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Administration**

Evaluation of the League General Insurance Company Child Safety Seat Distribution Program

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15600 Providence Drive
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NOTICE

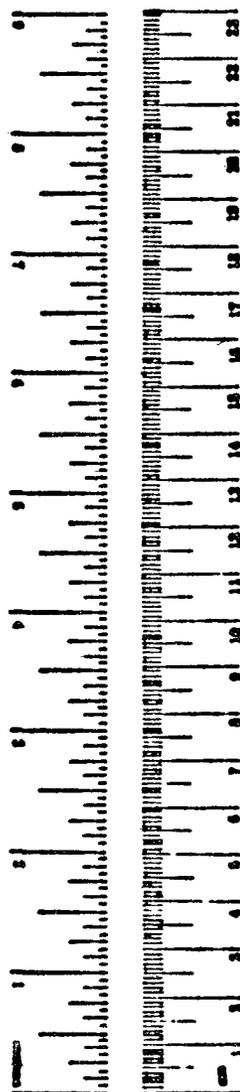
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16. Abstract This report presents an evaluation of the child safety seat distribution initiated by the League General Insurance Company in June 1979. The program provides child safety seats as a benefit under the company's auto insurance policies to policyholders who have a child born or adopted into their households while a League General policy is in effect. The evaluation covers the first two years of program operations in Michigan. During this time more than 7,000 seats were distributed to 5,800 households. The evaluation contains results of analyzing claims for accidents in which children 0-4 years old were involved before and after the program was begun. It also includes results of a household survey that assembled behavioral and attitudinal information from 400 League General policyholders who had received seats and a control group of households from the general population. The evaluation shows reported safety seat use was high among League General seat recipients, injuries declined substantially and claims costs were greatly reduced. On a short-term basis, direct program costs exceed direct program savings. Long-term cost effectiveness remains to be determined.			
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METRIC CONVERSION FACTORS

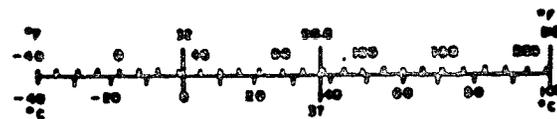
Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
sq in	square inches	6.5	square centimeters	cm ²
sq ft	square feet	0.09	square meters	m ²
sq yd	square yards	0.8	square meters	m ²
sq mi	square miles	2.6	square kilometers	km ²
acre	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
cup	teaspoons	5	milliliters	ml
1/2 cup	tablespoons	15	milliliters	ml
1 cup	fluid ounces	30	milliliters	ml
1/2 cup	cup	0.24	liters	l
1 cup	glass	0.47	liters	l
1/2 qt	quarts	0.95	liters	l
1 qt	gallons	3.8	liters	l
1/2 cu ft	cubic feet	0.03	cubic meters	m ³
1 cu yd	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (heat)				
F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C



Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	acre
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	st
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	1.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	36	cubic feet	cu ft
m ³	cubic meters	1.3	cubic yards	cu yd
TEMPERATURE (heat)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F



* 1 in = 2.54 centimeters. For other units, consult any good hand-drawn metric ruler. See RSI's book, *Field 100*, *Units of Weight and Measure*, Price \$7.95. SB Catalog No. C1310-700.

EXECUTIVE SUMMARY

The League General Insurance Company, which is the wholly-owned automobile insurance affiliate of the Michigan Credit Union League, initiated a unique child safety program in June 1979. At that time the company began distributing child safety seats in Michigan as a benefit under its automobile insurance policies. The seats were distributed at no additional charge to policyholders who had children related to them born or adopted into their households while a League General policy was in effect. In February 1980 the program was expanded to include League General policyholders in Minnesota.

This report describes the history and operation of the League General program and presents the results of a study to evaluate the accomplishments of the program during the first two years of its operation.

The program was originated to reduce the incidence of deaths and injuries to child vehicle passengers by increasing the use of child safety seats by policyholders transporting young children. Such a reduction would be an important outcome in and of itself. Beyond this humanitarian and social goal, League General management also hoped that over the long term the program would prove to be justifiable as sound business practice because savings in claims costs would exceed program expenses.

A no-cost distribution design was selected for two reasons. It was judged most likely to overcome consumer resistance or inertia to acquiring seats. It also made the program simple to operate and imposed minimum administrative burdens and costs on the company.

The program procedures are very uncomplicated. A policyholder requests a seat by post-paid card and is checked for eligibility. Shipping labels are typed and sent once a week to the seat manufacturer, Century Products, Inc. Century ships the seats directly to the policyholder and bills the company. Through May 1982, when this report was prepared, 10,200 seats had been distributed--8,200 in Michigan and the remainder in Minnesota.

Executive Summary (continued)

The evaluation results reported in this volume cover the first two years of the program--June 1979 through June 1981. The study is limited to operation of the program in Michigan. The components of the evaluation include: an analysis of the company's claims and child injury experience for accidents in which children 0-4 years of age were involved as passengers in policyholders' vehicles; an analysis of claims costs; a comparison of claims costs experience and program costs to estimate cost-effectiveness; and a detailed home-interview survey of 400 League General seat recipients and of a control group of equal size from the general population to determine attitudes and behavior patterns related to child restraint use.

The principal conclusions that emerged from this study include the following:

- From both the claims data and the household survey, it is apparent that the availability objective was achieved to a significant extent. More than 7,100 seats were sent out to Michigan policyholders during the evaluation period. The best estimate is that approximately 85% of those policyholders eligible to receive seats by virtue of new births have availed themselves of the program.

The survey data confirm that availability is higher among League General households than among households with young children in the general population.

- Increased availability has clearly been related to greater use of seats. Among those policyholders issued seats, reported use of a seat by a crash-involved young child passenger was more than three times that in cases where policyholders had not been issued seats--56.6% versus 16.7%.
- High rates of seat use have been associated with lower occurrence of child injuries. The number of children injured declined 45.7% during the first two years of the program compared to the two-year period immediately

Executive Summary (continued)

preceding the program. The injury rate among unrestrained children was more than two and one-half times that for restrained children during the two-year evaluation period—15.2% versus 5.7%. No restrained child received more than a minor injury. The decline in injuries was sharpest for more serious injuries.

- The expanded availability of seats fostered by the League General program appears to be the critical factor leading to greater seat use and lower incidence of child injuries. No other factors, such as reduced level of travel, changes in traffic laws, general decline in statewide accidents, or decline in the company's policyholder population, can account for the decline in injuries.
- The reduction in child injuries has been accompanied by an even greater decline in claims expenditures. Allowing for inflation and administrative expenses, claims costs declined 75% from \$52,000 during the two-year period before the program to \$13,000 in the first two years of the program.
- As of the end of the evaluation period, the cost-effectiveness of the program to League General had not been firmly demonstrated although the broader net saving to the insurance industry and society seemed reasonably well supported. Large start-up costs had been incurred, and current annual costs to the company were exceeding short-term annual savings by a ratio of just over two to one. Part of this result is due to the fact that the full potential of the program had not been achieved. Part was due to the uncertainty over whether a major disabling injury had been avoided, an event that could save the company several hundred thousand dollars in claims costs. The indication was that savings in claims costs by medical insurers were several times as large as those to League General, so that the overall cost-effectiveness was positive.

Executive Summary (continued)

- The care taken to select a particular seat appears to have been justified in producing positive results. The survey results seem to show that part of the program's effectiveness may be due to the favorable attitude among policyholders to the Century seats that were selected.
- The survey indicates that there is a relationship between adult seat belt use and child safety seat use although the direction of influence remains uncertain.
- A result with potentially important implications is the indication that households where the decision to obtain a child safety seat was a joint decision are more likely to be regular users than those where the decision to acquire was made by one parent. Interpersonal influences do appear important.
- The study results point to two particular problem areas--seat use among older children and among children being driven in cars other than those of their parents. Child seat use was found to fall off sharply for children above two years of age, and there is a low level of use when children are driven in cars other than their parents.

The League General program does seem to show that active intervention can have a positive effect on child passenger safety. Child safety seats do appear to be highly effective in protecting young children. The League General program linking of child safety seat distribution with automobile insurance is one alternative way to increase the availability and use of seats.

ACKNOWLEDGMENTS

A great many people within the League General Insurance Company helped to make this evaluation study possible. We want to thank particularly Rod Tumath and the people who work under his supervision on the claims staff. Their inputs were essential to the assembly of information on child-involved accidents. The work of Catherine A. Smith, Marie Smith and Terri Krulicki, which involved sifting through thousands of claims files, deserves special mention, as does the work of Laura Brombach in assembling the data on the distribution of child safety seats. Thanks also are due to Richard Fleissner, Les Jones and Anu Sundram for their work to set up computer files and to Alatheia Jones for help with the design and production of the final report. Special appreciation is due to Cindy Shabazz for her patience and diligence in translating the rough draft text into final word-processed form, to Cynthia Henrich for her careful and valuable editing and to Donna MacMillan for additional clerical support.

We would also like to acknowledge the assistance of several key Market Opinion Research personnel in conducting and analyzing the household survey. This group includes Lynn Andersen, field director; Arlene Cherry, field supervisor; Tom Wilkinson, data processor; and Donna Kellstrom, data analyst. Mary Ann Adams was responsible for production of the Market Opinion section of the report.

Our appreciation also goes to Kevin Quinlan for his consistent help and support as Contract Technical Manager.

While we acknowledge the help of many, we remain responsible for the final product and whatever limitations, omissions or errors it may contain.

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Chapter I

INTRODUCTION

In June 1979, the League General Insurance Company, a wholly owned automobile insurance affiliate of the Michigan Credit Union League, initiated a unique child passenger safety program. The company began distributing child safety seats in Michigan as a benefit under its automobile insurance policies. The seats were distributed at no additional charge to Michigan policyholders who had related children born or adopted into their households while a League General policy was in effect. In February 1980, the program was expanded to include League General policyholders in Minnesota. To date, 10,200 seats have been distributed--8,200 in Michigan and 2,000 in Minnesota.

Early in the program, the National Highway Traffic Safety Administration suggested that the program should be evaluated. In October 1980 League General agreed to undertake a detailed evaluation with support provided by NHTSA. Market Opinion Research, Inc. of Detroit was retained to carry out the major survey task that was planned as part of the study. This report presents the results of the evaluation study.

The evaluation reported in the sections that follow covers the first two years of the program running from June 1979 through June 1981. The study is limited to operation of the program in Michigan. There are several distinct components of the evaluation study. These include: an analysis of the company's claims and child injury experience for accidents in which children 0-4 years were involved as passengers in policyholders' vehicles; an analysis of claims costs; a comparison of claims costs experience and program costs to estimate cost-effectiveness; and a detailed home-interview survey of 400 League General seat recipients and a control group from the general population to determine attitudes and behavior patterns related to child restraint use.

Chapter 2 of this report summarizes the background of the League General program and the rationale that lay behind the decision to undertake it. The operation of the program is described in Chapter 3. An overview of the evaluation methodology is presented in Chapter 4. Chapter 5 reports the results of analyzing the company's

Chapter I (Continued)

claims experience for accidents in which young children were involved as passengers in vehicles covered by League General Insurance. Chapter 6 deals specifically with the impact of the program on payments disbursed as a result of child injuries. Chapter 7 describes the costs of the program and discusses the issue of cost-effectiveness. The results of the survey undertaken by Market Opinion Reserach, Inc. are reported in Chapter 8. The final chapter summarizes the central conclusions of the study.

Chapter 2

BACKGROUND AND RATIONALE OF THE LEAGUE GENERAL CHILD SAFETY SEAT PROGRAM

2.1 The Company

The League General Insurance Company was founded in 1969 as the automobile insurance member of the League Insurance Group. The companies in this group, recently renamed the Credit Union League Companies, are wholly owned affiliates of the Michigan Credit Union League. The other companies of the group include League Life Insurance, the largest domestic life insurer in Michigan, League Services Corporation and Group Systems Incorporated. The latter two companies provide an array of support services to the insurance companies and to the credit unions of Michigan.

League General exists principally to provide automobile insurance to the members of the 900 credit unions that belong to the Michigan Credit Union League. Its insurance is available only to members of credit unions that belong to state leagues in Michigan, Minnesota and Oregon, with Michigan being the principal market. In Michigan, the potential customers are the 3,000,000 members of credit unions affiliated with the state league. Since the company is a relatively recent entry into the highly competitive automobile insurance market, it is as yet a relatively small factor in the field. Currently, the company has 35,000 policies in force in Michigan. These cover 70,000 vehicles, or just under 1% of those registered in the state. An additional 12,000 policies are in force in Minnesota and Oregon.

The League Companies are for-profit corporations and are operated as traditional businesses. Nevertheless, because they are wholly owned by the Michigan Credit Union League, they are part of the credit union and cooperative movements. Indirectly, they are owned and controlled by the millions who belong to the affiliated credit unions of Michigan. Because of this, League General and its sister companies operate with a principal concern to serve the interests and needs of that broad membership who are both customers and indirect owners. This membership includes about 40% of the households in the state and covers a wide socio-economic spectrum, under-representing only the very poor and the very rich.

Chapter 2 (Continued)

Because of the company's consumer-owner orientation, League General's management has always sought creative ways to serve the broader interests of its constituency and its policyholders. The company was in the forefront of the successful drive to bring no-fault automobile insurance to Michigan. It has promoted the coordination of auto and health insurance payments for medical claims as a means of containing the rise in insurance costs. And it has pioneered group automobile insurance as an employee benefit.

League General's activities to promote vehicle occupant safety can be considered as coming under the general heading of loss containment, common to all insurers. Its approaches, however, have been varied. The company instituted years ago a rule requiring employees to wear seat belts while driving on company business, whether in company or personal cars. The use of seat belts has been urged upon policyholders by every communications means available. Two years ago the company committed staff and resources to help lead the drives that culminated in the passage of child restraint laws in both Michigan and Minnesota. And most recently League General committed itself to join the effort in Michigan to pass the first mandatory seat belt law in this country. It is against this background and within this framework that the League General child safety seat program was conceived and brought into being.

2.2 Development of the League General Child Safety Seat Program

The genesis of League General's child safety seat program dates back to the spring of 1978 and a meeting convened by the Michigan Secretary of State. That meeting was convened to consider how to promote greater use of vehicle passenger restraints. The special problem of increasing the use of child restraints was one focus of this meeting.

League General was represented at that meeting by the company's general counsel. While he agreed that Michigan should follow the lead of the state of Tennessee and seek passage of a mandatory child restraint law, he recognized that this might take

Chapter 2 (Continued)

considerable time. The data cited in the meeting to show that traffic crashes were the greatest single cause of death and serious injury to young children led him to consider what might be done in the absence of a law to promote the use of child restraints. His first focus was on the 50,000 households carrying League General policies. Out of this consideration came the idea to link child safety seats and automobile insurance and to make the seats a benefit under automobile insurance policies.

In presenting the idea for a child seat distribution program to the League General management, he argued that it was not only socially desirable but in the company's best interest to increase the use of child restraints among its policyholders. Considerable evidence was available to demonstrate that increased use of passenger restraints was the most effective and least costly way to reduce the deaths, injuries and economic losses resulting from motor vehicle crashes. Automobile insurers pay for a substantial part of these losses. If significant cost savings could be achieved, this would benefit both the company and all policyholders by helping to contain the price of insurance.

Two specific circumstances peculiar to the child restraint problem were taken into account in designing the company's program. First and foremost was the obvious fact that, unlike adult seat belts, child restraints did not come as standard equipment in vehicles. The first need was to get seats into peoples' hands. The low nationwide usage rate clearly implied that considerable consumer inertia had to be overcome. This in turn implied that whatever system was set up needed to be simple and to require minimum effort on the part of the consumer recipient.

It was also perceived that a significant inhibiting factor was cost. While adult belts are not free goods, they are mandatory equipment on most passenger vehicles and their cost is hidden in the initial price of the vehicle. Child restraints must be purchased separately. While their cost even today is not high in relation to many of the items regularly purchased as optional equipment on cars, the fact that the dollar

Chapter 2 (Continued)

outlay was and is not trivial was seen as an added inhibition to more widespread acquisition and use. The conclusion was that the program needed not only to be simple to use, but it had to involve little or no out-of-pocket cost to the prospective seat recipients.

Two additional conditions needed to be satisfied. First, the administrative burden on the company had to be minimized. League General is not in the retail merchandise business, and any venture to market a product other than automobile insurance would involve undue expense and time committed to a wholly unfamiliar business area. Second, the program that was devised would have to stand the scrutiny of and be approved by state insurance authorities. Automobile insurers are regulated by the states, and the activities they engage in are subject to state approval.

It took the better part of a year to design a program, receive necessary approvals, establish administrative procedures and launch operations. The general outline of the seat distribution programs was devised during the summer of 1978. In October, the Michigan Insurance Commissioner issued a ruling approving the distribution as an appropriate activity for League General Insurance Company to engage in. During the months that followed, considerable time was spent researching seats and selecting one to distribute. Once a seat was selected, arrangements had to be made with the manufacturer to supply the seats. Brochures and forms were designed and printed to inform policyholders of the program and to enable them to make requests for seats. In May 1979 announcements of the program were mailed to all Michigan policyholders. The first orders were received in June, and the first seats were in the hands of policyholders in July.

In February 1980, the insurance commissioner of Minnesota approved the program, and it was immediately expanded to include League General policyholders in that state. Approval was also sought from the state insurance authorities in Oregon, but

Chapter 2 (Continued)

this was denied. To date, it has not been possible to gain approval in the state of Oregon.

2.3 Program Objectives

The general goal of the League General child safety seat program has been to increase the use of child safety seats among policyholders who drive young children and thereby to reduce the number and cost of claims for injuries to children who are passengers in vehicles involved in traffic accidents covered by League General insurance. This general goal can be elaborated into several specific objectives. Specifically, the program has sought to:

- (1) Place child restraint seats in the hands of policyholders who have children 0-4 years of age.
- (2) Stimulate increased use of child restraint seats by policyholders with young children.
- (3) Reduce the number and severity of injuries to young children covered by League General automobile insurance policies.
- (4) Reduce the cost of claims for injuries to young children involved in traffic accidents covered by League General automobile insurance to achieve a net long-term saving for the company, its owners and its policyholders.

The evaluation results that are presented in this report focus principally on determining the extent to which these objectives were achieved during the first two years of program operation. Other questions will also be addressed, including why people use and do not use child restraints, what characteristics differentiate users and non-users, how different child restraint devices are evaluated, and whether child restraint use is linked with adult seat belt use. The primary focus, however, is on the simply-stated question: Has the program worked?

Chapter 3

PROGRAM DESCRIPTION

The League General child seat distribution program was planned with two guiding principles in mind--simplicity and least cost. The program was designed to be simple for policyholders to access and simple for the company to administer. The decision was reached early that "least cost" to the policyholder should mean no additional cost and that seats would be distributed without further charge to eligible policyholders. Not charging for the seats also simplified operation of the program and reduced the potential costs to the company by eliminating such steps as billing, accounting for receipts and following up collections.

Regulatory limitations imposed another condition on the program that affected its design. Insurance companies are generally required to sell their insurance products according to approved rate structure. They are prevented from offering rebates or valuable inducements to prospective customers, since these would effectively violate the established rates. Because of this, the seat distribution had to be limited to those who already had League General policies in effect at the time they became eligible to request seats.

As finally established, the program became a formal benefit under each League General automobile insurance policy. The essence of the program is succinctly described in the policy endorsement quoted below. This endorsement has been approved by state insurance authorities and is an integral part of the League General policies in Michigan and Minnesota.

Child Restraint Car Seat Endorsement

League General will provide, without charge, a child restraint car seat selected by League General to the named insured upon presentation to League General of satisfactory proof that the named insured or any relative has given birth to a child while insured by the company.

"Relative" means the spouse of the named insured and any person related to the named insured by blood or adoption who

Chapter 3 (Continued)

is a resident of the named insured's household at the time of the child's birth.

"Birth" includes a child adopted by the named insured or any relative, except an adopted child who is more than five years of age at the time of adoption.

No more than two child restraint car seats will be provided by League General to the named insured or relative except in the event of multiple births resulting from one pregnancy

As the endorsement indicates, any League General policyholder in Michigan or Minnesota is eligible to receive a child restraint seat if that policyholder or any relative who is a resident of the policyholder's household has a child by birth or adopts a child under five years of age provided the League General policy is in effect at the time of the birth or adoption. The child need not be the policyholder's own child, but must be related. He or she may be a grandchild, nephew, niece or cousin provided the residency requirement is met.

No more than two seats may be sent under any one policy, except in the case of multiple births. As a matter of note, three sets of triplets have received seats to this time as have several sets of twins. The two-seat limit was established not only to set a reasonable bound on the program, but also in recognition of the fact that the seat that is used is generally outgrown by a child in the fifth year, so that in most instances two seats should cover a family's need.

The operation of the program has been very simple. In the beginning, all policyholders received a mailing informing them of the program. The mailing included a postage paid request form requiring information on the actual or prospective date of birth of the child for whom a seat was requested. Information on the program was also disseminated through the newsletters of credit unions and the credit union leagues. Currently, new policyholders are informed of the program

Chapter 3 (Continued)

at the time they buy their policies. Reminder notices and request cards are included in the packets that are sent out at the time of yearly renewal of policies.

To initiate a request, a policyholder has only to fill out a request card and return it to the company. When a card is received, the eligibility of the requestor is checked. Principally this involves making certain that a policy is in effect at the right time and the child referred to is eligible, that is, is related to the policyholder and is a resident of his or her household. When there is doubt, further information is requested by letter from the policyholder. This occurs in about 10% of the requests and is most frequently caused by requests from grandparents.

After eligibility is confirmed, a shipping label is typed. Once a week, these labels are sent to the manufacturer who supplies the seats. The seats are shipped directly to the policyholder by the manufacturer. Thus, League General never handles the seats. The process works with minimum effort, and there are very few problems. It is also very quick. The normal elapsed time from the receipt of a request to the arrival of a seat at the policyholder's home is less than two weeks.

In the early months of the program, to avoid excluding children who could use seats, requests were accepted for children under five years of age provided they were appropriately related to the policyholder and had been born or adopted while a League General policy was in effect covering the household. This led to distribution of an unusually large number of seats in the initial period of the program. There was no formal termination of this "catch up" period, but requests for seats to go to older children fell off significantly after about two months. Most seats now are sent out as a result of current births.

Policyholders are encouraged to request seats prior to the birth of a child. This recognizes the importance of having a seat available for the first trip home from the hospital. The brochures that describe the program state clearly that requests

Chapter 3 (Continued)

should be made during pregnancy with sufficient time allowed to assure delivery prior to birth.

The seat that was originally selected for distribution was the Trav-L-Guard manufactured by Century Products, Inc. The selection was made after considerable study and consultation with a number of authorities in the highway safety field. The Trav-L-Guard was chosen because it was a convertible, usable both in infancy and through the age of four. The seat met the Federal crash-worthiness standards that were in effect at the time. It was also among the easiest to use and, in particular, it did not require a tether. This was important because tethers were judged to be inconvenient and to impose added expense to recipients for installation of seat anchors.

The Trav-L-Guard was used through early 1981. In January of that year, the revised Federal Motor Vehicle Standard No. 213 went into effect, and Century Products introduced a new line of seats that met the more stringent requirements of this standard. The program replaced the Trav-L-Guard with the Century 100 seat, and this model has been distributed since February 1981.

As of this writing, League General has distributed just over 10,200 seats to its policyholders since the program began in June 1979. Of these, 8,200 have gone to policyholders in Michigan and the remainder have gone to policyholders in Minnesota. The program evaluation that is the subject of this report covers the distribution in Michigan between June 1979 and June 1981. During this two-year period, 7,140 seats were distributed in Michigan.

Because of the early "catch-up" period, almost 3,800 or 53% of the seats distributed during the evaluation period were sent out during the first two months. This has occurred in part because the number of policies outstanding has declined as a result of the current economic recession and partly because in all probability a saturation point has been approached. In the last six months of 1981, 439 seats were

Chapter 3 (Continued)

distributed compared with 829 during the comparable period in 1980 and 658 during the first six months of 1981. At the present time, seats are being distributed at an annual rate of about 1,100 in Michigan and 200 in Minnesota.

Chapter 4 EVALUATION OVERVIEW

4.1 Introduction

This study to evaluate the League General child safety seat distribution program is composed of four related parts. The first focuses on the rate of child restraint use and the incidence of injuries among young children. The second deals with the trend in dollar costs of claims to cover the child injuries. The third brings together data on the cost of claims and the cost of the program to provide a basis for estimating the cost-effectiveness of the program. And the fourth involves a survey of League General seat recipients and a control group from the general population to explore behavioral and attitudinal patterns related to the program.

The sections that follow present background information on each of these study elements.

4.2 Injury Incidence and Restraint Use Analysis

The primary objective of the seat distribution program has been to reduce the incidence of injuries to young children involved in vehicle accidents by increasing the use of child restraint seats among League General policyholders. To determine whether this was accomplished, data were assembled for claims resulting from accidents in which children 0-4 years old were involved as passengers in vehicles covered by League General automobile insurance.

Only limited information was available for claims that occurred before the beginning of the seat distribution program. Special data collection procedures were instituted when the program started; however, for the pre-program period, three conditions limited the availability of data. First, for the pre-program period, it was possible to identify child involvement in a crash only if that child had been injured

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and a claim feature or reserve had been set up to cover that injury.* This meant that the total number of children involved in crashes for the pre-program period could only be estimated, and no information would be available on crashes in which children were involved but no injury to a child had occurred.

Further, this also meant that an unknown number of minor injuries could not be identified. This was so because in cases where an injury was very minor and no medical treatment costs were anticipated, a claim feature would not have been set up. In these cases, there would be no record of the occurrence of an injury. The special data procedure set up for the program period ensured identification of all child-involved accidents and all child injuries, but there was no practical way to retrieve missing information for the pre-program period.

The second limiting condition was that even for pre-program claims where child injuries were identified, information on restraint utilization was so incomplete and imprecise that it was not meaningful to use it. Because of this, it was impossible to determine the difference in restraint use among children involved in accidents before and after the distribution program was instituted.

A final constraint resulted from purging procedures related to claim files. Initially, it had been hoped that a pre-program trend of child injury data going back six years could be developed. This estimate had been based on the availability of computerized claims information. When it became clear that some critical data was available only in hard-copy claim files, the time horizon had to be sharply reduced. The farthest back it proved possible to go with certainty that purging had not affected the completeness of the records was two years.

* Claim features or reserves are set up only when there is an expectation that a payment will have to be made. In some cases of minor injury, when no professional treatment is anticipated or when any costs will be covered by medical insurance, a feature may not be established. When this is so, there may be no record of the injury, unless a special procedure is instituted.

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Because of the limited nature of pre-program data, the injury incidence and restraint use analysis had to be carried out in two segments. The first is a direct pre/post measurement of injury incidence comparing the two years prior to the introduction of the program with the first two years following its inception. The pre-program period runs from July 1977 through June 1979, and the post-program period runs from July 1979 through June 1981. July 1979 was chosen as the cut point, even though the program began in June, because the first seats were not actually delivered to policyholders until early July.

The pre/post analysis focuses on two questions: was there a significant decline in injuries and in severity of injuries; and although no direct comparison of before and after restraint use is possible, are there factors other than the child seat distribution program that might have accounted for any observed decline in injuries?

