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# **Strategies to Increase the Use of Child Safety Seats**

**An Assessment of current Knowledge**

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16. Abstract This analytic literature search reports on characteristics of child-safety-seat (CSS) users and nonusers, and on the efficacy of approaches to increasing CSS use. It concentrates on human factors issues in CSS use, excluding technical studies on design and efficacy, and broader studies of restraint use. Demographic findings from the literature include an inverse relationship between age of the child and seat use, and some evidence that minority ethnic groups, older drivers and the unmarried are less likely to use CSSs; evidence on the effect of driver gender is mixed. CSS use appears to be motivated primarily by belief in its protective capabilities, compliance with mandatory use laws and a need to physically restrain the child's activity within the vehicle. CSS nonuse is motivated by cost (with some evidence that this is a rationalization for some), inconvenience of installation and use, and anticipated and actual negative child reactions (which may be linked to deficiencies in seat design). Some parental skepticism about the real and perceived value of CSS has been found, along with considerable confusion about the correct time to transition into safety belts. Parental safety belt use (but not prior accident experience) has also been linked to CSS use. Although numerous programs have increased CSS use, the relative impacts of specific programs are difficult to assess. Evidence is mixed on the effectiveness of educational programs, while showing loaner programs to be at least moderately effective and positive incentives to have worked. Little research is available on the effectiveness of CSS law enforcement. Positive promotional messages appear more effective than messages which raise anxieties. Major research gaps include relative impacts on various information sources, child management strategies of CSS users, transition from infant to toddler seats to boosters or safety belts, role of seat design in nonuse, the independent effect of ethnicity (if any), the extent to which nonacquisition is a conscious decision, the nature of the linkage between parental safety belt and CSS use, the most effective timing of CSS education and the most effective promotional messages. Specific target segments for future research are suggested, including infant and toddler seat users and nonusers, trier-rejectors, middle-class minority nonusers, those exposed to loaner programs and those cited for CSS violations.			
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## I. INTRODUCTION

### A. Objectives

This document presents an assessment of what is now known (and by implication, what is not known) about factors affecting the use of child safety seats (CSSs). It takes off from two facts which are known with near certainty: (1) child safety seats provide effective protection against the major cause of death for young children, and (2) they are being used in just over half of automobile trips involving such children.

As part of a larger National Highway Traffic Safety Administration effort to develop strategies for increasing CSS use, National Analysts will be conducting consumer research to probe perceptions and attitudes which underlie CSS use and nonuse, with a view toward moving beyond the results of previous attitudinal research. At the same time, we will be able to test reactions to strategies and program concepts. In order for this effort to be maximally productive, we need to be familiar with the current state of knowledge in this area.

In order to gain that familiarity, we have examined what we believe to be most of the primary research on child safety seat use. In doing this, we have used published sources, and also material which has had more limited circulation. In many cases, reports of research were supplied by their authors, or by sponsoring organizations. Other material was obtained from a number of academic and specialized libraries, as well as through on-line searches of databases such as the Transportation Research Board's TRIS and the Department of Commerce's NTIS.

It is important that the reader recognizes at this point that this report focuses solely on the use and the non-use of child safety restraints, but does not at all examine the issue of child restraint misuse. Misuse is a separate and intricate issue which itself is the focus of a large number of research studies. In the interest of keeping this study at a manageable size, we therefore consciously have chosen to omit examining the issue of misuse.

## B. Approach

Although this document falls into the general category of "literature search," it is useful to take a moment to understand what it does and what it does not do. First, it is an analytic literature search, and not merely an annotated bibliography. It attempts to draw from a variety of studies some generalizations about people who use or do not use CSSs, and about the various approaches which have been tried to increase use. Since the primary research was not conducted within any overall theoretical context (with rare exceptions), this has required us to plunder the body of research for nuggets of information to fit into our analytic scheme, and in many cases to use the same document as a source of insights on several different programs and demographic groups. In short, a major part of our task has been to take a body of literature which represents a diversity of viewpoints, methods, programmatic foci and sample populations from several countries, and to attempt to draw conclusions out of multiple studies, no one of which necessarily addresses an issue of interest directly.

As might be expected, such an undertaking is as likely to discover gaps in our knowledge as it is to produce generalizations about CSS use. Therefore, a second important characteristic of this document is that it ends with suggestions for new research, rather than with a simple summary of the research to date. Where we have been able to establish a fact or a finding, we have. Where we have found contradiction or speculation, we have taken it as an indication of the need for more clarity in some area.

A third characteristic of which the reader should be aware is the relatively narrow focus which this document takes. In order to make the literature review manageable within the time period allocated to this task, it was necessary to concentrate solely on issues of CSS use and attitudes. We suspect, and are supported in this suspicion by occasional references in the literature, that much of the research on adult safety belt use is capable of being generalized to parental decision-making about child safety seats. We have not systematically attempted to make such links, although readers of this document may

wish to. Similarly, since our research focus, and our own competence, is limited to human factors in the decision to use or not use (or occasionally use) a CSS, we have ignored the more technical literature on seat design, impact resistance and effectiveness.

Finally, this document has benefited from the collective wisdom of many. Before this final version was released, it was reviewed by a team of experts in the area of child safety seat use, and the completed product reflects many of their comments and concerns, as well as those of the NHTSA staff overseeing the project. Nevertheless, final responsibility for this document remains with National Analysts.

## II. FACTORS AND ATTITUDES ASSOCIATED WITH USE OF CHILD SAFETY SEATS

### A. Demographics

- Age of child and child safety seat usage are strongly correlated.

A plethora of both American and Australian studies have well documented a significant relationship between age of child and use of child safety restraints with greater usage among younger children (Miller and Pless, 1977; Kielhorn and Westphal, 1980; Saalberg and Morrison, 1982; King, 1981; Freedman and Lukin, 1981; Agent, 1983; Gielen, et al., 1984; Heathington, Philpot, et al., 1982; Neumann, Neumann, et al., 1974). Agent, for example, finds that seats are used twice as often for infants as for toddlers. The definition of toddler used in many of these studies is not clear, although it appears to be in the range of 18 to 24 months (weight, of course, is also a defining characteristic). Certainly, by the time a child reaches three years, usage is documented as falling considerably.

There are several hypotheses for the notably lower usage rate of child safety restraints for toddlers. One plausible explanation for the drop-off is the decreased availability of toddler (not infant) seats through loaner programs (loaner seat programs will be discussed in full at a later point in this report).

Another hypothesis for the decrease in usage is that it is at approximately 18 months that a child begins to have the ability to verbally communicate his/her displeasure over being in the seat. Whether the child is actually expressing true discomfort or is merely attempting to control his/her environment and display his/her knowledge of the word "no" is unclear; in either case, the parent is faced with a complaining toddler.

One expert in the field hypothesizes that seat rejection begins at an even earlier stage, before the child can talk. The expert suggests that some parents may reject the seat on behalf of their child who appears to be struggling to escape from the seat. In reality, it is possible that the child is not

attempting to remove him/herself from an uncomfortable situation, but is trying to practice his/her newly developed skill of sitting up.

