

FINAL REPORT

USE OF CHILD SAFETY SEATS IN METROPOLITAN AREAS OF VIRGINIA DURING SUMMER 1994



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Abstract The Transportation Safety Administration of the Department of Motor Vehicles has, for a number of years, requested observational surveys of child safety seat use in the Commonwealth. The present survey was conducted in the summer of 1994 in the four metropolitan areas of the state where 54% of Virginia's population resides. The data were categorized as correct use, incorrect use, and no use for children judged by the survey team to be under age 4, that is, those required to be in a child safety seat under state law. Correct use was higher (70.1%) in the rear seats than in the front seats (49.3%). For the entire car, 64.0% of the children observed were in a correctly used child seat, 25.7% were not in a child seat, and 10.4% were in a seat that was obviously misused. The rate of incorrect use was probably underestimated because, with an in-traffic survey, the lap/shoulder belts holding the child seat in place cannot be checked for proper tension. The data also showed variations in the patterns of use in the four areas of the state surveyed. When the 1994 and 1993 data were compared, the total correct use rate was higher in 1994 and the incorrect use and non-use rates were lower. Although there was an overall improvement in use rates, a pattern of use has appeared: the central area has the highest rate of non-use, the western area has the highest rate of incorrect use, and the eastern area has the highest rate of correct use. It is recommended that the high rates of non-use and misuse be addressed through (1) programs that identify the problems and (2) increased education and enforcement on the part of the state and its localities. In addition, because the population of persons under age 4 is constantly changing (i.e., infants are born and others turn 4 and move out of the group), ongoing public information campaigns are required.				

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(The opinions, findings, and conclusions expressed in this report are those of the author and not necessarily those of the sponsoring agencies.)

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ABSTRACT

The Transportation Safety Administration of the Department of Motor Vehicles has, for a number of years, requested observational surveys of child safety seat use in the Commonwealth. The present survey was conducted in the summer of 1994 in the four metropolitan areas of the state where 54% of Virginia's population resides. The data were categorized as correct use, incorrect use, and no use for children judged by the survey team to be under age 4, that is, those required to be in a child safety seat under state law.

Correct use was higher (70.1%) in the rear seats than in the front seats (49.3%). For the entire car, 64.0% of the children observed were in a correctly used child seat, 25.7% were not in a child seat, and 10.4% were in a seat that was obviously misused. The rate of incorrect use was probably underestimated because, with an in-traffic survey, the lap/shoulder belts holding the child seat in place cannot be checked for proper tension. The data also showed variations in the patterns of use in the four areas of the state surveyed.

When the 1994 and 1993 data were compared, the total correct use rate was higher in 1994 and the incorrect use and non-use rates were lower. Although there was an overall improvement in use rates, a pattern of use has appeared: the central area has the highest rate of non-use, the western area has the highest rate of incorrect use, and the eastern area has the highest rate of correct use.

It is recommended that the high rates of non-use and misuse be addressed through (1) programs that identify the problems and (2) increased education and enforcement on the part of the state and its localities. In addition, because the population of persons under age 4 is constantly changing (i.e., infants are born and others turn 4 and move out of the group), ongoing public information campaigns are required.

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INTRODUCTION

Data on the use of safety belts in Virginia were first collected from 1974 through 1977 in the four metropolitan areas of the state: Roanoke/Salem/Vinton (western), Richmond/Henrico/Chesterfield (central), Norfolk/Virginia Beach/Hampton (eastern), and Fairfax County/Arlington/Alexandria (northern). Data collection was suspended from 1978 through 1982 due to a perceived lack of need by management of the state's highway safety program. With the passage of the Child Safety Seat Law in 1982 (effective date January 1, 1983) requiring safety seat use by all children under age 4, officials of the Department of Motor Vehicles requested the collection of data on the use of child safety seats. They also requested that the collection of safety belt use data be resumed at the same time. A safety belt and child safety seat survey was conducted in March 1983, with additional surveys in June and October 1983. Safety belt and child safety seat use data have been collected at least annually since then.

Over the years, the number of data collection sites was increased to make the data representative of statewide use. During the first 8 years (1974–1977 and 1983–1986), 27 urban sites were surveyed. In 1987, sites were added in communities with populations below 15,000. In 1990, sites were added in the urban areas, and in 1991 sites were added in cities with a population between 50,000 and 100,000. By 1991, there were 50 sites, and the number of sites in each area was based on the proportion of the state population that lived in the area surveyed.

