

Iowa's 2011 Child Passenger Safety Survey Project

Conducted by the

University of Iowa Injury Prevention Research Center

Under contract to Iowa Governor's Traffic Safety Bureau

Background:

Since 1985, Iowa has had a law requiring all young children riding in motor vehicles to be properly protected through the use of child seats, booster seats, and/or seat belts. In 2004 and again in 2009, the Iowa Legislature revised the requirements of our child passenger safety law. Iowa's current child passenger safety law requires that:

- Children must ride in an appropriate rear-facing child safety seat until one year of age and at least 20 pounds.
- Children must ride in a child safety seat or a booster seat through the age of 5 years.
- Children ages 6 through 17 must ride in a booster seat and/or seat belt.

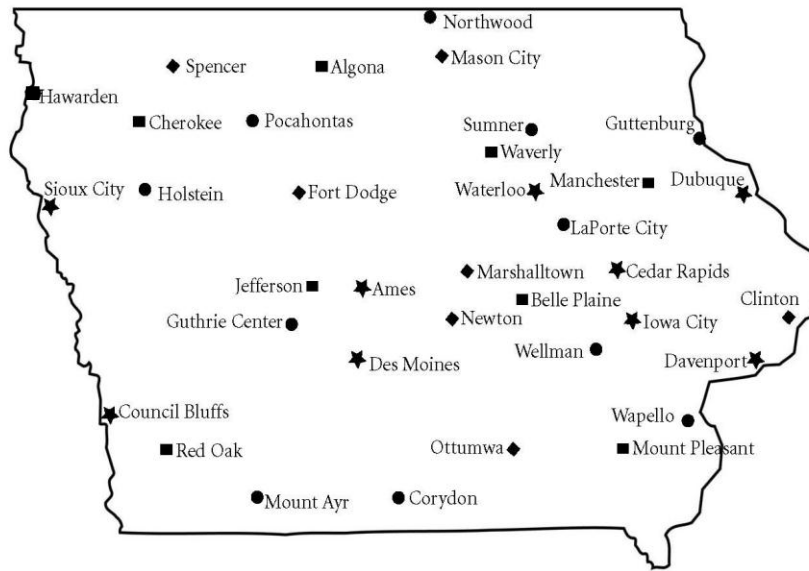
In order to measure compliance with the law and to direct educational efforts, observational usage surveys have been conducted annually since 1988. The surveys are funded by the Governor's Traffic Safety Bureau (GTSB) within the Iowa Department of Public Safety. The GTSB has contracted with The University of Iowa Injury Prevention Research Center (UI IPRC) to conduct these child passenger safety surveys since 1996.

Introduction:

In an effort to accurately determine compliance with Iowa's child passenger safety law, in particular the requirement for use of booster seats, observers must be able to obtain a clear view into the vehicle. Therefore since the 2005 survey the basic protocol has been changed from the previous "drive-by" observational methodology to a more "in-person" approach. Also since the original survey design had not been updated since the 1980s it was decided that the entire Iowa Child Passenger Restraint Survey would be reassessed to ensure the results are a statistically valid representation of Iowa's total population mix. A workgroup consisting of UI IPRC faculty and staff joined by colleagues from the GTSB and Blank Children's Hospital was convened in early 2005 and charged with redesigning the survey methodology.

Researchers determined that to best represent Iowa's population the survey needed to be conducted in 36 communities across the state ranging in size from 1,408 persons in Wellman to Des Moines with 203,433 persons. The list of communities, their size range, and the number of children needing to be observed at each location is listed in Table 1. Figure 1 identifies the communities on a map of Iowa. Note that as a result of the 2010 Census, the town of Hawarden's population increased to 2,546 thus bumping them into the second tier of community size and increasing their sample size from 50 to 75 observations. The workgroup decided that the survey would best be implemented at sites such as gas stations or fast food restaurants where the surveyor could approach the motor vehicle and quickly collect the desired information. The protocol calls for a well-identified surveyor to position themselves where they can see vehicles pull up carrying passengers who appear to be up to seventeen years of age. The surveyor approaches the vehicle and politely asks the driver if they would be willing to participate in a child and youth passenger safety survey. If the driver agrees, the surveyor confirms the age of the passenger(s) in the vehicle and quickly notes restraint use. No identifying information is collected (e.g.

names or license plate numbers). The surveyor thanks the occupants and offers the adult a card describing Iowa's child passenger safety law and identifying who to contact for additional information.



KEY	
●	1,000 - 2,499
■	2,500 - 9,999
◆	10,000 - 49,999
★	50,000 +

Table 1
2011 Iowa Child Passenger Restraint Survey Locations

Communities 1,000 – 2,499

Minimum of 50 kids observed at each location.

- | | |
|-------------------|---------------|
| 1. Corydon | 7. Northwood |
| 2. Guthrie Center | 8. Pocahontas |
| 3. Guttenberg | 9. Sumner |
| 4. Holstein | 10. Wapello |
| 5. Laporte City | 11. Wellman |
| 6. Mount Ayr | |

Communities 2,500 – 9,999

Minimum of 75 kids observed at each location.

1. Algona
2. Belle Plaine
3. Cherokee
4. Hawarden
5. Jefferson
6. Manchester
7. Mount Pleasant
8. Red Oak
9. Waverly

Communities 10,000 – 49,999

Minimum of 100 observed kids at each location.

1. Clinton
2. Fort Dodge
3. Marshalltown
4. Mason City
5. Newton
6. Ottumwa
7. Spencer

Communities 50,000+

Minimum of 125 observed kids at each location.

1. Ames
2. Cedar Rapids
3. Council Bluffs
4. Davenport
5. Des Moines
6. Dubuque
7. Iowa City
8. Sioux City
9. Waterloo

The IPRC hired three temporary, part-time surveyors and trained them in proper survey protocol. The survey was then carried out across the state during the months of May through August, 2011. A total of 3,049 children and youth from birth through age seventeen were observed. Table 2 lists the number of infants (< 2 yr.), toddlers (2-5 yrs.), youth (6-13 yrs.), and teens (14-17) included in the survey.

