

**2014 State of Colorado
CHILD SAFETY
RESTRAINT SYSTEM,
BOOSTER, AND
JUVENILE SEAT BELT
SURVEY**

**Colorado Department of
Transportation**

**SEAT BELT
STUDY**



Colorado State University

COLLEGE OF BUSINESS

Institute of Transportation Management

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PREFACE

The Institute of Transportation Management (ITM) at Colorado State University conducted a comprehensive study of child safety restraint systems (child car seats and booster seats) and juvenile seat belt usage from June 15 through 28, 2014. The survey was designed to collect and analyze data related to usage of seat belts for drivers, safety restraint systems for children (newborn - 4 years), and booster and seat belt usage for juveniles (5 - 15 years). Vehicles included in the survey were passenger cars, trucks, vans, and SUVs used for private transportation. Commercial vehicles were not included in the study.

The Institute of Transportation Management is pleased to have participated in the 2014 Colorado seat belt usage surveys. The design of this study is representative of the population movements and trends within the State of Colorado and thus provides a useful projection of actual child safety restraint system, booster, and juvenile seat belt usage. With the data and analyses emanating from this study, Colorado Department of Transportation (CDOT), Office of Transportation Safety (OTS) will have current and accurate information upon which to base future transportation safety program decisions. The data and the analyses submitted to CDOT/OTS are, to the best of my knowledge, accurate and complete.

G. James Francis
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EXECUTIVE SUMMARY

Dr. G.J. Francis served as Principal Investigator, Burt Deines as Project Coordinator, and Felicia Zamora as Field Administrator for the study. James zumBrunnen of the Graybill Statistical Laboratory in the College of Natural Sciences at Colorado State University served as the lead statistician in the analysis of the data.

As in previous seat belt usage surveys conducted by the Institute of Transportation Management, retired Colorado State Highway Patrol Officers were used as observers whenever possible. The troopers' familiarity with interstate and state highways, as well as local and county roads and safety procedures, helped to minimize potential location issues and safety problems. The patrol officers have proven to be very conscientious and reliable and have helped strengthen the validity of the results. With the involvement of the Statistical Laboratory and retired state troopers, the Institute has taken measures to ensure the integrity of the survey and analyses while involving individuals in the study who have the most relevant skills.

Observers and supervisors received training emphasizing the need for consistency and accuracy in data collection and the survey process. The observers were provided information on how to properly collect, record, and report the data. Each observer was supplied data collection sheets, maps, site locations, and the supervisor's telephone numbers to facilitate completion of the seat belt usage survey.

The *Child Safety Restraint System, Booster, and Juvenile Seat Belt Survey* was conducted June 15 through 28, 2014. This study, which was carried out immediately following the *Statewide Seat Belt Survey*, encompassed 50 sites across 20 counties with each site observed on two separate dates in consecutive weeks. During the study, 7,555 vehicles were observed.

Analyses of the data yielded the following results compared with 2013:

	<u>2014</u>	<u>2013</u>
Driver	88.8%	86.9%
Child Restraint (front/rear)	94.8%	92.7%
Child Booster (front/rear)	75.0%	71.6%
Juvenile (front/rear)	84.6%	78.0%

The data reinforces past studies in that drivers who have children as passengers tend to have a higher seat belt usage rate. Thus, the 88.8% is significantly higher for drivers in this study than the 82.4% usage rate reported in the statewide survey. The 84.6% usage rate for juveniles is a significant improvement over last year (78.0%) and better than the previous high of 80.4% in 2012. Details on the results for counties as well as variables of speed and vehicle types are presented later in this report.

RESEARCH DESIGN

The research design for this study is a statewide, multistage probability-based sample of possible observation sites. The approach utilized was originally designed by CDOT and has been adjusted to reflect the growth and shifts in the population of the State. The following steps were taken in drawing the sample sites where observations were to be conducted:

1. Selection of strata
2. Determination of sample clusters
3. Selection of observation sites

For this survey, eight strata were determined; each stratum represents a unique geographic and sociological segmentation of the State. Within each stratum, clusters, based on the identification of average vehicle miles and population, were determined. These clusters are represented by counties within the strata. Finally, the selection of specific sites within the selected counties was made. These observational sites were previously selected by CDOT and modified by the Institute of Transportation Management to reflect population growth and shifts within the State. Specifically, sites for observation and data collection were determined by the likelihood of the presence of the population to be observed. These sites allowed for proximity to the highest concentration of individuals in the age groups being studied and thus minimized observational error.

