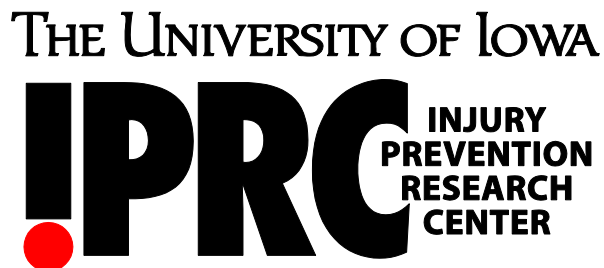


Iowa Child Passenger Safety Survey

2019

*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 the child passenger safety law. Iowa's current child passenger safety law requires that:

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

In order to measure compliance with these laws and to direct educational efforts, observational child restraint 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 and Methods

In an effort to accurately determine compliance with Iowa's child passenger safety law, in particular the requirement for use of child safety and booster seats, observers must be able to obtain a clear view into the vehicle. Starting with the 2005 survey, the basic protocol was changed from the previous "drive-by" observational methodology to a more "in-person" approach. The original survey design had not been updated since the 1980s, so the entire Iowa Child Passenger Restraint Survey protocol was also reassessed to ensure statistically valid representation of Iowa's total population mix. A workgroup consisting of UI IPRC faculty and staff and 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 1,424 persons in Wellman to Des Moines with 217,521 persons. Figure 1 identifies the communities on a map of Iowa. The list of communities, their size range, and the number of children needing to be observed at each location is listed in Table 1. 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.

