

Kansas
Occupant Protection Observational Survey
Supplementary Analyses

2017 Child Study

Submitted To:
Kansas Department of Transportation
Bureau of Transportation Safety and Technology

Prepared by:
DCCCA
1739 East 23rd Street
Lawrence, KS 66046

June 13, 2017

Table of Contents:

Summary 3

Method 4

Results 5

 Multi-Year, Weighted Data 5

 General Statewide Child Safety Belt Trends 5

 Statewide Child Safety Belt Trends by Age Group 6

 Belt Use Rates by County 7

 2017 Unweighted Data 9

 Types of Vehicles in the 2017 Survey 9

 Differences in Child Restraint Use Rates by Vehicle Type..... 9

 Belt Use Rate Among Drivers of Vehicles Carrying Children..... 10

 Driver Gender of Vehicles Carrying Children 10

 Child Restraint by Driver Gender 10

 Types of Restraint Observed..... 11

 Ages Groups Observed 11

 Child Position in Vehicle 12

 Child Restraint by Vehicle Position..... 12

 Percentage of 0-17 Year Old Children Driving Observed Vehicle 13

 Percentage of 15-17 Year Old Children Driving Observed Vehicle 13

 Child Restraint when Child is Driver..... 13

 Percentage of Young Drivers Distracted While Driving 14

 Restraint Rate if Driver is Belted..... 14

Data Reliability 15

Summary

The state-wide estimate of seatbelt use among Kansas children (0-17) as observed in 2016-2017 is about 88.4%.

The 0-4 age group is buckled up at the highest rate, at about 97.8% while the gaps between the 5-9, 10-14 and the 15-17 age groups have narrowed to a point where all three groups produced a belted rate of about 85%.

In 2008, a change in Kansas law prompted the inclusion of the 15-17 age group to the annual Kansas Child Occupant Protection Observational Survey, which now collects data on the entire 0-17 year old spectrum. Since 2008, seatbelt use among Kansas children has continued to increase over time:

Belt use within the 0-4 age group has increased by about 2 percentage points.

Belt use within the 5-9 age group has increased by nearly 12 percentage points.

Belt use within the 10-14 age group has increased by about 18 percentage points.

Belt use within the 15-17 age group has increased by nearly 24 percentage points.

Excluding the 15-17 year old age group added to the study in 2008 allows for a longer time period for comparison. In 2016-2017, the state-wide estimate for 0-14 year olds is 89%, as compared to the first child survey, conducted in 2002-2003, which found belt use rate among 0-14 year olds at approximately 55%.

Historically, trend data indicates that, in general, children in urban counties are buckled up at a higher rate than in rural counties. In the 2016-2017 study, the average rate of child seatbelt use in urban counties is about 89%, while the average in rural counties is approximately 83%.

This study has also found children are much more likely to be buckled up if the driver is also belted. If the driver is belted, about 96% of children in the vehicle are also belted. If the driver is not belted, only about 23% of the observed children were belted.

Distracted driving (cell phone use, texting and other distractions) was added to the study in 2010. The 2017 results indicate a slight decline in observed distractions from the previous year. About 8.2% of 15-17 year old drivers were observed to be distracted in some way, while about 91.7% were observed as having no distraction.

Method

The Child Occupant Protection Observational Survey is conducted annually and includes sites located in 20 Kansas counties. The counties were randomly selected in 2002 based on the National Highway Transportation Safety Administration (NHTSA) approved Uniform Criteria observational study methodology applicable at the time.

Three primary groups have been observed since 2002: children ages 0-4, 5-9, and 10-14. Beginning in 2008, the additional age group of children ages 15-17 was added based on a change in Kansas statute making drivers in this age group subject to a primary safety belt law.

To measure belt use among the 15-17 age group, 48 new, randomly selected sites were added in 2008.

Sites are comprised of neighborhoods where children within these age groups are likely to be. This include areas of grocery and general-purpose stores, day-care/preschool areas, elementary school neighborhoods, middle-school/junior high neighborhoods, and high school neighborhoods.

The number of actual observation sites varies from year to year due to school consolidation, business closings, and the highly fluid nature of licensed daycares.

For purposes of data stability, the data from the two most recent years are combined to produce the annual state-wide estimate.

The data are corrected for over and under reporting by age group using census figures which weight the age groups by the proportions they represent in the general population of the observed counties, by the proportions they represent in the urban/rural counties, and by the proportions these age groups represented in the counties that contain 85% of the state population.

The 2017 study is comprised of 15,923 child observations at 391 unique sites.