With the passage of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), data collection procedures in Virginia were modified to conform to federal guidelines. The federal guidelines required that data be collected from moving vehicles, in lanes other than the curb lane, at both signalized and non-signalized intersections and that the use or non-use of the shoulder belt be considered in the determination of whether the occupant was correctly belted. The National Highway Traffic Safety Administration (NHTSA) also required that 120 randomly selected sites, statewide, be used. Failure to conform to the new guidelines would result in a state being ineligible to receive incentive funds under ISTEA Section 153. In making the required changes, Virginia lost its ability to determine child seat use rates for the same locations used for the safety belt survey because a child seat cannot be properly observed in a moving vehicle to determine the type of use.

The type of data collected also changed. Child seat use data were not collected during the first four years (1974–1977). From 1983 through 1985, child seat use was recorded as “yes” or “no,” with the “no” response including incorrect use. From 1986 to 1994, use was recorded as “correct use,” “incorrect use,” or “no use.” In 1991, data collection on the sex of the occupant was discontinued. Data collection on ethnic group was begun in 1991 and discontinued in 1993.

In these surveys, the reported use rate was influenced by a number of factors, including the way the data were recorded and the amount and type of training given to the observers (Figure 1). From 1983 through 1985, when use was recorded as “yes” or “no,” correct use varied from 57.4% to 63.9%. In 1986, the first year incorrect use was recorded separately, correct use was reported at 68.9%. In 1987, because the state safety belt task force suspected that the rate of correct use was artificially high, a special training program was conducted for the observers that emphasized checking for incorrect use and the reported rate of correct use dropped to 44.2%. Although observers undergo training every year, there has been no special emphasis on surveying for incorrect use since 1987. Over the 6 years from 1988 through 1993, reported correct use rates have varied from 57.1% to 80.8%, with the peak occurring in 1990. In 1992, the highest rate of incorrect use (17.9%) was recorded since the special training in 1987.

In-traffic surveys do not allow observers to enter vehicles to check for installation characteristics. Only non-use and misuses obvious from outside the vehicle can be determined. Thus incorrect use is likely to be underestimated because the lap/shoulder belt holding the child seat in place cannot be checked for proper tension.

As part of its training program on how to install a child safety seat, the Transportation Safety Training Center at Virginia Commonwealth University conducted a number of surveys at

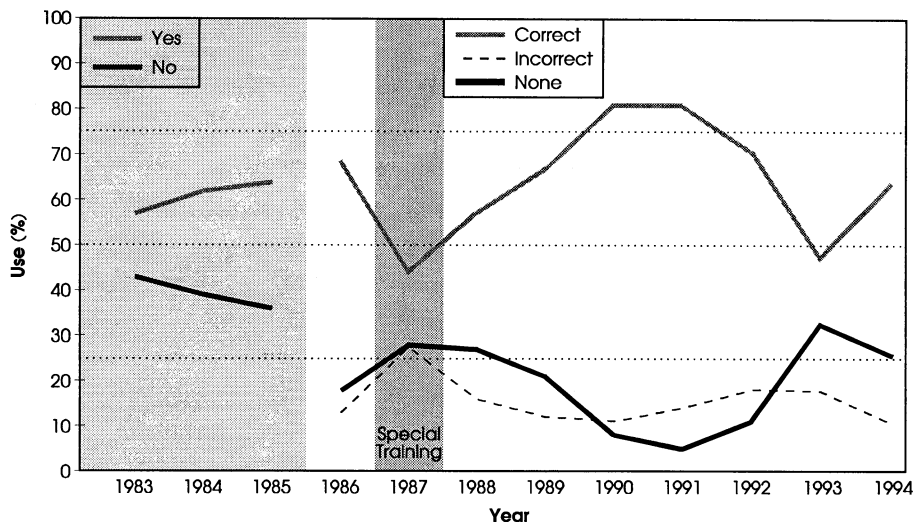


Figure 1. Rates of Child Safety Seat Use for the 1983–1994 Period

shopping centers and day care centers where trainees actually entered the car to check the child seats. In addition, the Community Traffic Safety Program in DMV District 5 (Tidewater) sponsored a number of safety seat checks in which the car was entered. These surveys were not intended to be representative of the general population of the state or of the area in which they were conducted. While acknowledging the biases in the data, both groups found an extremely high rate of misuse, with the most common (modal) rate being 88% and the misuse rate ranging from 75% to 94%. A loose lap/shoulder belt holding the child seat in position was the major reason for the misuse determination. These data probably overestimate the rate of incorrect use among the general population of the state because of the non-random and type-specific manner in which the sites and vehicles were selected and the criteria used in making the incorrect determination.