For the purposes of this survey, an observation site was defined as a specific road intersection or parking lot entrance/exit where observations take place. Observations were conducted at each site for 120 minutes once per week over the two-week time period. Thus, each site was observed twice for data collection.

The 2014 survey for children and juveniles was designed to meet the following criteria:

1. Samples were probability-based on population and vehicle miles so that estimates are therefore representative of seat belt usage for juveniles (5-15) and children who should be in child restraint systems and booster seats.
2. The sample data were collected through direct observation of seat belt usage on selected roadways and the ingress/egress of parking lots close to shopping centers, preschools, daycare centers, and locations frequented by families.
3. The populations of interest were drivers, children placed in child safety restraint systems, children in booster seats and juveniles through age 15 who were passengers of cars, vans, SUVs, and non-commercial light trucks.

4. Observations were conducted in daylight hours from 7:00 AM to 6:00 PM from June 15 through 28, 2014.
5. Observational data were recorded on counting sheets and transferred onto a summary form. The data were then transcribed to create a digital record. The digital record served as input into SAS programs for data reduction.

RESULTS

As with other seat belt usage surveys conducted in the State of Colorado, this study demonstrates some degree of “leveling” of the data over the past several years. The usage rates for 2014 showed improvements in nearly every category. Trucks remained the lowest and had some usage rates decline from 2013. Overall the results demonstrate a continued upward trend.

Analyses of State Estimates for Use of Seat Belts

Table 1 presents the summary data for 2014.

TABLE 1. 2014 Estimates for Use of Seat Belts by Drivers, Children, and Juveniles

Use of Seat Belt	Seat Belt Estimate %	Std Error	Lower Confidence Limit	Upper Confidence Limit
Driver	88.8	0.7	87.4	90.3
Child Restraint (front)	87.4	0.6	86.2	88.6
Child Restraint (rear)	95.8	0.9	94.1	97.6
Child Restraint (front/rear)	94.8	1.0	92.8	96.8
Child Booster (front)	59.2	3.8	51.8	66.7
Child Booster (rear)	78.6	1.8	75.1	82.0
Child Booster (front/rear)	75.0	1.7	71.7	78.4
Juvenile (front)	85.0	1.0	83.0	87.1
Juvenile (rear)	83.8	1.9	80.0	87.5
Juvenile (front/rear)	84.6	1.1	82.4	86.8

Children (newborn - 4 years)

The combined front and rear seat usage rate for the child safety restraint systems of 94.8% is over a 2 percent improvement from 2013. The rear seat usage rate of 95.8 is also an even larger improvement over the 2013 rate of 93.3%.

Although front seat usage shows results of 87.4%, it should be noted that this is not a legal or safe usage of car seats. The absolute number of car seats in the front seats of vehicles continues to decline as has the frequency of unrestrained children. This year there were 56 observations for children (newborn - 4 years) in front seats.

Children in Booster Seats

The first attempt to monitor the usage rate of child booster seats was in 2011. The results were quite variable by vehicle types, but the overall usage rate was 66.3%. The 2012 results showed a substantial improvement with a front/rear combined rate of 72.5%. This year the combined rate increased to 75.0%, and the back seat usage rate was 78.6%. As with the child safety restraint system, the standard error for boosters in the front seat was relatively high at 3.8. This high standard error is the result of a low number of observations of booster seats in front seats.

Juveniles (5-15 years)

In 2011, juvenile (5-15 years) combined front seat and rear seat belt usage for all vehicles was 81.8%, which was an improvement over the 2010 rate of 75.5%. In 2012, the usage rate was 80.4%, and in 2013, it was 78.0%, but the 2014 usage rate of 84.6% established a new all-time high for combined front and rear seat belt usage for juveniles.

