a category by itself. Volvo developed it to enable children to use the lap/shoulder belts which Volvo cars have in both front and rear seats. No harness is provided.

The Volvo booster is higher than the others mentioned and would therefore be particularly dangerous used with only a lap belt. Since the device could not meet the federal "misuse" standard, the manufacturer recommends it for children weighing over 40 pounds. The seat thereby does not fall under the requirements of standard No. 213 for child restraints.

Because of its limited application, the Volvo booster should not be included in listings of recommended restraints.

It should be borne in mind that unless booster seats are used in conjunction with an upper torso restraint, a child would be infinitely safer buckled into a lap belt while sitting on the seat of the car.

### GM Out of Car Seat Business

The Infant and the Child Love Seats, previously marketed by General Motors, are now being distributed by Century Products. Hamill Manufacturing Co. which produced the seats for GM, continues to make them for Century.

# CHILD PASSENGER PROTECTION

## A Guide for State Legislation

Prepared by Annemarie Shelness

### Introduction

To date (April, 1982), ten states have enacted laws requiring small children riding in cars to be restrained in special safety seats. (Some states permit use of standard belts as an option to special child restraints). Many more states will be considering similar bills in the near future (Appendix I).

The components of these bills vary considerably. For example, upper age limits range from two to five; belt use is allowed in some states but not in others. There are no sound reasons for these variations.

The inconsistencies and contradictions which exist in the statutes now on the books or about to be voted on have led to confusion on a number of important factors:

- Up to what age should children be protected?
- What is the best means of protection?
- Should belt use be permitted as opposed to special restraints only?
- Should only parents and guardians be made responsible for the child's safety or should the law apply to any person operating the vehicle in which the child is traveling?
- How about parents on public assistance?
- What should be the policy when the number of small children in the family exceeds the number of belts in the vehicle?
- How can the law be enforced?

These and other aspects must be addressed when bills are drafted.

It has become increasingly evident that there is need for a "Model" child passenger protection law to serve as a guide for states to follow. The succeeding pages contain carefully documented recommendations and explanations intended to assist legislators in formulating a sound child passenger protection bill.

### The Problem

Motor vehicle accidents rank as the leading cause of death and injury in childhood once the critical early period has passed. In the last decade alone, almost 10,000 children under the age of five lost their lives as passengers in automobiles (1). Of the hundreds of thousands injured, many are left with permanent disabilities, mental and/or physical.

Unrestrained children can also be the cause of accidents by distracting the driver (2). Furthermore, fatal injuries occur as the result of children falling out of cars in non-crash situations (3).

### The Remedy

Seat belts have long been recognized as the single, most effective safety device available. It has also been shown that the majority of deaths among children could be prevented and the severity of injuries reduced through the use of appropriate restraining devices (4,5,6).

What experts view as "appropriate" for children will be dealt with later.

### How Can Child Restraint Use be Encouraged?

The number of children riding adequately protected is, unfortunately, small (7). While educational programs have been shown to increase protection (8), it is believed that legislation, combined, of course, with public information, brings about the quickest results. In Tennessee, where a child passenger protection law has been in force since 1978, restraint utilization has tripled (9).

### Up to What Age Should Protection Be Mandated?

Restraint use should be mandated for all motorists, regardless of age, as has been done in 28 countries or provinces across the world (10).<sup>\*</sup> At the very least, belt use should be required for all minors. The fatalities in the late teens are more than 10 times higher than among children 0-3 (11).

As a matter of political expediency, the emphasis in the U.S. is for the present being placed on protecting the very young. It has been found that legislators are more receptive to mandating protection for small children than for adults or even school-age children. It would seem desirable as well as feasible, however, to include the pre-teen years when parents are still largely in control of their youngsters' activities.

Age four developed as a natural cut-off point because special restraints are the preferred means of protection until then (12,13). It should be borne in mind that some children exceed manufacturers' specified height and/or weight limits even before reaching their fourth birthday. A law that does not allow belt use must therefore specify maximum weight and height limits rather than age alone. For the majority of devices on the market these are 40 pounds and 40 inches, respectively.

<sup>\*</sup>Ironically, children are excluded from these laws. Only Australia and the Canadian province of Saskatchewan now require that children ride restrained. Eight European countries require that children ride in the back seat.

## What Are the Objections to Child Restraint Laws?

There are two major problems of which proponents of legislation must be aware. One concerns the expenditure involved in providing restraining devices. This can be a critical issue for low-income families, especially where there are several children under the age of four who would require special restraints.

Difficulties also exist with nursery school car pooling. Securing several children in safety seats is a formidable task if it is to be done correctly. It is therefore not only possible but even probable that many seats would be improperly secured. This applies particularly to those requiring top anchor straps. These seats can only be used in cars equipped with anchor brackets (14). Omitting the use of the top anchor strap greatly reduces the protective potential of these seats.

Allowing the use of lap belts as an alternative to special restraints would eliminate the problems just described, and ensure an acceptable level of protection where in all too many instances none would be provided.

## What Is the Best Way of Protecting Young Children?

Ideally, children under the age of four should be using special restraints capable of distributing crash forces over a large area of the body. It is important to note, however, that there is nothing significant about this cut-off age. [Only infants up to 12 months have been shown to be particularly vulnerable in crashes (15).] It simply amounts to the fact that few devices will accommodate children above that age.

While special child restraints represent the "ideal" means of protecting the very young, it is believed that mandating special restraints only will not have the best possible yield in terms of the overall number of children riding effectively protected.

## Should State Laws Permit the Use of Seat Belts?

Although special child restraints, providing they are used correctly, are certainly the preferred means of protection up to age four, the answer to the question is an emphatic "yes" (16, 17). Dr. John W. Melvin, Head of the Biomechanics Department, Highway Safety Research Institute, University of Michigan, who conducted in depth investigations of crashes involving small children (5,6), strongly supports a belt option:

"State legislation should permit children over the age of one year to use lap belts in the rear seat if no child restraint is available. There is, however, no suitable alternative to a child restraint for an infant.

The primary objective, of course, is to prevent ejection. National Crash Severity Study (NCSS) data indicate that a fatality is over 50 times more likely to occur if an occupant is ejected than if s/he is not."

There are a number of reasons use of standard seat belts should be permitted as an alternative to special child restraints once the child can sit up unaided:

1) It can by no means be taken for granted that all parents will obey the law. Even in Tennessee, three years after the law went into effect, the compliance rate is only 30 per cent (9). Although this figure represents a highly significant increase of 200 per cent over pre-law days, 70 per cent of Tennessee's small children continue to ride unprotected.

2) All too often children's restraining devices are used improperly. Depending on the manner of misuse, the device will offer reduced protection or possibly none at all.

The misuse rate can be as high as 75 per cent (7), and has been shown to exist even among highly motivated parents (18).

3) Many low-income families and even families in comfortable circumstances, but living in cities, may not own cars. On the few occasions a car is being used, it would certainly be more likely that the child would be buckled into a belt (providing the law permitted this) than that the parent spend in excess of \$40 for a device that will be used only occasionally.

4) Most importantly, the public should not be given the impression that the use of special car seats is unrelated to the function performed by safety belts. Yet this is what publicity for child restraint use is, unfortunately, accomplishing: Once special restraints are no longer used, children can be found riding loose. In fact, often one car will contain a number of children of whom only the little ones are riding protected. Observational studies confirm that restraint use drops sharply after one year of age (7).

Based on many years of experience in promoting child restraint use, PAS does not believe that allowing the use of lap belts would discourage parents from purchasing and using safety seats. These seats are popular because they raise the child up to window height, an important factor in child contentment. Small children sitting on the seat of the vehicle cannot see out.

It is expected, however, that by allowing lap belts as an alternative to child restraints, the overall number of children riding protected would increase. Furthermore, such a belt option could well result in belt use by older children not covered by the law.

## Are Not Belts Dangerous for Small Children?

Belts can cause injuries both in children *and* adults, but this occurs only in very severe crashes. Whenever such injuries are reported, it is stressed that unbelted, serious or fatal injuries would have occurred instead (18). It has also been shown that incorrect wearing of belts can be responsible for injuries (19).

Children who are unrestrained almost invariably sustain head injuries which can be fatal or leave them with irreversible brain damage, whereas a fractured pelvis will heal. Spinal injuries are extremely rare.

Belts may be safer even than improperly used child restraints. For example, seats requiring a top anchor strap are often used with the strap left unsecured (20). In 30 m.p.h. sled tests recently conducted at the University of Michigan Highway Safety Research Institute, employing a dummy simulating the physical characteristics of the average three-year-old child, the head excursion in seats that were not tethered was about *four inches greater* than for the lap-belted dummy. (Findings to be published.)

## What Is the Reason Seats Are Misused or Not Used at All?

Car "safety" seats have been in use for some 50 years, serving an important if limited safety function (12). Unfortunately, too many parents continue to view these seats as merely a means of confining and supporting the child and providing elevation for a better view out of windows. Once the child needs neither the confinement nor the elevation, these seats are often no longer used.

There is nothing magical about safety restraints. They alone cannot protect the child; parents and guardians have to do their part.

## Should Adults Be Permitted to Hold Children on Their Laps?

This practice, which was originally permitted in Tennessee, is far more dangerous than allowing children to ride loose. The weight of the adult, greatly increased by collision forces, would crush the child against the dashboard, windshield or other internal structures (Appendix II). Even if the adult is riding belted, the child would be torn from his/her arms by collision forces (21).

## Who Should Be Responsible for the Protection of Children?

The operator of the car in which the children are traveling should be made responsible for their safety. Responsibility should not be limited to parents and legal guardians. Doing so would result in large numbers of children being placed into unnecessary jeopardy while being transported by grandparents and babysitters, or participating in car pools.

## What Can Be Done if the Number of Children Exceeds the Number of Belts Available?

This problem can only be solved by making an exemption for such contingencies. Doing so would, however, defeat the whole purpose of the law: Large numbers of children could continue "legally" to be piled into one car or the cargo area of a station wagon.

An exemption should therefore be made only where the number of children *in one family* exceeds the number of belts available.

## Should Children Be Required to Ride in the Back Seat?

For an extra margin of protection, the law should specify that lap-belted children, as opposed to those secured in child restraints, ride in the back seat. This is required in some states. (Appendix I).

## What Should the Law Specify Concerning Federal Standards?

The law should require that devices used be in compliance with the federal standard applicable at the time of manufacture. This would rule out the use of travel beds, porta cribs, and household feeder and booster chairs which offer no protection at all.

It is not recommended that use be limited to devices manufactured after January 1, 1981, when a revised federal standard went into effect (22). This standard calls for *dynamic* testing of devices as opposed to the *static* tests mandated in 1971. (Static tests were shown not to replicate the violent forces generated in a real-life collision.)

The number of poorly constructed seats, i.e., those only in compliance with the 1971 test requirements still in use is estimated to be relatively small. The majority of manufacturers have produced crash-tested seats for several years now, although not required by law to do so. Forcing parents who already own a crash-tested seat to purchase a new one could be viewed as punitive.

## How Can The Law Be Enforced?

Enforcement is, of course, a difficult matter, and entirely up to law enforcement authorities who may not view this as a top priority.

In Tennessee and several other states (Appendix I), the law permits fines to be waived if a parent appears in court with proof that a child restraint has been obtained. If belt use is permitted as an alternative, this course of action would make little sense, and a fine would, presumably, have to be levied.

# STATE CHILD RESTRAINT LAWS

Prepared by: Mary Jones, State Relations Department, NVMA — Revised by: Larry A. Etkin, Minnesota Department of Public Safety, March 1982

State/ Begin	Requires	Children	Where Seated(2)	To Use(3)	Vehicle	Exceptions	Penalties	Public Education Campaign	Other Provisions
Calif. 1/1/81 (1)	N/A	Under age 5 Ages 5-15	Not specified Not specified	Approved child restraint Seat restraints	Motor vehicle or combination of vehicle	School buses	Oral warning system must be developed in first year of campaign	Yes. Law is basically a public information and education cam- paign to encourage use of restraints. Study is also mandated and due by 4/1/83	Program may be limited to a pilot project in two cities with a com- bined population of at least 200,000 in at least two counties. Funds appropriated
Florida 7/1/83	Resident parents or legal guardians	Under age 3 4-5	Not specified Not specified	Approved child restraint system Approved child restraint system or seat belt	Passenger cars and pick up trucks	None	\$15 fine or proof of acquisition of system	Yes. Law basically mandates the continuation of existing public information and education campaign.	Failure to use child restraint system shall not be considered contributory negligence.
Kansas 1/1/82	Resident parents or legal guardians	Under age 2	Front seat	Approved child restraint system	Passenger vehicle	Non-resident drivers, drivers of temporary sub- stitute vehicles	Oral warnings	Yes.	Failure to use child restraint system shall not constitute negligence per se.
Maine 9/19/81	N/A	Under age 4	Not specified	Child restraint system or seat belt	Motor vehicle or combination of vehicle	None	Oral warning	Yes. Law is basically a public information and education cam- paign to encourage use of re- straints. Study is also mandated and due by 3/1/83	None.
Mas. 1/1/82	N/A	Under age 5	Not specified	Approved child restraint device or seat belt	Motor vehicle	School buses, commercial vehicle, all other seats with seat belts occupied, vehicle not equipped with seat belts, or occupant unable to use restraint	Maximum fine of \$25.00 or proof of acquisition of system	No.	Use or non-use of system is inadmissible evidence in court, and does not have any effect on state's insurance surcharge; failure to use child restraint system does not constitute negligence per se.
Michigan 4/1/82	Resident drivers	1-4 1-4 Under age 1	Front seat Back seat Not specified	Approved child restraint system Approved child restraint system or seat belt Approved child restraint system	Motor vehicle	Non-resident drivers, children being nursed, bus and school bus, taxi cab or other vehicle not required to be equipped with seat belts	Maximum fine \$10.00 plus court costs or proof of acquisition of system; points will not be assessed	No	None.
Minnesota 1/1/82	Resident parents or legal guardians	Under age 4	Not specified	Approved child restraint system	Motor vehicle	Non-resident drivers, vehicles not owned by parent or guardian	Hazard warning detailing dangers and advising use of restraints	No	Law requires parent to equip and install system in vehicle — does not require its use. Non-use of system is inadmissible evidence in court.
Nebraska 6/1/82	Day care providers	Under age 1 Age 1 and older	Not specified Not specified	Approved child restraint system Approved child restraint system or seat belt	Motor vehicles	None	Day care provider guilty of infraction that may cause license revocation or sus- pension. Driver subject to separate penalty up to \$100.00 fine	No	Law is limited to day care pro- viders. It gives legislative weight to what exists as administrative law or rule making in some other states.
New York 4/1/82	Resident drivers	Under age 5	Not specified	Approved child restraint system	Passenger motor vehicle	School buses, non- resident drivers	Maximum fine \$25.00 or proof of acquisition of system	No	Vehicle owner shall not permit use of vehicle unless child passenger are restrained
N.C. 7/1/82	Resident parents	Under age 1 Age 1-2	Not specified Not specified	Approved child restraint system Child restraint system or seat belt	Motor vehicles or a family purpose vehicle	Non-resident drivers, child whose needs are being attended to, all other seats with seat belts are occupied, not required if seated in seat not requiring safety belt	7/1/82 6/30/84 warning ticket. 7/1/84 6/30/85 \$10.00 fine, points will not be assessed	No. Study is mandated from 7/1/82 6/30/85	Legislature not obligated to appro- priate funds to implement. Failure to use child restraint system does not constitute negligence per se.
Rhode Island 7/1/80	Driver	Under age 3	Front and rear seat (as amended 4/3/81)	Approved child restraint system	Motor vehicle	None	Maximum fine of \$15.00 or proof of acquisition of system, recorded on driver record	No	Use or non-use of system is inadmissible evidence in court, failure to use child restraint system does not constitute negligence per se.
Tenn. 1/1/78	Resident parent or legal guardian	Under age 4	Not specified	Approved child restraint system	Motor vehicle	Children being nursed or attended to by mother, vehicle not owned by parents or guardians	\$2.00 \$10.00 fine, no court costs	No	Use or non-use of system is inadmissible evidence in court, failure to use child restraint system does not constitute negligence per se.
Virginia 1/1/83	Parents or legal guardians driving vehicle registered in Virginia	1-3 3-4	Not specified Not specified	Approved child restraint system Approved child restraint system or seat belt if properly fit	Motor vehicles	Public transportation, school buses, farm vehicles and children medically unable or for whom it is not practical to use a restraint or certified by a physician	\$25.00 fine, or \$10.00 fine for exempted child not accompanied by physician's certificate	No	Statewide in-vehicle seat program is to be established for certified indigent families. Fines for non- compliance are dedicated to pur- chase restraints for the program. Non-use of system is inadmissible evidence in court, and does not constitute negligence per se.
W. Va. 7/8/81	Resident driver	Under age 3 Aged 3-5	Not specified Not specified	Approved child restraint system, car bed or car seat Approved child restraint system, car bed, car seat or seat belt	Passenger automobile, van or pick up truck	Drivers of foreign vehicles	Madness nor, \$10.00 \$20.00 fine or proof of purchase of system	No	Failure to use system does not constitute negligence

N/A = Not applicable. (1) As of 8/1/81, program had not yet begun. (2) Where not specified — we are assuming use is required in both front and rear seats. (3) "Approved" system is a system which meets Federal motor vehicle safety standards.

Many parents believe that the safest and most loving way to transport a small child or infant in a car is in their arms. They are certain that if an accident is about to occur, they will have time and the strength to hold the child and protect him/her from injury. **THIS IS NOT TRUE.** The most dangerous place in a car for a child is on the lap or in the arms of an adult.

Two recent studies clearly illustrate this danger to children.

In a series of tests at the Highway Safety Research Institute in Michigan, male and female adult volunteers were safely fastened to a seat with lap and shoulder belts. Each volunteer held a 17-pound "dummy" which represented the size and weight of a six month old baby. Each was then subjected to simulated 15 and 30 mph impacts. Not one of the volunteers was able to hold onto the "baby." Even knowing the precise moment of impact and using all their strength, the baby was ripped from their arms and slammed into the dashboard.

A second study was sponsored by the Insurance Institute for Highway Safety in Washington, DC. It shows what happens to infants held in the arms of adults who are not using proper restraining devices. In this test, a 1979 4-door Chevy Malibu was driven into a solid barrier at just 24 miles per hour. You will see why the second major cause of death and injury to children in cars is being crushed by unrestrained adults.