**Table 2
Number of Children Observed by Age**

Age	Number of Children Observed / Percent
< 2	242 / 7.9%
2-5	849 / 27.9%
6-13	1,422 / 46.6%
14-17	536 / 17.6%
Total	3,049 / 100%

Table 3 identifies the number of restrained vs. unrestrained passengers in each age range (regardless of whether the type of restraint use was appropriate for the child’s age). From this information it is clear that Iowans understand the importance of securing infants in child safety seats, with nearly 98% of children age one year or younger being properly restrained. (Note that “properly restrained” means observing proper use of a child safety seat secured by the vehicle’s seat belt. More technical measures of correct restraint use typically checked in a child seat clinic, e.g. belt tightness, were not evaluated.) While the majority of all children are being restrained in motor vehicles, as the child’s age increases they are less likely to be restrained. Ninety-seven percent of toddlers, 88% of the youth, and 75% of teens were restrained. Overall, 89.1% of all children observed were restrained; nearly identical to the 2010 survey total of 89.4%.

**Table 3
Restraint Use (Appropriate and Non-Appropriate) by Child’s Age**

Age	Not Restrained Number / Percent	Restrained Number / Percent	Total
< 2	5 / 2.1%	236 / 97.9%	241
2-5	29 / 3.4%	819 / 96.6%	848
6-13	164 / 11.6%	1,249 / 88.4%	1,413
14-17	133 / 24.8%	402 / 75.2%	536
Total	331 / 10.9%	2,707 / 89.1%	3,038

The numbers contained in Table 3 for each age group represent children who were restrained by any means including a seatbelt alone, which for infants and toddlers is neither safe nor legal under Iowa’s Child Passenger Safety law. Table 4 displays type of restraint use by age of the child. Of the 848 toddlers observed, 49 (5.8%) were restrained only by a seatbelt. While it remains important that Iowans be informed on the importance of using booster seats it should be recognized that this is less than the 7.1% in the 2010 survey and a substantial improvement over the 2009 survey when 13.6% of the toddlers were

restrained by only a seatbelt. If Iowa’s statewide restraint use is re-calculated without including these improperly restrained children, the statewide average drops from 89.1% to 87.5%.

Table 4
Type of Restraint Use by Child’s Age

Age	Child Safety Seat with Seatbelt	Booster Seat with Seatbelt	Seatbelt only	Not Restrained	Total
< 2	234 / 97.1%	2 / 0.8%	0 / 0.0%	5 / 2.1%	241
2-5	397 / 46.8%	373 / 44.0%	49 / 5.8%	29 / 3.4%	848
6-13	5 / 0.4%	211 / 14.9%	1,033 / 73.1%	164 / 11.6%	1,413
14-17	0 / 0.0%	2 / 0.4%	401 / 74.8%	133 / 24.8%	536
Total	636 / 20.9%	588 / 19.4%	1,483 / 48.8%	331 / 10.9%	3,038

The trend in previous observational surveys of restraint use in Iowa has been that persons in the metropolitan areas restrain their children at a higher rate than those in the rural communities. As displayed in Table 5, this was once again true in the 2011 survey. In the most rural communities (1,000-2,499) 85.6% of the children were restrained by some means compared to 91.0% in the urban areas. The same relationship holds true when rates of properly (i.e. legally) restrained children- are compared across small towns (83.4%) and cities (90.3%).

Table 5
Restraint Use by Community Size

Community Size	Number / % Restrained (by any means)	Number / % Restrained Properly*	Number / % Not Restrained	Total
1,000-2,499	468 / 85.6%	456 / 83.4%	79 / 14.4%	547
2,500-9,999	584 / 86.7%	571 / 84.7 %	90 / 13.3%	674
10,000-49,999	635 / 91.2%	619 / 88.9 %	61 / 8.8%	696
≥ 50,000	1,020 / 91.0%	1,012 / 90.3 %	101 / 9.0%	1,121
Total	2,707 / 89.1%	2,658 / 87.5%	331 / 10.9%	3,038

* Properly means in compliance with Iowa law.

Table 6 displays type of restraint use by size of the community.

Table 6
Type of Restraint Use by Community Size

Community Size	Child Safety Seat with Seatbelt	Booster Seat with Seatbelt	Seatbelt only	Not Restrained	Total
1,000-2,499	121 / 22.1%	98 / 17.9%	249 / 45.5%	79 / 14.4%	547
2,500-9,999	130 / 19.3%	125 / 18.5%	329 / 48.8%	90 / 13.3%	674
10,000-49,999	133 / 19.1%	160 / 23.0%	342 / 49.1%	61 / 8.8%	696
≥ 50,000	252 / 22.5%	205 / 18.3%	563 / 50.2%	101 / 9.0%	1,121
Total	636 / 20.9%	588 / 19.3%	1,483 / 48.8%	331 / 10.9%	3,038

Information on the number of children by age and restraint use observed at each individual location can be found in Table 7 including the number of toddlers restrained by only a seatbelt. Table 8 presents the restraint use as percentages for each location. Table 8 includes the percentage of children restrained by any means and also those children who are restrained in compliance with Iowa's law. Table 9 lists the percentage of kids properly restrained sorted by community size.