PURPOSE AND SCOPE

The Transportation Safety Administration of the Department of Motor Vehicles requested that a survey of child safety seat use be conducted during the summers of 1993 and 1994 to determine the rate of use by front-seat and rear-seat occupants of passenger cars who were under age 4. The survey was limited to the four metropolitan areas of the state, which account for 54% of the state's population.

METHOD

Data were collected at signalized intersections at 12 sites in the northern area, 11 in the eastern area, 7 in the central area, and 4 in the western area. The use of sites at shopping centers and day care centers was considered, but when a sample of these locations was checked at various times of day, either the traffic volume was inadequate or it was evident that the traffic was not representative of the socioeconomic status of the community at large.

There were two persons on each survey team. Each was trained in how to collect data, how to identify the factors that constituted correct and incorrect use, and how to estimate whether a child was under age 4. Because this was an in-traffic survey, two indices were used to help determine whether the child was under age 4. The first came from previous versions of the *Code of Virginia (Code)* in which required child seat users were defined as weighing 40 pounds or less. The second was developed as an aid to police officers, where a required child seat user was defined as being 40 inches tall or less. In this survey, if the child was judged to be under 40 inches tall, weigh less than 40 pounds, or both, he or she was assumed to be under age 4.

CHILD SAFETY SEAT SURVEY

Summer 1994

Area _____ Site _____ @ _____ Sheet # _____

Vehicle	Front Seats			Back Seats		
	Driver	Middle	Right	Left	Middle	Right
1		C I N	C I N	C I N	C I N	C I N
2		C I N	C I N	C I N	C I N	C I N
3		C I N	C I N	C I N	C I N	C I N
4		C I N	C I N	C I N	C I N	C I N
5		C I N	C I N	C I N	C I N	C I N
6		C I N	C I N	C I N	C I N	C I N
7		C I N	C I N	C I N	C I N	C I N
8		C I N	C I N	C I N	C I N	C I N
9		C I N	C I N	C I N	C I N	C I N
10		C I N	C I N	C I N	C I N	C I N

Figure 2. Survey Form for Summer 1994

Data were collected only from passenger cars in the curb travel lane (dedicated turn lanes were not considered as travel lanes), and no distinction was made between Virginia-licensed and out-of-state vehicles (the law makes no distinction between these categories of vehicles). When the cars stopped for the red signal, the observers left the curb and approached the car from the passenger side front fender. Each member of the survey team observed up to 15 cars per traffic light cycle, with traffic volume determining the number of cars surveyed. As required by state policy, each team member wore a hard hat and an orange vest.

In an effort to put the vehicle occupants at ease, the survey personnel carried a clipboard lettered on the back with the message "Child Safety Seat Survey." Upon seeing the message, many drivers lowered the car window and responded positively. No instances of a negative response were reported.

Child seat use was recorded as correct (C), incorrect (I), or non-use (N) (Figure 2). Only those features easily identifiable from outside the vehicle were used to determine whether use

was correct or incorrect. These features included the use of arm bars/shields, that the seat harness was properly clipped between the legs of the child, that the seat was facing in the proper direction for the age of the child, and that the lap/shoulder belt was routed through the child seat. For a response to be recorded as correct, all features had to be used in the correct manner. Misuse or non-use of any one feature required that the use be recorded as incorrect. Non-use was recorded if there was a child under age 4 in the car and no safety seat was present, a seat was present but was not being used, or a lap belt was being used in place of a safety seat.

In previous VTRC surveys on safety belt use in Virginia, the correct and incorrect use rates were combined into a total use figure. This was done because law enforcement officials interpreted the provisions of Section 46.2-1094 of the *Code* requiring the use of safety belts to be met by *any* belt use regardless of whether it was proper or safe. For this report, correct and incorrect use rates were *not* combined. Section 46.2-1095 of the *Code* states that a “child under the age of four [must be] *properly* (emphasis added) secured in a child restraint device.” By keeping these data elements separate, the severity of the incorrect use problem can be determined, and state programs can be developed to address this traffic safety problem.

RESULTS AND DISCUSSION

The number of recorded correct, incorrect, and non-users at each site in 1994 and 1993 is shown in the Appendix, Tables A-1 and A-2. The individual site data were combined into four area totals (northern, eastern, central, and western), and the four area totals were combined into a metropolitan total (Table A-3).

