Abstract

The 1982 Kentucky General Assembly enacted a law requiring use of child safety seats for children 40 inches or less in height. To evaluate the effectiveness of this law, usage surveys had to be completed before and after the law became effective. This study summarizes data collected one year after enactment of the law and compares this with "before" data.

One year after enactment of the mandatory usage law the statewide child safety seat usage rate was 22.7 percent. This compared to 14.4 percent usage before the law and represents a statistically significant increase. Usage increased in 18 of the 19 cities surveyed. Proper usage remained a problem. Only 50 percent of the child safety seats were used properly. A statewide driver safety belt usage rate of 5.8 percent compared to 4.2 percent the year before.

The increase in usage of child safety seats may be attributed to both enactment of the mandatory usage law and increased educational and promotional campaigns. Modifications, which should strengthen the existing law, were recommended.
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CHILD SAFETY SEAT USAGE IN KENTUCKY AFTER ENACTMENT
OF A MANDATORY USAGE LAW

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INTRODUCTION

Use of child safety seats or safety belts is an effective means of reducing injuries to children involved in motor-vehicle accidents. However, usage of these restraint systems has remained low. In an attempt to increase usage, a law was enacted by the 1982 Kentucky General Assembly requiring use of a "child restraint system" for children 40 inches or less in height. This law became effective July 15, 1982. A copy of the law is presented in the Appendix.

The objective of this study was to evaluate the effectiveness of the law. Observational surveys were conducted before and after its implementation. The "before" survey was performed in May and June 1982 and results were presented in a previous report (1). A statewide child safety seat usage rate of 14.4 percent was observed with another 1.0 percent using safety belts. Only 44 percent of the safety seats were used properly.

The "after" survey was performed in May through August 1983. Identical numbers of data were obtained in the same cities as in the "before" survey. Results from those two surveys were compared and changes in usage were noted. Also, Kentucky's current law was compared to similar laws across the country.

DEVELOPMENT OF SAMPLING PLAN

The same sampling plan used in the original survey was used. The sampling plan was developed to assure a statistically valid sample for cities of various sizes distributed across the state. The sample size was determined so that relative error of the observed proportion (percent using child safety seats) would be within acceptable bounds for a given probability. The required sample size was determined using the following formula (3):

\[ n = \frac{X}{(1 - p)/(d^2)(p)} \]  

in which \( n \) = sample size, \( X \) = cumulative Chi-square distribution for a given probability and one degree of freedom, \( d \) = bound on the relative error of the proportion, and \( p \) = true or assumed proportion.

A probability of 0.95 was assumed. The sample size required would vary as a function of the proportion of children using child safety seats and the bound required on the relative error. For a proportion between 10 and 15 percent and a 10 percent upper bound on relative error, the required sample size varies from 2,176 to 3,456. For a proportion of 15 percent and a 5 percent upper bound on relative error, the required sample size increased substantially to 8,704. The original
assumption was made that the observed proportion would not be much lower than 15 percent. For a sample size of 5,000, this would yield a 6.6 percent upper bound on relative error. Observations showed 14.4 percent of children were in safety seats (1). This percentage should increase in the "after" survey. For the sample size of 5,000 and a usage proportion of 25 percent, the upper bound on relative error would be 4.8 percent.

The sample had to be distributed across the state and be representative of a range of populations to account for social and economic factors. The sample distribution was based on county population categories. From the 1980 census, the number of children under five years old in each county was used to distribute the sample. This was the youngest age category available in census data. The sample size necessary for each population category, as well as the survey counties and cities selected, are listed in Table 2. Counties were selected so that a distribution across the state would be obtained. The largest city in each selected county was chosen for data collection. City populations varied from 298,451 in Louisville to 3,967 in Carrollton.

DEVELOPMENT OF DATA COLLECTION PLAN

The data collection plan used in the pre-legislation survey (1) was used in the "after" study. The data collection form is shown in Figure 1. The procedure involved collecting data by observations without interviews. This allowed data to be collected more quickly and observers were able to gather all necessary data. That procedure allowed data to be collected by one person. Three observers collected all data, minimizing training requirements. Substantial training was still necessary to acquaint data collectors with the various restraints and their proper usage.

An explanation of information collected is given in Figure 2. The data sheet was divided into three sections. General information described when and where data were collected. The section pertaining to cars containing children under four years included basic information concerning type of safety seat used and, when used, the brand and whether it was used properly. Information was also obtained for the driver of any vehicle containing a child under four years of age. That information consisted of the driver's age category, sex, and safety belt usage. A third section of the data sheet contained similar information for drivers of other vehicles. Safety belt usage was obtained for drivers of those vehicles at times when that data collection did not interfere with the collection of child safety seat data.

Child safety seat usage was obtained only for children under four years of age. Kentucky's law requires the use of child safety seats for children 40 inches in height or less. Since no interviews were conducted, a judgment concerning age or height had to be made, and the decision was made to use four years of age as the cutoff. Children were further classified as being less than one year old or from one through three years old. In this report, children less than one year of age will be referred to as "infants", and children from one through three years of age will be termed "toddlers".

Data were collected at the same sites as those used in the prelegislation survey. Sites were located either at traffic signals or four-way stops. Some general instructions were followed during data collection. Manuels providing suggestions for data collection procedures were reviewed when developing the data collection plan (4, 5). A summary of some of the major instructions follows:

1. Data will be collected by observation. Data collectors should attempt to be as inconspicuous as possible and avoid conversation, when possible. A message stating "TRAFFIC SURVEY" will be placed on the backs of all clipboards.
2. Data will be taken at intersections having either a traffic signal or four-way stop control. Observers will stand on the curb or at the edge of the roadway and observe stopped cars. Data may also be included for cars as they begin moving through a signalized intersection if the car is moving slow.
enough to allow accurate data collection. Only passenger cars and station wagons are to be included. Trucks, vans, or vehicles used for commercial purposes, such as taxicabs, should not be included.

3. All data should be collected during daylight hours at various times throughout the day.

4. Priority will be given to any car containing a child under four years old. Driver safety belt information for other cars will be collected when time permits.

5. Observers shall use their best judgment in estimating age. However, they shall not guess on child safety seat usage. When the type of safety seat cannot be determined, it should be left blank.

6. Proper or improper usage, along with the reason for improper usage, should be determined whenever possible, even when the type of child safety seat cannot be determined.

DATA ANALYSIS
The child safety seat data were entered into a computer file. This allowed summaries and cross-tabulations to be performed rapidly for any of the recorded data. Safety belt usage data for drivers of vehicles not containing children under four years were summarized manually.

A comparison was made of data taken before and after implementation of the mandatory usage law. This included a statistical analysis to determine when statistically significant changes had occurred (6).

RESULTS

USAGE RATES
A summary of statewide usage of child safety seats after enactment of the mandatory usage law is shown in Table 3. A sample size of 5,000 children, identical to the "before" survey, using the distribution shown in Table 2, was used. The data were collected from May through August of 1983 or approximately one year after the effective date of the law on July 15, 1982.