Table 7 2011 Restraint Use by Child's Age By Survey Location

	Total Kids	Age < 2				Age 2 - 5				Age 6-13				Age 14-17			
		CSS	Booster	Belt	None	CSS	Booster	Belt Only	None	CSS	Booster	Belt Only	None	CSS	Booster	Belt Only	None
Algona	75	7	0	0	0	10	12	4	0	0	5	24	5	0	0	7	1
Ames	125	12	0	0	0	18	24	1	0	0	5	39	3	0	0	21	2
Belle Plaine	75	5	0	0	0	12	5	3	0	0	3	26	6	0	0	12	3
Cedar Rapids	125	11	1	0	1	30	7	0	1	0	8	44	7	0	0	11	4
Cherokee	75	6	0	0	0	6	13	0	1	0	5	26	3	0	0	13	2
Clinton	96	6	0	0	0	14	11	1	0	0	11	36	6	0	0	3	8
Corydon	50	1	0	0	1	1	9	1	0	1	4	20	4	0	0	4	4
Council Bluffs	125	11	0	0	0	13	16	5	0	1	12	39	6	0	0	22	0
Davenport	122	9	0	0	0	21	7	0	0	1	9	42	7	0	0	20	6
Des Moines	125	10	0	0	1	11	22	0	4	0	9	46	4	0	0	17	1
Dubuque	124	10	0	0	0	18	15	0	0	0	8	38	7	0	0	17	11
Fort Dodge	100	7	0	0	0	10	18	2	0	0	7	36	4	0	0	15	1
Guthrie Center	50	4	0	0	0	0	6	1	0	0	5	16	6	0	0	11	1
Guttenberg	50	9	0	0	0	6	7	2	0	0	2	15	4	0	0	0	5
Hawarden	75	5	0	0	1	4	11	0	3	0	3	23	8	0	0	14	3
Holstein	50	4	0	0	0	3	11	0	0	0	3	18	1	0	0	9	1
Iowa City	125	9	0	0	1	28	5	1	1	0	5	51	4	0	0	15	5
Jefferson	75	4	0	0	0	6	14	1	1	0	2	27	2	0	0	15	3
LaPorte City	50	6	0	0	0	8	5	6	0	0	5	14	6	0	0	0	0
Manchester	74	8	0	0	0	12	7	0	0	0	4	24	5	0	0	5	9
Marshalltown	100	9	0	0	0	13	9	8	3	0	11	33	5	0	0	9	0
Mason City	100	9	0	0	0	12	10	1	1	0	5	44	1	0	0	14	3
Mount Ayr	50	5	0	0	0	5	6	1	0	0	5	16	2	0	0	5	5
Mount Pleasant	75	2	0	0	0	12	3	2	0	0	0	36	5	0	2	7	6
Newton	100	2	0	0	0	10	19	0	3	0	9	31	7	0	0	16	3
Northwood	50	3	0	0	0	8	8	0	0	0	4	19	2	0	0	5	1
Ottumwa	100	7	0	0	0	21	2	1	0	0	9	35	4	0	0	13	8
Pocahontas	50	4	0	0	0	9	5	0	1	0	1	13	6	0	0	9	2
Red Oak	75	7	0	0	0	4	18	0	2	0	6	18	6	0	0	12	2
Sioux City	125	10	0	0	0	7	15	0	3	1	9	48	4	0	0	28	0
Spencer	100	6	0	0	0	7	26	3	2	0	13	30	1	0	0	11	1
Sumner	50	3	0	0	0	7	4	0	0	0	2	19	3	0	0	6	6
Wapello	50	4	0	0	0	11	1	1	1	0	2	11	5	0	0	9	5
Waterloo	125	8	1	0	0	12	13	1	0	1	14	45	7	0	0	12	11
Waverly	75	7	0	0	0	13	6	3	2	0	6	18	5	0	0	9	6
Wellman	47	4	0	0	0	15	3	0	0	0	0	13	3	0	0	5	4
TOTAL	3038	234	2	0	5	397	373	49	29	5	211	1033	164	0	2	401	133

Table 8 2011 Percent Restraint Use by Child's Age By Survey Location

	Percent All Kids Properly Restrained	Percent All kids Restrained (Inc. 2-5yrs in belt only)	Percent <2 Restrained	Percent 2-5 Properly Restrained	Percent 6-13 Restrained	Percent 14-17 Restrained
Algona	86.7%	92.0%	100.0%	84.6%	85.3%	87.5%
Ames	95.2%	96.0%	100.0%	97.7%	93.6%	91.3%
Belle Plaine	84.0%	88.0%	100.0%	85.0%	82.9%	80.0%
Cedar Rapids	89.6%	89.6%	84.6%	97.4%	88.1%	73.3%
Cherokee	92.0%	92.0%	100.0%	95.0%	91.2%	86.7%
Clinton	84.4%	85.4%	100.0%	96.2%	88.7%	27.3%
Corydon	80.0%	82.0%	50.0%	90.9%	86.2%	50.0%
Council Bluffs	91.2%	95.2%	100.0%	85.3%	89.7%	100.0%
Davenport	89.3%	89.3%	100.0%	100.0%	88.1%	76.9%
Des Moines	92.0%	92.0%	90.9%	89.2%	93.2%	94.4%
Dubuque	85.5%	85.5%	100.0%	100.0%	86.8%	60.7%
Fort Dodge	93.0%	95.0%	100.0%	93.3%	91.5%	93.8%
Guthrie Center	84.0%	86.0%	100.0%	85.7%	77.8%	91.7%
Guttenberg	78.0%	82.0%	100.0%	86.7%	81.0%	0.0%
Hawarden	80.0%	80.0%	83.3%	83.3%	76.5%	82.4%
Holstein	96.0%	96.0%	100.0%	100.0%	95.5%	90.0%
Iowa City	90.4%	91.2%	90.0%	94.3%	93.3%	75.0%
Jefferson	90.7%	92.0%	100.0%	90.9%	93.5%	83.3%
LaPorte City	76.0%	88.0%	100.0%	68.4%	76.0%	n/a
Manchester	81.1%	81.1%	100.0%	100.0%	84.8%	35.7%
Marshalltown	84.0%	92.0%	100.0%	66.7%	89.8%	100.0%
Mason City	94.0%	95.0%	100.0%	91.7%	98.0%	82.4%
Mount Ayr	84.0%	86.0%	100.0%	91.7%	91.3%	50.0%
Mount Pleasant	82.7%	85.3%	100.0%	88.2%	87.8%	60.0%
Newton	87.0%	87.0%	100.0%	90.6%	85.1%	84.2%
Northwood	94.0%	94.0%	100.0%	100.0%	92.0%	83.3%
Ottumwa	87.0%	88.0%	100.0%	95.8%	91.7%	61.9%
Pocahontas	82.0%	82.0%	100.0%	93.3%	70.0%	81.8%
Red Oak	86.7%	86.7%	100.0%	91.7%	80.0%	85.7%
Sioux City	94.4%	94.4%	100.0%	88.0%	93.5%	100.0%
Spencer	93.0%	96.0%	100.0%	86.8%	97.7%	91.7%
Sumner	82.0%	82.0%	100.0%	100.0%	87.5%	50.0%
Wapello	76.0%	78.0%	100.0%	85.7%	72.2%	64.3%
Waterloo	84.8%	85.6%	88.9%	96.2%	89.6%	52.2%
Waverly	78.7%	82.7%	100.0%	79.2%	82.8%	60.0%
Wellman	85.1%	85.1%	100.0%	100.0%	81.3%	55.6%