Pre-crash position of unbelted mother holding her baby on her lap.



Shows forward movement of mother and child 1/10 second after impact just before slamming into dashboard and windshield.



Mother's body becomes a battering ram, crushing infant into dashboard and shattering windshield (3/20 second after impact).



Shows mother and child as they rebound off windshield and dash (1/2 second after impact).

#### WHAT SOME PROMINENT SAFETY RESEARCHERS SAY

The Battered Child Syndrome, an injury pattern resulting from parental abuse, has been widely described in the medical literature and the popular press. Yet automotive collisions are the most common cause of injuries in childhood and they have received little attention.

The injury complex should be described as the neglected child syndrome, since ample evidence indicates that a great many of these injuries could readily be reduced or prevented by simple parental action. (From *Injuries to Children in Automobile Collisions*, by A. W. Siegel, A. M. Nahum, and M. R. Appleby, U.C. L.A. School of Medicine.)

#### ADDITIONAL SAFETY MATERIAL AVAILABLE

Crash testing of child restraints was featured in the August 1972 and March 1975 issues of *Consumer Reports*. Convenience of use and child comfort were rated in the April 1982 issue. Copies are available at your public library or order from Consumers Union, 256 Washington Street, Mount Vernon, NY 10550, price \$1 each.

Questions on car restraints are answered in *The Automotive Safety Belt Fact Book*, obtainable from the Government Printing Office, Washington, DC 20402, price \$1.

For information on child restraint loan programs and community educational activities, write National Highway Traffic Safety Administration, NTS-14, 400 Seventh St. SW, Washington, DC 20590.



# Don't Risk Your Child's Life!

Published by  
**PHYSICIANS FOR AUTOMOTIVE SAFETY**  
P.O. Box 208, Rye, New York 10580



Children Must Ride Buckled Up  
Adult's Lap Is Not Safe

1st printing April 1971  
17th revised edition March 1982  
Copyright © 1982 by Physicians for Automotive Safety  
No part of this publication may be reproduced

DEATHS AGES 1-14	1 000	2 000	3 000	4 000	5 000
HIGHWAY ACCIDENTS*	[Bar extending past 5000]				4466
CANCER	[Bar at 2505]				2505
CONGENITAL MALFORMATIONS	[Bar at 1859]				1859
DROWNING	[Bar at 1700]				1700
FIRES & BURNS	[Bar at 1260]				1260
PNEUMONIA	[Bar at 793]				793

SOURCE: Accident Facts, 1978 Edition, National Safety Council  
\*Includes pedestrian and bicycle fatalities

## The Highway Epidemic

It is not generally known that traffic accidents are the leading cause of death in childhood once the critical early period has passed, claiming more lives than any disease or other accidental cause.

During the last decade 10,000 children under the age of five were killed as passengers in automobiles. Of the hundreds of thousands injured, many remain permanently disabled, physically and/or mentally.

So many of these tragedies could be prevented if only parents took simple precautions.

## Safety Belts Save Lives

Riding "buckled up" greatly reduces the risk of injury and death by preventing car occupants from being flung, with tremendous force, against the windshield, instrument panel, or other parts of the vehicle interior — or out into the roadway.

Contrary to what some people believe, it is far safer to stay inside the vehicle than to be thrown out of it. Even in the event of fire or submersion in water, belts will help reduce the severity of injuries and increase your chances of remaining conscious, thereby making escape more likely.

Being a safe driver yourself is no excuse for you or your children to ride unprotected. Crashes are all too often caused by the carelessness or recklessness of others.

## Small Children Need Special Protection

Safety belts do not provide the best protection for the very young. In a severe crash a lap belt could put too much pressure on a small child's hips and abdomen. It is therefore recommended that infants and small children be secured in special safety devices designed to distribute crash forces over a large area of the body.

While every effort should be made to provide such special devices, even small children, once they can sit up unsupported, are far safer buckled into regular seat belts than riding "loose."

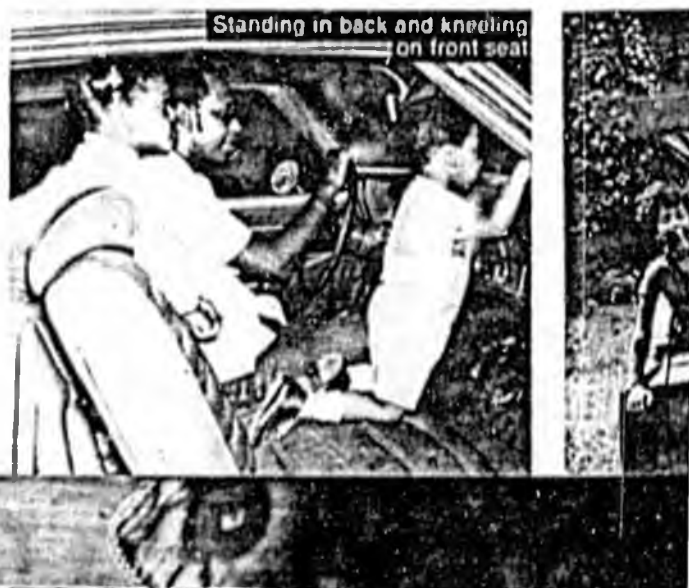
## Adult's Arms Are Not Safe

Ordinarily, a parent's arms are a very secure place for a child, but inside a car it is the most hazardous. In a crash your body would crush the child against the dashboard and windshield. Even if you are wearing a lap and shoulder belt yourself, the child would be torn from your grasp by the violent forces of a collision.

Never put a belt around you and a child held on your lap. In an accident your own weight, greatly increased by crash forces, would press the belt deeply into the child's body; this could cause serious or even fatal injuries.

Beginning with the very first car ride — the drive home from the hospital — the baby should be secured in a crash-tested safety device.

## These Children Are in Danger



## Old-Type Car Seats Are Inadequate

Children's car seats have been in use for more than 40 years. They served a limited safety purpose, providing support and confinement—features helpful in preventing interference with the driver and providing some measure of protection in case the car swerved or stopped suddenly.

The seats also raised the child up to window height for a better view, helping to prevent boredom which can lead to disruptive behavior.

Today's seats do all that and a great deal more: They are designed to prevent serious injuries in case the car is involved in a crash.

## New Government Safety Standard In Effect

Although a safety standard for children's car seats has been in force since 1971, the requirements were not nearly strict enough. Many devices on the market during those years did not offer the level of protection your child needs.

The U.S. Department of Transportation has recently upgraded the standard. New regulations went into effect on January 1, 1981. All devices manufactured since that date have to stand up to actual crash tests (known as "dynamic" tests), something the 1971 standard did not require.

While some seats made before 1981 may not be safe, many were crash tested and therefore offer a good level of protection. Information on these older devices is obtainable by writing to the address on the back panel. (Please include a stamped, self-addressed envelope.)

## Which Is the Safest Restraint?

The answer is simple: The one you will use properly every time. The life-saving value of even the "safest" seat will be reduced or could be entirely defeated if manufacturer's instructions are not followed to the letter.

A seat secured at the top provides an extra margin of safety. But unless that top anchor strap is correctly installed, your child will be safer in a seat engineered to stay in place without the additional support a top anchor strap provides. (If a seat is sold with a top anchor strap, use of that strap is essential. Do not believe sales persons who tell you otherwise.)

## Shopping Guidelines

Remember that a harness, consisting of shoulder straps, a lap belt, and crotch strap is all that is needed for crash protection. Any additional features, while possibly making it easier to use the seat, do not necessarily improve safety performance. Arm rests serve no protective function whatsoever.

Shop carefully. Consider your child's comfort. Make certain that the seat will fit in your car, lap belts are long enough for securing it, and the buckle is not too bulky to slide through the slots. Read the instruction book before you buy. All too often top anchor straps are not shown in store displays so you may not know a seat needs one until you get it home.

In cargo area of station wagon



Using inadequate car seat



## The Protection of Older Children

When a child has outgrown a safety restraint (usually by age four or when 40 pounds has been reached), a lap belt is required for protection. The belt must be correctly secured below the abdomen and adjusted for a very snug fit.

In the front seat a shoulder belt should be used in addition to the lap belt, but only if the child is tall enough so the shoulder belt goes across the child's chest — not the neck or face. If the shoulder belt does not fit, place it behind the child, using the lap belt alone. Raising the child up on a special booster seat may help position the shoulder belt correctly (see illustration on right).

A booster seat is not safe used with only a lap belt; support for the upper body is essential. Boosters are sold with their own harnesses for use in the back seat (see reverse side of folder).

## How Do Children Like Riding Restrained?

A child used to a safety device from an early age will continue to accept restriction as a matter of course, with only occasional protests. A child who has never been confined may at first resist riding buckled up. A great deal will depend on the parents' determination.

On long trips make frequent stops to give children the chance to romp and let off energy. A baby should be taken out of the carrier and laid flat to allow stretching and kicking. Be sure to pull into a rest area or well off the highway.

### Car Booster Seat

A specially designed booster seat helps position the shoulder belt across the child's chest.

**Warning:** Do not use a booster seat with only a lap belt. Doing so could result in serious injury to the child.



## More Tips on Safe Car Travel

- Parents should buckle up for three reasons: 1) to set a good example for their children; 2) for their own protection; and 3) for the protection of their children: unrestrained occupants could injure others who are belted in.
- The back seat is safer than the front. The center back of the vehicle is safer than the sides.
- Two children should not be strapped into one belt. Doing so makes a proper fit impossible.
- A shoulder belt must not be tucked under the arm or be worn without a lap belt by anyone — child or adult.
- A lawn mower, bicycles, luggage or any hard, heavy objects carried unsecured inside the vehicle pose a hazard. The only safe place for cargo is in the trunk or on a roof rack.
- Children should not be allowed to play with pens, pencils, or hard or sharp objects while the car is moving.
- Do not substitute a cushion or household booster for a specially designed car booster seat.
- In some cars the lap portion of the safety belts slides freely through the latch and cannot be locked. Since a child safety device must be firmly secured to the seat of the vehicle, this type of belt requires the use of a special locking clip which is obtainable from the child seat manufacturer.

Riding in open truck



Sitting on adult's lap



## Crash-Tested Devices on the Market...

(Required to comply with federal safety standard in effect since January 1, 1981.)

### Infant Carriers

Century Infant Love Seat*	Suitable from birth to 20 lbs. (F)
Ford Infant Carrier	Suitable from birth to 20 lbs. (F)
Questor Dyn-O-Mite**	Suitable from birth to 17 lbs. (F)

### Toddler Seats

Century Child Love Seat*	18 to 40 lbs; five-point harness. <u>Use of top anchor strap essential.</u> (F)
Ford Tot-Guard	Shield with booster base, secured with lap belt. Ford dealers only. From age 2 up to 50 lbs. (F)

### Infant/Toddler Seats

(Convert from rear-facing infant carriers to forward-facing seats for children able to sit up without support.)

Bobby-Mac Champion	Up to 40 lbs; V-shaped harness and snap-on shield. (F)
Deluxe II	Up to 40 lbs; V-shaped harness; shield attached to pivoting frame. (F)
Super	Up to 40 lbs; five-point harness. <u>Requires use of top anchor strap.</u> (B)
Century Products Century 100	Up to 43 lbs; five-point harness. (B)
Century 200	Up to 43 lbs; shoulder straps attached to abdominal pad. (B)
Century 300	Up to 43 lbs; five-point harness and spring-loaded arm rest. (B)
Cosco/Peterson Safe & Easy #313	Up to 40 lbs; five-point harness. (B)
Safe-T-Seat #78**	Up to 40 lbs; five-point harness. (B)
Safe-T-Shield #81	Up to 40 lbs; uses only shield. (F)
Safe & Snug	Up to 40 lbs; harness straps joined to spring-loaded shield. (B)

International Astroseat 9100	Up to 42 lbs; five-point harness. (B)
Kantwet Care Seat	Up to 40 lbs; five-point harness. (B)
One-Step □	Up to 43 lbs; shoulder straps joined to spring-loaded shield. (B)
Kolcraft Hi-Rider**	Up to 40 lbs; five-point harness and optional snap-on shield. (F)
Redi-Rider	Identical seat without shield.
Strobee Wee Care #597 Δ	Up to 40 lbs; five-point harness. <u>Use of top anchor strap essential.</u> (B)
Wee Care #599	Up to 40 lbs; five-point harness and spring-loaded arm rest. <u>Use of top anchor strap essential.</u> (B)
Welsh Co. Travel Tot**	Up to 43 lbs; five-point harness. (B)

### Booster Seats

Century Safe-T-Rider* #4760 & #4780	Although booster seats can be used from an earlier age, they are recommended for use after a regular car seat has been outgrown. Must be used with harness — never with lap belt alone. Do not use after mid-point of child's head reaches top of seat back.
Kolcraft Tot-Rider	

\*Formerly distributed by General Motors

\*\*Seats manufactured before 1981 not recommended

†Safe-T-Rider booster seats manufactured before Sept. 1980 have defective harnesses. Contact Century for free replacement.

††Safe-T-Seats manufactured before 1980 require use of a top anchor strap.

□ One-Step seats manufactured before 1982 require use of top anchor strap.

Δ Wee Care Seats #597 manufactured before April 1980 are not recommended for use in rear-facing infant position.

(F) — Lap belt is secured around front of seat (see diagram).

(B) — Lap belt threads through the frame in back of seat.

Note: We would be happy to answer questions regarding earlier model seats not listed here, but please enclose a stamped, self-addressed envelope with your letter. Write: PAS, P.O. Box 208, Rye, NY 10580

## ...and How to Use Them

### Infant Carrier



### Conventional Car Seat



### Protective Shield



### Car Booster Seat



Many devices combine the design features shown here.

**Infant Carriers**, suitable from birth up to 17 or 20 pounds, are designed to face rearward (never forward). The infant rides in a semi-reclining position, secured with a harness. The carrier is strapped to the seat of the vehicle with a lap belt.

Rolled up receiving blankets placed around the baby's head and shoulders will provide support during the early weeks of life.

**Conventional Car Seats** are suitable for children who are able to sit up by themselves. The child is held in by a harness; the seat is anchored to the vehicle with a lap belt.

Some devices require the lap belt to be threaded through the back where it can remain permanently buckled. Others must be anchored with the belt around the front as shown in the illustration. Whichever way the seat secures, the lap belt must be pulled tight.

A few seats need a top anchor strap to prevent them pitching forward in a crash. If the device is to be used in the front seat of the car, the strap secures the lap belt in the seat behind. This does, however, make one set of rear belts unusable.

If a top anchor device will be used in the back seat (this is the safer location), permanent installation of a bracket is necessary.

In a sedan this involves drilling a hole through solid metal in the rear window ledge. In a station wagon or hatchback, the anchor plate has to be installed way back in the cargo space. Follow manufacturer's instructions. Note that anchor brackets for installation in a second car are obtainable from the child restraint manufacturer.

A strap fastened to the rear of the seat back or straight down to the floor will not hold the seat upright in a severe crash. (Some late model GM cars and Toyotas have predrilled anchorage points; see Car Owner's Manual.)

**Protective Shield** distributes crash forces by cushioning the child's body on a padded surface. Two of these seats require no harness. In some cases a partial shield is used in combination with a harness (see chart).

**Booster Seats** are particularly suitable for children who have outgrown conventional car seats. They are intended to be used with the harness that is sold as part of the system or with the vehicle's combination lap/shoulder belt (see "Protection of the Older Child" on the reverse side of this folder).

The booster seat harness requires permanent installation similar to top anchor straps. Booster seats must never be used with only a lap belt.

## CHILD PASSENGER SAFETY ASSOCIATION

### Elements Desirable for Legislation

Every driver (parent, car pool driver, people from out of state. It is not the responsibility of the car rental agency, or taxicab driver, bus driver, etc.).

Transporting a child.

Under age five.

Any child unable to sit unaided shall be properly restrained in a child restraint system which meets the federally approved standards prescribed in 49 CFR 571.213. (This covers infants without specifying a specific age or level of development or weight. This is to make it easy for the enforcing officers to make that judgment).

Child must be properly secured according to the manufacturer's recommendation.

Any child who is able to sit unaided but under the age of five and transported in the front seat must be properly restrained in a child restraint system which meets the federal standards prescribed in 49 CFR 571.213.

Any child who is able to sit unaided but under the age of five transported in the rear seat must be properly restrained in a child restraint system which meets the federal standards prescribed in 49 CFR 571.213.

Children shall be carried only in seats intended for passengers.

Within the State of Alaska (statute not limited just to streets, highways, roads, byways, but off-road use as well, which is even more dangerous).

Infractions do not constitute contributory negligence. Infractions are not admissible as evidence.

Seats must be properly installed.

People violating this statute are guilty of an infraction and assessed two points per occurrence (not per child).

Violators of this section shall be fined not to exceed \$60. A person found in violation of this section may, instead of paying the fine, submit proof of purchase subsequent to the violation or rental for not less than one year of an approved infant or child restraint system to the court. This shall be acceptable only for the first violation and if the acquisition of the restraint was subsequent to the violation. This option applies only to the first offense.

Exemptions to this statute include mass transit vehicles, school bus, taxi.

Children unable to use safety belts or child passenger restraints because of physical or mental handicaps. In this instance they shall be secured in their own specially designed apparatus.

Motorcycle, moped, other vehicles not required to be equipped with seat belts. Transport in a vehicle in which all seat belts are occupied but extra passengers are being carried. Emergency vehicles during an emergency.

## DOCUMENTATION OF EFFECTIVENESS

### TENNESSEE

#### User Rates for Children Under Four

1977 pre-law	9%
1978 (with law)	20%
1980 (with law)	29%

#### Deaths

pre-law	20-25/year
1980	14
1981	10 (only 1 fatality was in a child who was in an approved child restraint system)

#### Health Cost Containment

R. visit for car accident	\$50
hospitalization	\$7-10,000
Funeral	\$2,000

### MASSACHUSETTS

Usage of Seat Restraints	Education Only (1979)	Mandatory Use Laws (1980)
Age 1 year	41%	70%
2 years	22%	49%
3 years	12%	40%

#### Estimated savings to the family

\$1,100-\$55,000 per injury

TABLE 1

## AVERAGE STATE COSTS PER HIGHWAY FATALITY AND INJURY

<u>COST COMPONENT</u>	<u>FATALITY</u>	<u>PERMANENT &amp; TOTAL DISABILITY</u>	<u>PARTIAL DISABILITY</u>	<u>NO PERMANENT DISABILITY</u>
Lost State Taxes	\$11,000 <sup>(A)</sup>	\$4500 <sup>(B)</sup>	\$900 <sup>(C)</sup>	740 <sup>(D)</sup>
Police Agencies	160	70	70	20
Legal and Court Costs	400	290	200	50
Probation Offices	115	115	115	115
Coroners/Medical Examiners	160	-	-	-
Motor Vehicle Departments	15	15	15	5
Hospital/Medical Costs (Borne by State)	35	900	350	60
Public Welfare Overhead	435	435	435	435
Rehabilitation	-	485	240	-
<b>TOTAL</b>	<b>\$12,340</b>	<b>\$6,810</b>	<b>\$2,325</b>	<b>\$825</b>

(A) Based on loss of 10 years income

(B) Based on loss of 4 years income

(C) Based on loss of 10 months income

(D) Based on loss of 45 days income

Sources: 1975 Societal Costs of Motor Vehicle Accidents, National Highway Traffic Safety Administration (DOT-HT-802-119), 1976.