The second segment of this injury incidence and restraint use analysis focuses only on the post-program two years. For this period, procedures were set up to identify all child-involved crashes and to determine restraint use in all cases. Because of this, it was possible to focus on a broader set of questions, involving restraint use and the availability of League General seats as well as the occurrence of child injuries.

All of the data on pre-program injuries were assembled from League General hard copy claims files. For post-program claims information was assembled both from claims files and directly from policyholders making claims. The information collected included:

- . Age and sex of children 0-4 years of age
- . Age and sex of driver
- . Identification of driver-policyholder or relationship of driver to policyholder
- . Relationship of child to driver

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- . Type of accident and severity of damage
- . Nature of child injuries, if any
- . Child restraint use at time of accident
- . Cost of claim for child injury

Assembling information on pre-program injury claims required an initial two-step process to identify the relevant claims. The company's computerized claims files did permit identification of injury claims, but contained no information on whether or not the injured were children. A listing was made of injury claims going back through 1976. The 10,000 claims thus identified had then to be reviewed by inspecting the hard-copy files to determine which ones involved children who were injured.

The special procedures established when the program began ensured identification of child-involved claims from that point on and also made it possible to collect more complete detailed information. Beginning in July 1979, a special interview form was used to collect information on child-involved accidents immediately when claims were called in by policyholders. The brief interview added to the telephone intake procedure explicitly identified child involvement and assembled information on the ages, sex, restraint status and injuries of any involved children. The company representative was required to state immediately that the information sought was voluntary and would have no bearing on any claim. This was stressed to ensure complete and truthful responses, particularly to the restraint use questions.

The assembly of information from hard copy files required a careful search in each case. These files contain adjusters' notes, pictures, police reports, reports on injuries and medical treatment, records of disbursements, and transcripts of interviews where these had taken place. A minor accident usually involves only a dozen pieces of paper and may lack even a police report. Serious accidents involving litigation can lead to files several inches thick. The information extracted from

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these files was recorded on a standard claims information form. These data were later coded for computer input and analysis.

Two central items of data require specific comment. The remainder are relatively straightforward. The two are injury level and restraint status.

Initially, it has been expected that injury information could be translated into an Abbreviated Injury Scale (AIS) code. An evaluation of the injury information available in the claims files led to the conclusion that this was not sufficient in many cases by itself to permit valid translation into an AIS level. Because the number of serious injury cases was small and because the resources and time available for this part of the project were limited, it was not considered justifiable to undertake a costly search for medical records and opinions to enable a valid AIS scaling to be made.

The categorization that has been used is cruder than the AIS scale and is as follows:

- | | | |
|------------------------|---|--|
| No Injury | - | No indication of any trauma |
| Minor Injury | - | Mention of minor bruises, small cuts not requiring sutures, being "shaken up," etc. |
| Moderate Injury | - | Mention of multiple bruises and cuts requiring sutures, mild concussion, one minor fracture, etc. |
| Serious Injury | - | Major fractures, including multiple breaks in a limb or a skull fracture, multiple serious cuts requiring many sutures, all usually requiring hospitalization for more than one night. |
| Fatality | - | Claim for death |

In fact, because the total number of injuries was relatively small, this scale was generally collapsed in the analysis into either an uninjured-injured grouping or a

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three-class grouping as follows: uninjured, minor injury, and moderate or more serious injury.

Concerning restraint status, the restraint information was gathered for all post-program cases. This information is based on reports of use after the fact rather than direct observation by independent observers. In all cases, one report comes from the policyholder reporting the claim. In some cases, there was also a police report which had corroborating general information as to whether or not a child was restrained, though these rarely indicate what the type of restraint was.

The author recognizes that some will question the validity of results based on self-reports because of the common belief that over-reporting of use tends to occur. In the present study, there was no way that observations could be made at the time of the accident. Nor was there any practical way to check the reports of use after the fact. The best that could be done was to stress the importance of the information to the policyholder informant and to assure them that their answers would have no bearing on any claim. Beyond this, the analysis was constructed to provide as much cross-checking of results as possible.

4.3 Cost of Claims Analysis

The cost of claims analysis focuses on the money disbursed by League General to pay claims resulting from injuries to young children. The amounts disbursed during the two years prior to the start of the program are compared with the comparable figures for the two-year period following the program's implementation. The question to be answered is whether or not the seat distribution program was associated with a decline in dollar outlays.

The data on the dollar cost of claims were assembled from the hard copy claim files as part of the process described in the previous section. Most of the money was paid directly for medical treatment and related services, such as ambulance transporta-

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tion. In several cases, sums were also dispensed as general compensation not directly related to specific treatment.

It had been hoped in the original planning for the study to assemble data on costs borne by other parties, particularly medical insurers and families. This proved to be infeasible. The three largest providers of medical coverage for the individuals involved in this study were Michigan Blue Cross/Blue Shield, Travelers Insurance Company and Aetna Life Insurance Company. All three of these organizations cooperated fully in a search of their records for disbursements related to cases of child injuries involved in this study. This was done for cases in which League General files indicated such payment had been made, but gave incomplete information on the dollar amounts.

For the program period, League General's files indicated payments by other insurers had been made in 29 of 54 cases. Eighteen of the 29 payments involved Blue Cross/Blue Shield, Travelers, or Aetna. Seventeen were confirmed by the appropriate organization. For the pre-program period, there were non-League General payments in 47 of 81 cases; 33 of these were from the three major health insurers. Records on twelve of these latter cases, or nearly 40%, could not be located by the relevant insurer. From this, it was clear that the data for a valid before and after comparison of claim costs borne outside League General could not be assembled and the effort was abandoned.

In the analysis of League General claims cost data, the actual disbursements are reported and two adjustments are also shown. The first is an inflation adjustment, allowing for the rise in medical costs between the two-year pre-program period and the two-year post-program period. The second is a percentage factor added on to the actual dollar disbursed to take into account the significant administrative costs involved in processing claim payments. These adjustments are detailed in Chapter 6 where the claims cost data are presented and discussed.

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4.4 Cost-Effectiveness Analysis

In this analysis, the saving in claims disbursements for child injuries is compared with the costs of the program to provide one measure of cost effectiveness. The claims cost figures have already been discussed in the preceding section. The program cost data were assembled by monitoring the operations of the program over the 24-month period of the study and estimating the pre-program start-up costs. The principal cost elements included are: purchase of seats, printed materials, postage, staff time to process requests and administer the program, and computer record-keeping costs.

Total cost data are presented, but these are not the figures used for a direct cost-effectiveness comparison, because more than 50% of all costs borne through the evaluation period occurred during the first several start-up months. To provide a more meaningful picture, an average annual cost under stable conditions is estimated and this is compared with annual claims dollar savings. The results of this comparison are presented in Chapter 7 along with a more extended discussion of issues related to cost-effectiveness.

4.5 Household Survey

The largest single element in the evaluation study was a home interview survey. This survey was designed to gather representative information on the extent of child restraint use, the reasons for use and non-use, and other attitudinal and behavioral patterns related to child restraint use. The survey was designed cooperatively with Market Opinion Research, Inc. (MOR). The field work and analysis were completed by MOR. The report of the survey that appears in this volume as Chapter 8 was authored by Dr. Andrew Morrison, the MOR project director.

The survey involved home interviews of a sample of 400 League General seat recipients and 400 respondents from households with young children selected at

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random from the neighborhoods where the League General respondents lived. The 45-minute interview was intended to provide answers to the following questions:

1. Do League General seat recipients use child restraints more than other comparable groups?
2. What factors differentiate between users and non-users of child restraints?
3. How do League General recipients evaluate the Century seats and what improvements do they suggest? How do others evaluate other seats?
4. Why are child restraints used or not used? Do the League General recipients differ from others on this question?
5. Is child restraint use related to adult restraint use among League General seat recipients and others?
6. Are people who make use of child or adult restraints more favorably inclined toward mandatory restraint laws?

Full details on the methodology and results of the survey are presented in Chapter 8.

4.6 Statistical Note

The statistical techniques employed throughout are simple in recognition of the nature of the data and the size of the data sets. In general, tables are reduced to percentage distributions and percentage changes. Where significance are suitable, the chi-square (X^2) test is used to determine the statistical significance of differences between distributions and the standard significance test for differences between two proportions in percentages is used when paired comparisons are meaningful. Throughout the report where the notation "NS" appears, this connotes that the difference between two distributions or two proportions is not statistically significant at the .05 level of confidence or greater.

Chapter 5

RESTRAINT USE AND INJURY EXPERIENCE

5.1 Introduction

This chapter presents the data on child injury trends and how these are related to the issuance and use of child safety seats among League General automobile insurance policyholders. As described in the preceding chapter, the data used in this analysis have been assembled principally from company records for claims involving accidents in which children 0-4 years of age were passengers in vehicles covered by League General insurance. The focus of the analysis is the first two-year period of program operations, from July 1979* through June 1981, and the two-year period immediately preceding the program, from July 1977 through June 1979.

The principal questions considered are: (1) was there a significant impact on child injury experience and (2) if there was an impact, can this be related to the distribution and use of child safety seats under the League General program? As a prelude to presenting the data that answers these questions, the next section provides more detailed information on the scope of the seat distribution. Then follows the section that compares injury experience during the periods before and after the introduction of the program. The next section presents a more extensive analysis of experience during the post-program period. The final section summarizes the major results of these analyses.

5.2 Scope of Seat Distribution Program

The figures on the distribution of seats under the League General program show clearly that a large number of child restraints have been put in the hands of policyholders. Table 5-1 summarizes the distribution of seats during the first two years.

* The first seat requests were actually received in June 1979, when the program began. Because of early delays in the process of distributing seats, policyholders began receiving them only in July. Therefore, the post-program analysis period during which seats were available to children of policyholders who might be involved in accidents begins with July 1979.

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Table 5-1

Seats Distributed In Michigan During Two-Year Evaluation Period

<u>Time Period</u>	<u>Seats Distributed</u>	<u>Percent of Total</u>
6/79 - 12/79	4425	62.0
1/80 - 6/80	1068	15.0
7/80 - 12/80	829	11.6
1/81 - 6/81	818	11.4
Total	7140	100.0

The table shows that 7,140 seats were issued to policyholders during the first two years of the program in Michigan. Because of the peculiar nature of the early "catch-up" period, described in the previous chapter, almost two-thirds of these seats were issued during the first six months and, in fact, more than half (53%) were issued in the first two months. Since June 1981, the distribution rate has declined and stabilized at approximately 1100 per year in Michigan. This is in line with estimates made prior to the program based on expected births among the League General policyholder population.

Table 5-2 shows the number of households in Michigan that received seats during the first two years of the program and the number of seats received by each. It should be recalled that each policyholder is limited to receiving two seats, except in the case of multiple births. Almost 5,800 households were issued seats. Most requested and received only one. Twenty-three percent received the limit of two, either both at one time or as a result of two separate requests. Only twenty-five households, less than 0.5% of the total, received three seats. Three of these were for births of triplets. Six are known to be errors that occurred in the early days of the program when the flood of requests made careful cross-checking difficult.

Table 5-2
Households Receiving Seats
by Number of Seats Received per Household

Number of Seats per Household	Households		Seats Received	
	#	%	#	%
1	4449	77.0	4449	62.3
2	1308	22.6	2616	36.6
3	25	.04	75	1.1
Total	5776	100.0	7140	100.0

One question frequently raised about the distribution is, what proportion of those eligible to receive seats have availed themselves of the opportunity? Unfortunately, there are no data to provide a direct answer to this question. League General does not collect information on the number of young children in policyholder households, because automobile insurers normally have no need for such data. Nor was it possible within the resources available for this study to gather such data by a special survey. With some reasonable assumptions, however, it is possible to make a rough estimate of how great has been the penetration of the program.

League General policyholders in Michigan currently represent slightly under 1% (0.96%) of the households in the state. A reasonable assumption is that they also account for about 1% of the births in the state. In 1981, there were 139,000 births in Michigan. On this basis, about 1,400 League General households should have been eligible to receive seats. In fact, 1,397 seats were distributed. However, 5% of these seats went to policyholders requesting two seats in a single request and an additional 10% went to those requesting single seats for older children. Thus, the number of households receiving seats as a result of births was just over 1,200. This implies that about 85% of policyholders eligible to receive seats because of a birth did so, and 15% of those who were eligible did not avail themselves of the program.

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The survey reported upon in Chapter 8 indicates that a good part of this may have been due to the fact that some already had seats available for their children and chose not to request another. Approximately one-third of League General policyholders surveyed said they had a non-Century seat available in their household for one of their children.

In any event, the program has apparently achieved its first goal to a high degree. Child safety seats have been placed in the hands of most of the eligible policyholders.

5.3 Before-After Injury Experience

Given that the League General program has distributed a great many child safety seats, the next question to examine is whether or not this distribution has been associated with a significant decline in child injuries? Table 5-3 compares the number of injuries to children 0-4 years of age before and after the introduction of the League General program. The injuries are those that occurred to children who were passengers in vehicles covered by League General policies at the time of an accident for which a claim was made. The "before" period includes the two years from July 1977 through June 1979. The "after" period includes the two years from July 1979 through June 1981. The table shows the actual number of injuries and the percent of change between the two periods.

Table 5-3
Before/After Child Injury Incidence
Adjusted (Unadjusted)*

<u>Injury Level</u>	<u>Number Of Injuries</u>		
	<u>Before</u>	<u>After</u>	<u>% Change</u>
Minor	60	31 (41)	-48.3 (-31.7)
Moderate	15	11	-26.7
Severe & Fatal	6	2	-66.7
Total	81	44 (54)	-45.7 (-33.3)

* "After" figures include an adjustment to take into account different before/after reporting procedures (see text). Unadjusted figures reported in parentheses ().

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One note of explanation is necessary concerning the after figures. As described in the previous chapter, special reporting procedures were set up when the program was begun. These led to the identification of a number of minor injuries for which no claim would ordinarily be filed and no liability on the part of the company would be expected to occur. When no liability is expected, no claim feature or reserve is set up in company records. Unless such a feature is set up, there is no way to identify from the computerized claim files that an injury has occurred. Obviously, for the before period when there were no special reporting procedures, there is no way to know how many minor injuries occurred that did not cause a feature to be set up. To make the before and after figures comparable for purposes of this analysis, the after figures were adjusted to remove those cases in which no feature was established. Table 5-3 does show the unadjusted figures in parentheses for the purpose of completeness. The meaningful comparison, however, is between the pre-program figures and the "adjusted" post-program figures.

Two things are evident from Table 5-3. First, the number of injuries in both two-year periods was small. This was to be expected given the relatively small base of the underlying policyholder population. Second, there was clearly a sharp percentage decline in injuries. The overall reduction was almost 46% on an adjusted basis. All categories of injuries declined, although the very small number of more serious injuries makes the percentage differences of doubtful significance.

Table 5-3 contains insufficient information to test the statistical significance of any of the observed differences. Table 5-4 presents additional information that makes it possible to judge the statistical meaningfulness of the decline in injuries and to develop before and after injury rates. In order to compute injury rates, it is obviously necessary to know the total number of children 0-4 involved in accidents. Because of the special reporting procedures established for the program, this figure was known for the post-program period. For the before-program period, there was no way to develop a comparable count from company records. However, a reasonable estimate could be constructed.

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The average number of League General policies in force was known to have declined between the before and after periods. The average policies in force during the two-year period prior to the program was calculated to be 12% more than the average for the after period. It is reasonable to assume that the total number of children involved in the before and after periods would most likely have varied in the same proportion as number of policies in force. The number of children for the after period was known to be 442. The estimated before period number of children is 112% of the after figure, or 495. This estimated total makes it possible to complete Table 5-4, to estimate comparative rates of injury, and to test the statistical significance of differences.

Table 5-4
Before/After Child Injury Rates

Injury Level	Number of Occurrences*		Occurrence Rate (%)		
	Before	After	Before	After	
No Injury	414**	398	83.7	90.0	p .01
Minor	60	31	12.1	7.0	p .01
Moderate	15 81	11 44	3.0 16.3	2.5 10.0	NS p .01
Severe & Fatal	6	2	1.2	0.5	NS
Total	495**	442	100.0	100.0	

$$\chi^2 = 9.24, p < .05$$

* Adjusted figures used for "after" period

** Estimated on basis of change in average policies in force

The estimated overall injury rate among involved children declined from 16.3% during the before period to 10% in the after period. This is a drop in the injury rate of just under 39%. As Table 5-4 indicates, this decline is statistically significant. Among the subcategories of injury, only the minor injury difference in rates proves to be statistically significant. The rate differences in the moderate and severe/fatal categories and in both these taken together appear substantial, but from a statistical point of view might well have occurred by chance.

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Looked at another way, the before and after injury figures indicate that the chance of a child accident-involved passenger being injured was 1.6 times greater in the before period than during the period after the program was introduced. The comparable figures for individual injury categories are: minor, 1.8; moderate, 1.2; and severe/fatal, 2.4. Again, only the figure for minor injuries is statistically significant, although the other two are consistent in direction.

The before-after data appear to support a conclusion that there was a significant decline in the number of claims for injuries among children in the age range covered by the League General program. Because the numbers are small and because this result is confirmable only after key adjustments and estimates are made, the conclusion cannot be drawn as firmly as one might like. Nor can the result be related directly to restraint use or to the League General program from these data alone, because restraint-use information on the before period cases is too incomplete and unreliable to be useable.

The data presented in Chapter 6 on before and after costs of claims will add credence to the argument that a real decline did occur. The next section of this chapter, which focuses on the more extensive information available for the program period cases, will explore the direct evidence to connect the seat distribution program with the decline in the incidence of injuries. First, however, it is illuminating to consider an obverse question. Given the fact that some decline in the number of child injuries appears to have occurred, can this decline be accounted for by factors other than the League General seat distribution program? If this were possible, it would weaken any conclusion concerning the causal relationship between the decline and the program.

Two types of factors need to be considered, those internal to the company and those operating generally in the state. Looking first to those operating within the company, it has already been noted that the base of policies in force did decline substantially. There were on average 11% fewer policies outstanding during the

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after period than during the before period (approximately 34,850 versus 39,000). This implies that, other things being equal, exposure to child injuries was less and the number of injuries could have been expected to decline. Obviously, however, the 11% decline in the policy base is far less than the almost 46% decline in child injuries.

The observed decline in injuries could have been part of a general decline in claims for injuries experienced by the company. This was not the case. While there are no data available on the total number of injured persons for whom claims were filed, the figures on injury features do give a close approximation of the trend. The relationship is not complete because more than one feature and reserve may be set up for a single injury.* However, the average number of features per injury claim has been quite constant, so that the trend is similar. Total injury features set up during the before and after periods actually show a slight increase, rather than a decline. The before total was 4,100, and the comparable figure for the after period was just under 4,200. The decline in child injuries was clearly not part of a general decline in claims for injuries experienced by the company.

Turning to factors operating generally in Michigan, it is important to note first that there were no significant changes in traffic laws or procedures during the before and after periods that would have affected results. The 55 mile per hour speed limit was in place well before the start of the evaluation period, and the mandatory child restraint law was not passed until the end of this time. There was a relatively constant traffic control environment across the four-year period.

* Separate features may be established for medical payments, reimbursement for income loss, legal expenses, etc.

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The economy of the state did suffer a sharp decline during the evaluation period. In general, such recessions do result in correlated declines in the amount of driving, the over-all exposure to accidents, the number of accidents and the number of injuries. The level of driving in Michigan did decline. Based on state figures adjusted to take into account the mid-year start and finish of the before and after evaluation periods, the vehicle miles of travel declined approximately 6% between the two periods. Correlated with this, the number of vehicle passenger injuries in Michigan declined 11%. Injuries to child passengers in the 0-4 age group showed an even sharper decline. The number of injuries and deaths in this age group dropped 16% from approximately 8,100 to 6,800 (Michigan Department of State Police). While these declines are notable, they are all substantially less than the decline experienced within the League General group. Even the relatively sharp drop in statewide child injuries is greatly exceeded by that experienced within the company.

Finally, it may be asked whether there were any significant differences between the before and after periods in the characteristics of the League General accidents themselves that might account for the decline, irrespective of other factors. Here all that can be done is to compare accidents that resulted in child injuries, because before-period accidents in which children were involved but not injured could not be identified. Comparisons were made on driver sex, driver age, driver relation to child (e.g. own child, grandchild, unrelated, etc.), child sex, child age, child seated position, accident type (single vehicle, multi-vehicle, etc.) and accident severity measured by percent of vehicles totaled. Except for two, none of these characteristics served to differentiate the before and after cases in anything close to a statistically significant way.

The two exceptions were child age and seated position. In the before period, 21% of the injured children were under one year of age and 49% were 3 or 4. In the after period, only 4.5% of the injured were infants and 59% were in the older age group. The difference in seated position is equally notable. In the before period, 38% of the injured children were in the back seat, while the comparable figure for the after

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period was 62%. Interestingly, both of these differences could be logical results of the seat distribution program itself. The program has operated to maximize availability of seats to the youngest children. Therefore, the older age distribution of injured children during the post-program period compared with the age distribution prior to the program could be expected, if the program were being effective. The difference in the before and after distribution of seated positions may be related to the stress on the greater safety of a back seat location for children that was included in program literature.

To sum up, it appears that League General accidents in the before and after periods differed only in ways that can be explained by the program, rather than in other characteristics that could account for the difference in injury experience. There were factors operating both within the company and in the external environment that could account for part of the decline in child injuries. Policies in force did decline, reducing the exposure base. Statewide driving declined and the state trend in child injuries was significantly downward. The rates of these declines were all substantially less than the decline in League General child injuries.

It does seem reasonable to conclude, therefore, that even after other plausible explanatory factors are taken into account, a substantial portion of the League General decline in child injuries remains unexplained. In the next section, further evidence is presented to support the conclusion that the seat distribution program can be meaningfully linked to the decline that was experienced.

5.4 Program Period Analysis

In this section, the analysis focuses upon accidents that occurred during the first two years of program operation. This period lasted from July 1979 when the first child seats were received by League General policyholders through June 1981. The information that is available for accidents that occurred during this post-program period is more complete than for the pre-program accidents. Most important,

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information on the use of child restraints was collected on all accidents occurring during the post-program period.

The analysis presented below centers on three central factors: whether or not a child seat had been issued to the claimant; whether or not a child 0-4 years of age had been injured; and whether or not the involved children had been restrained in car safety seats at the time of a reported crash. The information on seat issuance and child injuries is quite certain. The information on car seat use, as has been discussed previously, may be considered less certain by some. Therefore, the analysis looks for consistency of results to allay doubts that may result because self-reported seat use data may be considered less reliable.

During the two-year program period covered by this analysis, 442 children 0-4 years of age were passengers in 376 crash-involved vehicles covered by League General insurance. Among the 376 accident claims, 316 involved one child 0-4 years of age, 54 involved two children in this age group and 6 involved three children. The analysis below deals with the 442 involved children.

The question left unresolved in the previous section was whether or not a direct positive link could be established between League General child injury experience and the seat distribution program. The principal evidence establishing such a link is drawn from the three tables that appear on page 33. Table 5-5 compares reported child seat use among claimants who had been issued seats with use among claimants who had not been issued seats. The use referred to is for children 0-4 years old who were occupants in a claimant's vehicle at the time of a crash. Table 5-6 compares the incidence of injuries to child occupants who were reported to have been in a child safety seat at the time of a crash with the incidence among children who were reported not to have been in a seat. No distinction is made between claimants issued seats by League General and those not issued seats. Table 5-7 compares the

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child injury incidence for claimants who had been issued seats with the incidence among those who had not been issued seats without reference to whether or not the children were reported to have been in seats.

Table 5-5

Child Seat Use for Issued and Not Issued Claimants

Child Seat Use	Seat Issued		Seat Not Issued		
	#	%	#	%	
In LGIC Seat	91	54.8	1	0.4	z = 8.731, p < .01
In Other Seat*	3	1.8	45	16.3	
Not In Seat	72	43.4	230	83.3	
Total	166	100.0	276	100.0	

$\chi^2 = 191.97, p < .01$

*It is not known whether or not these seats were in compliance with the Federal standard.

Table 5-6

Injury Incidence for Seat Users and Non-Users

Injury Level	Child In Seat		Child Not In Seat		
	#	%	#	%	
None	132	94.3	256	84.8	z = 2.838, p < .01
Minor	8	5.7	33	10.9	
More serious	0	0.0	13	4.3	
Total	140	100.0	302	100.0	

$\chi^2 = 11.74, p < .02$

Table 5-7

Injury Incidence for Issued and Not Issued

Injury Level	Seat Issued		Seat Not Issued		
	#	%	#	%	
None	153	92.2	235	85.1	z = 2.207
Minor	10	6.0	31	11.2+	z = 1.825
More serious	3	1.8	10	3.6+	z = 2.207, p < .05
Total	166	100.0	276	100.0	z = 1.084

$\chi^2 = 4.78, p < .10$

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The principal finding is that among children issued seats 57% were in child restraints at the time of reported crashes. Among those not issued seats, 17% were reported to have been in car seats when the relevant crash occurred. The difference is large and statistically significant. Thus, the reported rate of seat use among accident-involved children issued seats was high and was more than three times the rate for reported use among similar children not issued seats. There is a second less positive conclusion apparent from these data. Even though the "issued" rate of use is high by any standard, it is considerably less than one hundred percent. Taken together, these results indicate that the issuance of child seats had been related to much greater than normal use of seats. They also appear to show that even a program of no-cost distribution on request does not by itself assure full use of child safety seats.

While Table 5-5 suggests that the League General program has resulted in greater use of child restraints, Table 5-6 shows that restraint use was also related to injury incidence. In this tabulation, the comparison is between children who were reported in a car seat and those reported not in a car seat at the time of an accident without regard to whether or not the seat was issued by League General.

None of the 140 children reported in seats sustained more than a minor injury and only 5.7% received any injury at all. Among the 302 who were reported not in a seat, 4.3% suffered a moderate or more serious injury, including one fatality, and the over-all injury rate was 15.2%. The over-all injury rate for the group not in seats was more than two and one-half times the rate for the in-seat group, and this difference is statistically significant. If attention is limited only to those cases where a seat had been issued, the differences in injury experience between restrained and unrestrained children is similar. The injury rate among those reported not in seats was 12.5% and the rate among those in seats was 4.3% (see Tables 5.8 and 5.9 on page 36). In general, child restraint use appears to have been related to reduced incidence of any injury and even more notably related to much lower risk of suffering more serious injury.

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The chain of logic to this point is that the seat distribution apparently can be related to greater seat use and seat use can be related to reduced incidence of injuries. Table 5-7 on page 33 explores the relationship of the program to injury occurrence further by comparing injury incidence between children who had and had not been issued seats without regard to whether they were reported to be in seats at the time of a crash.

This table is useful for two reasons. First, it presents a direct measure of program impact on injury occurrence. Second, because it does not use the self-reported information on restraint use, it avoids any question about the truthfulness of these reports. The factors compared in the table--seat issuance and injury--are more or less objectively established and are not subject to a reportorial bias.

Because no account is taken of the use or non-use of seats, one would expect the relationship between seat issuance and injury incidence to be less strong than between restraint use and injuries. Obviously, it is the use of seats that ought to lower injury occurrence, not the mere ownership of a seat. However, if there is a demonstrable relationship between issuance taken alone and injury incidence, then this should add credence to the reported high rate of seat use in cases where children had been issued seats.

In fact, Table 5-7 does show that there was a modest, positive relationship between injury occurrence and whether or not a seat had been issued to an accident-involved child. Overall, those not issued seats experienced a 14.9% injury rate. For those who had received seats, the injury rate was 7.8%. This difference was statistically significant ($p < .05$). Thus, it appears that a connection can be made between the seat distribution program and reduced injury occurrence without relying directly on reports of restraint use.