Total Car Use

When the data for all areas were combined, the correct use rate was 64.0% (Figure 3). Just over one-fourth (25.7%) were not using the required child safety seat, and 10.4% were using it incorrectly. Because only features obvious from outside the car were used in making the correct or incorrect use decision, these data probably underestimate the rate of incorrect use. A loose lap/shoulder belt cannot be identified from outside the vehicle, and this is the primary problem found by in-car safety seat checks.

When the data were considered on the basis of the metropolitan area of the state, correct use rates in the northern and western areas were nearly the same (59.6% and 58.6%). Correct use was much higher in the eastern area (78.6%) and much lower in the central area (48.8%). The rates of non-use varied from 13.8% in the eastern area to 39.0% in the central area. The non-use rate was 20.7% in the western area and 30.1% in the northern area. Incorrect use was 7.6% in the eastern area, 10.3% in the northern area, 12.2% in the central area, and 20.7% in the western area.

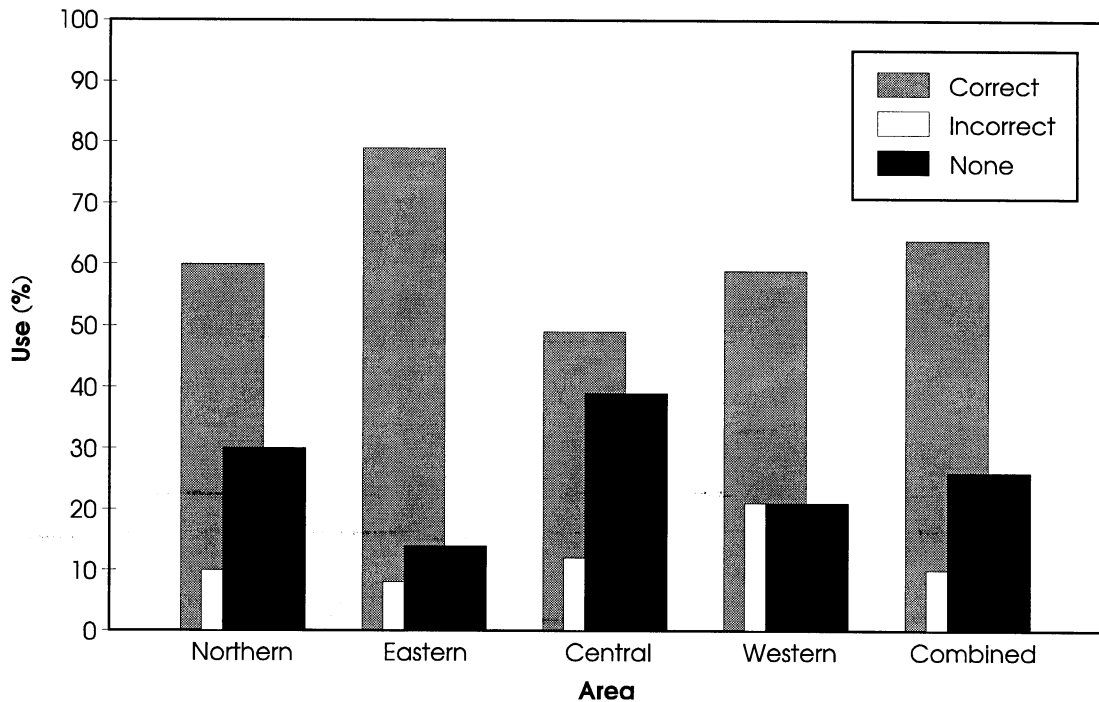


Figure 3. Rates of Child Seat Use for the Total Vehicle

When the 1994 and 1993 data were compared, the combined total correct use rate was higher (64.0% vs. 48.9%) in 1994, and the incorrect use (10.4% vs. 17.5%) and non-use (25.7% vs. 33.6%) rates were lower (Appendix, Table A-3). When the data were considered on a geographic basis, there was little change between the 2 years for all three use rates in the central area. In addition, the central area had the highest rate of non-use both years. Use rates improved in the other three areas; correct use increased from 14 to 21 percentage points, with the change resulting primarily from a decrease in incorrect use in the northern and western areas and a decrease in non-use in the eastern area.

Front Seat Use

When the data for all areas were combined, correct use was 49.3%, incorrect use was 12.7%, and non-use was 38.0% (Figure 4). There was considerable variability among use rates when the data were examined on a geographical basis. The central and northern areas had the lowest rates of correct use (43.8% and 45.6%). Correct use was 50.0% in the western area and 58.1% in the eastern area. The western area had the highest incorrect use rate (20.0%), the central area had the lowest (9.4%), and the difference between the northern (12.3%) and eastern (14.0%) area rates was small. Non-use rates were the highest in the central (46.9%) and northern (42.1%) areas and lowest in the eastern (27.9%) and western (30.0%) areas.