Table 9
2011 Percentage of Kids Properly Restrained Sorted by Community Size

<u>Communities 1,000 - 2,499:</u>		<u>Communities 10,000 - 49,999:</u>	
Wapello	76.0%	Marshalltown	84.0%
LaPorte City	76.0%	Clinton	84.4%
Guttenberg	78.0%	Ottumwa	87.0%
Corydon	80.0%	Newton	87.0%
Sumner	82.0%	Fort Dodge	93.0%
Pocahontas	82.0%	Spencer	93.0%
Mount Ayr	84.0%	Mason City	94.0%
Guthrie Center	84.0%		
Wellman	85.1%	<u>Communities 50,000+ :</u>	
Northwood	94.0%	Waterloo	84.8%
Holstein	96.0%	Dubuque	85.5%
		Davenport	89.3%
<u>Communities 2,500 - 9,999:</u>		Cedar Rapids	89.6%
Waverly	78.7%	Iowa City	90.4%
Hawarden	80.0%	Council Bluffs	91.2%
Manchester	81.1%	Des Moines	92.0%
Mount Pleasant	82.7%	Sioux City	94.4%
Belle Plaine	84.0%	Ames	95.2%
Red Oak	86.7%		
Algona	86.7%		
Jefferson	90.7%		
Cherokee	92.0%		

The survey also collected information on child placement within the vehicle—front seat vs. back seat. Safety experts strongly recommend placing all children in the rear seat regardless of their age. Table 10 displays the number and percentage of children in each location by type of restraint use. Overall, 78% of all children were observed in the back seat. Almost all of the children in child safety seats (98.7%) and booster seats (97.6%) were placed in the backseat, and 62.5% of those restrained only with a seat belt were secured in the rear location. Of the children riding unrestrained, 70.7% were in the back seat. The inclusion of youth ages 11-17 in the 2010 and 2011 surveys had a significant influence on both the overall percentage riding in the rear seat and on those being restrained by only a seatbelt.

Table 10
2011 Type of Restraint Use by Location in the Vehicle

Restraint Type	Front Seat	Back Seat	Total
Child Safety Seat with Seatbelt	8 / 1.3%	628 / 98.7%	636
Booster Seat with Seatbelt	14 / 2.4%	574 / 97.6%	588
Seatbelt only	556 / 37.5%	9261 / 62.5%	1,482
Not Restrained	97 / 29.3%	234 / 70.7%	331
Total	675 / 22.2%	2,362 / 77.8%	3,037

If possible, the surveyor also noted whether or not the motor vehicle drivers were wearing their seat belts. Eighty-seven percent of the drivers observed were wearing a seat belt, a sizable increase over 81% in 2010. Table 11 contains driver seat belt use data by size grouping of the community. Much like the child passenger restraint use statistics, drivers in the more rural communities had lower usage rates compared to the urban areas. Table 12 lists observed seat belt use for each community.

Table 11
2011 Driver Seat Belt Use by Community Size

Community Size	Driver Belted	Driver Not Belted	Total
1,000-2,499	465 / 85.2%	81 / 14.8%	546
2,500-9,999	570 / 84.4%	105 / 15.6%	675
10,000-49,999	636 / 90.8%	64 / 9.2%	700
≥ 50,000	992 / 88.2%	133 / 11.8%	1,125
Total	2,663 / 87.4%	383 / 12.6%	3,046

Table 12
2011 Driver Seat Belt Use

	Total Drivers Observed	Number Drivers Belted	% Drivers Belted	Number Drivers Not Belted	% Drivers Not belted
Algona	75	63	84.0%	12	16.0%
Ames	125	117	93.6%	8	6.4%
Belle Plaine	75	58	77.3%	17	22.7%
Cedar Rapids	125	94	75.2%	31	24.8%
Cherokee	75	66	88.0%	9	12.0%
Clinton	100	87	87.0%	13	13.0%
Corydon	50	35	70.0%	15	30.0%
Council Bluffs	125	113	90.4%	12	9.6%
Davenport	125	98	78.4%	27	21.6%
Des Moines	125	119	95.2%	6	4.8%
Dubuque	125	110	88.0%	15	12.0%
Fort Dodge	100	95	95.0%	5	5.0%
Guthrie Center	50	45	90.0%	5	10.0%
Guttenberg	49	47	95.9%	2	4.1%
Hawarden	75	52	69.3%	23	30.7%
Holstein	50	48	96.0%	2	4.0%
Iowa City	125	110	88.0%	15	12.0%
Jefferson	75	67	89.3%	8	10.7%
LaPorte City	50	45	90.0%	5	10.0%
Manchester	75	66	88.0%	9	12.0%
Marshalltown	100	85	85.0%	15	15.0%
Mason City	100	96	96.0%	4	4.0%
Mount Ayr	49	41	83.7%	8	16.3%
Mount Pleasant	75	64	85.3%	11	14.7%
Newton	100	95	95.0%	5	5.0%
Northwood	50	44	88.0%	6	12.0%
Ottumwa	100	83	83.0%	17	17.0%
Pocahontas	49	39	79.6%	10	20.4%
Red Oak	75	68	90.7%	7	9.3%
Sioux City	125	119	95.2%	6	4.8%
Spencer	100	95	95.0%	5	5.0%
Sumner	49	42	85.7%	7	14.3%
Wapello	50	35	70.0%	15	30.0%
Waterloo	125	112	89.6%	13	10.4%
Waverly	75	66	88.0%	9	12.0%
Wellman	50	44	88.0%	6	12.0%
TOTAL	3046	2663	87.4%	383	12.6%