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As a further check on the relationship between the seat program and injury incidence, tabulations were made comparing issued and non-issued groups separately for those cases in which a child was reported in a child safety seat and those in which a child was reported not to have been in a child safety seat at the time of an accident. If the use of a child safety seat were the crucial factor in reducing injuries, one should expect any significant difference in injury rates between issued and non-issued groups to disappear when separate comparisons were made for those in seats and those not in seats. Table 5-8 and 5-9 show these separate tabulations.

Table 5-8

**Injury Comparison Between Issued and Not Issued:
Children In A Safety Seat**

Injury Level	Seat Issued		Seat Not Issued		
	#	%	#	%	
No Injury	90	95.7	42	91.3	NS
Minor Injury	4	4.3	4	8.7	NS
Total	94	100.0	46	100.0	

$\chi^2 = 1.1303$ NS

Table 5-9

**Injury Comparisons Between Issued and Not Issued:
Children Not In A Safety Seat**

Injury Level	Seat Issued		Seat Not Issued		
	#	%	#	%	
No Injury	63	87.5	193	83.9	NS
Minor Injury	6	8.3	27	11.7	NS
Moderate/Greater	3	4.2	10	4.3	NS
Total	72	100.0	230	100.0	

$\chi^2 = 0.6695$ NS

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The two tables do show that the difference in injury experience between issued and not issued groups, evident from Table 5-7, does lose significance when seat use is taken into consideration. The not-issued group does appear to show a larger percentage of minor injuries whether or not child safety seats are reported in use, but these differences do not approach statistical significance.

There, thus, appears to be evidence from the program period experience that the seat distribution program did result in significantly greater use of child safety seats among those issued seats. Furthermore, the greater use of restraints was related to a significantly lower rate of child injuries, particularly more serious injuries, among League General policyholders who were issued seats. The previous section established that a significant decline in child injuries occurred after the program was introduced and that there were no circumstances other than the seat distribution program that could easily account for this decline. The evidence presented in this section thus far appears to establish a positive link between the reduced incidence of child injuries and the seat distribution program.

One further possibility remains to be considered. It might be that key characteristics of the accidents themselves could account for the difference in injury experience between cases in which seats had and had not been issued and between instances in which children were and were not in seats. Tables 5-10 through 5-17 present comparative distributions for characteristics of the crashes, the drivers and the involved children. Two comparisons are made in all cases: between cases in which child safety seats had been issued and those in which no seat had been issued and between instances in which children were reported in child safety seats and those in which they were reported not to have been in seats at the time of a crash.

Tables 5-10, 5-11 and 5-12 cover accident configuration and severity. Table 5-10 shows there were no significant differences in the proportion of multi-vehicle, single vehicle and other types of crashes. Table 5-11 shows that the distribution of impact points was generally the same for the two group comparisons. Accident severity is

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measured in Table 5-12 by the percent of vehicles totaled. There is a modest relationship between severity and whether or not a seat had been issued, but no relationship between in-seat and not in-seat cases. It does appear that the non-issued group may have been involved in a greater proportion of more serious accidents than the issued group and this might account for some of the differences in child injury experience.

The next two tables focus on the driver. Table 5-13 shows clearly there was no differentiation between groups in terms of sex of driver. Table 5-14 does show driver age was significant. Children issued seats or restrained in child safety seats were more likely to have been driven by persons 25-34 years of age than children not issued seats or not in seats, although drivers in this age group do predominate. Given that most of the involved children were being driven by one of their parents (71%), the dominance of the 25-34 age group is not surprising. Nevertheless, the higher proportion of very young drivers among the not-issued and not-in-seat groups is probably related to the somewhat greater proportion of more severe crashes experienced by these groups. In fact, as other data from the study show, drivers under 25 accounted for 26% of all the totaled vehicles even though they were only 18% of the involved drivers.

The last three tables in this group deal with the children themselves. Table 5-15 shows there was no sex difference. Tables 5-16 and 5-17 show clearly that there were significant differences between both issued and not issued children and children in seats compared to those not in seats in age distributions and in the relationship of the child to the driver. Children issued seats or in seats at the time of a crash tended to be younger. Similarly, children issued seats or restrained in child seats were much more likely to be being driven by one of their parents at the time of the crash events.

Among the differences delineated above, those related to age of driver, age of child and the relationship of the child to the driver can more logically be considered natural results of the seat distribution program rather than independent explanations

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of the differences in injury experience among groups. The program has tended to distribute seats predominantly to newborns and infants. Those issued seats were more likely to be using seats at the time of an accident. And the drivers of those children issued seats were more likely to be one of their parents.

The single factor, other than the seat distribution program, that might account for the differences in injury experience is the somewhat greater proportion of more severe (i.e. totaled) crashes among the non-issued and not-in-seat groups. However, the relationship is modest. Furthermore, severity does not significantly differentiate between seated and not seated groups, although these groups are significantly different in injury experience (see Table 5-6). Differences in accident severity do not appear to provide a supportable alternate explanation for the observed injury results. Thus, within the limits of the available data, there does appear to be a positive and supportable relationship between the seat distribution program and use of child seats and between use of seats and reduced rates of injury among children involved in accidents.

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Table 5-10

Accident Type

Accident Type	Seat Issued %	Seat Not Issued %	Child In Seat %	Child Not In Seat %
Multi-Vehicle	84	87	86	86
Single Vehicle	15	11	13	12
Other	1	2	1	2
(BASE)	(166)	(276)	(140)	(302)
		<u>X² NS</u>		<u>X² NS</u>

Table 5-11

Accident Impact Point

Impact Point	Seat Issued %	Seat Not Issued %	Child In Seat %	Child Not In Seat %
Front	42	39	43	39
Rear	25	28	24	28
Left Side	18	17	16	18
Right Side	15	15	16	14
Other	1	1	1	1
(BASE)	(164)	(271)	(140)	(295)
		<u>X² NS</u>		<u>X² NS</u>

Table 5-12

Accident Severity: % of Vehicles Totaled

Severity	Seat Issued %	Seat Not Issued %	Child In Seat %	Child Not In Seat %
Totaled	10	16	11	15
Not Totaled	90	84	89	85
(BASE)	(166)	(273)	(140)	(299)
		<u>X² Sig. p < .05</u>		<u>X² NS</u>

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Table 5-13

Driver Sex

Sex of Driver	Seat Issued %	Seat Not Issued %	Child In Seat %	Child Not In Seat %
Male	37	40	38	40
Female	63	60	62	60
(BASE)	(166)	(276)	(140)	(302)
		<u>X² NS</u>		<u>X² NS</u>

Table 5-14

Driver Age

Age of Driver	Seat Issued %	Seat Not Issued %	Child In Seat %	Child Not In Seat %
< 18	4	7	2	7
18 - 24	14	12	14	12
25 - 34	64	49	65	49
35 - 44	12	20	12	19
45	7	13	7	13
(BASE)	(165)	(276)	(139)	(302)
		<u>X² Sig. p < .01</u>		<u>X² Sig. p < .05</u>

Table 5-15

Child Sex

Child Sex	Seat Issued %	Seat Not Issued %	Child In Seat %	Child Not In Seat %
Male	48	55	55	51
Female	52	45	45	49
(BASE)	(164)	(271)	(136)	(299)
		<u>X² NS</u>		<u>X² NS</u>

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Table 5-16

Child Relationship to Driver

<u>Child Relationship</u>	<u>Seat Issued %</u>	<u>Seat Not Issued %</u>	<u>Child In Seat %</u>	<u>Child Not In Seat %</u>
Own Child	82	65	88	64
Grandchild	2	5	3	4
Other	15	30	9	32
(BASE)		(165)	(268)	(136)
		<u>X² Sig. p<.01</u>		<u>X² Sig. p<.01</u>

Table 5-17

Child Age

<u>Child Age</u>	<u>Seat Issued %</u>	<u>Seat Not Issued %</u>	<u>Child In Seat %</u>	<u>Child Not In Seat %</u>
< 1	22	7	23	8
1	25	14	28	14
2	22	24	27	21
3	19	30	15	31
4	11	25	7	26
(BASE)	(166)	(273)	(139)	(300)
		<u>X² Sig. p<.01</u>		<u>X² Sig. p<.01</u>

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One further result is important to note. Consistent with the findings of other recent studies, child safety seat use, as reported in this study, falls off sharply as age increases regardless of what group one focuses upon. Table 5-18 shows the percentage of children who were reported in seats at each age level for both issued and not issued cases and also for the sub-group of children who were being driven by a policyholder-parent who had been issued a seat.

Table 5-18
Child Seat Use by Age of Child

Child Age	Seat Issued		Seat Not Issued		Issued Policyholder-Driver Carry Own Children	
	Number of Children	% In Seats	Number of Children	% In Seats	Number of Children	% In Seats
< 1	36	72	20	30	28	82
1	42	69	39	26	32	75
2	37	62	65	23	30	67
3	32	38	82	11	27	41
4	19	21	67	7	16	25
Total	166	57	273	16	133	62

There is a decline in use within all groups as age increases. The use rate for the issued group is consistently two to three times higher than in the non-issued group at each age level. Use rates are highest, as might be expected, in cases where seats had been issued and the involved child was being driven by a parent who was a policyholder or the spouse of a policyholder. These results are a positive reflection on the seat distribution program. However, even among the issued and parent driven group, use is considerably less than one hundred percent for the youngest children, and the rates of use drop sharply for three- and four-year-olds. The low four-year-old rate may result largely from children outgrowing toddler seats, but the same cannot be said of three-year-olds.

Thus, while the League General program does appear to have achieved significant success in increasing seat use and reducing child injuries, it has not been totally

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effective. The distribution of seats at no cost has stimulated use rates well above those found in the general population (Nichols, p. 19). However, it has not led to universal use among those who received the seats even when they are driving their own young children.

5.5 Summary

During the first two years of the League General child safety seat distribution program, 7,140 seats were distributed to 5,776 policyholders in Michigan. Sixty-two percent of these seats were distributed during the first six months under a "catch-up" provision that permitted a child as old as four to receive a seat even though he or she had been born prior to the initiation of the program, provided a policy covering the household had been in effect at the time of birth. Currently seats are being distributed in Michigan at a rate of 1,100 per year and 85% are going to newborns. The most reasonable estimate is that about 85% of eligible policyholders are availing themselves of the program. The program has clearly succeeded in its first objective to place child safety seats in the hands of policyholders with young children.

The record of claims for injuries to child passengers in vehicles covered by League General policies shows that the number decreased from 81 in the two years prior to the introduction of the program to 44 during the first two years of program operation. This was a decline of almost 46%. An estimated 16.3% of all children involved as passengers in the pre-program period suffered injuries. The comparable rate for the program period was 10%. This 39% decline in the injury rate is statistically significant.

A number of factors other than the seat distribution program that might account for this decline were investigated. These included driving trends in Michigan, the statewide trend in child passenger injuries, and League General's overall experience

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with injury claims. None of these could account for more than a minor part of the observed decline.

For the program period, additional information was available on children involved in accidents for which claims were filed, including particularly information on use of child seats. The analysis covering this period showed several mutually reinforcing results. The rate of reported child safety seat use among those issued seats was more than three times that for cases in which no seat had been issued--57% versus 17%. The rate of use was even higher, 62%, in cases where the driver was a policyholder or the spouse of a policyholder and the involved child was his or her own child.

The injury rate among those children reported to be in seats at the time of a crash was 5.7%. The injury rate for children reported not in seats was 15.2%. This difference is statistically significant. No seated child suffered more than a minor injury. Twenty-eight percent of the injuries suffered by children not in seats were more serious, and one was a fatality.

When the injury rates for those issued seats and those not issued seats were compared without reference to child seat use, it was found that the rate for the not-issued group was almost twice that for the issued group--14.9% versus 7.8%. This difference was significant at the 5% level of confidence. While interesting in itself, this difference tends also to support the validity of the reports of restraint use.

A number of factors were investigated that might distinguish the issued from the non-issued cases and the child-in-seat from the child-not-in-seat groups. These factors included accident characteristics, driver characteristics and child characteristics. Significant differences in driver age, child age and child's relationship to the vehicle driver were found, but appeared more logically to be results of the distribution program rather than explanations of differential child injury experience. Accident severity, as measured by percent of vehicles totaled, was

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modestly greater for the not issued group, but the difference between not-seated and the seated groups was not statistically significant. Accident severity may have been a partially influential factor, but does not appear to account for the overall differences in injury experience.

Taken together, the program period results appear to substantiate the findings from the before and after analysis of injury experience. The program appears to have resulted in a high rate of child seat use among policyholders issued seats. This high rate of use appears to have resulted in a significantly lower rate of injuries among all claims in which children 0-4 years of age were involved as passengers. The lower rate is particularly notable among those who were issued seats and used them.

While the program appears to have achieved much in the way of increased child safety seat use and injury reduction during its first two years, the analysis also shows that success was not total. An estimated 15% of those eligible for the program have not availed themselves of it. Among those who received seats, use has clearly not been universal. Most disturbing, the rate of use even among those policyholders who received child safety seats and were transporting their own children appears to have been significantly lower for older children. These results show clearly that there was considerable room to increase use and improve injury experience at the close of the evaluation period.

Chapter 6 CLAIMS COST EXPERIENCE

Beyond the hope that its seat distribution program would reduce injuries to young children, League General also wanted to achieve a significant reduction in claims costs for child injuries. The extent to which this monetary objective was achieved is the subject of this chapter. The analysis, for the most part, is straightforward. The company's claims files contain precise information on dollar amounts disbursed to cover each claim. This information is complete for all child injury claims that occurred in both the pre-program and post-program evaluation periods. The analysis presented below compares the dollar cost of claims that occurred in the two-year period prior to the introduction of the program with the comparable figure for the two-year period following the initiation of the program.

Two factors had to be taken into account in order to reach the most valid comparison. The first was inflation. The dollars disbursed to cover claims for child injuries went almost entirely to pay medical costs. The costs of medical services have been among the most rapidly rising in recent years. Therefore, the dollars disbursed in the pre-program period actually would have been greater had the same medical services represented by these dollars occurred during the program period.

In order to account for this fact, an inflation-adjusted figure was calculated for the pre-program dollar total. The inflated pre-program figures place the comparison between the two periods on a post-program "current" dollar basis.

The inflation adjustment used was based on the trend in the medical care component of the Consumer Price Index for urban areas in the period 1977 through 1981 (Verway). The average of this index for the two-year pre-program period was 220.5. For the post-program period, the index averaged 266.5. The post-program index was 21 percent higher than the pre-program figure. This inflation factor was taken into account by increasing the actual pre-program disbursements by 21%.

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A second consideration that had to be taken into account was the fact that actual disbursements do not represent the total cost of claims. Each claim also involves considerable administrative expense. These costs, referred to as loss adjustment expenses, are not reflected in the disbursement records within the claims files. As is customary in the industry, League General estimates loss adjustment expenses are incurred in direct proportion to the dollars actually paid out. These costs are encompassed in a "loss adjustment factor." This factor varies across time, but for each of the two periods in the present study the factor averaged 15%. Total cost figures were calculated for both the pre-program and post-program periods taking this loss adjustment factor into account.

Table 6-1 below summarizes the claims cost data for the pre-program and post-program periods. For the pre-program period, three figures are shown: actual disbursements, inflation-adjusted disbursements and total expenses, including the loss adjustment expense factor. For the post-program, actual and inflation-adjusted figures are identical because this is the base period.

Table 6-1
League General Claims Expenses for Child Injuries
for Before and After Program Periods

	<u>Actual Disbursements</u>	<u>Inflation-Adjusted Disbursements</u>	<u>Total Expenses, Including Loss Adjustment Expense Factor</u>
Before Period	\$ 37,170	\$ 44,976	\$51,722
After Period	\$ 11,307	\$ 11,307	\$13,003
Before-After Change	\$-25,863	\$-33,669	\$-38,719
% Change	-69.6%	-74.9%	-74.9%

The decline in claims costs is dramatic. Actual dollar disbursements declined almost 70%, and on an inflation-adjusted basis the drop in claims costs was 75 percent. The percentage of saving in claims dollars was much greater than the 46

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percent decline in child injuries during the same period. The disproportionate drop in the dollar cost of claims is related very simply to the sharp decline in more serious injuries. This fact is shown clearly in Table 6-2.

Table 6-2
Total Claims Expenses for Minor and
More Serious Child Injuries

<u>Injury Type</u>	<u>Number of Injuries</u>	<u>Before Period Expenses</u>	<u>Number of Injuries</u>	<u>After Period Expenses</u>
Minor	60	\$ 1,030	41	\$2,102
More Serious	21	\$ 50,692	13	\$10,901
Total	81	\$ 51,722	54	\$13,003

NOTE: Expense figures are inflation-adjusted and include the loss adjustment expense factor.

In both the before and after periods, the dollar totals were heavily influenced by a few large claims. In the pre-program period, there were five claims with an actual disbursement in excess of \$1,000 and one of these was for \$21,300. In the post-program period, one claim accounted for \$4,500 of the total actually disbursed and another for \$2,650, but these were the only disbursements in excess of \$1,000.

During the post-program period, claims were paid out in seven cases where seats had been issued. All but one of these involved a minor injury. The total expense for these cases was \$1,469. These cases represented 13% of the post-program injuries and 11% of the post-program cost of claims, although the number of child-involved cases in which seats had been issued was 37% of the total.

Finally, there is the question of claims expenses incurred for injuries to children who were reported to be in seats at the time of an accident. This information is only available for the post-program period. There were four instances in which claims were paid to cover medical expenses for children who were reported in seats. Two

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of these were in League General seats and two in other seats. All of these injuries were minor. The total claims expense involved was \$389; \$115 of this amount was for the two cases in which League General seats were in use. The amount paid to cover the four injuries to children in seats was 3% of the total claims expense incurred in the post-program two-year period.

To summarize, there was clearly a very significant decline in claims expenses in the period subsequent to the initiation of the seat distribution program. The 75% decline in costs of claims was even sharper than the 46% decline in injuries. The drop in claims costs was particularly evident in the category of more serious injuries. Those issued seats accounted for a disproportionately small percentage of claims that led to dollar disbursements and of the total expenses incurred for child injuries. The number of cases in which claims were paid for injuries to children in seats was very small and the dollars involved in these claims were a miniscule part of the total claims expense incurred.

The seat distribution program, by increasing the use of child safety seats among League General policyholders, appears related to a substantial decline in claims costs and, thus, to the achievement of another key objective. One further question remains to be explored, and this relates to cost-effectiveness. The next chapter considers first the costs of the program and the net balance between claims cost savings and the expenses involved in operating the program.

Chapter 7
PROGRAM COSTS AND COST-EFFECTIVENESS

The total cost of the League General child safety seat distribution in Michigan through the first two years of operation was just under \$291,000.

Table 7-1 gives a break-out of major cost items during this period.

Table 7-1
Seat Distribution Program Costs
During Start-Up and First Two Years in Michigan

Pre-Operational Expenses (Planning, Legal, etc.)	\$ 25,000	(8.6%)
Child Safety Seats	\$228,100	(78.5%)
Other Materials and Services	\$ 26,100	(9.0%)
Printed Materials	\$ 8,200	(2.8%)
Postage	\$16,600	(5.7%)
Computer Services	\$ 1,300	(0.4%)
Personnel Time	\$ 11,500	(3.9%)
Program Administration	\$ 3,900	(1.3%)
Request Processing	\$ 7,300	(2.5%)
Special Claims Processing	\$ 300	(0.1%)
 Total Cost	 <u>\$290,700</u>	 <u>(100.0%)</u>

Except for the pre-operational expenses, the figures on costs were developed on the basis of recorded billings and known expenditures of time. The pre-operational phase included a significant amount of management and staff time spent to design and plan the program, make arrangements for purchase of seats from a manufacturer, prepare publicity and secure the necessary legal approvals from regulatory

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authorities. No precise record was kept of this time, and the figure included in the table must be taken as a reasonable estimate.

As is immediately apparent, the overwhelming element of cost has been the child safety seats themselves. They accounted for almost 80% of all costs. The next largest group of costs was for materials and services; most of this was for printed materials and postage. The printed materials included posters for display in credit union offices, special brochures and mail stuffers, and seat request cards. The postage figure reflects the fact that League General depends primarily on mail contact with its present and potential policyholders and makes almost no use of general advertising. A major part of the postage cost was incurred in the mailing of a letter to all policyholders to announce the program. These 40,000 pieces mailed first class cost \$6,000 in postage.

Personnel time cost \$11,500 or just under 4% of the total expenses. The personnel costs include both direct salary and benefits. The relatively small size of this personnel component reflects the simplicity of the program design. Because seats are shipped directly from the manufacturer to the policyholder, there is no need to handle, store, or account for them. There are no individual billings, because the manufacturer groups shipments on a monthly invoice to the company. Because no policyholder payment is involved, there is no need to track individual accounts or be concerned about collections. The bulk of personnel time is involved in receiving and checking the eligibility of requests. The program management cost includes, in addition to normal oversight and coordination, time involved in responding to requests for information about the program, making presentations to conferences, and handling occasional special situations.

The cost figures presented above obviously are not a valid reflection of the ongoing costs of the program, because they include extraordinary start-up costs that will not be repeated. These start-up costs include pre-operational expenses and the initial mailing. Most importantly, they include the very large cost for seats incurred

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during the first several months of the program when the "catch-up" provisions were in operation and a large number of seats were sent out to families with older children. Finally, on the basis of experience, revisions have recently been made in procedures for mailing materials on the program, and these changes have sharply reduced postage costs.

Before cost-effectiveness can be considered, a more appropriate cost figure is needed. The one that will be used is the current annual cost. The program has reached a fairly stable level of operation after almost three years and the costs have also stabilized. Table 7-2 presents the current annual rate of expenditures to operate the seat distribution program.

Table 7-2

**Current Annual Seat Distribution
Program Costs in Michigan**

Child Safety Seats (at 1,100 per year)		\$ 36,300	(85.3%)
Other Materials and Services		\$ 3,200	(7.5%)
Printed Materials	\$ 1,600	(3.8%)	
Postage	\$ 1,350	(3.2%)	
Computer Services	250	(0.6%)	
Personnel Time		\$ 3,050	(7.2%)
Program Administration	\$ 1,400	(3.3%)	
Request Processing	\$ 1,500	(3.5%)	
Special Claims Processing	\$ 150	(0.4%)	
Total Cost		<u>\$ 42,550</u>	<u>(100.0%)</u>

At the present rate of seat distribution, the current annual cost of operating the seat distribution program in Michigan is \$42,550. The great bulk of the cost is involved in the purchase of seats. All other costs account for less than 15% of the total. This rate of expenditure will certainly change in the future. Changes will occur as a result of inflation and as the number of policyholders varies. Both of

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these effects will impact both the expenditure and savings side of any cost-effectiveness balance. On the reasonable assumption that the impacts on expenditures and savings from these two effects are likely to be more or less counterbalancing, the starting place for a consideration of cost-effectiveness is a comparison of current ongoing costs and the average savings per year calculated from experience during the first two years of program operation.

In the previous chapter, the total saving in claims expenses for the first two years of the program was calculated to have been approximately \$39,000. Clearly, the total savings during this period is small compared to the \$290,000 expended in this same period. Given the peculiar circumstances of the start-up period and the longer-term time horizon of the company's objective, this is not the most appropriate cost-to-savings comparison. More meaningful is a comparison between average annual savings and average current costs.

The current annual costs, as shown above, are \$42,550. The estimated annual saving in claims expenses, based on experience during the first two years of the program, is currently in the order of \$19,500. Thus, by this simplest and most direct way of measuring cost-effectiveness, the program clearly involves a net cost. In fact, the net annual cost on this basis is \$23,000, and the ratio of savings to cost is .46. Put another way, on a current basis the program is costing about \$2.20 for every \$1.00 saved in claims expenses.

There are many reasons to argue that this measure of cost-effectiveness leaves much to be desired. It is simple and direct and it certainly has meaning in terms of the impact on current cash flow. However, a variety of important factors are not taken into account. These need to be considered before a final conclusion on cost-effectiveness or the broader concept of cost-benefit can be made.

A first consideration is that the program had clearly not approached its maximum potential for reducing injuries by the end of the evaluation period. The 90% rate of

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seat use reported by policyholders issued seats and driving their own infant children is indicative of what ought to be achievable. As the program continues, it may be expected that more of the older children of policyholders will have seats available to them. Use should go up, and injuries should go down further.

A second consideration also concerns the time horizon of the cost-effectiveness comparison presented above, but in a very different way. Recognizing the small size of its policyholder population and the low relative frequency of serious high cost injuries to child occupants, League General understood at the outset that substantial net cost savings would likely be demonstrable only over a relatively long time horizon. This evaluation study covered only the first two years of program operations and the two years immediately preceding the program. As it turned out, there was one fatality in this period, but no seriously disabling injuries. The fact is that fatalities among children do not usually lead to the greatest dollar costs; permanent or long-term disabling injuries are the ones that lead to very large expenditures.

One recent authoritative study of motor vehicle injury costs estimated that the direct medical, rehabilitation and special-care costs generated by a critical injury (MAIS5) to a child 14 years old or younger ranged from \$37,000, if there was no spinal column involvement, to \$250,000 for treating a quadriplegic (Hartunian, et al., p. 318). These costs were in 1975 and, based on the rise since then in the medical cost index, would be twice as high in current dollars. The simple fact is that a single critical injury to a child is likely to result in well over \$100,000 of expense.

The potential occurrence of a critical and costly injury to a child needs to be taken into account in any cost-effectiveness judgment. However, there is a two-fold problem. First, because the size of League General's policyholder population is relatively small, this type of injury could be expected to occur only once in an extended period of years. Second, and compounding this low frequency, to the

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extent that the seat distribution is effective in reducing serious injuries, one is trying to measure an event that will be prevented from occurring.

Although any estimate must be taken as highly problematic, the same study from which the dollar figures cited above were drawn does contain injury incidence estimates that can be used to gain some idea of League General's potential exposure to a critical child injury. This study estimated injury incidence by age group and level of injury severity for 1975. Unfortunately, for the present purpose, all children 0-14 years of age are included in a single category and the figures appear to include injuries to both vehicle occupants and non-occupants. Nevertheless, critical injuries (MAIS5) account for 0.65% of all non-fatal and fatal injuries in this age group. (Hartunian, et al., pp. 258, 267). This translates into one critical injury for every 155 injuries.

Allowance needs to be made, as the authors note, for the likelihood that children who are vehicle occupants are more protected because they are in the vehicle than non-occupants and are less likely to suffer the most serious or critical injuries. Further, based on Michigan data, a much greater proportion of injured children in the 0-4 age group are occupants rather than non-occupants compared to those between 5 and 14 years of age--approximately 90% versus 65% (Michigan Department of State Police).

Although there is no way precisely to allow for these differences, on a conservative basis, the critical injury rate for the youngest and most protected age group may be estimated as half that for the total 0-14 age group. On this basis, the expectation would be that one in 300 injuries to a child occupant 0-4 years old would be critical. League General was experiencing injuries to child vehicle occupants in this age group at a rate of 40 per year prior to the seat distribution program. At this rate and assuming the policyholder base remained at roughly the same level on average over time, the company could expect to face one claim for a high cost critical injury once every eight years.