Statewide, the survey showed that 22.7 percent of children under four years of age were in child safety seats. That compared to 14.4 percent in the "before" survey. The number of children observed in a child safety seat increased from 718 to 1,136. That represents a 58 percent increase in usage.

Only 50 percent of the child safety seats were used properly (compared to 44 percent in the "before" survey). Applying this factor to the 22.7 percent usage rate shows that only 11.4 percent of the children were properly restrained.

An additional 74 children (1.5 percent) were using safety belts. That was an increase from the 1.0 percent in the "before" survey. Therefore, 24.2 percent of the children were restrained in some manner "after" as compared to 15.4 "before". This compares to a national usage rate of 26.9 percent for children from birth through five years of age.

Equation 1, with a sample size (n) of 5,000, a probability of 0.95, and a proportion (p) of 22.7 percent, yielded a bound on the relative error of the proportion (d) of 5.1 percent. When applied to the observed proportion (22.7 percent), this yielded an absolute error of 1.2 percent. Therefore, confidence limits of statewide child safety seat usage were 21.5 to 23.9 percent.

Safety seat usage varied as a function of county population category with higher usage rates in the more heavily populated counties. The increase in usage after enactment of the law also varied with county population category. The smallest increase (from 7.7 to 8.1 percent) was for the least populated counties. The largest increase (from 10.4 to 24.1 percent) was for the next to highest population category. The percent properly used did not vary with population category although the lowest percent properly used was observed for the smallest population category.

Usage of child safety seats, by city, is shown in Table 4. As before, usage was highest in the larger cities. The percentage using safety seats ranged from 43.4 percent in Lexington to 5.7 percent.
in Lawrenceburg. Proper usage showed no definite relationship to city size and ranged from 64 percent in Glasgow to 28 percent in Princeton.

A comparison, by city as well as statewide, of child safety seat usage before and after the mandatory usage law is provided in Table 5. Both the before and after usage percentages are shown as well as the percent change in that percentage. Results of a test used to determine when the differences were statistically significant is also shown. The test used compares two observed proportions and determines when the characteristic proportion for "A" differs from that for "B" (6). A level of statistical significance of 0.95 was used.

There was an increase in child safety seat usage in 18 of the 19 cities. In Lawrenceburg, usage dropped from 7.0 to 5.7 percent. That resulted from a drop from 11 to 9 in the number of safety seat uses observed. This decrease was not statistically significant. The percent increase varied from 201 percent in Somerset to 6 percent in Princeton. The increase was determined to be statistically significant in eight of the cities. Also, the increase statewide was statistically significant. If larger samples were obtained, some of the other cities would have shown a statistically significant increase.

A notation was made when a child safety seat was in the vehicle but was not used. That was noted in 218 cases. Usage could have been increased by another 4.4 percent in the event all available safety seats had been used.

FACTORS AFFECTING USAGE

Several other factors, shown in Table 6, were noted as being related to child safety seat usage. Those relationships were very similar to those observed in the "before" survey. As the number of small children in the car increased, safety seat usage decreased. There was a large reduction in usage when there were more than two small children in a car. Usage was especially related to age, with the usage rate for infants (41.0 percent) more than twice that for toddlers (19.1 percent). Usage was also much higher for children in the rear seat when compared to children in the front seat. Driver age and sex were also related, with usage higher when a female rather than male was driving and usage lower when an older person was driving.

Of particular interest was the relationship between the restraint usage of the driver and that of the child. A large percentage of children wore safety belts (19.6 percent) when the driver also wore a safety belt. About 85 percent of the children were restrained by a child safety seat or safety belt when the driver was also using a safety belt.

The percent of proper usage was lower when more than two children were in the car and higher for children in cars in which the driver was using a safety belt.

SEATING POSITION OF UNRESTRAINED CHILDREN

The seating position of unrestrained children is summarized in Table 7. That summary is interesting because of the small number (23.1 percent) of unrestrained children who were properly seated. The most common mode of travel for unrestrained toddlers is standing on the seat, primarily the front seat. Slightly over 30 percent of all unrestrained children in the front seat were standing on the seat. A traffic accident would not be necessary to cause a serious injury to a child standing in the front seat. A sudden stop would cause a child to be thrown from the standing position into the windshield or dashboard. Another large portion of toddlers were observed sitting on the front edge of the seat. The most common method of travel observed for an unrestrained infant was in the lap of an adult.

SUMMARY BY TYPE OF RESTRAINT

Usage of various types of child safety seats is summarized in Table 8. Data are presented for all children, for infants only, and for toddlers only. For each safety seat, the number observed is listed as well as the percentage properly used. Observers were trained to identify specific seats and their proper usage, and information regarding type and usage was
obtained for a high percentage of safety seats.

The Strollee Wee Care model was the single most frequently noted safety seat of all models observed. Questor Kantwet had the highest number of safety seats noted of any single manufacturer. The Questor Kantwet One-Step was its most commonly observed seat and was the second most frequently observed model of all safety seats noted. The Bobby-Mac Champion and Deluxe II, currently distributed by Questor Kantwet, were also common as was the Dyn-O-Mite infant seat. There were also a large number of safety seats observed from Century and Cosco/Peterson. The most common Century model was the Century 100, while the most common Cosco/Peterson model was the Safe-T-Seat. An old type safety seat, not currently available, also was observed frequently. That type was made by more than one manufacturer and may be distinguished by a separate headrest and armrest. A harness is required for proper use. Use of the harness was seldom observed. The child and infant Love Seats were also observed frequently.

Proper usage varied substantially for the various safety seats. Of the most common safety seats, Strolee and Bobby-Mac had lower proper-usage percentages; and Century, Cosco/Peterson, and Questor-Kantwet (excluding Bobby-Mac) had higher proper-usage percentages.

A summary of the types of improper usage is given in Table 9. The major overall improper usage was not harnessing the child into the safety seat. That was a particular problem for safety seats having an armrest that was used incorrectly in many instances as a replacement for the harness. That was also the major problem for toddlers, followed closely by failure to tether the seat as required. For infants, the major problem involved facing the infant forward rather than in the required backward position. Another major problem for toddlers was failure to use the shield required by some restraints.

The most frequent improper usages for specific models of child safety seats are listed in Table 10. The most frequently observed child safety seats are included in this table. A problem common to most of the safety seats was failure to harness the child into the seat. Another problem typical of most safety seats was placing an infant in a forward facing position. The most prevalent problems were failure to tether the Strolee and Child Love Seat and failure to use the harness in the "old type" safety seat.

DRIVER SAFETY BELT USAGE RATES

Safety belt usage was obtained for over 28,000 drivers as part of the survey. A summary, by city, is provided in Table 11. Counties were divided into categories based upon the number of licensed drivers in each county. As with child safety seat usage, driver safety belt usage was highest in the larger cities. The highest usage rates were observed in Louisville, Lexington, and Covington. The lowest rate was observed in Princeton.

A statewide rate was obtained by weighting the overall percent usage for each category by the percentage of the total driving population in that category. Using that procedure, a statewide driver safety belt usage rate of 5.8 percent was determined. This compares to a national usage rate, quoted by the National Highway Safety Administration, of 13.8 percent for drivers and front-seat passengers.