Conclusions:

In their 2004 and 2010 sessions the Iowa Legislature passed and the Governor signed into law bills that strengthened the Iowa Child Passenger Safety Law. In general terms, the revised law requires infants to be in child safety seats, toddlers from age 2 through 5 years to be secured using either a child safety seat or booster seat, and youth through age 17 to be secured with a seatbelt when riding in the back seat. All age groups must be restrained when in the front seat of a motor vehicle. As a result of these revisions the annual Iowa Child Passenger Restraint Survey protocol was redesigned to allow the surveyors to obtain a better view into vehicles and to include the older youth. The survey was also redesigned to result in a better statistical representation of the entire state population. Hence this survey design has a higher level of validity. Greater accuracy also results from having the surveyor actually ask the age of the child/youth (as opposed to making a judgment call previously).

Results from the 2011 survey indicate that the vast majority of Iowans understand the importance of restraining their children. This is especially true for infants; 97.9% were restrained in child safety seats. Of the 848 toddlers observed, 5.8% were restrained only by a seatbelt. While it remains important that Iowans must be informed on the importance of using booster seats it should be recognized that this is a substantial improvement over the 2009 survey when 13.6% of the toddlers were restrained by only a seatbelt. Overall, 89.1% of all children observed were restrained, nearly identical to the 2010 survey results.

As in past years, the 2011 survey results indicated lower restraint use in the more rural communities. The survey also collects information on child placement within the vehicle—front seat vs. back seat. Safety experts strongly recommend placing all children in the rear seat regardless of their age. Overall, 78% of all children were observed in the back seat. Almost all of the children in child safety seats (99%) and booster seats (98%) were placed in the backseat, and 63% of those restrained only with a seat belt were secured in the rear location. Of the children riding unrestrained, 71% were in the back seat. The inclusion of youth ages 11-17 beginning in the 2010 survey had a significant influence on both the overall percentage riding in the rear seat and on those being restrained by only a seatbelt. These results highlight the continued need to reach out to teens on the importance of occupant restraint use.

The 2011 Iowa Child Passenger Restraint Survey was successfully completed and will continue to provide valuable comparable information for years to come. As a result of the older age requirement for rear-seat passengers a new survey situation is possible where the vehicle could have a teen driver with teen passengers. This is likely to lead to different restraint use compared to when an adult is the driver. Beginning with the 2010 survey, information was collected indicating when the driver was less than 18 years old. A detailed analysis of teen drivers and passengers will be conducted after the 2010 and 2011 survey results are combined. This additional analysis is expected to be completed in early 2012.

Appendix B contains a five-year comparison of the 2007 through 2011 survey results. In some cases a comparison was not possible due to the new age groupings resulting from the 2010 law revisions.

Appendix A

Iowa's 2011 Child Passenger Safety Survey Project Personnel
Conducted by the University of Iowa Injury Prevention Research Center
Under contract to Iowa Governor's Traffic Safety Bureau

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Appendix B

Comparison of 2007 - 2011 Iowa Child Passenger Safety Survey Results

The following Tables allow for comparison between the 2007, 2008, 2009, 2010, and 2011 child passenger safety survey results. Comparing the survey data for **individual locations by age group six years and older** is not valid due to the new/expanded age groupings included in 2010.

Comparison Tables

1. Number of Children Observed by Age
2. Restraint Use by Child's Age
3. Type of Restraint Use by Child's Age
4. Restraint Use by Community Size
5. Type of Restraint Use by Community Size
6. Restraint Use by Child's Age by Survey Location
7. Type of Restraint Use by Location in the Vehicle
8. Driver Seat Belt Use by Community Size
9. Driver Seat Belt Use by Survey Location

**Comparison Table 1
Number of Children Observed by Age**

Age	2007	2008	2009	Age	2010	2011
< 2	393 / 13.1%	257 / 8.5%	309 / 10.2%	< 2	228 / 7.7%	242 / 7.9%
2-5	1,197 / 39.8%	1,235 / 40.8%	1,225 / 40.5%	2-5	811 / 27.2%	849 / 27.9%
6-10	1,420 / 47.2%	1,532 / 50.7%	1,488 / 49.2%	6-13	1,408 / 47.2%	1,422 / 46.6%
Total	3,010 / 100%	3,024 / 100%	3,022 / 100%	14-17	534 / 17.9%	536 / 17.6%
				Total	2,981 / 100%	3,049 / 100%