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Based on the \$23,000 current net cost of the seat distribution program, the aggregate cost over eight years would be approximately \$185,000. If one critical injury were to be avoided in this time period because of the seat distribution program, most, if not all, of this net cost would likely be covered by the saving involved.

Admittedly, this is speculative; however, it does rest on a reasonable basis. It indicates that while no precise forecast is possible, the probability that one critical injury may be avoided over a foreseeable time period is important to take into account in judging the cost-effectiveness of the seat distribution program.

A third consideration that must be taken into account is that the initial cost-effectiveness estimate does not take into account "savings" in the form of measurable benefits other than those that come directly from reduction in the costs of claims. One such benefit has clearly been the extensive media exposure that the program has brought to the company. The program has been reported extensively in the press, radio and television, and in both general circulation and trade periodicals. Presentations have been made before a half-dozen national and regional conferences. There is no way to place a dollar value on this extensive free exposure, although it is certainly high. Nor is it possible to calculate a direct saving in advertising dollars that would otherwise have been spent, because League General has not, to date, engaged in general circulation or media advertising. The benefit, nevertheless, is apparent and must be weighted against net cost.

A second positive effect that may have occurred is the attraction of new policyholders or the retention of existing policyholders who made their decisions because of the program. Based both on dozens of communications from policyholders and the survey reported elsewhere in this volume it is clear that the program is popular and has stimulated extensive goodwill. Unfortunately, no study has been made and no figures are available that would make it possible to measure the direct impact on the policyholder base. If new policies were written or existing policies

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were retained because of the program, this would benefit the company's net profit and this added profit would enter the cost-effectiveness balance. Whether or not this has actually occurred remains unknown.

To this point, the focus has been solely on cost-effectiveness as it relates to League General. From a broader perspective, it seems evident that the program has saved money for others and at no cost to them. This is particularly true in the case of health insurers. Most League General policies are "coordinated" with any health insurance a policyholder may have. This means that the total payments to cover the cost of treating an injury that results from an automobile accident are shared by the automobile and health insurer. In most cases, the health insurance pays first and League General insurance pays only the residual amounts not covered by the health insurance. Thus, much of the costs resulting from injuries suffered in vehicle accidents is borne by health insurers. Failure of the effort to assemble complete data on medical costs paid by health insurers for the child injury claims included in this study made it impossible to develop a comprehensive estimate by which total insurance cost had been reduced. However, partial indication is available from the data.

League General and Michigan Blue Cross/Blue Shield records could be matched for 28 of the cases included in this study. In these cases, League General paid out \$5,400 and Blue Cross/Blue Shield paid out \$9,200. One other case of serious injury involved coordination of payments with a national Blue Cross/Blue Shield program covering a Federal employee and his family. In this instance, League General paid out \$1,156 and the health insurance paid out \$9,400. Taken together, these cases show Blue Cross/Blue Shield plans paying out almost three dollars for each one paid out by League General. These 29 cases do not constitute a representative sample, and there is no way of knowing whether the ratio of three-to-one can be generalized. League General claims administrators believe that in the case of this company, because of its extensive coordination of benefits, the ratio is probably a conservative estimate. It is evident that, to the extent that the seat distribution has reduced League General's claims costs, it has also probably saved medical

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insurers substantially larger sums. The likelihood is that the total saving in medical claims costs to all insurers greatly exceeds the cost of the program. On this broader basis there seems to be strong indication that the program is cost-effective in direct monetary terms.

The discussion thus far has dealt with cost-effectiveness in dollar terms alone. From a balance sheet point of view, the fiscal impact is critical. However, there is another way to view the direct net cost estimated to have been incurred during the first two years of the program. It involves another set of estimates, but it is as tangible as the dollar comparison. If the injury rates that occurred during the pre-program period had held true during the period from July 1979 through June 1981 and the same 442 children had been involved in accidents, 28 more children would have been injured. There would have been 22 minor injuries and 6 more serious injuries. If these "savings" are attributable in large part to the seat distribution program, then it may be said that any net cost was expended to accomplish this reduction in pain and suffering. There is no way to bring this human saving into terms commensurate with the dollars of cost; any balancing must be left to judgment.

Finally, to take a view that is not speculative, but quite precise, let it be accepted that on a current-cost basis, the Michigan program is costing a net of about \$24,000 per year. League General has at present approximately 35,000 policyholders in Michigan. It takes only simple arithmetic to calculate that the cost per policy per year is approximately 70¢. Since policyholders pay annual premiums that range generally from \$200 to \$800 or more, the net program cost defined in this chapter clearly represents only a small part of what each policyholder pays. From the most conservative point of view, the program has a negligible impact on premium rates.

To summarize, the first two years of operating the child safety seat program in Michigan cost League General just over \$290,000. In Chapter 6, it was estimated that the program had saved the company approximately \$39,000 in reduced cost of

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claims for injured children based on the rate of disbursement during the two years prior to the program. Given the extraordinary start-up costs, it is not surprising that program costs were not covered by savings in the initial years of operations.

A more appropriate measure of cost-effectiveness is a comparison of annual program costs and savings. Ongoing direct costs are currently estimated to be \$42,550. On this basis, the program appears to be costing about \$2.20 for every \$1.00 saved. To date, it appears that the goal of achieving a net saving to the company has not yet been achieved, at least on the basis of current costs and current measureable claims savings.

Several important factors make it less certain that the simple cost-effectiveness comparison provides an accurate and complete picture of what will occur over the longer term. First, the program had not reached its full potential effectiveness at the end of the evaluation period. Second, sufficient time had not passed to be able to judge, on the basis of reasonable probabilities, whether or not a catastrophic injury had been avoided. Such a claim for a critical child injury, which League General could expect to be exposed to once in eight years on the basis of pre-program experience, would easily cost much more than \$100,000. Evidence that one such claim had been avoided would counterbalance many years of net ongoing cost.

The third consideration discussed is that the simple cost-effectiveness comparison does not take into account other benefits of value to League General. The substantial nationwide public relations exposure that the program has brought the company is clearly great value. Furthermore, the program has created substantial goodwill among policyholders and there is a reasonable possibility that it has helped to retain policies that would otherwise have been lost and to attract new customers. Unfortunately, no data are available as yet to prove whether or not these impacts have occurred.

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Looking beyond League General, there is clear evidence that the program has resulted in substantial dollar savings for others, most notably the health insurers. These savings appear to have been several times greater than the direct savings to League General. Taken together, the savings in medical costs alone indicate that *the program is cost-effective from the broader social perspective.*

Even the narrow net cost result takes on a different meaning when the dollars are related directly to people, i.e. the children who were probably saved from being injured. The ultimate question is whether a net dollar cost is worth the achievement of this result. Along this line, the final point is that the current net annual cost to each policyholder is considerably less than the one dollar of the average several hundred-dollar premium each pays for automobile insurance.

It appears too early to make a final judgment on program cost-effectiveness. There is currently a clear net cost. However, over a longer period of time, there is a reasonable possibility that an overall net saving will be possible to prove. In the interim, the company is satisfied that the savings in human pain and suffering justify the immediate modest net cost to the company and to each of its policyholders.

Chapter 8 HOUSEHOLD SURVEY

8.1 Objectives and Methodology

The household survey component of this study was designed to gather further information on the extent to which the seat distribution program had impacted the availability and use of child safety seat among League General policyholders. It also afforded an opportunity to explore a variety of attitudinal and behavioral patterns related to child restraint use, particularly as these might differ between users and non-users of safety seats.

The specific purposes of the survey were as follows:

1. To determine the availability of child safety seats in League General households compared to non-League households;
2. To evaluate whether League General child safety seat recipients use their seats more than a comparable group of non-League General households;
3. To identify which factors, if any, differentiate between users and non-users of child safety seats, within and across the League General and non-League General groups;
4. To determine the reasons why child car seats are not used among the non-user groups;
5. To specify the relationship between adult seat belt use and child safety seat use;
6. To describe League General seat recipients' reactions to the Century child safety seat products (Century Trav-L-Guard, Century 100,

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Century 200) in terms of likes and dislikes, compared to other child safety seat products; and

7. To gauge reactions to the current Michigan mandatory child safety seat use law.

To answer these questions, in-home personal interviews of an average length of 45 minutes were conducted between November 12 and December 12, 1981 with the following two groups:

1. A random "Main Sample" of 400 households selected among the population of 5,836 Michigan households represented on the League General listing of child safety seat recipients; and
2. A "Control Sample" of 400 "non-League General" households selected on the basis of being within 1-2 blocks of each League General seat recipient interviewed and having at least one child age 0-4 in the household.

The Control Sample was defined to geographically match League General child safety seat recipients as closely as possible and to sample only households with children age 0-4.

The selected League General households had to be interviewed first in each case before a "control" household could be selected. An initial call and three callbacks were made on League General households. This yielded a response rate of 54% among the initially designated respondents. Substitutions were made within the ZIP code for the remaining 46% of the sample.

The response rate for the Control Sample households was 84% after the initial call and three callbacks. This higher response rate resulted from the fact that

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neighborhood households were screened immediately to determine if they contained a child age 0-4, which in most cases necessitated talking with someone in the household to determine whether a child age 0-4 actually lived at that address.

Respondent selection was based on the assumption that the "principal driver" of the child would be in the best position to report child safety seat use. The selection of an adult respondent at each household was based on the following question:

"Now I'd like you to think about all the times in the last year when your child (children) four years old or younger was (were) driven in a car by someone in this household. Using the percentage scale on this card (a 0% to 100% "ladder" scale with gradations marked by 10% increments), what percent of the time did you personally drive the child (children)?"

Followup questions were asked about the spouse; other adults, 18 years old and over; and other drivers age 16-17 years old. The person in the household with the largest percent of time driving the child was identified as the "principal driver of the child" and selected as the respondent. In the case of ties, the interviewer had the choice of selecting either person available for the interview. Eighty-one percent of the Main Sample respondents and 85% of the Control Sample were females. On average the principal driver in both the Main Sample and the Control Sample was the driver for approximately 75% of the child's (or children's) trips.

Overall, the "neighborhood" matching in the selection of Control Sample households produced quite similar household characteristics and demographic characteristics of the principal drivers in Main and Control samples. For example, 14% of the Main Sample and 12% of the Control Sample principal drivers were black. The Main Sample contained 45% of principal drivers with some college education, compared to 41% of the Control Sample principal drivers. The only clear difference between Main and Control Samples was on "Total Family Income." The Control Sample

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contained more lower income households than the Main Sample. In the Control Sample, 22% of households had a total family income under \$15,000, while in the Main Sample only 10% were in this income group. This probably relates to the Main Sample containing only credit union members (with slightly higher income levels than the general population), while Control Sample households did not have to belong to any credit union.

The design of the survey called for interviews to be conducted in 400 League General seat recipient households and in 400 Control households. The design assumed that the 400 League General households would have a child safety seat available, since each household had received a seat according to League General records. However, only 87% (346 cases) of the Main Sample reported having any type of safety seat available for the youngest child in the household (age 0-4) at the time of the interview. Of the remaining 54 cases, only two additional households had a child safety seat available for the next oldest child (age 0-4) but not the youngest child. Thus, there were 52 households in the Main Sample which had been sent a seat according to League General records, but which did not have a seat in the household according to the principal driver at the time of the survey. Unfortunately, these 52 adults were not asked if they had ever received a child safety seat from League General, or what they had done with that seat if they had indeed received one.

An analysis of the League General records for these 52 households revealed that 41 of the 52 households received their seat in the first few months of the car seat distribution program. One reasonable explanation is that some League General seat recipients who received seats for one- or two-year-old children in 1979 have since given away or disposed of that seat because the children have outgrown them.

The selection of the Control Sample households required only that at least one child age 0-4 live in the household. There was no requirement that every selected Control household have a car safety seat available.

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The full questionnaire used for the household interview is reproduced as an appendix to this report.

8.2 Availability of Child Safety Seats

The first issue is how League General recipient households (Main Sample) compare to the Control Sample households in terms of availability of child safety seats for children age 0-4.

The general measure of reported availability is shown below in Table 8-1. Both the Main and Control Samples included at least one child from 0-4 years of age in each household. In addition, the survey design allowed for collection of information on car safety seat availability and use for a second child age 0-4, if one was present.* The Main Sample households contained 122 "next oldest" children 0-4, and another 140 "next oldest" children in this age range were found in the Control Sample households.

As Table 8-1 shows, the proportion of households where safety seats were reported available for the youngest child, the next oldest child, and for both children in combination is significantly higher in all cases for the Main Sample compared to the Control Sample.**

Validation of seat availability by interviewer observation resulted in 86% of the Main Sample and 84% of the Control Sample households actually verifiable as having a seat on the premises (although in each group 14% of the seats were in attic or basement storage).

* Constraints on the questionnaire length prevented probing beyond two children age 0-4 in each household. The Main Sample contained an additional 11 children in this age range and the Control Sample had another 20 children.

** Based on two-sample, difference of proportions test, with $p < .05$ used as a minimum statistical significance level.

Table 8-1
Reported Availability of Car Seat for
Youngest and Next Oldest Child in Household

<u>Do you have anything available for (this) child to restrain the child in the car, like an infant or toddler seat of some type?</u>	<u>Main Sample</u>			<u>Control Sample</u>		
	<u>Youngest Child</u>	<u>Next Oldest Child</u>	<u>Total Both Children</u>	<u>Youngest Child</u>	<u>Next Oldest Child</u>	<u>Total Both Children</u>
Yes, seat available	87%*	51%	78%	74%*	29%	62%
No, not available	13	49	22	26	71	38
(BASE)	(400)	(122)	(522)	(400)	(140)	(540)

*Differences between youngest child groups, next oldest child groups, and total both children are all significant at $p < .05$.

Validation of seat use, by actually observing wear of the seat or the adult's ability to place the child in the seat proved impractical in the survey pretest primarily due to adult reluctance to get the seat out of the car or, for example, wake a sleeping child.

Two other observations are noteworthy. First, the availability of seats among the Control Sample households is surprisingly high. The 62% overall availability contrasts with the frequent report that use of child safety seats among the general population is in the 10% to 20% range. Second, in both the Main and Control Samples, the proportion of "next oldest" children (all of whom are 0-4 years old) who have seats available is much smaller than for youngest children. This is further evidence of the fall off of seat availability and use as age increases.

The age distribution of the children, as shown in Table 8-2, is markedly different between seat and non-seat households for both the Main and Control Samples. The youngest child in over 80% of the "no seat in household" group in the Main Sample is

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age three or older. Among the Control Sample "no seat in household" group, 85% of the youngest children are age two and older. However, the total age distribution of youngest and next oldest children is quite similar when comparing the Main and Control Samples. Therefore, it does not appear to be the case that greater availability of seats in the Main Sample compared to the Control Sample is due to a greater proportion of younger children (under two years of age) in the Main Sample.

Table 8-2
Age of Children by Households With or Without Child Safety Seats

<u>Age of Youngest Child</u>	<u>Main Sample</u>	<u>Main Sample</u>		<u>Control Sample</u>	<u>Control Sample</u>	
		<u>Seat in Household</u>	<u>No Seat in Household</u>		<u>Seat in Household</u>	<u>No Seat in Household</u>
0-11 months	23%	26%	--%	26%	33%	6%
1 year to 1 year 11 months	26	29	2	25	31	10
2 years to 2 years 11 months	25	26	17	25	22	32
3 years to 3 years 11 months	18	14	44	16	12	28
4 years to 4 years 11 months	9	5	37	8	2	25
(BASE)	(400)	(348)	(52)	(400)	(295)	(105)
 <u>Age of Next Oldest Child</u>						
0-11 months	--%	--%	--%	1%	5%	--%
1 year to 1 year 11 months	4	6	2	5	10	3
2 years to 2 years 11 months	25	42	8	20	35	14
3 years to 3 years 11 months	34	34	35	34	43	31
4 years to 4 years 11 months	36	18	55	39	8	52
(BASE)	(122)	(62)	(60)	(140)	(40)	(100)

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This same issue is addressed in Tables 8-3 and 8-4 in terms of seat availability by age group for the youngest and next youngest child. Among the youngest children, seat availability drops off markedly starting at age three in the Main Sample. In the Control Sample, seat availability drops off at age two. One product, therefore, of the League General program appears to be the obtaining (or retaining) of child car seats for "older" children (age two and over) and a greater degree of obtaining (or retaining) car seats for three- or four-year-olds than occurs in non-League General households with young children.

Table 8-3

Age of Youngest Child by Seat Availability

		<u>Main Sample: Age of Youngest Child</u>				
		0-11 Months	1 Year to 1 Year and 11 Months	2 Years to 2 Years and 11 Months	3 Years to 3 Years and 11 Months	4 Years to 4 Years and 11 Months
<u>Seat Available:</u>						
Yes	100%	99%	91%	67%	49%	
No	--	1	9	33	51	
(BASE)	(90)	(102)	(101)	(70)	(37)	
		<u>Control Sample: Age of Youngest Child</u>				
		0-11 Months	1 Year to 1 Year and 11 Months	2 Years to 2 Years and 11 Months	3 Years to 3 Years and 11 Months	4 Years to 4 Years and 11 Months
<u>Seat Available:</u>						
Yes	94%	90%	66%	55%	16%	
No	6	10	34	45	84	
(BASE)	(103)	(101)	(100)	(65)	(31)	

Table 8-4 shows that seat availability for "next oldest child" also varies considerably between Main and Control Samples. Slightly over half (51%) of Main Sample next oldest children had seats available, compared to only 29% in the Control Sample. Moreover, Main Sample children at every age level are more likely to have seats

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available than Control Sample children. This confirms the impression that the League General program has been particularly significant in increasing the availability of seats among older children in the 0-4 age group.

Table 8-4
Seat Availability by Age of Next Oldest Child

<u>Seat Available:</u>	<u>Total Main Sample</u>	<u>Age 2 Years, 11 Months or Younger</u>	<u>3 Years to 3 Years, 11 Months</u>	<u>4 Years to 4 Years, 11 Months</u>
Yes	51%	83%	50%	25%
No	49	17	50	75
(BASE)	(122)	(36)	(42)	(44)

<u>Seat Available:</u>	<u>Total Control Sample</u>	<u>Age 2 Years, 11 Months of Younger</u>	<u>3 Years to 3 Years, 11 Months</u>	<u>4 Yers to 4 Years, 11 Months</u>
Yes	29%	54%	35%	5%
No	71	46	65	95
(BASE)	(140)	(37)	(48)	(55)

Table 8-5 shows that both the education level of the "principal driver" and the Total Family Income are related to the availability of a child safety seat. This is clearly evident in the Control Sample, but less apparent in the Main Sample in large part because there is such a small percentage of "no seat" households. In the Control Sample seat households, 47% of the "principal drivers" have had some college education compared to only 28% in the no seat households. The comparable figures for the Main Sample are 45% and 41%. Only 18% of the Control seat households reported a Total Family Income of less than \$15,000, compared to 29% of the Control no seat households. The comparable figures for the Main Sample are 8% and 12%. These results indicate that availability of a seat is more likely in a higher income and more educated household. There is also an indication that the League

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General program appears to have had some effect at the lowest end of the income scale in terms of making child safety seats available in those households.

Table 8-5

Education and Total Family Income
in Relation to Seat Availability

<u>Principal Driver:</u>	<u>Total Main Sample</u>	<u>Total Control Sample</u>	<u>Main Seat Households</u>	<u>Control Seat Households</u>	<u>Main No Seat</u>	<u>Control No Seat</u>
<u>What is the last grade of school you completed?</u>						
Grade school or less	2%	1%	2%	1%	2%	2%
Some high school	6	9	6	6	6	15
High school graduate	46	48	45	45	52	55
Vocational/technical school	2	1	2	2	--	--
Some college	25	23	25	25	25	17
College graduate	14	13	14	16	12	7
Post graduate work	6	5	6	6	4	4
<u>Total Family Income:</u>						
<u>Which of the following income groups includes your total family income in 1980 before taxes?</u>						
\$ 0 - 4,999	1%	4%	1%	3%	--%	5%
\$ 5,000 - 9,999	4	9	4	8	--	13
\$10,000 - 14,999	5	9	3	7	12	11
\$15,000 - 19,999	15	14	15	14	15	14
\$20,000 - 24,999	21	17	22	17	13	17
\$25,000 - 29,999	17	16	16	17	21	13
\$30,000 - 34,999	14	9	15	9	12	6
\$35,000 or more	12	9	12	9	10	7
Don't know/Refused	14	14	12	14	18	14
(BASE)	(400)	(400)	(348)	(295)	(52)	(105)

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8.3 Child Safety Seat Use

The estimates of child safety seat use described in this chapter and used throughout the remainder of this report are based on a 0-100% "ladder" scale which required the "principal driver" to estimate the "percentage of time a child is in a child safety seat" under various travel conditions.

Two different "use" estimates are calculated: (1) use among only those households which have seats available; and (2) use among all households assuming that "no seat available" equates to 0% use. These calculations are made for both the youngest and next oldest children.

Shown in Table 8-6 are the percents of use for households with seats grouped into three usage levels for each of the following driving conditions:

- * Short trips to local stores when the driver is the only adult in the car;
- * Short trips to local stores when another older person is in the car;
- * Long trips of over 25 miles using expressways and highways when the driver is alone;
- * Long trips of over 25 miles using expressways and highways with another older person in the car.

In these questions, as in previous questions, "older person" referred to an older child or adult. The three usage categories were defined as follows: "low or no use" representing a response that a seat is used 0% to 10% of the time; "irregular use" representing a response in the range from 11% to 89%; and "regular use" representing a response from 90% to 100%. These categories were chosen because of the importance of comparing low or no use to regular use and because there were too

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few responses in the 11% to 89% range to warrant a more detailed breakdown into specific percentage categories.

Table 8-6 shows the distribution of seat use for the youngest and next oldest child under various driving conditions.

Table 8-6

**Safety Seat Use Under Various Driving Conditions
Among Main and Control Sample Seat Households**

I'm going to read you a list of types of trips that you might make with this child in the car. For each type of trip, please give me your best estimate as to the percentage of time this child is in a child car seat.

	<u>Youngest Child</u>		<u>Next Oldest Child</u>	
	<u>Main Sample Seat Households</u>	<u>Control Sample Seat Households</u>	<u>Main Sample Seat Households</u>	<u>Control Sample Seat Households</u>

On short trips to local stores when you are the only adult in the car.

Low or no use (0-10%)	23%*	22%	31%	33%
Irregular use (11-89%)	12	8	14	22
Regular use (90-100%)	65	70	55	45

On short trips to local stores when another older person is in the car.

Low or no use	28%	23%	30%	28%
Irregular use	16	19	12	14
Regular use	56	58	58	58

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Table 8-6 (continued)

<u>On long trips/over 25 miles using expressways or high- ways by yourself or with the child.</u>	<u>Youngest Child</u>		<u>Next Oldest Child</u>	
	<u>Main Sample Seat Households</u>	<u>Control Sample Seat Households</u>	<u>Main Sample Seat Households</u>	<u>Control Sample Seat Households</u>
Low or no use	23%	21%	20%	23%
Irregular use	6	4	12	6
Regular use	71	75	68	71
<u>On long trips/over 25 miles using expressways or high- ways with another older person in the car.</u>				
Low or no use	23%	22%	18%	20%
Irregular use	14	15	21	10
Regular use	63	63	61	70
(BASE)	(346)	(295)	(62)	(40)

*No significant differences between Main and Control Seat households for youngest or next oldest child.

There are no significant differences in regular use levels between the Main and Control Sample seat households. In both groups for the youngest child, the proportion of "regular" users is highest on "highway trips while alone" followed by "short trips while alone." This pattern holds for seat use with the next oldest child, although the base of "users" for both Main and Control Samples is quite small. In both Main and Control Samples, reported "regular use" for the youngest child is highest for "long trips on highways when alone with child," and lowest "on short trips to local stores when another older person is in the car."

Principal drivers were also asked to summarize their overall use of car safety seats, under all driving conditions, using the same 0-100% scale. The full distribution of responses is shown in Table 8-7, along with the combined categories of low or no

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use, irregular use, and regular use. Again, no significant difference was found in patterns of use between Main and Control seat households.

Table 8-7

Summary Reported Safety Seat Use
for Households with Seats

Summary Level of Reported Safety Seat Use:	Youngest Child		Next Oldest Child	
	Main Sample	Control Sample	Main Sample	Control Sample
0%	18%*	16%	15%	18%
1 - 10%	2	1	--	10
11 - 20%	1	1	3	--
21 - 30%	2	1	2	--
31 - 40%	1	1	2	--
41 - 50%	2	2	10	5
51 - 59%	--	--	--	--
60 - 69%	1	2	2	3
70 - 79%	5	5	6	5
80 - 89%	8	6	5	10
90 - 99%	20	20	13	13
100%	40	43	37	38
<u>Combined Responses</u>				
Low or no use (0-10%)	20%	17%	15%	28%
Irregular (11-89%)	20	20	35	21
Regular use (90-100%)	60	63	50	51
(BASE)	(346)	(295)	(62)	(40)

*No significant differences between Main and Control Sample for youngest or next oldest child.

It is also useful to extrapolate the summary seat usage rates for the Total Main and Total Control samples, including those households which do not have a seat available for the youngest and next oldest child. It is assumed in Table 8-8 that no seat available is equivalent to 0% use.

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Table 8-8

Overall Safety Seat Use
(With No Seat Available Equal to 0% Use)

Overall Level of Safety Seat Use	Youngest Child		Next Oldest Child	
	Main Sample	Control Sample	Main Sample	Control Sample
0% (or no seat available)	29%*	38%	60%	76%
1 - 10%	2	1	--	3
11 - 20%	1	1	2	--
21 - 30%	2	1	1	--
31 - 40%	1	1	1	--
41 - 50%	2	2	5	1
51 - 59%	--	--	--	--
60 - 69%	1	1	1	1
70 - 79%	4	4	3	1
80 - 89%	6	4	2	3
90 - 99%	17	15	7	4
100%	35	32	19	11
(BASE)	(400)	(400)	(122)	(140)
Low or no use (0-10%)	29%	38%	60%	79%
Irregular (11-89%)	19	15	14	6
Regular use (90-100%)	52**	47	26	15
(BASE)	(400)	(400)	(122)	(140)

*Difference of proportions of 0% use level is significant at $p < .01$ between Main and Control Samples for youngest and next oldest child.

**Difference of proportions at "Regular Use" level is significant at $p < .05$ between Main and Control Sample for youngest and next oldest child.

The 9% difference in 0% use for the youngest child (29% Main Sample versus 38% Control Sample) is statistically significant at the $p < .01$ level. Similarly, for the next oldest child, the 16% difference in 0% use is also statistically significant at the $p < .01$ level. In the 90-100% use percentage categories, 52% of the Total Main Sample claim to use safety seats 90% of the time or more, compared to only 47% of the Control Sample for the youngest child, and 26% versus 15% for the next oldest child. These differences are also statistically significant at the $p < .05$ level.

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The conclusion, on a household basis, is that the League General household group is more likely to report at least some use of a child safety seat than the total Control Sample household group and a greater proportion of the League General households report regular use of seats. It is evident that car safety seats are used in League General households primarily because there is greater availability of car safety seats in these households. In Control Sample households where seats are available, usage rates are quite similar to those in League General households.