Wuerdemann, H.G., Joksch, H.C. National Indirect Costs of Motor Vehicle Accidents (Vol. 1) Federal Highway Administration (DOT-FH-11-7773), 1973.

Joseph C. March, et al., Financial Consequences of Serious Injury, Highway Safety Research Institute, University of Michigan (UM-HSRI-77-27), 1977.

# What All Adults Can Do To Protect Children In Motor Vehicles Use Restraints

## The Issue

More than 1,400 children under 13 years old die and thousands more are injured each year in the United States as motor vehicle passengers. Infants under one year of age have an even higher death rate than older children. The risk of death is particularly high for children under one year of life. In spite of these facts, children riding in automobiles are seldom restrained, and auto manufacturers do not design and construct even their newest vehicles to provide maximum protection for children in the event of a crash.

More than 90 percent of children in the United States currently ride in motor vehicles without the protection of car seat belts or child restraint systems. Even more startling, some of these children are traveling in cars in which adult drivers and passengers are wearing belts — that is, children are traveling with adults who apparently know the value of restraints but do not provide this protection to children.

Many people carry children on their laps in cars, not realizing that an unrestrained adult will become, in a forward crash, a crushing force against the child's body.

Efforts to increase child restraint use through exhortation, education, legislative action, and child restraint use, and incentives such as the provision of restraint systems at no cost or reduced cost have resulted in small increases in use levels. Yet the vast majority of children in cars are still unrestrained.

This special publication looks at the national public health tragedy of children in crashes and reviews some available countermeasures, including the use of child restraint systems. The first articles describe the special problems for children in motor vehicles — lap travel, hazards in the passenger compartment, etc. — and show what happens to unrestrained children in a crash. Then the various ways children can be better protected in motor vehicles are examined. State laws and federal regulations concerning child restraints are described. A discussion of the benefits, in addition to crash protection, of using child restraints is included. And the elements of a model child restraint law are set forth.

## What All Adults Can Do To Protect Children In Motor Vehicles: Use Restraints

- Place children who cannot sit up unassisted in specially designed carriers and be sure the carrier is tightly secured by a seat belt. The child should be snugly fastened in the carrier's harness system.
- Use specially designed restraint devices if possible. If you have to use a regular lap belt for a child, pull it tightly across the top of the child's hips. Do not strap two children into one belt, and do not strap a child into a belt with an adult. Tragically, some of the child safety literature suggest that small children should not wear seat belts at all if a special child restraint system is unavailable. But as the best research to date shows, children ages 1-4 are substantially better off with car seat belts than without them. *No child should be unrestrained in a motor vehicle under any circumstances.*
- Put children in restraints in the back seat where they are least likely to be thrown against hostile objects in a crash. The middle of the back seat is the best location.
- Do not attempt to hold a child on lap in a motor vehicle. In a crash, adults (even if they are belted) cannot restrain children by holding on to them. Unbelted adults can crush the child against the car's interior (see page 5).
- Keep children out of station wagon, van and pickup truck cargo areas where they cannot be restrained.
- When buying a child or infant restraint, look for one with a permanent label which says: "This child restraint system conforms to all applicable federal motor vehicle safety standards." Do not use a flimsy, lightweight feeder seat or bed that was designed for household use; these were not intended for cars and do not meet the dynamic testing requirements recently established for child restraints (see page 12).

Child restraint devices come in many different sizes and shapes. Not all restraints fit in all cars, so care should be taken to choose a restraint that fits properly in the car in which it will be used. Information about specific models of infant and child restraints can be obtained from several sources. The Physicians for Automotive Safety (PAS) distributes a brochure, *Don't Risk Your Child's Life*, which provides comparative shopping information about restraints. Single copies can be obtained for 50 cents by writing: PAS, 5 Eye Lane, Rye, NY 10580 (include a self-addressed, stamped envelope). Contact PAS for information about the cost of larger quantities of this brochure. For more general information about child restraints, the National Highway Traffic Safety Administration has another brochure, *Child Restraint Systems for Your Automobile*; up to 50 free copies may be obtained by writing to the agency's Child Restraint Program, Washington, DC 20590. Action for Child Transportation Safety (ACTS) has telephone requests for information and materials available in bulk; to obtain samples, lists and charges for these materials, write: ACTS, P. O. Box 266, Bothell, WA 98011 (include a self-addressed, stamped business envelope).

EXAMPLES OF CHILD RESTRAINT LEGISLATION

## CHILD RESTRAINT USAGE

### Issue

Efforts to gain State child restraint laws have, with one exception, been unsuccessful. Recent surveys have indicated that a vast majority (approximately 93%) of children less than ten years of age travel without any restraints at all. There is a need for increasing the protection of children in passenger vehicles.

### Discussion

Studies indicate that children who are unrestrained in passenger vehicles are more likely to be killed or injured in an accident than those who are restrained. Results of one study provide an estimation that if all children under the age of five years were restrained at the time of an accident, a reduction of deaths by 91 percent and injuries by 78 percent might be expected. Seat belts alone do not provide adequate protection for small children, although they are better than letting a child ride unrestrained.

Many manufacturers are testing and marketing dynamically-tested child restraint devices (CRD). Given the commercial availability of CRD's and the presence of adult safety belt systems as standard automobile equipment, it seems that parents have the opportunity to provide effective occupant safety for their children. Because of the availability of such equipment some professionals have expressed the concern that failure to use such protective devices may constitute a form of child abuse.

On January 1, 1978, Tennessee became the first State to have a law establishing safety requirements for child passengers under four years of age. A public information and education program to encourage the use of child restraint devices began at the same time the law went into effect.

Since the passage of the law does not by itself insure a reduction of deaths and injuries to Tennessee children, the NHTSA and the Tennessee Governor's Highway Safety Program jointly established the Child Passenger Safety Program in Tennessee. The purpose of this program is to publicize the law, to educate the people of the State about the importance of CRDs and to evaluate the effectiveness of the law supported by these efforts. The project began October 1, 1977, and is to continue for a 36 month period.

### NHTSA Position

States are encouraged to enact legislation to provide special protection for young children. Since young children are especially vulnerable and since their vulnerability can be reduced only by responsible adult action,

each State is encouraged to enact legislation that will, (1) adopt Department of Transportation performance standards (FMVSS 213) for child-passenger protective devices, (2) encourage proper conformance to manufacturers' instruction on proper usage and, (3) require the use of such devices whenever child-passengers are present in a motor vehicle.

At the present time NHTSA does not have a model law addressing child restraints. However, attached are examples of such legislation developed in the States of Washington and Tennessee.

ALTERNATIVE DRAFTS OF A BILL REQUIRING THAT  
CHILDREN UNDER THE AGE OF FIVE BE PROPERLY  
SECURED IN CHILD PASSENGER RESTRAINT SYSTEMS  
WHEN RIDING IN CERTAIN MOTOR VEHICLES

[NOTE: Bracketed material which is not adjacent to other bracketed material may be included or deleted. When there is a series of bracketed phrases, only one of them should be used.]

AN ACT Relating to the regulation of motor vehicles; adding a new section to chapter 46.61 RCW.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF WASHINGTON:

NEW SECTION. Section 1. There is added to chapter 46.61 RCW a new section to read as follows:

(FIRST ALTERNATIVE)

(1) Every parent or legal guardian of a child under five years of age, when operating (anywhere in the state) his own motor vehicle registered under the provisions of RCW 46.16 in which such child is a passenger, shall have such child properly secured in a child passenger restraint system which is of a type and which is installed in a manner approved by the state commission on equipment. This subsection does not apply to the operation of authorized emergency vehicles in emergency situations.

(2) The state commission on equipment shall adopt standards for the performance, design and installation of passenger restraint systems for children under five years of age and shall approve those systems currently meeting its standards. Approved systems must provide substantial protection for passengers under five years of age from injuries from vehicle crashes or sudden stops, yet be of moderate cost to the public.

(3) The following methods of restraining child passengers do not comply with the requirements of this section:

(a) holding the child in the arms or lap of another passenger,

(b) use of a Type I seat belt assembly, as defined in 49 CFR § 571.209 as of January 1, 1978, by a child under forty pounds or four years of age, or

(c) use of a Type 2 seat belt assembly, as defined in 49 CFR § 571.209 as of January 1, 1978, by a child under fifty-five pounds or four and one-half feet in height.

[(4) Parental immunity from suits by minor children does not extend to actions based on the failure to comply with this section.]

(5) This act shall take effect on ....

(SECOND ALTERNATIVE)

(1) Every parent or legal guardian of a child under five years of age, when operating [anywhere in the state] any [motor vehicle] [motor vehicle other than ....] [passenger car] registered under the provisions of RCW 46.16 in which such child is a passenger, shall have such child properly secured in a child passenger restraint system which is of a type and which is installed in a manner approved by the state commission on equipment.

(Here follow subsection (2), (3), (4) and (5) as they appear in the first alternative.)

(THIRD ALTERNATIVE)

(1) Every person, when operating [anywhere in the state] a [motor vehicle] [motor vehicle other than ....] [passenger car] owned by him and registered under the provisions of RCW 46.16 in

which a child under five years of age is a passenger, shall have such child properly secured in a child passenger restraint system which is of a type and which is installed in a manner approved by the state commission on equipment.

(Here follow subsections (2), (3), (4) and (5) as they appear in the first alternative.)

(FOURTH ALTERNATIVE)

(1) Every person, when operating [anywhere in the state] a [motor vehicle] [motor vehicle other than ...,] [passenger car] registered under the provisions of RCW 46.16 in which a child under five years of age is a passenger, shall have such child properly secured in a child passenger restraint system which is of a type and which is installed in a manner approved by the state commission on equipment.

(Here follow subsection (2), (3), (4) and (5) as they appear in the first alternative.)

(FIFTH ALTERNATIVE)

(1) Every parent or legal guardian of a child under five years of age is responsible for such child's being properly secured in a child passenger restraint system which is of a type and which is installed in a manner approved by the state commission on equipment whenever such child is a passenger in a motor vehicle [operated anywhere in the state/and] registered under the provisions of RCW 46.16 other than an authorized emergency vehicle, auto stage, municipal transit vehicle, other for-hire vehicle, school bus, or private carrier bus.

(Here follow subsections (2), (3), (4) and (5) as they appear in the first alternative.)

(SIXTH ALTERNATIVE)

(This section would most properly be placed in Chapter 46.37 RCW.)

(1) The owner of a motor vehicle registered under the provisions of RCW 46.16 other than ... is responsible for such vehicle being equipped with a child passenger restraint system which is of a type and which is installed in a manner approved by the state commission on equipment whenever the owner has reason to know that a child under five years of age is a passenger in such vehicle [and that such vehicle is being operated anywhere in the state].

(Here follow subsections (2), (4) and (5) as they appear in the first alternative.)

SENATE BILL NO. 1792

by

Henry

AN ACT to require the use of approved child restraint systems for children within certain age and weight limits while they are riding as passengers in motor vehicles on the highways; to regulate the providing, in this state, of safety belts and child restraint systems and the use thereof; to provide for certain exemptions; to place certain responsibilities on drivers transporting children in motor vehicles; to provide for a presumption of negligence; and to provide a penalty for violation of the act.

BE IT ENACTED BY THE GENERAL ASSEMBLY OF THE STATE OF TENNESSEE:

SECTION 1. The short title of this act shall be known as the  
"Tennessee Child Passenger Protection Act of 1976".

SECTION 2. DEFINITIONS. As used in this act, unless the context otherwise requires:

(a) "Child restraint system" means any device manufactured to transport children of forty (40) pounds or less in a motor vehicle and which conforms to all applicable federal motor vehicle safety standards.

(b) "Commissioner" means the Commissioner of Safety of this state.

(c) "Department" means the Department of Safety of this state.

(d) "Driver" means every person who drives or is in actual physical control of a motor vehicle.

(e) "Highway" means the entire width between the boundary lines of every way publicly maintained when any part thereof is open to the use of the public for purpose of vehicular traffic.

(f) "Motor vehicle" means any vehicle driven or drawn by mechanical power manufactured primarily for use on the public streets, roads, and highways, except any vehicle operated exclusively on a rail or rails.

(g) "Owner" means a person other than a lienholder having the property in or title to a vehicle, and includes a person entitled to the use and possession of a vehicle subject to a security interest in another person but excludes a lessee under a lease not intended as security.

(h) "Safety belt" means a lap belt, shoulder belt, any any other belt or combination of belts, except those which are physically a part of a child restraint device, installed in motor vehicles to restrain drivers and passengers. It also includes anchorages, buckles, and all other equipment

directly related to operation of safety belts.

(1) "Seating position" means any vehicle interior space intended by the vehicle manufacturer to provide seating accommodation while the vehicle is in motion.

SECTION 3. APPLICATION. The provisions of this act shall apply to privately owned non-commercial motor vehicles operated upon any highway of this state, and shall apply to all motor vehicles used for the transportation on any such highway of children less than four (4) years of age, such as vehicles owned or used by kindergartens, child day care centers, and similar agencies or institutions.

SECTION 4. CHILD RESTRAINT SYSTEM REQUIREMENTS. (a) No person shall install, distribute, have for sale, offer for sale, or sell any safety belt or child restraint system for use in motor vehicles unless it conforms to all applicable federal motor vehicle safety standards. (b) Every owner shall maintain safety belts required by this section in proper condition and in a manner that enables them to be readily used. (c) Every child less than four (4) years of age and forty (40) pounds or less in weight being

transported in a motor vehicle subject to the requirements of this act shall be provided with a child restraint system suitable for the child's size, except as herein provided. (d) Every child less than four (4) years of age and forty (40) pounds or less in weight being transported in a motor vehicle subject to the requirements of this act shall be properly fastened into a child restraint system appropriate for the child's size where a seating position is available which is equipped with a safety belt or other means to secure the device, according to the manufacturer's instructions.

SECTION 5. RESPONSIBILITY OF THE DRIVER FOR CHILD RESTRAINT USE BY CHILDREN. It is the responsibility of the driver transporting children subject to the requirements of this act to ensure that such children are provided with and properly use a child restraint system.

SECTION 6. EXEMPTIONS. The Commissioner may exempt a class of children from Section 4 of this act if he determines and publishes his reasons therefore that use by that class of children of a child restraint system would be impractical by reason of physical unfitness or other medical problem or body size. The driver transporting any child exempted from the requirements of this act

shall carry or have in the motor vehicle a certificate issued by the Department identifying each child's exemption and the reason therefore.

SECTION 7. EFFECT OF NONUSE IN CIVIL LITIGATION. Failure of the driver to ensure that a child restraint system is provided and properly used by every child subject to the requirements of this act shall create a presumption of negligence on the part of the driver.

SECTION 8. PENALTIES. (a) Violation of this act is a misdemeanor, punishable upon conviction thereof by a fine of not less than ten dollars (\$10) nor more than fifty dollars (\$50). (b) Penalties shall not be applied to out-of-state residents whose state of residence does not have a similar law, it being the primary objective of this law to promote safety. However, enforcement officers shall issue warnings and advisories.

SECTION 9. EFFECTIVE DATE. This act shall take effect on July 1, 1976, the public welfare requiring it.



FOR: MIKE BALDWIN, NHTSA

FROM: BOB EVANS, NTSBHQ

## National Transportation Safety Board

Washington, D.C. 20594

### Safety Information

FOR IMMEDIATE RELEASE: December 7, 1982

SAFETY BOARD URGES MANDATORY LAWS  
IN CHILD SAFETY SEAT USE

SB 82-79/3654

The National Transportation Safety Board today urged the Governors and Governors-elect in 31 states, as well as the Mayor of the District of Columbia, to enact legislation requiring the mandatory use of child safety seats for motor vehicle crash protection. Patricia Goldman, Vice Chairman of the Safety Board stated that the Board's action resulted from its findings to date in motor vehicle accident investigations involving young children, as well as statistics demonstrating the effectiveness of child passenger safety programs in those states which have them.

Vice Chairman Goldman, noting that motor vehicle accidents are our nation's leading killer andcrippler of young children, stated that mandatory use of safety seats is essential "in order to reduce needless deaths and disfigurement of innocent children." More than 1,300 children were killed over the last two years, and over 10,000 seriously injured or permanently disabled during the same two-year period. Goldman stated that these statistics "are particularly tragic when you consider that an estimated 90 percent of the fatalities and a great majority of the injuries could have been prevented by the proper use of safety seats."

The Board's recommendation letters urged Governors in those states that do not presently have mandatory child passenger protection laws on the books, to "include in your 1983 legislative program, legislation to require use of child safety seats from infancy through age 4 to reduce the likelihood of death, disability or disfigurement in motor vehicle crashes."

A growing number of states have found that just as state health laws are appropriate to require immunization of children against life-threatening and crippling diseases, young children must be "immunized" by legislation against the consequences of crashes -- which kill and cripple more children in this country than any major disease. To date, 23 states have enacted child passenger safety laws and 19 of those laws include provisions requiring use of child safety seats by the general public.

- note -

**NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C.**

ISSUED: December 7, 1982

Forwarded to:

Honorable Bill Sheffield  
Governor-Elect of Alaska  
Transition Office  
Plaza 201 East Third Avenue  
Anchorage, Alaska 99501

SAFETY RECOMMENDATION(S)

H-82-59 and -60

The National Transportation Safety Board recommends that you include in your 1983 legislative program a requirement for the mandatory use of child safety seats for the protection of young children riding in motor vehicles and that you adopt a Statewide child passenger safety program. The Safety Board believes, as a result of its findings in accident investigations and its review of the experience of States which have enacted such legislation and undertaken such a program, that these measures can be used effectively to bring about a significant reduction in deaths and injuries to young children involved in motor vehicle accidents.