Analyses of Estimates for Seat Belt Usage Statistics

Usage Rates by Vehicle Type

As shown in Table 2, the usage rate of child restraint systems improved in all categories except for trucks and SUVs. The small decline in trucks and SUVs actually keeps the usage rate for these vehicle types statistically the same for the last two years. The high standard error for trucks indicates a small sample, which for child safety restraint systems is a good result.

The usage rate for booster seats improved for only one vehicle type (cars). The van usage rate of 90.3% was once again the highest of all vehicle types.

Juveniles consistently have had the lowest seat belt usage of all of the age groups surveyed, but gradual improvements have made the results for this group comparable to the statewide usage rates. Light pickup trucks had the lowest rate in 2014. Vans had the highest usage rate of 93.0%, which was nearly a five point improvement over 2013.

Overall, children/juveniles who were passengers in vans are most likely to be buckled up or properly restrained in a booster or car seat compared to young occupants in other vehicle types. Trucks generally have the lowest usage rates.

TABLE 2: 2014 and 2013 Estimates of Combined Front and Rear Child Restraint, Booster, and Juvenile Usage by Vehicle Type

2014	Child Restraint Estimate %	Std Error	Lower	Upper	2013	Child Restraint Estimate %
Car	93.7	1.3	91.0	96.4	Car	89.7
Truck	84.8	9.3*	65.6	99.9	Truck	85.2
Ex-Cab	98.7	1.1	96.5	99.9	Ex-Cab	92.0
Van	100.0	0.0	100	100	Van	97.9
SUV	96.6	1.2	94.3	98.9	SUV	97.0
Crew Cab	**				Crew Cab	100.0
2014	Booster Estimate %	Std Error	Lower	Upper	2013	Booster Estimate %
Car	70.9	2.4	66.2	75.6	Car	63.3
Truck	49.3	8.1*	33.0	65.7	Truck	54.9
Ex-Cab	77.4	4.6	68.1	86.6	Ex-Cab	87.6
Van	90.3	3.0	84.3	96.3	Van	91.8
SUV	82.6	3.1	76.5	88.8	SUV	84.4
Crew Cab	**				Crew Cab	100.0
2014	Juvenile Estimate %	Std Error	Lower	Upper	2013	Juvenile Estimate %
Car	82.8	1.7	79.4	86.2	Car	73.8
Truck	75.8	3.4	69.0	82.6	Truck	74.8
Ex-Cab	80.9	3.1	74.8	87.0	Ex-cab	77.2
Van	93.0	1.7	89.7	96.4	Van	88.1
SUV	88.4	1.3	85.8	91.0	SUV	83.7
Crew Cab	**				Crew Cab	75.0

*Note: A Std Error of 5 and over is generally suspect as it indicates a small sample size.

**No crew cabs were observed in 2014.

Usage Rates by Vehicle Speed

Table 3 demonstrates the tendency to make use of seat belts and safety restraint systems when considering the usage rates at different speeds.

Child Safety Restraint (newborn - 4 years): When considering speed of vehicles for the child safety restraint system, the usage rate was 95.8% for speeds 0-30 mph and 94.3% for speeds 31-50 mph. This result is somewhat of an anomaly as a higher usage rate is usually associated with higher speeds.

Child Booster: For children in booster seats for speeds 0-30 mph, seat belt usage was 70.7%, which is essentially the same as the 2013 rate of 70.9%. This rate has essentially remained the same over the past three years. For speeds 31-50 mph, the booster usage rate was 76.1%.

Juveniles (5-15 years): The seat belt usage rate for juveniles for 0-30 mph was 78.7% and 85.4% for speeds 31-50 mph. The juvenile usage rates at 31-50 mph are higher than the statewide average. The rates are remaining relatively constant and are well above the rates of six (2009=73.7%) and seven years (2008=70.5%) ago.