Similarly, other experts attribute drop-off to the fact that at 9 to 18 months, children often have a strong need to practice standing up. Given this need, plus the desire to take control of their environment, they begin to fuss and often learn to get out of their restraints (either through squirming or by discovering the art of unbuckling).

In sum, there are many possible reasons which may contribute to the drop-off in restraint usage for toddlers. Not only do parents have to contend with a real or apparent rejection of the restraint by their child, but having used the infant seat for at least nine months without fully experiencing its benefits (having never been in an accident) parents have even less incentive than at the child's birth to actually continue using the restraint.

Unusually low usage has also been correlated with newborns. Both the 1974 Neumann, Neumann, et al. study and the 1977 Australian study by Freedman and Lukin also find a notably low usage rate for infants under the age of six months. The former cites 83% of infants in this age group as being inappropriately restrained, with the majority being held in a parent's arms. These studies, in spite of their age, are among the few which focus on early infancy. It is unclear whether this high level of nonusage in this age group is still prevalent; recent literature fails to distinguish between newborns and pre-toddlers, and the growth of mandatory CSS use laws in the past few years may have changed the situation drastically.

- A strong correlation is consistently noted between socioeconomic variables and child safety restraint users.

Numerous studies have demonstrated a strong correlation between the parents' level of education and income and their use of safety seats. As one would



expect, and as confirmed by literature on adoption of new health behavior, higher usage rates are found among parents with at least 12 years of schooling and with a higher level of income (Philpot, 1979; Perry, Heathington, et al., 1980; Miller and Pless, 1977; Kielhorn and Westphal, 1980; Hletko, Hletko, et al., 1983; Heathington and Philpot, 1982; Pless and Roghmann, 1978; Goodson, Buller, et al., 1985; Gielen, et al., 1984). Conversely, nonusers of the seats are consistently less educated and have a lower income level.

It should be understood that although one Australian study (Freedman and Lukin, 1977) cites occupation as a determining factor for usage, all other studies point to income as the independent variable which affects usage. In fact, one study (Neumann, Neumann, et al., 1974) clearly asserts that occupation is not a determining factor and that income is.

In support of the Neumann, Neumann, et al. (1974) hypothesis, several studies have noted a correlation between employment status and usage (Heathington, Philpot, et al., 1982; Depue, 1983). Depue finds a correlation between either parent's employment status and having ever used a child safety seat, with higher usage rates found among employed parents. Interestingly enough, the author did not find a significant correlation between employment status and current usage.

The relative importance of education and occupation is somewhat unclear due to the scant amount of research in this area. Allen and Bergman (1976) argue that education is a stronger predictor of usage than occupation. In another study, Saalberg and Morrison (1982) assert that whereas both income and education affect ownership, education is the true predictor of use. All of this is consistent with sociological stratification theory, which tends to view occupation more as a status indicator (and in this sense, related to education) than as a proxy for income, particularly in the crude "blue-collar, white-collar, service" categorization which is so often used.

- Ethnicity appears to have an effect on CSS use independent of socioeconomic status.

Of the two studies which discussed race as a predictor of usage, both found a significant correlation. Whites are consistently more likely than blacks and other minorities to use these seats (Neumann, Neumann, et al., 1974; Culler and Cunningham, 1980). An obvious hypothesis for explaining this is the lower income levels typically found among minorities.\* This theory is not supported by the Culler and Cunningham study (1980) which analyzed the effects of offering low-income mothers a child safety restraint seat through a loaner program. Although an equal number of black women obtained seats, a lower percentage of black mothers actually used them. (Note: These findings were based on a total sample size of 41, which is far from being nationally representative.) These authors suggest that one possible explanation for this difference in behavior is that most literature and educational programs are not well enough targeted at these different minorities. Neumann and Neumann (1974), for example, point out that little CSS material is available in Spanish.

Some have offered other possible explanations for this correlation between ethnicity and safety restraint usage. Some hypothesize that the lower levels of usage found among minorities may be related to the greater percentage of teenage mothers who are not sufficiently mature to take the necessary preventive measures for their children. Others point out that fewer may actually own cars and therefore are less able to justify purchasing a restraint. Alternatively, the cars which they do own or use may be so old that they are not equipped with safety belts. Finally, since the nucleus of minority households often extends to other family members, health-related behavior expectations may be set by family members who may not be aware of the need for child safety restraints.

Culler and Cunningham (1980), and Neumann, Neumann, et al. (1974) offer another hypothesis for the discrepancy in behavior between the races: both assert that minorities tend to believe that they have less control over their lives, and therefore choose to take a less active role in them.

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\*Some ethnic minorities, most notably Asian-Americans and Jews, are exceptions to this pattern, and are not treated separately in the literature.



The latter authors found support for this theory in their study which included a series of questions which helped to define to what extent respondents were "internal" (self-reliant) or "external" (believing that the outcome of one's life is generally beyond one's personal control).

- Sex, age and marital status of drivers affect usage of CSSs.

The evidence on the relation of gender to CSS use is mixed. Three studies (Kielhorn and Westphal, 1980; Stoke, 1984; Agent, 1983) have found evidence that women are more likely to use CSSs than are men. Another study by Hoadley, Macrina, et al. (1981) stresses that usage is not sex-related. It should be noted, however, that the data for this study were collected through telephone interviews, a far less reliable method than the observational method used in the other three studies.

Stoke (1984), Agent (1983), and Pless and Roghmann (1978) have each demonstrated a negative correlation between age of driver and use of CSSs. The older the person, the lower the likelihood of their using the seat. It is not clear from these studies whether or not these older drivers are actually older mothers with parenting experience, that is, mothers with more than one child. It is therefore possible that previous parenting experience may be the critical intervening variable rather than age.

Marital status has been noted by Heathington, Philpot, et al. (1982), Culler and Cunningham (1980), and Neumann, Neumann, et al. (1974) as having an effect on CSS usage. Married drivers tend to be more likely to use the seats. Once again, due to lack of data, one might hypothesize that since single-parent households are more common in lower socioeconomic groups, the determining factor of usage may not be marital status as much as socioeconomic status. As single-parent households increase through all levels of society, updated research could resolve this relationship.

## B. Attitudes

- The rationale for using CSSs varies with the age of the child.

There are three major reasons for using CSSs: first, to provide for the safety of the child (Thompson and Verreault, 1979; Culler and Cunningham, 1980); second, to comply with CSS usage laws now in effect in every U.S. state; and third, to help to restrain the child's activities within the vehicle, thereby providing for a safer and more pleasant ride for all the passengers (Freedman and Lukin, 1977; Christophersen, 1977; Thompson and Verreault, 1979; Culler and Cunningham, 1980; Kielhorn and Westphal, 1980; Shaw and Fluke, 1983). It can also be said that if nothing else, the seat provides a viable space to actually place the child during a journey.