Equation 1, with a sample size (n) of 28,544, a probability of 0.95, and a proportion (p) of 5.8 percent yielded a bound on the relative error of the proportion (d) of 4.7 percent. When applied to the observed proportion (5.8 percent), this yielded an absolute error of 0.3 percent. Therefore, confidence limits for statewide driver safety belt usage were 5.5 to 6.1 percent.

The usage rate of 5.8 percent compares to a rate of 4.2 percent determined from the "before" survey. This is an increase of about 38 percent, but it still represents very low usage. The increase was statistically significant at the 0.95 level of significance (6).

Relationships between driver age and sex and safety belt usage were investigated and are shown in Table 12. Drivers in the middle-age category had the
highest usage rate. Males and females had very similar rates.

SUMMARY

1. A statewide child safety seat usage rate of 22.7 percent was observed one year after enactment of the mandatory usage law. That compares to 14.4 percent usage before passage of the law and represents a statistically significant increase.

2. Proper usage remains a problem with only 50 percent of the child safety seats used properly. That compares to 44 percent proper usage for the "before" survey.

3. Safety seat usage increased in 18 of the 19 cities surveyed. Usage was highest in the larger cities and varied from 43.4 percent in Lexington to 5.7 percent in Lawrenceburg, which was the only city having a decrease in usage.

4. The increase in usage was smallest in the category representing the lowest population category.

5. A small number (1.5 percent) of children were placed in a safety belt rather than a child safety seat. That was an increase from the 1.0 percent found in the "before" survey.

6. Several factors were noted as being related to child safety seat usage. Of particular significance was the high percentage of children in either a safety seat or safety belt (85 percent) when the driver was also restrained (using a safety belt). Usage also was observed to be higher for infants (under one year of age) when compared to toddlers (one through three years of age).

7. About one-fourth of the unrestrained children were observed to be seated in a normal manner. Slightly over 30 percent of front-seat unrestrained children were standing in the seat, which creates a particularly hazardous condition.

8. A few models of safety seats were very popular. The Strollee Wee Care was the most frequently observed model followed by the Questor Kantwet One-Step. Those two models were observed much more often than any other. Other common seats included the Cosco/Peterson Safe-T-Seat, Bobby-Mac Champion and Deluxe II, Questor Dyn-0-Mite, Century 100, and the Child and Infant Love Seats. Several "old type" restraints, characterized by separate headrests and armrests, also were observed.

9. The major overall improper usage involved failure to harness the child into the safety seat. For toddlers, another major problem was failure to tether the safety seat or use a shield when required. For infants, the major problem involved facing the infant forward rather than in the required backward position.

10. Proper usage varied substantially by model of safety seats. The Strollee and Child Love Seat had low proper usage percentages because of the requirement to tether the seat. The Bobby-Mac seats had a low proper-use percentage because of failure to use the shield with the Champion, Deluxe II, and Two-In-One models in the forward-facing toddler position. A high percentage of children were not harnessed when using the "old type" restraint. Of the common brands, Century, Cosco/Peterson, and Questor Kantwet (excluding Bobby Mac) had the highest proper-use percentages.

11. The statewide driver safety belt usage was 5.8 percent. That compares to 4.2 percent from the "before" survey and represents a statistically significant increase.

12. The increase in usage in child safety seats may be attributed both to enactment of a mandatory usage law and increased educational and promotional campaigns. Driver safety belt usage has increased without benefit of any law and probably because of the increased information available. To obtain maximum benefit from a mandatory usage law, the law needs to be modified as described below.

MODIFICATIONS TO CURRENT LAW

As of May 1983, Kentucky is one of 40 states along with the District of Columbia that has some sort of child restraint law.
While passage of such a law in Kentucky has proven to be a positive step, there are certain modifications that should be made to improve the law. A recent National Safety Council Policy Update summarized the major components of the 41 current laws (7). A review of the paper along with a guide for state legislation published by Physicians for Automotive Safety (8) pointed out several potential modifications. The modifications apply to four general areas. Following is a discussion of those areas.

1. DEFINING TO WHOM THE LAW APPLIES

Kentucky's law applies to children 40 inches or less in height. None of the other laws use height as a criterion for defining which children must use a child safety seat. All other laws use age as a criterion and four use weight (40 pounds) as an additional criterion. The most common age criteria used was less than four years with 20 of the 40 listing this as the criteria. The next most commonly used cutoff point was less than five years with 12 laws using that age. Three laws listed less than six or less than three while two listed less than two.

In June 1983, New York amended their law, raising the age to which their law applies. Effective April 1984, their new law requires children between four and seven to be restrained in safety belts. This age requirement for safety belt use will then be raised one year per year until April 1987, when all children age four through nine must be restrained.

Kentucky's law should be in conformance with other laws and use age as the method of defining to whom the law applies. A logical criterion would be that the law should apply to all preschool children. Therefore, the law should apply to children less than five, or preferably six, years in age. That age requirement would be in conjunction with a safety belt substitution provision.

2. SAFETY BELT SUBSTITUTION

All but ten of the 41 existing laws have a provision for safety belt substitution (7). More states are including the provision (17 of the 20 states with new laws in 1983). Although properly used child safety seats provide more protection for small children than safety belts, safety belts provide an alternative means of protection when safety seats are not available.

Twenty of the 40 states allow belts to be substituted for safety seats after a certain age. The age varies with approximately one-third specifying over one year of age and another one-third stating over three years of age. Another limitation placed by a few other states is that safety belts be substituted in the rear seat only.

If Kentucky's law applied to children under the age of six, safety belts should be allowed as a substitute for children between the ages of three and six. Also, safety belts should be allowed as a substitute for children who have outgrown the height or weight limits of their child safety seat. Those limits are typically about 40 inches or 40 pounds except for restraint systems such as Century Safe-T-Rider or Collier Keyworth Co-Pilot, which could accommodate children even beyond six years of age. The average child outgrows those limits between the ages of four and five. Only about five percent of children exceed these limits at the age of three; approximately 25 percent exceed the limits at the age of four.

A safety belt substitution provision (primarily for four- and five-year olds) would serve as a transition after the use of child safety seats. After a child outgrows a safety seat, no type of restraint is typically used. If the child is required to use a safety belt for a period of time, that habit may continue in later years. Also, data indicate that increasing safety belt usage by children will result in increased use of safety belts by the driver.

3. PENALTY

Kentucky's current law does not provide for penalty, other than a possible warning citation, for not adhering to the law. Only 4 of the 41 current laws do not provide a fine for failure to obey the law. The most common fine is $25, and that is also about the average fine. Many
laws provide for a range in possible fines. The minimum lower limit is $2 while the highest upper limit is $500. Only five laws provided for a maximum fine of over $50.

All but six laws have a provision for waiving the fine. That would typically occur when proof was presented that a child safety seat was obtained. Some laws allowed the fine to be waived only when it was the first offense.

It is apparent that a penalty should be associated with Kentucky's law. However, the fine should not be excessive. A fine of not less than $15 nor more than $25 (exclusive of court costs) would appear appropriate, and the fine should be waived for the first offense upon proof that a child safety seat was obtained.