Number of Children Observed			
Age Group	Year		
	2016	2017	2016 + 2017
0-4	2,634	2,004	4,638
5-9	4,338	4,019	8,357
10-14	4,749	4,389	9,138
15-17	5,877	5,511	11,388
Totals	17,598	15,923	33,521

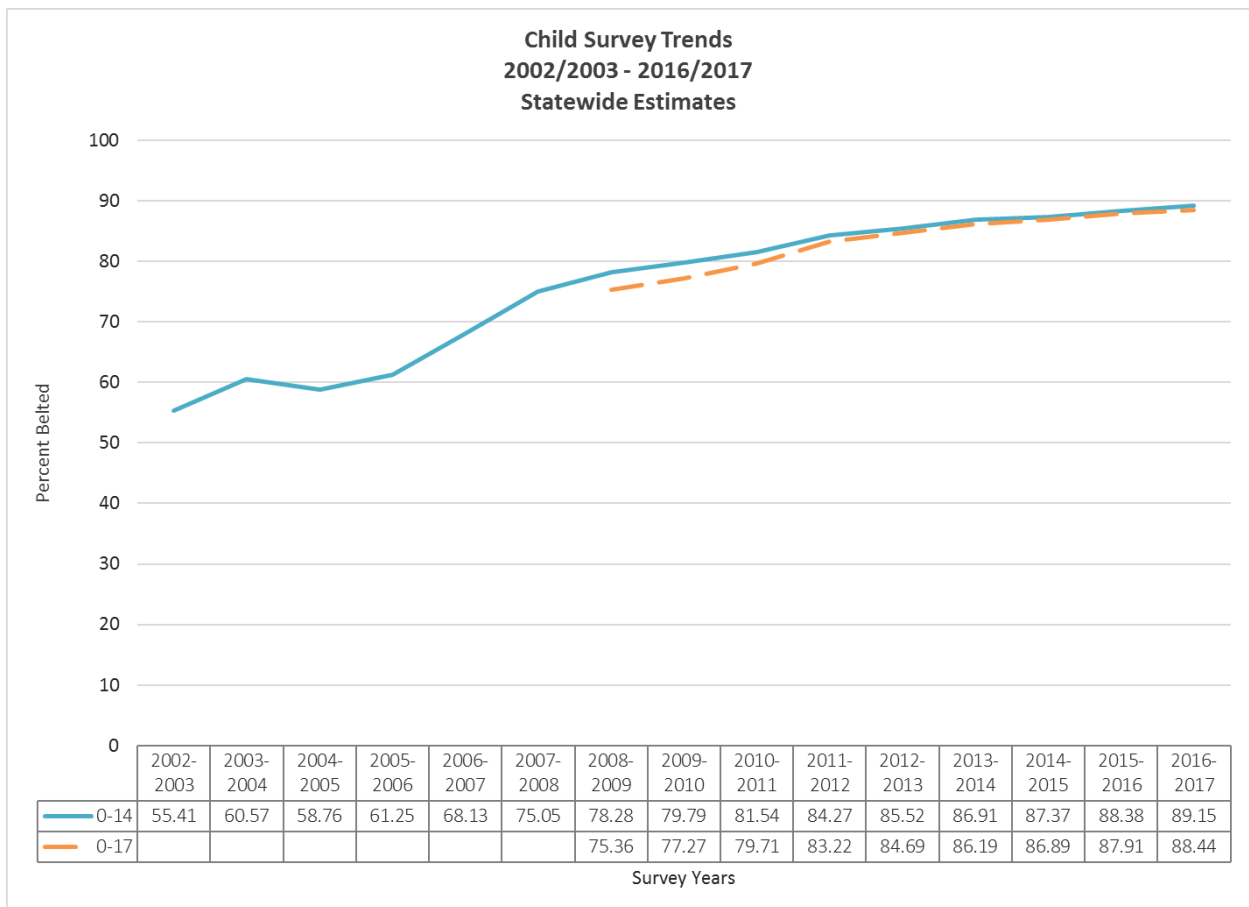
Results

Multi-Year, Weighted Data

General Statewide Child Safety Belt Trends

There has been a general increase in child restraint use since 2002. Estimated safety belt usage among those 0-14 years old is 89.15 percent, an increase of nearly 34 percent since 2002.

Safety belt usage among all children 0-17 years old is an estimated 88.44 percent, an increase of 13 percent since the age range of the study was expanded in 2008 to include 15-17 year olds.