**Comparison Table 2
Restraint Use by Child's Age**

Percent Not Restrained				Percent Restrained									
Age	2007	2008	2009	Age	2010	2011	Age	2007	2008	2009	Age	2010	2011
< 2	0.8%	1.6%	1.3%	< 2	0.4%	2.1%	< 2	99.2%	98.4%	98.7%	< 2	99.6%	97.9%
2-5	4.8%	4.0%	3.8%	2-5	4.2%	3.4%	2-5	95.2%	96.0%	96.2%	2-5	95.8%	96.6%
6-10	18.5%	12.0%	10.1%	6-13	12.8%	11.6%	6-10	81.5%	88.0%	89.9%	6-13	87.2%	88.4%
Total	10.7%	7.8%	6.6%	14-17	19.1%	24.8%	Total	89.3%	92.2%	93.4%	14-17	80.9%	75.2%
				Total	10.6%	10.9%					Total	89.4%	89.1%

**Comparison Table 3
Type of Restraint Use by Child's Age**

Child Safety Seat with Seatbelt				Booster Seat with Seatbelt								
Age	2007	2008	2009	Age	2010	2011	2007	2008	2009	Age	2010	2011
< 2	99.0%	95.7%	98.1%	< 2	96.5%	97.1%	0.3%	2.7%	0.7%	< 2	2.2%	0.8%
2-5	49.1%	42.2%	45.1%	2-5	38.2%	46.5%	32.0%	40.5%	37.6%	2-5	50.4%	44.0%
6-10	0.9%	0.1%	0.3%	6-13	0.1%	0.4%	10.8%	13.1%	16.3%	6-13	12.1%	14.9%
Total	32.9%	25.4%	28.4%	14-17	0.0%	0.0%	17.8%	23.4%	23.3%	14-17	0.2%	0.4%
				Total	17.9%	20.9%				Total	19.7%	19.4%

Seatbelt Only				Not Restrained								
Age	2007	2008	2009	Age	2010	2011	2007	2008	2009	Age	2010	2011
< 2	0	0.9%	0	< 2	96.5%	0.0%	0.7%	1.6%	1.3%	< 2	0.4%	2.1%
2-5	14.2%	7.1%	13.6%	2-5	38.2%	5.8%	4.8%	4.0%	3.8%	2-5	4.2%	3.4%
6-10	70.0%	75.0%	73.3%	6-13	0.1%	73.1%	18.5%	12.0%	10.1%	6-13	12.8%	11.6%
Total	38.6%	80.8%	41.6%	14-17	0.0%	74.8%	10.7%	7.8%	6.6%	14-17	19.1%	24.8%
				Total	51.8%	48.8%				Total	10.6%	10.9%

**Comparison Table 4
Restraint Use by Community Size**

Community Size	Percent Restrained (by any means)					Percent Restrained Properly*					Percent Not Restrained				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
1,000-2,499	87.6%	87.4%	86.8%	86.9%	85.6%	81.6%	81.5%	80.3%	84.5%	83.4%	12.4%	12.6%	13.2%	13.1%	14.4%
2,500-9,999	84.6%	91.5%	91.8%	88.1%	86.7%	79.6%	85.4%	86.4%	86.4%	84.7%	15.4%	8.5%	8.2%	11.9%	13.3%
10,000-49,999	85.9%	91.7%	96.0%	92.9%	91.2%	82.5%	87.7%	92.1%	89.8%	88.9%	14.1%	8.3%	4.0%	7.1%	8.8%
≥ 50,000	94.7%	95.4%	96.1%	89.1%	91.0%	87.5%	89.5%	90.0%	87.4%	90.3%	5.3%	4.6%	3.9%	10.9%	9.0%
Total	89.3%	92.2%	93.4%	89.4%	89.1%	83.6%	86.7%	87.8%	87.4%	87.5%	10.7%	7.8%	6.6%	10.6%	10.9%

*Properly means in compliance with Iowa law.

**Comparison Table 5
Type of Restraint Use by Community Size**

Community Size	Child Safety Seat with Seatbelt					Booster Seat with Seatbelt				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
1,000-2,499	32.7%	21.2%	25.8%	16.2%	22.1%	15.9%	23.1%	19.9%	18.9%	17.9%
2,500-9,999	34.7%	26.0%	24.8%	16.9%	19.3%	15.7%	24.8%	22.7%	19.9%	18.5%
10,000-49,999	30.4%	24.6%	30.0%	14.8%	19.1%	16.3%	23.3%	23.7%	20.9%	23.0%
≥ 50,000	33.5%	27.9%	30.8%	21.3%	22.5%	20.9%	22.9%	25.2%	19.2%	18.3%
Total	32.9%	25.4%	28.4%	17.9%	20.9%	17.8%	23.4%	23.3%	19.7%	19.3%

Community Size	Seatbelt only					Not Restrained				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
1,000-2,499	39.1%	43.1%	41.1%	51.7%	45.5%	12.3%	12.6%	13.2%	13.1%	14.4%
2,500-9,999	34.2%	40.7%	44.3%	51.3%	48.8%	15.4%	8.5%	8.2%	11.9%	13.3%
10,000-49,999	39.1%	43.9%	42.3%	57.3%	49.1%	14.1%	8.3%	4.0%	7.1%	8.8%
≥ 50,000	40.3%	44.6%	40.1%	48.7%	50.2%	5.3%	4.6%	3.9%	10.9%	9.0%
Total	38.6%	43.4%	41.6%	51.8%	48.8%	10.7%	7.8%	6.6%	10.6%	10.9%

Comparison Table 6
Restraint Use by Child's Age By Survey Location
(NOTE: Ages 6 and older not included due to change in age groupings in 2010.)