The responses to alternative descriptions of ways a child might ride in a car (shown in Tables 8-12 and 8-13 on Pages 83, 84 and 85) provides another general measure of child seat use, as well as other ways children travel in cars. The first alternative presented in these tables refers to the child riding in a safety seat fully secured. Referring first to Table 8-12 which deals with situations when the driver is alone with the young child, 63% of the Main Sample and 57% of the Control Sample claim to "often" have the child in an infant or toddler safety seat with the seat belt attached to the safety seat. However, 92% of the Main Sample regular use group and 96% of the Control Sample regular use group also indicated that they "often" use child safety seats. Similarly, 77% of the low or no use group in each sample report that they "never" use the car seat, although 16% of the Control Sample "low or no use" group and 5% of the Main Sample "low or no use" group, report that they "often" use car seats.

When there are two or more older children or adults in the car, 88% of both the Main and Control Sample "regular" users also confirmed that they "often" use a child safety seat. It is also the case that 83% of both the Main and Control Sample low or no use group said that they "never" use child safety seats. In summary, the percentage estimates of use are validated by this second general measure of use under conditions where the driver is alone, or when the driver has other adults or older children in the car.

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One additional measure of use identifies child safety seat use when the principal driver and child are driving in someone else's car. As Table 8-9 shows, only 29% of the Main Sample regular use group and 39% of the Control Sample regular users also claim regular use of safety seats when driving in someone else's car. Moreover, a large percentage of regular seat users (46% Main Sample; 32% Control Sample) report low or no use when with their children while being driven in the cars of friends or relatives.

Table 8-9

Reported Use of Child Safety Seats
when in another's car

<u>When you and your child(ren) have driven with friends or rela- tives in their car, what percent of the time have you used a child car seat in their car?</u>	<u>Main Households</u>				<u>Control Households</u>			
	<u>Regular Use</u>	<u>Irreg- ular Use</u>	<u>No Seat or in</u>		<u>Regular Use</u>	<u>Irreg- ular Use</u>	<u>No Seat or in</u>	
			<u>Use</u>	<u>House- hold</u>			<u>Use</u>	<u>House- hold</u>
Low use (0-10%)	46%	79%	92%	81%	32%	68%	85%	91%
Irregular use (11-89%)	25	19	5	13	29	28	3	7
Regular use (90-100%)	29	2	3	6	39	4	12	3

8.4 Characteristics Differentiating Safety Seat Users and Non-users

As noted previously, the Main and Control Samples are quite similar in the proportion of white and black households and in terms of the proportion of male and female "principal drivers" of children age 0-4. However, in the Control Sample seat households, proportionally more male drivers are in the low use seat use category than are in the regular use category. This does not appear to be the case for the Main Sample seat households. There appears to be no relationship between race of principal driver and seat use within the Main Sample households where seats are

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available. Within the Control Sample, however, there are proportionally more black households with no seat available for the child.

Within the Main Sample seat households, there appears to be a strong relationship between education of the principal driver and seat use. If the education categories are collapsed into "high school diploma or less" and "some college or more" as shown in Table 8-10, this relationship is clearly illustrated for the Main Sample. This relationship is present though weaker in the Control Sample seat households.

Table 8-10
Education Level of Principal Driver
by Reported Safety Seat Use

	Main Sample Child Safety Seat Use Youngest Child			Control Sample Child Safety Seat Use Youngest Child		
	Regu- lar Use	Irreg- ular Use	Low or No Use	Regu- lar Use	Irreg- ular Use	Low or No Use
High school diploma or less	45%	61%	76%	49%	65%	55%
Some college or more	55	39	24	51	35	45
(BASE)	(208)	(68)	(70)	(187)	(56)	(52)

Other demographic factors like employment status of the principal driver and Total Family Income have no relationship to safety seat use within households where a car safety seat was available, although they do relate to whether a seat is available, as noted previously.

There are few distinct patterns of safety use in relation to the type and year of the principal vehicle used to drive children, or the type of restraint system available in those vehicles. Households in the low or no use group in both the Main and Control Samples do appear to contain a larger proportion of hatchbacks or vans than

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households in the regular or irregular use groups. "No seat households" in both groups appear to have a somewhat larger proportion of older cars (1973 or earlier) and, correspondingly, cars with lap belts only. This in turn may be related to household income which may also have been a constraint on the purchase of a car safety seat.

Table 8-11
Structural Characteristics of Principal Vehicle by Child Safety Seat Use

<u>Type of Vehicle</u>	<u>Main Sample</u>				<u>Control Sample</u>			
	<u>Regular Use</u>	<u>Irregular Use</u>	<u>No Low Seat or in No House-</u>	<u>hold</u>	<u>Regular Use</u>	<u>Irregular Use</u>	<u>No Low Seat or in No House-</u>	<u>hold</u>
Two door sedan	48%	50%	39%	38%	44%	43%	33%	50%
Four door sedan	20	25	20	15	25	21	23	21
Station wagon	18	12	17	29	13	23	15	16
Hatchback	7	4	11	6	8	7	19	4
Van	4	7	7	8	4	4	8	4
Truck	2	1	6	4	3	2	2	4
Not specified	1	--	--	--	3	--	--	1
<u>Year of Vehicle</u>								
1973 or earlier	12%	14%	11%	24%	15%	25%	14%	30%
1974-1975	13	11	12	10	14	16	10	19
1976-1977	31	22	23	34	20	16	29	19
1978-1979	26	30	40	18	27	29	23	22
1980-1981 or later	18	21	14	15	23	14	23	11
Not specified	1	1	--	--	1	--	2	--

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Table 8-11 (continued)

<u>Type of Restraint System</u>	<u>Main Sample</u>				<u>Control Sample</u>			
	<u>Regular Use</u>	<u>Irregular Use</u>	<u>No Use</u>	<u>Low or No Seat in Household</u>	<u>Regular Use</u>	<u>Irregular Use</u>	<u>Low or No Use</u>	<u>Seat in Household</u>
A single combined lap and shoulder belt which does not come apart	70%	53%	60%	65%	67%	50%	65%	48%
Interconnected lap and shoulder belts with separate buckles for release	13	16	19	8	8	20	15	12
Separate lap and shoulder belts with separate buckles for release	6	19	7	8	10	11	4	13
Lap belt only	8	10	14	15	12	18	13	26
Other	3	1	--	4	3	2	2	1
(BASE)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

Table 8-12 shows the various ways respondents report transporting their children when driving alone with them, and Table 8-13 shows similar information for the times when other older passengers are also in the vehicle. In both the Main and Control Sample households with no seat available, and in both the Main and Control Sample low or no use groups, a majority of principal drivers said that their child is "often" or "sometimes" riding with them in the car in a lying or sitting position, with no seat belt attached when the child is alone with the driver.

"Standing on a seat to look out a window" occurs less frequently than sitting or laying without a seat belt, but is still reported as an "often" or "sometimes"

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occurrence by 21% of the Main Sample low or no seat use group; 23% of the Control Sample low or no seat use group; and roughly 25% in the Main and Control Samples who do not have a car seat available for the youngest child.

These reported ways children travel in cars are basically replicated for the travel situation when there are other adults or children present. However, while it is apparent that the general pattern remains the same, the reported use of a safety seat with the seat belt attached is lower across almost all groups when others are in the car. It appears that safety seat use may be replaced by young children lying or sitting on another passenger's lap when two or more adults or older children are in the car, as shown below (abstracted from Table 8-13):

<u>Child Safety Seat Use Groups</u>	Percent Reporting A Child "Often" Or "Sometimes" Riding On Passenger's Lap	
	<u>Main Sample</u>	<u>Control Sample</u>
Regular use	20%	24%
Irregular use	58	57%
Low or no use	46	54
No seat in household	49	45

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Table 8-12

Alternative Ways Child Might Ride When Alone With Adult

When there is one adult as the driver, a child this age might travel in many different ways with that driver. Let me read you a list of the ways children travel when one adult is in the car. For each one, please tell me if this child travels that way often, sometimes, hardly ever, or never?

	Total Main Sample	Total Control Sample	Main Seat Households	Control Seat Households	Main Sample Households Child Safety Seat Use				Control Sample Households Child Safety Seat Use			
					Regular Use	Irregular Use	Low or No Use	No Seat in Household	Regular Use	Irregular Use	Low or No Use	No Seat in Household
<u>In an infant or toddler car seat with a seat belt attached to the car seat.</u>												
Often	63%	57%	72%	76%	92%	81%	1%	6%	96%	75%	8%	3%
Sometimes	6	5	6	5	4	13	4	4	1	18	8	2
Hardly ever	3	3	3	2	--	1	14	4	--	5	8	3
Never	27	36	18	16	3	4	77	87	3	2	77	91
Don't know/Refused	1	1	1	--	--	--	3	--	1	--	--	--
<u>Laying or sitting on the vehicle's seat with no seat belt attached.</u>												
Often	10%	17%	7%	7%	--%	10%	23%	31%	1%	6%	35%	44%
Sometimes	15	13	13	11	2	26	31	31	3	23	29	17
Hardly ever	12	8	11	6	7	16	19	19	3	13	12	11
Never	62	62	69	75	90	47	27	19	93	61	25	28
Don't know/Refused	1	1	1	--	--	--	3	--	1	--	--	--
<u>Standing on seat to look out car windows.</u>												
Often	3%	6%	2%	4%	--%	3%	7%	8%	1%	5%	15%	11%
Sometimes	8	8	6	6	1	12	14	17	1	21	8	13
Hardly ever	12	11	10	9	5	19	16	21	4	13	21	15
Never	77	75	81	81	93	66	60	54	94	61	56	60
Don't know/Refused	1	--	1	--	--	--	3	--	1	--	--	--
<u>In an infant or toddler car seat with no seat belt attached to the car seat.</u>												
Often	3%	2%	3%	2%	1%	7%	3%	--%	3%	4%	--%	1%
Sometimes	3	5	3	5	3	7	--	2	2	16	6	3
Hardly ever	5	4	5	5	4	7	7	4	4	5	6	3
Never	88	89	87	87	91	78	61	94	90	75	88	92
Don't know/Refused	1	1	1	--	--	--	3	--	1	--	--	--
(BASE)	(400)	(400)	(348)	(255)	(208)	(66)	(70)	(52)	(187)	(56)	(52)	(105)

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Table 8-13

Alternative Ways a Child Might Ride When There are Two or More Adults or Children in the Car

When there are two or more children or adults in this car, how often would you say this child travels in the car in the following ways?	Total Main Sample	Total Control Sample	Main Seat Households	Control Seat Households	Main Sample Households Child Safety Seat Use				Control Sample Households Child Safety Seat Use			
					Regular Use	Irregular Use	Low or No Use	No Seat in Household	Regular Use	Irregular Use	Low or No Use	No Seat in Household
<u>In an infant or toddler car seat with a seat belt attached to the car seat.</u>												
Often	58%	51%	66%	67%	88%	63%	3%	8%	88%	57%	6%	3%
Sometimes	9	7	9	9	5	26	7	2	5	27	4	2
Hardly ever	2	13	12	3	--	3	6	4	1	5	8	2
Never	31	39	22	20	7	7	83	87	6	11	83	91
Don't know/Refused	1	1	1	1	--	--	1	--	1	--	--	--
<u>Laying or sitting on an adult's or older child's lap.</u>												
Often	10%	11%	10%	9%	6%	18%	16%	12%	3%	18%	19%	15%
Sometimes	24	26	22	27	14	40	30	37	21	39	35	30
Hardly ever	22	20	21	20	23	18	20	23	18	25	21	18
Never	44	42	46	44	57	25	33	29	57	18	25	37
Don't know/Refused	1	1	1	1	--	--	1	--	1	--	--	--
<u>Laying or sitting on the vehicle's seat with no seat belt attached.</u>												
Often	10%	15%	6%	6%	1%	1%	26%	35%	1%	7%	25%	39%
Sometimes	15	13	13	11	3	24	31	31	2	20	33	19
Hardly ever	11	8	11	7	7	22	10	10	3	14	17	9
Never	64	64	70	75	88	53	31	23	94	59	25	33
Don't know/Refused	1	1	1	1	--	--	1	2	1	--	--	--
<u>Standing on seat to look out windows.</u>												
Often	3%	4%	2%	3%	--%	3%	9%	6%	--%	4%	12%	6%
Sometimes	9	10	8	7	1	19	17	12	2	18	13	19
Hardly ever	9	6	7	7	6	10	10	17	4	14	13	10
Never	79	77	81	82	92	68	63	65	93	64	62	65
Don't know/Refused	1	1	1	1	--	--	--	--	2	--	--	--
(BASE)	(400)	(400)	(348)	(295)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

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Table 8-13 (continued)

In an infant or toddler car seat with no seat belt attached to the car seat	Total Main Sample	Total Control Sample	Main Seat Households	Control Seat Households	Main Sample Households Child Safety Seat Use				Control Sample Households Child Safety Seat Use			
					Regular Use	Irregular Use	Low or No Use	No Seat in Household	Regular Use	Irregular Use	Low or No Use	No Seat in Household
Often	2%	3%	2%	3%	1%	4%	1%	--%	3%	4%	--%	2%
Sometimes	3	4	3	5	3	7	--	--	5	7	2	1
Hardly ever	6	5	6	5	5	10	7	2	3	11	8	4
Never	89	88	88	86	91	78	90	98	88	79	90	94
Don't know/Refused	1	1	1	1	--	--	1	--	2	--	--	--
(BASE)	(400)	(400)	(348)	(295)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

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The "usual" position for a child when an adult is driving alone with the child, or when two or more older children or adults are with the driver, varies widely and appears, to some degree, to be the individual preference of each driver. Nevertheless, the Main Sample regular group shows a decided preference for having the child in the back seat. This preference is not as strong in the Control seat households. The preference for the back seat in all households is stronger when others besides the child are in the car, and the difference between high and low seat use groups is smaller. Thus, those who use seats less also use the front seat more when alone with the child creating a doubly dangerous (no seat, wrong position) situation.

Table 8-14

"Usual" Position of Child in Car

	<u>Main Sample Households Child Safety Seat Use</u>				<u>Control Sample Household Child Safety Seat Use</u>			
	Regular Use	Irreg- ular Use	No or Low Seat Use	No or in House- hold	Regular Use	Irreg- ular Use	No or Low Seat Use	No or in House- hold
<u>Adult Alone with Child</u>								
Front seat	37%	54%	54%	54%	45%	50%	54%	48%
Back seat	63	45	43	39	54	50	46	42
Other	1	1	3	7	1	--	--	10
<u>Adult with Others in Car Besides Child</u>								
Front seat	23%	42%	32%	31%	32%	43%	28%	38%
Back Seat	74	57	62	61	66	57	68	52
Other	3	1	6	8	2	--	4	10
(BASE)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

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8.5 Reasons for Safety Seat Use or Non-use

In this section, we deal with the factors that seem to explain why people do and do not use child safety seats. Most prominent are the reasons that people themselves cite and attitudes which they express or attribute to others, including their children. Additionally, there are external influences including the attitudes of others that affect parents. And finally, there are general attitudes toward vehicle safety and the risks involved in driving.

8.5.1 Reasons Directly Related to Safety Seat Utility and Convenience

The data shown in Table 8-14 describe reactions to attitude statements regarding child safety seats, by levels of seat use. The main objective here is to identify those attitudes which seem to have the most bearing on seat use levels. Those attitude statements which seem to discriminate by use groups are summarized below and are arrayed in detail in Table 8-15 on pages 90 through 93. These summaries are intended to highlight the differences between the agree and disagree responses to each attitude statement.*

"Children generally don't mind riding in car seats."

	Main Sample				Control Sample			
	Regular Use	Irregular Use	Low or No Use	No Seat in Household	Regular Use	Irregular Use	Low or No Use	No Seat in Household
Agree	81%	72%	47%	61%	78%	62%	48%	52%
Disagree	15	23	49	34	15	33	39	30

*Agree category is summary of "strongly" and "somewhat" agree responses; Disagree category is summary of "strongly" and "somewhat" disagree responses. "Neutral" and "don't know" categories are detailed in Table 8-15.

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Apparently, a large proportion of non-users of safety seats either have had negative experiences in getting a child to ride in a safety seat, or conveniently assume that the child will be reluctant.

"Children resist riding in car seats when there are other passengers in the car."

	<u>Main Sample</u>				<u>Control Sample</u>			
	<u>Regular Use</u>	<u>Irregular Use</u>	<u>Low or No Use</u>	<u>No Seat in Household</u>	<u>Regular Use</u>	<u>Irregular Use</u>	<u>Low or No Use</u>	<u>No Seat in Household</u>
Agree	33%	63%	64%	59%	33%	70%	64%	57%
Disagree	60	29	27	26	58	27	30	28

It is only the most confirmed seat user who is apparently able to overcome the reluctance of children to use safety seats when other passengers are in the car. A majority of adults in the other use groups seem to believe that it is a problem getting children to use safety seats when other passengers are in the car.

"Children are more trouble when riding in car seats than when not riding in car seats."

	<u>Main Sample</u>				<u>Control Sample</u>			
	<u>Regular Use</u>	<u>Irregular Use</u>	<u>Low or No Use</u>	<u>No Seat in Household</u>	<u>Regular Use</u>	<u>Irregular Use</u>	<u>Low or No Use</u>	<u>No Seat in Household</u>
Agree	7%	16%	24%	25%	11%	17%	28%	19%
Disagree	91	76	64	67	86	78	67	68

There is majority disagreement with this statement even in the low or no use groups. The level of disagreement is quite similar to agreement with the previous statement about children's resistance to seats. Thus, parents who do not use child car seats have two attitudinal "blocks" to increased use: 1) that children mind or resist

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getting into seats at all; and 2) that they are more trouble in seats than when not riding in seats.

Despite their more negative attitudes toward seat use, it should also be noted that in both the Main and Control Samples a majority of current non-users agree that:

- child safety seats are comfortable for children; (80% Main; 70% Control)
- children are more likely to fight with one another when not in safety seats; (74% Main; 69% Control)
- that child safety seats are not difficult to install; (66% Main; 69% Control)
- that infants are not safe when held securely by a passenger, when in an infant bassinet as compared to a special infant carrier (86% Main; 86% Control).

In summary, it appears that the parent's reluctance to overcome a child's actual or perceived resistance to a safety seat is the main attitudinal barrier to regular seat use, since non-users generally agree that child safety seats are comfortable, easy to install, and provide more protection than when the child is in a passenger's lap. A secondary attitudinal hurdle is created for both irregular and low or no use groups when a child expresses reluctance to use safety seats when other passengers are in the car.

Non-users are far more likely to believe that children do mind riding in seats and that most will resist being put in a seat when there are other passengers in the vehicle. Although it is a minority view even among non-users, a much higher proportion of this group hold the extreme view that children are actually more trouble when riding in safety seats than when not so secured.

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Table 8-15

General Attitudes Toward Child Safety Seats by Seat Use Groups

Some people favor child car seats for their children and others do not. I'd like to read you a series of statements about infant and child car seats. By infants, I mean children who cannot yet sit upright for long periods of time in a car.

Child car seats are comfortable for children.	Total Main Sample	Total Control Sample	Main Seat Household				Control Seat Household			
			Regular Use	Irregular Use	Low or No Use	No Seat in Household	Regular Use	Irregular Use	Low or No Use	No Seat in Household
Strongly agree	50%	42%	53%	60%	39%	40%	53%	34%	33%	29%
Somewhat agree	34	40	35	22	41	33	36	45	37	44
Neither agree nor disagree	6	6	4	6	10	10	4	9	12	10
Somewhat disagree	7	8	5	7	7	15	4	9	13	10
Strongly disagree	3	3	2	4	3	2	1	4	6	3
Don't know/Refused	--	2	--	--	--	--	1	--	--	5
Children are more likely to fight with one another when they are not seated in a car seat.										
Strongly agree	49%	45%	51%	49%	53%	37%	53%	46%	38%	33%
Somewhat agree	29	31	29	31	21	33	24	38	31	39
Neither agree nor disagree	9	6	7	4	13	15	6	--	4	10
Somewhat disagree	7	8	5	7	9	10	4	4	21	10
Strongly disagree	3	6	3	1	3	4	7	7	2	5
Don't know/Refused	4	5	4	7	1	2	6	5	4	4
Children generally don't mind riding in car seats.										
Strongly agree	32%	29%	42%	29%	14%	17%	43%	21%	15%	14%
Somewhat agree	40	37	39	43	33	44	35	41	33	38
Neither agree nor disagree	5	7	3	4	14	4	4	5	12	10
Somewhat disagree	17	17	13	16	26	19	11	20	29	18
Strongly disagree	7	8	2	7	13	15	4	13	10	12
Don't know/Refused	1	3	1	--	--	--	2	--	2	8
Most parents buckle their children into car seats to control their children's behavior.										
Strongly agree	17%	17%	16%	21%	16%	13%	16%	18%	19%	19%
Somewhat agree	39	35	37	41	46	35	32	43	33	38
Neither agree nor disagree	11	13	13	7	13	6	12	4	4	13
Somewhat disagree	21	21	22	18	14	31	21	16	23	20
Strongly disagree	12	13	12	10	11	13	15	11	17	9
Don't know/Refused	1	3	1	3	--	2	4	2	4	1
(BASE)	(400)	(400)	(206)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

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Table 8-15 (continued)

Child car seats take up a lot of room in the car.	Total Main Sample	Total Control Sample	Main Seat Household				Control Seat Household			
			Regular Use	Irregular Use	Low or No Use	No Seat in Household	Regular Use	Irregular Use	Low or No Use	No Seat in Household
Strongly agree	22%	22%	20%	22%	24%	25%	16%	14%	19%	11%
Somewhat agree	32	32	33	29	30	31	32	38	37	30
Neither agree nor disagree	4	4	5	3	6	2	4	9	4	11
Somewhat disagree	21	21	18	19	24	27	16	16	19	26
Strongly disagree	22	22	25	26	11	15	32	23	21	20
Don't know/Refused	--	--	--	--	--	--	--	--	--	2
Children resist riding in car seats when there are other passengers in the car.										
Strongly agree	13%	16%	6%	22%	24%	15%	9%	18%	33%	20%
Somewhat agree	34	34	27	41	40	44	27	52	31	37
Neither agree nor disagree	8	5	6	7	9	13	3	4	6	8
Somewhat disagree	18	19	20	16	14	13	21	14	13	18
Strongly disagree	27	24	40	13	13	13	37	13	17	10
Don't know/Refused	1	4	1	--	--	--	3	--	--	8
Child car seats are difficult to install.										
Strongly agree	6%	4%	5%	9%	9%	6%	3%	--%	10%	4%
Somewhat agree	18	17	14	19	21	21	16	18	19	18
Neither agree nor disagree	5	5	5	4	4	4	4	5	2	7
Somewhat disagree	25	31	23	21	33	31	22	36	42	38
Strongly disagree	46	42	52	47	33	37	53	41	27	28
Don't know/Refused	--	2	--	--	--	--	2	--	--	6
Children are more trouble when riding in car seats than when not riding in car seats.										
Strongly agree	6%	8%	4%	6%	10%	8%	7%	4%	13%	9%
Somewhat agree	8	8	3	10	14	17	4	13	15	10
Neither agree nor disagree	5	4	2	6	11	8	2	4	4	10
Somewhat disagree	15	19	13	16	20	13	14	23	17	27
Strongly disagree	66	59	78	60	44	54	72	55	50	41
Don't know/Refused	1	1	1	1	--	--	1	2	--	4
(BASE)	(400)	(400)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

Chapter 8 (Continued)

Table 8-15 (continued)

	Total Main Sample	Total Control Sample	Main Seat Household				Control Seat Household			
			Regular Use	Irregular Use	Low or No Use	No Seat in Household	Regular Use	Irregular Use	Low or No Use	No Seat in Household
<u>An infant who is securely held by a passenger in a car is generally safe.</u>										
Strongly agree	2%	2%	2%	--%	3%	--%	3%	--%	--%	3%
Somewhat agree	7	12	3	13	7	15	4	16	10	25
Neither agree nor disagree	2	3	1	3	3	--	2	4	4	4
Somewhat disagree	15	17	12	13	27	13	10	25	19	22
Strongly disagree	74	65	81	49	59	71	79	55	66	44
Don't know/Refused	1	1	1	--	1	--	1	--	--	3
<u>An infant bassinet is as good as a special infant carrier for use in the car.</u>										
Strongly agree	1%	1%	1%	1%	3%	--%	1%	--%	2%	--%
Somewhat agree	2	5	--	4	1	6	2	2	4	12
Neither agree nor disagree	2	2	2	1	--	2	1	5	2	1
Somewhat disagree	14	18	11	16	17	19	11	25	12	30
Strongly disagree	81	73	85	75	77	73	85	68	79	51
Don't know/Refused	1	2	--	1	--	--	1	--	2	6
(BASE)	(400)	(400)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

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8.5.2 Interpersonal Influences on Safety Seat Use

Obtaining and using child safety seats is related to discussion among relatives and friends regarding those decisions. It is also related to the principal driver's perceptions of the degree to which friends and relatives are supportive or not of the decision to obtain and use child safety seats. There is virtual consensus among those that have obtained seats, regardless of use, that they were strongly in favor of the decision. Not surprisingly, the safety of the child is the prime reason given for being in favor of obtaining a safety seat. Keeping the child "restricted" (while presumably adding to the "safety" of the driving situation) is a secondary mention, perhaps related more to controlling the child's behavior in the car than the simple additional protection afforded by the seat.

As Table 8-16 shows, a total of 49% of the principal drivers in the Main Sample seat household and 46% in the Control Sample seat households claim that the decision to obtain a seat was a joint parental decision. Another 30% in the Main Sample seat households and 35% in the Control Sample claimed it was exclusively their own decision as principal driver to obtain a child safety seat. Approximately one out of five (19%) of the Main Sample seat households mentioned the League General notification card of the "free" child safety seat program as one of the influences in obtaining a child safety seat.

Joint parental decisions receive proportionally higher mention in the regular use group for both Main and Control Samples. This suggests that there may be a relationship between the "commitment" to seat use generated by a joint parental decision and actual use, as contrasted to a decision primarily made by one of the parents.

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Table 8-16
Key Decision-Maker in Obtaining A Safety Seat

<u>Whose idea was it to get a car seat for this child? (MULTIPLE MENTIONS ALLOWED)</u>			Main Seat Households			Control Seat Households		
	Main Seat House- holds	Control Seat House- holds	Child Safety Seat Use			Child Safety Seat Use		
			Regu- lar Use	Irreg- ular Use	Low or No Use	Regu- lar Use	Irreg- ular Use	Low or No Use
Both respondent/spouse	49%	46%	56%	35%	41%	50%	41%	38%
Respondent	30	35	29	38	26	34	41	29
League Insurance notification card	19	--	13	29	27	--	--	--
Spouse	12	12	13	7	11	14	7	6
Parents of respondent or spouse	3	8	4	3	1	5	13	15
Friends	2	6	3	--	--	6	5	8
Doctor/Pediatrician	1	1	1	--	1	1	--	2
Other	2	2	1	4	3	2	--	8
Don't know/Refused	--	--	--	--	--	--	2	2
(BASE)	(346)	(295)	(208)	(68)	(70)	(187)	(56)	(52)

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Roughly one-third of both Main and Control Sample drivers claim that someone talked with them about obtaining a child safety seat. Slightly fewer drivers in the low or no use group recalled someone discussing safety seats with them, and the drivers in Control Sample households with no seat available had the lowest proportion (17%) mentioning someone talking to them about safety seats. No particular type of individual appears to predominate as an interpersonal communication source of discussion about child safety seats. Perhaps most notable is the negative fact that so few mentioned a doctor or pediatrician as the source of any recommendation. Three out of four interpersonal discussions involved a strong recommendation to obtain a seat, except in the low or no use group, (Table 8-17).