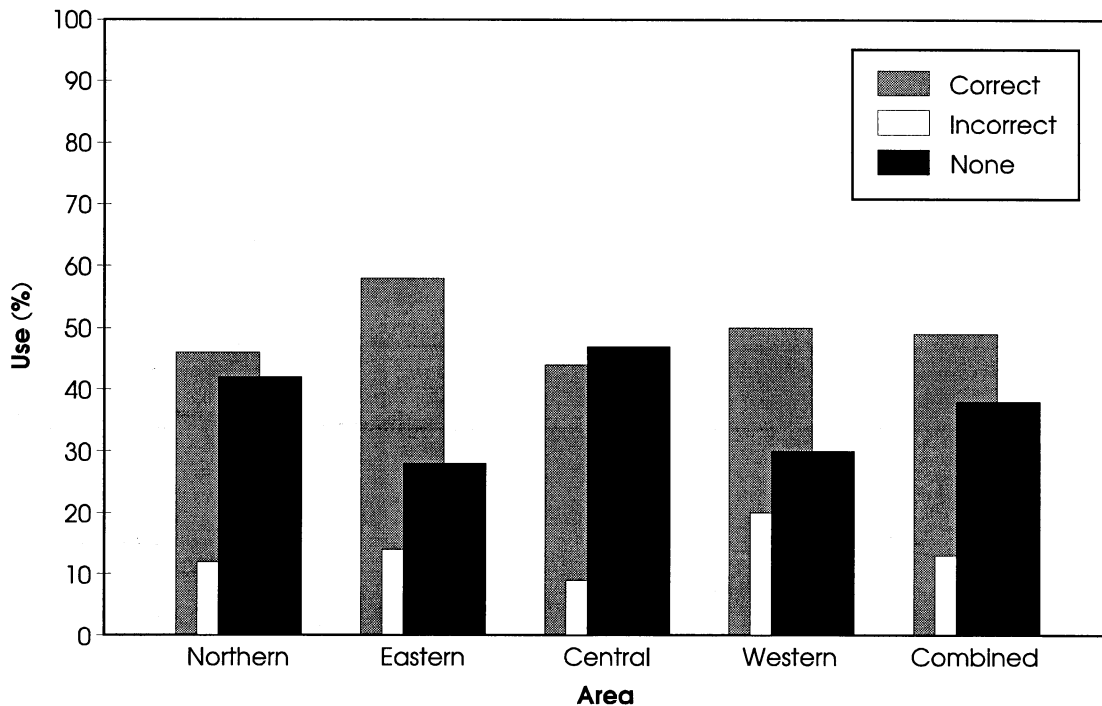


Figure 4. Rates of Child Seat Use for the Front Seats

A comparison of the 1994 and 1993 front-seat use rates showed the same overall trend as the total vehicle use rates: an increase in correct use (49.3% vs. 40.8%) and decreases in incorrect use (12.7% vs. 16.8%) and non-use (38.0% vs. 42.4%). On an area basis, correct use in 1994 was higher by 12.1 percentage points in the eastern area, 18.0 points in the northern area, and 26.5 points in the western area but lower by 11.4 points in the central area. Non-use was lower in 1994 in the northern, eastern, and western areas (2.7, 10.1, and 28.8 percentage points) but higher by 9 points in the central area. Incorrect use was lower in 1994 in the northern and eastern areas and higher in the central and western areas. Only in the northern area (15.3 points) was this change greater than 2.5 percentage points. Overall, use rates improved in 1994 in all areas except the central area.

Three factors are readily apparent from the data. First, fewer than one-third (29.4%) of the children under age 4 were riding in the front seats, possibly because there has been considerable publicity advocating the placement of children in the rear seats for added safety. Second, 38% of the children were not using the required safety seat. Third, nearly 13% of the children were in a seat that was being used in an obviously incorrect manner. Again, the magnitude of this third finding is probably underestimated.