	Percent Age < 2 Properly* Restrained					Percent Age 2-5 Properly* Restrained				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
Algona	100.0%	100.0%	100.0%	100.0%	100.0%	81.8%	91.2%	93.8%	100.0%	84.6%
Ames	100.0%	100.0%	100.0%	100.0%	100.0%	91.3%	93.6%	95.9%	78.1%	97.7%
Belle Plaine	100.0%	100.0%	100.0%	100.0%	100.0%	77.5%	54.2%	34.4%	90.9%	85.0%
Cedar Rapids	100.0%	87.5%	100.0%	100.0%	84.6%	80.3%	75.8%	80.0%	79.4%	97.4%
Cherokee	100.0%	100.0%	100.0%	100.0%	100.0%	86.2%	85.3%	87.1%	87.5%	95.0%
Clinton	100.0%	100.0%	100.0%	100.0%	100.0%	91.4%	97.3%	97.1%	88.5%	96.2%
Corydon	100.0%	66.7%	100.0%	85.7%	50.0%	85.0%	83.3%	90.5%	88.2%	90.9%
Council Bluffs	95.0%	86.7%	100.0%	100.0%	100.0%	85.2%	90.4%	95.6%	86.5%	85.3%
Davenport	100.0%	87.5%	95.5%	100.0%	100.0%	74.6%	64.4%	52.6%	94.4%	100.0%
Des Moines	100.0%	93.3%	100.0%	92.3%	90.9%	85.2%	96.2%	90.7%	88.2%	89.2%
Dubuque	100.0%	100.0%	100.0%	100.0%	100.0%	83.9%	92.2%	100.0%	100.0%	100.0%
Fort Dodge	100.0%	100.0%	100.0%	100.0%	100.0%	76.9%	87.5%	93.6%	96.3%	93.3%
Guthrie Center	100.0%	100.0%	100.0%	100.0%	100.0%	75.9%	70.8%	78.3%	63.6%	85.7%
Guttenberg	100.0%	100.0%	100.0%	100.0%	100.0%	85.7%	100.0%	88.9%	100.0%	86.7%
Hawarden	100.0%	60.0%	87.5%	66.7%	83.3%	73.7%	77.8%	76.2%	76.9%	83.3%
Holstein	83.3%	85.7%	88.9%	100.0%	100.0%	68.0%	100.0%	69.2%	69.2%	100.0%
Iowa City	100.0%	100.0%	100.0%	100.0%	90.0%	65.0%	54.0%	63.4%	100.0%	94.3%
Jefferson	100.0%	100.0%	100.0%	100.0%	100.0%	85.7%	87.5%	85.7%	90.0%	90.9%
LaPorte City	100.0%	100.0%	100.0%	66.7%	100.0%	80.0%	64.7%	80.0%	100.0%	68.4%
Manchester	100.0%	100.0%	100.0%	100.0%	100.0%	93.3%	90.0%	85.2%	100.0%	100.0%
Marshalltown	90.0%	100.0%	100.0%	72.7%	100.0%	74.4%	87.8%	100.0%	78.1%	66.7%
Mason City	100.0%	88.9%	100.0%	100.0%	100.0%	87.5%	91.2%	97.0%	77.8%	91.7%
Mount Ayr	100.0%	100.0%	66.7%	100.0%	100.0%	94.1%	76.2%	85.7%	78.6%	91.7%
Mt. Pleasant	98.0%	100.0%	100.0%	100.0%	100.0%	86.4%	66.7%	74.4%	70.6%	88.2%
Newton	100.0%	100.0%	100.0%	100.0%	100.0%	90.0%	89.7%	90.7%	87.5%	90.6%
Northwood	100.0%	100.0%	83.3%	100.0%	100.0%	81.8%	88.9%	93.3%	92.9%	100.0%
Ottumwa	100.0%	100.0%	100.0%	100.0%	100.0%	84.6%	53.1%	62.3%	92.3%	95.8%
Pocahontas	100.0%	100.0%	100.0%	100.0%	100.0%	84.0%	85.0%	75.0%	81.3%	93.3%
Red Oak	100.0%	100.0%	100.0%	100.0%	100.0%	53.6%	84.8%	100.0%	68.4%	91.7%
Sioux City	100.0%	88.9%	100.0%	100.0%	100.0%	84.3%	87.7%	95.1%	100.0%	88.0%
Spencer	100.0%	100.0%	100.0%	100.0%	100.0%	76.9%	92.3%	88.9%	79.2%	86.8%
Sumner	100.0%	100.0%	100.0%	100.0%	100.0%	87.5%	100.0%	84.2%	100.0%	100.0%
Wapello	100.0%	NC**	100.0%	100.0%	100.0%	76.0%	50.0%	52.9%	100.0%	85.7%
Waterloo	100.0%	100.0%	100.0%	100.0%	88.9%	83.3%	98.0%	100.0%	100.0%	96.2%
Waverly	100.0%	100.0%	100.0%	66.7%	100.0%	84.2%	96.3%	96.3%	100.0%	79.2%
Wellman	100.0%	NC**	100.0%	100.0%	100.0%	80.8%	55.0%	52.9%	83.3%	100.0%

* Properly refers to in compliance with Iowa law.

**Comparison Table 7
Type of Restraint Use by Location in the Vehicle**

Restraint Type	Front Seat					Back Seat				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
Child Safety Seat with Seatbelt	1.9%	2.2%	0.5%	1.6%	1.3%	98.1%	97.8%	99.5%	98.4%	98.7%
Booster Seat with Seatbelt	4.9%	2.6%	3.8%	3.3%	2.4%	95.1%	97.4%	96.2%	96.7%	97.6%
Seatbelt only	20.0%	21.0%	21.6%	34.6%	37.5%	80.0%	79.0%	78.4%	65.4%	62.5%
Not Restrained	26.3%	29.2%	28.0%	26.0%	29.3%	73.7%	70.8%	72.0%	74.0%	70.7%
Total	12.1%	12.5%	11.9%	21.7%	22.2%	87.9%	87.5%	88.1%	78.3%	77.8%