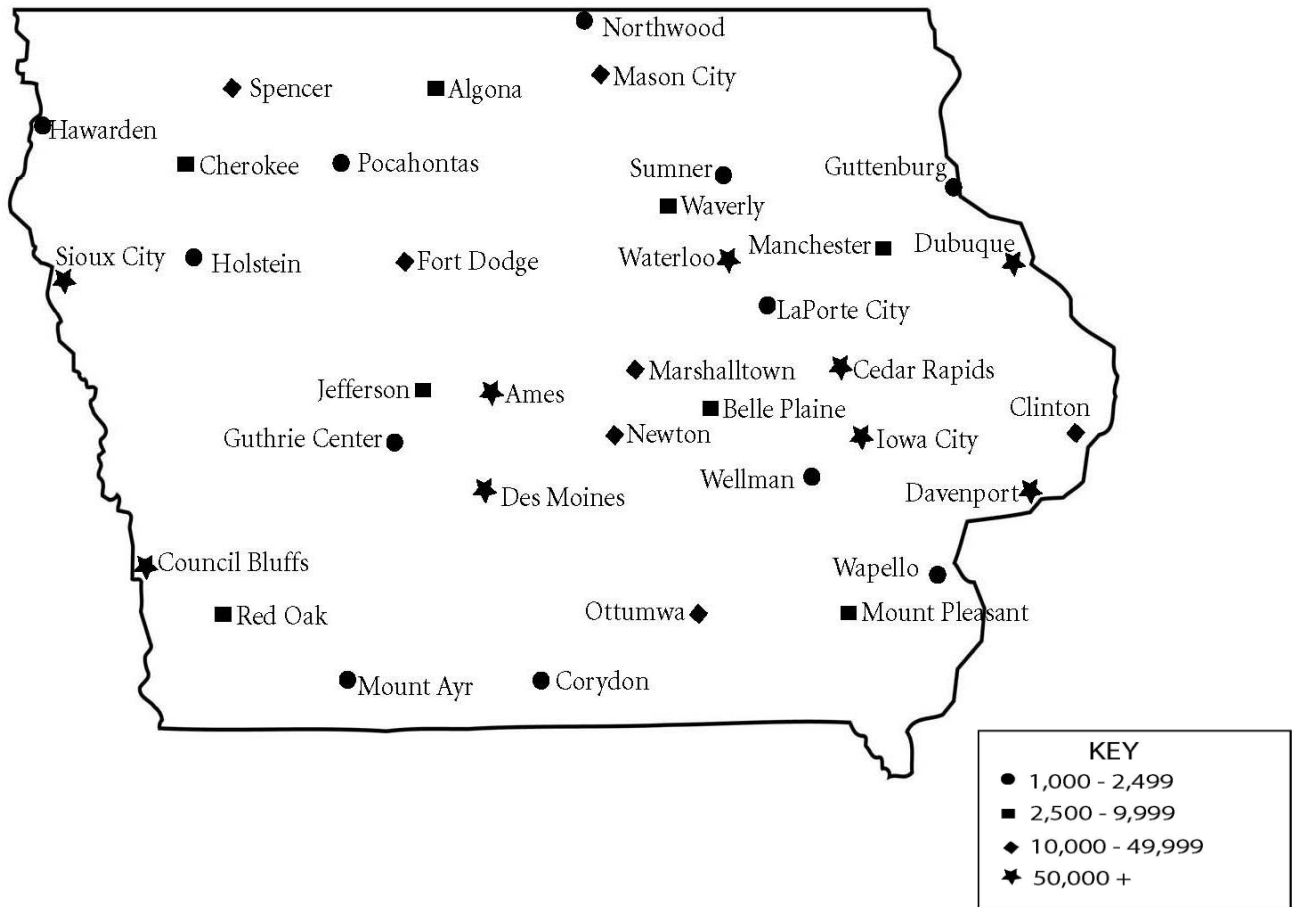


Figure 1. 2019 Iowa Child Passenger Survey Locations

Table 1. Iowa Child Passenger Restraint Survey Locations, 2019

<p>Communities 1,000 – 2,499 Minimum of 50 kids observed at each location</p>	<ol style="list-style-type: none"> 1. Corydon 2. Guthrie Center 3. Guttenberg 4. Holstein 5. Laporte City 6. Mount Ayr 7. Northwood 8. Pocahontas 9. Sumner 10. Wapello 11. Wellman
<p>Communities 2,500 – 9,999 Minimum of 75 kids observed at each location</p>	<ol style="list-style-type: none"> 1. Algona 2. Belle Plaine 3. Cherokee 4. Hawarden 5. Jefferson 6. Manchester 7. Mount Pleasant 8. Red Oak 9. Waverly
<p>Communities 10,000 – 49,999 Minimum of 100 observed kids at each location</p>	<ol style="list-style-type: none"> 1. Clinton 2. Fort Dodge 3. Marshalltown 4. Mason City 5. Newton 6. Ottumwa 7. Spencer
<p>Communities 50,000+ Minimum of 125 observed kids at each location</p>	<ol style="list-style-type: none"> 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 two 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, 2019. All observations were of children and youth from birth through age seventeen and accompanying adult drivers.

Results

A total of 3,116 observations were made and complete data were captured for 3,062 observations. The breakdown of missing and/or incomplete data is as follows: 25 drivers refused to provide information to the surveyor about age (including both Driver and Child/Passenger ages), 11 observations were missing Seating Position (Front or Back) values, 4 observations were missing Driver Age values, 3 observations were missing Restraint Use by Child/Passenger values, 7 observations were missing Driver Belted values, and 4 observations were missing Vehicle Type value.

The observable values of those who refused to give their age or child’s ages were still collected (e.g., restraint use, seating position), given they have historically been more likely to have unrestrained children/passengers. The following results include these observable values in the totals, when possible, otherwise the missing data or refusals are noted with each table. 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	200 / 6.5%
2-5	834 / 27.0%
6-13	1501 / 48.6%
14-17	556 / 18.0%
Total	3091* / 100%

**25 refusals*

Table 3 identifies the number of restrained versus 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 lowans understand the importance of securing infants in child safety seats, with 99.0% 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 (p<0.01). Nearly ninety-eight percent of toddlers, 97% of the youth, and 92% of teens were restrained. Overall, 96.3% of all children observed were restrained; a decrease of 0.8% from the 2018 survey total of 97.1% but still higher than the 2017 survey total of 94.5%.