TABLE 3: 2014 and 2013 Estimates of Combined Front and Rear Child Restraint, Booster, and Juvenile Usage by Vehicle Speed

2014	Child Restraint Estimate %	Std Error	Lower	Upper	2013	Child Restraint Estimate %
Speed					Speed	
0-30 MPH	95.8	1.2	93.4	98.3	0-30 MPH	93.2
31-50 MPH	94.3	1.3	91.7	96.9	31-50 MPH	92.3
2014	Booster Estimate %	Std Error	Lower	Upper	2013	Booster Estimate %
Speed					Speed	
0-30 MPH	70.7	4.3	62.1	79.3	0-30 MPH	70.9
31-50 MPH	76.1	1.8	72.4	79.7	31-50 MPH	71.8
2014	Juvenile Estimate %	Std Error	Lower	Upper	2013	Juvenile Estimate %
Speed					Speed	
0-30 MPH	78.7	2.2	74.4	83.1	0-30 MPH	78.4
31-50 MPH	85.4	1.2	83.1	87.8	31-50 MPH	78.0

Usage Rates by Weekday/Weekend

Table 4 illustrates the differences in the usage rates on weekdays and the weekend. There appears to be no predicable patterns other than seat belt usage for juveniles where the rate for weekdays has been higher than weekends for the last two years. The opposite is true for child restraint safety systems as they tend to be used at a higher rate for weekends.

TABLE 4: 2014 Estimates of Combined Front and Rear Child Restraint, Booster, and Juvenile Usage by Weekday/Weekend

2014	Child Restraint Estimate %	Std Error	Lower	Upper	2013	Child Restraint Estimate %
Weekday	94.0	1.2	91.6	96.3	Weekday	92.0
Weekend	98.2	0.7	96.8	99.6	Weekend	95.2
2014	Booster Estimate %	Std Error	Lower	Upper	2013	Booster Estimate %
Weekday	75.1	2.4	70.3	79.9	Weekday	72.9
Weekend	75.3	2.1	71.2	79.4	Weekend	68.6
2014	Juvenile Estimate %	Std Error	Lower	Upper	2013	Juvenile Estimate %
Weekday	85.7	1.4	83.0	88.4	Weekday	80.0
Weekend	82.5	1.7	79.2	85.8	Weekend	74.0

Analyses of Estimates of Driver Seat Belt Usage Statistics

Driver Seat Belt Usage by Vehicle Type

Table 5 shows a comparison of driver seat belt usage rates for 2014 and 2013. In 2014, usage rates for all vehicles improved except for trucks. The drivers of vans had the highest seat belt usage at 96.0%. Trucks dropped from 80.5% to 74.2%. Overall, the higher usage rate for this study compared to the statewide study result of 82.4% is likely due to the fact that adult drivers tend to buckle up more frequently when children are in the vehicle.

TABLE 5: 2014 and 2013 Driver Seat Belt Usage by Vehicle Type

2014	Driver Estimate	Std Error	Lower	Upper	2013	Driver Estimate
Car	86.9	1.0	84.9	89.0	Car	83.9
Truck	74.2	2.0	70.3	78.1	Truck	80.5
Ex-Cab	84.1	3.1	78.0	90.2	Ex-Cab	83.0
Van	96.0	0.7	94.6	97.4	Van	94.2
SUV	93.0	0.8	91.5	94.5	SUV	91.4
Crew Cab	*				Crew Cab	61.7

*No crew cabs were observed in 2014.

Driver Seat Belt Usage by Vehicle Speed

As shown in Table 6, the 2014 results show that there is a correlation between speed and seat belt usage. These data support the findings in the 2014 statewide study.

TABLE 6: 2014 Driver Seat Belt Usage by Vehicle Speed

2014	Driver Estimate %	Std Error	Lower	Upper	2013	Driver Estimate %
<u>Speed</u>					<u>Speed</u>	
0-30	86.3	1.5	83.4	89.3	0-30	88.0
31-50	89.3	0.8	87.6	90.9	31-50	86.5

Driver Seat Belt Usage by Weekday/Weekend

Table 7 compares weekday and weekend usage rates for drivers. Weekday rates of 90.3% represent an increase from last year’s rate of 88.5%. The weekend rate also increased from 82.3% to 85.4%. Drivers had a higher usage rate on weekdays compared to weekends. The fact that the usage rates have vacillated around a point in the mid-eighties and higher in the past three years is likely more reinforcement of the existence of a hypothetical “ceiling.”