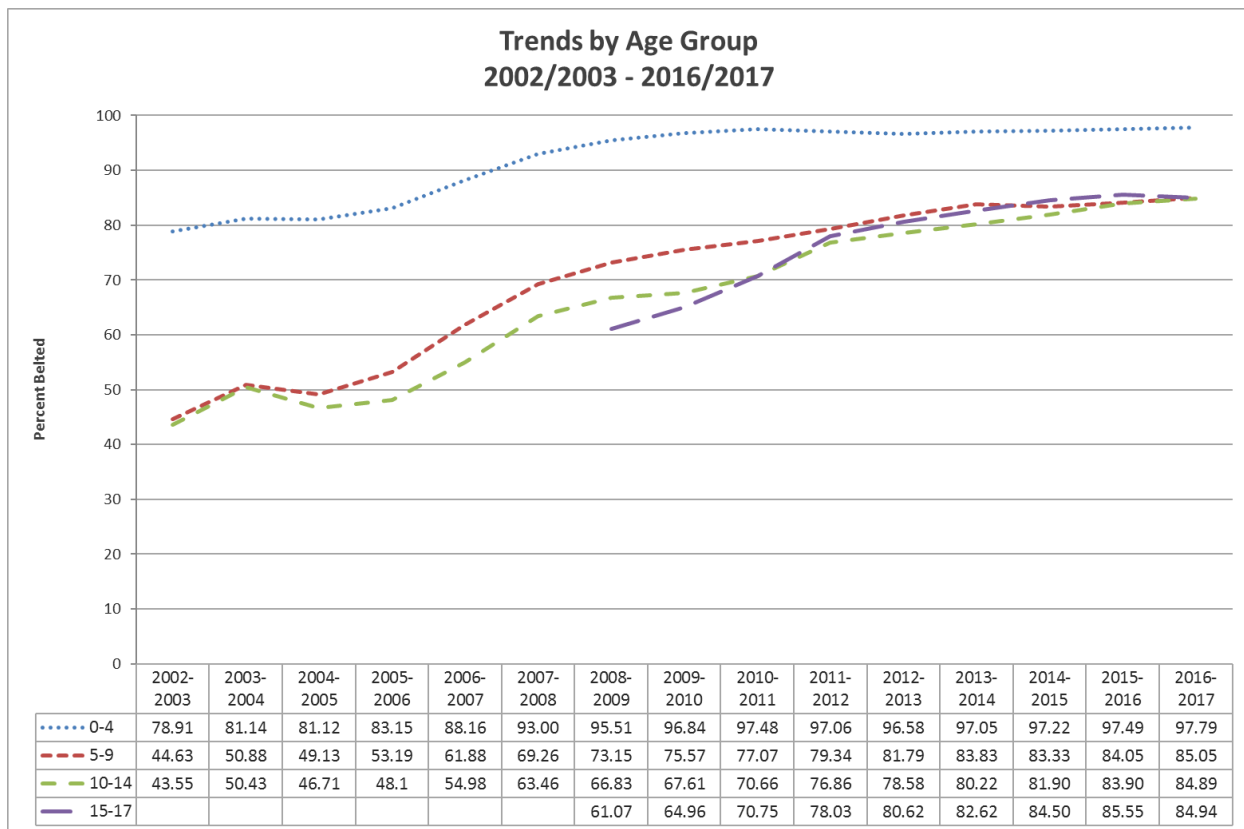


Statewide Child Safety Belt Trends by Age Group

Historically, the younger the child, the more likely they are to be observed belted. The 0-4 age group has always produced the highest rate of restraint which, since 2009-2010, has remained relatively stable between approximately 96 and 97 percent.

Belt use rates among the 5-9, 10-14 and the 15-17 age groups has converged at an estimated 85 percent. This converging trend had been identified in the previous year's analysis.

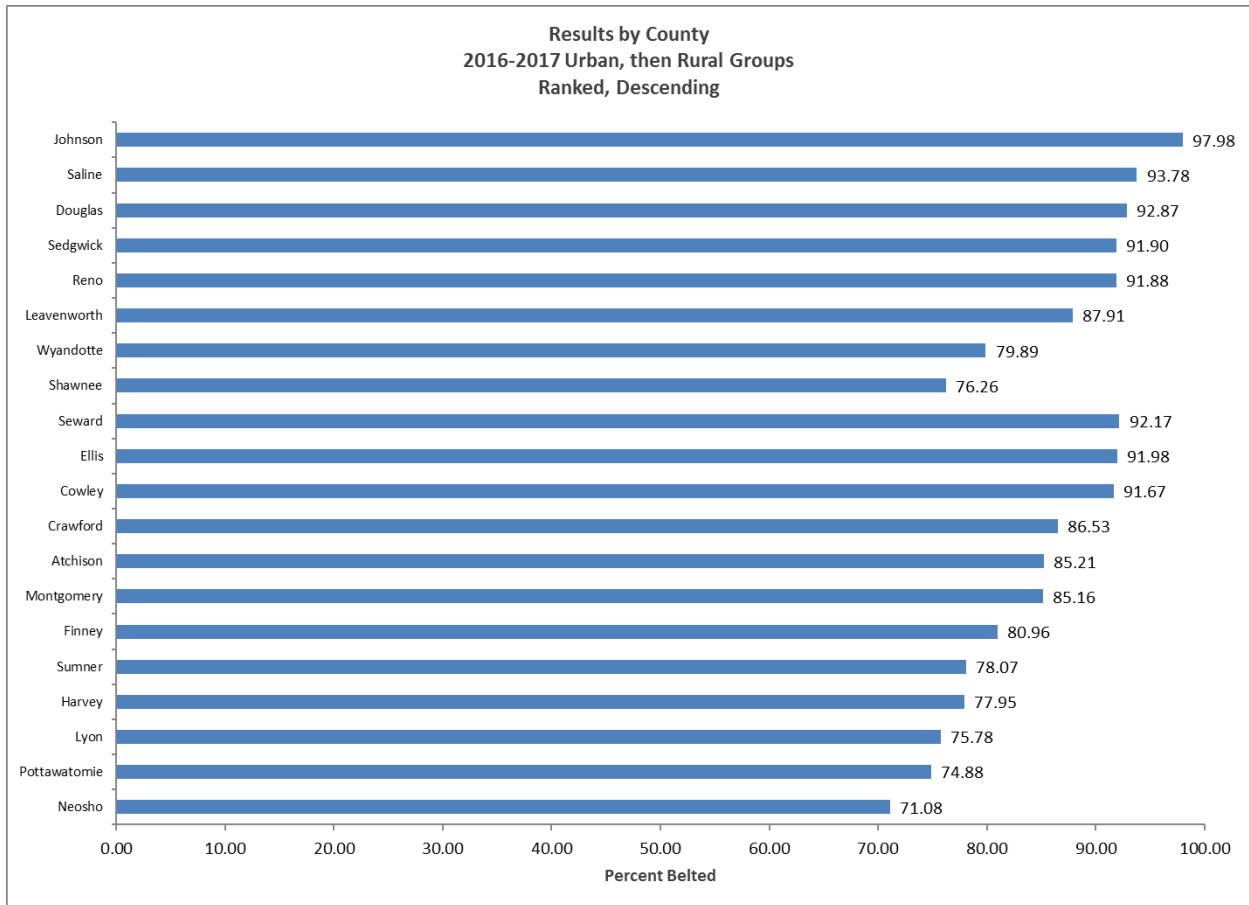
The only age group found to have slightly fallen in belt usage in the 2016-2017 study is that of 15-17 year olds with a slight decrease of less than a percentage point.