The strength of the first and last factors as motivators for usage appears to vary with age. For infants, child restraints are predominantly used as a safety measure. Parents not only understand the hazards of not using the seat, but also truly lack a physical place in their car to put their immobile infant while they are driving. For toddlers, however, some parents welcome the CSS largely for its restraining features and only secondarily for its protective characteristics (Kielhorn and Westphal, 1980). Child safety seats for the older children are essentially valued as pacifiers or baby-sitters (bad pun). It is therefore not surprising that usage has been shown to drop when there is another adult passenger in the car who can actively restrain or pacify the child.

It is interesting to note that a study by Heathington, Philpot, et al. (1982) indicates that usage of CSSs tends to be higher when there are two or more toddlers in the car. One might hypothesize that this increased usage is merely a result of a need to discipline the children who might, together, become unmanageable.

- The most common reasons given for not using CSSs include the cost, the belief (and the finding) that the seats are a nuisance to use, and the anticipated and actual negative reactions from children.

Study after study has consistently found three basic reasons why parents do not use CSSs. Although the relative importance of each of these issues is not clear, the three major factors which lead to nonusage are: 1) the cost of purchasing a seat, 2) the energy needed to use the seat and, 3) the unwillingness to have to respond to a screaming child as a result of the seat.

- Cost

The economic burden of purchasing a safety seat has been cited by many respondents as a major reason for not obtaining a seat (Hoadley, Macrina, et al., 1981; Gielen, et al., 1984; Culler and Cunningham, 1980; Kielhorn and Westphal, 1980). Culler and Cunningham (1980), however, have argued that high cost is somewhat of a rationalization and that there are other factors which ultimately drive parents not to use safety seats. These authors support their hypothesis by showing the results of offering CSSs through a loaner program to low-income mothers. Those mothers who were most likely to use the seats were the ones who paid a small rental fee, not those who obtained the seats on loan for free. (This issue is further discussed in the next chapter.) In support of their findings, some experts also argue that some parents still perceive the seat as more of a luxury than a necessity, and therefore have an even tougher time justifying the additional expense. The cost is not the issue but rather the true value of the seat.

- Convenience

Nonusers of child safety seats complain of the inconvenience associated with using their CSSs (Cunningham, Culler, et al., 1981; Hletko, Hletko, et al., 1983; Hoadley, Macrina et al., 1981; Gielen, et al., 1984). Nonowners claim to

reject using the seats, at least in part, because of the anticipated nuisance or difficulty involved in installing and using them (Cunningham, Culler, et al., 1981; Kielhorn and Westphal, 1980; Saalberg and Morrison, 1982).

Whether inconvenience and bother are true motivating factors for nonusage is unclear. On the one hand, Weber and Allen has demonstrated that because parents rarely have an opportunity to "test drive" several different models of seats prior to purchase, they often end up with seats which do not adequately meet their needs and are therefore more likely to either misuse or not use their CSSs.

In contrast to Weber and Allen's findings, which suggest that poor seat design and installation instructions can lead to nonusage, Embry argues that "building a better mousetrap" would not increase usage. The author bases his hypothesis on past research concerning the use of seat belts. Findings in these studies apparently indicate that the issue of convenience does not explain much variance between usage and nonusage, although the relevance of seat belt research may be limited here, given the wider range of CSS options available.

Further support of the Weber and Allen hypothesis comes from the Kielhorn and Westphal study which finds that although users do not believe CSS installation is a problem, they do complain about the trouble associated with switching the seat from car to car. One can only hypothesize that this level of inconvenience results in decreased usage in multicar families.

- Negative responses from children placed in safety seats

An overwhelmingly common problem associated with the use of child safety seats is the child's poor behavior, particularly notable in children who are in their toddler years. Parents complain of

their children's verbal resistance to using the seat as well as their more annoying crying and screaming. These negative reactions appear to serve as strong motivators for nonusage (Hoadley, Macrina, et al., 1981; Depue, 1983; Thompson and Verreault, 1979; Culler and Cunningham, 1980; Philpot, Perry, et al., 1979; Weber and Allen, 1982).

These parents are more willing to take the risk involved with not restraining their child, rather than contend with a tantrum. Repeated nonusage coupled with positive experiences (safe rides) reinforces this behavior (Embry, 1982). Indeed, unwillingness to deal firmly with a recalcitrant child may be an aspect of a more general child-rearing style with manifestations outside of the automobile.

It should be noted that there is currently no information which indicates whether users of CSSs either do or do not experience the same types of negative reactions from their children. It is very possible that users are also faced with the same type of negative response but they may have found a method for dealing with it. Clearly, if usage is associated with either defining the problem away, or with successfully overcoming it, the strategy used would be worth disseminating. One expert suggests that successful car seat use involves accustoming the child to the seat, not reinforcing misbehavior and serving as a role model for the child.

Three possible reasons for a child's poor behavior are related to the physical design of the seat. Respondents in two different studies (Thompson and Verreault, 1979; Hletko, Hletko, et al., 1983) assert that they do not use CSSs because their children do not find the seats comfortable.

The Weber study (1982) suggests that the physical design of the seats does not allow for feeding a child while en route and, as any parent knows, hunger and poor behavior in a young child are often synonymous. Finally, one expert suggests

that poor seat design often frustrates the parent who must install both the seat and the child. Perceiving their parent's anxiety, children then begin to fuss, which parents then misinterpret as their rejection of the seat.

- Parental perception of child discomfort may contribute to seat rejection.

Nonusers of seats claim that they do not obtain a safety seat because they anticipate a negative response from their child (Kielhorn and Westphal, 1980; Eriksen and Gielen, 1983; Saalberg and Morrison, 1982).

A study by Hletko, Hletko, et al. (1983) also hypothesized that some parents object to the concept of strapping down or restraining their child. Finally, Freedman and Lukin (1977) assert that some mothers are skeptical of the comfort and safety of the seats for a sleeping child and are therefore more likely to prefer to hold a sleeping child in their arms.

- Parents complain that seats take up too much room.

Another commonly voiced reason for not using child safety seats is that they take up too much valuable seat space which might otherwise be used for another adult passenger. This real need for additional seating space is often what drives parents to hold their children on their laps. Observational studies have found that the greater the number of adults in a car, the lower the likelihood that the safety seat is being used (Hoadley, Macrina, et al., 1981; Culler and Cunningham, 1980; Philpot, Perry, et al., 1979; Kielhorn and Westphal, 1980). What may be happening here is that additional adults substitute for the restraint and control function of the seat.

- Many of the reasons for not using a CSS are based on misconceptions.

There are two fairly common misconceptions which contribute to nonusage: some still believe a child is safe in his/her parent's arms; others seem to be



of the mind-set that accidents only happen on heavily traveled highways. These misconceptions, coupled with the positive reinforcement resulting from each safe drive, have led to nonusage of child safety seats.

- Some trust nothing but a parent's arms for protection.