Motor vehicle accidents are the leading killer andcrippler of children in this country. Children from infancy through age 4 are especially vulnerable to death, disability, and disfigurement, even in minor crashes. In the last 2 years, infants and toddlers through age 4 who were riding in motor vehicles were killed in crashes at a rate of 1 every 13 hours. More than 1,300 were killed during these 2 years, and over 10,000 were seriously injured or permanently disabled. The most tragic aspect of these losses is that they are needless; an estimated 90 percent of the fatalities and the great majority of the injuries could have been prevented by the proper use of child safety seats.

As part of a study of child motor vehicle passenger protection, the Safety Board is conducting a concerted program of in-depth investigations of crashes involving children from infancy through age 4. Enclosed for your information are brief summaries of three accidents. These accidents illustrate crash risks to children unprotected by child safety seats, including the risk of ejection, the danger to children riding in the laps of adults and, in one case, the dramatic difference in crash consequences for two children in the same vehicle, one protected by a child safety seat and one unrestrained. We also are investigating four other crashes in which infants between the ages of 3 weeks and 1 year, who were protected by child safety seats, escaped unharmed (or in one case, with minor injury) when adult occupants in the same vehicle were killed or seriously injured. Other investigations in progress include cases in which young children who were unprotected by child safety seats received facial or other injuries in minor accidents where other restrained or unrestrained vehicle occupants were uninjured.

3654

Motor vehicle accidents are now being recognized as a major public health problem and a proper subject of public health policy. A growing number of States have found that just as State health laws are appropriate to require immunization of children against life-threatening and crippling diseases, young children must be "immunized" by legislation against the consequences of crashes--which kill and cripple more children in this country than any major disease. To date, 23 States have enacted child passenger safety laws, and in 19 of these States the laws include provisions requiring use of child safety seats by the general public. While these laws vary to some extent from State to State, they are consistent in their basic philosophy that new and more effective public programs are needed to deal with this serious safety problem.

The best example to illustrate what can be achieved by such a program is the experience of Tennessee, the first State to undertake a broad-scale child passenger safety program including a law requiring the use of child safety seats. The results now being reported are impressive: since Tennessee began implementing its program in 1978, child safety seat usage rates have tripled and crash fatalities of children in the age group affected by the law have been cut by more than 50 percent. Before the 1977 law, fatalities of child passengers averaged 20 to 25 annually. That number was reduced to 10 in 1981, and the number of fatalities reported for the first 9 months of 1982 was 5. The experience reported in Tennessee indicates that this kind of program can significantly reduce child passenger fatalities in crashes. A brief description of some of the activities undertaken in Tennessee, which have been found valuable there and elsewhere, is enclosed for your information.

The Safety Board believes that in addition to enacting a law requiring use of child safety seats, each State should develop a program of activities to encourage compliance and enhance the effectiveness of the law. These activities should include visible and aggressive enforcement; dissemination to the public of information to assure that the requirements are fully understood; education of the public (both adults and children) to explain the problem and the need for crash protection, as well as to emphasize the importance of proper use of child safety seats; sufficient public and/or private child safety seat loan programs or similar activities to assure the availability of seats in the community and to meet the special needs of low-income families (families with two or more children in the affected age group), who would otherwise be unable to comply with the law; and ongoing evaluation of such activities to analyze and measure the results and identify the need for action to further improve child passenger safety policies and programs.

Given the magnitude of the child passenger safety problem and the number of fatalities and injuries that are being incurred by children not protected by child safety seats in crashes, the Safety Board strongly encourages and supports the adoption of public policies and programs which have been demonstrated to be effective in reducing these tragic losses.

Therefore, the National Transportation Safety Board recommends that the Governor-elect of Alaska, as you prepare for your transition into office:

include in your 1983 legislative program, legislation to require use of child safety seats for child passengers from infancy through age 4 to reduce the likelihood of death, disability, or disfigurement in motor vehicle crashes. (Class II, Priority Action) (H-82-59)

Develop a Statewide child passenger safety program including aggressive enforcement of laws requiring use of child safety seats, public information and education programs on their need and proper use, child safety seat loan or similar programs, and ongoing evaluation of such activities. (Class II, Priority Action) (H-82-60)

The National Transportation Safety Board is an independent Federal agency with the statutory responsibility "... to promote transportation safety by conducting independent accident investigations and by formulating safety improvement recommendations." (P.L. 93-633). The Safety Board is vitally interested in any actions taken as a result of its safety recommendations. Therefore, we would appreciate a response from you regarding action taken or contemplated with respect to the recommendations in this letter.

BURNETT, Chairman, GOLDMAN, Vice Chairman, and McADAMS, BURSLEY, and ENGEN, Members, concurred in these recommendations.

  
By **Jim Burnett**  
Chairman

Enclosures:    1. NTSB Investigations  
                  2. Program in Tennessee

**NATIONAL TRANSPORTATION SAFETY BOARD  
WASHINGTON, D.C. 20594**

**Investigations of Accidents Resulting in Death  
To Unrestrained Children From Infancy through Age Four**

NTSB Investigation No. NYC82HCR02

About 1 p.m. on June 28, 1982, a Volkswagen sedan that was traveling on Columbia Street in Reusselner, New York, began a left turn into the parking lot of a restaurant and was struck on the right side by a motorcycle. The Volkswagen was occupied by two children in the rear seat, both about 2 years old, and their mothers in the front. One mother (the driver) was uninjured, and the other received a small cut on the right arm. One child, who was riding in a child safety seat, received minor lacerations from flying glass. The child riding next to her who was not protected by a child safety seat died of multiple injuries including a broken neck. The investigation resulted in a preliminary finding that if that child also had been protected by a child safety seat, he probably also would have survived.

NTSB Investigation No. NYC82HCR03

About 12:30 a.m. on July 26, 1982, near Madlox, Maryland, a Chevrolet sedan was traveling on State Route 238 when the vehicle failed to negotiate a curve and went off the side of the road. The vehicle sideswiped a utility pole, went down a shallow embankment and overturned in a soybean field. The vehicle was occupied by a young married couple and their 2-year old daughter, who were returning home after a visit to the child's grandmother. The parents, although not restrained by seatbelts, received only minor injuries in the accident and were not hospitalized. The 2-year-old girl, however, who was sleeping in the rear seat and was not protected by a child safety seat, was thrown from the vehicle and died of massive skull injuries. The investigation resulted in a preliminary finding that the child probably would have survived if she had been protected by proper use of a child safety seat.

NTSB Investigation No. NYC82HCR05

About 5:15 p.m. on July 27, 1982, a Dodge sedan traveling on State Route 417 near Addison, New York, crossed the yellow centerline and collided head-on with a Ford sedan. The Dodge was occupied by three adults and two infants, all of whom were in the front seat unrestrained by either seatbelts or child safety seats. The infants, ages 5 months and 15 months, were each riding in the lap of one of their parents. They were crushed into the dashboard by the weight of their parents' bodies and died of massive skull injuries. The parents and the driver of the Dodge survived with minor injuries. The investigation resulted in a preliminary finding that the two infants probably also would have survived if they had been protected by proper use of child safety seats.

Examples of Child Passenger Safety Activities in Tennessee

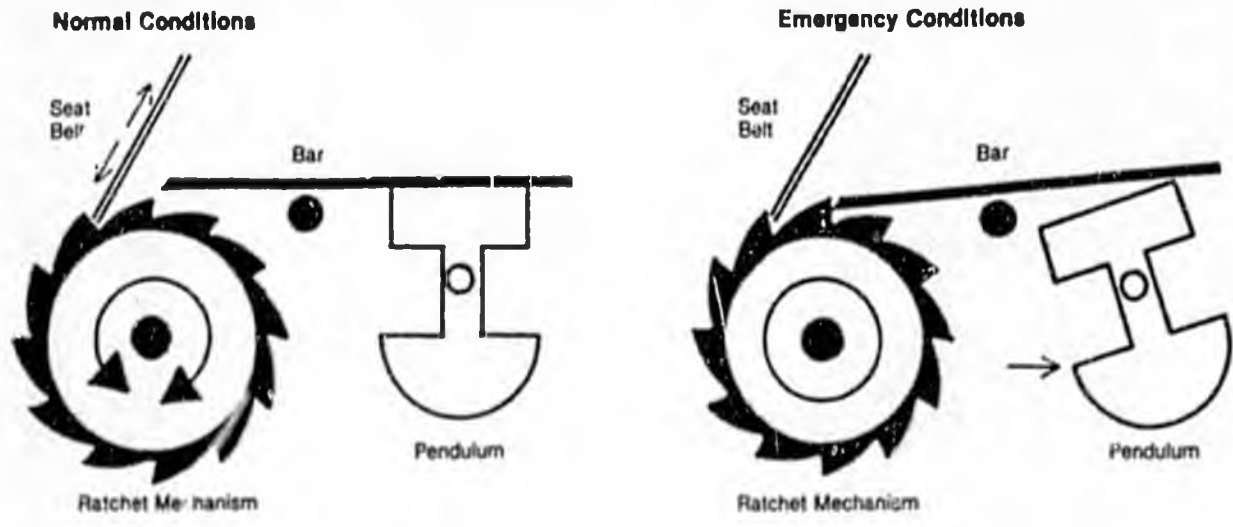
When Tennessee enacted a law in 1977 requiring the use of child safety seats, a variety of means were used to encourage compliance with the law. <sup>1/</sup> The University of Tennessee was awarded a grant to develop and implement a 3-year program of public information, education, and evaluation which included use of 750,000 brochures, highway billboards, television and radio public service announcements, articles and features in some 700 newspapers, in-service training programs for police, seed dollars for child safety seat loan programs, and periodic statewide surveys to monitor usage rates.

Innovative, positive enforcement initiatives by the Tennessee Department of Safety have included the placement of child safety seats in all 800 trooper cruisers to be loaned to ticketed violators of the law with the understanding that if a parent provides proof of purchase of a child safety seat, the trooper will petition the court to suspend the fine and court costs. This innovative enforcement program creates a positive public perception of the officer issuing a citation and is considered one of the most effective public relations programs conducted by the Tennessee Highway Patrol. In addition, by 1982 child safety seat loan programs had been established in 75 County Health Departments.

As a result of Tennessee's successful experience, the same or similar kinds of activities are being undertaken by 22 other States to require or encourage proper protection for young children against death and injury in crashes.

<sup>1/</sup> Dr. Robert S. Sanders, M.D., "Legislative Approach to Auto Safety: the Tennessee Experience," in Ross Roundtable, Ross Laboratories, Columbus, Ohio, January 1982.

# The Safety Belt: How It Works



Under normal conditions, the pendulum and bar are in their rest positions. The reel, which holds the belt, is free to rotate. As the occupant moves forward the belt moves unrestrained with the occupant.

Under emergency conditions, such as in a collision, the pendulum moves forward under the force of the impact causing the bar to engage the ratchet. The reel and seat belt now lock in place and the occupant is held firmly in place.



## Infant Carriers

Up until they weigh about twenty pounds, newborns require a carrier which is a tub-shaped bed that cradles the child in a semi-erect position. The infant is held securely in the carrier by means of a harness. Infant carriers are designed to face the rear of the car and must be secured to the seat by the adult belts already in the car. Accident data shows that the rear seat is generally safer than the front seat. However, many parents alone in the car with their baby but uncomfortable placing an infant in the rear seat facing to the rear where they cannot see the child. Since the rear-facing infant carrier is designed to protect the baby's head from the dashboard and windshield, the front seat is a suitable alternative. It is most important, however, that infant carriers never be used facing the front of the car. For a very small infant, it may be more comfortable to roll up small blankets or towels and place them inside the carrier at the sides of the infant's body.

## Types of Safety Seats

Child safety seats come in several shapes and sizes because different stages of a small child's development require different types of protection. So parents have several considerations to keep in mind when purchasing a safety seat. There is no "best" seat. The important thing is to find the seat that best suits you, your child, and your car. Be sure that the safety seat you choose will fit the seat belts in your car(s). Insist on the right to return the seat if it does not fit.

## Booster Seats



A new type of seat currently being marketed is the automobile booster seat. Booster seats are designed primarily to fill the gap between when a child outgrows the standard child safety seat and when the child can use the adult belt only and still see out the window. Some models can also be used for smaller children, as small as twenty pounds, and all can be used for children up to about sixty-five pounds. It is extremely important to note that booster seats should only be used with proper torso support, either by using the lap and shoulder belt, or for maximum safety, by using the body harness supplied with the booster seat in the rear seat. The body harness is secured in the same manner as a standard top tether strap. A booster seat without proper torso support is less effective than using the adult lap belt without the booster.

## Convertible Models

Some models of infant carriers convert to child seats so that they can be used from birth until the child weighs about forty pounds. For economic reasons, a convertible model may be a sound choice, since there is no need to buy a car seat when the child outgrows the infant mode.



### Attached to Rear Seat Belt

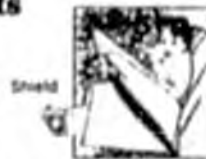


Attached to Rear Window Shelf

If you decide to buy a convertible model, there are several points to consider. Some infant seats that convert to child seats require a top tether strap that must be secured to the rear seat belt if used in the front seat (see diagram). To use this type of seat in the rear seat requires that a hole be drilled in the rear window shelf, or cargo area of station wagon or hatchback. Correctly used tether straps add extra stability in a crash and less head movement in a crash. However, if you do not intend to properly anchor the tether strap every time you place the seat in the car, do not buy this type of seat. There are convertible models that do not require a tether strap.

## Toddler Seats

For children who weigh more than twenty pounds and can sit up by themselves, there are two types of child seats. The shield type consists of a seat with a padded and slightly flexible impact shield that comes up close to the child's stomach and then bends away from the face and chest. The safety seat itself is held securely in place by an adult lap belt which is fastened around the shield. An advantage of this type of restraint is that parents do not have any harnesses or buckles to deal with. Children can learn to climb in behind some shield models with the seat already secured in place. However, children can also climb out of the shield while the car is moving, therefore, this type should only be used with well-behaved and disciplined children.



Shield

The harness type secures the child to the safety seat with a two-part belt system. This type of seat may be more complicated to use than the shield type but they are harder for an active child to wiggle out of and may allow for more freedom of movement within the seat. Some of the newer models of safety seats secure the child with a combination of shield and harness.

It is important to note whether or not the seat you choose requires a top tether strap that must be secured to a rear seat belt or the window shell behind the rear seat (or cargo area of station wagon or hatchback). Again, if you do not intend to anchor the tether strap every time you place the seat in a car, choose a model that does not require a top tether.



Harness

## Adult Safety Belts



Adult safety belts should be used for children who have outgrown their safety seats or for children who can sit up by themselves when no safety seat is available. The belt should be snug and as low as the child's hips as possible. If the shoulder belt crosses the child's face or neck, the shoulder belt should be placed behind the child's back after the buckle has been fastened. Parents should check to make sure the child's head will not hit the dash in a crash or sudden stop. If this could happen, the child should be placed in the rear seat.

Pilrows or cushions should not be used to boost a child. They can slide out from under the child, allowing him or her to submerge under the lap belt, or allowing the child's head to move so far forward that it strikes the car's interior.



US Department of Transportation  
National Highway Traffic Safety Administration

# Safety Belt Fact Sheet

## The Facts

### Approximately 50,000 Fatalities Caused by Motor Vehicle Accidents Annually

- Leading cause of death among people 44 and younger.
- Number 1 cause of on-the-job fatalities.
- Costs the average employer nearly \$120,000 per employee death.
- Comparable to the number of American soldiers killed in Vietnam.
- Two and one half times greater than all fatalities caused by accidents in the home.
- Ten times greater than fatalities caused by all other forms of transportation.
- Equivalent to a 747 passenger jet crashing every day.

### Safety Belts Make A Difference

- Approximately 35,000 people die annually in cars, light trucks or vans equipped with safety belts.
- About 50 percent (17,000) of these people could be saved if they wore safety belts.
- Safety belts cut your chances of being killed or seriously maimed in a crash by about 50 percent.
- On any single vehicular trip the chance of an accident is very low, but the possibility of a serious accident on one of the many trips in your lifetime is better than 50 percent. (What percent of your friends have never been in an accident? Ask around . . . the percentage will be low.)
- Three out of four crashes happen within 25 miles of home.
- A common cause of death and injury to children in automobiles is being crushed by adults who are not wearing safety belts. In fact, one out of four serious injuries to passengers is caused by occupants being thrown into each other.
- Drivers wearing safety belts have more control over their car in emergency situations and are therefore more likely to avoid an accident.

## The Myths

### Myth

"I don't need safety belts because I'm a really good driver. I have excellent reactions."

### Fact

"No matter how good a driver you are, you can't control the other car. When another car comes at you, it may be the result of mechanical failure and there's no way to protect yourself against someone else's poor judgement and bad driving."

"I don't want to be trapped in by a safety belt. It's better to be thrown free in an accident."

"Being thrown free is 25 times more dangerous . . . 25 times more lethal. If you're wearing your belt you're far more likely to be conscious after an accident . . . to free yourself and help your passengers. Safety belts can keep you from:

- plunging through the windshield;
- being thrown out the door and hurtled through the air
- scraping along the ground
- being crushed by your own car

In almost any collision, you're better off being held inside the car by safety belts

"If I wear a safety belt, I might be trapped in a burning or submerged car!"

"Less than one-half of one percent of all injury-producing collisions involve fire or submersion. But if fire or submersion does occur, wearing a safety belt can save your life. If you're involved in a crash without your safety belt, you might be stunned or knocked unconscious by striking the interior of the car. Then your chances of getting out of a burning or submerged car would be far less. You're better off wearing a safety belt at all times in a car. With safety belts, you're more likely to be unfazed, alert, and capable of escaping quickly."

"I don't need it. In case of an accident, I can brace myself with my hands."

"At 35 miles per hour, the force of impact on you and your passengers is trivial. There's no way your arms and legs can brace you against that kind of collision. The speed and force are just too great. The force of impact at just 10 mph is equivalent to the force of catching a 200-pound bag of cement from a first story window."

"Most people would be offended if I asked them to put on a seat belt in my car."

"Polls show that the overwhelming majority of passengers would even willingly put their own belts on if only you, the driver, would ask them."

"I just don't believe it will ever happen to me."

"Everyone of us can expect to be in a crash once every ten years. For one out of 20 of us, it'll be a serious crash. For one out of every 60 children born today, it will be fatal."