Belt Use Rates by County

In general, children in urban counties are buckled up at a higher rate than in rural counties. The average among urban counties is about 89 percent, while the average among rural counties is about 83 percent.

Among urban counties, Johnson County children were buckled at the highest rate (98%), while children in Shawnee County were buckled at the lowest rate (76%). Among rural counties, Seward County children were buckled at the highest rate (92%), while children in Neosho County were buckled at the lowest rate (71%).



The following table displays the results from each county, for the past five years, ranked ascending, (based on 2016-2017 results) within rural and urban groups. These years contain all ages, 0-17.

CHILD RESTRAINT USE						
Ranked, Rural/Urban						
then Ascending						
		2012 plus 2013	2013 plus 2014	2014 plus 2015	2015 plus 2016	2016 plus 2017
Urb/Rur		<i>Age Prop Weighted</i>	<i>Age Prop Weighted</i>	<i>Age Prop Weighted</i>	<i>Age Prop Weighted</i>	<i>Age Prop Weighted</i>
R	Neosho	58.06	67.11	68.32	65.79	71.08
R	Pottawatomie	76.16	72.53	72.66	71.99	74.88
R	Lyon	71.83	70.42	72.19	74.17	75.78
R	Harvey	69.00	68.33	67.17	72.36	77.95
R	Sumner	80.69	81.75	83.58	77.98	78.07
R	Finney	78.15	74.06	69.72	74.87	80.96
R	Montgomery	81.19	83.94	90.68	90.97	85.16
R	Atchison	81.73	91.43	96.49	92.78	85.21
R	Crawford	84.90	89.10	86.94	84.74	86.53
R	Cowley	82.94	85.45	88.73	91.38	91.67
R	Ellis	86.85	89.94	91.57	91.74	91.98
R	Seward	87.18	90.06	90.94	93.00	92.17
U	Shawnee	71.25	72.23	72.48	73.47	76.26
U	Wyandotte	84.24	83.18	75.80	76.11	79.89
U	Leavenworth	88.50	88.71	85.31	88.10	87.91
U	Reno	83.85	85.07	85.37	86.92	91.88
U	Sedgwick	87.56	89.78	92.97	93.95	91.90
U	Douglas	95.80	96.70	97.78	95.45	92.87
U	Saline	88.63	90.68	91.95	94.03	93.78
U	Johnson	91.97	94.38	95.97	97.52	97.98
	Average	81.52	83.24	83.83	84.37	85.20
	SD	8.83	9.19	10.31	9.89	7.80
	Average Rural	78.22	80.34	81.58	81.81	82.62
	Average Urban	86.48	87.59	87.20	88.19	89.06

2017 Unweighted Data

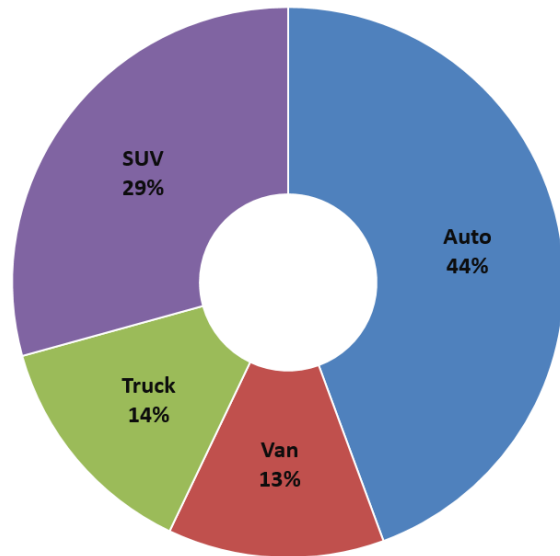
Unweighted results only include data collected in 2017. They are not statistically adjusted for over or under representation and include all 0-17 age groups.

Types of Vehicles in the 2017 Survey

Children are most often observed in automobiles (44%), followed by SUV's (29%) trucks (14%), and vans (13%).