**Comparison Table 8
Driver Seat Belt Use by Community Size**

Community Size	Driver Belted					Driver Not Belted				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
1,000-2,499	77.2%	78.8%	76.8%	78.4%	85.2%	22.8%	21.2%	23.2%	21.2%	14.8%
2,500-9,999	86.2%	86.5%	87.4%	85.9%	84.4%	13.8%	13.5%	12.6%	14.1%	15.6%
10,000-49,999	85.1%	93.0%	91.6%	91.1%	90.8%	14.9%	7.0%	8.4%	8.9%	9.2%
≥ 50,000	92.8%	95.0%	93.5%	90.9%	88.2%	7.2%	5.0%	6.5%	9.1%	11.8%
Total	86.6%	89.7%	88.5%	87.5%	87.4%	13.4%	10.3%	11.5%	12.5%	12.6%

**Comparison Table 9
Driver Seat Belt Use By Survey Location**

	Percent Drivers Belted					Percent Drivers NOT Belted				
	2007	2008	2009	2010	2011	2007	2008	2009	2010	2011
Algona	82.7%	77.3%	93.3%	89.3%	84.0%	17.3%	22.7%	6.7%	10.7%	16.0%
Ames	100%	98.4%	95.2%	94.4%	93.6%	100%	1.6%	4.8%	5.6%	6.4%
Belle Plaine	94.4%	77.8%	81.3%	82.7%	77.3%	5.6%	22.2%	18.7%	17.3%	22.7%
Cedar Rapids	95.8%	96.8%	96.8%	93.6%	75.2%	4.2%	3.2%	3.2%	6.4%	24.8%
Cherokee	85.1%	82.7%	89.3%	85.3%	88.0%	14.9%	17.3%	10.7%	14.7%	12.0%
Clinton	91.8%	98.0%	86.9%	90.5%	87.0%	8.2%	2.0%	13.1%	9.5%	13.0%
Corydon	74.0%	66.7%	72.0%	50.0%	70.0%	26.0%	33.3%	28.0%	50.0%	30.0%
Council Bluffs	87.2%	96.8%	94.4%	89.6%	90.4%	12.8%	3.2%	5.6%	10.4%	9.6%
Davenport	94.3%	97.6%	99.2%	84.6%	78.4%	5.7%	2.4%	0.8%	15.4%	21.6%
Des Moines	90.3%	93.6%	90.4%	98.4%	95.2%	9.7%	6.4%	9.6%	1.6%	4.8%
Dubuque	88.1%	88.8%	88.8%	88.0%	88.0%	11.9%	11.2%	11.2%	12.0%	12.0%
Fort Dodge	80.8%	95.0%	88.0%	97.0%	95.0%	19.2%	5.0%	12.0%	3.0%	5.0%
Guthrie Center	66.0%	62.0%	96.0%	78.0%	90.0%	34.0%	38.0%	4.0%	22.0%	10.0%
Guttenberg	80.0%	98.0%	84.0%	80.4%	95.9%	20.0%	2.0%	16.0%	19.6%	4.1%
Hawarden	78.0%	78.0%	49.0%	76.0%	69.3%	22.0%	22.0%	51.0%	24.0%	30.7%
Holstein	58.0%	78.0%	76.0%	94.0%	96.0%	42.0%	22.0%	24.0%	6.0%	4.0%
Iowa City	93.4%	97.6%	98.4%	89.3%	88.0%	6.6%	2.4%	1.6%	10.7%	12.0%
Jefferson	76.0%	86.7%	90.7%	86.7%	89.3%	24.0%	13.3%	9.3%	13.3%	10.7%
LaPorte City	86.7%	89.4%	79.6%	87.5%	90.0%	13.3%	10.6%	20.4 %	12.5%	10.0%
Manchester	91.4%	94.7%	79.5%	80.9%	88.0%	8.6%	5.3%	20.5%	19.1%	12.0%
Marshalltown	85.0%	91.0%	91.0%	95.0%	85.0%	15.0%	9.0%	9.0%	5.0%	15.0%
Mason City	76.0%	94.0%	94.0%	88.0%	96.0%	24.0%	6.0%	6.0%	12.0%	4.0%
Mount Ayr	56.0%	46.0%	72.0%	51.0%	83.7%	44.0%	54.0%	28.0%	49.0%	16.3%
Mount Pleasant	98.6%	94.4%	100.0%	86.7%	85.3%	1.4%	5.6%	0.0%	13.3%	14.7%
Newton	96.0%	94.0%	95.0%	89.0%	95.0%	4.0%	6.0%	5.0%	11.0%	5.0%
Northwood	72.0%	76.0%	82.0%	94.0%	88.0%	28.0%	24.0%	18.0%	6.0%	12.0%
Ottumwa	72.5%	82.0%	98.0%	78.0%	83.0%	27.5%	18.0%	2.0%	22.0%	17.0%
Pocahontas	91.7%	78.0%	78.0%	89.8%	79.6%	8.3%	22.0%	22.0%	10.2%	20.4%
Red Oak	73.0%	86.5%	85.3%	86.7%	90.7%	27.0%	13.5%	14.7%	13.3%	9.3%
Sioux City	89.6%	96.8%	97.6%	94.4%	95.2%	10.4%	3.2%	2.4%	5.6%	4.8%
Spencer	90.9%	97.0%	88.0%	100.0%	95.0%	9.1%	3.0%	12.0%	0.0%	5.0%
Sumner	75.5%	94.0%	76.0%	72.9%	85.7%	24.5%	6.0%	24.0%	27.1%	14.3%
Wapello	94.0%	92.0%	92.0%	96.0%	70.0%	6.0%	8.0%	8.0%	14.0%	30.0%
Waterloo	96.4%	88.8%	80.8%	85.2%	89.6%	3.6%	11.2%	19.2%	14.8%	10.4%
Waverly	89.3%	92.0%	79.7%	88.7%	88.0%	10.7%	8.0%	20.3%	11.3%	12.0%
Wellman	95.9%	88.0%	64.0%	86.0%	88.0%	4.1%	12.0%	36.0%	14.0%	12.0%
TOTAL	86.6%	89.7%	88.5%	87.5%	87.4%	13.4%	13.3%	11.5%	12.5%	12.6%