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Automotive Child Abuse: Keeping Children Alive Is a Matter of Restraint

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Automotive Child Abuse

Keeping Children Alive Is a Matter of Restraint.

by Ronald S. Zarowitz

More infants die because they were a passenger in an automobile that crashed than from any other cause, including leukemia, cystic fibrosis, cancer, or terminal congenital defects. They have died at a rate of approximately 1000 per year during the past ten years. The National Highway Traffic Safety Administration (NHTSA) found that deaths in the 0-4 age group from 1967 to 1976 remained constant, despite a decline in live births, an overall improvement in highway safety" (as measured by total deaths per 100 million passenger miles) and a reduction in the growth of travel. Based on the population decline alone, NHTSA believes fatalities should have decreased. They did not. Based on the NHTSA population projection, an anticipated increase on the 0-4 age group by 1990 will result in 1200 deaths per year.

Given that children will travel in automobiles, and that automobiles will crash, the greatest single factor in causing death is the absence of safety restraints. From the first ride home from the hospital, infants and children are routinely placed in an automobile. These children, however, have little or no input into life or death decisions regarding their safety. Most are not old enough to be aware of the risks, much less evaluate them. They do not have the economic or social power within the family structure to demand the high levels of safety currently available. Because many parents do not act in the interest of their children, three children will die today, and three more will die tomorrow. If consciousness of child safety does not increase in light of the projected population increase, the fatalities will increase.

Technical Aspects: The specific hazard to children is a combination of an event and a physical environment. It is inevitable that cars carrying children will collide. For the child, however, the danger is the "second collision". This occurs when the child is propelled by momentum into some other physical object. Depending on the original location of the child in the automobile, some of these objects may be the windshield, the dashboard, the back of the head of the front seat occupant, or bodies of other occupants. The child may also be thrown completely out of the automobile, impacting objects of the external environment.

The second collision occurs almost instantaneously. If an automobile hits a barrier at 30 mph, it will completely stop within 1/10 of a second. However, objects within the automobile that are not "part" of the vehicle continue to travel at 30 mph. One-fiftieth of a second after the automobile does stop, the occupant impacts the automobile interior (windshield, dashboard). One one-hundredth of a second after that impact (the "second collision"), the occupant rebounds off the automobile interior and finally stops.

If the occupant had become "part" of the vehicle by wearing a restraint, the forward motion would have been dissipated. The occupant would stop with the automobile instead of fractions of a second after. This would effectively prevent the traumatic impact of the human on the glass and steel surroundings.

The need to make our children "part" of the automobile is especially crucial in the under 5 age group, as it is this group that is most able to benefit from safety restraints. Each year from 1962-1979 from 800 to 1,120 children in the age group 0-4 were killed in automobile accidents.

In the Washington State Seat Belt Study, Dr. Robert Scherz reported that from 1970-1976, *only one of every 2,526 restrained* children in the 0-5 age group involved in crashess died, while *one of every 216 unrestrained* children in crashes died. Children in the 6-15 age group benefit to a slightly lesser degree from the use of restraints, although their safety was still significantly improved by such use. One restrained 6-15 year-old died for every 1572 involved in crashes, while one unrestrained 6-15 year-old died for every 252 children involved in crashes.

It is interesting to note that restrained 0-5 year-olds fared best, while 0-5 unrestrained fared worst — worse, in fact, than their 6-15 year-old counterparts. The unrestrained infant is more likely to be hurled about the car's interior because of his/her size and weight and because 0-5 year-old children are often found "out of position" on the veritable launching platform of some one's lap or standing on a seat.