Vans are continuing to decline in numbers on the road, replaced by trucks and SUVs.

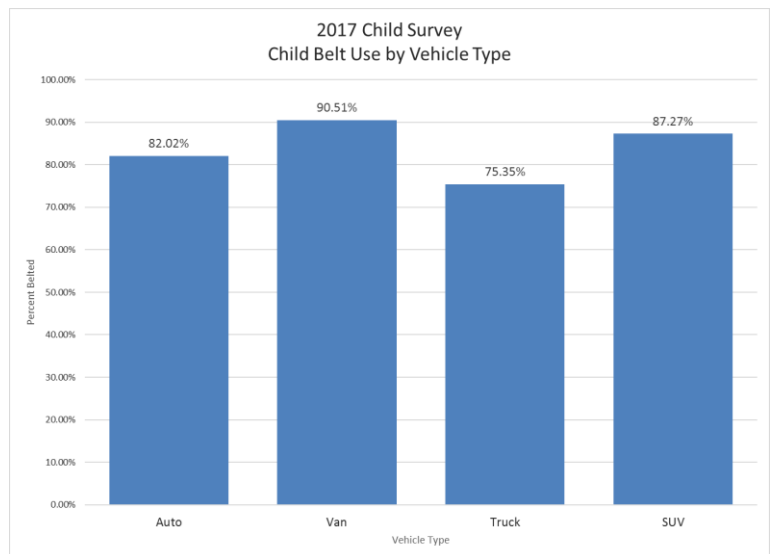
2017 Child Survey
Proportions of Vehicles Observed



Differences in Child Restraint Use Rates by Vehicle Type

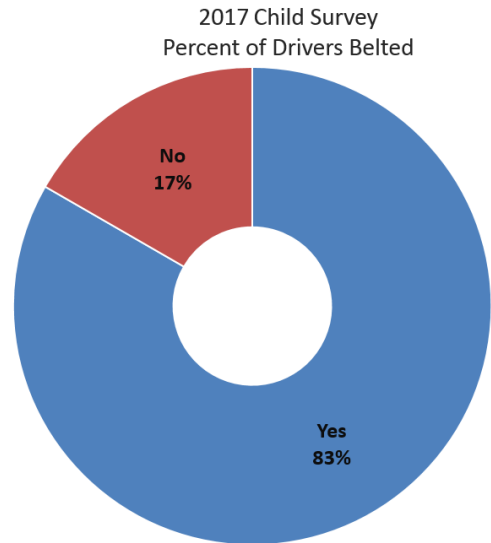
Children are buckled up at the highest rate in vans (90%), followed by SUVs (87%), then autos (82%), and finally, trucks (78%).

2017 Child Survey
Child Belt Use by Vehicle Type



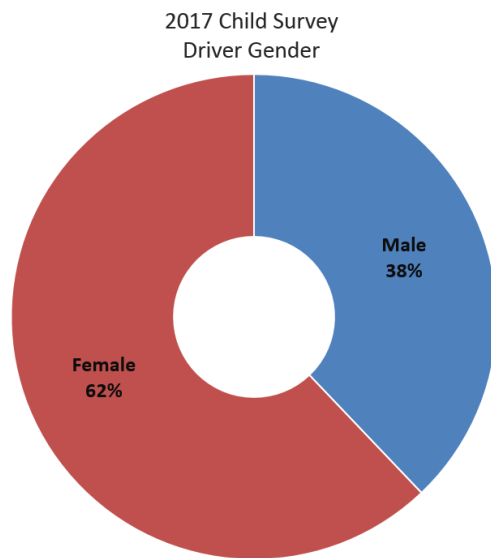
Belt Use Rate Among Drivers of Vehicles Carrying Children

About 83% of drivers in vehicles carrying children were belted, while about 17% of drivers were not belted.



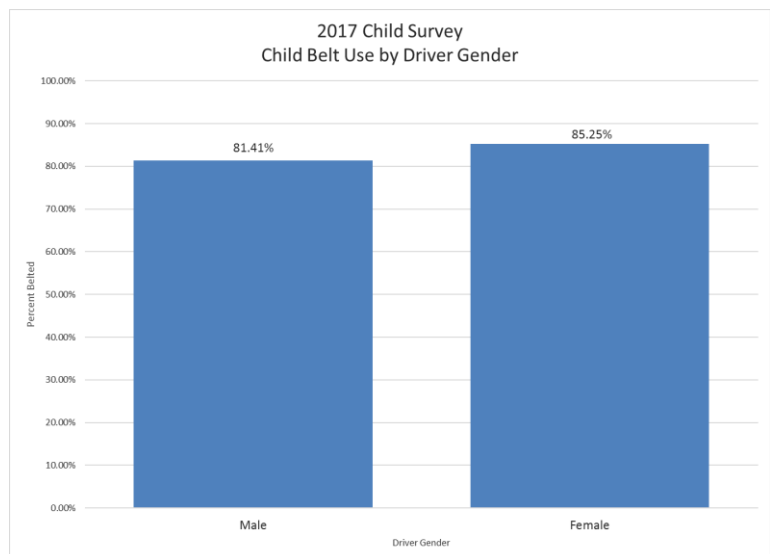
Driver Gender of Vehicles Carrying Children

Women (62%) are more likely to be driving the vehicle carrying children. Men were driving about 38% of observed vehicles.