As noted earlier in this chapter, there is evidence that some mothers are skeptical about the value or reliability of a CSS (Culler and Cunningham, 1980; Kielhorn and Westphal, 1980). What it is that they do not trust in the seat has yet to have been researched. Part of the distrust may very well stem from the maternal instinct which says that children will always be safe in a mother's arms. Two different studies (Gielen, et al., 1984; Hidlebaugh and Richman, 1984) have demonstrated that some parents do, in fact, still believe that a parent's lap is a safe place on which to hold a child in an automobile.

- There is some level of confusion as to when to move into belts.

Studies with parents of children age five and under (Jonah and Dawson, 1982) and age four and under (Depue, 1983) have revealed that a major reason for not using child safety seats is the belief that the child is either too big or too old for their seat. Most parents in the study also claim to be using a seat model which is designed for use for children weighing up to 40 pounds. Because these studies were not observational, it is not clear whether in fact the children had outgrown their seats or whether the parents had discontinued using the seats at an inappropriate time. What is clear, however, is that there is either a problem with the seat design (and, in fact, many children grow out of them before the manufacturer's designated time

period), or there is a fairly rampant misconception as to when the child no longer needs to be in the CSS. In either case, the confusion must be resolved.

- Use of child safety seats is correlated with longer runs and with drives in less populated areas.

Gielen, et al. (1984), Saalberg and Morrison (1982), and Thompson and Verreault (1979) have all found that use of safety seats is less likely to occur on short local runs and more likely to be found on long distance drives. Agent (1983) has found that the smaller the population of the respondent's community, the lower the likelihood of usage. The fact that usage varies in this way is indicative of yet another misconception: the belief that accidents do not occur in everyday, local driving. Perhaps underlying this belief is a greater sense of comfort typically associated with driving local, known routes. Alternatively, local travel may be multistop travel, requiring more parent energy to unbuckle and buckle the child at each stop.

In contrast to the above studies, three other reports (Kielhorn and Westphal, 1980; Shaw and Fluke, 1983; Depue, 1983) have noted that usage of restraints decreases on longer rides. A possible explanation for these conflicting findings is suggested in the Kielhorn and Westphal study (1980). Often, longer rides involve a greater number of adult passengers which, as noted before, thereby increases the likelihood that the seats will not be used.

- There is a strong relationship between drivers' use of seat belts and their use of child safety seats for their children.

An undisputed finding throughout this research is that drivers who buckle up are far more likely to secure their children in safety seats than those drivers who do not use seat belts (Stoke, 1984; Hoadley, Macrina, et al., 1981; Gielen, et al., 1984;



Saalberg and Morrison, 1982; Stulginskas and Pless, 1983; King, 1981). The directionality of the relationship is not established. It may be that such parental modeling stimulates the child's cooperation by underlining to the child the importance which the parent places on safety. Alternatively, the parent's decision to use a seat belt may stimulate him or her to enforce the CSS on the child.

- No correlation has been found between prior accident experience and the use of safety seats.

Those who have gone through an accident are no more likely than their counterparts to use CSSs (Allen and Bergman, 1976).\* The implication of this finding is that convincing drivers of the dangers of an accident or the fact that accidents do in fact happen, will probably not significantly increase the usage of child safety seats. This is further explored in the section on information campaigns in the following chapter.

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\*Indeed, living through an accident unbelted may even reinforce a disdain for restraints.

### III. ANALYSIS OF PROGRAMS

#### A. Overview of Programs

- A wide range of programs have been designed to encourage the use of child safety seats.

Legislation requiring the use of child safety seats has been complemented (and in many states preceded) by a myriad of programs designed to further promote use of child restraints. These programs can be grouped into several different categories:

- Educational -- This may include: prenatal and/or postpartum lectures; reminder pep talks from pediatricians; informational pamphlets distributed through obstetricians and pediatricians; educational films or videos; demonstrations of correct installation of the seat and the child in the seat; conferences and workshops to educate pediatricians and their nurses; a child passenger safety information hotline called "TOT-LINE"; and children's story books and movies, which integrate a modeling technique in order to familiarize children with child safety seats.
- Loaner or rental programs -- Typically based out of hospitals, HMOs, or health departments, these programs rent infant and sometimes toddler safety seats at a minimal fee. Other sponsors include community groups such as the Junior League and the Kiwanis Club, large corporations such as Northwestern Bell, and insurance companies such as League General Insurance Company and GEICO.
- Law enforcement -- Although the mere existence of laws may have some positive impact, in order to increase compliance, several states have developed specialized enforcement programs. The level of sophistication of these programs seems to vary with the state. Some states, for example, have waived the fine with the proof of purchase of a seat. Other enforcement programs also concentrate on educating the enforcers. Finally, some

programs teach their enforcers to become teachers who can educate the nonusers about the value of the CSS.

- Incentives -- Insurance companies have begun to offer incentives for car owners who use CSSs. A few hospitals have begun to offer free car seats as a means of gathering new obstetrics business. Other businesses, such as McDonald's Corporation, have developed incentives for children and toddlers. The effects of these programs have only recently been examined.
  
- Advertising and communication -- Posters, bumper stickers and pins have all been designed and distributed in order to increase the programs' visibility and serve as reminders to parents. Newsletters and radio and television spots have been produced which both educate parents and highlight actual safety seat success stories.
  
- Organizations -- In order to coordinate all or at least some of the above described programs on an ongoing basis, child passenger safety associations have been established at the local and national levels, while other organizations have made CSS use a program priority (e.g., Physicians for Auto Safety, American Academy of Pediatrics).

● The net effect of these programs is clearly positive.

Recent research consistently demonstrates a significant increase in the usage of child safety seats. This increase is concomitant with the introduction of the vast number and array of programs discussed above. A model success story is found in Iowa, which in 1980 recorded that less than 3% of children were being properly restrained. The state then developed an infant/child restraint program which included the following:

- The establishment of almost 275 infant/toddler seat loaner programs which extended themselves throughout all 99 counties in Iowa

- The involvement of local community groups in the establishment of loaner programs
- The development of loaner programs by 22 Iowa employers
- A continuous flow of press releases and sometimes television news spots
- And, the establishment of child passenger safety education programs in hospitals, maternity centers and other child health centers

By 1983, CSS usage had increased to a statewide rate of 20%, without a CSS law in effect.

The success story is even more impressive when looking at the nation as a whole. In 1980, surveys found approximately 7% of children in the U.S. riding with some sort of restraint (Child Restraints Issue Paper). Four years later, 66% of infants and 46% of toddlers have been observed in child safety seats (Goryl and Cynecki, 1984 Annual Report).<sup>\*</sup> Obviously, a good many other things were happening during this period, such as a growing interest in "wellness," and the passage of CSS laws in nearly 4/5 of the states.