A few of the laws specify that fine revenues be used to implement a loaner program or educational programs. Designating the fine revenue to be used to establish a fund to purchase child safety seats for a loaner program for qualifying needy people appears to be a suitable use for the money.

4. EXEMPTIONS

Kentucky's law exempts recreational vehicles or trucks having a tonnage rating of more than one ton. The most common other exemption, which was listed in nine laws, involves the situation where there are more children in the vehicle than seating positions. Another exemption, which was listed in six laws, involves attending to the personal needs of a child. Other exemptions mentioned in at least one law included car pools, taxis, rental vehicles, vehicles not equipped with safety belts, children physically unable to use restraints, buses weighing more than one ton, trucks, emergency vehicles, and recreational vehicles.

Care should be exercised not to make unnecessary exemptions. However, for the law to be viewed by the public as fair, exemptions should be made where appropriate. Therefore, other exemptions should be considered as part of Kentucky's law. The law should exempt vehicles not equipped with safety belts or not required to have safety belts. An exemption should be made for vehicles in which the number of people exceeds the number of seating positions; however, all safety belts should be in use and unrestrained children should be in the rear seat. Children physically unable to use a child safety seat should be exempted when proof is provided by a physician's statement.

RECOMMENDATIONS

While usage of child safety seats has increased significantly in the year after enactment of a mandatory law, usage remains low. Additional efforts to increase usage are warranted. Educational and promotional campaigns should be continued and increased in areas identified as having particularly low usage rates.

The existing law should be modified to strengthen its influence on usage. Modifications and additions in the following four areas are recommended for Kentucky's child safety seat law:

1. Age - Children under the age of six should be required to be properly secured in a child restraint system.

2. Safety belt substitution - Safety belts may be substituted for child safety seats for children between the ages of three and six and for children who have outgrown the height or weight limits of their child safety seat.

3. Penalty - Any person violating the law should be fined not less than $15 nor more than $25 (exclusive of court costs). The fine would be waived for the first offense upon proof that a child safety seat was obtained. The fine revenue should be used to establish a fund for the purchase of child safety seats to be loaned to qualifying families.

4. Exemptions - Vehicles not equipped or required to be equipped with safety belts should be exempted. Also, vehicles in which the number of people exceeds the number of seating positions should be exempted with the provision that all safety belts be in use and unrestrained children be placed in the rear seat. Children physically unable to use a child safety seat should be exempted when a
The problem of improper usage continues. This aspect should be emphasized in the educational and promotional campaigns. Consequences of improper usage should be documented as part of an in-depth study of accidents involving children in a child safety seat or safety belt. Such a study also should compare the effectiveness of child safety seats and safety belts for children of various ages.

To maintain up-to-date usage statistics and determine the effect of new educational and promotional campaigns and any modifications to the existing law, another observational study should be conducted in 1984. Cities used in this study should be included as well as cities in counties where intensive promotional campaigns have been implemented.

REFERENCES


### TABLE 1. LISTING OF AVAILABLE CHILD SAFETY SEATS*

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<th>MANUFACTURER</th>
<th>MODEL</th>
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<td>Cosco/Peterson</td>
<td>Safe-T-Shield</td>
<td>Convertible; three-point harness for infants; shield only for toddlers</td>
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<td></td>
<td>Safe-T-Seat</td>
<td>Convertible, five-point harness</td>
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<td>Safe and Easy</td>
<td>Convertible, five-point harness</td>
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<td></td>
<td>Safe and Snug</td>
<td>Convertible, combination shield and harness system</td>
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<td>First Ride</td>
<td>Infants only; Y-harness</td>
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<td>Travel Hi-Lo</td>
<td>Children to 65 lbs; lap and shoulder belt in front seat, belt and tethered body harness in rear</td>
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<td>Deluxe Travel Hi-Lo</td>
<td>Children to 65 lbs; backrest and three-point harness</td>
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<td>Century</td>
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<td>Convertible; five-point harness</td>
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<td>Century 300</td>
<td>Convertible; five-point harness with aramist</td>
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<td>Child Love Seat</td>
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<td>Safe-T-Rider</td>
<td>Toddlers and children to 10 yrs; lap and shoulder belt in front seat, lap belt and tethered body harness in rear</td>
</tr>
<tr>
<td></td>
<td>Trav-L-guard</td>
<td>Convertible; five-point harness with aramist</td>
</tr>
<tr>
<td>Pride Trimble</td>
<td>Lil Care</td>
<td>Convertible; five-point harness with aramist; tether required</td>
</tr>
<tr>
<td></td>
<td>Wee Care Booster</td>
<td>Seat, auto lap belt with tethered harness in rear seat</td>
</tr>
<tr>
<td>Questor Kantwet</td>
<td>Dyn-O-Nite</td>
<td>Infants only; Y-harness</td>
</tr>
<tr>
<td></td>
<td>Uaw-Step</td>
<td>Convertible; combination shield and harness system</td>
</tr>
<tr>
<td></td>
<td>Care Seat</td>
<td>Convertible; five-point harness</td>
</tr>
<tr>
<td></td>
<td>Safe Guard</td>
<td>Convertible; five-point harness</td>
</tr>
<tr>
<td></td>
<td>Bobby Mac Champion</td>
<td>Convertible; five-point harness for infant, add shield for toddler</td>
</tr>
<tr>
<td></td>
<td>Bobby Mac Deluxe II</td>
<td>Convertible; three-point harness for infant, add swing-down shield for toddler</td>
</tr>
<tr>
<td></td>
<td>Bobby Mac Super</td>
<td>Convertible; five-point harness, tether required</td>
</tr>
<tr>
<td>International</td>
<td>Astroseat (9300)</td>
<td>Convertible; five-point harness</td>
</tr>
<tr>
<td></td>
<td>Astroseat (9100)</td>
<td>Convertible; combination shield and harness system</td>
</tr>
<tr>
<td></td>
<td>Astrorider</td>
<td>Children to 55 lbs; used with adult three-point belt system or adult lap belt with harness</td>
</tr>
<tr>
<td>Kolcraft</td>
<td>Hi-Rider</td>
<td>Convertible; five-point harness, optional shield</td>
</tr>
<tr>
<td></td>
<td>Di-Rider XL</td>
<td>Convertible; five-point harness with aramist</td>
</tr>
<tr>
<td></td>
<td>Tot-Rider</td>
<td>Toddlers and children to 10 yrs; lap and shoulder belt in front seat, lap belt and tethered body harness in rear</td>
</tr>
<tr>
<td></td>
<td>Tot-Rider XL</td>
<td>Toddlers and children to 10 yrs; lap and shoulder belt in front seat, harness system in rear</td>
</tr>
<tr>
<td></td>
<td>Redi-Rider (17430)</td>
<td>Convertible; five-point harness with shield</td>
</tr>
<tr>
<td></td>
<td>Redi-Rider (19530)</td>
<td>Convertible; combination shield and harness system</td>
</tr>
<tr>
<td>Ford</td>
<td>Tot Guard</td>
<td>Toddlers only; shield only</td>
</tr>
<tr>
<td>General Motors</td>
<td>Infant Love Seat</td>
<td>Infants only; Y-harness</td>
</tr>
<tr>
<td></td>
<td>Child Love Seat</td>
<td>Toddlers only; five-point harness, tether required</td>
</tr>
<tr>
<td>Welsh</td>
<td>Travel Tot</td>
<td>Convertible five-point harness with shield</td>
</tr>
<tr>
<td>Collier-Keyworth</td>
<td>Safe and Sound</td>
<td>Convertible; combination shield and harness system</td>
</tr>
<tr>
<td></td>
<td>Co-Pilot</td>
<td>Toddlers and children; full protective shield</td>
</tr>
<tr>
<td>Pride Trimble</td>
<td>Pride Ride (229)</td>
<td>Convertible; five-point harness with aramist</td>
</tr>
<tr>
<td></td>
<td>Pride Ride (830)</td>
<td>Convertible; five-point harness with aramist</td>
</tr>
</tbody>
</table>

*Convertible restraints can be used by infants and toddler, infants in a rear-facing position and toddlers in a forward-facing position.