Table 3. Restraint Use by Child's Age

Age	Not Restrained Number / Percent	Restrained Number / Percent	Total
< 2	2 / 1.0%	198 / 99.0%	200
2-5	18 / 2.2%	816 / 97.8%	834
6-13	52 / 3.5%	1449 / 96.5%	1501
14-17	43 / 7.7%	513 / 92.3%	556
Total	115 / 3.7%	2,976 / 96.3%	3091*

*25 refusals

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 834 toddlers observed, 44 (5.3%) were restrained only by a seatbelt, which is a decrease from 2018 (6.2%). This increase in proper restraint is promising and reflects how Iowans are better understanding the importance of using booster seats. If Iowa's statewide restraint use is re-calculated without including the improperly restrained children, the statewide average drops from 96.3% to 94.9%.

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	198 / 99.0%	0 / 0.0%	0 / 0.0%	2 / 1.0%	200
2-5	484 / 58.0%	288 / 34.5%	44 / 5.3%	18 / 2.2%	834
6-13	28 / 1.9%	277 / 18.5%	1141 / 76.2%	52 / 3.5%	1498
14-17	0 / 0.0%	1 / 0.2%	512 / 92.1%	43 / 7.7%	556
Total	710 / 23.0%	566 / 18.3%	1697 / 55.0%	115 / 3.7%	3088*

*28 missing data

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 remained true in the 2019 survey. In the most rural communities (1,000-2,499) 92.2% of the children were restrained by some means compared to 98.9% in the urban areas. The same relationship holds true when rates of properly (i.e., legally) restrained children are compared across small towns (89.7%) and cities (97.7%).

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	510 / 92.2%	496 / 89.7%	43 / 7.8%	553
2,500-9,999	648 / 95.6%	642 / 94.7%	30 / 4.4%	678
10,000-49,999	673 / 95.9%	663 / 94.4 %	29 / 4.1%	702
≥ 50,000	1142 / 98.9%	1128 / 97.7 %	13 / 1.1%	1155
Total	2973 / 96.3%	2929 / 94.9%	115 / 3.7%	3088**

* Properly means in compliance with Iowa law.

**28 missing data

Table 6 displays type of restraint use type by size of the community. This table includes information of observations where age information was not available and it highlights the lack of restraint use (7.8%) among the smallest communities included in the survey.

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	102 / 18.4%	88 / 15.9%	320 / 57.9%	43 / 7.8%	553
2,500-9,999	160 / 23.4%	116 / 17.0%	374 / 54.8%	33 / 4.8%	683
10,000-49,999	166 / 23.2%	140 / 19.6%	374 / 52.3%	35 / 4.9%	715
≥ 50,000	284 / 24.4%	227 / 19.5%	638 / 54.9%	13 / 1.1%	1162
Total	712 / 22.9%	571 / 18.3%	1706 / 54.8%	124 / 4.0%	3113*

**3 missing data*

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 for each survey location. Table 9 lists the percentage of kids properly restrained sorted by community size, ranging from 80% to 100%.