"Well, I only need to wear them when I have to go on long trips, or at high speeds."

"Eighty percent of deaths and serious injuries occur in cars traveling under 40 miles per hour and 75 percent of deaths or injuries occur less than 25 miles from your home."

"I can touch my head to the dashboard when I'm wearing my seat belt so there's no way it can help me in a car accident."

Safety belts were designed to allow you to move freely in your car. They were also designed with a latching device that locks the safety belt in place if your car should come to a sudden halt. This latching device keeps you from hitting the inside of the car or being ejected. It's there when you need it."

## The Human Collision

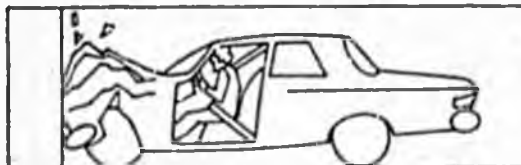


On impact, the car begins to crush and slow down. The person inside continues to move forward at the same speed the car was traveling.

Within 1/10 of a second, the car has come to a stop, but the person is still moving forward.



1/50 of a second after the car has stopped, the unbelted person slams into the dashboard or windshield. This is the human collision.



With effective safety belts, the person will stop before hitting the steering wheel, dash or windshield.

The car has come to a complete stop within one tenth of a second. However, the unbelted driver is still moving along inside the car at 30 mph. It will take the driver about one-fiftieth of a second more to hit something—say the windshield or the steering wheel. That's the human collision. It happens about 0.02 seconds after the first collision, and belts can make a big difference in determining how serious that second collision is. A lot of people think they are strong enough to brace themselves in a crash. They aren't. At just 30 mph you'd be thrown toward the dash with the same force as if you'd jumped head first off a three-story building. No one's arms are anywhere near strong enough to "catch" himself and break a three-story fall. Safety belts are, though. And that's why people need them, even in a low-speed crash.

## How Effective are Safety Belts?

Most people accept the fact that wearing safety belts offers protection in a crash, but too few bother to find out exactly how much protection they can expect. If they asked, they would probably be surprised by the answer. While researchers may differ by a few percentage points either way, average figures coming out of safety belt studies look like this:

- Safety belts cut the number of serious injuries received by 50 percent.
- Safety belts cut fatalities by 60 to 70 percent.

To put these figures in other words, not wearing a safety belt doubles your chance of being hurt seriously in a crash. Serious injuries received in crashes often involve the head or spinal cord. In fact, in the U.S., auto accidents are the number one cause of epilepsy (from head injury) and paraplegia (from damage to the spinal cord). The restraining action of safety belts—especially shoulder belts—helps explain why they so drastically reduce the likelihood of being seriously hurt. Wearing just a lap belt gives you twice as good a chance of living through a crash as you'd have if you wore no belt at all. And using a lap/shoulder belt combination makes your chances of survival three to four times better than they are if you drive beltless. One important note: These improved chances of escaping injury or death thanks to safety belts hold true regardless of speed. Whether you're going 5 mph or 75 mph, you're a lot better off using belts.

The aim of safety belts is to:

- First, minimize whatever benefits come from the First Collision through "riding down." By making the impact of the first collision work on you sooner, belts give you the benefit of increased stopping distance and dissipation of the forces of impact by the car itself.
- Second, minimize the harm of the Second Collision. By taking the forces of impact quickly (but not too quickly), the belts dissipate those forces through a relatively safe medium (the belt itself) instead of through a dangerous medium (glass or steel).

Safety belts help occupants in five ways:

1. There is the "ride down" benefit, in which the belt begins to stop the wearer as the car is stopping.
2. The belt keeps the head and face of the wearer from striking objects like the wheel rim, windshield, interior post, or dashboard.
3. The belt spreads the stopping force widely across the strong parts of the body.
4. Belts prevent vehicle occupants from colliding with each other.
5. Belts help the driver to maintain vehicle control, thus decreasing the possibility of an additional collision.

## THE TENNESSEE EXPERIENCE

The National Highway Traffic Safety Administration says its evaluation of the Tennessee law, which became effective January 1, 1978, shows a 50 percent reduction in major injuries and deaths of small children in 1978, and a 75 percent reduction in 1979. Over the two-year period it is estimated there would have been 40 additional major injuries and seven additional deaths without the use of restraint systems.

The Tennessee Child Passenger Protection Act requires parents to protect their children under age four by properly using child restraint systems, or else by assuring that the child is held in the arms of an older passenger in the vehicle. This was the first state law to require passenger restraint of any kind, and despite the major weakness of the so-called "babes in arms" provision, the law has become the focus of a great deal of national attention. The practice of holding a child in the lap is unsafe, because in a crash the child can be crushed between the adult and the dashboard of the car, or torn from the adult's arms by the extreme forces of the crash.

NHTSA and Tennessee participated in a public information campaign to increase public awareness of the law, and in the evaluation of the impact of the legislation. The evaluation included actual observations of child restraint usage in five metropolitan centers and three rural locations in each of five semiannual surveys.

Before the law went into effect the statewide usage rate was only 9.2 percent. At the end of 1978, one year after the law became effective, the statewide average usage rate was 14.4 percent, double the national rate for child seat use. By the end of 1979, the Tennessee rate was 18.7 percent, and higher in some parts of the state. Usage rates have continued to increase in 1980, and are as high as 29 percent in Knoxville and Nashville.

In 1979, the Tennessee State Patrol purchased child restraints to be carried in the trunk of each patrol car. Upon issuing a citation to a parent for non-use of a child seat, the officer loans the family a seat to be returned to court when they pay their fine. If the parents can show proof of purchase of a child restraint system, the officer requests the judge to drop the charge. Since enforcement of the program went into effect, 1,260 citations have been issued by the Tennessee Highway Patrol.

Source: U.S. Department of Transportation, National Highway Traffic Safety Administration, Press Release, October 6, 1980.

GARDEN CITY, N.Y.

NEWSDAY APR 1 1982

EVENING -- 494,993

SUNDAY -- 510,207

## A Tenn. restraint law at work

After almost two years under a state-mandated program to protect young children in auto accidents, officials in Tennessee found something lacking—enforcement.

Tennessee was the first state in the country to adopt a law requiring special restraints, or car seats, for young children. The law there requires that children under 4 years old be in child restraints in cars when traveling with parents or legal guardians.

If the children are not in car seats, a ticket is issued to the parent or guardian. The maximum fine is \$10.

The law went into effect Jan. 1, 1978, but, late in 1979, complaints of lax enforcement arose. Twenty months after the law went into effect, state officials dug through records of the state police, who enforce the law on state and interstate roads, but they found that only about 50 citations had been issued.

"Initially, we just assumed that they would start enforcing the law because it was a law," said Sheri Maddux of the Governor's Highway Safety Program.

Robert Sanders, a county health official in Rutherford, Tenn., and a pediatrician who led the fight for the law's adoption, said that the situation changed dramatically under a new commissioner of the state department of safety, Gene Roberts, who took office in 1979.

Roberts, Maddux said, sparked an intensified enforcement effort, and, in just the last four months of 1979, 414 citations were issued. In 1980, the figure climbed to 1,402; and it rose further—to 2,627—last year. All told, through the middle of last month, 4,895 tickets had been issued.

In 1979, 22 children under 4 years old were killed in auto accidents in Tennessee. In 1980, the first full year when the law was being more vigorously enforced, there were 15 such fatalities, and last year there were 10.

"Enforcement is very important to the program," Maddux said. Enforcement and, she added, education.

"The law is not designed to be punitive," Maddux said. When Commissioner Roberts, in charge of the state police, moved enforcement into higher gear, he also asked the courts to drop the charges whenever violators could show that they had acquired a child restraint. Moreover, when a trooper tickets someone under the child restraint law in Tennessee, educational material is given, and a car seat is given, too, on loan. There are 504 cars with troopers who police the roads daily and, for this program, each of those vehicles is stocked with a car seat.

It may be difficult for a trooper to spot the child under 4 who's sitting, with or without a regular seat belt, in a car, said Clyde Willholt, executive officer of

the state safety department in Tennessee. But, he said, "As you ride down streets, you can see children standing up or sitting on a mother's lap. It's very obvious . . . You see what's happening."

Not all troopers were enthusiastic about the law. To some troopers, Sanders said, enforcement of the child-restraint law was just one more thing to do. Also, he said, education of the troopers on child restraints may have been inadequate initially, and he and other pediatricians agreed to help correct that through training sessions.

Roberts added: "Most police don't like to penalize parents." The courts' cooperation in waiving fines if violators showed that they had gotten a car seat was important, he said. With that policy, not mandated by the law, Roberts said, "policemen could feel like protectors of children instead of punishers of parents."

By all accounts, use of child restraints in Tennessee has risen. One survey in Nashville and Knoxville, by the nonprofit Insurance Institute for Highway Safety, found that use of child restraints had risen from 8 per cent in 1977 before the law went into effect to 29 per cent in 1980. Maddux forecast that a more recent and more extensive state survey that is still being tallied will show that use has climbed to about 35 per cent.

In the meantime, use of child car seats in neighboring Kentucky—which has no such law—was 11 per cent in 1977 and only 14 per cent in 1980, according to the insurance group's survey.

Enforcement on roads policed by local agencies rather than by troopers appears to be mixed, Maddux suggested. The state had tried to emphasize the importance of the law to the "locals," but, she said, the effort can hinge on any number of things. "It just depends on how important it is to the chief and whatever."

Roberts said it can be more difficult to prod local police departments to emphasize enforcement when their focus is not traffic control. "Comprehensive police agencies have to answer the burglary calls, the rape calls, the mugging calls. Felonies take priority. In this country, we tend to accept traffic fatalities as something endemic to the culture. I hope that's changing."

Sanders is optimistic, even though many children in Tennessee still ride unbuckled. "It just takes a long time to get this across." —Gilgoff

# IMPROVING CHILDREN'S BEHAVIOR DURING AUTOMOBILE RIDES

by Edward R. Christopherson, Ph.D.

Copyright © 1977 by Edward R. Christopherson. Adapted in part from the book, *Little People: Guidelines for Common Sense Child Rearing* by Edward R. Christopherson, Lawrence, Ks.: H & H Enterprises, 1977.

Practically everyone with a driver's license has pulled up to a red light and seen children in the car next to them jumping up and down, from front seat to back seat, and sticking their heads out of the window. You might even remember seeing a child climb on his parent's shoulders or head while traveling down the street. Some of the more passive things that children like to do in the car are shift the gears (usually to neutral, which results in the engine revving up), turn on the radio, and go through the glove compartment.

How do I know about all of these nice things that children do on car rides? Simple — I'm a parent of a normally active three-year-old. How do I know that other parents have the same problems? Because I've spent some time researching this question.

My attention was initially drawn to children's behavior on car rides because we had three cars — in two of these cars, our son behaved very nicely. He played quietly, talked to us, and looked out of the window. Some of the time he slept (usually just on longer trips). In the other car, which didn't have room for two adults and the special infant car seat, our son did all of the things that we'd seen so many other children do before.

It took some time to figure out that the crucial difference wasn't the car but the presence or absence of the car safety seat. This finally dawned on me when I started using the third car to go get donuts on Sunday mornings, and I transferred the car seat since there wasn't anyone to hold on to my son. Presto — his

behavior in the third car was as good as his behavior in the other two.

Then, since I work at a medical center pediatrics department where research is looked upon favorably, I decided to see if other parents would report findings similar to ours with regard to the car seats. One of my research assistants interviewed 60 mothers at our outpatient clinic and 60 mothers at a private pediatric office. The results of these interviews were remarkable. Most of the mothers did not use safety car seats, even if they had purchased one or received one as a gift. Most of the mothers also reported that their children did stand up in the car, or stick their heads out of the windows, or fool around with the dashboard.

The next step was to have an observer actually ride with mothers on local car trips to observe how children behaved in the car. We placed an ad in the local paper for mothers interested in participating in a research study at \$5 per trip. The response was enthusiastic.

Another one of the research assistants went for 15-minute car rides with these mothers — some had children in car seats (already), and some did not use car seats. The difference between the two groups was startling. The children in car seats, for the most part, behaved just like my son did in his car seat — they played with a toy, conversed or looked out of the window. The children who did not use car seats made our researcher very nervous. They climbed around, stuck their heads out of the window, and generally were very disruptive.

With the help of a small grant from one

of the car seat manufacturers, we were able to offer the mothers who did not use car seats a free car seat and a short course (about 10 minutes) in how to introduce the seat to the child. This short course involved pointing out to the child that it is hard to see out of the windows without standing up, and that with a car seat he/she would be able to look right out the window since he/she would be sitting up so much higher. We also pointed out to the mothers the importance of conversing with their child about things that the child could see, now that he/she was in that car seat. For example, "See that big dog over there." "There's McDonald's! You like to eat at McDonald's, don't you?"

Again, we got the same dramatic results. When children who had not been using car seats started using them, their behavior in the car improved dramatically. The mothers who didn't use car seats and said that they weren't interested in using one, continued to have the same kind of behavior that they'd had throughout the study.

The study was considered to be good enough to be published in *Pediatrics*, the journal of the American Academy of Pediatrics. But much more important is

that instead of the scare tactics which have been used for years to try to get parents to purchase and use car seats (by this I mean the statistics on the number of children injured or killed each year in car accidents), parents can now be assured that almost all children will behave better in the car if they are riding in a car seat every time that they go for a ride in the car. Then, as a side benefit, children will also be much safer in the event that an accident does occur.

As a general rule of thumb, what we're now recommending to parents is that they get an infant car seat to transport the baby home from the hospital and use it for every trip after that. Chances are that if you start your child off in a car seat and use it consistently, 1) he'll behave much better, 2) he'll enjoy the trip much more because you won't be upset about his poor behavior, and 3) he'll be safer if you do have to stop suddenly or if you are in an accident.

*Dr. Christopherson is associate professor of pediatrics at the University of Kansas Medical Center and a research associate in the Bureau of Child Research, University of Kansas.*

# Safety car seats for babies prevent needless injuries

By ELEANOR FLAGLER  
Louisville Times Staff Writer

You've seen the happy family pile into the station wagon for a trip to the lake. The kids are scrambling around the back seat. Dad is at the wheel and Mom is cradling the baby in her lap. Off they go, excited and laughing.

Nobody's wearing a seat belt or sitting in a child safety seat. The parents decided the seats were too expensive. Besides, they're too much trouble. The kids wouldn't sit in them anyway.

This family is heading for the statistics ledgers of the state highway department. When the brakes screech and the car skids at that sudden stop — even at low speeds — there's nothing to protect the children.

The parents may be barely jarred when that accident occurs. But children in the back can be knocked around, flying head first toward the dashboard, the windowposts or even out the windows.

And the baby could fly out of his mother's arms, smashing into the dashboard or the windshield.

Automobile accidents have injured or killed many Kentucky and Indiana children, according to traffic research institutes.

These figures include only children who were passengers in cars — not those struck by motorists.

✓ In Kentucky, 20 children under the age of 4 died and 1,350 suffered serious injuries in automobile accidents in 1978.

✓ In Indiana, 60 children under 4 were killed — 40 of them 1 year old or younger — and 1,180 were injured in 1978.

✓ Nationwide, about 800 children under 4 were killed and 100,000 suffered serious injuries.

In accidents, sometimes the injuries

are simple bumps on the noggin. But many times, it's a lot worse: Cracked skulls, ruptured spleens and livers and fractured thigh bones are common, says Dr. Mary Smith, co-director of the emergency room at Louisville's Children's Hospital.

Traffic safety experts say most of these tragedies could have been avoided if everyone in the car had been properly strapped in.

For adults and larger children, they say, this means a seat belt. For children 4 and under, it means a crash-tested child safety seat properly installed.

Rob McBride is director of the child-restraint program at the Traffic Safety Institute at Eastern Kentucky University. He says the great majority of children injured or killed in automobile accidents weren't wearing any kind of restraint.

Nurleigh Seaver, social-science-program specialist at the National Highway Traffic Safety Administration, says properly used safety seats could save the lives of 90 percent of those babies killed and prevent 70 percent of the injuries.

McBride says only a tiny fraction of parents — about 3.5 percent — have properly installed, crash-tested baby restraints in their vehicles. Earlier this year, a team of researchers observed 1,000 children in Jefferson and Fayette counties riding in cars. Of these, 7 percent were in approved safety seats. But only half of those were properly used.

Why don't parents use them? The reasons are many, according to McBride and others.

One is the price tag. They range from \$15 to \$57 in stores in this area. Many parents don't want to pay that.

One local dealer kept a \$42 quality model for more than two years. Finally

it was sold at a reduced price. The dealer no longer carries the seats.

He explained: "There are very few people who think their kid's worth \$42. That's a sobering thought."

Others note that most parents don't use seat belts themselves. Why would they for their children?

The Tennessee legislature became so concerned with the issue last year that it passed a law requiring motorists to put infants and small children in approved safety seats.

But safety experts question the law's effectiveness. Some say it's a start. Others say it's got so many exceptions it's unwieldy and unenforceable.

Instead of pushing for a law in Kentucky, McBride and others are trying to convince parents to use safety seats voluntarily. A program similar to Kentucky's is proposed for Indiana.

McBride tells parents it's a simple matter of physics: Force = Mass × Acceleration. That means a 20-pound child in a car going 30 m.p.h. will hit the dashboard or windshield at a force of 600 pounds.

Since most parents try to protect their children from other dangers, McBride believes they just don't understand the danger in cars.

McBride's office has printed 60,000 brochures to distribute across the state in doctors' offices, day-care centers, anywhere parents might see them, to tell parents that car accidents kill and maim more children than any other single type of accident or disease.

Also, with the cooperation of the Kentucky safety institute, Jaycee-ettes and other groups are considering establishing a bank of safe child-care seats. The groups would raise the money to buy the seats, then rent or lend them to families. When the child outgrows the seat, the parents turn it in to be rented to another family.

McBride says this program has worked successfully in North Carolina and Michigan. He welcomes community groups anywhere to join in the program. He has plenty of information, posters and pamphlets and will help any group set up the program. He can be reached at 600-622-2236. Or write him at the Traffic Safety Institute, College of Law Enforcement, Eastern Kentucky University, Richmond, Ky. 40475.

Safety Car Seats, cont'd.

Safety Car Seats, cont'd



Staff illustration by Herman Wiederwohl

## Crash-tested car seats

Not all infant and child seats on the market have passed simulated crash tests. The following safety seats have performed satisfactorily in such tests and are available in metropolitan Louisville and Southern Indiana department stores, discount department stores, children's specialty shops and automobile dealerships. If they don't have what you want, most will order them.