TABLE 7: 2014 Driver Seat Belt Usage by Weekday/Weekend

2014	Driver Estimate %	Std Error	Lower	Upper	2013	Driver Estimate %
Weekday	90.3	0.8	88.8	91.8	Weekday	88.5
Weekend	85.4	1.1	83.1	87.6	Weekend	82.3

Analyses of Estimates of Child Front/Rear Seat Belt Usage Statistics

Front/Rear Child Restraint Usage by Vehicle Type

Table 8 provides comparative data between front and rear seat usage of child restraint systems for 2014 and 2013.

The restraint usage for children (newborn - 4 years) in the front seat by vehicle type is quite variable due to the small number of observations. There are fewer children sitting in front seats than in previous years. Given the small number of front seat observations (56), the data is somewhat less relevant than the results for the rear seat observations (321).

The rear seat restraint usage for children continues to remain high with vans the highest at 100%, and cars show improvement in rear seat usage rates moving from 90.3% to 94.9%. This remains the only category of the CDOT studies wherein every vehicle type was in the 90% range.

TABLE 8: 2014 and 2013 Front/Rear Child Restraint Usage by Vehicle Type

2014	Child Restraint Front				2013	Child Restraint Front Estimate %
	Estimate %	Std Error	Lower	Upper		
Car	87.7	0.3	87.1	88.3	Car	73.3
Truck	76.0	14.8*	44.4	99.9	Truck	56.3
Ex-Cab	75.0	25.0*			Ex-Cab	71.4
Van	100.0	0.0	0.0	0.0	Van	81.8
SUV	87.0	8.6*	68.3	99.9	SUV	68.4
Crew Cab	**				Crew Cab	100.0
2014	Child Restraint Rear				2013	Child Restraint Rear Estimate %
	Estimate %	Std Error	Lower	Upper		
Car	94.9	1.3	92.3	97.4	Car	90.3
Truck	94.1	6.5*	78.8	99.9	Truck	100.0
Ex-Cab	99.1	1.0	97.1	99.9	Ex-Cab	93.8
Van	100.0	0.0	100.0	99.9	Van	98.5
SUV	97.1	1.2	94.7	99.5	SUV	97.5
Crew Cab	**				Crew Cab	100.0

*Note: A Std Error of 5 and over is generally suspect as it indicates a small sample size.

**No crew cabs were observed in 2014.

Front/Rear Booster Usage by Vehicle Type

As shown in Table 9, the use of booster seats generally improved for front seats and declined for rear seat usage. While there are challenges of convincing the public to use booster seats for their children, the fact that the absolute numbers are so low for front seats may be an indication that the educational messages have been understood. The extremely high standard error reinforces the existence of small numbers of boosters in front seats.

Trucks had the lowest rates of booster seat usage for rear seats. The number of observations was so small that the standard error was 22.3%. The “rear seats” in trucks are actually jump seats that are seldom used.

TABLE 9: 2014 and 2013 Front/Rear Booster Usage by Vehicle Type

2014	Booster Front Estimate %	Std Error	Lower	Upper	2013	Booster Front Estimate %
Car	48.4	6.0*	36.3	60.4	Car	35.8
Truck	44.3	8.7*	26.5	62.1	Truck	47.3
Ex-Cab	71.8	7.1*	56.9	86.6	Ex-Cab	55.6
Van	81.5	6.0*	69.1	93.9	Van	61.0
SUV	68.6	8.3*	51.9	85.3	SUV	60.3
Crew Cab	**				Crew Cab	100.0
2014	Booster Rear Estimate %	Std Error	Lower	Upper	2013	Booster Rear Estimate %
Car	74.3	2.4	69.6	79.0	Car	69.4
Truck	46.2	22.3*	0.10	93.9	Truck	66.7
Ex-Cab	82.9	4.0	74.9	91.0	Ex-Cab	97.5
Van	91.7	3.1	85.6	97.8	Van	95.3
SUV	86.7	2.8	81.1	92.2	SUV	89.7
Crew Cab	**				Crew Cab	100.0

*Note: A Std Error of 5 and over is generally suspect as it indicates a small sample size.