The financial implications of these programs have yet to be analyzed. More importantly, although in total these programs spell success, as will be discussed in the remainder of this chapter, it is not at all clear which aspects of these campaigns are in fact most effective, and in particular, what role has been played by the passage of mandatory use laws in this period. Although the net worth is evident, the value of the individual components on their own is not.

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<sup>\*</sup>The U.S. data are questioned by some.

## B. Child Passenger Safety Education

- The effectiveness of prenatal and postpartum education is both supported and challenged by the data.

Although some level of child passenger safety counseling is better than none, the true value of prenatal and postpartum education remains unclear. Several studies have found that education alone results in no or insignificant changes in behavior. In contrast to these findings, other studies have demonstrated that education can effectively increase the use of child safety seats, although rarely dramatically.

- Some assert that a thorough educational plan results in little or no differences in behavior.

As discussed in the previous chapter, those most likely to use child safety seats are better educated and come from a higher socioeconomic level. Christophersen, Sosland-Edelmen, and Le Claire (1985) studied the effects of child passenger safety education on this prime target group. Half of a group of postpartum mothers were given the opportunity to rent a seat prior to leaving the hospital and were strongly urged not to travel with their child on their laps. The other half were given the same opportunity plus the following educational program: a demonstration on the use of CSSs; literature; an order from the doctor to send the child home in a seat; assistance from a nurse in installing the seat; and, one and six months after birth, a pep talk from the pediatrician about the use of child safety seats. Follow-up observational studies were conducted one, six and twelve months after birth, and the authors report finding no significant differences between either of the two groups' behavior. The conclusion which may therefore be drawn from this study is that this type of educational plan is not effective in influencing the behavior of educated, middle and upper-middle class mothers.

In another study by Goebel, Copps, et al. (1984) a control group of postpartum women were given no counseling, and a second group were shown an audiovisual which was followed by a question and answer session and a demonstration of correct usage of a seat. In order to test the effects of education, the author then observed seat usage for the first ride home. Those in the educated group were more likely to have a seat in the car than were control-group members (29% versus 20%), but they were statistically no more likely to actually be using the seat. (Eighteen percent of the educated group were using them as compared with only 12% of the noneducated.)

Finally, Hall and Council (1979) analyzed the effects of another statewide comprehensive educational plan which included: posters designed to spark conversation between the parent and pediatrician; pamphlets; a shopping guide; a story book for children; and meetings with the pediatric community with the intent of educating the doctors and gaining their interest in the program. Once again, no significant increases in the use of CSSs were found.

- Another group of researchers have demonstrated the value of child passenger safety education.

Reisinger and Williams (1978) provided an experimental group of parents with information, a demonstration, a prescription for a car seat and a discussion with their pediatrician about child passenger safety. These parents experienced this program on three separate occasions: right after birth, and at one and two months later. During follow-up observations, it was found that although the experimental group differed significantly while the program was being reinforced, there was also a strong drop-off which coincided with the end of the program. Whereas at the two-month mark (when the experimental parents were still receiving information) usage was 72% higher than among the control group of mothers, by the fourth month, the difference had plummeted to 9%, and at the end of the year, the difference between the two groups was only 15%. This study



clearly demonstrates that although this program can produce positive results, it is most effective during the initial enforcement period.

Allen and Bergman (1976) have found that although pamphlets alone do not produce a significant change in behavior, offering parents pamphlets and a film did double CSS usage from one-third to two-thirds. The further addition of a demonstration had no significant effect. (Unfortunately, this study did not evaluate the value of a film alone.) Goodson, Buller, et al. (1985) examined the effects of giving mothers an extensive lecture on child passenger safety followed by a question and answer session. In the follow-up telephone survey, four to six months after the program, the authors found that 96% of the educated group compared with only 78% of the control reported using a child safety seat. (It should be understood that these extraordinarily high numbers reflect the fact that the data were collected through unverified parental self-reports collected in a telephone survey. Therefore, although the difference between the two groups does probably exist, the magnitude of the difference may not be as great as it appears at first glance.)

Nichols (1982) examined the effects of a New Jersey child passenger safety education program established at 59 hospitals called "Do You Care Enough?" Women in either their prenatal or postpartum stages were shown a film and then engaged in a one-on-one discussion with a trained professional. Before leaving the hospital, 60% owned a CSS, and one month later, 58% reported always using the seat. (Once again, it should be noted that these findings are questionable for two reasons. First, there was no control group and therefore no real means of understanding the effects of the experiment; and second, the data in the follow-up were self-reported through a telephone survey.)

Finally, in complete contrast to the Christophersen, Sosland-Edelman, et al. study (1985) mentioned earlier in this chapter, Kanthor (1976) found education to be an effective method of increasing the use of CSS among middle-class mothers. Six weeks after instruction, 69% of the counseled women as compared with only 42% of the noneducated claimed to be using child safety seats. The results of the Kanthor study (1976), however, are questionable, as the usage data were self-reported rather than observed.

- The conflicting findings may be partly explained by both the timing of these studies and the quality of the programs.

The lack of consensus of the value of child passenger safety education may be a result of a seemingly minor difference in methodology. Most of the research that has been conducted has been with postpartum rather than prenatal mothers, or with both mothers mixed; little has been done to directly test the effects of approaching the mothers at different stages. However, it is interesting to note that the only major difference between the Kanthor study (1976) and the Christophersen, Sosland-Edelman, et al. study (1985) mentioned above is that mothers in the former study (who were affected by education) were counseled before birth, and those in the latter study were counseled after birth.

The hypothesis that this difference in methodology is a viable explanation for the opposing findings is supported by a study conducted by Greenberg and Coleman (1982). This research directly compares the results of no counseling, prenatal, postpartum, and a combination of prenatal and postpartum counseling. The authors find that some counseling at any point in time is better than none, and that prenatal and postpartum combined, or prenatal alone, was more effective than postpartum alone. They hypothesize that the postpartum time is too harried to allow for effective learning and that the concept is better grasped in the relatively calm days prior to the birthing, with perhaps an additional reminder once the child becomes a reality.



Another explanation for the lack of consensus about the value of child passenger safety education is that the success of each of the programs is directly related to the quality of the education being offered. It can be argued that the studies in question did not evaluate the value of education, but the value of different qualities of education. Educating through handouts of literature may be for less effective than handouts coupled with a lecture and a demonstration. In sum, it may be the execution rather than the concept which caused the program to fail.

### C. Loaner Programs

- Loaner programs appear at least moderately effective with diverse populations.

It is fairly well established by now that loaner programs are an effective way of getting CSSs into people's hands, by vitiating the use of cost as an excuse, and by allowing for trial use to build habits and guide later purchase (Hoadley, et al., 1984). The evidence on usage of the acquired seats is more mixed, although there are numerous reports in the literature of loaner programs achieving significant increases in CSS use among low-income populations (many of the Tennessee studies; Berger, Saunders, et al., 1984) as well as among more affluent populations (Christophersen 1985 is the most recent such report).