Name	Manufacturer	Child's Weight	Price
Bobby-Mac 2 in 1	Collier Keyworth	7-35 lbs.	\$30-\$38
Bobby-Mac Deluxe	Collier Keyworth	7-40 lbs.	\$35-\$44
Bobby-Mac Super	Collier Keyworth	7-40 lbs.	\$48
Child Love Seat	General Motors	20-40 lbs.	\$40-\$55
Dyn-O-Mite	Questor Products	7-17 lbs.	\$28
Fitz-All	Questor Products	18-43 lbs.	\$23
Infant Love Seat	General Motors	7-20 lbs.	\$24-\$31
Kantwel Caro Seat #988	Questor Products	7-43 lbs.	\$37
Mopar Infant Seat	Chrysler Corp.	7-21 lbs.	\$15
Mopar Child Seat	Chrysler Corp.	21-60 lbs.	\$21
Safe-T-Seat #78	Peterson	7-40 lbs.	\$42-\$57
Safety Shell #75	Peterson	7-40 lbs.	\$46
Tot-Guard	Ford Motor Co.	20-50 lbs.	\$38
Trav-L Guard	Century Products	7-43 lbs.	\$37
Wee Care #597	Strolee	7-43 lbs.	\$48-\$50

# Get a crash-tested model and use it properly

By ELEANOR FLAGIER

Louisville Times Staff Writer

Safety experts emphasize two things about child safety seats:

Look for a crash-tested model. Use it properly every time your child gets in the car.

How do you choose one? Right now, it isn't easy. Federal standards for the seats do not require crash-testing and do not insure adequate protection in a crash, according to The Highway Safety Research Center of the University of North Carolina.

That's why, the center says, it's not worth your money to buy a seat that has only passed the federal standards. Instead, the center and another group, Physicians for Automotive Safety, say to buy a model that has performed well in simulated crash tests.

To get complete lists of the effective models and how to use them, write:

✓ Traffic Safety Institute, College of Law Enforcement, Eastern Kentucky University, Richmond, Ky. 40475, for copies of the pamphlet prepared by the North Carolina center.

✓ Physicians for Automotive Safety, Communications Department, P.O. Box 208, Rye, N.Y. 10580. Their pamphlet is more extensive and costs 50 cents. Allow three weeks for delivery.

Which is the best of all? Annemarie Schelness, executive director of the physicians group, says the best is the one you will use properly every time. Unless the manufacturer's instructions are carefully followed, even the "safest" seat won't do much good, she says.

Some seats have more straps to fasten than others. Be realistic about how much you are prepared to do before making a choice, the group's pamphlet says.

It's easy to forget about the web of harnesses and straps when Susie is

squatting. But Burleigh Seaver of the safety administration says parents should stick to it and say, "This car won't go until you're in there." The child will learn to sit still in the seat and will not object."

Besides protecting your child, the seat also prevents him from sticking his head out the window or otherwise distracting you when you're driving — a major cause of accidents, Seaver said.

There are basically three types of seats, although some models combine aspects of several. Also, some models convert from an infant carrier to a child seat.

These are the basics:

✓ The infant carrier, generally for babies 7 to 20 pounds. This is a tub-shaped bed that faces to the rear of the car — never forward. It is secured to the car by the adult seat belt. The baby rides in a nearly upright position and must be strapped in with a harness.

Safety experts say this is the only way your infant should ride in a car, from

the moment you take it home from the hospital.

✓ The child seat, for children more than 20 pounds who can sit up alone. One is the protective shield type. This has a seat with a padded and slightly flexible shield that comes up close to the child's stomach and then bends away from his face and chest.

This is one of the easiest models to use since children can crawl in alone. But it would not be good for children who are overly active and hard to discipline because they can climb out of it. Also, it's not recommended for children with glasses.

Another type of child seat is the traditional car seat. The child is held in by several straps. Both the harness and the carrier are tied to the car with an adult's seat belt. Some models also require a top strap, to be bolted into the steel support of the rear window ledge.

If you choose this model, you MUST use the top strap.

✓ The safety harness, for the larger child. This must be installed in the

center of the back seat, anchored to the rear seat belt and rear framework of the car. It does not provide as much protection as other restraints, but it keeps the child in the center of the back seat, the safest place in the car.



RECEIVED DEC 6 1982



**South Central  
Health Planning and Development, Inc.**  
1135 West Eighth Avenue • Suite 1 • Anchorage, Alaska 99501  
(907) 278-3631

December 3, 1982

**TO:** Folks Interested in Preventing Child Morbidity/Mortality in Automobiles  
**FROM:** Peggy Wilson, President, Alaska Child Passenger Safety Association  
**SUBJECT:** Legislative Hearing

On Friday, December 10, 1982 from 1:00 - 5:00 p.m. and 7:00 to 9:00 p.m. there will be a hearing sponsored by the Senate Health, Education and Social Services on MANDATORY CHILD CAR RESTRAINT LEGISLATION.

Some information put together by Dr. Clint Lillibridge on the effectiveness of such programs in other states is attached.

Numbers of people showing support for an Alaskan law will be important at this point, so please attend the hearing and express your concerns. Also, please pass the word to interested others and urge them to attend.

**Time/Date:** Friday, December 10, 1982  
1:00 - 5:00, 7:00 - 9:00 p.m.

**Location of Hearing:**  
Legislative Affairs Office, 2nd floor  
1024 (or 1016) W. 6th Avenue  
Anchorage

Out-of-town people who would like to express their views and encouraged to write:

Senate HESS Committee  
950 Cowles Street, #224  
Fairbanks, Alaska 99701

MW/cr

ALASKA  
CHILD PASSENGER SAFETY ASSOCIATION

Fatal motor accident analysis.

Washington State 1970-1979

39,500 accidents in which children were passengers.

6,300 were restrained; 2 killed. Death rate 0.0317%

33,200 were not restrained; 146 killed. Death rate 0.4397%

The death rate for unrestrained children was 13-fold increased over restrained children.

Twenty per cent of the unrestrained children were being held on an adult's lap but were killed. Nine out of every ten adults holding the child were not killed.

If all of the children had been properly restrained, how many would have died? Twelve, instead of 148.

One hundred thirty six children died needlessly because they were not properly restrained.

Profile of an accident.

The "typical" child who was killed would be a one year old male infant riding in the front seat of a passenger car without a restraint. The driver of the car was the mother, who was also not wearing a seat belt. The accident occurred between 8 a.m. and 3 p.m. within a few miles of home. The mother had not been drinking an alcoholic beverage. There were no defects in the family car that contributed to the accident. The accident occurred during daylight hours on a state route. The weather was clear or overcast and the surface was dry. In summary, the fatal accident involving a young child in Washington State usually occurred under ordinary conditions. (1)

(1) "Fatal Motor Vehicle Accidents of Child Passengers from Birth through 4 Years of Age in Washington State" by Robert G. Scherz, Pediatrics, Vol. 68(4), October 1981, pg. 572-575.

## DOCUMENTATION OF EFFECTIVENESS

### TENNESSEE

#### User Rates for Children Under Four

1977 pre-law	9%
1978 (with law)	20%
1980 (with law)	29%

#### Deaths

pre-law	20-25/year
1980	14
1981	10 (only 1 fatality was in a child who was in an approved child restraint system)

#### Health Cost Containment

E.R. visit for car accident	\$50
Hospitalization	\$7-10,000
Funeral	\$2,000

### MASSACHUSETTS

<u>Usage of Seat Restraints</u>	<u>Education Only (1979)</u>	<u>Mandatory Use Laws (1980)</u>
Age 1 year	41%	70%
2 years	22%	49%
3 years	12%	40%

#### Estimated savings to the family

\$1,100-\$55,000 per injury

A BILL

For an Act entitled: "An Act relating to child passenger protection."

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ALASKA:

\* Section 1. AS28.35 is amended by adding a new section to read:

Sec. 28.35.246. CHILD PASSENGER PROTECTION. (a) Every driver transporting a child under the age of five (5) years in a motor vehicle operated on the roadways, streets or highways in this state shall provide for the protection of the child by properly securing each child in accordance with manufacturer's instructions in a child passenger restraining system meeting applicable federal motor vehicle safety standards as follows:

does language mean this bus to be a statute?

(1) Any child unable to sit unaided in a child restraint system which meets the standards prescribed in 49C.F.R.571.213.

should we state primary height rather than, or in relation to age?

(2) Any child able to sit unaided but less than five (5) years of age, when transported in the front seat, in a child restraint system which meets the standards prescribed in 49C.F.R.571.213.

(3) Any child able to sit unaided but less than five (5) years of age, when transported in the rear seat, in a child restraint system which meets the standards prescribed in 49C.F.R.571.213, unless the child is secured by a safety belt provided in the motor vehicle.

(b) This section does not apply if: 1) the motor vehicle being driven is a mass transit vehicle, school bus, taxicab, moped, motorcycle, or other motor vehicle not required to be equipped with safety belts under 13.A.A.C.04.270 or federal law or regulations; 2) all seat belts occupied by passengers.

or bus?

For an Act entitled: "An Act relating to child passenger protection."

Page 2 (c) The Commissioner of Public Safety may exempt a child or class of children from the requirements of this section if the Commissioner of Public Safety determines that the use of the child restraint system required under (a) of this section is impractical because of physical unfitness or a medical problem. The Commissioner of Public Safety may specify alternate means of protection for children exempted under this subsection.

busses??

"body size was included in draft?"

(d) A person who violates this section is guilty of an infraction. Failure to secure the seat system is not to be considered contributory negligence, nor shall such failure to wear said child passenger restraint system be admissible as evidence in the trial of any civil action.

(e) Violators of this section shall be fined \$25.00. A person found in violation of this section may, instead of paying a fine, submit proof of ownership, or rental for not less than one (1) year, of an approved infant or child restraint system to the Court. This shall be acceptable only for first violations and if the acquisition of the restraint system was subsequent to the violation. Subsequent violation within previous 2 years, two points shall be assessed for violation of this section as prescribed under 13A-CO8.210.

is 2 points reasonable?

AK will  
2 points

**\*\*PLEASE NOTE\*\***

THE ORIGINAL FILE CONTAINS AN OVERSIZED DOCUMENT THAT IS UNSUITABLE FOR FILMING. PLEASE REFER TO THE ALASKA STATE ARCHIVES TO VIEW THE ORIGINAL.

POSTER

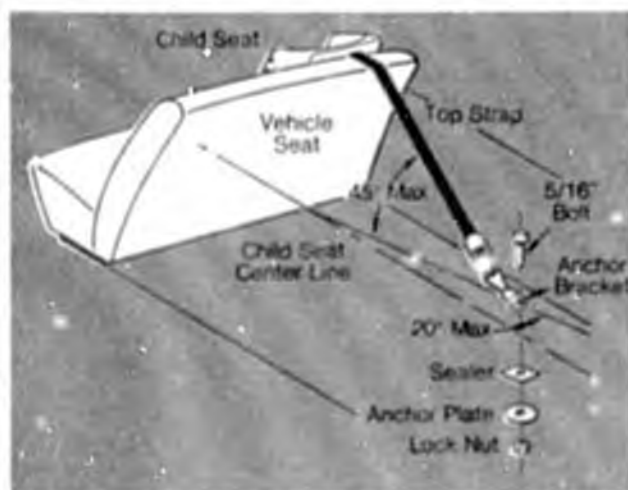
"THE CURE FOR THE GREATEST KILLER  
OF CHILDREN"

**FOR VANS, HATCHBACKS, STATION WAGONS AND UTILITY TRUCKS**

Select a suitable anchor bracket mounting location on the floor of the vehicle. The location must be:

- A. On a flat metal surface which is a welded-in integral part of the vehicle body. DO NOT attach anchor bracket assembly to folding seat back panels or movable load floors, filler panels, spare tire covers, or any screw-on panels.
- B. In a position clear of fuel tank, fuel lines, brake lines, exhaust systems, etc.
- C. In a position where the angle between the Child Seat top strap and the load floor does not exceed 45° (horizontal angle).
- D. As close to the centerline of the Child Seat as possible, but in no case must the angle between the Child Seat centerline and top strap exceed 20° (side to side angle).

NOTE: If conditions A, B, C, or D cannot be met, do not use the Child Seat in that seating position. Move the Child Seat to another seating position which satisfies conditions A, B, C, or D.



Drill a 5/16" diameter hole through the floor at the selected location.

Assemble and securely tighten the bolt, anchor bracket, anchor plate, (2-1/2" O.D. washer) and the lock nut to the floor using a suitable sealer around the hole. If the hole has been drilled through the floor to the outside of the vehicle, make certain that the hole is properly sealed to prevent exhaust fumes from entering the vehicle.

# Child Restraint Systems For Your Automobile



U.S. Department of Transportation  
National Highway Traffic Safety Administration  
Washington, D.C. 20590  
DOT HS 807 14  
January 1980

Why are child restraints needed?

What kind of restraint systems are available?

How do I select the best restraint for my child?

What is the proper way to use child restraints?

Where can they be purchased?

This booklet answers these questions. The rest is up to parents—to select and obtain the proper restraint, and then to USE IT PROPERLY according to directions.

## Why Child Restraints Are Needed

After the critical early weeks of life for the newborn baby, automobile crashes are the leading cause of death for American children. In 1978 alone, 669 children under the age of 5 were killed while riding in cars. Tens of thousands more were seriously injured. The tragedy is that most of those deaths and injuries could have been avoided if parents had taken the time to buckle their children into a proper child restraint system.

To understand why restraints are so important, one must first understand what happens in a crash, or in a sudden panic stop. When a car hits another object and stops suddenly, or when a sudden hard braking action brings it to a fast stop, all occupants in the car continue to move forward at the same speed the car was travelling, until something stops them. Too frequently, that "something" is the steering column, the dash board, the windshield, or some other part of the interior of the car. It is this second collision that causes injuries and death.

In the case of small children, if they are not restrained they literally become flying missiles. It happens so fast, and with such force—even in low speed crashes—that neither the parent nor the child can prevent the child from a violent impact with other passengers or with some hard surface within the car.

The solution to the problem of the second collision is a restraint system. For adults, that means a safety belt, which holds you safely in your seat, away from the car interior. The belt's webbing and the sturdy adult pelvis and rib cage absorb the force of the

collision. But for young children under 5, child restraints are the best solution.

Children need to have the crash forces spread more evenly over their fragile bodies, and that's what child restraints do. They are fastened to the car by the safety belt already in your car, and in a crash they protect children from colliding with the car's interior.

Of course, if no child restraint is available, it is much better to buckle children into regular safety belts than to let them ride free, loose, and unprotected.

Some parents think they can protect infants and young children from being injured by holding them in their laps. They cannot. In a 30 mph crash, for example, a child may be thrown forward with a force equal to 30 times its own weight. If you are wearing a safety belt, the child can be torn from your arms and hurled into the dash or the windshield. If you're not wearing a safety belt, both you and your child will fly forward, with the probability that your child may be crushed between you and the dash. **HOLDING YOUR CHILD IN YOUR LAP IS NOT SAFE.**

Unfortunately, our studies show that most parents do not provide their children with the protection restraints can offer. A recent survey found that only 5 percent of young children were using child restraints.

Whether adults do or do not use safety belts available in cars is a conscious choice. Small children cannot decide for themselves to buckle up. They depend on their parents to protect them from harm, and make that decision for them.

Fortunately, effective child restraint systems that have been crash tested and meet government standards are available. The remainder of this brochure describes the kinds of restraints that are available and how they should be used.

## Some Rules To Remember

1. Children under 5, or weighing less than 40 pounds, should ride in a child restraint.
2. The safest place in the car for a child is in the back seat.
3. If no child restraint is available, children should use the car safety belt. This is much safer than riding unrestrained.
4. Adults should not hold children on their lap while riding in either the front or back seat. They may cause more injuries by crushing their children against the dash with their own body, or the child may be torn from their arms and thrown against the hard interior of the car. If in the back seat, the

child may be torn from their arms and thrown into the front area of the car, possibly against the hard interior or into another passenger.

5. Children should not ride in the luggage compartment of a station wagon or hatchback.
6. Hatchbacks should always be kept closed when children are riding in the back seat. If they are left open, the children could be ejected from the car in an accident. Open hatchbacks or tail gate windows also increase the levels of carbon monoxide inside the car from exhaust fumes.

## Fringe Benefits

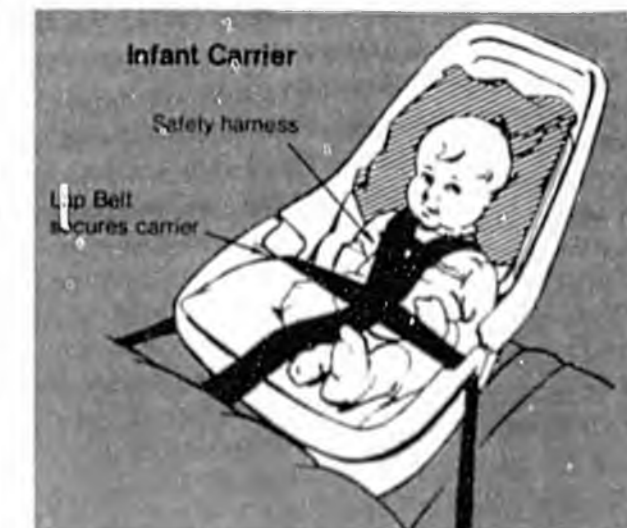
Some days, it seems like there's nothing harder than driving with small kids in the car. Between trying to keep them contented and trying to keep them still, it's almost impossible to keep your mind on the road. That's where child restraints are really helpful. They act just like a good babysitter, keeping your children entertained and under control.

Child restraints can make the ride more fun for children. They're comfortable to ride in, and many of them are designed so they give kids the extra boost they need to see out the windows and feel more a part of what's going on. They are also a very nice place to sleep.

All in all, child restraints are a pretty good deal for everyone. They let you concentrate on driving, while keeping the kids happy and protected.

## Types of Restraints Available And How To Use Them

FOR THE INFANT . . . FROM BIRTH TO ABOUT 9-12 MONTHS OF AGE



Infant carriers or convertible child safety seats are the only types of child restraints recommended for use by babies. In these restraint systems, the baby faces backwards, in a semi-reclining position. In an accident, the baby's sturdy back absorbs the crash forces rather than its delicate chest and abdomen. The carrier is lined with soft padding, has an internal safety harness to keep the baby in the restraint, and is anchored to the car by the vehicle's safety belt.