Less than one out of ten Main Sample (8%) and Control Sample (9%) principal drivers recalled any conversations with someone about reasons not to use a child safety seat (Table 8-17).

Nearly two-thirds (64%) of the Main Sample seat household principal drivers claim to have made suggestions to friends and relatives about obtaining a safety seat for their children. This is significantly higher than the proportion of Control Sample seat household principal drivers (46%) who claim to have made suggestions about safety seats to friends and relatives. While there was no follow-up as to the content of these discussions, it can be hypothesized that the higher incidence of reported conversations among Main Sample drivers at least partially relates to their mentioning the availability of the League General safety seat program.

The regular use group in both samples is slightly more likely to claim having made a suggestion about child car seats and to characterize that suggestion as a "strong recommendation" (Table 8-19).

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Table 8-17

Recommendations for Using Child Safety Seats

Has anyone ever talked to you about obtaining a child car seat for your child(ren)?	Total Main Sample	Total Control Sample	Main Seat Households	Control Seat Households	Main Seat Households				Control Seat Households			
					Regular Use	Irregular Use	Low or No Use	No Seat in Household	Regular Use	Irregular Use	Low or No Use	No Seat in Household
Yes	35%	30%	35%	35%	34%	44%	26%	35%	37%	34%	27%	17%
No	65	69	65	64	65	56	74	65	62	64	73	83
Don't know/Refused	1	1	--	1	--	--	--	--	1	2	--	--
(BASE)	(400)	(400)	(348)	(295)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)
Who talked to you about obtaining a child car seat? (MULTIPLE MENTIONS ALLOWED)												
Spouse	12%	12%	12%	13%	10%	17%	11%	11%	11%	11%	11%	11%
Parents/Grandparents of child	18	29	20	31	21	13	28	6	29	42	29	17
Other relatives	14	17	16	17	17	17	11	--	19	11	14	17
Friends	22	28	22	28	23	17	28	22	26	26	43	28
Doctor/Pediatrician	17	17	19	18	25	7	17	6	20	16	14	11
Other	33	16	29	15	27	33	28	61	16	16	7	22
Don't know/Refused	2	--	3	--	1	6	--	--	--	--	--	--
Would you say that you have received . . .												
A strong recommendation from someone	73%	75%	73%	78%	16%	73%	56%	72%	83%	84%	43%	61%
A suggestion once or twice from someone	16	14	17	14	11	23	28	11	9	5	50	17
Somebody mentioned it in some conversation	6	9	6	7	6	--	17	6	7	11	--	22
Don't know/Refused	6	2	5	2	7	3	--	12	1	--	7	--
(BASE)	(139)	(121)	(121)	(103)	(71)	(30)	(18)	(18)	(70)	(19)	(14)	(18)
Has anyone ever talked to you about reasons for not using a child car seat for your child(ren)?												
Has anyone ever talked to you about reasons for not using a child car seat for your child(ren)?	Total Main Sample	Total Control Sample	Main Seat Households	Control Seat Households	Main Seat Households				Control Seat Households			
	Regular Use	Irregular Use	Low or No Use	No Seat in Household	Regular Use	Irregular Use	Low or No Use	No Seat in Household				
Yes	8%	9%	9%	10%	12%	3%	6%	2%	13%	--%	12%	7%
No	92	91	91	90	88	97	94	98	87	100	88	93
Don't know/Refused	--	--	--	--	--	--	--	--	--	--	--	--
(BASE)	(400)	(400)	(348)	(295)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

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Table 8-19

Made Suggestion to Close Friends or Relatives to Use Safety Seats

<u>Have you ever suggested to your close friends or relatives who have children 4 years old or younger that they obtain a car seat for their children?</u>	Main Seat Households	Control Seat Households	Main Seat Households			Control Seat Households		
			Regu- lar Use	Irreg- ular Use	Low or No Use	Regu- lar Use	Irreg- ular Use	Low or No Use
Yes	64%	45%	68%	57%	56%	49%	38%	40%
No	36	54	31	41	44	51	63	58
Don't know/Refused	1	--	1	1	--	1	--	2
(BASE)	(346)	(295)	(208)	(68)	(70)	(187)	(56)	(52)

(IF YES)

Would you say that you...

Strongly recommended obtaining a child car seat	64	61	70	59	46	66	43	43
Made a suggestion once or twice	24	28	23	28	23	23	38	38
Mentioned it once in some conversation with relatives or friends	12	11	7	13	31	8	19	19
(BASE)	(220)	(133)	(142)	(39)	(39)	(91)	(21)	(21)

There is also a weak relationship between one's own seat use and the perception that friends and relatives are regular seat users with their own children. Furthermore, there does seem to be some "environment" of regular seat users who presumably support each other's behavior. Only 21% of the Control Sample principal drivers with no seat available for their child report that their friends and relatives use child safety seats regularly, compared to 45% of the regular users. In the Main Sample,

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36% of the regular users versus 23% of the no seat households claim that friends and relatives regularly use child safety seats.

Table 8-20

**Principal Driver's Perception of Safety
Seat Use by Friends and Relatives
With Small Children**

<u>In general, what percent of the time would you say your friends and relatives with small children use child car seats in their own car?</u>	<u>Main Households</u>				<u>Control Households</u>			
	<u>Regular Use</u>	<u>Irreg- ular Use</u>	<u>No or No Use</u>	<u>Low Seat in House- hold</u>	<u>Regular Use</u>	<u>Irreg- ular Use</u>	<u>No or No Use</u>	<u>Low Seat in House- hold</u>
Low use (0-10%)	12%	15%	31%	28%	15%	25%	31%	40%
Irregular use (11-89%)	52	61	40	49	40	56	40	39
Regular use (90-100%)	36	24	29	23	45	19	29	21
(BASE)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

8.5.3 General Occupant Safety and Driving Risk Factors

Attitudes about seat belts and the general "risks" involved in car accidents bear less relationship to child safety seat use than do the specific attitudes just described that principal drivers have about the use of child safety seats. The data shown in Table 8-21 (pages 101-103) array the reactions of principal drivers by safety seat use categories to various attitudinal statements concerning the risk of being in traffic accidents and the value of seat belt use. Four distinct patterns of responses emerge across both the Main and Control Sample child safety seat use groups.

1. No differences among safety seat use groups on reactions to the following statement:

"Even the most experienced drivers are involved in traffic accident."

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2. Differences between regular and low or no use groups in intensity of "agreement" with the following where regular users are more likely to strongly agree with each statement, and low or no users somewhat agree:

"It has been proven that the use of a seat belt is one of the best ways to avoid injuries in a collision."

"It is an excellent habit always to use a seat belt."

"A seat belt prevents deaths in car accidents."

3. Differences between regular and low or no use groups in intensity of "disagreement" with the following where regular users are more likely to strongly disagree, and low or no users somewhat disagree:

"A seat belt destroys the pleasures of driving by reminding a person of the accident risk."

"It has not been proven that seat belts prevent injuries."

"It is a sign of overcautiousness to use a seat belt."

"Most traffic accidents result in only minor injuries to people."

"In an accident, you are usually better off to be thrown clear of the car than to remain in the car."

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4. Statistically significant differences ($p < .05$) among seat use groups exist on the following statements:

"In an accident which ends with the car catching fire, seat belt wearers are not usually better off." (Regular users "disagree" more than low or no users or no seat available groups)

"There should be a mandatory seat belt law requiring people to use seat belts." (Regular users "agree" and low or no users "disagree.")

In summary, it is the "fear of entrapment" and reactions to a mandatory seat belt law that most clearly distinguish among child safety seat use groups. Thus, entrapment is perceived to be the most extreme "risk" for a driver, and it is only at that extreme that the non-user can apparently rationalize a perceived "danger" to using seat belts (or strapping in a child safety seat). Nevertheless, it should be noted that fear of entrapment is fairly powerful even among regular child safety users in both Main Sample (48% agree that seat belt wearers are not better off in a car fire) and Control Sample (52% agree).

Table 8-21

Attitudes Toward Driving and Safety by Main Sample Seat Belt and Safety Seat Use Levels

Thinking about the vehicle you drive in most often, I would now like to read you a series of statements people have made about driving and safety. Please tell me if you strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, or strongly disagree with each statement.

	Total Main Sample	Total Control Sample	Main Seat Household				Control Seat Household			
			Regular Use	Irregular Use	Low or No Use	No Seat in Household	Regular Use	Irregular Use	Low or No Use	No Seat in Household
<u>Even the most experienced drivers are involved in traffic accidents.</u>										
Strongly agree	80%	76%	81%	79%	73%	85%	81%	73%	85%	64%
Somewhat agree	17	22	16	19	20	12	16	25	15	33
Neither agree nor disagree	1	--	--	--	1	2	--	--	--	1
Somewhat disagree	2	1	2	1	1	2	1	2	--	1
Strongly disagree	1	1	--	--	3	--	2	--	--	1
Don't know/Refused	--	--	--	--	--	--	--	--	--	--
<u>It has been proven that the use of a seat belt is one of the best ways to avoid injuries in a collision.</u>										
Strongly agree	57%	54%	63%	63%	44%	42%	67%	52%	52%	33%
Somewhat agree	30	30	27	26	37	33	23	30	33	41
Neither agree nor disagree	7	8	5	7	10	12	6	7	4	12
Somewhat disagree	5	7	4	3	4	10	2	9	10	11
Strongly disagree	--	1	--	--	--	2	1	--	2	1
Don't know/Refused	2	1	1	--	4	2	1	2	--	1
<u>It is an excellent habit always to use a seat belt.</u>										
Strongly agree	64%	59%	72%	60%	51%	54%	70%	64%	58%	36%
Somewhat agree	25	26	19	31	34	29	20	20	25	40
Neither agree nor disagree	6	8	4	3	9	12	4	9	8	13
Somewhat disagree	4	5	3	6	3	4	4	4	8	8
Strongly disagree	1	2	1	--	1	2	2	4	2	3
Don't know/Refused	--	--	--	--	1	--	1	--	--	--
<u>A seat belt prevents deaths in car accidents.</u>										
Strongly agree	37%	34%	41%	19%	27%	33%	43%	38%	27%	19%
Somewhat agree	35	35	33	40	37	35	33	30	38	40
Neither agree nor disagree	12	15	13	9	16	8	10	16	12	23
Somewhat disagree	11	11	9	6	16	15	10	16	10	12
Strongly disagree	4	5	3	9	1	8	4	--	10	5
Don't know/Refused	1	1	--	3	3	2	1	--	2	1
(BASE)	(400)	(400)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

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Table 8-21 (continued)

In an accident which ends with the car catching fire, seat belt wearers are not usually better off.	Total Main Sample	Total Control Sample	Main Seat Household			No Seat in Household	Control Seat Household			No Seat in Household
			Regular Use	Irregular Use	Low or No Use		Regular Use	Irregular Use	Low or No Use	
Strongly agree	23%	25%	17%	24%	30%	33%	25%	14%	23%	32%
Somewhat agree	34	31	31	28	39	40	27	43	27	34
Neither agree nor disagree	16	17	17	21	10	15	18	18	19	14
Somewhat disagree	15	14	20	7	13	6	16	18	15	10
Strongly disagree	10	9	13	12	3	6	10	5	13	8
Don't know/Refused	4	3	2	9	6	--	4	2	2	2
<u>There should be a mandatory seat belt law requiring people to use seat belts.</u>										
Strongly agree	26%	22%	36%	21%	10%	12%	26%	25%	17%	13%
Somewhat agree	23	24	24	28	21	17	25	30	19	22
Neither agree nor disagree	12	14	10	10	17	15	14	14	15	13
Somewhat disagree	18	16	15	16	20	25	15	13	17	17
Strongly disagree	21	23	14	24	30	31	18	14	27	32
Don't know/Refused	1	2	--	1	1	--	--	4	4	2
<u>Most traffic accidents result in only minor injuries to people.</u>										
Strongly agree	6%	8%	6%	9%	6%	2%	9%	9%	6%	7%
Somewhat agree	36	36	33	22	49	52	33	41	33	42
Neither agree nor disagree	10	10	8	16	14	4	10	9	10	10
Somewhat disagree	27	25	31	28	21	19	26	23	31	23
Strongly disagree	20	19	21	21	10	23	19	18	19	17
Don't know/Refused	1	2	1	4	--	--	3	--	2	1
<u>It has not been proven that seat belts prevent injuries.</u>										
Strongly agree	8%	12%	7%	10%	9%	4%	8%	13%	8%	20%
Somewhat agree	12	13	8	7	21	21	11	14	4	19
Neither agree nor disagree	8	9	6	7	10	10	7	9	10	13
Somewhat disagree	21	23	21	24	23	15	21	21	35	21
Strongly disagree	51	42	58	50	34	48	51	43	42	26
Don't know/Refused	1	2	--	1	3	2	2	--	2	1
(BASE)	(400)	(400)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

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Table 8-21 (continued)

In an accident, you are usually better off to be thrown clear of the car than to remain in the car.	Total Main Sample	Total Control Sample	Main Seat Household				Control Seat Household			
			Regular Use	Irregular Use	Low or No Use	No Seat in Household	Regular Use	Irregular Use	Low or No Use	No Seat in Household
Strongly agree	4%	4%	1%	9%	1%	8%	3%	2%	6%	5%
Somewhat agree	7	11	7	4	17	13	5	16	12	18
Neither agree nor disagree	21	22	21	13	30	21	21	18	15	27
Somewhat disagree	19	18	18	19	19	19	16	14	29	19
Strongly disagree	45	42	50	50	30	38	53	43	33	28
Don't know/Refused	3	5	3	4	3	--	3	7	6	4
A seat belt destroys the pleasures of driving by reminding a person of the accident risk.										
Strongly agree	2%	2%	--%	3%	1%	8%	1%	2%	4%	4%
Somewhat agree	7	8	4	9	10	10	6	11	6	11
Neither agree nor disagree	7	7	4	7	10	10	6	14	2	9
Somewhat disagree	23	24	22	21	29	25	17	30	37	28
Strongly disagree	60	57	68	60	47	48	70	43	50	47
Don't know/Refused	1	1	1	--	3	--	1	--	--	2
It is a sign of overcautiousness to use a seat belt.										
Strongly agree	2%	3%	1%	1%	--%	6%	2%	7%	2%	3%
Somewhat agree	5	5	2	4	7	13	4	4	2	10
Neither agree nor disagree	5	8	3	4	9	12	5	11	13	9
Somewhat disagree	24	28	24	25	23	21	22	30	33	33
Strongly disagree	64	56	69	65	60	48	66	48	48	45
Don't know/Refused	1	2	--	--	1	--	1	--	2	1
(BASE)	(400)	(400)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

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8.6 Principal Driver's Seat Belt Use

There is a clear positive relationship between regular child safety seat use and the principal driver's own seat belt use, as shown in Table 8-22. Moreover, the League General Sample contains significantly more regular and occasional (irregular) seat belt users than does the Control Sample. Obviously, it is impossible to establish a cause and effect relationship in these cross-sectional data. It is possible that regular seat belt users are more likely than non-users to obtain a child safety seat. It is also plausible that having a young child in the household, and regularly buckling that child into a safety seat, sensitizes the principal driver to increased use of their own seat belts. Unfortunately, even among regular safety seat users only 37% of the Main Sample and 32% of the Control Sample principal drivers also report that they are regular seat belt wearers.

Table 8-22

Principal Drivers Seat Use and Child Safety Seat Use

<u>Principal Driver's Seat Belt Use</u>	<u>Total Main Sample</u>	<u>Total Control Sample</u>	<u>Main Sample Seat Households</u>	<u>Control Sample Seat Households</u>	<u>Main Sample</u>				<u>Control Sample</u>			
					<u>Regular Use</u>	<u>Irregular Use</u>	<u>Low or No Use</u>	<u>No Seat in Households</u>	<u>Regular Use</u>	<u>Irregular Use</u>	<u>Low or No Use</u>	<u>No Seat in Households</u>
Low or no use (0-10%)	52%	65%	51%	63%	41%	65%	69%	54%	54%	75%	81%	68%
Irregular Use (11-89%)	19	14	22	13	22	26	12	23	14	20	6	17
Regular use (90-100%)	29	21	27	24	37	9	19	23	32	5	13	15
(BASE)	(400)	(400)	(348)	(295)	(208)	(68)	(70)	(52)	(187)	(56)	(52)	(105)

Chapter 8 (Continued)

8.7 Qualitative Evaluations of Safety Seats

Child safety seat use is almost certainly related to a parent's own satisfaction with the available seat as well as to the parent's perception of the child's reaction to the seat. As shown from the attitudinal data, perceptions or assumptions about whether children are reluctant to use safety seats are related to level of use. The analysis in this section looks more closely at specific reasons why the parent or child likes or dislikes a particular safety seat model.

The analysis also investigates directly the League General choice of Century safety seat products for the car seat program. Users of Century products are compared to users of other types of seats (according to the principal driver's identification of a specific type of seat) combining the Main Sample and Control Sample groups. The issue here is not how a seat was obtained, but whether the Century products are viewed more or less favorably than other types of seats.

Most parents are at least "somewhat" satisfied with their car seats. Table 8-23 shows that regular users indicate somewhat more satisfaction than low users, but the differences in level of satisfaction are not great.

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Table 8-23

Satisfaction with Safety Seat

<u>In general, how satisfied are you with the car seat you have for this child?</u>	Main Seat Households	Control Seat Households	<u>Main Seat Households</u>			<u>Control Seat Households</u>		
			Regu- lar Use	Irreg- ular Use	Low or No Use	Regu- lar Use	Irreg- ular Use	Low or No Use
Very satisfied	73%	65%	76%	68%	69%	73%	54%	52%
Somewhat satisfied	17	24	16	22	14	22	32	19
Neither satisfied nor dissatisfied	1	2	--	1	3	2	4	2
Somewhat dissatisfied	7	6	6	6	9	3	11	13
Very dissatisfied	1	1	1	1	1	1	--	6
Don't know/Refused	1	1	--	1	4	--	--	8
(BASE)	(346)	(295)	(208)	(68)	(70)	(187)	(56)	(52)

Chapter 8 (Continued)

The Century products receive somewhat more mentions than non-Century products in terms of satisfaction with the adjustability of the seats (25% mention for Century products compared to 13% for non-Century products) and sturdiness (23% to 16%). The major complaint with the Century products appears to be with the materials and construction of the padding and upholstery (19% mention for all Century products compared to 9% for other seats).

Table 8-24
Evaluations of Safety Seat Characteristics

	<u>Favorable Characteristics</u>	
	<u>Combined Main and Control</u>	
<u>Top Mentions:</u>	<u>Identified Century Products</u>	<u>Identified* Non-Century Products</u>
Safety (general mention); secure	26%	26%
Easy to use; convenient to use	23	22
Sturdy; well made; well padded	23	16
Adjustable; reclines	25	13
Sits up high; can see out	14	10
Holds in one place; can't get out	15	13
Comfortable (general)	12	12
	<u>Unfavorable Characteristics</u>	
<u>Top Mentions:</u>		
Materials crack, rip, fall apart	19%	9%
Hard to use	14	12
Uncomfortable for child	10	11
Inconvenient; heavy to move	16	11
Too small; straight up and down; wobbly	8	12

* Identification was on the basis of principal driver picking out type of car seat in household from a series of pictures of most current brands and models of infant and child car seats.

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From Table 8-25 it is clear that parents feel that the characteristic of seats which children find most attractive is that the seats enable them to sit high enough to see outside the car. The ability of the child to sleep in a seat and the general comfort of the seat are also important. Parents in the low or no use group are significantly more likely to say their child likes "nothing" about the safety seat, compared to the other use groups. The major negative factor for the child is being constrained. Parents in the non-use group are significantly more likely to identify complaints they believe the child has about seats. The largest number of mentions concern the child "being restrained," "being strapped in," "too confined" and saying the child is "too big for it." There are no significant differences between Century and non-Century products in the characteristics of seats that children are perceived to like and dislike.

Table 8-25
Parents' Perceptions of What Children Like and Dislike About Safety Seats

	<u>Main Households</u>			<u>Control Households</u>		
	<u>Regu- lar Use</u>	<u>Irreg- ular Use</u>	<u>Low or No Use</u>	<u>Regu- lar Use</u>	<u>Irreg- ular Use</u>	<u>Low or No Use</u>
<u>Top mentions of what parents say children like about car seats</u>						
Can see everything; see outside	38%	35%	25%	38%	46%	29%
Easy to sleep in	15	10	10	15	5	5
Comfortable (general)	10	7	4	7	4	6
Nothing liked	17	15	41	19	29	46
<u>Top mentions of what parents say children dislike about car seats</u>						
Doesn't like being restrained; strapped in; confined	32%	57%	42%	25%	45%	38%
Can't see out window	6	7	14	4	5	13
Child too big for seat	2	--	13	1	--	15
No complaints - likes it	50	29	24	45	36	23
(EASE)	(208)	(68)	(70)	(187)	(56)	(52)

Chapter 8 (Continued)

As a summary to the issue of whether parents perceive their children to be comfortable or uncomfortable in a child safety seat, the data in Table 8-26 shows that 94% of the Main Sample regular seat users feel their children are comfortable "always" or "most of the time," as do 95% of the Control Sample regular users. This contrasts dramatically with the 62% of the Main Sample low or no users and 60% of the Control Sample low or no users who feel their children are uncomfortable "most" or "all of the time" they are in the seats.

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Table 8-26

Description of Child's Reactions to Seats

<u>In general, which category on this card best describes this child's reaction to the child safety seat?</u>	<u>Main Seat House-</u> <u>holds</u>	<u>Control Seat House-</u> <u>holds</u>	<u>Main Seat Households</u>			<u>Control Seat Households</u>		
			<u>Regu-</u> <u>lar</u> <u>Use</u>	<u>Irreg-</u> <u>ular</u> <u>Use</u>	<u>Low</u> <u>or</u> <u>No</u> <u>Use</u>	<u>Regu-</u> <u>lar</u> <u>Use</u>	<u>Irreg-</u> <u>ular</u> <u>Use</u>	<u>Low</u> <u>or</u> <u>No</u> <u>Use</u>
<u>Always comfortable and willing to use seat</u>	34%	39%	48%	19%	6%	53%	18%	13%
<u>Comfortable and willing to use the seat most of the time</u>	44	39	46	62	20	42	50	15
<u>Uncomfortable or not willing to use the seat most of the time</u>	11	11	5	15	23	4	23	23
<u>Always comfortable or not willing to use the seat</u>	9	8	--	4	39	1	7	37
<u>Don't know/Refused</u>	4	3	1	--	12	1	2	12
(BASE)	(346)	(295)	(208)	(68)	(70)	(187)	(56)	(52)

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The data in Table 8-27 show that 82% of the Century product users claim their children are comfortable most or all of the time, compared to 75% of the non-Century product households. The test of proportions indicates that this 7% difference is statistically significant at the p .05 level.

Table 8-27

Reaction of Child to Safety Seat

<u>In general, which category on this card best describes this child's reaction to the child safety seat?</u>	Combined and Main Control Sample		
	<u>All Century Products</u>	<u>Non-Century Products</u>	
<u>Always comfortable and willing to use the seat</u>	37%	36%	
<u>Comfortable and willing to use the seat most of the time</u>	45	39	82%* 75%
<u>Uncomfortable or not willing to use the seat most of the time</u>	8	13	
<u>Always uncomfortable or not willing to use the seat</u>	9	8	
<u>Don't know/Refused</u>	1	5	
<u>(BASE)</u>	<u>(278)</u>	<u>(363)</u>	

*p<.05 between Century and non-Century groups

8.8 Reactions to Michigan's Mandatory Child Passenger Safety Law

A majority of 72% of the Main Sample and 71% of the Control Sample said they are in favor of the new Michigan Law which requires that children under the age of one ride in an approved infant or child safety seat, and children age 1-4 must be in an approved safety seat when riding in the front seat of a car. Although the favorable proportions are smaller, a majority in the low use groups in both the Main Sample (51%) and the Control Sample (62%) also favor this law. There were majorities in favor even among households with no seat currently available (58% Main Sample;

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51% Control Sample). Those who support this law recognize it as a means to promote safety for children in cars. Opposition to the law mainly centers on the idea that use of a safety seat should be solely up to the individual, with no government interference.

Table 8-28

Attitudes Toward Child Safety Seat Law

The State of Michigan recently passed a law which will go into effect around April 1982. This law requires that children under the age of 1 be in an approved infant or child car seat whenever riding in the car. Children age 1-4 must also be in a child car seat when riding in the front seat, or at least be wearing a car safety belt when riding in the back seat. If a child is not in a car seat or wearing a safety belt in the back seat, police can issue a ticket to the driver. The ticket has no points, but will cost \$10. The \$10 fine will be waived if proof is given that the driver has obtained an approved child car seat.

<u>In general, do you favor or oppose this new law?</u>	Total Main Sample				Main Seat Households				
	Total Sample	Principal Driver Seat Belt Use			Total Sample	Child Car Seat Use			No Seat in Household
		Regular Use	Irregular Use	Low or No Use		Regular Use	Irregular Use	Low or No Use	
Favor	72%	86%	81%	62%	83%	72%	51%	58%	
Oppose	23	10	14	33	13	24	46	35	
Don't know/Refused	5	4	5	5	5	4	3	8	
(BASE)	(400)	(92)	(98)	(210)	(208)	(68)	(70)	(52)	
<u>In general, do you favor or oppose this new law?</u>	Total Control Sample				Control Seat Households				
	Total Sample	Principal Driver Seat Belt Use			Total Sample	Child Car Seat Use			No Seat in Household
		Regular Use	Irregular Use	Low or No Use		Regular Use	Irregular Use	Low or No Use	
Favor	71%	83%	73%	67%	83%	73%	62%	51%	
Oppose	27	14	24	31	14	25	37	45	
Don't know/Refused	3	3	3	2	3	2	2	4	
(BASE)	(400)	(70)	(75)	(255)	(187)	(56)	(52)	(105)	

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8.9 Summary and Conclusions from Survey

The conclusions that can be drawn directly from the survey data are of two types: those that bear directly on an evaluation of the League General safety seat program; and those that speak more generally to the relationships between child safety seat use and other variables.

8.9.1 Evaluation of League General Safety Seat Program

1. The League General Insurance program delivers a child car seat to each household (or children in a household) which qualifies. However, some households apparently did not request seats for all children age 0-4 at the start of the program or have disposed of the seat since obtaining it. In total, 78% of the children age 0-4 (combining youngest and next oldest) in League General households have seats available. In comparison, only 62% of the general population of households with children age 0-4 also appear to have seat(s) available (whether or not in use) for children age 0-4. The comparison of seat availability for the youngest child reveals seats available for 87% of the Main Sample households and 74% of the Control Sample households. However, the next oldest child seat availability is 51% in the Main Sample versus only 29% in the Control Sample households.
2. Perhaps equally important, children in the two, three- and four-year-old age groups in League General households are significantly more likely to have seats available than the Control households. Thus, the League General program seems to promote the retention of seats for possible use with children in the two- to four-year-old age range.
3. On a household basis, and taking into account the lack of availability of a child car seat as equating to 0% use, the League General household group is more likely to report regular child safety seat use (52%) than is the Control

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household group (47%) for the youngest child. For the next oldest child, the difference in regular use is 26% for League General households versus 18% for the Control group. While these differences are small, they are statistically significant at the $p < .05$ level.