There are no remedies to this problem that will not require widespread changes in our behaviors and attitudes. The automobile was designed as an instrument of transportation to carry adult occupants. Current belt restraints, which have evolved over the past twenty years in passenger cars, provide excellent protection for adults. However, the belt restraint is not compatible with the body of a small child under the age of 4 or 5. The shoulder harness is extremely dangerous for a child under 4'11, as it can cause strangulation during the sudden forward movement of an accident. The pelvis of a 4 year-old has not ossified sufficiently to securely anchor a lap belt under accident-strength forces. While use of the lap belt is recommended over nothing, it is not an adequate child restraint by itself, for children under 5. Lap belts alone are found in the rear seat of most domestic and some imported automobiles, and in middle position seating of all automobiles capable of carrying three passengers across.

Children have also been ignored in the formulation of other safety standards. The top and high front portions of dashboards are padded in accordance with the requirements of Federal Motor Vehicle Safety Standard 201. The lower portions of the dashboard, not addressed by the standard, are unpadded. The lower portion of the dashboard is one area into which a child is often thrown during a crash. When this occurs, the child encounters metal or hard plastic. Even if the interiors were redesigned to eliminate as many hard or sharp surfaces as possible, the sheer ratio of passenger compartment volume to child size would allow for a great tossing about of the child during an accident. In any given accident where an unrestrained adult in the rear seat might be thrown forward into the back of the front seat cushion, a

similarly situated child easily could be catapulted over the seat, crashing into the skull of the front seat passenger or out through the windshield. The use of child restraints takes *advantage* of a child's small size as a restrained small object could survive a much greater collapse of its physical environment before contact would be made. The amount of passenger compartment crush that would injure an adult is often insufficient to harm a restrained child.

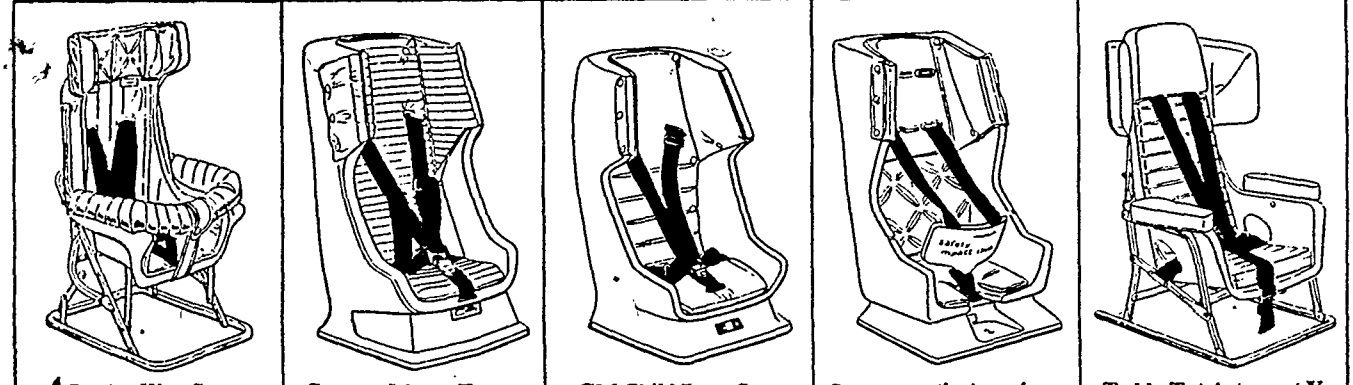
One type of restraint promoted by NHTSA as a restraint of choice for adults, given the resistance to seat belts, is the passive air bag. This type of restraint is not as appropriate for children. The air bag assumes an "in-position" occupant, properly seated and facing forward. If the air bag is the only restraint relied upon, it is no more likely that children will be properly seated than they are now. Children close to the dasboard and out of position during air bag inflation may be subjected to great injury or death because of the explosive manner in which the bags inflate. Air bags provide no protection in rollover or side impact accidents, as these accidents do not trigger their inflation. The loud bang of inflation is thought to cause hearing losses. Further, the air bag employs sodium azide gas for inflation, a suspected carcinogen. In contrast, a properly used child restraint has no such technical drawbacks. The largest problem of the child restraint is that it requires affirmative action on the part of the parent.