The time to start using the infant carrier is on the baby's very first ride home from the hospital. Parents should anticipate the need for an infant carrier before the baby is born, and buy one early as an essential part of the layette. For newborn babies, a rolled up receiving blanket placed around the head and shoulders will give their head additional support.

Babies should ride in the infant carrier until they can sit up by themselves without support. This usually occurs between 9 and 12 months, or when they weigh about 20 pounds.

There are basically two kinds of infant carriers. The first is designed for infants only. Babies outgrow this kind of seat and must move up to a child safety seat. The second is a convertible carrier. When babies get too big for the infant position, the convertible carriers can be changed into child safety seats which toddlers can continue to use until they're old enough to

Alaska Department of Health and Social Services  
AK/DHSS/PH 81/31

wear regular safety belts. More about convertible carriers later.

**WARNING:** Do not use flimsy, light weight, plastic feeder seats and car beds that are designed only for household use, and not for transporting an infant in an automobile.

#### FOR THE TODDLER . . . 1-4 YEARS OLD

Three types of restraint systems are recommended. They include the child safety seat, the protective shield, and the safety harness.

##### Child Safety Seat

This restraint system is designed for children who can sit up without support. It faces forward and is anchored by the vehicle's lap belt, which is either fastened around the front of the seat, or threaded through the back of the frame.



It has a safety harness with two shoulder straps, a lap belt, and a crotch strap. This five-point harness spreads the crash forces over the child's shoulders and hips. The crotch strap keeps the hip straps from riding up into the child's delicate abdomen.



Some child safety seats also have a "top tether strap" that ties the top of the restraint to the structure of the car. A top tether strap is usually required on child safety seats which have been raised several inches so that the children riding in them can see out the win-

dows. When included, the top tether provides additional crash protection, particularly in side collisions. (See the section on anchoring the top tether strap for detailed instructions on fastening the tether strap.)

##### Protective Shield

This type of child restraint fits over the front of the child's lap and chest, and is designed to catch and cushion the child in a crash.

It is a C-shaped shell with energy-absorbing padding on the upper part of the shield. The shield is anchored to the car by the lap belt which fastens around the front of the shield. In an accident, the shield spreads the crash forces evenly over the child's head and upper body.



The shield restraint has several advantages over other types of child restraints. It doesn't use a harness, and it doesn't use a top tether strap.

However, the shield generally doesn't provide as much protection in side collisions, and, therefore, should be used in the center seating positions. The shield is also easier to get into and out of, so it may require greater attention to make sure your child stays in the restraint when you're driving.

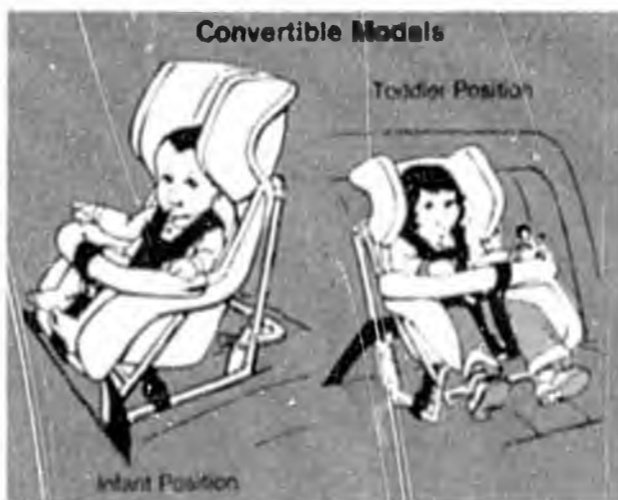
##### Child Harness System

This restraint consists of a 5-point safety harness with a top tether anchorage strap. It is designed for children who can sit up without support. It faces forward, and is anchored to the car by the vehicle's lap belt and a top tether strap. The vehicle lap belt threads through a loop of the harness behind the child. The safety harness does not provide side impact protection, and should, whenever possible, be used in the center of the rear seat.



##### The Convertible Seats

Some infant carriers are simply converted safety seats. Changing them from infant carrier to child seat is a fairly simple operation. You move the safety harness from the lower shoulder strap slots to the upper slots; you adjust the tubular frame from the reclining position to the upright position; you turn the seat around so that the child is facing front, and you re-buckle the car safety belt through the seat frame according to the manufacturer's instructions.



### Some Reminders

- Be sure to read, follow, and keep the manufacturer's instructions.
- Be sure to attach the child restraint properly to the car with the vehicle's lap belt. On some child safety seats, the lap belt goes through the metal frame of the seat; while in others, it goes around the top of the seat and over the child's lap.

- Be sure to attach the top tether strap, if one is included, for full protection. In order to be effective, the tether strap must be attached securely to either the rear seat belt, the rear shelf, or some other metal anchor point. (See the section on anchoring the tether strap).
- Be sure to properly secure your child in the restraint. Buckle all five parts of the harness together and be sure the harness is not too loose.

### Restraint Systems For The Older Child

#### Regular Vehicle Lap Belts

Children over the age of 4 or 5 and weighing about 40 pounds can be restrained by use of the vehicle lap belt, with the child sitting up-right against the back of the seat. The lap belt should be adjusted snugly so that it will not ride up across the child's abdomen. Again, the safest position is in the rear seat, with the center seating position being safer than the side positions.

#### Three-Point Restraint System

Depending on the weight and height of the child, the three-point adult belt system may be used. Such use, however, requires a proper fit of the shoulder portion of the belt. That is, it must be positioned firmly across the chest and shoulder and not cutting across the neck, face, or head.

If the three-point belt system must be used and a proper fit of the shoulder belt is not possible, the shoulder belt should be tucked in behind the child, never under the arm or across the chest.

### How To Select The Best Restraint For Your Child

A federal law, Federal Motor Vehicle Safety Standard No. 213-80, requires child restraint systems to meet certain strength and performance standards. Not included under the standard are those flimsy, light weight, plastic child feeder seats used in the home, which are not intended for car use.

All auto child restraints manufactured after May 1980 must pass tests which show that they can provide adequate protection for children in actual crashes. Look for a label on the restraint which says "dynamically tested."

There are many different places where you can buy child restraints. They include:

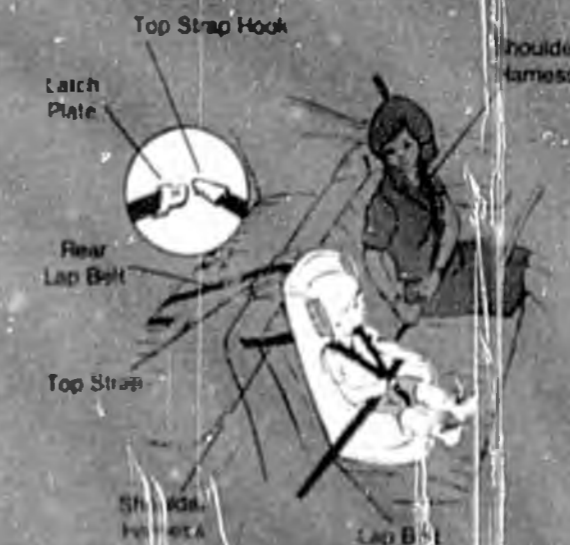
- Retail outlets, including department stores
- Discount centers

- Juvenile furniture and baby needs stores
- Some car dealers
- Some hospital gift shops
- Catalog sales available from large retailers
- Automotive retail and supply dealers

Before you buy a new restraint, try it out in your car. Some restraints don't fit into some cars. There are enough restraints on the market, though, that you should be able to find one that's just right for your car, your child, and your budget.

### Anchoring The Top Tether Strap

While the following instructions may be appropriate for many cars, the automobile manufacturer should be able to tell you the best place to anchor a tether strap in your car. We recommend that you contact the manufacturer for this information. You can get the address from your local automobile dealer.



#### USAGE INSTRUCTIONS FOR FRONT SEAT INSTALLATIONS

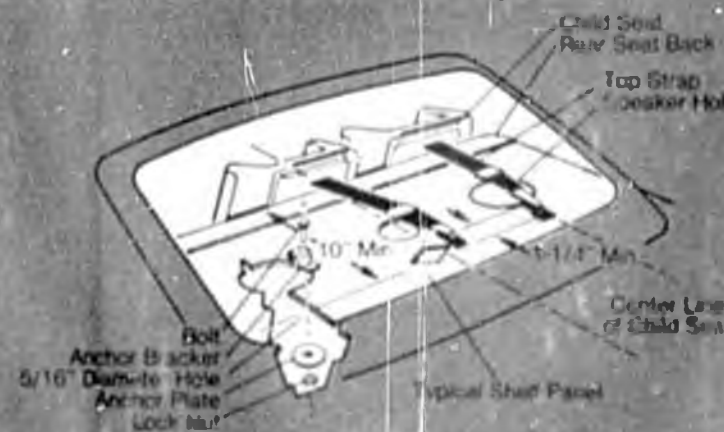
Latch the top strap hook onto the rear seat lap belt latch plate located most directly behind the child seat and **SECURELY TIGHTEN THE TOP STRAP**. If there is no lap belt latch plate within 10" of being directly behind the child seat, do not use the child seat in that position.

Some communities have rental or recycling programs where you can rent an infant or child safety seat for a short period of time, instead of buying one. In other programs, your outgrown child restraint can be recycled and rented for another young child to use. Contact your local highway safety or health department to determine if such a program exists in your area.

#### USAGE INSTRUCTIONS FOR REAR SEAT INSTALLATIONS

Select a suitable anchor bracket mounting location on the filler panel. The location must be:

- 12" solid metal at least 1-1/4" away from any large holes in the metal portion of the filler panel. (speaker holes, defogger holes, etc.)
- Far enough behind the child seat to allow the top strap to be securely tightened. (Approximately ten (10) inches or more behind the child seat back.)
- As close to the centerline of the Child Seat as possible, but in no case more than two inches to the outside or six inches to the inside of the Child Seat centerline. If this condition can not be met, then do not use the Child Seat in that position.



From inside your car's trunk, drill a 5/16" diameter hole up through the metal filler and trim panel at the selected mounting location. Care must be taken not to hit the rear window with the tip of the drill as this could cause the rear window to shatter. Assemble and securely tight on the bolt, anchor bracket, anchor plate (2 1/2" O.D. washer) and the lock nut to the metal filler panel and trim as shown.

# WHICH RESTRAINT IS BEST...

For My Child ?

For My Car ?



No one model of car seat ("child restraint") can be recommended to all parents. Among those listed as dynamically tested, each has its advantages and disadvantages. Selection of a child restraint (CR) that will suit to your needs and car can only be made by reading the directions and trying any model under consideration in your car(s), keeping in mind your answers to the following questions. Choosing carefully will help make daily use easier for you and your child.

1. How large is the child who will be using the CR?  
(weight, height, broadness of shoulders?)
2. What size car do you normally use and what are its features?
  - a. Will the CR fit in the rear passenger compartment? Some convertible models (infant/child) are very long in the infant position.
  - b. Do the vehicle seat belts extend far enough to properly secure the CR? Even some large cars have short belts.
  - c. Are the vehicle seat backs too short to provide good whiplash protection by themselves?
  - d. Is the vehicle seat belt buckle positioned in a convenient place on the CR when it is fastened as snugly as possible?
  - e. If your car has scooped out bucket seats, will the CR base fit onto them securely?
  - f. If your car is old, does it have front seats with backs which do not lock in position? If so, a CR should only be used in the rear seat.
  - g. Does your car have safety belts, front and rear? All CRs need to be fastened with an auto belt. Lap belts can be installed quite easily.
  - h. Does your car have belts which cannot be tightened around the CR to hold it in place (emergency-locking inertial reels)? A "locking clip" can be obtained from auto dealers to enable you to keep a lap/shoulder belt of this type snug around the CR. At present, there is no adequate way to keep a lap belt of this type tight around the CR.
3. Can you, and are you willing to drill a hole for an anchor plate to which a top anchor strap can be clipped? CRs with such anchor straps need an available rear safety belt or an anchor plate bolted behind the rear seat.
  - a. Can an anchor plate be properly located in your vehicle? It can be difficult or even impossible in vehicles other than sedans.
  - b. If you have bucket seats with integral head rests, it may be difficult to keep an anchor strap from clipping off if CR is used in that seat.
4. How often will you want to move the CR from one vehicle to another? Some are more complicated to move than others. CRs with anchor straps need a means of attachment in every car in which they are used.

5. How many people ordinarily ride in your car? Which locations are available for your child's CR? Some CRs offer more side protection than others, some require more room, some are more comfortable to sit next to than others. Anchor straps from CR used in front are attached to a rear lap belt, making it useless for another passenger.
6. How motivated are you and those others who will be transporting your child to fasten and unfasten the various buckles necessary for proper use of the CR? Does the CR require buckling and adjusting the auto seat belt every time you use it? Some CRs are easier to use correctly than others.
7. Can you maintain consistent discipline needed to keep your child in the CR? Some children are more active than others, and some CRs are easier to get out of than others.
8. How important is out-of-car vision for your child? Some CRs seat the child low, others high (usually the models with anchor straps). Some vehicles have very low rear passenger seats with small windows, others are high with large windows. How willing are you to provide attention and entertainment for your child in the car?
9. Does your child often fall asleep in the car, or do you take many long trips during which sleeping is important? Some CRs give side or front head support while others don't.
10. How much are you willing and able to spend? Would you prefer to buy an infant CR and purchase a child-sized one later or buy a combination CR which may be awkward to convert? Have you time to look for a second-hand CR? Is an infant CR available for rental or on loan from a friend? Would you resell your CR when done with it, and thereby recoup some of its cost, or use it for your next child?
11. How portable must your seat be? Is it important to you that it can be converted to a stroller, high-chair, reclining seat or out-of-car carrier (with or without extra-cost kits) when not in use in the car, or would you prefer to leave it always in the car, ready to go?
12. How readily available is the CR which seems to best fit your needs? Do you have time to order it from the manufacturer if it isn't available in the local stores?

These questions prepared by Action for Child Transportation Safety in collaboration with Michigan Office of Highway Safety Planning.

ACTION FOR CHILD TRANSPORTATION SAFETY

1000 ... of ... , Bethell, WA 98011

CHILD RESTRAINTS AVAILABLE IN THE ANCHORAGE AREA

SEARS STORE - ANCHORAGE 279-4422

Strolee Wee Care	Use from 8lbs. to 40 lbs.	Tether strap required	\$69.99
Bobby Mac	Use from 7 lbs. to 40 lbs.	No tether required	\$61.99
High Rider	Use from birth to toddler	Tether strap required	\$77.99
Century 300	Use from 7 lbs. to 40 lbs.	No tether required	\$69.99
Safe-T-Rider (toddler)	From 20-65 lbs. (1-10 yrs.)	Use with lap and shoulder belt while in the front seat only. Tether required for use in the rear seat.	\$47.99

SEARS CATALOG 279-3451

Strolee Wee Care	Use from 8 lbs. to 40 lbs.	Tether strap required	\$59.99
One Step	Use from 8 lbs. to 43 lbs.	No tether required	\$49.99
Bobby Mac Champion	Use from 7lbs. to 40 lbs.	No tether required	\$49.99
Safe-T-Rider (toddler)	Use from 20-65 lbs. (1-10 yrs.)	see above	\$42.99
Century 300	Use from 7 lbs. to 40 lbs.	No tether required	\$59.99

PAY & SAVE - ANCHORAGE

Safe-T-Rider (toddler)	Use from 20-65 lbs.	see above	\$69.95
------------------------	---------------------	-----------	---------

(Each Pay-N-Save offers one or more types of seats. The charge would be nearly the same at all stores - \$69.95 - consult the Directory for phone numbers.)

FRED MEYER STORE - ANCHORAGE 277-2611

Cocso-Peterson - Safe-T-Shield	Use from birth to 40 lbs.	No tether required	\$94.99
Safe-N-Snug			
Strolee Wee Care	Use from 8 lbs. to 40 lbs.	Tether strap required	\$64.99

MONTGOMERY WARD STORE - ANCHORAGE 279-4444

Strolee Wee Care	Use from 8 lbs. to 40 lbs.	Tether strap required	\$59.99
------------------	----------------------------	-----------------------	---------

MONTGOMERY WARD CATALOG 279-4466

Bobby Mac Champion	Use from 7lbs. to 40 lbs.	No tether required	\$49.00
Strolee Wee Care	Use from 8 lbs. to 40 lbs.	Tether strap required	\$52.00
Safe-T-Rider	Use from 20-65 lbs. (1 to 10 yrs)	see above	\$40.00

J.C. PENNY STORE - ANCHORAGE 279-5656

Bobby Mac Deluxe	Use from birth to 40 lbs.	To tether required	\$59.99
Strolee Wee Care	Use from 8 lbs. to 40 lbs.	Tether strap required	\$62.99

J.C. PENNY CATALOG 277-5661

Hi-Rider	Use from birth to 40 lbs.	No tether required	\$52.99
One Step	Use from 8 lbs. to 43 lbs.	No tether required	\$51.99
Bobby Mac Champion	Use from 7 lbs. to 40 lbs.	To tether required	\$47.99
Bobby Mac w/shield	Use from birth to 20 lbs.		\$56.00
Bobby Mac Conversion Kit (to convert seat to highchair & stroller)			
Stroller Kit			\$39.99
High Chair Kit			\$31.99

Strolee Wee Care Use from 8 lbs. to 40 lbs. No tether required \$59.99  
 Bobby Mac Deluxe Use from birth to 40 lbs. To tether required \$59.99

(This list was compiled as of June 17, 1982. Prices subject to change)

## COMMON MISTAKES PARENTS MAKE WITH CHILD RESTRAINTS

1. Bundling infant in blankets before placing in child restraint (CR). This makes correct positioning of shoulder harness impossible.
2. Incorrectly placing infant in CR facing frontwards. Baby must ride backwards until he or she can sit up well and weighs 17-20 lbs., when a toddler CR (forward facing) can be used. If the driver must supervise the baby, place the CR in the front seat, facing rearward.
3. Reclining an infant CR with adjustable tilt feature too far down. This could permit the child to be forced out head first by frontal impact. Check manufacturer's instructions for safe degree of tilt.
4. Failing to secure the CR with auto belt. If lap belt does not fit around CR or through its frame, try another seating position in car. A seat belt extender can lengthen the belt. If these do not work, use a different model which should be fitted in the car before purchase.
5. Neglecting to use the harness. This could allow child to be thrown out of CR. (Several shield-type CRs do not use harnesses, but one—"Bobby-Mac"—uses both together.)
6. Failing to use harness on CR with a U-shaped padded armrest. The armrest is a cosmetic feature and will not protect the child in any way. It is a very hazardous object for an un-harnessed child to be thrown against.
7. Leaving harness or anchor straps loosely fastened. This allows the child to experience a very severe jolt during a collision, because webbing is not stretched to absorb impact.
8. Neglecting to fasten top anchor strap. This allows the CR to pivot forward in a frontal crash. It may not be fastened because of parental apathy, unawareness of the anchor's function, unwillingness to bolt anchor plate into car, or uncertainty of how to affix the anchor.
9. Letting children ride loose if they complain or climb out of CR. This commonly happens when children are between 9 and 24 months, when they are becoming mobile and resist being confined. They can and must be taught that the CR is their place in the car. For most children, the parent can accomplish this in a few days or weeks by stopping the car whenever their behavior is intolerable and letting them know that the parent won't start again until they settle down. Firmness and demonstration that everyone else in the car is also restrained will help. Letting the child ride loose a few times will only make buckling up harder next time. Parent must be reassured that child can and will learn, and that the resistance is a passing phase. Making frequent stops during long trips will help, along with entertainment (singing with parent, favorite music on tape cassette, soft small toys).
10. Reclining a forward-facing CR. Child CRs are safer used in upright position, if adjustable. Reclining position is a selling point for manufacturers. Children learn to sleep in upright CR very easily.
11. Failing to double straps back through buckles. Strap buckles of harness and anchor strap are often incompletely threaded, so they could pull out unnoticed.