**No crew cabs were observed in 2014.

Juvenile Seat Belt Usage by Vehicle Type

Table 10 illustrates the front and rear seat usage rate by vehicle type for juveniles in 2014 and 2013.

Front seat usage rates for 2014 were higher than 2013 for all vehicle types. The rate of improvement was fairly consistent across all vehicle types. Trucks had the lowest rate of improvement at 3.7%, and vans were the highest at 6.4%.

Rear seat usage rates improved in all vehicle types with the exception of trucks which dropped by 4.1 points. Vans were once again the highest with 94.4%. SUVs had the next best seat belt usage rate at 87.6%. Overall, the upward trend in seat belt usage among juveniles indicates that the education focusing upon occupant safety has been internalized by the youth of Colorado.

TABLE 10: 2014 and 2013 Juvenile Seat Belt Usage by Vehicle Type

2014	Front Seat Estimate %	Std Error	Lower	Upper	2013	Front Seat Estimate %
Car	82.8	1.4	79.9	85.6	Car	77.3
Truck	76.6	2.8	71.0	82.2	Truck	72.9
Ex-Cab	81.0	3.4	74.2	87.7	Ex-Cab	78.1
Van	92.8	1.6	89.8	95.9	Van	86.4
SUV	89.0	1.5	86.0	92.0	SUV	84.8
Crew Cab	**				Crew Cab	76.3
2014	Rear Seat Estimate %	Std Error	Lower	Upper	2013	Rear Seat Estimate %
Car	81.9	2.7	76.5	87.2	Car	65.8
Truck	75.6	15.6*	42.4	99.9	Truck	79.7
Ex-Cab	78.4	4.1	70.1	86.7	Ex-Cab	74.3
Van	94.4	2.3	89.9	98.9	Van	91.1
SUV	87.6	2.1	83.5	91.7	SUV	82.4
Crew Cab	**				Crew Cab	60.0

*Note: A Std Error of 5 and over is generally suspect as it indicates a small sample size.

**No crew cabs were observed in 2014.

2014 and 2013 County Results for Colorado

Tables 11a-11-d summarize the results by counties.

Table 11a. Front Seat and Rear Seat Combined Safety Restraint System (Child newborn – 4 years)

Counties	Safety Restraint System Estimate % (2014)	Std Error	Lower Confidence Limit	Upper Confidence Limit	Safety Restraint System Estimate % (2013)
Adams	95.7	0.8	94.0	97.5	97.3
Arapahoe	82.1	2.8	76.4	87.7	84.9
Boulder	97.4	2.3	92.6	99.9	100.0
Denver	96.7	2.0	92.6	99.9	91.2
Douglas	91.3	5.5*	79.3	99.9	85.0
El Paso	91.8	2.9	85.8	97.7	95.0
Fremont	95.7	2.6	89.5	99.9	93.9
Jefferson	99.5	0.5	98.6	99.9	98.2
Kit Carson	100.0		100	99.9	100.0
La Plata	92.0	6.8*	74.4	99.9	88.5
Larimer	98.1	1.5	95.0	99.9	100.0
Las Animas	96.7	3.7	87.8	99.9	82.1
Mesa	86.9	9.1*	65.4	99.9	94.1
Moffat	93.6	6.8*	77.0	99.9	100.0
Montrose	100.0		100	99.9	85.6
Pueblo	92.5	2.8	86.5	98.6	92.0
Rio Grande	63.6	10.1*			100.0
Summit	97.2	2.8	90.0	99.9	100.0
Weld	98.1	1.6.	94.8	99.9	100.0
Yuma	97.2	2.4	91.7	99.9	100.0

*Note: A Std Error of 5 and over is generally suspect as it indicates a small sample size. Blank cells indicate that because of small sample sizes estimates could not be made.

Of the 20 counties included in the study, two had usage rates of 100%. Fifteen counties were between 90% and 100% usage for child restraint systems, and two counties were in the eighties with only Rio Grande under 82.1% at 63.6%.