Table 7. Restraint Use by Child Age and Survey Location, 2019

	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	5	0	0	0	11	12	0	1	0	10	21	2	0	0	10	3
Ames	125	15	0	0	0	18	15	3	0	0	9	37	0	0	0	28	0
Belle Plaine	78	3	0	0	0	16	2	1	0	1	2	34	1	0	0	18	0
Cedar Rapids	125	7	0	0	0	19	1	1	1	3	4	60	2	0	0	27	0
Cherokee	75	5	0	0	0	13	10	1	1	1	11	20	1	0	0	9	3
Clinton	101	2	0	0	0	20	5	1	0	2	3	40	0	0	0	28	0
Corydon	50	2	0	0	0	7	4	0	0	0	1	26	5	0	0	4	1
Council Bluffs	125	14	0	0	0	17	20	0	2	0	17	32	2	0	0	21	0
Davenport	129	6	0	0	0	21	2	9	1	0	4	66	0	0	1	19	0
Des Moines	125	14	0	0	0	11	24	0	0	0	16	43	1	0	0	15	1
Dubuque	125	3	0	0	0	23	8	0	0	2	7	52	1	0	0	29	0
Fort Dodge	100	7	0	0	0	24	15	0	0	0	13	29	1	0	0	11	0
Guthrie Center	50	4	0	0	0	7	8	0	0	0	3	11	1	0	0	13	3
Guttenberg	52	2	0	0	0	9	3	0	0	0	6	23	0	0	0	9	0
Hawarden	75	6	0	0	0	4	11	0	1	0	11	21	5	0	0	13	3
Holstein	50	1	0	0	0	4	9	0	0	0	3	21	2	0	0	6	4
Iowa City	131	7	0	0	0	22	8	0	1	8	46	31	0	0	0	8	0
Jefferson	75	8	0	0	0	7	11	0	0	0	5	32	1	0	0	6	5
LaPorte City	50	1	0	0	0	3	3	4	0	0	1	24	0	0	0	12	2
Manchester	74	5	0	0	0	12	2	2	0	0	2	36	0	0	0	15	0
Marshalltown	100	4	0	0	2	12	13	2	2	0	15	24	8	0	0	15	3
Mason City	100	8	0	0	0	14	11	1	0	1	7	35	1	0	0	21	1
Mount Ayr	50	4	0	0	0	1	7	1	2	0	4	14	2	0	0	11	4
Mount Pleasant	75	5	0	0	0	16	1	2	0	0	2	35	0	0	0	14	0
Newton	100	9	0	0	0	13	15	0	0	0	15	25	6	0	0	16	1
Northwood	50	4	0	0	0	6	5	0	3	0	6	13	4	0	0	6	3
Ottumwa	101	6	0	0	0	15	3	5	1	0	2	55	0	0	0	14	0
Pocahontas	50	3	0	0	0	9	13	1	0	0	1	10	2	0	0	8	3
Red Oak	75	8	0	0	0	7	12	0	1	0	6	27	2	0	0	12	0
Sioux City	124	10	0	0	0	21	17	0	0	0	16	36	0	0	0	23	1
Spencer	100	11	0	0	0	17	11	1	1	0	10	27	0	0	0	20	2
Sumner	50	2	0	0	0	14	1	3	0	1	5	14	1	0	0	9	0
Wapello	50	1	0	0	0	10	1	2	0	0	2	26	1	0	0	7	0
Waterloo	146	3	0	0	0	35	3	1	0	4	7	83	0	0	0	10	0
Waverly	76	2	0	0	0	20	2	0	0	5	3	28	0	0	0	16	0
Wellman	51	1	0	0	0	6	0	3	0	0	2	30	0	0	0	9	0
TOTAL	3088	198	0	0	2	484	288	44	18	28	277	1141	52	0	1	512	43