The efficacy of child restraints has not been challenged. In fact, the major child restraint issues now concerning NHTSA, child restraint manufacturers, and various public interest groups are the new testing and labelling requirements set forth in Federal Motor Vehicle Safety Standard 213. The label requirements are intended to make the instructions visible while the restraint is installed on the automobile. The new testing procedure would require dynamic testing (simulated accidents) instead of previously allowed static testing (exerting specified forces on restraint components) for each manufacturer's restraint. However, NHTSA has already indicated that more than 80% of currently available restraints satisfy the new dynamic testing requirement. The very fact that the issues have advanced to this degree, supports the basic value of child restraints, *per se*. As suggested by various child restraint manufacturers, the main focus of energies needs to be directed at increased usage of already availble high quality equipment.

If we can accept the child restraint as the technical solution of choice, there will be social and economic costs involved in the use of such equipment. A child restraint is not a small device. In the increasingly popular and necessary compact and subcompact automobiles no more than two or three restrained children could sit across one seat, as compared with four or more small children sitting freely. Several children would be precluded from traveling with both parents in such a vehicle. With many vehicles currently on the road, child safety and energy conservation could be opposing forces. Car-pooling or group outings would require larger automobiles than might otherwise be used. Larger vehicles require more energy to produce, use more raw materials, and require more energy to use (more gasoline and more engine oil). These concerns are based on vehicle *interior* size problems. However, fuel-efficient vehicles capable of accomodating several restrained children in addition to normal adult and cargo capacities are entering the market. A current GM X-body (Citation, Phoenix, Omega, Skylark) or Chrysler K-body (Aires or Reliant) can carry five of six restrained adults or children in addition to a large amount of cargo. Their four cylinder engines can achieve 22 or more city m.p.g. The recently introduced GM J-body series (Chevy Cavalier, Pontiac J-2000, Cadillac Cimmarron, and as yet unreleased Oldsmobile and Buick versions) can carry the common 2 child family, with children restrained, adults seated comfortably, and much cargo. These cars are expected to achieve 28 or more city m.p.g.

Regulatory Experience: Realizing the increased safety of restraint systems, the governments of Ontario, Australia, Japan and Tennessee passed legislation requiring their use. In Ontario, Canada, mandatory seat belt laws were enacted in 1975 for all automobile occupants older than two. The law does not require child restraints but the use of standard seat belts. However, in the same Act, the legislature provided that the Lieutenant Governor in Council may require the use of child restraint systems and prescribe standards for such restraints. Although child restraints have not yet been required, standards have been set, and the government encourages the use of

THE FIVE TOP-RATED SAFETY RESTRAINTS



✓ **Strolee Wee Care Car Seat 597S**

Century Motor-Toter

GM Child Love Seat

Swyngomatic American Safety Seat 300

Teddy Tot Astroseat V

Reproduced from Consumer Reports

restraints through educational pamphlets.

To insure compliance with the seat belt law for all age groups, the Ontario Provincial Police rely primarily on visual inspection. As the officers approach other cars, they look for the shoulder strap for front seat occupants or excessive mobility of passengers within the automobile that might indicate the passenger is not restrained. As they drive past a car, they quickly look in the window and scan the occupants. The officers feel that their training and experience allow them to quickly and accurately verify the use of restraints.

If an occupant is not properly restrained, a fine ranging from $20 to $100 may be imposed. A minor child is the responsibility of the driver. A study by Robertson and Williams on the international use of seat belts revealed that prior to the 1975 seat belt law, approximately 18% of automobile occupants in Ontario used belts. After the enactment, the 1978 study reported that use increased to approximately 40%. In a recent interview, several Ontario Provincial Police felt those figures were now underestimates and quoted current compliance as between 70% and 80%, although they agreed that it has taken five years to attain this rate of use. Interestingly, they noted that the least cooperative group was the 50+ year-old segment.

Australia required child restraints for children in front seats in 1972. A study of five Australian cities reveals that, by 1978, 73% of occupants under 20 and 79% of occupants over 20 were using seat belts or restraints. However, the law also resulted in a significant increase of children sitting freely in the rear seat.