Several of the more “rural” counties had usage rates above the 90% level. Even though there were some relatively low numbers in terms of observations in rural counties, the fact that there were only three counties below 90% usage is a significant improvement.

Table 11b. Front Seat and Rear Booster Seat Combined

Counties	Booster Seat Estimate % (2014)	Std Error	Lower Confidence Limit	Upper Confidence Limit	Booster Seat Estimate % (2013)
Adams	82.1	5.8*	69.9	94.3	70.5
Arapahoe	47.7	9.5*	28.4	67.1	55.6
Boulder	80.1	5.1*	69.4	90.9	84.8
Denver	73.8	9.9*	53.7	94.0	59.9
Douglas	52.6	8.3*	34.2	71.0	49.5
El Paso	81.0	2.6	75.8	86.2	70.7
Fremont	84.2	3.6	75.4	92.9	65.8
Jefferson	84.4	4.5	75.3	93.4	85.5
Kit Carson	100.0	0.0			85.7
La Plata	9.6	7.9*			61.9
Larimer	84.2	5.3*	73.1	95.3	81.1
Las Animas	74.4	7.3*	57.5	91.3	42.2
Mesa	65.7	11.6*	41.1	90.4	92.0
Moffat	73.4	3.6	65.3	81.4	95.0
Montrose	65.4	2.4	59.9	70.9	82.4
Pueblo	74.9	1.5	71.8	78.1	59.8
Rio Grande	15.9	11.7*	0.1	44.6	68.5
Summit	90.1	8.7*	69.5	99.9	93.6
Weld	75.7	4.7	65.7	85.7	74.9
Yuma	80.8	7.4*	64.1	97.5	82.7

*Note: A Std Error of 5 and over is generally suspect as it indicates a small sample size. Blank cells indicate that because of small sample sizes estimates could not be made.

The results for the use of booster seats are perhaps more variable than any other category of this study. Usage rates range from a low of 9.6% in La Plata County to a high of 100% in Kit Carson County. The results seem to show that there are still many people who chose not to utilize booster seats for their children. Overall, some caution should be used in interpreting this data since the standard errors for 12 of the counties were greater than 5 on booster seat restraint usage estimates.

**Table 11c. Front Seat and Rear Seat Combined
(Juvenile 5-15)**

Counties	Seat Belt Estimate% (2014)	Std Error	Lower Confidence Limit	Upper Confidence Limit	Seat Belt Estimate % (2013)
Adams	69.8	3.3	62.9	76.7	63.0
Arapahoe	77.1	2.6	71.8	82.3	67.3
Boulder	92.2	2.7	86.7	97.8	93.4
Denver	71.1	3.5	64.2	78.1	67.1
Douglas	84.6	2.0	80.3	89.0	80.9
El Paso	88.8	1.8	85.3	92.4	84.3
Fremont	88.3	0.9	86.2	90.3	77.7
Jefferson	82.6	3.6	75.3	90.0	76.8
Kit Carson	96.2	4.5	85.1	99.9	85.2
La Plata	88.9	9.7*	64.0	99.9	90.1
Larimer	98.3	0.8	96.7	99.9	98.9
Las Animas	75.8	5.2*	64.1	87.6	66.0
Mesa	76.6	7.3*	61.2	92.0	77.9
Moffat	86.7	2.1	82.0	91.3	87.5
Montrose	80.9	5.1*	69.4	92.5	80.4
Pueblo	78.2	1.3	75.5	81.0	68.9
Rio Grande	95.7	3.2	88.2	99.9	96.9
Summit	95.5	4.5	85.2	99.9	91.0
Weld	97.8	1.7	94.2	99.9	99.8
Yuma	77.2	2.9	70.2	84.2	62.3

*Note: A Std Error of 5 and over is generally suspect as it indicates a small sample size.

The juvenile survey data shown in Table 11c is fairly consistent across the 20 counties. Larimer County had the highest usage rate of 98.3% with Weld and Kit Carson at 97.8% and 96.2%, respectively. Adams and Denver counties were the lowest at 69.8% and 71.1%, respectively. The juvenile data continues to improve across most counties and has obviously been impacted in a positive way by the educational efforts focusing upon early teenagers.