Child Restraint by Driver Gender

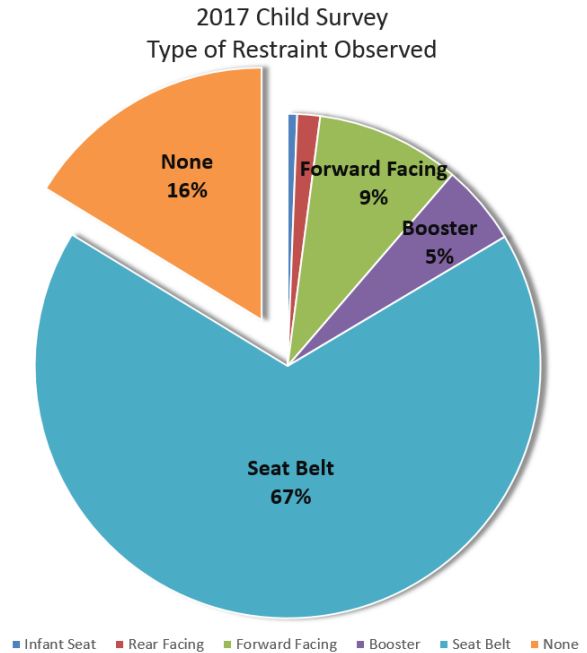
Children are buckled up at a higher rate when riding with female drivers (85%) as opposed to male drivers (81%).



Types of Restraint Observed

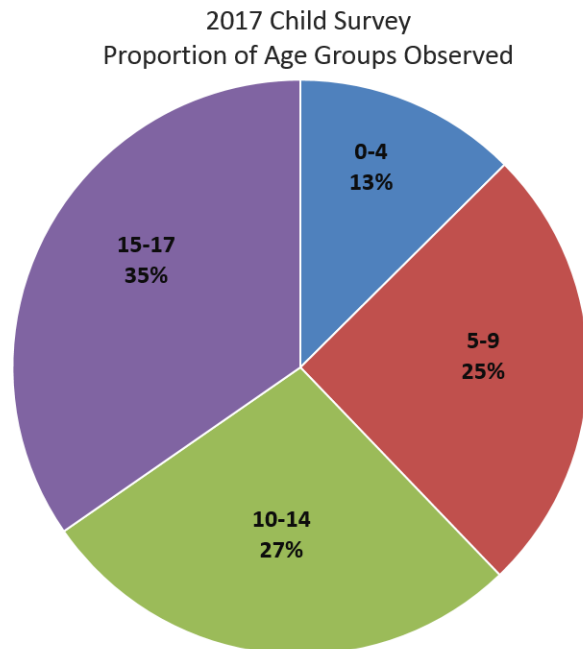
Less than 1% of the observed children were in infant seats. About 1.5% were in rear-facing seats. About 9% were observed in front-facing seats, while about 5% were in booster seats. About 67% were observed in safety belts.

Approximately 16 percent of children were not restrained. About 84% were using some type of restraint (all seat types combined).



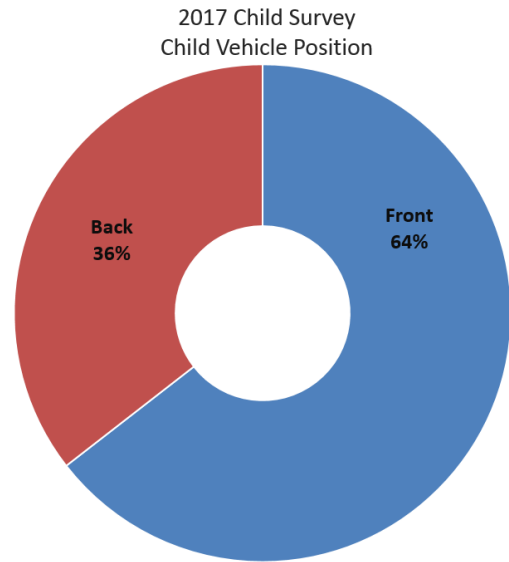
Ages Groups Observed

About 13% of the children observed were in the 0-4 age group. The 5-9 age group contributed about 25% of the observed children. The 10-14 age group contributed about 27% of the observed children, while the 15-17 age group was the largest group observed and comprised about 35% of the total.