Tethers, where required, are for toddler position only.
<table>
<thead>
<tr>
<th>COUNTY POPULATION CATEGORY (NUMBER OF CHILDREN UNDER FIVE YEARS OLD)</th>
<th>PERCENTAGE OF STATEWIDE TOTAL</th>
<th>SAMPLE SIZE</th>
<th>SURVEY COUNTIES</th>
<th>SURVEY CITIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000 or More</td>
<td>26.6</td>
<td>1,330</td>
<td>Fayette</td>
<td>Lexington</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Jefferson</td>
<td>Louisville</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kenton</td>
<td>Covington</td>
</tr>
<tr>
<td>5,000-9,999</td>
<td>14.0</td>
<td>700</td>
<td>Campbell</td>
<td>Newport</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Christian</td>
<td>Hopkinsville</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hardin</td>
<td>Elizabethtown</td>
</tr>
<tr>
<td>2,500-4,999</td>
<td>23.3</td>
<td>1,165</td>
<td>Franklin</td>
<td>Frankfort</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Henderson</td>
<td>Henderson</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hopkins</td>
<td>Madisonville</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Perry</td>
<td>Hazard</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pulaski</td>
<td>Somerset</td>
</tr>
<tr>
<td>1,000-2,499</td>
<td>26.0</td>
<td>1,300</td>
<td>Barren</td>
<td>Glasgow</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Clark</td>
<td>Winchester</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mason</td>
<td>Maysville</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nelson</td>
<td>Bardstown</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Rowan</td>
<td>Morehead</td>
</tr>
<tr>
<td>Under 1,000</td>
<td>10.1</td>
<td>505</td>
<td>Anderson</td>
<td>Lawrenceburg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Caldwell</td>
<td>Princeton</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carroll</td>
<td>Carrollton</td>
</tr>
</tbody>
</table>
### TABLE 3. STATEWIDE USAGE OF CHILD SAFETY SEATS

<table>
<thead>
<tr>
<th>COUNTY POPULATION CATEGORY (NUMBER OF CHILDREN UNDER FIVE YEARS OLD)</th>
<th>SAMPLE SIZE</th>
<th>NUMBER USING CHILD SAFETY SEAT</th>
<th>PERCENT USING CHILD SAFETY SEATS</th>
<th>NUMBER USING SAFETY BELT</th>
<th>PERCENT USING SAFETY BELT</th>
<th>PERCENT USING ANY RESTRAINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>10,000 or more</td>
<td>1,330</td>
<td>498</td>
<td>37.4</td>
<td>50</td>
<td>39</td>
<td>2.9</td>
</tr>
<tr>
<td>5,000-9,999</td>
<td>700</td>
<td>169</td>
<td>24.1</td>
<td>44</td>
<td>6</td>
<td>0.9</td>
</tr>
<tr>
<td>2,500-4,999</td>
<td>1,165</td>
<td>220</td>
<td>18.9</td>
<td>55</td>
<td>12</td>
<td>1.0</td>
</tr>
<tr>
<td>1,000-2,499</td>
<td>1,300</td>
<td>208</td>
<td>16.0</td>
<td>53</td>
<td>10</td>
<td>0.8</td>
</tr>
<tr>
<td>Under 1,000</td>
<td>505</td>
<td>41</td>
<td>8.1</td>
<td>39</td>
<td>7</td>
<td>1.4</td>
</tr>
<tr>
<td>All</td>
<td>5,000</td>
<td>1,136</td>
<td>22.7</td>
<td>50</td>
<td>74</td>
<td>1.5</td>
</tr>
</tbody>
</table>

### TABLE 4. USAGE OF CHILD SAFETY SEATS BY CITY

<table>
<thead>
<tr>
<th>CITY</th>
<th>POPULATION</th>
<th>SAMPLE SIZE</th>
<th>NUMBER USING CHILD SAFETY SEAT</th>
<th>PERCENT USING CHILD SAFETY SEATS</th>
<th>NUMBER USING SAFETY BELT</th>
<th>PERCENT USING SAFETY BELT</th>
<th>PERCENT USING ANY RESTRAINT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Louisville</td>
<td>298,451</td>
<td>546</td>
<td>182</td>
<td>33.3</td>
<td>60</td>
<td>16</td>
<td>2.9</td>
</tr>
<tr>
<td>Lexington</td>
<td>204,165</td>
<td>507</td>
<td>220</td>
<td>43.4</td>
<td>40</td>
<td>12</td>
<td>2.4</td>
</tr>
<tr>
<td>Covington</td>
<td>49,013</td>
<td>277</td>
<td>96</td>
<td>34.7</td>
<td>50</td>
<td>11</td>
<td>4.0</td>
</tr>
<tr>
<td>Hopkinsville</td>
<td>27,318</td>
<td>178</td>
<td>32</td>
<td>18.0</td>
<td>31</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>Frankfort</td>
<td>25,973</td>
<td>293</td>
<td>74</td>
<td>25.3</td>
<td>55</td>
<td>2</td>
<td>0.7</td>
</tr>
<tr>
<td>Henderson</td>
<td>24,834</td>
<td>200</td>
<td>37</td>
<td>18.5</td>
<td>43</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Newport</td>
<td>21,587</td>
<td>237</td>
<td>64</td>
<td>27.0</td>
<td>52</td>
<td>1</td>
<td>0.4</td>
</tr>
<tr>
<td>Madisonville</td>
<td>16,979</td>
<td>201</td>
<td>33</td>
<td>16.4</td>
<td>58</td>
<td>4</td>
<td>2.0</td>
</tr>
<tr>
<td>Elizabethtown</td>
<td>15,380</td>
<td>285</td>
<td>73</td>
<td>25.6</td>
<td>42</td>
<td>3</td>
<td>1.1</td>
</tr>
<tr>
<td>Winchester</td>
<td>15,216</td>
<td>353</td>
<td>47</td>
<td>13.3</td>
<td>60</td>
<td>2</td>
<td>0.6</td>
</tr>
<tr>
<td>Glasgow</td>
<td>12,958</td>
<td>151</td>
<td>22</td>
<td>14.6</td>
<td>64</td>
<td>3</td>
<td>2.0</td>
</tr>
<tr>
<td>Somerset</td>
<td>10,649</td>
<td>270</td>
<td>57</td>
<td>21.1</td>
<td>61</td>
<td>6</td>
<td>2.2</td>
</tr>
<tr>
<td>Maysville</td>
<td>7,982</td>
<td>280</td>
<td>47</td>
<td>16.8</td>
<td>60</td>
<td>4</td>
<td>1.4</td>
</tr>
<tr>
<td>Morehead</td>
<td>7,789</td>
<td>226</td>
<td>32</td>
<td>14.1</td>
<td>38</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Princeton</td>
<td>7,073</td>
<td>171</td>
<td>18</td>
<td>10.5</td>
<td>28</td>
<td>2</td>
<td>1.2</td>
</tr>
<tr>
<td>Bardstown</td>
<td>6,155</td>
<td>290</td>
<td>60</td>
<td>20.7</td>
<td>48</td>
<td>1</td>
<td>0.3</td>
</tr>
<tr>
<td>Hazard</td>
<td>5,429</td>
<td>201</td>
<td>19</td>
<td>9.5</td>
<td>47</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Lawrenceburg</td>
<td>5,167</td>
<td>158</td>
<td>9</td>
<td>5.7</td>
<td>33</td>
<td>1</td>
<td>0.6</td>
</tr>
<tr>
<td>Carrollton</td>
<td>3,967</td>
<td>176</td>
<td>14</td>
<td>8.0</td>
<td>57</td>
<td>4</td>
<td>2.3</td>
</tr>
</tbody>
</table>
TABLE 5. COMPARISON OF CHILD SAFETY SEAT USAGE BEFORE AND AFTER MANDATORY USAGE LAW