ACTIVE CHILD RESTRAINT LOANER PROGRAMS

Anchorage

Michelle Flynn  
Cook Inlet Native Assn.  
670 West Fireweed Lane  
Anchorage, AK 99503  
278-4641

Juneau

Wendy White  
Juneau Health Center  
227 Ferry Way  
Juneau, AK 99801  
586-3736

Sitka

Sheryl Johnson, RN  
Sitka Community Hospital  
P.O. Box 500  
Sitka, AK 99835  
747-3241

ACTIVE CHILD PASSENGER PROTECTION GROUPS

Anchorage

Peggy Wilson, President  
Alaska Child Passenger Safety Assn.  
P.O. Box 1245  
Anchorage, AK 99510  
278-3631

Fairbanks

JoAnn Bernier  
Northern Alaska Health Resources  
529 Fifth Avenue  
Fairbanks, AK 99701  
456-2553

GOVERNMENT AGENCIES

Ellen Moore, Program Coordinator  
Alaska Highway Safety Planning Agency  
Pouch N  
Juneau, AK 99811  
465-4375

Mike Brownlee  
Office of Occupant Protection  
National Highway Traffic Safety Administration  
400 Seventh Street, S.W.  
Washington, D.C. 20590  
(202) 426-9626

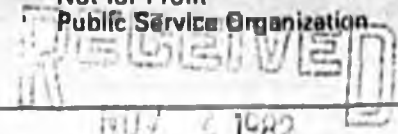
Mike Baldwin, Area Director for Alaska  
National Highway Traffic Safety Administration  
Highway Safety Programs Office  
Federal Building, Room 3140  
915 Second Avenue  
Seattle, WA 98174  
(206) 442-5935



# National Safety Council

Office of Federal Affairs  
1705 DeSales Street, N.W.  
Washington, D.C. 20036  
(202) 293-2270

A Nongovernmental  
Not-for-Profit  
Public Service Organization



Contact: Chuck Hurley, Executive Director, or Nancy Berk, Policy Analyst

## POLICY UPDATE

### HIGHWAY SAFETY

OCTOBER 1982

### CHILD RESTRAINT LAWS AND PENDING LEGISLATION

STATE	DESCRIPTION
ALABAMA S24	All children less than 3yrs old must be in c.r. when riding in m.v. registered in state. Fine not to exceed \$10. Effective 7/1/82.
CALIF. SB537	All children less than 4yrs old or weighing less than 40lbs must be in C.R. when riding in m.v. weighing less than 600lbs, registered in state and operated by parent/l.g. If parent/l.g. is not driving, safety belt may be substituted. Driver subject to fine if parent not in car, otherwise parent whether driving or not driving is subject to fine. Ticket waived upon acquisition on seat if first offense. \$50 fine for 2nd offense, additional \$50 for subsequent offenses up to maximum of \$200. Signed by Governor 9/8/82. Effective 1/1/83.
CONN. S42	All children less than 4yrs old must be in c.r. when riding in passenger m.v. in the state. Safety belt may be substituted for children between 1-4yrs if riding in back seat only. Exemption for R.V.'s, trucks weighing over 1 ton. Fine \$15-100, waived upon acquisition and installation of seat. Effective 10/1/82.
DELAWARE HB154	All children less than 4yrs old must be in c.r. when riding in m.v. owned/operated by resident parent/l.g. \$25 fine waived upon acquisition of c.r. Effective 6/2/82. Fine effective 8/2/82. State-wide loaner program in place.
FLORIDA HB289	All children less than 6yrs old must be in c.r. when riding in passenger m.v. or pick-up truck registered in Florida and owned/operated by parent/l.g. Safety belt may be substituted for children from 4 to 6yrs. \$15 fine, waived upon proof of purchase. Effective 7/1/83.
ILLINOIS HB608	<p>All children less than 5yrs old must be in c.r. when riding in m.v. or r.v. owned and operated by resident parent/l.g. First offense in \$25, subsequent offenses \$50. (c.r. means any device approved by U.S. DOT designed to restrain, seat or position child. If child is over 40lbs this would mean safety belts are an acceptable restraint)</p> <p>Passed House, Senate in June 1982. Sent to Governor who amendatory vetoed the bill. The legislature will meet in late November to either override the veto or concur with the Governor's changes. The Governor's version is as follows:</p> <p>Beginning July 1, 1983 all children less than 2yrs old must be in c.r. when riding in passenger m.v. owned/operated by resident parent/l.g. Exception for attending to personal needs of the child. If the child is between the ages of 4-6yrs, they must be in child restraint or safety belt. Beginning July 1, 1984 children between the ages of 2-4yrs must ride protected in a c.r. as well. First offense will be warning violation only, subsequent offenses will be maximum \$25 fine.</p>
KANSAS HB2208	All children less than 2yrs must be in c.r. when riding in front seat of passenger m.v. owned/operated by parent/l.g. Oral warning only. Sec. of Transportation to develop program of public information. Effective 1/1/82.

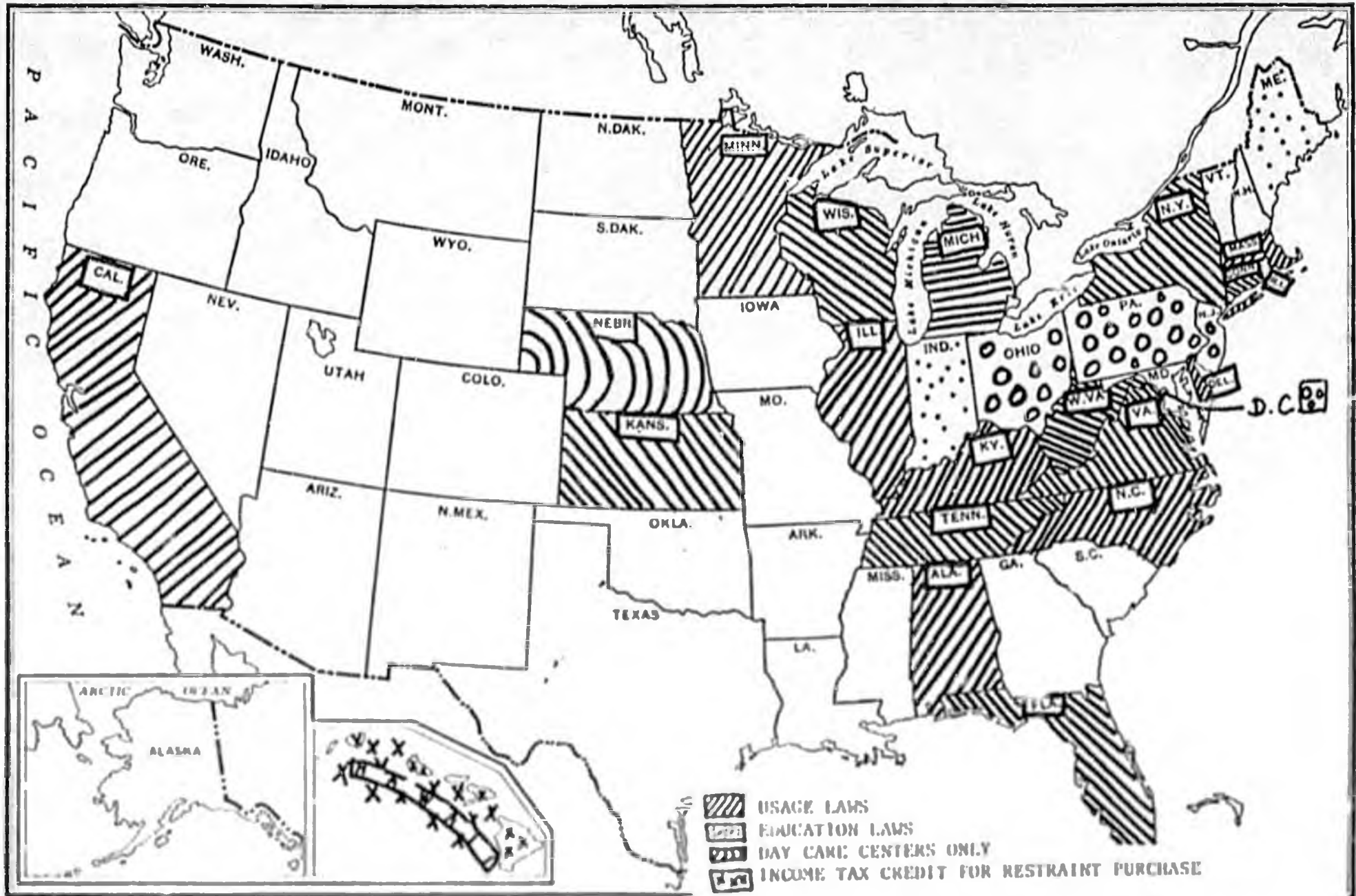
STATE	DESCRIPTION
KENTUCKY SB2	All children less than 40 inches tall must be in c.r. when riding in m.v. owned/operated by parent/l.g. No fine. Effective 7/15/82.
MASS. HB7162	All children less than 5yrs old must be in c.r. or safety belts when riding in m.v. Exemption for taxis, vehicles not equipped with safety belts, if all other seating positions equipped with safety belts are occupied, or if child is physically unable to use restraints. Fine not to exceed \$25, waived upon proof of acquisition. Effective 1/1/82.
MICHIGAN SB115	All children less than 4yrs old must be in c.r. when riding in m.v. operated by resident driver. From 1-4yrs, safety belt may be substituted if riding in back seat. Exemption for nursing mothers. Fine not to exceed \$15, waived upon proof of acquisition. Effective 4/1/82.
MINNESOTA SF263	All children less than 4yrs old must be in c.r. when riding in m.v. owned/operated by parents/l.g. No fine, hazard warning only. Effective 1/1/82.
NEBRASKA LB69	Any person furnishing child care must use c.r. when transporting all children less than 1yr old. Seat belt can be substituted for children over 1yr old. No upper age limit. Driver subject to fine and Child Care Center subject to license (to furnish child care) suspension/revocation. Effective 7/17/82.
NEW YORK S3639 Amend. S8679	Originally all children less than 5yrs old must be c.r. when riding in passenger m.v. registered in state. Amended this past session to children less than 4yrs old in c.r. and 4-5yrs olds in c.r. or safety belts. Also amended to remove emergency vehicles from compliance. Fine of not more than \$25, waived upon proof of purchase or rental of seat. Effective 4/1/82.
NORTH CAROLINA HB893	All children less than 2yrs old must be in c.r. when riding in m.v. registered in state and owned/operated by parent/l.g. Between 1-2yrs, safety belt may be substituted. Exemption if child is occupying seat where safety belts not required, and while attending to personal needs of child. Warning ticket from 7/1/82 to 6/30/84, thereafter \$10 fine. UNC-HSRC will conduct effectiveness study. Effective 7/1/82 to 6/30/85.
RHODE ISLAND H5730	All children less than 3yrs must be in c.r. when riding in front seat of m.v. \$15 fine. Effective 7/1/80. Amended to include back seat. Fine waived upon proof of purchase. Effective 4/81.
TENNESSEE HB300	All children less than 4yrs old must be in c.r. or held in arms of older passenger when riding in m.v. owned/operated by parent/l.g. Exemption for trucks, r.v.'s. \$2-10 fine. Effective 1/1/78. Amended to exclude being held in the arms except when mother is attending to needs of child. Effective 4/1/81.
VIRGINIA HB413	All children less than 4yrs old must be in c.r. when riding in m.v. registered in state and owned/operated by parent/l.g. Between ages of 3-4, safety belt may be substituted. \$25 fine waived upon proof of acquisition or for financial inability. Fine money earmarked for state loaner program. Effective 1/1/83.
WEST VIRGINIA HB517	All children less than 5yrs old must be c.r. when riding in m.v. registered in state. Safety belt can be substituted for 3-4yr olds. \$10-20 fine waived upon proof of purchase. Effective 7/10/81.
WISCONSIN AB600	All children less than 2yrs old must be in c.r. when riding in m.v. owned/operated by parent/l.g. From 2yrs-4yrs, safety belt may be substituted. Fine if child is under 2yrs is \$30-75. Fine if child is between 2-4yrs, \$10-25; if 2nd offense within 3yrs, \$25-200. Effective 12/1/82. No fine until 5/1/82.






STATE	DESCRIPTION
CALIF. A1198	Sec. of Business/Transportation to conduct education program on restraint use by children less than 15yrs.old. Hazard warnings given to people operating m.v. with unrestrained children. Fresno County chosen for pilot survey. Effect. 9/80-1/83.
INDIANA SB88	Dept. of Highways shall develop and implement information program on use of c.r. Effective 9/1/82 to 9/1/84.
MAINE H1560	Commissioner of Public Safety shall develop/implement program to increase restraint use for children. Hazard warning given if vehicle stopped for another reason and unrestrained children are observed. Study of usage rates to be undertaken. Effect. 7/1/81 to 6/8/83.
HAWAII HB2742	\$25. income tax credit for purchase of c.r. Signed by Gov. 7/27/82. Retroactive impact 1/1/82.

PENDING LEGISLATION

STATE	DESCRIPTION	STATUS
NEW JERSEY A851	All children less than 5yrs must be in c.r. when riding in m.v. in N.J. From 18mths to 5yrs, safety belt may be substituted in rear seat only. Exemption if number of children exceeds number of available belts, all unrestrained children must be in rear seat. \$10-15 fine, waived upon proof of acquisition.	Intro. by Assembly-women Garvin. Passed Assembly 47-15 on 6/15/82. In Senate Committee.
SB1322	All children less than 4yrs must be in c.r. when riding in m.v. in N.J. From 12mths-4yrs, safety belt may be substituted in rear seat only. \$25-50 fine waived upon proof of acquisition.	Intro by Sen. Bassano. Will not move due to internal politics.
OHIO HB605	All children less than 4yrs or weighing less than 40lbs must be in c.r. when traveling in m.v. owned/operated by parent/l.g. or day care center. If riding in m.v. other than those listed above but driven by resident of state, less than 1yr olds must be in c.r. From 1-4yrs, safety belts may be substituted. Exemptions for taxis and life-threatening situations. \$10 fine waived upon acquisition of seat.	Intro. by Rep Fisher Passed House 3/82. Passed Senate Comm. 8-1 but unable to get floor vote until Nov
PENN. SB592	All children less than 4yrs old or 40lbs must be in c.r. when riding in m.v. equipped with safety belts and registered in state. \$25 fine, waived upon proof of acquisition.	Intro. By Sen Cekan. Passed Senate 38-10 10/81. Passed House Comm., amended on floor and sent to 2nd Comm. Poor chance.
WASH. D.C. 4-434	All children less than 6yrs old must be c.r. when riding in m.v. registered in D.C. From 3-6yrs, safety belt may be substituted. Exemption if # of children in one family exceed # of seating positions, all available belts must be used. \$25 fine waivable for 1st offense only upon proof of acquisition if seat by either parent or driver.	Intro. by Councilman Ray. 3/82. Hearing 7/15/82. Committee mark-up expected 10/6. Full vote near end of October.
MICHIGAN HB5567	Safety belt legislation-All drivers and front seat passengers must wear safety belt. Civil violation. \$25 fine.	Intro. by Rep. Hollister 3/82. Vote not likely until 11/82.

# CHILD RESTRAINT LAWS AND PENDING LEGISLATION



-  USAGE LAWS
-  EDUCATION LAWS
-  DAY CARE CENTERS ONLY
-  INCOME TAX CREDIT FOR RESTRAINT PURCHASE
-  PENDING LEGISLATION

## ACTIVE CHILD RESTRAINT LOANER PROGRAMS

### Anchorage

Michelle Flynn  
Cook Inlet Native Assn.  
670 West Fireweed Lane  
Anchorage, AK 99503  
278-4641

### Juneau

Wendy White  
Juneau Health Center  
227 Ferry Way  
Juneau, AK 99801  
586-3736

### Sitka

Sheryl Johnson, RN  
Sitka Community Hospital  
P.O. Box 500  
Sitka, AK 99835  
747-3241

## ACTIVE CHILD PASSENGER PROTECTION GROUPS

### Anchorage

Peggy Wilson, President  
Alaska Child Passenger Safety Assn.  
P.O. Box 1245  
Anchorage, AK 99510  
278-3631

### Fairbanks

JoAnn Bernier  
Northern Alaska Health Resources  
529 Fifth Avenue  
Fairbanks, AK 99701  
456-2553

## GOVERNMENT AGENCIES

Ellen Moore, Program Coordinator  
Alaska Highway Safety Planning Agency  
Pouch H  
Juneau, AK 99811  
465-4375

Mike Brownlee  
Office of Occupant Protection  
National Highway Traffic Safety Administration  
400 Seventh Street, S.W.  
Washington, D.C. 20590  
(202) 426-9626

Mike Baldwin, Area Director for Alaska  
National Highway Traffic Safety Administration  
Highway Safety Programs Office  
Federal Building, Room 3140  
915 Second Avenue  
Seattle, WA 98174  
(206) 442-5935