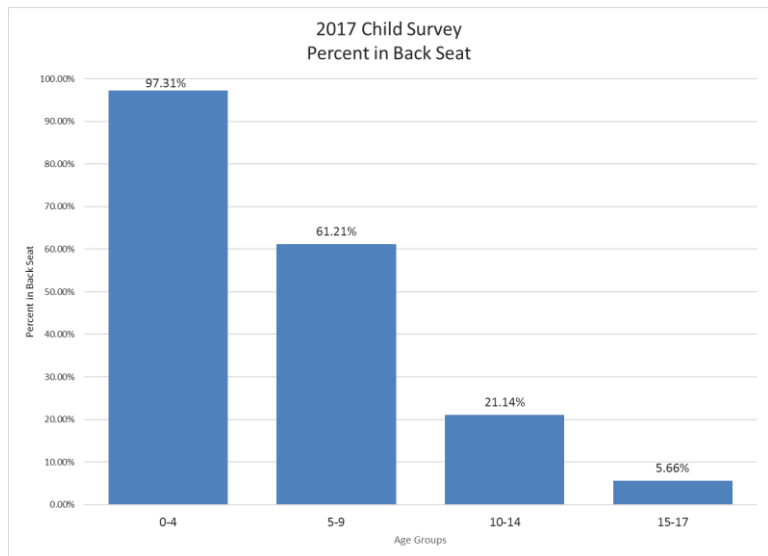
Child Position in Vehicle

About 64% of observed children were riding in the front seat, while about 36% of the observed children were riding in the back of the vehicle.



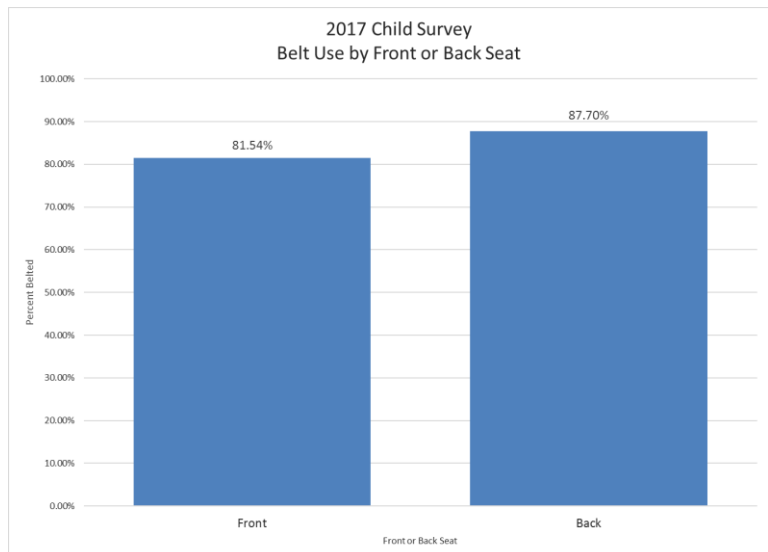
The percentage of children observed in the back seat decreases with age.

About 97% of the 0-4 age group are observed in the back seat, followed by the 5-9 age group (61%), followed by the 10-14 age group (21%), followed by the 15-17 age group (6%).



Child Restraint by Vehicle Position

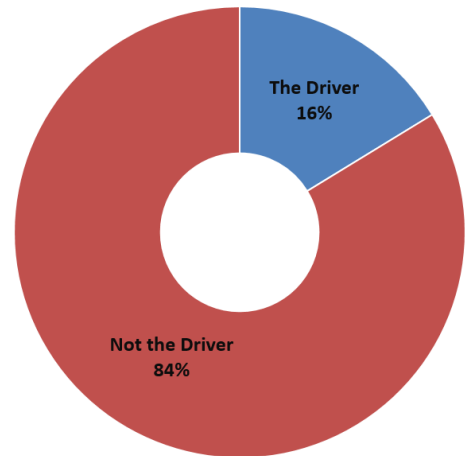
About 81.5% of children observed in the front seat were buckled up, while about 88% of those observed in the back seat were buckled. Front seat belt use is lower than use in the back seat for children.



Percentage of 0-17 Year Old Children Driving Observed Vehicle

About 16% of 0-17 year old children were driving the observed vehicle, while most children observed (84%) were not the driver.

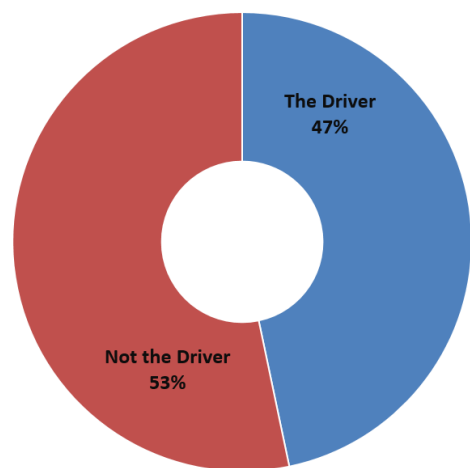
2017 Child Survey
Percent of Observed Children (0-17)
Who Were the Driver



Percentage of 15-17 Year Old Children Driving Observed Vehicle

About 47% of the observed 15-17 year old children were driving the observed vehicle, while 53% were not the driver.