<table>
<thead>
<tr>
<th>CITY</th>
<th>BEFORE</th>
<th>AFTER</th>
<th>CHANGE</th>
<th>STATISTICALLY SIGNIFICANT*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Louisville</td>
<td>20.0</td>
<td>33.3</td>
<td>66</td>
<td>Yes</td>
</tr>
<tr>
<td>Lexington</td>
<td>29.8</td>
<td>43.4</td>
<td>46</td>
<td>Yes</td>
</tr>
<tr>
<td>Covington</td>
<td>19.1</td>
<td>34.7</td>
<td>82</td>
<td>Yes</td>
</tr>
<tr>
<td>Hopkinsville</td>
<td>10.7</td>
<td>18.0</td>
<td>68</td>
<td>No</td>
</tr>
<tr>
<td>Frankfort</td>
<td>14.0</td>
<td>25.3</td>
<td>81</td>
<td>Yes</td>
</tr>
<tr>
<td>Henderson</td>
<td>13.5</td>
<td>18.5</td>
<td>37</td>
<td>No</td>
</tr>
<tr>
<td>Newport</td>
<td>10.1</td>
<td>27.4</td>
<td>171</td>
<td>Yes</td>
</tr>
<tr>
<td>Madisonville</td>
<td>12.4</td>
<td>16.4</td>
<td>32</td>
<td>No</td>
</tr>
<tr>
<td>Elizabethtown</td>
<td>10.5</td>
<td>25.6</td>
<td>144</td>
<td>Yes</td>
</tr>
<tr>
<td>Winchester</td>
<td>11.0</td>
<td>13.3</td>
<td>21</td>
<td>No</td>
</tr>
<tr>
<td>Glasgow</td>
<td>13.9</td>
<td>14.6</td>
<td>5</td>
<td>No</td>
</tr>
<tr>
<td>All</td>
<td>14.4</td>
<td>22.7</td>
<td>58</td>
<td>Yes</td>
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</table>

*Level of statistical significance of 0.95
### TABLE 6. VARIOUS FACTORS AFFECTING CHILD SAFETY SEAT USAGE

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>CATEGORY</th>
<th>SAMPLE SIZE</th>
<th>PERCENT USING CHILD SAFETY SEATS</th>
<th>PERCENT OF CHILD SEATS USED PROPERLY</th>
<th>PERCENT USING SAFETY BELTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Children Under</td>
<td>1</td>
<td>3,767</td>
<td>24.3</td>
<td>50</td>
<td>1.5</td>
</tr>
<tr>
<td>2</td>
<td>1,105</td>
<td>18.8</td>
<td>49</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Four in Car</td>
<td>3 or More</td>
<td>128</td>
<td>11.7</td>
<td>33</td>
<td>1.6</td>
</tr>
<tr>
<td>Age (Years)</td>
<td>Less Than 1</td>
<td>831</td>
<td>41.0</td>
<td>52</td>
<td>0.0</td>
</tr>
<tr>
<td>1-3</td>
<td>4,169</td>
<td>19.1</td>
<td>49</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>Child's Location</td>
<td>Front</td>
<td>2,522</td>
<td>13.7</td>
<td>55</td>
<td>1.5</td>
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<tr>
<td>Rear</td>
<td>2,409</td>
<td>32.8</td>
<td>48</td>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>Driver Sex</td>
<td>M</td>
<td>1,297</td>
<td>15.6</td>
<td>49</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>3,696</td>
<td>25.2</td>
<td>50</td>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>Driver Age</td>
<td>Y*</td>
<td>1,948</td>
<td>22.4</td>
<td>49</td>
<td>1.0</td>
</tr>
<tr>
<td>M</td>
<td>2,881</td>
<td>23.9</td>
<td>50</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>164</td>
<td>6.1</td>
<td>60</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>Driver Restrained</td>
<td>Yes</td>
<td>230</td>
<td>65.2</td>
<td>65</td>
<td>19.6</td>
</tr>
<tr>
<td>No</td>
<td>4,751</td>
<td>20.6</td>
<td>48</td>
<td>0.6</td>
<td></td>
</tr>
</tbody>
</table>

*Y -- 16-30 years  M -- 31-50 years  0 -- 51 years or older

### TABLE 7. SEATING POSITIONS OF UNRESTRAINED CHILDREN

<table>
<thead>
<tr>
<th>SEATING POSITION</th>
<th>NUMBER</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seated in a Normal Manner</td>
<td>865</td>
<td>23.1</td>
</tr>
<tr>
<td>On Lap</td>
<td>752</td>
<td>20.1</td>
</tr>
<tr>
<td>In Cargo Area</td>
<td>69</td>
<td>1.8</td>
</tr>
<tr>
<td>Other*</td>
<td>2,055</td>
<td>55.0</td>
</tr>
</tbody>
</table>

*Primarily standing on the seat or sitting on the front edge of the seat
TABLE 8. USAGE OF VARIOUS TYPES OF CHILD RESTRAINTS