We are not aware of any study which attempts to estimate the proportion of all CSSs in use in a locality which were supplied through loaner programs. Kielhorn and Westphal (1980) surveyed Oklahoma parents in 1980, and report no CSSs supplied through such programs; however, their failure to discuss loaner programs suggests that they were not present, or not significant in that locality at that time. Similar research on sources of CSSs still needs to be done in a locality with active loaner programs.

- Use of CSSs appears to be more heavily impacted by rental programs than by loaner programs.

Although some researchers treat rental and loaner programs as the same thing, there is an impressive body of evidence that suggests that the distinction is worth preserving because it is associated with distinct behavioral outcomes.

The leading study treating this issue was carried out in a Tennessee hospital in which low-income, new mothers were assigned randomly to one of three conditions -- free loan of an infant seat, an opportunity to rent one for a \$3 flat fee, or encouragement to purchase one in a store (Culler and Cunningham, 1980). Not surprisingly, acquisition of a CSS was far higher for those subsidized (e.g., loan or rental) than for those required to use their own resources. However, easier acquisition did not result in more use. In fact, those who rented CSSs used them more than those who borrowed them at no cost.

Another study involving the same investigators makes it clear that the underlying psychodynamics of this phenomenon involve a level of motivation sufficient to overcome a mild discouragement. This study presents data on self-selected participants in a loaner program, and those who have been urged to participate. The latter group is equivalent to those getting the CSSs for free, in the sense that an outside agency has made it maximally easy for them to use the device, and like the recipients of free loaner seats, their acquisition rate is high, but their usage rate is lower than that of the self-selected participants. Still another variant on this pattern is reported by Reisinger and Williams (1978), who compare long-term use of CSSs between a group given the seats for free, and another group exposed to a hard-sell persuasion campaign to buy a seat. The latter group had a very low acquisition rate (11%), but was eight times more likely to actually be using the seat two to four months later. In spite of this consistency across studies, it should be noted that Montague (1984) finds no difference in self-reported usage rates between families receiving loaner seats, and those receiving a \$25 discount voucher for purchase.

- Loaner programs may be self-limiting in their ultimate impact.

Several of the studies reviewed suggest that, beyond a certain point, adding additional program content to a loaner program does not affect total use of child seats as much as it affects correct use of the devices. Thus, Hletko, Hletko, et al. (1983) have shown that the more contacts parents have with an instructor, the more correctly the CSS is used, and the reports on Maryland's Project KISS (Gielen and Radius, 1984; Gielen, Rost, Bernstein-Cohen and Radius, 1983(?)) show the same results comparing local health departments serving low-income populations. In fact, the KISS data actually show higher CSS use among customers at local toy stores than among the demonstration site clients, although the latter group has a higher rate of correct use.

Although Christophersen's (1985) comparison of a loaner program in its early days and in its more elaborate maturity two years later shows dramatic increases in overall use and correct use, his study population is relatively well-to-do, and therefore (as established in the previous chapter) has higher use potential and perhaps more receptivity to program educational and persuasion activities.

- Little is known about the impact of loaner or rental programs on transition to toddler seats.

Heavier educational content may help with the often-neglected transition from infant to toddler seats, based on fragmentary evidence from the Project KISS evaluations. However, most examinations of loaner programs have concentrated on the more vulnerable infant years, nor is it clear to what extent loaner programs make toddler seats (or, initially, convertible seats) available. Finally, it is not clear to what extent loaner programs actually educate those returning infant seats about the need for using toddler seats.

#### D. Incentives

- Incentives have been found to be successful in increasing CSS usage.

Roberts and Turner (1985) have recently conducted research on the effects of providing incentives to parents of young children in order to encourage their use of safety seats. The research was conducted at two day-care centers, one populated by children of professional parents, and the other by children of blue-collar parents. Parents who drove to the center with their child restrained in a CSS were rewarded with a token which indicated whether the parent had won a prize. Prizes included pizza, ice cream cones, movie passes, etc. The token also contained a happy face sticker which some parents chose to place on their child. It was found that among blue-collar parents, CSS usage rose phenomenally from approximately 11% prior to the reward period to 64% at the end of the second week of the period. Among the professionals, the increase was significant, although not as dramatic given the high baseline level, rising from 49% to 80%. Three months after the reward period, compliance plummeted to 19% for the former and 60% for the latter. Clearly, for both groups, chances of winning these seemingly small rewards provided enough incentive for parents to use a child safety seat. The authors do not know whether parents merely reintroduced existing seats which had been stowed away at home, or whether the reward program provided sufficient incentive for them to go out and buy a new seat.

It is interesting to note that the program seems to have had a greater effect on the professional group than on the blue-collar. That is, although the blue-collar group's usage of CSSs increased in greater proportions during the incentive period, the net result of the experiment demonstrated that the incentive system had a greater long-term effect on the professionals. There are several possible explanations for the discrepancy between the groups. As the authors note, the professional parents, who tend to be middle and upper-middle class, could have been reacting to having their child safety habits observed; as discussed earlier in this report, this population of parents is more likely than any other

to endorse and feel strongly about child passenger safety. Another hypothesis for the discrepancy is that the professional parents take a greater interest in preventive medicine. Finally, one might also surmise that the blue-collar parents changed their behavior merely for the sake of the reward. The active/passive orientation discussed earlier with respect to ethnicity suggests that people from lower socioeconomic groups tend to feel as though they have less control over their life and therefore assume a less active role in an attempt to protect it.

#### E. Law Enforcement Programs

With the passage of child safety seat regulations in each of the 50 states comes the question of how best to enforce the law. There are two schools of thought. One school advocates the traditional approach of using law enforcers to punish violators through a fine. The other school uses law enforcers to play a more positive role by becoming educators. An example of the second methodology was found in Tennessee, where law enforcers were taught to educate violators on the importance of child safety. More importantly, officers began to carry a child safety seat in their car so that the violator could receive a proper demonstration of CSS installation, and so that the violation could be immediately rectified. Although the violator was punished with a fine, to promote the use of child safety seats, the fine was waived when a CSS proof-of-purchase was shown to the court. In essence, the law enforcer acted as a provider of safety, not as a punisher.

The success of this approach, as demonstrated by the increase in the number of citations issued, can be attributed to several factors. First, as Sontag et al. (1980) point out, the development of this program, as well as the energy associated with it, must be attributed to the state police commissioner who chose to make child passenger safety a high priority on his list of duties. Prior to his involvement, law enforcers showed little interest in the issue and ticketed few violators of the new CSS legislation. For once, energy to instigate was coming from the top rather than from the grass-roots level.

A second reason for Tennessee's success is the fact that the program is designed to actively involve law enforcers



and their administrators and the judiciary. As noted earlier, law enforcers are given the unique opportunity to act as a "good guy," an educator, rather than "the bad guy," the punisher. By carrying seats in their cars, officers gained immediate gratification by seeing a potentially hazardous situation corrected. Finally, law enforcers are given support for their efforts by both superiors, including the police commissioner, and the courts, who waive the fines of violators who agree to purchase CSSs.