Table 8. Percent Restraint Use by Child Age and Survey Location, 2019

	% All Kids Properly Restrained	% All kids Restrained (Inc. 2-5yrs in belt only)	% < 2 Restrained	% 2-5 Properly Restrained	% 6-13 Restrained	% 14-17 Restrained
Algona	92.0	92.0	100	95.8	93.9	76.9
Ames	97.6	100	100	91.7	100	100
Belle Plaine	97.4	98.7	100	94.7	97.4	100
Cedar Rapids	96.8	97.6	100	90.9	97.1	100
Cherokee	92.0	93.3	100	92.0	97.0	75.0
Clinton	99.0	100	100	96.2	100	100
Corydon	88.0	88.0	100	100	84.4	80.0
Council Bluffs	96.8	96.8	100	94.9	96.1	100
Davenport	92.2	99.2	100	69.7	100	100
Des Moines	98.4	98.4	100	100	98.3	93.8
Dubuque	99.2	99.2	100	100	98.4	100
Fort Dodge	99.0	99.0	100	100	97.7	100
Guthrie Center	92.0	92.0	100	100	93.3	81.3
Guttenberg	100	100	100	100	100	100
Hawarden	88.0	88.0	100	93.8	86.5	81.3
Holstein	88.0	88.0	100	100	92.3	60
Iowa City	99.2	99.2	100	96.8	100	100
Jefferson	92.0	92.0	100	100	97.4	54.6
LaPorte City	88.0	96.0	100	60.0	100	85.7
Manchester	97.3	100	100	87.5	100	100
Marshalltown	83.0	85.0	66.7	86.2	83.0	83.3
Mason City	97.0	98.0	100	96.2	97.7	95.5
Mount Ayr	82.0	84.0	100	72.7	90.0	73.3
Mount Pleasant	97.3	100	100	89.5	100	100
Newton	93.0	93.0	100	100	87.0	94.1
Northwood	80.0	80.0	100	78.6	82.6	66.7
Ottumwa	94.1	99.0	100	75.0	100	100
Pocahontas	88.0	90.0	100	95.7	84.6	72.7
Red Oak	96.0	96.0	100	95.0	94.3	100
Sioux City	99.2	99.2	100	100	100	95.8
Spencer	96.0	97.0	100	93.3	100	90.9
Sumner	92.0	98.0	100	83.3	95.2	100
Wapello	94.0	98.0	100	84.6	96.6	100
Waterloo	99.3	100	100	97.4	100	100
Waverly	100	100	100	100	100	100
Wellman	94.1	100	100	66.7	100	100

Table 9. Proportion of Children Properly Restrained by Community Size, 2019

Communities 1,000 - 2,499	Guttenberg	100%
	Sumner	92.0%
	LaPorte City	88.0%
	Corydon	88.0%
	Pocahontas	88.0%
	Wapello	94.0%
	Guthrie Center	92.0%
	Wellman	94.1%
	Northwood	80.0%
	Mount Ayr	82.0%
Communities 2,500 - 9,999	Holstein	88.0%
	Waverly	100%
	Belle Plaine	97.4%
	Algona	92.0%
	Cherokee	92.0%
	Jefferson	92.0%
	Manchester	97.3%
	Red Oak	96.0%
Communities 10,000 - 49,999	Mount Pleasant	97.3%
	Hawarden	88.0%
	Spencer	96.0%
	Clinton	99.0%
	Newton	93.0%
	Fort Dodge	99.0%
	Mason City	97.0%
Communities 50,000+	Marshalltown	83.0%
	Ottumwa	94.1%
	Dubuque	99.2%
	Des Moines	98.4%
	Council Bluffs	96.8%
	Ames	97.6%
	Sioux City	99.2%
	Iowa City	99.2%
	Davenport	92.2%
	Cedar Rapids	96.8%
Waterloo	99.3%	

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, 71.2% of all children and youth were observed in the back seat. Almost all of the children in child safety seats (98.2%) and booster seats (98.8%) were placed in the backseat. However, of those restrained only by a seatbelt the percentages were much closer (52.1% back vs 47.9% front). The percentages of unrestrained were also more similar in the back (52.9%) vs. the front (47.1% front).

Table 10. Type of Restraint Use by Location in the Vehicle, 2019

Restraint Type	Front Seat	Back Seat	Total
Child Safety Seat with Seatbelt	13 / 1.8%	697 / 98.2%	710
Booster Seat with Seatbelt	7 / 1.2%	562 / 98.8%	569
Seatbelt only	816 / 47.9%	887 / 52.1%	1703
Not Restrained	58 / 47.1%	65 / 52.9%	123
Total	894 / 28.8%	2137 / 71.2%	3105*

**11 missing data*

The surveyors also noted whether or not the motor vehicle drivers were wearing their seat belts. 94.4% of the drivers observed were wearing a seat belt, a slight increase from 2018 (94.0%). 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 driver seat belt use for each community, which ranged from a low of 81.5% to a high of 100%.