<table>
<thead>
<tr>
<th>CHILD RESTRAINT</th>
<th>ALL CHILDREN</th>
<th>INFANTS ONLY</th>
<th>TODDLERS ONLY</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>NUMBER</td>
<td>PERCENT</td>
<td>NUMBER</td>
</tr>
<tr>
<td></td>
<td>OBSERVED</td>
<td>PROPERLY</td>
<td>OBSERVED</td>
</tr>
<tr>
<td>Questor Kantwet</td>
<td>366</td>
<td>63</td>
<td>144</td>
</tr>
<tr>
<td>One-Step</td>
<td>159</td>
<td>86</td>
<td>52</td>
</tr>
<tr>
<td>Dyn-O-Mite</td>
<td>45</td>
<td>73</td>
<td>45</td>
</tr>
<tr>
<td>Care Seat</td>
<td>10</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>Safe Guard</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bobby-Hac Champion</td>
<td>49</td>
<td>37</td>
<td>11</td>
</tr>
<tr>
<td>Deluxe II</td>
<td>43</td>
<td>30</td>
<td>10</td>
</tr>
<tr>
<td>Two-in One</td>
<td>18</td>
<td>33</td>
<td>5</td>
</tr>
<tr>
<td>Super</td>
<td>14</td>
<td>36</td>
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</tr>
<tr>
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<td>26</td>
<td>58</td>
<td>13</td>
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<tr>
<td>Strolee Wee Care</td>
<td>216</td>
<td>19</td>
<td>38</td>
</tr>
<tr>
<td>Century</td>
<td>140</td>
<td>81</td>
<td>38</td>
</tr>
<tr>
<td>100</td>
<td>44</td>
<td>73</td>
<td>12</td>
</tr>
<tr>
<td>200</td>
<td>30</td>
<td>60</td>
<td>5</td>
</tr>
<tr>
<td>300</td>
<td>33</td>
<td>70</td>
<td>11</td>
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<tr>
<td>Trav-l-guard</td>
<td>15</td>
<td>83</td>
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<tr>
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<td>18</td>
<td>94</td>
<td>7</td>
</tr>
<tr>
<td>Cosco/Peterson</td>
<td>122</td>
<td>68</td>
<td>50</td>
</tr>
<tr>
<td>Safe-T-Seat</td>
<td>67</td>
<td>67</td>
<td>8</td>
</tr>
<tr>
<td>Safe and Snug</td>
<td>25</td>
<td>67</td>
<td>8</td>
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<tr>
<td>Safe-T-Shield</td>
<td>17</td>
<td>76</td>
<td>2</td>
</tr>
<tr>
<td>First Ride</td>
<td>5</td>
<td>20</td>
<td>5</td>
</tr>
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<td>Safe and Easy</td>
<td>4</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Peterson</td>
<td>4</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Old Type*</td>
<td>97</td>
<td>13</td>
<td>18</td>
</tr>
<tr>
<td>Unknown Type</td>
<td>37</td>
<td>43</td>
<td>11</td>
</tr>
<tr>
<td>Child Love Seat</td>
<td>48</td>
<td>21</td>
<td>0</td>
</tr>
<tr>
<td>Infant Love Seat</td>
<td>34</td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td>International Astroseat</td>
<td>18</td>
<td>78</td>
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</tr>
<tr>
<td>Booster Seat</td>
<td>18</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>Kolcraft</td>
<td>16</td>
<td>81</td>
<td>3</td>
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<tr>
<td>Hi-Rider</td>
<td>7</td>
<td>100</td>
<td>3</td>
</tr>
<tr>
<td>Redi-Rider</td>
<td>9</td>
<td>67</td>
<td>0</td>
</tr>
<tr>
<td>Collier Keyworth</td>
<td>13</td>
<td>85</td>
<td>2</td>
</tr>
<tr>
<td>Safe and Sound</td>
<td>6</td>
<td>67</td>
<td>2</td>
</tr>
<tr>
<td>Co-Pilot</td>
<td>7</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Graco</td>
<td>6</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Welsh</td>
<td>2</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Pride Trimble</td>
<td>2</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>Ford Tot-Guard</td>
<td>1</td>
<td>100</td>
<td>0</td>
</tr>
</tbody>
</table>

*Seat not currently available. Has armrest and separate headrest. Made by more than one manufacturer.
### TABLE 9. MAJOR REASONS FOR IMPROPER USAGE

<table>
<thead>
<tr>
<th>REASON</th>
<th>ALL CHILDREN</th>
<th>INFANTS</th>
<th>TODDLERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child Not Harnessed as Required</td>
<td>276</td>
<td>58</td>
<td>218</td>
</tr>
<tr>
<td>Restraint Not Tethered as Required</td>
<td>192</td>
<td>11</td>
<td>181</td>
</tr>
<tr>
<td>Infant Facing Forward</td>
<td>110</td>
<td>110</td>
<td>0</td>
</tr>
<tr>
<td>Shield Not Used as Required</td>
<td>67</td>
<td>0</td>
<td>67</td>
</tr>
<tr>
<td>Restraint Not Belted to Car</td>
<td>5</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

### TABLE 10. MOST FREQUENT IMPROPER USAGE FOR COMMON CHILD RESTRAINTS

<table>
<thead>
<tr>
<th>RERAINT TYPE</th>
<th>TYPE OF MISUSE</th>
<th>PERCENT MISUSED FOR GIVEN REASON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Type</td>
<td>Not Harnessed</td>
<td>86</td>
</tr>
<tr>
<td>Strolee</td>
<td>Seat Not Tethered</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>Not Harnessed</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>Infant Facing Forward</td>
<td>12</td>
</tr>
<tr>
<td>Child Love Seat</td>
<td>Seat Not Tethered</td>
<td>73</td>
</tr>
<tr>
<td></td>
<td>Not Harnessed</td>
<td>31</td>
</tr>
<tr>
<td>Infant Love Seat</td>
<td>Infant Facing Forward</td>
<td>38</td>
</tr>
<tr>
<td></td>
<td>Not Harnessed</td>
<td>35</td>
</tr>
<tr>
<td>Bobby-Mac</td>
<td>Shield Not Used</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>Not Harnessed</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>Infant Facing Forward</td>
<td>9</td>
</tr>
<tr>
<td>Century</td>
<td>Not Harnessed</td>
<td>19</td>
</tr>
<tr>
<td>Cosco/Peterson</td>
<td>Not Harnessed</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td>Infant Facing Forward</td>
<td>11</td>
</tr>
<tr>
<td>Questor Dyn-O-Mite</td>
<td>Not Harnessed</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>Infant Facing Forward</td>
<td>9</td>
</tr>
<tr>
<td>Kantwet One-Step</td>
<td>Infant Facing Forward</td>
<td>9</td>
</tr>
</tbody>
</table>
### TABLE 11. DRIVER SAFETY BELT USAGE RATES