Rear Seat Use

When the data for all areas were combined, correct use was 70.1%, incorrect use was 9.4%, and non-use was 20.5% (Figure 5). When the rear-seat data were considered on the basis of metropolitan area, correct use varied from 52.0% in the central area to 86.2% in the eastern area. The correct use rate was similar in the western and northern areas (63.2% and 64.7%). Incorrect use was 5.2% in the eastern area, 9.6% in the northern area, 14.0% in the central area, and 21.1% in the western area. Rear seat non-use also varied considerably on a regional basis. It was as low as 8.6% in the eastern area and as high as 34.0% in the central area. Non-use was 15.8% in the western area and 25.6% in the northern area.

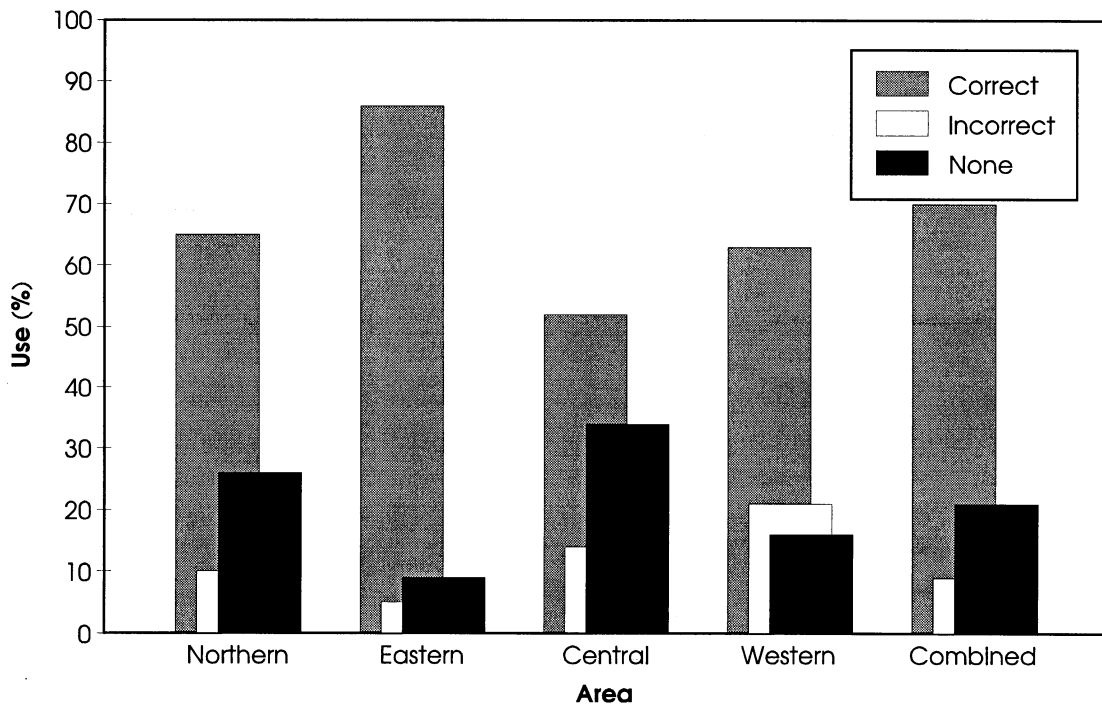


Figure 5. Rates of Child Seat Use for the Rear Seats

The results of the comparison of rear-seat use rates for 1993 and 1994 followed the same trend: a higher rate for correct use in 1994 (70.1% vs. 51.6%) and lower rates for incorrect (9.4% vs. 17.7%) and non-use (20.5% vs. 30.7%). When the data for the 2 years were considered on a geographical basis, correct use was higher in all four areas in 1994, with the difference ranging from 7.6 percentage points in the central area to 24.2 points in the eastern area. All areas had a lower rate of incorrect use in 1994, with the difference varying from 2.6 points in the eastern area to 18 points in the western area. The 1994 non-use rates were also lower in each area except the western and varied from 4.9 points in the central area to 21.6 points in the eastern area. The

1994 non-use rate in the western area was nearly double that for 1993 (15.8% vs. 8.7%). This was the only area where the rear-seat use rate did not increase in 1994.

Three factors are discernible from these data. First, correct use is greater for occupants of the rear seats (70.1%) than of the front seats (49.3%). Second, non-use is lower for the rear seats (20.5%) than for the front seats (38.0%). Third, incorrect use is higher for the front seats (12.7%) than for the rear seats (9.4%).