Table 11d. Drivers Wearing Seat Belts

Counties	Seat Belt Estimate % (2014)	Std Error	Lower Confidence Level	Upper Confidence Level	Seat Belt Estimate % (2013)
Adams	82.9	3.0	76.7	89.1	83.6
Arapahoe	88.7	1.9	84.9	92.4	85.0
Boulder	97.1	1.4	94.1	99.9	96.8
Denver	86.6	2.2	82.2	90.9	86.5
Douglas	94.1	0.9	92.1	96.0	91.4
El Paso	90.9	1.3	88.3	93.5	87.4
Fremont	90.5	0.5	89.4	91.7	80.9
Jefferson	90.5	1.0	88.5	92.5	89.9
Kit Carson	91.1	5.8*	77.8	99.9	91.2
La Plata	95.2	3.9	85.6	99.9	92.4
Larimer	96.5	0.9	94.6	98.3	98.2
Las Animas	79.3	3.7	71.0	87.6	76.2
Mesa	86.3	3.3	79.5	93.2	89.1
Moffat	82.7	2.9	76.1	89.2	89.8
Montrose	87.0	2.2	82.1	91.9	87.4
Pueblo	81.2	1.0	79.0	83.3	78.2
Rio Grande	95.2	2.0	90.5	99.9	97.8
Summit	98.4	1.0	96.2	99.9	99.0
Weld	95.5	1.3	92.8	98.1	98.6
Yuma	76.8	8.2*	58.2	95.4	82.3

*Note: A Std Error of 5 and over is generally suspect as it indicates a small sample size.

The results for driver seat belt usage are shown in Table 11d. Only three counties had usage rates lower than the 82.4% rate of the statewide survey. All three counties, Las Animas, Yuma, and Pueblo, are mostly rural in nature. Eleven of the counties were over 90% with Summit County having the highest rate of 98.4%. Weld County at 95.5%, Larimer County at 96.5%, and Boulder County at 97.1% were also among the highest usage rates. As noted earlier in the report, it appears that drivers tend to buckle up more consistently when children are in the car. The much higher usage rates for drivers in this study compared to the pre-mobilization and statewide surveys reinforces this assumption.

CONCLUSIONS

The 2014 child/juvenile study shows some improvement of the usage rates across all categories. There was improvement in the rates for child restraint systems, the driver and juvenile seat belt usage rates, and booster usage. The usage rate of 88.8% for drivers was much higher than the 82.4% reported for the recently completed statewide study. Overall, the improvements in all categories were the most significant in recent years.

For 2014, the child safety restraint system usage improved to 94.8% from 92.7% in 2013 and established a new all-time high. The combined front and rear seat belt usage for juveniles went up from 78.0% to 84.6%. Booster (front/rear) seat usage was 75.0%. The goal to have fewer children in boosters in the front seat is being accomplished as the absolute numbers in the front seat continue to decline.

With regard to vehicle types, vans have the highest usage rate for all three groups studied. Car seats were at 100%, booster seats 90.3%, and juveniles had a usage rate of 93.0% in vans. SUVs had the second highest usage rate and showed improvement in all children's age groups with a high of 96.6% for car seats. Cars continued to improve for car seat usage, booster seats, and juvenile seat belts with car seats being the highest at 93.7%. Light trucks remained the lowest in usage rates but showed improvement in booster and juvenile seat belt usage.

Seventeen of the 20 counties surveyed were above the 90% rate for safety restraint systems. Two of the three counties with usage rates below 90% had relatively small sample sizes and reported high standard errors. The upward trend within most counties is especially true for the usage rates of drivers as only two were lower than the statewide rate of 82.4%.

The data, overall, should be considered as quite positive as there were all-time highs in several categories. Usage rates for child safety restraint systems are especially encouraging with a combined front and rear seat rate of 94.8%. Investing sufficient resources to continue making gains is understandably somewhat onerous. As stated in earlier reports, the costs involved to improve usage rates are increasing rather dramatically at the margin. The results for 2014, however, do demonstrate that the positive gains are cumulative and build upon each year's investments.