Japan provides a marked contrast to other areas in the results of its seat belt legislation. Researchers found that, at all locations studied, less than 2% of drivers or passengers used legally required seat belts. Japan is the only country with mandatory seat belt laws that has neither a penalty for non-use, nor an enforcement system.

The first location in the Unired States to enact a child restraint law was Tennessee. On January 1, 1978, children less than 4 years old were required to be restrained, with one fatal exception. Clearly misunderstanding the purpose of the law, one legislator inserted a last minute amendment which alternatively allowed children to be carried on the lap of the front seat occupant. This position is the most deadly of all. In an accident, the adult's arms will fly up from both the physical force of the impact and an instinctual reaction to protect his or her face. The child will be hurled into either the windshield or the dashboard. The child is propelled forward with hunderds of pounds of force, beyond the capability of human arms to restrain. If the adult is unrestrained, he or she will also be hurled forward, crushing the child with the "battering ram" of their body. This is a common form of death for infants involved in crashes. In Pediatric Annals, Dr. Seymour Charles reports that in 1975, 224 infants were killed because they were crushed by their parent's body.

Researchers studying the effects of the Tennessee law were disappointed by the meager increase in the number of children properly restrained. They advocated the development of a passive child restraint. They noted in a post-law study that the increased number of children sighted riding on parent's laps negatively overshadowed the overall benefit of the small increase in child restraint use.

A Regulatory Model: NHTSA has been empowered by the Congress to set standards for safety equipment in automobiles. The agency does not, however, have the legal authority to require that the public use such equipment.

This author's regulatory model proposal is for Congress to empower NHTSA to require that all children under 16 wear restraints in automobiles, as the FAA was empowered to require seat belts for airline passengers. For infants and small children, safety seats or carriers would be necessary. Children over 5 years old would be allowed to use safety belts. To insure that the law is followed, a program of enforcement would be designed. It is proposed that Ontario's successful visual enforcement system be adopted.

This proposal has been perceived by some as governmental interference with the rights of parents, or, more generally, freedom of choice. The problem is separating the parents' freedom of choice from the child's right to live. A basic conceptual problem is the perceived innocuousness of automobile travel. Although tens of thousands of persons are killed annually, it is not generally consciously believed that travelling in an automobile places one in a great jeopardy. This *blasé* attitude deters

WASHINGTON STATE SEAT BELT STUDY

Ages 0-5 restrained

Year	Total Number In Accidents	Fatalities
1970	513	0
1971	517	0
1972	556	0
1971	663	0
1974	631	0
1975	694	0
1976	743	0
1977	735	2
	5052	2

Fatal injury ratio 1:2526

Ages 0-5 unrestrained

Year	Total Number In Accidents	Fatalities
1970	3409	16
1971	3320	18
1972	3204	11
1971	3145	23
1974	3103	14
1975	3440	12
1976	3390	14
1977	3539	15
	26550	2

Fatal injury ratio 1:216

the thought that allowing a child to ride unrestrained engages him in an activity responsible for more fatalities than either child abuse or child neglect.

Yet, those latter forms of injustice are dealt with by a system of family courts, while unrestrained riding is virtually ignored. Children who are undernourished receive the deserved legal protection of our society, but the everyday commonplace event of holding an infant inches from glass and steel while travelling at 55 mph is curiously accepted.

The problem with supporting freedom of choice for parents is valuing a concept over the life of another who cannot exercise his own freedom of choice. Our society recognizes children as "incompetent due to infancy"; their contracts are voidable, they are compelled to attend school, they are compelled to get vaccinated to protect their health. However, when the creation of laws to reduce the number one killer of children is considered, potentially strong opposition based on "freedom of choice" can be anticipated.