Literature on law enforcement strategies other than Tennessee's appears skimpy or nonexistent, nor were we able to discover any research which addresses the independent impact of mandatory use laws on CSS use in the absence of law enforcement (e.g., the extent to which they are internalized as norms).

#### F. Communicating the Messages

Once a target market has been selected, a set of messages has to be designed which speak to the group's particular needs, and an appropriate message delivery system must be identified. To this point there is no research that specifically identifies which messages and tones of communication are most appropriate for each of the potential target markets. Hence, the remainder of this chapter will address the various findings and hypotheses which might be applied to the market (the population) as a whole.

- Encouraging CSS usage through scare tactics is not widely advocated.

Gory pictures and horror stories demonstrating what happens in a car crash to a child who has not been properly restrained have generally been found to be ineffective in motivating parents to use CSSs (Rehns, 1982). Parents tend to be unwilling to believe that they too could be involved in a similar type of accident.

Some researchers have found that messages which omit gore, although perhaps imply it, and which provoke guilt can be successful. Hidlebaugh & Richman (1984) found more parents claiming to be motivated by a pamphlet entitled "If You Love Me, Don't Hold Me" than by one entitled "Your Physician Cares." Respondents found the former to be easier to understand and reacted to it with a sense of guilt which resulted in motivation to begin using a child safety seat.\*

- Researchers advocate a more positive tone of communication.

Many researchers assert that knowing the dangers of driving without a CSS does not effectively motivate many parents to change their behavior and begin to use a seat (Christophersen, 1977; Eriksen and Gielen, 1983). Drivers are reluctant to acknowledge that they too might either cause or be involved in a collision. Every safe ride reinforces this hypothesis. Hence, these researchers do not advocate a CSS promotion campaign which uses scare techniques and offers graphic representations of the possible results of not using a safety seat. A more effective approach, they assert, is using a more positive orientation and demonstrating the variety of benefits which a seat can offer.

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\*In a recent communication to the authors of this report, David Shinn offered an opposing viewpoint which argues against the use of death and injury prevention messages. Having purchased an infant seat out of fear, each drive where the seat does not provide crash protection (because there was no accident) actually lowers the incentive for continued usage of the CSS; safe rides actually create a situation of negative reinforcement, by suggesting that the trouble of using the seat is not worthwhile. Shinn argues that the seat must be positioned as offering other positive rewards such as comfort, security and better behavior which can be noticed by the parent each time they drive.

The first step in this methodology is communicating some of the facts. Rather than distributing pamphlets filled with gory, site-of-the-crash photos, Christophersen (1981) advocates displaying statistics on the number of accidents which do occur. As Becker (1980) points out, parents must understand their own vulnerability to car accidents.

The next step in this methodology is to offer parents desirable and believable incentives for using a safety seat. Benson and Nichols (1982) advocates that CSS usage should be positioned as a method for providing for a child's health, not safety. Both Benson and Hidlebaugh (1984) find parents to be unaware of the fact that the number one killer of children is automobile accidents. Benson also finds that parents become more receptive to CSS legislation once the seat has been positioned as yet another one of the many childhood immunizations against deadly diseases, of which car crashes are the most common.

Christophersen (1977) has found that children behave better in a car seat. He therefore argues that the safety seat should not be positioned as a provider of safety, but as a child restrainer which ultimately results in a more pleasant and safe ride for everyone. Indeed, as noted earlier in this report, the prime motivation for using a seat for a toddler is the fact that it effectively restrains the child's behavior. Hall and Council (1979) further assert that parents should be informed that improper behavior has been proven the cause of many accidents.

- A comprehensive network of communications is valuable.

Nichols (1982) asserts that networks of communication should be diverse and inclusive of a wide variety of well-established community groups. The goal should be to communicate the appropriate messages not only to parents of young children, but also to the community at large. The issue of child safety, he asserts, should be everyone's concern. As a result, he suggests involving all of the following groups in the



campaign to increase the usage of CSSs: child-related health and education associations; civic associations; safety associations; small and large corporations; government organizations; insurance companies; the media; state offices of highway safety; and state and local law enforcers.

- Messages must be targeted.

As with any product which is to be marketed, all messages must be shaped to meet the mind-sets and needs of the various listening audiences. This means both designing a variety of different messages for the different sectors of the community, and discovering the best way to communicate each message to the different segments within each sector.

Nichols (1982) suggests, for example, that a campaign should be designed targeted at taxpayers which would reveal how much of their tax money is being used to assist nonusers of CSSs. In order to effectively communicate this idea to many different people, the message would then have to be written in a variety of tones and styles, and disseminated through a variety of channels. Both the message content and style, as well as the delivery system, must be targeted to the various segments in our population.

Using the premise that communication must be targeted, Robin, Hletko et al. (1984) have recently developed a system for channeling persuasive messages to different strata of the population. The researchers not only concentrated on choosing the right messages for each group, but also the correct type of language to communicate the thoughts. Finally, each message was delivered through a different personality, ranging from a doctor, to a priest, to a housewife. Again, the concept is to deliver the message through the person who the listener is most likely to respect in that subject matter.

#### IV. CONCLUSIONS AND RECOMMENDATIONS

- There are still many questions to be answered.

This survey of the literature on child safety seats has revealed an equal number of answers and questions. Although there is a considerable amount of information in certain areas, we have only found gaping holes in others.

At this point, we can say with confidence that we know, demographically, what the majority of CSS users look like, and what the majority of CSS nonusers look like. Unfortunately, it is unclear what the minorities in these groups look like. According to Goryl and Cynecki (1985), 49% of childhood automobile trips involve the use of CSSs. We also know the average user is well educated and comes from an above average socioeconomic background. Since, demographically, those people who are well educated and come from a high socioeconomic background account for far less than half of the nation, one must wonder who else, albeit a minority, are CSS users.

Similarly, although past research has highlighted many of the factors and attitudes which lead to non-usage of CSSs, little has been conducted which examines factors and attitudes which lead to CSS usage.

Finally, the fact that CSS usage has increased so dramatically over the past several years is a tribute to the success of the myriad of CSS use laws and promotional programs which have been designed. Exactly which of these programs were most successful both in terms of achieving the desired response and in terms of cost is still not clear. On a more specific level, we do not even know which type of program is most successful with each of the various segments of our population. And, until this is determined, it is difficult to make recommendations as to the best channels of communication for reaching these segments.

- Research should focus on the gaps in our knowledge rather than reconfirming the findings of past research.

In the course of conducting this literature review, we have been struck by the number of times which certain pieces of ground have been plowed over.