Summary

The findings from the survey conducted during the summer of 1994 can be summarized as follows:

- Child safety seat use was higher in the rear seats than in the front seats.
- Nearly two-thirds of the children observed were in a correctly used safety seat.
- More than one-fourth of the children observed were not using the required child safety seat.
- In 10.4% of the observations, the child safety seat was easily identified as being incorrectly used.
- Correct use was highest in the eastern area and lowest in the central area.
- Incorrect use was highest in the western area and lowest in the eastern area.
- Non-use was highest in the central area and lowest in the eastern area.
- Between 1993 and 1994, there was a major increase in the rate of correct use in the eastern, northern, and western areas.
- The increase in correct use resulted primarily from a decrease in the rate of non-use in the eastern area and a decrease in the rate of incorrect use in the northern and western areas.

CONCLUSIONS

- The rate of incorrect use is probably underestimated because, in an in-traffic survey, the lap/shoulder belts holding the child seat in place cannot be checked for proper tension. In

in-car safety seat checks, a loose lap/shoulder belt is the most common event leading to the making of an incorrect use determination.

- A yearly change of approximately one-fourth in the number of infants in the observation group, coupled with a minimal child safety seat public information effort at both the state and federal level, may result in relatively high rates of non-use and incorrect use.
- There is a need to attack the problems of non-use and incorrect use.

RECOMMENDATIONS

- Virginia should implement a comprehensive statewide educational program emphasizing the high rate of non-use, especially in the front seats, and the consequences of not having a child protected by a child safety seat.
- The state, in cooperation with local communities, should develop local programs to identify incorrect child seat use and initiate methods to correct it.
- Local education and enforcement efforts should be ongoing. Each year there is a new group of infants, and efforts to educate parents must be conducted continually.

ACKNOWLEDGMENTS

The author extends thanks to Jason Goodloe and James Jennings, who spent many hours traveling around the state, working from early morning to late afternoon, including weekends, to collect the data used in this report.

APPENDIX

**Table A-1
1994 CHILD SAFETY SEAT SURVEY RESULTS**

Site Location	Front Seat			Rear Seat			Total Vehicle		
	C*	I	N	C	I	N	C	I	N
Northern Area									
1 Rolling Road	1	0	1	11	0	0	12	0	1
2 Route 7	3	1	3	6	1	7	9	2	10
3 S. Geo. Mason	2	0	1	20	6	10	22	6	11
4 N. Glebe	2	1	0	7	0	3	9	1	3
5 Rose Hill	2	0	3	3	0	4	5	0	7
6 Jordon	0	1	4	10	3	3	10	4	7
7 Route 1	1	1	3	8	3	5	9	4	8
8 Woodbridge	4	0	1	4	0	1	8	0	2
9 Herndon	2	1	1	9	2	1	11	3	2
10 Vienna	1	1	2	12	0	1	13	1	3
11 Fairfax City	4	1	4	5	0	3	9	1	7
12 Annandale	4	0	1	6	0	2	10	0	3
Northern Area Total	26	7	24	101	15	40	127	22	64
Western Area									
1 Hershberger	0	0	1	3	2	1	3	2	2
2 Orange	0	0	1	3	0	0	3	0	1
3 Vinton	3	2	0	3	1	1	6	3	1
4 Salem	2	0	1	3	1	1	5	1	2
Western Area Total	5	2	3	12	4	3	17	6	6
Central Area									
1 Broad St.	2	0	0	1	3	0	3	3	0
2 Hull St.	1	0	4	3	1	5	4	1	9
3 Chester	1	0	4	6	2	3	7	2	7
4 Petersburg	5	1	5	7	0	4	12	1	9
5 Midlothian	1	0	0	3	0	0	4	0	0
6 Parham Rd.	4	1	1	2	1	1	6	2	2
7 9-Mile Rd.	0	1	1	4	0	4	4	1	5
Central Area Total	14	3	15	26	7	17	40	10	32
Eastern Area									
1 Independence	4	0	0	6	0	2	10	0	2
2 Kempsville	6	1	0	17	1	1	23	2	1
3 Chesapeake	0	1	3	10	0	0	10	1	3
4 Portsmouth	1	0	1	3	0	0	4	0	1
5 Route 170	2	0	0	3	1	1	5	1	1
6 Laskin	9	2	0	23	0	1	32	2	1
7 Brambleton	0	0	2	4	0	0	4	0	2
8 Mil. Circle	1	0	3	6	1	1	7	1	4
9 Denbigh	1	1	0	9	2	2	10	3	2
10 Hampton	1	0	2	9	1	1	10	1	3
11 Route 143	0	1	1	10	0	1	10	1	2
Eastern Area Total	25	6	12	100	6	10	125	12	22
Urban Total	70	18	54	239	32	70	309	50	124
Grand Total									483

*C = Correct; I = Incorrect; N = None.