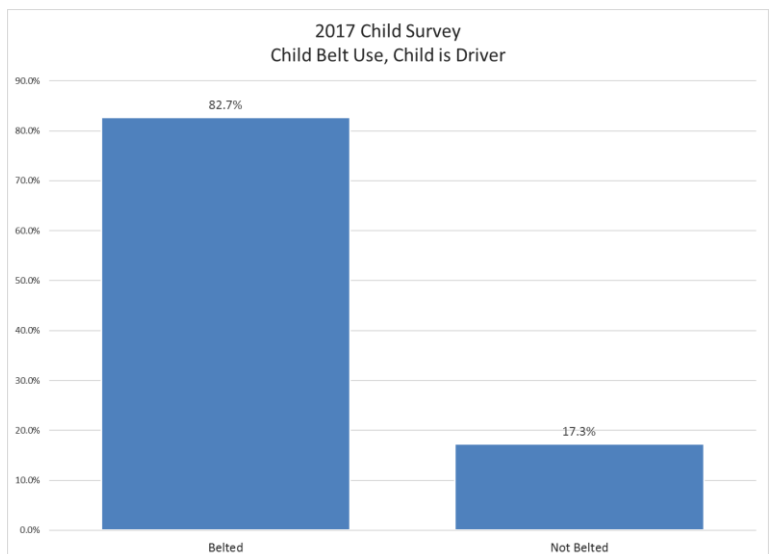
2017 Child Survey
Percent of Observed Children (15-17)
Who Were the Driver



Child Restraint when Child is Driver

When the observed child was also the driver of the vehicle, they were found to be belted approximately 83% of the time.

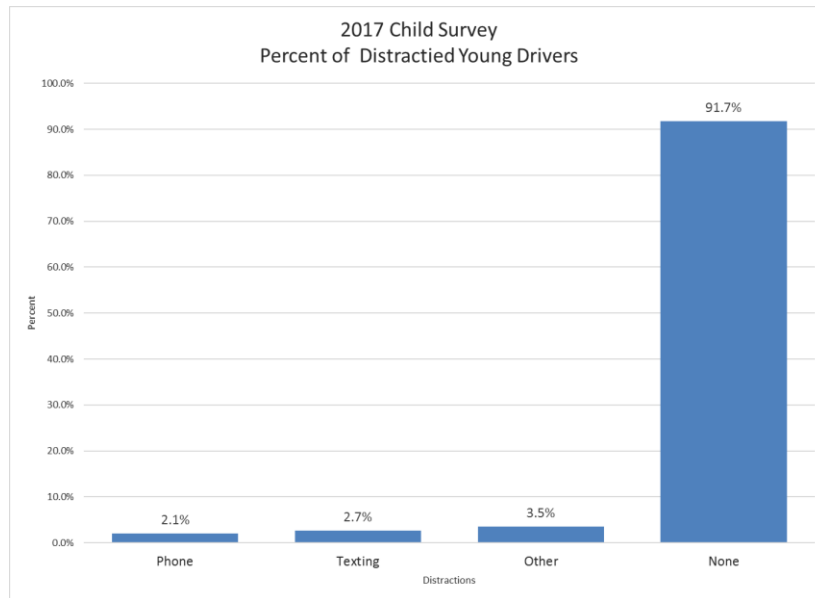
2017 Child Survey
Child Belt Use, Child is Driver



Percentage of Young Drivers Distracted While Driving

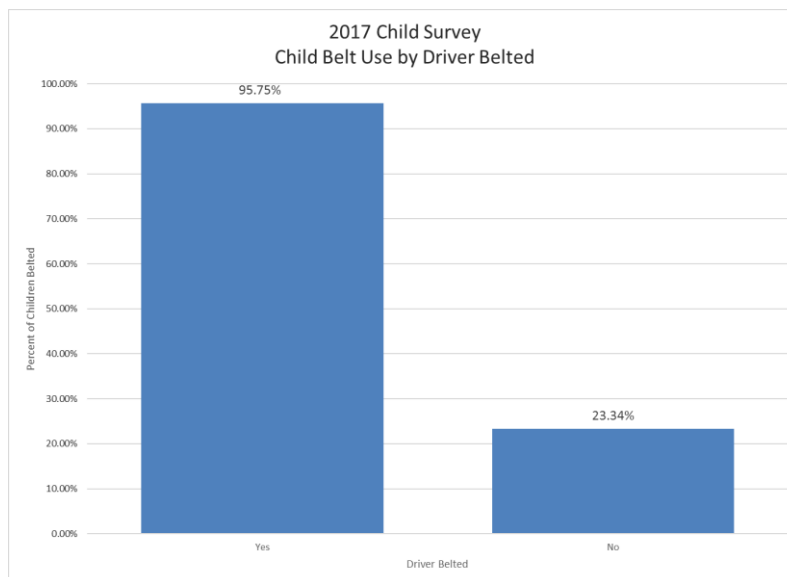
About 2% of young drivers were observed to be using a cell phone, while about 2.6% were observed texting. About 3.5% were observed as “Other Distractions” (i.e., eating, operating the radio/audio device, looking for something on or under the seat, etc.).

About 92% of young drivers were observed to have “No Distractions”.



Restraint Rate if Driver is Belted

Children are *much* more likely to be buckled up if the driver is also belted. If the driver is belted, about 96% of the children are also belted. If the driver is not belted, only about 23% of the observed children were belted.



Data Reliability

Reliability data was collected at 9 sites comprising 2,142 separate observations. Observers had an overall agreement rate of 95%. Agreement within data categories ranged from 93% agreement on age of the child to 98% agreement on driver's gender.

$(\text{Agreements} / (\text{Agreements} + \text{Disagreements})) \times 100 = \text{Percent Agreement}$