Considering the fact that there are so many questions which still need answers, we suggest designing future research to focus on the information gaps rather than on findings which seem to be fairly well accepted. More specifically, we would like to address the following issues:

- It is clear that parents can be and are exposed to CSS information through a variety of sources. Exactly which of these sources is the most and least influential in convincing parents to become users remains unclear. Similarly, we need to understand why nonusers are not affected by the information they receive or, indeed, if they even receive such information.
- A common reason given for nonusage is poor child behavior, which is said to be caused by poor seat design and the child's unwillingness to be restrained. It is not known whether CSS users are or were ever faced with these same obstacles and what steps they took to overcome these problems. Essentially, we need to discover whether usage is determined by how comfortable a seat is, or by how competent the parent is. Clearly, the former can be easily addressed, while current CSS users may provide insight into managing child recalcitrance.
- There is very little in the literature about making the transition to toddler seats. It is known that usage drops off significantly during the toddler years, but it is not clear to what extent this is due to genuine perception of lack of need, greater parental confidence about riding with children, resistance by toddlers, or to a lack of emphasis on toddler seats in the various CSS promotional programs. Judging from the

literature, it is likely that many of these programs focus on infants and neglect to sufficiently target parents of toddlers.

- As stated above, nonusers justify their behavior by citing the seat's poor and uncomfortable design and their child's objection to being restrained. It is possible that some of these nonusers are actually just rationalizing other objections to using a seat. Perhaps they simply conclude from inspection that the seat is uncomfortable and therefore choose not to use it. As suggested earlier in this report, some parents apparently object to physically restraining their child. The firmness with which parents hold these views remains unclear.
  
- The fact that CSS usage is lowest among minorities is indisputable. It is important to discover whether this lower usage rate is actually linked to socioeconomic status or to ethnicity. If linked to racial and cultural differences, the issue then becomes one of how to best target these minorities consistent with whatever cultural predispositions they exhibit.
  
- There is a group of parents who never acquire CSSs. Having never had the opportunity to use a seat, and considering the availability of seats through loaner programs as well as the reach of informational programs, it would be useful to understand why these parents made what may well be a conscious decision to be a nonuser. Alternatively, if there is a positive but deferred decision to obtain a CSS, the causes of procrastination need to be probed; we often "forget" to do that which we really do not want to do.
  
- This literature search has revealed a strong correlation between the parents' use of seat belts and their use of CSSs. Both behaviors may reflect a parental attitude toward risk and safety. Others stress behavior over attitude, suggesting that an effective method for increasing CSS usage is to encourage parents of children to buckle up themselves. The upcoming research should, therefore, probe attitudes of CSS users and nonusers on the issue of safety belt usage.

- As noted earlier in this report, it is unclear whether prenatal or postpartum counseling is more effective in influencing a mother's behavior. Particularly because hospital stays have shortened, it is probable that the postpartum period has become more hectic than ever, thereby leaving less time to deal with a seemingly less pressing issue such as a child safety seat. By including new mothers in our research, we will be able to develop a better sense of the importance of timing in the delivery of CSS information.
  
- Research into the impacts of law-enforcement activities on CSS use is nonexistent, and research into the use of positive reinforcements, such as incentives, is rare. Neither strategy can be adequately evaluated in the absence of such research.
  
- Finally, research in the area of communication has been thin. Although there are many hypotheses offered as to which tone or approach is best, little has been done to test these theories (although some interesting work is in progress; cf. Robin, Hletko, et al.). For example, we need to know the relative value of using guilt versus teaching child behavior management in order to induce the usage of CSSs.
  
- There are eight groups of respondents who should be included in our research.

In order to adequately address these issues, we believe there are eight groups of respondents with whom we should meet.

1. Current Infant Seat Users -- Prima and Nonprima Mothers

Although CSS usage is far more common for infants, it is still important to understand the factors which originally motivate a mother to use a safety seat.

Users represent the successful outcome of CSS promotion or programming, and they alone can best shed some light on what kinds of arguments, considerations and pressures led them to make their decisions. We think that it is useful to distinguish between first-time mothers and nonprima mothers who have an experience base (which may or may not include CSS use) to draw on. Finally, this is an important population with which to explore the issues surrounding toddler transition, such as the cues which tell them when an infant seat can no longer be used, and the bases of the decision to buy or not buy convertible seats.

## 2. Current Toddler Seat Users

This group of parents is particularly important for their ability to offer a clearer perspective on the problems encountered in using a CSS, and how they are overcome. Since the literature indicates that lower toddler CSS use rates may grow out of difficulties which parents may have with restless or vocal children, it would be helpful to know if successful toddler seat users have developed ways of overcoming these problems, or even ways of steeling themselves to ignore them, or whether they never encounter them in the first place. Discussion should probably include some considerations regarding child-rearing styles.

## 3. Nonusers of Infant Seats

Talking with these parents will offer us an opportunity to explore reasons for nonuse and the decision not to use CSSs in some detail. Discussion will focus on the extent to which a CSS was considered, information sources, household and nonhousehold participants in the decision (for example, we suspect that prima mothers may have friends or relatives with children who act as mentors), ideology regarding risk, current safety belt use, etc. These parents would provide an opportunity to test program ideas, and may be able to shed some light on difficulties with current programs (e.g., pediatric counseling, loaner or rental programs) to which they have been exposed. Ideally, this group interview would be done in a locale with one or more strong CSS programs.



4. Toddler Seat Nonusers, Nonowners

In many respects, the information sought from this group is the same as the information sought from Group 3, except that the major focus will be on toddler transition. For this reason, we may want to ensure that at least one of these groups consists of people who have used infant seats, but who did not make the transition. Again, conducting these groups in areas with a strong CSS program would be helpful.

5. Trier-Rejector

We need to better understand what makes parents stop using a CSS after the decision to use it has been made. This will no doubt provide an opportunity to explore issues of child behavior, and seat design, and to probe the extent to which they are real concerns or rationalizations for some other basis of decision.

6. Middle-Class, Educated Minorities -- Nonusers

The use of CSSs is notably low among minorities. Considering that the majority of users are educated and middle to upper-middle class, by speaking with this group of respondents, we can determine to what extent minority nonusage is caused by inappropriate methods of communication. Is nonusage due to cultural differences which have not been adequately addressed in promotional programs?

7. Parents of Toddlers Who Were Exposed to Loaner Seat Programs

In order to evaluate the effect of loaner programs, we would like to speak with both program participants and nonparticipants. This would serve two purposes: it would allow us to explore the differences between the two groups, and particularly noneconomic differences, if any. Secondly, we are interested in the kinds of arguments and the logic each group uses to

justify its decision and to convince others; this is why we propose such a nonhomogeneous group.

8. Parents Cited for CSS Violations

A number of states have developed fairly aggressive enforcement programs for CSS laws. Talking with those who have been cited under such laws (assuming that names can be made accessible to us for recruiting) would provide useful insight into the extent to which such activity is viewed as ultimately negative or positive, and the extent to which police interest in CSS use is viewed as legitimate. Indeed, it may even be possible to identify more and less effective styles of police and judicial intervention.

Finally, all respondents will be asked to react to the various promotional programs which were described earlier in this report. We will probe to determine which programs users and nonusers were exposed to and which they felt were the most influential.

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