Some freedoms of choice are not accepted by our society. One does not have the freedom of choice to play Russian roulette at the head of one's child. The child restraint choice is not merely a personal decision about one's own life; it is a decision about exposing one's child to the most probable form of death he/she will encounter before the age of 16. As parents are not allowed the freedom of choice to endanger their children in ways already determined to be injurious (abuse, neglect, etc.), freedom of choice is not an issue in the child restraint controversy. The issue is recognizing the danger of automobile travel for its reality and bringing it into the realm of other potential harms already controlled by society.

Parents' rights to determine the destiny of their children are often restricted by the government in much less severe circumstances. The courts have ordered blood transfusions for *elective* surgery, when a Jehovah's Witness mother objected. Child death by starvation occurs less frequently than death by automobile accident, yet we feel morally and legally compelled to prevent it, regardless of the parents' wishes.

This analysis would undoubtedly be lost on many, who would only perceive that, once again, the government would be telling them what to do. This was a basic element of the opposition to the 1974 interlock program. Some of the discontent with the interlocks also was based on technical reasons, such as the inability to start the car in an emergency without the belt, component failure that totally disabled the car, or the need to belt up a sufficiently heavy bag of groceries on a passenger seat in order to start the car. The present issue, however, concerns the safety of a group unable to protect itself and unable to ask for protection, and there are no similar technical problems to cause difficulty. For the 0-5 year-olds, the restraints secure with existing automobile seat belts; the older children use the belts alone. Political support could be relied upon from various groups. Physicians for Automotive Safety, American Academy of Pediatrics, and the Pediatric Preventative Medicine Program all strongly favor the widespread use of child restraints. Automobile manufacturers support the use of restraints, possibly out of public interest, but also because they manufacture some of the most popular brands.

Public interest groups, such as Action for Child Transportation Safety (ACTS) and the Insurance Institute for Highway Safety can be extremely vocal constituents.

Educational Alternative: As one might suspect intuitively, programs receiving voluntary cooperation can be more successful than those undertaken by legal mandate. In 1974, Dr. Arnold Constad, co-founder of Physicians for Automotive Safety, first commented on the value of pre- and post-natal parental education. It has been stated that this is the period when parents are most receptive to health information . Dr. Constad, operating under a grant from the New Jersey Department of Health, organized a team of obstetricians, pediatricians, nurses, and volunteers at Overlook Hospital in Summit, New Jersey. They conducted training and educational meetings with parents on child safety in automobiles. At the same time, Dr. Robert Scherz, author of the Washington State Seat Belt Study, was organizing a similar program in that West Coast state. The experiences from these prograns have been remarkably similar. In-hospital teaching programs immediately raised restraint usage to about 25%. When this program was followed up with continued education during pediatrician office visits, 85% of the parents' children travelled restrained. It was further noted that, when the child was restrained, the entire family was more likely to use seat belts, as their attitudes about restraints change.

There are many possible methods of disseminating educational information to the society. Currently, the Insurance Institute for Highway Safety is showing television advertisements on child restraints. Automobile buyers have become very familiar with the EPA gasoline mileage pamphlets, "conspicuously displayed" in new car showrooms. This method could be adapted to have child restraint pamphlets similarly displayed, not only in showrooms, but in the offices of obstetricians and pediatricians. The most important goal when relying on an educational alternative is widespread publicity.

As an example of public ability to respond to publicized health concerns of their infants, parents were making baby food at home at an increasing rate soon after widespread publicity on the *theoretical* harm to children of added sugar and salt. The drop in sales was sufficient to coerce manufacturers to remove added sugar and salt from their own products. The public's readiness to act in the interest of their children's health, once the are aware of the dangers, is demonstrated.

As an additional benefit beyond safety, researchers' findings could also be publicized to entice parents. E.R. Christopherson, Ph. D., found that children showed improved behavior while riding in a restraint. This was not merely "restrained" behavior because they were strapped down, but an increase in calmness and contentedness. He attributes the improved behavior to a greater feeling of security and comfort. Children who were not in restraints were not just more physically active and rambunctious, but displayed higher levels of impatience and irritation. Based on his research, Christopherson recommended trying to sell parents on restraints from the behavioral point alone.