<table>
<thead>
<tr>
<th>COUNTY POPULATION CATEGORY (NUMBER OF LICENSED DRIVERS)</th>
<th>NUMBER OF COUNTIES IN CATEGORY</th>
<th>PERCENTAGE OF STATEWIDE DRIVING POPULATION</th>
<th>SURVEY COUNTIES</th>
<th>SURVEY CITIES</th>
<th>SAMPLE SIZE</th>
<th>PERCENT DRIVERS USING SAFETY BELTS</th>
<th>OVERALL PERCENT USAGE BY CATEGORY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Over 75,000</td>
<td>3</td>
<td>30.0</td>
<td>Jefferson</td>
<td>Louisville</td>
<td>3,866</td>
<td>11.9</td>
<td>10.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Fayette</td>
<td>Lexington</td>
<td>2,979</td>
<td>10.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Kenton</td>
<td>Covington</td>
<td>1,921</td>
<td>9.3</td>
<td></td>
</tr>
<tr>
<td>30,001-75,000</td>
<td>9</td>
<td>17.0</td>
<td>Campbell</td>
<td>Newport</td>
<td>1,315</td>
<td>6.4</td>
<td>4.3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Hardin</td>
<td>Elizabethtown</td>
<td>1,241</td>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Christian</td>
<td>Hopkinsville</td>
<td>1,282</td>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>20,001-30,000</td>
<td>13</td>
<td>14.6</td>
<td>Hopkins</td>
<td>Madisonville</td>
<td>1,233</td>
<td>2.8</td>
<td>4.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Henderson</td>
<td>Henderson</td>
<td>1,008</td>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Franklin</td>
<td>Frankfort</td>
<td>1,904</td>
<td>7.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pulaski</td>
<td>Somerset</td>
<td>815</td>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Barren</td>
<td>Glasgow</td>
<td>948</td>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>10,001-20,000</td>
<td>32</td>
<td>20.0</td>
<td>Clark</td>
<td>Winchester</td>
<td>2,099</td>
<td>2.9</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Nelson</td>
<td>Bardstown</td>
<td>1,220</td>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Perry</td>
<td>Hazard</td>
<td>1,068</td>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Mason</td>
<td>Maysville</td>
<td>1,476</td>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>Under 10,001</td>
<td>63</td>
<td>18.4</td>
<td>Rowan</td>
<td>Morehead</td>
<td>1,302</td>
<td>3.2</td>
<td>2.9</td>
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<tr>
<td></td>
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<td></td>
<td>Caldwell</td>
<td>Princeton</td>
<td>1,265</td>
<td>1.7</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Anderson</td>
<td>Lawrenceburg</td>
<td>824</td>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Carroll</td>
<td>Carrollton</td>
<td>778</td>
<td>4.9</td>
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</tr>
</tbody>
</table>

### TABLE 12. DRIVER SAFETY BELT USAGE RATES BY AGE AND SEX

<table>
<thead>
<tr>
<th>SEX</th>
<th>AGE*</th>
<th>PERCENT USING SAFETY BELTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Young</td>
<td>5.3</td>
</tr>
<tr>
<td></td>
<td>Middle-Age</td>
<td>6.9</td>
</tr>
<tr>
<td></td>
<td>Older</td>
<td>5.8</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>6.0</td>
</tr>
<tr>
<td>Female</td>
<td>Young</td>
<td>5.4</td>
</tr>
<tr>
<td></td>
<td>Middle-Age</td>
<td>6.3</td>
</tr>
<tr>
<td></td>
<td>Older</td>
<td>5.4</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>6.1</td>
</tr>
<tr>
<td>Male or Female</td>
<td>Young</td>
<td>5.3</td>
</tr>
<tr>
<td></td>
<td>Middle-Age</td>
<td>6.2</td>
</tr>
<tr>
<td></td>
<td>Older</td>
<td>5.6</td>
</tr>
</tbody>
</table>

*Age was estimated as given in Figure 2.
# Occupant Restraint Survey

**DATE**
**TIME**
**CITY**
**LOCATION**

**Comments**

## Cars with Children Under 4

<table>
<thead>
<tr>
<th>No.</th>
<th>Age</th>
<th>Restraint</th>
<th>Child Restraint</th>
<th>Position</th>
<th>Driver</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Child Restraint
- Type
- PI
- Reason

### Driver
- Operator
- Sex
- Age

## Cars with No Children Under 4

### Driver 16-30
- Male
- Female

### Driver 31-50
- Male
- Female

### Driver 51 or More
- Male
- Female
Figure 2. Data Collection Coding Instructions.*

1. General Information:
   DATE --Date of Data Collection
   TIME --Time Data Sheet Started
   CITY --City Where Data Collected
   LOCATION --Intersection Where Data Collected
   COMMENTS --Relevant Comments Concerning Data

2. Data for Cars Containing Children under Four:
   NO. CH. --Number of Children under Four in Vehicle
   Record Once for Each Vehicle
   AGE --Check Best Estimate of Child's Age
   RESTRAINT --Check Appropriate Code
   N -- None
   B -- Belt Only
   H -- Harness and Belt
   CR -- Child Restraint (Safety Seat)
   TYPE -- Brand and Model (e.g., Kantwet One-Step)
   P-I -- Check Whether Properly (P) or Improperly (I) Used
   REASON -- If Improperly Used, Give Explanation
   (e.g., Not Tethered)
   POSITION -- Check One in Two Categories
   1. F - Front Seat
      R - Rear Seat
      C - Cargo Area (Station Wagon)
      Do Not Check Following Category if Child
      Restraint Used
   2. S - Seated in a Normal Manner
      L - Held in Lap
      O - Other (e.g., Standing or Sitting on
      Front Edge of Seat)
   DRIVER -- Check One in Three Categories
   1. N - No Restraint
      B - Belt only
      H - Harness and Belt
   2. M - Male
      F - Female
   3. Y - Young (16 - 30 Years)
      M - Middle (31-50 Years)
      O - Older (51 or More)

3. Data for Drivers of Other Vehicles
   For Each Driver, Determine Restraint Usage and Place a
   Mark in the Appropriate Age and Sex Category.
   Put Maximum of Ten Marks in a Given Space.

* When data have been recorded for ten children or when
fifty drivers are recorded in any single category, it
will be necessary to start a new sheet.
APPENDIX

KENTUCKY'S CHILD SAFETY SEAT LAW
AN ACT relating to traffic safety.

Be it enacted by the General Assembly of the Commonwealth of Kentucky:

Section 1. KRS 189.125 is amended to read as follows:

(1) No person shall sell any new passenger vehicle in this state nor shall any person make application for registering a new passenger vehicle in this state unless the front or forward seat or seats have adequate anchors or attachments secured to the floor and/or sides to the rear of the seat or seats to which seat belts may be secured.

(2) Any resident parent or legal guardian of a child, forty inches (40") in height or less, when transporting his child in a motor vehicle owned by that parent or guardian operated on the roadways, streets and highways of this state, shall have such child properly secured in a child restraint system of a type meeting federal motor vehicle safety standards.

(3) As used in this section, "child restraint system" means any device manufactured to transport children in a motor vehicle which conforms to all applicable federal motor vehicle safety standards.

(4) The term "motor vehicle" as used in subsection (2) of this Act shall not apply to recreational vehicles or trucks having a tonnage rating of more than one (1) ton.

(5) Failure to wear a child passenger restraint shall not be considered as contributory negligence, nor shall such failure to wear said passenger restraint system be admissible as evidence in the trial of any civil action.

(6) KRS 189.990 and 189.993 to the contrary notwithstanding, there shall be no penalty for the violation of this section. No peace officer shall issue a uniform citation or any other citation, other than a warning, for a violation of this section nor shall any arrest be permitted for violation of this section.