4. The Century child safety seat products appear to have been a good choice for the League General Insurance program, particularly in terms of the parents' perceptions of the adjustability of the seat compared to other seats. The only major complaint about Century products compared to other seat products relates to significantly more mentions of problems with padding and upholstery, which were already being worked on by Century at the time of the study. In summary, 82% of the Century product users claim that their child is comfortable most or all of the time, compared to 75% making this claim among users of other child car seat products. This 7% difference is statistically significant at the $p < .05$ level.

5. An indirect benefit of the League General Insurance safety seat program is that it serves to create awareness, through interpersonal discussions, and perhaps even safety seat "advocates" among those who participate in the program. Nearly two-thirds (64%) of the League General seat household principal drivers claim to have made suggestions to friends and relatives about obtaining safety seats for their children. This is significantly higher than the proportion of Control Sample seat household principal drivers (45%) who claim to have made suggestions about safety seats to friends and relatives. While there was no followup as to the content of these discussions, it can be hypothesized that the higher incidence of reported conversations among League General drivers at least partially relates to their mentioning the availability of the League General Insurance safety seat program.

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6. There is virtual unanimity among current participants in the League General Insurance program that the idea of this program is "excellent" or "good." Fourteen percent of the Control Sample also said they were aware of the League General program. Regardless of awareness, when the idea of a "free child safety seat program" is described, virtually all current non-participants react to the idea as "excellent" or "good."

8.9.2 Key Relationships Between Child Safety Seat Use and Other Variables

1. The only "principal driver" or household demographic characteristic that is clearly related to child safety seat use is education level attained by the principal driver, particularly in the League General Insurance households. Fifty-five percent of the most regular users (90-100% of the time) have some college education, compared to only 24% of the lowest use group (0-10%).
2. Regular seat users are more likely than low users to position the child in the back seat even when driving alone. The highest use group (90-100%) is also the group that is significantly less likely than others to allow a child to ride on a passenger's lap. However, over half of the irregular users (11-89% of the time) report a child riding on a passenger's lap as an "often" or "sometimes" occurrence.
3. Non-users of child safety seats are more likely than occasional or regular users to believe that children do mind riding in safety seats, either as a result of negative experiences attempting to get children to ride in seat, or because they conveniently assume that the child will be reluctant. However, a majority of non-users are willing to agree that:
 - child safety seats are comfortable for children;

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- children are more likely to fight with one another when not in safety seats;
 - that child seats are generally not difficult to install; and
 - that infants are not safe when held securely by a passenger, or when in an infant bassinet as compared to a special infant carrier.
4. It appears that the parents' reluctance to overcome a child's resistance to a safety seat is the main attitudinal barrier to regular seat use, since even non-users generally agree that child safety seats are comfortable, easy to install, and provide more protection than when the child is in a passenger's lap. A second attitudinal hurdle is perceptions of a child's complaints about riding in seats when other passengers are in the car.
5. A higher proportion of the regular use group mentions joint parental decisions to obtain a child safety seat compared to other groups for both Main and Control Samples. This suggests that there may be some relationship between the "commitment" to seat use generated by a joint parental decision, as contrasted to a decision primarily made by one of the parents.
3. The regular use of child safety seats when the child is being driven in someone else's car is still a problem. Only 24% of the Main Sample regular use group claim 100% use of safety seats when driving in someone else's car. Moreover, a significant percentage of regular users of seats in their own cars report zero percent use when driving with others (46% of Main Sample regular users and 32% of Control Sample regular users). There is also a weak relationship between one's own seat use and the perception that friends and relatives are regular users of seats with their own children. Nevertheless, there does seem to be an "environment" of regular safety seat users which presumably supports seat using behavior.

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7. While attitudes regarding the risk and value of using seat belts generally relate to child safety seat use, it is more a matter of "intensity" of agreement or disagreement with particular attitude statements rather than sharp differences between regular and low or no child safety seat use groups. Thus, both regular and low or no use groups tend to agree that even experienced drivers are involved in accidents and that seat belts prevent injuries and deaths. Both groups also tend to disagree that seat belts destroy the pleasure of driving, or that it is a sign of overcautiousness to use seat belts. The exceptions have to do with fear of entrapment and mandatory seat belt use laws which sharply divide safety seat use groups. Fear of entrapment is still a concern even among roughly half of the regular child safety seat users.

8. A majority of 72% of the Main Sample and 71% of the Control Sample said they are in favor of the Michigan Law which requires that children under the age of one ride in an approved infant or child safety seat, and children age 1-4 must be in an approved seat when riding in the front seat of a car. It is also interesting to note that a majority of current seat households in the low or no use group also say they favor this law (51% in the Main Sample and 62% in the Control Sample). In the Control Sample households which currently have no seat available, the law is favored by a 51% to 45% margin, with 4% undecided. Those who support this law recognize it as a means to promote safety for children in cars. Opposition to the law mainly centers on the idea that use of a safety seat should be solely up to the individual, with no government interference.

Chapter 9 CONCLUSIONS

When League General initiated its child safety seat distribution in June 1979, the company had a set of reasonably well-defined objectives in mind. It wanted to increase the availability of child safety seats to the children of its auto insurance policyholders. It believed that increased availability should lead to increased use. Increased use should result in fewer injuries to children involved in vehicle crashes and lower claims costs to cover child injuries. Over the long term, the savings in claims costs should more than balance the costs involved in distributing seats.

This evaluation study has focused on the first two years of the program. The principal conclusions that emerge from this study show that much that was hoped for did come to pass.

1. From both the claims data and the household survey, it is apparent that the availability objective was achieved to a significant extent. More than 7,100 seats were requested by and sent out to Michigan policyholders. The best estimate is that approximately 85% of those policyholders eligible to receive seats by virtue of new births have availed themselves of the program.

The survey data confirm that availability is higher among League General households than among households with young children in the general population. The difference in availability is particularly evident in the older toddler group. The League General program seems to have been particularly effective in increasing the availability of safety seats among two to four year olds.

2. Increased availability has clearly been related to greater use of seats. Among those policyholders issued seats, reported use of a seat by a crash-involved young child passenger was more than three times that in cases where policyholders had not been issued seats--56.6% versus

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16.7%. The survey results show moderately greater regular use of child safety seats reported by League General seat recipients as compared to other families with young children. Again, the difference is more notable for older toddlers. For the youngest children in surveyed households, regular use was reported by 52% of League General recipients and 47% by non-League General households. The median age of the children was about two. For the next youngest children, with median age over three, regular use was reported in 26% of League General households and 18% of other households.

3. High rates of seat use have been associated with lower occurrence of child injuries. The number of children injured declined 45.7% during the first two years of the program compared to the two-year period immediately preceding the program. The injury rate among unrestrained children was more than two and one-half times that for restrained children during the two-year evaluation period--15.2% versus 5.7%. No restrained child received more than a minor injury. The decline in injuries was sharpest for more serious injuries.
4. The expanded availability of seats fostered by the League General Program appears to be the critical factor leading to greater seat use and lower incidence of child injuries. No other external factors, such as reduced level of travel, changes in traffic laws, or general decline in statewide accident experience can account for the decline in injuries. The 11% decline in total policies in force is insufficient to account for more than part of the decline. The results of the survey of League General households and a control sample of non-League General households show that there are few significant factors that differentiate users and non-users of child safety seats. The critical difference is having a seat available, and the League General program appears to be the major influence in achieving this.

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5. The reduction in child injuries has been accompanied by an even greater decline in claims expenditures. Allowing for inflation and administrative expenses, claims costs declined 75% from \$52,000 during the two-year period before the program to \$13,000 in the first two years of the program. In the post-program period, only 3% of claims costs were paid out for children injured while in safety seats. In all of these cases, the injuries were minor.

6. As of the end of the evaluation period, the cost-effectiveness of the program for League General had not been demonstrated conclusively, but there was evidence of positive net benefits when viewing insurance providers (including offsetting health carriers) in the aggregate. Large start-up costs had been incurred, and current annual costs were exceeding short-term annual savings by a ratio of just over two to one. Part of this negative result is due to the fact that the full potential of the program had not been achieved. Part was due to the uncertainty over whether a major disabling injury had been avoided, an event that could save the company several hundred thousand dollars in claims costs. While the hoped for net dollar saving to League General could not yet be demonstrated, it appeared highly probable that a significant number of child injuries had been avoided. The net cost of achieving this reduction in injuries, even on the conservative current-cost basis, was considerably less than one dollar per policy per year. The indication was that because of the high proportion of League General's automobile policies which are coordinated (secondary) to other health insurance the savings in claims costs by medical insurers were several times as large as those to League General. Thus, the overall cost-effectiveness was positive.

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7. The care taken to select a particular seat appears to have been justified in producing positive results. There is little doubt that the League General seat distribution is popular among most policyholders and that offering of a seat at no additional charge does stimulate availability and use. The survey results seem to show that part of the program's effectiveness may be due to the Century seats that were selected. Although the rating of seats is generally similar across all users, the Century seats do fare slightly better on such key variables as adjustability and convenience. The care taken in selecting a seat appears justified.
8. The survey indicates that there is a relationship between adult seat belt use and child safety seat use. The relationship is far from perfect, and the survey results say nothing about what the direction of influence is. Whether use of child restraints leads to greater use of adult belts or vice versa remains unclear, but the relationship does exist.
9. A result with potentially important implications is the indication that households where the decision to obtain a child safety seat was a joint decision are more likely to be regular users than those where the decision to acquire was made by one parent. Interpersonal influences do appear important, and the impact of a mutually shared parental decision may suggest directions for future efforts aimed at promoting use.
10. The study results point to two particular problem areas--seat use among older children and among children being driven in cars other than those of their parents. From both the claims data and the survey results, it is clear that child seat use falls sharply for children above two years of age. The League General program appears to be related

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to greater use at older ages, but the fall-off is still apparent. Whether this fall-off comes from increased resistance by children as they grow older is unknown. There is some anecdotal information that children outgrow seats, or at least the harness systems, before the advertised age limit is reached. In any case, there is a fall-off that indicates a problem.

The second problem is the lower level of use when children are driven in cars other than their parents. The claims data show that most of the time small children are driven by their parents, but the occasions when they are driven by others are frequent enough to make non-use of safety seats on these trips more than a trivial problem. Yet the survey results show that fewer than half of the parents who are regular users of child safety seats for their children in their own cars practice regular use in the cars of others.

Based on the first two years of operation, the League General child safety seat distribution program has generally achieved positive results. Child restraint use has increased, child injuries have declined and claims costs have been reduced. Because of the limited size of the policyholder population base, the numbers involved in these trends are relatively small. It will take a more extended period of time to determine whether these early results are as meaningful as they appear to be.

Similarly, it will take more time to gain a clearer answer concerning how cost-effective the program is. For the time being, it is not possible to assert from the League General perspective that the program pays for itself, much less creates a net saving. Given time, however, there appears to be a reasonable probability that such a saving will become demonstrable. This will become evident when sufficient time has passed to permit a valid judgment to be made that a catastrophic injury, which by normal odds should have occurred, has been avoided. The period covered by this evaluation study is too short to allow for such a judgment. In the interim, it

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is important to make clear that League General believes the apparent short-term net cost is tolerable, given that the program has not yet achieved its maximum potential effectiveness and that other benefits not easily measured in dollars have been realized.

Considered in a broader context, the results of the League General program add to the evidence that child safety seats are effective. Using seats does substantially reduce the risk of death and serious injury to young children who are vehicle passengers when accidents occur. Along with the humanitarian benefit that comes from this reduction in death and injury, there are substantial savings in medical and related costs. These savings are of particular relevance to the insurance industry and those who pay insurance costs.

The evidence from this evaluation suggests strongly that from the point of view of automobile and health insurers taken together, promoting the widespread use of child safety seats is good business as well as a laudable social endeavor. From an industry point of view, committing significant dollars to ensuring that seats are available to parents of small children is likely to prove very cost-effective. Even in the case of League General, where the cost of seats is borne exclusively by the company and only the short-term savings to a single automobile insurer are considered, the net cost per policy per year is small. Furthermore, results must be judged in light of the fact that an unusually large proportion of League General policies are coordinated, so that medical insurance covers most critical and smaller injury costs. For other automobile insurers, it appears greater direct cost savings would occur. There appears good reason to believe that both automobile and health insurers would find programs similar to League General's would be cost-effective.

This conclusion would be more certain if the number of cases covered were larger and if more complete medical cost data were available. In light of the benefits that appear likely to accrue if others can be convinced to commit resources to effective

Chapter 9 (Continued)

programs, it seems reasonable to suggest that an expanded effort to collect systematic injury incidence and medical cost data is a justifiable addition to the highway research agenda. Insurance and businesses in general are more likely to act when hard dollar evidence is presented to them.

Even now, however, the early results of the League General program indicate it is worthwhile for more direct action to be considered by automobile and health insurers and by those employers who bear the cost of health insurance for employees and their families. For the most part, past action has generally been limited to education and persuasion. Recently, greater emphasis has been placed on combining positive incentives with persuasion to promote greater use of occupant restraints, including child safety seats. The League General program of "free" distribution of safety seats is, in a sense, an extreme example of an incentive program. There is a range of actions which others can consider.

One set of alternatives would be to make seats available on a discounted or shared-cost basis. Large automobile insurers might choose a discounted "wholesale" price program. Health insurers might consider adding child safety seats as an obstretical benefit on a co-pay basis. A health insurance program of this type would certainly be facilitated if employers who pay for such insurance for their employees were to recognize its value and support such a provision.

League General continues to believe that its simple system is more suitable for a smaller company. Imposing a charge would create administrative costs and complexities that would very likely outweigh any income. Large firms with a greater diversity of services and related business activities available might find it cost-effective to adopt a shared-cost alternative.

The primary objective is to ensure that seats are available to children. The ultimate goal is to have a safety seat used correctly every time a child is transported. Seats must first be available to be used and at present too many children do not have seats

Chapter 9 (Continued)

available. Insurance industry programs are not the only answer. The present study indicates, however, that active incentive programs promoted by automobile and health insurers could rapidly expand the availability and use of child safety seats to the benefit of the companies, the industry and the society at large.

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APPENDIX

HOUSEHOLD INTERVIEW QUESTIONNAIRE

Child Restraint
Questionnaire

Cd 1

Hello, I'm _____ from Market Opinion Research, a national survey research company headquartered in Detroit, Michigan. We would like to obtain your ideas and opinions regarding driving, automobiles, and automobile safety.

- The first thing we would like to do is determine the total number of people who currently live in this household. Let's start with the youngest person. (LIST ALL INDIVIDUALS WHO CURRENTLY LIVE IN THIS HOUSEHOLD)

AGE INDICATE NUMBER OF YEARS (AND MONTHS FOR CHILDREN UNDER 5 YEARS)	SEX	(AT COMPLETION OF INTERVIEW MAKE SURE TO CIRCLE WHICH ADULT WAS RESPONDENT)	
_____ _____ Years Months	Male1 Female2	R	41-46
_____ _____ Years Months	Male1 Female2	R	47-52
_____ _____ Years Months	Male1 Female2	R	53-58
_____ _____ Years Months	Male1 Female2	R	59-64
_____ _____ Years Months	Male1 Female2	R	65-70
_____ _____ Years Months	Male1 Female2	R	71-75 B 76 Cd # 77-80 Jo
_____ _____ Years Months	Male1 Female2	R	Cd 2 1-4 as 5 Cd 2
_____ _____ Years Months	Male1 Female2	R	6-11 12-17
_____ _____ Years Months	Male1 Female2	R	18-23
_____ _____ Years Months	Male1 Female2	R	24-29
IF NO CHILDREN 4 YEARS OLD OR YOUNGER -- [TERMINATE INTERVIEW]			

2. Now I'd like you to think about all the times in the last year when your child (children) four years old or younger was (were) driven in a car by someone in this household. Using the percentage scale on this card (HAND PERCENTAGE CARD), what percent of the time did you personally drive the child (children)?

- a. What percent of the time did your spouse drive the child (children)?
- b. What percent of the time did other adults in this household, 18 years or over, drive your child (children)?
- c. What percent of the time did drivers age 16 or 17 in this household drive your child (children)?

PERCENT OF TIME AS DRIVER
OF CHILD(REN) AGE 0-4

_____ %	Respondent	30-32
_____ %	Spouse of respondent	33-35
_____ %	Other adults 18 years old or over	36-38
_____ %	Other drivers age 16-17	39-41

FORCE TO 100%

IF RESPONDENT HAS LARGEST PERCENT AS CHILD(REN) DRIVER, GO ON WITH QUESTIONNAIRE.

IF ANOTHER PERSON HAS LARGEST PERCENT AS DRIVER, ASK TO SPEAK TO THAT PERSON.

3. How many cars, vans, campers, or small trucks are currently owned and operated by individuals living in this household? (INCLUDE ONLY THOSE VEHICLES WHICH HAVE BEEN IN OPERATING CONDITION IN THE LAST YEAR)	None . . . . .	.01	
	One . . . . .	.02	
	Two . . . . .	.03	
	Three . . . . .	.04	
	Four . . . . .	.05	
	Five . . . . .	.06	
	Six . . . . .	.07	44-45
	Seven . . . . .	.08	
	Eight or more . . . . .	.09	
	Don't know . . . . .	.98	
Refused/NA . . . . .	.99		

4. Now, let's talk about the vehicle which you personally drive the most with the child(ren) age 0-4. (PROBE FOR RESPONDENT TO CHOOSE ONE VEHICLE IF MORE THAN ONE IN HOUSEHOLD)

- A. What is the make of this vehicle? _____ 46-48
(Examples: Chevrolet, Ford, Volkswagen, Cadillac)
- B. What is the model of this vehicle? _____ 49-50 1
(Examples: Granada, Cutlass, Rabbit, Seville)
- C. What is the year of this vehicle? _____ 51-54
- D. What type of vehicle is this? (READ LIST)

Station wagon . . . . .	.1	
Hatchback . . . . .	.2	
Two door sedan . . . . .	.3	
Four door sedan . . . . .	.4	55
Van . . . . .	.5	
Pick-up truck . . . . .	.6	
Don't know . . . . .	.8	
Refused/NA . . . . .	.9	

5. (HAND PERCENT SCALE) Considering the times you and others in this household drive your child(ren) age 0-4, what percentage of these trips are made in this vehicle?

_____ %
(PERCENT)

56-58

IF LESS THAN 100% ASK A B C D of a and b

a. What other car, van, camper, or small truck is used next most to drive the child(ren) age 0-4?

A. What is the make of this vehicle? _____

B. What is the model of this vehicle? _____

C. What is the year of this vehicle? _____

D. What type of vehicle is this? (READ LIST)

- Station wagon.1
- Hatchback.2
- Two door sedan3
- Four door sedan.4
- Van.5
- Pick-up truck.6
- Don't know8
- Refused/NA9

59-61

62-63

64-67

68

b. What percentage of your trips with your child(ren) age 0-4 are made in this vehicle?

_____ %
(PERCENT)

69-70

71-75 B 76 Cd #
77-80 Job #

6. Now let's talk about this (first) vehicle you mentioned as using most to drive your child(ren) 0-4 years old. (HAND SEAT BELT CARD)

a. Which type of seat belt system on this card best describes the kind of seat belts you have in the front seats of this vehicle?

- A single combined lap and shoulder belt which does not come apart. . 1
 - Interconnected lap and shoulder belts where belts come apart. . . 2
 - Separate lap and shoulder belts with separate buckles for release 3
 - Lap belt only 4
 - Shoulder belt only. 5
 - Passive/Automatic restraint 6
 - No seat belts . . (GO TO Q.A1) . . . 7
 - Can't remember/Don't know(GO TO Q.A1)8
- (PROBE RESPONDENT FOR SOME RESPONSE)

6

(HAND PERCENT CARD) (ROTATE Q.7-Q.9)

7. Now, thinking about all the occasions in the last year when you have driven this vehicle on highways or expressways, what percentage of the time do you wear seat belts?

RECORD PERCENT _____%

7-9

8. What about driving on city streets or suburban areas, what percentage of the time do you wear seat belts?

RECORD PERCENT _____%

10-12

What about driving on other types of paved or unpaved roads?

RECORD PERCENT _____%

13-15

10. Now, over all kinds of driving conditions and roads, when you are the driver in this vehicle, what percentage of the time would you say you wear the seat belt?

RECORD PERCENT _____%

16-18

19-22 Blk

YOUNGEST CHILD (AGE 0-4) SECTION

(HAND POSITION CARD, PROBE FOR ONE ANSWER ONLY)

A3. When there are two or more older children or adults in this car, where would this child usually be placed in the car

Position 1. . . . .	.01
Position 2. . . . .	.02
Position 3. . . . .	.03
Position 4. . . . .	.04
Position 5. . . . .	.05
Position 6. . . . .	.06
Position 7. . . . .	.07
Somewhere in front seat . . . . .	.08
Somewhere in back seat. . . . .	.09
(VOLUNTEERED) No regular position .	.10
(VOLUNTEERED) Never in car with two adults. . . . .	.11
Don't know. . . . .	.98
Refused/NA. . . . .	.99

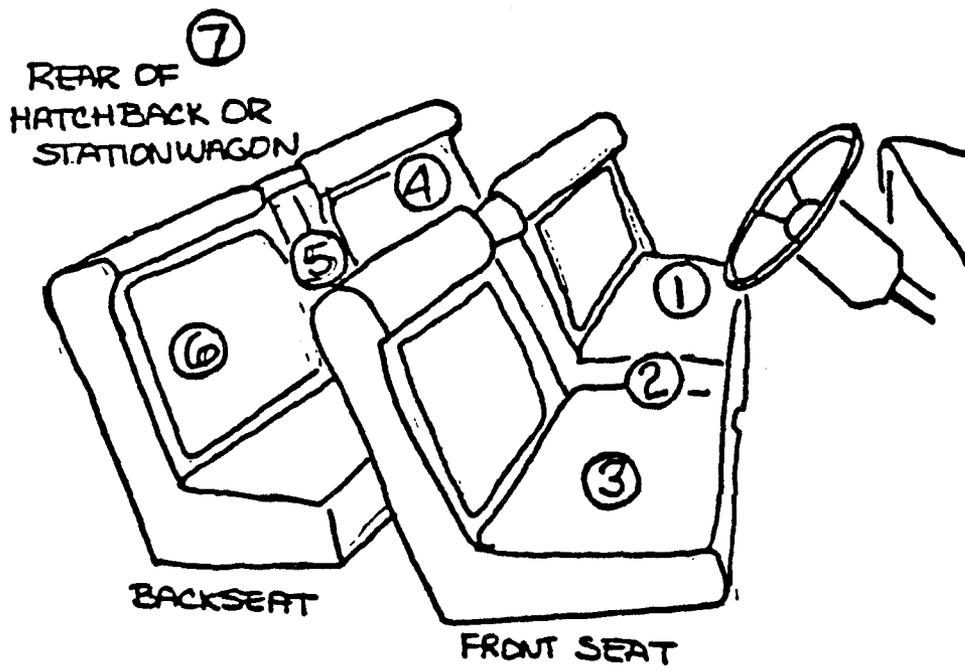
29-30

A4. When there are two or more older children or adults in this car, how often would you say this child travels in the car in the following ways?
(HAND CARD)

(ROTATE)

	<u>Often</u>	<u>Sometimes</u>	<u>Hardly Ever</u>	<u>Never</u>	<u>Don't Know</u>	<u>Ref./ NA</u>	
a. Laying or sitting on the vehicle's seat with no seat belt attached	4	3	2	1	8	9	31
b. Standing on seat to look out car windows	4	3	2	1	8	9	32
c. In an infant or toddler car seat with no seat belt attached to the car seat.	4	3	2	1	8	9	33
d. In an infant or toddler car seat with a seat belt attached to the car seat	4	3	2	1	8	9	34
e. Laying or sitting on an adult's or older child's lap.	4	3	2	1	8	9	35

POSITION CARD



YOUNGEST CHILD (AGE 0-4) SECTION

A5. Do you have anything available for this child to restrain the child in the car -- like an infant or toddler car seat of some type?

- Yes, available. 1
- No, not available (GO TO NEXT CHILD, SECTION B; OR Q.11). . . . 2
- Don't know. 8
- Refused/NA. 9

36

A. Can you tell me which of these drawings best describes the infant or toddler car seat you have available for this child? (RECORD NAME OF INFANT OR TODDLER CAR SEAT MAKE AND MODEL)

IF RESPONDENT CANNOT PICK DRAWING, GO TO B. ALL OTHERS GO TO Q.A6.

B. Could you describe the infant or toddler car seat that you have available for this child?

(IF RESPONDENT CLEARLY DOES NOT HAVE INFANT OR TODDLER CAR SEAT, GO TO NEXT CHILD, SECTION B OR Q.II)

YOUNGEST CHILD (AGE 0-4) SECTION

(ROTATE Q.A6 AND Q.A7)

A6. What are the main complaints, if any, this child has with the child car seat?
(PROBE FOR SPECIFIC DETAILS)

A7. What things, if any, does this child like about the child car seat?

A8. (HAND REACTION CARD) In general, which category on this card best describes this child's reactions to the child car seat?

- Always comfortable and willing to use the seat 4
 - Comfortable and willing to use the seat most of the time. 3
 - Uncomfortable or not willing to use the seat most of the time. 2
 - Always uncomfortable or not willing to use the seat. 1
 - Don't know 8
 - Refused/NA 9
- 37

A. Would you say this child complains. . .(READ RESPONSES)

- Every time you use the car seat . . . 3
- Some of the time when you use the car seat 2
- Only once in a while when you use the car seat 1
- Don't know 8
- Refused/NA 9

38

A9. How long have you had a child car seat available for this child?

Years:	Months:	39-4

RECORD IN YEARS AND MONTHS		41-4
(i.e. 1 year and 6 months)		

A10. How old was this child when you first began using the child car seat?

Years:	Months:	43-

RECORD IN YEARS AND MONTHS		45-

A11. How did you obtain your child car seat for this child?
(ASK OPEN END; CODE BELOW) (MULTIPLE MENTIONS ALLOWED)

- Purchased from a car dealer 01
- Purchased at a department, discount, or children's specialty store 02
- Purchased second-hand 03
- Received/Borrowed second-hand from a friend or relative 04 47-48
49-50
51-52
53-54
55-56
- Passed it down from one child to next 05
- Received/Won a new one as a gift. 06
- Received from League Insurance/Insurance company 07
- Received from some organization 08
- Other: (SPECIFY) _____ 09
- Don't know 98
- Refused/NA 99

A12. Whose idea was it to get a car seat for this child?
(ASK OPEN END; MULTIPLE MENTIONS ALLOWED)

Respondent. . . . .	.01	
Spouse. . . . .	.02	
Both respondent/Spouse. . . . .	.03	
Parents of respondent or spouse/ child's grandparents. . . . .	.04	
Friends . . . . .	.05	57-58
Doctor/pediatrician . . . . .	.06	59-60
League Insurance card/ Advertisement . . . . .	.07	61-62 63-64 65-66
Other _____	.08	
(SPECIFY)		
Don't know. . . . .	.98	
Refused/NA. . . . .	.99	

A13. How did you feel about obtaining a child car seat. Would you say you were. . .(READ RESPONSES)

Strongly in favor of the child car seat.	5	
Somewhat in favor	4	
Neither in favor nor opposed.	3	
Somewhat opposed.	2	
Strongly opposed.	1	67
Don't know.	8	
Refused/NA.	9	

<p>a. Why were you in favor of using a child car seat?</p>	<p>b. Why were you opposed to using a child car seat?</p>
--	---

YOUNGEST CHILD (AGE 0-4) SECTION

A14. (HAND PERCENT CARD) I'm going to read you a list of types of trips that you might make with this child in the car. For each type of trip, please give me your best estimate as to the percentage of time this child is in a child car seat. (RECORD ACTUAL PERCENT IN EACH CASE)

- A. On short trips to local stores, when you are the only adult in the car. _____% 6-8
- B. On long trips of over 25 miles using expressways or highways by yourself with the child. _____% 9-11
- C. On short trips to local stores when another older person is in the car. _____% 12-14
- D. On long trips of over 25 miles using expressways or highways with another older person in the car. _____% 15-17
- E. Thinking about all the trips you take with this child, under all conditions, what is your best estimate of the percent of time this child is in a child car seat? _____% (IF 0%, GO TO A15) 18-20



- F. When the child is in the child car seat, what percentage of time is . . .
- 1) The seat harness on the child. _____% 21-23
 - 2) The child car seat attached to the car seat belt. _____% 24-26
 - 3) If a shield is available with this seat, what percentage of the time do you use the shield. _____% 27-29
 - 4) If a tether strap is available with this seat, what percentage of the time do you use the tether strap. _____% 30-32

A15. In general how satisfied are you with the car seat you have for this child.
Would you say you are. . .