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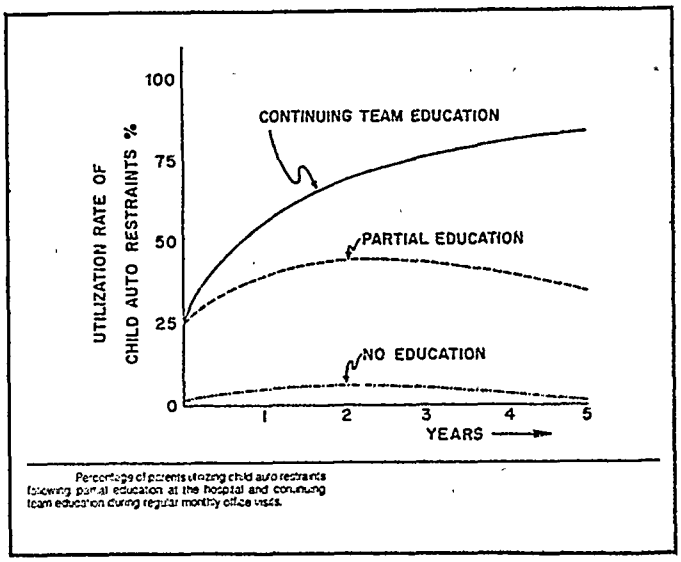
Child Restraints . . .



Percentage of parents utilizing child auto restraints following partial education at the hospital and continuing team education during regular monthly office visits.

The current situation of low awareness and low use of child restraints is unacceptable. Children who might have survived automobile accidents are being killed by their parents' ignorance or lack of concern. Child restraints are as easy to use as buckling one's belt. In comparison to the cost of a stereo radio, automatic transmission, or other options, a life saving automobile child restraint is an incredible bargain. NHTSA's data reveals that restraints range from $13 to $45, with the majority of restraints between $25 and $40. The average restraint is $37, retail and $19, wholesale.

Research has demonstrated that ten times as many unrestrained children are killed in automobile accidents, as compared with restrained children killed in automobile accidents. The unrestrained children who were killed had no way of appreciating nor anticipating the risks of automobile travel. They were compelled to rely upon the environment created for them by their parents. Had their parents possessed more knowledge, or having the information, used it responsibly, many of those children would be living today.

Whether a regulatory, educational, or some combined alternative is selected, more effort must be directed at eliminating the major cause of death of children under 16. ●

At-will . . .

(Continued from page 10)

action on these facts and quoted from Justice Holmes in an effort to demonstrate that inertia against change should be no barrier to adopting the public policy exception. The excerpt cited is provocative not solely on this context:

> It is revolting to have no better reason for a rule of law than that so it was laid down in the time of Henry IV. It is still more revolting if the grounds upon which it was laid down have vanished long since, and the rule simply persists from blind imitation of the past.

The persistance of the terminable at-will employment rule is clearly waning. The 1980's will likely see the evolution of the public policy exception in all the states, with formulations varying in terms of establishing the determinants of public policy. ●

Nitrite . . .

(Continued from page 13)

against a total ban. Bacon, however, remains a "special problem" and should be subject to regulation reducing its nitrosamine content to or below levels in other cured meats.

It is difficult, though, to become enthusiastic about the remark of C. Manly Molpus, president of the American Meat Institute, that the FDA's pro-nitrite ruling was "good news for consumers" (*The Nation* p. 140 2-7-81). Nitrite is just another one of the many sources of carcinogen exposure in the modern world. Reducing the risk of cancer requires not only the level of nitrite and nitrosamine intake, but also modifying lifestyle as a whole.

Because nitrite-cured meats make up a small proportion of the total variety of meats sold and with the entrance of nitrite-free products (e.g. Shiloh Farms hotdogs), the decision about nitrite's safety is a largely voluntary one to be made by an adequately knowledgeable public. ●