**Table A-2
1993 CHILD SAFETY SEAT SURVEY RESULTS**

Site Location	Front Seat			Rear Seat			Total Vehicle		
	C*	I	N	C	I	N	C	I	N
Northern Area									
1 Rolling Road	0	3	0	12	4	0	12	7	0
2 Route 7	1	1	1	2	6	8	3	7	9
3 S. Geo. Mason	1	0	2	11	3	10	12	3	12
4 N. Glebe	0	0	0	3	2	1	3	2	1
5 Rose Hill	0	0	1	6	2	3	6	2	4
6 Jordon	1	1	1	3	1	2	4	2	3
7 Route 1	1	0	2	1	0	1	2	0	3
8 Woodbridge	0	0	0	3	1	1	3	1	1
9 Herndon	0	1	0	3	2	3	3	3	3
10 Vienna	2	1	1	4	1	5	6	2	6
11 Fairfax City	2	0	2	9	1	8	11	1	10
12 Annandale	0	1	3	2	4	3	2	5	6
Northern Area Total	8	8	13	59	27	45	67	35	58
Western Area									
1 Hershberger	0	0	2	4	1	1	4	1	3
2 Orange	1	0	0	2	3	0	3	3	0
3 Vinton	1	2	5	13	6	1	14	8	6
4 Salem	2	1	3	5	8	2	7	9	5
Western Area Total	4	3	10	24	18	4	38	21	14
Central Area									
1 Broad St.	4	0	2	0	0	10	4	0	12
2 Hull St.	1	1	1	2	1	6	3	2	7
3 Chester	4	1	2	8	3	2	12	4	4
4 Petersburg	2	0	3	1	1	7	3	1	10
5 Midlothian	2	0	2	8	3	0	10	3	2
6 Parham Rd.	2	0	1	10	3	1	12	3	2
7 9-Mile Rd.	1	0	0	3	1	2	4	1	2
Central Area Total	16	2	11	32	12	28	48	14	39
Eastern Area									
1 Independence	0	0	0	0	0	0	0	0	0
2 Kempsville	1	1	1	7	0	4	8	1	5
3 Chesapeake	3	1	1	15	0	3	18	1	4
4 Portsmouth	3	1	4	8	1	5	11	2	9
5 Route 170	1	1	0	5	1	4	6	2	4
6 Laskin	7	4	6	12	3	3	19	7	9
7 Brambleton	0	0	0	4	0	5	4	0	5
8 Mil. Circle	1	0	2	4	2	5	5	2	7
9 Denbigh	6	0	3	14	0	3	20	0	6
10 Hampton	1	0	0	8	0	1	9	0	1
11 Route 143	0	0	2	3	3	6	3	3	8
Eastern Area Total	23	8	19	80	10	39	103	18	58
Urban Total	51	21	53	195	67	116	246	88	169
Grand Total									503

*C = Correct; I = Incorrect; N = None.

**Table A-3
CHILD SAFETY SEAT USE (In %)**

1994

Total Vehicle

	Northern	Eastern	Central	Western	Combined
Correct	59.6	78.6	48.8	58.6	64.0
Incorrect	10.3	7.6	12.2	20.7	10.4
None	30.1	13.8	39.0	20.7	25.7

Front Seats

	Northern	Eastern	Central	Western	Combined
Correct	45.6	58.1	43.8	50.0	49.3
Incorrect	12.3	14.0	9.4	20.0	12.7
None	42.1	27.9	46.9	30.0	38.0

Rear Seats

	Northern	Eastern	Central	Western	Combined
Correct	64.7	86.2	52.0	63.2	70.1
Incorrect	9.6	5.2	14.0	21.1	9.4
None	25.6	8.6	34.0	15.8	20.5

1993

Total Vehicle

	Northern	Eastern	Central	Western	Combined
Correct	41.9	57.5	47.5	44.4	48.9
Incorrect	21.9	10.1	13.9	33.3	17.5
None	36.3	32.4	38.6	22.2	33.6

Front Seats

	Northern	Eastern	Central	Western	Combined
Correct	27.6	46.0	55.2	23.5	40.8
Incorrect	27.6	16.0	6.9	17.7	16.8
None	44.8	38.0	37.9	58.8	42.4

Rear Seats

	Northern	Eastern	Central	Western	Combined
Correct	45.0	62.0	44.4	52.2	51.6
Incorrect	20.6	7.8	16.7	39.1	17.7
None	34.4	30.2	38.9	8.7	30.7