- Very satisfied. 5
- Somewhat satisfied. 4
- Neither satisfied nor
dissatisfied 3
- Somewhat dissatisfied 2
- Very dissatisfied 1
- Don't know. . . . (GO TO Q.A16) . . 8
- Refused/NA. . . . (GO TO Q.A16) . . 9

33

a. What do you dislike about this child car seat?
(PROBE FOR SPECIFICS)

b. What do you like about this child car seat?
(PROBE FOR SPECIFICS)

A16. Have you ever suggested to your close friends or relatives who have children 4 years old or younger that they obtain a car seat for their children?

- Yes. 1
- No 2
- Don't know 8
- Refused/NA 9

34

a. Would you say that you. . .(READ RESPONSES)

- Strongly recommended obtaining a child car seat 3
- Made a suggestion once or twice. . . 2
- Mentioned it once in some conversation with relatives or friends. 1
- Don't know 8
- Refused/NA 9

35

NEXT YOUNGEST CHILD (AGE 0-4) SECTION

This next set of questions has to do with your (youngest) child age 0-4, that is [AGE/SEX FROM Q.1]. These questions concern the times when this child is riding with you in the vehicle you drive most often.

(HAND POSITION CARD)

B1. When you are alone in the car with this child, where would the child usually sit in the car?
(PROBE FOR ONE ANSWER ONLY)

- Position 1.01
- Position 2.02
- Position 3.03
- Position 4.04
- Position 5.05
- Position 6.06
- Position 7.07
- Somewhere in front seat08
- Somewhere in back seat.09
- (VOLUNTEERED) No regular position .10
- (VOLUNTEERED) Never in car with only one adult.11
- Don't know.98
- Refused/NA.99

36-37

B2. When there is one adult as the driver, a child this age might travel in many different ways with that driver. (HAND CARD) Let me read you a list of the ways children travel when one adult is in the car. For each one, please tell me if this child travels that way often, sometimes, hardly ever, or never?

(ROTATE)	Often	Sometimes	Hardly Ever	Never	Don't Know	Ref./NA	
4. Laying or sitting on the vehicle's seat with no seat belt attached	4	3	2	1	8	9	38
5. Standing on seat to look out car windows	4	3	2	1	8	9	39
6. In an infant or toddler car seat with no seat belt attached to the car seat.	4	3	2	1	8	9	40
7. In an infant or toddler car seat with a seat belt attached to the car seat	4	3	2	1	8	9	41

NEXT YOUNGEST CHILD (AGE 0-4) SECTION

(HAND POSITION CARD; PROBE FOR ONE ANSWER ONLY)

B3. <u>When there are two or more older children or adults in this car, where would this child usually be placed in the car</u>	Position 1. . . . .	.01	
	Position 2. . . . .	.02	
	Position 3. . . . .	.03	
	Position 4. . . . .	.04	
	Position 5. . . . .	.05	
	Position 6. . . . .	.06	42-43
	Position 7. . . . .	.07	
	Somewhere in front seat . . . . .	.08	
	Somewhere in back seat. . . . .	.09	
	(VOLUNTEERED) No regular position .	.10	
	(VOLUNTEERED) Never in car with two adults. . . . .	.11	
	Don't know. . . . .	.98	
	Refused/NA. . . . .	.99	

B4. When there are two or more older children or adults in this car, how often would you say this child travels in the car in the following ways?
(HAND CARD)

(ROTATE)	<u>Often</u>	<u>Sometimes</u>	<u>Hardly Ever</u>	<u>Never</u>	<u>Don't Know</u>	<u>Ref./ NA</u>	
a. Laying or sitting on the vehicle's seat with no seat belt attached	4	3	2	1	8	9	44
b. Standing on seat to look out car windows	4	3	2	1	8	9	45
c. In an infant or toddler car seat with no seat belt attached to the car seat.	4	3	2	1	8	9	46
d. In an infant or toddler car seat with a seat belt attached to the car seat	4	3	2	1	8	9	47
e. Laying or sitting on an adult's or older child's lap	4	3	2	1	8	9	48

NEXT YOUNGEST CHILD (AGE 0-4) SECTION

35. Do you have anything available for this child to restrain the child in the car like an infant or toddler car seat of some type?
- Yes, available. 1
 - No, not available (GO TO NEXT CHILD, SECTION B; OR Q.11). . . . 2
 - Don't know. 8
 - Refused/NA. 9

49

Can you tell me which of these drawings best describes the infant or toddler car seat you have available for this child? (RECORD NAME OF INFANT OR TODDLER CAR SEAT MAKE AND MODEL)

IF RESPONDENT CANNOT PICK DRAWING, GO TO B. ALL OTHERS GO TO Q.B6.

Could you describe the infant or toddler car seat that you have available for this child?

(IF RESPONDENT CLEARLY DOES NOT HAVE INFANT OR TODDLER CAR SEAT, GO TO Q.11)

NEXT YOUNGEST CHILD (AGE 0-4) SECTION

(ROTATE Q.B6 AND Q.B7)

B6. What are the main complaints, if any, this child has with the child car seat?
(PROBE FOR SPECIFIC DETAILS)

B7. What things, if any, does this child like about the child car seat?

B8. (HAND REACTION CARD) In general, which category on this card best describes this child's reactions to the child car seat?

- Always comfortable and willing to use the seat. 4
- Comfortable and willing to use the seat most of the time 3
- Uncomfortable or not willing to use the seat most of the time 2
- Always uncomfortable or not willing to use the seat 1
- Don't know. 8
- Refused/NA. 9

50

A. Would you say this child complains. . .(READ RESPONSES)

- Every time you use the car seat . . 3
- Some of the time when you use the car seat 2
- Only once in a while when you use the car seat 1
- Don't know 8
- Refused/NA 9

51

B9. How long have you had a child car seat available for this child?

<u>Years:</u>	<u>Months:</u>	52-53
RECORD IN YEARS AND MONTHS		54-55
(i.e. 1 year and 6 months)		

B10. How old was this child when you first began using the child car seat?

<u>Years:</u>	<u>Months:</u>	56-57
RECORD IN YEARS AND MONTHS		58-59

B11. How did you obtain your child car seat for this child?
(ASK OPEN END; CODE BELOW) (MULTIPLE MENTIONS ALLOWED)

- Purchased from a car dealer 01
- Purchased at a department, discount, or children's specialty store 02
- Purchased second-hand 03
- Received second-hand from a friend or relative 04 60-61
62-63
64-65
- Inherited it down from one child to next 05 66-67
68-69
- Received a new one as a gift 06
- Received from League Insurance/Insurance company 07
- Rented from some organization 08
- Other: (SPECIFY) _____ 09

- Don't know 98
- Refused/NA 99

NEXT YOUNGEST CHILD (AGE 0-4) SECTION

B14. (HAND PERCENT CARD) I'm going to read you a list of types of trips that you might make with this child in the car. For each type of trip, please give me your best estimate as to the percentage of time this child is in a child car seat. (RECORD ACTUAL PERCENT IN EACH CASE)

- A. On short trips to local stores, when you are the only adult in the car. _____% 17-19
- B. On long trips of over 25 miles using expressways or highways by yourself with the child. _____% 20-22
- C. On short trips to local stores when another older person is in the car. _____% 23-25
- D. On long trips of over 25 miles using expressways or highways with another older person in the car. _____% 26-28
- E. Thinking about all the trips you take with this child, under all conditions, what is your best estimate of the percent of time this child is in a child car seat? _____% (IF 0%, GO TO 11) 29-31



- F. When the child is in the car seat, what percentage of time is . . .
- 1) The seat harness on the child. _____% 32-3
 - 2) The child car seat attached to the car seat belt. _____% 35-3
 - 3) If a shield is available with this seat, what percentage of the time do you use the shield. _____% 38-4
 - 4) If a tether strap is available with this seat, what percentage of the time do you use the tether strap. _____% 41-4

11. Has anyone ever talked to you about obtaining a child car seat for your child(ren)?

Yes . . . . .	.1
No . . . . .	.2
Don't know . . . . .	.8
Refused/NA . . . . .	.9

46

a. Who talked to you about obtaining a child car seat? (MULTIPLE RESPONSES ALLOWED)

Spouse . . . . .	.1
Parents/grandparents of child . . . . .	.2
Other relatives . . . . .	.3
Friends . . . . .	.4
Doctor/Pediatrician . . . . .	.5
Other _____	6
(SPECIFY)	
Don't know . . . . .	.8
Refused/NA . . . . .	.9

47
48
49
50
51

b. Would you say that you have received. . .(READ RESPONSES)

A strong recommendation from someone	3
A suggestion once or twice from someone	2
Somebody mentioned it in some conversation	1
Don't know	8
Refused/NA	9

52

12. Has anyone ever talked to you about reasons for not using a child car seat for your child(ren)?

Yes . . . . .	.1
No . . . . .	.2
Don't know . . . . .	.8
Refused/NA . . . . .	.9

53

a. Who talked to you about not using a child car seat? (MULTIPLE MENTIONS ALLOWED)

Spouse . . . . .	.1
Parents/grandparents of child . . . . .	.2
Other relatives . . . . .	.3
Friends . . . . .	.4
Doctor/Pediatrician . . . . .	.5
Other _____	6
(SPECIFY)	
Don't know . . . . .	.8
Refused/NA . . . . .	.9

54
55
56
57
58

b. Would you say that you have received. . .(READ RESPONSES)

A strong criticism of child car seats from someone	3
A comment once or twice from someone	2
Somebody mentioned it in some conversation	1
Don't know	8
Refused/NA	9

59

(HAND PERCENT CARD)

13. When you and your child(ren) have driven with friends or relatives in their car, what percent of the time have you used a child car seat in their car?

_____ %

60-62

14. In general, what percent of the time would you say your friends and relatives with small children use child car seats in their own cars?

_____ %

63-65

15. (IF MARRIED & LIVING WITH SPOUSE - SEE Q.1) Would you say that your (husband/wife) uses a child car seat more, less, about the same percentage of time as you do when (he/she) drives the child (children) age 0-4?

- More use of child car seat. 3
- About the same use. 2
- Less use. 1
- Don't know. 8
- Refused/NA. 9

66

16. In general, what percent of the time would you say your spouse uses the child car seat?
_____ %

67-69

16. Some of the parents of small children we have talked with do not own or use car seats for their children. What would you say are the main reasons for not obtaining a child car seat?

(HAND AGREE/DISAGREE CARD)

Thinking about the vehicle you drive in most often, I would now like to read you a series of statements people have made about driving and safety. Please tell me if you strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, or strongly disagree with each statement.

(ROTATE STATEMENTS)	<u>Strongly Agree</u>	<u>Somewhat Agree</u>	<u>Neither Agree Nor Disagree</u>	<u>Somewhat Disagree</u>	<u>Strongly Disagree</u>	<u>Don't Know</u>	<u>Refused/NA</u>
A. Most traffic accidents result in only minor injuries to people.	5	4	3	2	1	8	9
B. Even the most experienced drivers are involved in traffic accidents.	5	4	3	2	1	8	9
C. It is a sign of overcautiousness to use a seat belt.	5	4	3	2	1	8	9
D. A seat belt destroys the pleasures of driving by reminding a person of the accident risk.	5	4	3	2	1	8	9
E. It has not been proven that seat belts prevent injuries.	5	4	3	2	1	8	9
F. In an accident, you are usually better off to be thrown clear of the car than to remain in the car.	5	4	3	2	1	8	9
G. In an accident which ends with the car catching fire, <u>seat belt wearers are not usually better off.</u>	5	4	3	2	1	8	9

(CONTINUED ON NEXT PAGE)

6-12

- 24 -

I-4 as 1
CD 6

(PAGE CONT'D)

(HAND AGREE/DISAGREE CARD)

Thinking about the vehicle you drive in most often, I would now like to read you a series of statements people have made about driving and safety. Please tell me if you strongly agree, somewhat agree, neither agree nor disagree, somewhat disagree, or strongly disagree with each statement.

(ROTATE STATEMENTS)	<u>Strongly Agree</u>	<u>Somewhat Agree</u>	<u>Neither Agree Nor Disagree</u>	<u>Somewhat Disagree</u>	<u>Strongly Disagree</u>	<u>Don't Know</u>	<u>Refused/NA</u>
H. It is an excellent habit always to use a seat belt.	5	4	3	2	1	8	9
I. It has been proven that the use of a seat belt is one of the best ways to avoid injuries in a collision.	5	4	3	2	1	8	9
J. A seat belt prevents deaths in car accidents.	5	4	3	2	1	8	9
K. There should be a mandatory seat belt law requiring people to use seat belts.	5	4	3	2	1	8	9

18. Some people have described to us feelings they have about the comforts of seat belts. Now, thinking about the vehicle you regularly drive or ride in most, are there any things about seat belts in that vehicle which you find uncomfortable? (ASK OPEN END; CODE EACH RESPONSE IN BEST CATEGORY BELOW, MULTIPLE MENTIONS ALLOWED)

- Shoulder belt rides across my face.01
- Shoulder belt cuts across my neck.02
- Shoulder belt falls off my shoulder.03 17-18 19-20
- Lap belt rides up on my stomach04 21-22 23-24
- Shoulder belt crosses the breast area so it is annoying.05 25-26
- The shoulder belt rests too heavily on my shoulder. . .06
- The buckle or adjusting hardware seems hard to use. .07
- The lap belt tends to tighten up too much as I drive along.08
- The shoulder belt seems to have a rough surface. . . .09
- Belt messes up my clothes . .10
- Hard to get in back seat of car.11
- Other _____ 12 (SPECIFY)
- Don't know.98
- Refused/NA.99

19. Are there any times or driving conditions when you find seat belts comfortable to use?

Yes1

No.2

Don't know.8

Refused/NA.9

27

A. When do you find seat belts comfortable?

20. Still thinking about the car you drive or ride in regularly, I'm going to read you a series of statements, and would like you to indicate whether you have often felt this way, hardly ever felt this way or never feel this way about the seat belts in that cars? (HAND CONVENIENCE CARD)

	<u>Often Feel This Way</u>	<u>Sometimes Feel This Way</u>	<u>Hardly Ever Feel This Way</u>	<u>Never Feel This Way</u>	<u>Don't Know</u>	<u>Ref./ NA</u>
A. The belts are hard to reach because of where they are installed.	4	3	2	1	8	9
B. I cannot reach dashboard controls when shoulder belt is secured.	4	3	2	1	8	9
C. When I'm in a hurry, the belts take too much time to put on.	4	3	2	1	8	9
D. When I have a lot of stops to make, it is awkward to put on and take off belts.	4	3	2	1	8	9

(HAND AGREE/DISAGREE CARD)

1. Some people favor child car seats for their children and others do not. I'd like to read you a series of statements about infant and child car seats. By infants I mean children who cannot yet sit upright for long periods of time in a car.

(ROTATE STATEMENTS)	<u>Strongly Agree</u>	<u>Somewhat Agree</u>	<u>Neither Nor Disagree</u>	<u>Agree</u>	<u>Somewhat Disagree</u>	<u>Strongly Disagree</u>	<u>Don't Know</u>	<u>Refused/NA</u>
A. Child car seats take up a lot of room in the car.	5	4	3	2	1	8	9	
B. Child car seats are difficult to install.	5	4	3	2	1	8	9	
C. Child car seats are comfortable for children.	5	4	3	2	1	8	9	
D. Children are more trouble when riding in car seats than when not riding in car seats.	5	4	3	2	1	8	9	
E. Children resist riding in car seats when there are other passengers in the car.	5	4	3	2	1	8	9	
F. Children are more likely to fight with one another when they are not seated in car seats.	5	4	3	2	1	8	9	
G. Children generally don't mind riding in car seats.	5	4	3	2	1	8	9	
H. Most parents buckle their children into car seats to control their children's behavior.	5	4	3	2	1	8	9	
I. An infant who is securely held by a passenger in a car is generally safe.	5	4	3	2	1	8	9	
J. An infant bassinet is as good as a special infant carrier for use in the car.	5	4	3	2	1	8	9	

- 28 -

23. Have you or anyone you are acquainted with had a small child injured in a car accident?

Yes . . . . .	.1
No . . . . .	.2
Don't know . . . . .	.8
Refused/NA . . . . .	.9

47

a. Was the injury serious?	Yes . . . . .	.1
	No . . . . .	.2
	Don't know . . . . .	.8
	Refused/NA . . . . .	.9

48

b. Was the (child/children) in a child car seat?	Yes . . . . .	.1
	No . . . . .	.2
	Don't know . . . . .	.8
	Refused/NA . . . . .	.9

49

24. Have you ever been involved in an automobile accident that involved a personal injury to a driver or passenger?

Yes . . . . .	.1
No . . . . .	.2
Don't know . . . . .	.8
Refused/NA . . . . .	.9

50

a. How many accidents have you been in that involved injuries to a driver or passenger?	1 . . . . .	.1
	2 . . . . .	.2
	3 . . . . .	.3
	4 . . . . .	.4
	5 . . . . .	.5
	6 . . . . .	.6
	7 or more . . . . .	.7
	Don't know . . . . .	.8
	Refused/NA . . . . .	.9

51

b. Have you yourself been injured in an accident?	Yes . . . . .	.1
	No . . . . .	.2
	Refused/NA . . . . .	.9

52

c. Were you wearing a seat belt in this (most recent) accident?	Yes . . . . .	.1
	No . . . . .	.2
	Refused/NA . . . . .	.8

53

25. Are you aware of a free child car seat program sponsored by League General Insurance Company?

Yes . . . . .	.1
No . . . . .	.2
Don't know . . . . .	.8
Refused/NA . . . . .	.9

54

<p>a. Do you think that having an auto insurance company like League General distributing free child car seats to its policy holders is an excellent, good, fair, or poor idea?</p> <table border="0" style="width: 100%;"> <tr><td>Excellent</td><td>.4</td></tr> <tr><td>Good</td><td>.3</td></tr> <tr><td>Fair</td><td>.2</td></tr> <tr><td>Poor</td><td>.1</td></tr> <tr><td>Don't know</td><td>.8</td></tr> <tr><td>Refused/NA</td><td>.9</td></tr> </table>	Excellent4	Good3	Fair2	Poor1	Don't know8	Refused/NA9	<p>b. League General Insurance Company is an affiliate of the Michigan Credit Union League and has been distributing child safety seats free of charge to its policy holders who have young children. Do you think this free child car seat program is an excellent, good, fair, or poor idea?</p> <table border="0" style="width: 100%;"> <tr><td>Excellent</td><td>.4</td></tr> <tr><td>Good</td><td>.3</td></tr> <tr><td>Fair</td><td>.2</td></tr> <tr><td>Poor</td><td>.1</td></tr> <tr><td>Don't know</td><td>.8</td></tr> <tr><td>Refused/NA</td><td>.9</td></tr> </table>	Excellent4	Good3	Fair2	Poor1	Don't know8	Refused/NA9
Excellent4																								
Good3																								
Fair2																								
Poor1																								
Don't know8																								
Refused/NA9																								
Excellent4																								
Good3																								
Fair2																								
Poor1																								
Don't know8																								
Refused/NA9																								

55
56

26. Are you a member of a credit union?

Yes . . . . .	.1
No . . . . .	.2
Don't know8
Refused/NA9

57

<p>a. What is the name(s) of the credit union?</p> <p>1. _____</p> <p>2. _____</p> <p>3. _____</p>	<p>58-59</p> <p>60-61</p> <p>62-63</p>
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64-75 Blk
76 Cd #
77-80 Job #

Now, a few questions for statistical purposes. . .

- D1. How long have you lived at your present address?
- | | | |
|--|---|---|
| Less than 6 months. | 1 | |
| Six months-1 year | 2 | |
| More than 1 year but less than 3. | 3 | |
| More than 3 years but less than 5. | 4 | 6 |
| 5 years or more | 5 | |
| Don't know. | 8 | |
| Refused/NA. | 9 | |

- D2. How many miles per year would you estimate you drive?

NUMBER OF MILES

7-11

- D3. Have you received any tickets for moving violations (i.e. speeding, illegal turns, running red light) in the last three years?
- | | | |
|----------------------|---|----|
| Yes. | 1 | |
| No | 2 | |
| Don't know | 8 | 12 |
| Refused/NA | 9 | |

- a. How many tickets have you received?
- | | | |
|----------------------|---|----|
| One. | 1 | |
| Two. | 2 | |
| Three. | 3 | |
| Four | 4 | 13 |
| Five | 5 | |
| Six or more. | 6 | |
| Don't know | 8 | |
| Refused/NA | 9 | |

- D4. How many car accidents of any type have you been involved while you were driving in the last three years?

(SPECIFY NUMBER)

14-15

- D5. Are you currently. . .

- | | | |
|-----------------------------|---|----|
| Employed full time. | 1 | |
| Employed part-time. | 2 | |
| Unemployed. | 3 | |
| Retired | 4 | 16 |
| A homemaker | 5 | |
| A student | 6 | |
| Other _____ | 7 | |
| (SPECIFY) | | |
| Don't know. | 8 | |
| Refused/NA. | 9 | |

- a. What is your occupation?
- 17-18

D6. What is your marital status?

- Married.1
- Single2
- Divorced3
- Widowed.4
- Separated.5
- Refused/NA9

19

a. Is your spouse. . .

- Employed full time1
- Employed part-time2
- Unemployed3
- Retired.4
- A homemaker.5
- A student.6
- Other _____ 7
- (SPECIFY)
- Refused/NA9

20

b. What is his/her occupation?

21-22

D7. What is the last grade of school you completed?

- Grade school or less (Grade 1-8). . 1
- Some high school.2
- Graduated high school (Grade 9-12) 3
- Vocational/Technical school 4
- Some college.5
- Graduated college6
- Post-graduate work.7
- Refused/NA.9

23

(HAND INCOME CARD)

D8. Which of the following income groups includes your TOTAL FAMILY INCOME in 1980 before taxes?

0-\$4,999 . . . . .	.01
\$5,000-\$9,999 . . . . .	.02
\$10,000-\$14,999 . . . . .	.03
\$15,000-\$19,999 . . . . .	.04
\$20,000-\$24,999 . . . . .	.05
\$25,000-\$29,999 . . . . .	.06
\$30,000-\$34,999 . . . . .	.07
\$35,000 or more . . . . .	.08
Don't know . . . . .	.98
Refused/NA. . . . .	.99

25-26



a. Is your income above or below \$20,000?	Above \$20,000 . . . . .	.1
	Below \$20,000 . . . . .	.2
	Refused/NA. . . . .	.9

27

(BY OBSERVATION OR FROM NATIONALITY)

D9. Race:

White . . . . .	.1
Black . . . . .	.2
Other (RECORD AT LEFT). . . . .	.3
Not ascertained . . . . .	.8

28

D10. Sex:

Male. . . . .	.1
Female. . . . .	.2

29

ON FIRST PAGE OF QUESTIONNAIRE
PLEASE INDICATE WHICH ADULT WAS
RESPONDENT

INTERVIEWER: PROCEED TO FINAL SECTION IF RESPONDENT HAS INDICATED THAT ANY CHILD CAR SEAT IS AVAILABLE IN THIS HOUSEHOLD, REGARDLESS OF USE.

Part One: Placing Child(ren) in Seat.

The last thing we'd like to do is look at the child car seat(s) you have so that you can comment on any other aspects of the design or use of this (these) seat(s)? (ASK RESPONDENT TO GET SEAT -- IF IN CAR, SUGGEST THAT YOU GO OUT TO CAR TO OBSERVE SEAT WITH CHILDREN ALONG.)

1. INTERVIEWER: Where was the car seat(s) located at the time of the interview?

Car Seat for Child One

Car Seat for Child Two

In car currently at home. 1
 In house, ready for use 2
 In another car, ready for use . . . 3
 In storage (basement/attic) 4
 Other _____ 5
 (SPECIFY)
 No child car seat available in household 6

In car currently at home. 1
 In house, read for use. 2
 In another car, ready for use . . . 3
 In storage (basement/attic) 4
 Other _____ 5
 (SPECIFY)
 No child car seat available in household 6

30
31

2. Now, we'd like you to place the child(ren) in the car seat(s) as you would normally use it.

INTERVIEWER:	CHILD ONE				CHILD TWO					
	Yes	No	Don't Know	NA/Ref.	Yes	No	Don't Know	NA/Ref.		
A. Was harness placed around child?	1	2	8	9	1	2	8	9	32	33
B. Was shield placed in front of child?	1	2	8	9	1	2	8	9	34	35
C. Was car seat belt/harness attached to child car seat?	1	2	8	9	1	2	8	9	36	37
D. Was tether on back of child car seat attached to car?	1	2	8	9	1	2	8	9	38	39

3. INTERVIEWER: HOW DID CHILD REACT TO BEING PLACED IN SEAT?
(DESCRIBE BELOW)

CHILD ONE REACTIONS

CHILD TWO REACTIONS

--	--

4. Do you have any additional comments about the design or use of the child car seat for . . .
(RECORD RESPONDENT'S COMMENTS ABOUT EACH SEAT)

CAR SEAT FOR CHILD ONE

RESPONDENT'S COMMENTS:

CAR SEAT FOR CHILD TWO

RESPONDENT'S COMMENTS:

THANK YOU FOR YOUR TIME

AREA CODE

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FILL OUT AFTER COMPLETION OF INTERVIEW

NAME: _____ TELEPHONE NUMBER: _____

ADDRESS: _____ COUNTY: _____

CITY: _____ STATE: _____

LENGTH OF INTERVIEW: _____ TIME ENDED: _____ DATE OF INTERVIEW _____
Month Day

INTERVIEWER'S NAME: _____

INTERVIEWER, PLEASE READ AND SIGN.

I have reread this completed questionnaire and certify that all questions requiring answers have been recorded in the respondent's exact words, and that all boxes and spaces requiring an "X," a number, or a letter are filled in. This bona fide interview has been obtained according to quota and all interviewing specifications. I agree to keep the content of questions, respondent's answers, and the subject of this interview confidential.

49-75 B 76 Cd #
77-80 Job #

INTERVIEWER'S SIGNATURE: _____

SUPERVISOR'S NAME: _____ DATE: _____

INTERVIEWER

Were there any special circumstances or conditions under which this interview was conducted?

If so, please explain in detail:

How long did it take to arrive at this cluster?

How long did it take to find this respondent once you

started your household selection process?

How many times did you have to visit this cluster or return to complete the interview?