Table 11. Driver Seat Belt Use by Community Size, 2019

Community Size	Driver Belted	Driver Not Belted	Total
1,000-2,499	329 / 90.4%	35 / 9.6%	364
2,500-9,999	412 / 92.2%	35 / 7.8%	447
10,000-49,999	419 / 93.9%	27 / 6.1%	446
≥ 50,000	664 / 97.5%	17 / 2.5%	681
Total	1824 / 94.1%	114 / 5.9%	1938

Table 12. Driver Seat Belt Use, 2019

	Total Drivers Observed	Number Drivers Belted	% Drivers Belted	Number Drivers Not Belted	% Drivers Not belted
Algona	46	39	84.8	7	15.2
Ames	76	76	100	0	0.0
Belle Plaine	51	50	98.0	1	2.0
Cedar Rapids	82	81	98.8	1	1.2
Cherokee	46	42	91.3	4	8.7
Clinton	67	67	100	0	0.0
Corydon	32	29	90.6	3	9.4
Council Bluffs	75	71	94.7	4	5.3
Davenport	86	86	100	0	0.0
Des Moines	70	68	97.1	2	2.9
Dubuque	91	90	98.9	1	1.1
Fort Dodge	59	58	98.3	1	1.7
Guthrie Center	31	28	90.3	3	9.7
Guttenberg	37	37	100	0	0.0
Hawarden	41	36	87.8	5	12.2
Holstein	32	28	87.5	4	12.5
Iowa City	63	62	98.4	1	1.6
Jefferson	46	41	89.1	5	10.9
LaPorte City	36	34	94.4	2	5.6
Manchester	57	57	100	0	0.0
Marshalltown	65	56	86.2	9	13.8
Mason City	62	61	98.4	1	1.6
Mount Ayr	33	27	81.8	6	18.2
Mount Pleasant	57	57	100	0	0.0
Newton	66	58	87.9	8	12.1
Northwood	27	22	81.5	5	18.5
Ottumwa	74	73	98.7	1	1.3
Pocahontas	27	23	85.2	4	14.8
Red Oak	52	49	94.2	3	5.8
Sioux City	74	74	100	0	0.0
Spencer	57	53	93.0	4	7.0
Sumner	34	33	97.1	1	2.9
Wapello	39	38	97.4	1	2.6
Waterloo	67	67	100	0	0.0
Waverly	51	51	100	0	0.0
Wellman	36	36	100	0	0.0
TOTAL	1945	1858	95.5	87	4.5

Conclusions

Results from the 2019 survey indicate that the vast majority of lowans understand the importance of restraining their children. This is especially true for infants with nearly 100% being restrained in child safety seats. The 2019 results showed a very slight decrease in restraint use across all age groups, with a larger decrease among teens (ages 14 to 17) going from 95.1% in 2018 to 92.3% in 2019, but both results are still higher than the 2017 result of only 88.8%. While there was a studied decrease in restraint use, trends are still higher than previous years and show a promising, lasting change in restraint use.

The results also revealed there are still several areas with room for improvement. Among children aged 5 and under, 3.2% were observed to be not restrained by any means. This finding is over double that of the 2018 results (1.3%). It remains pertinent that lowans be informed on the importance of using booster seats, child safety seats, and what type of restraint their child needs in accordance with Iowa law. Overall, 94.9% of all children observed were properly restrained, an increase compared to the 2017 (93.4%) survey but a slight decrease compared to the 2018 (95.4%) survey.

Consistent with past years, the 2019 survey results indicated lower restraint use in the more rural communities. As the size of the community decreased, less restraint use was observed for both child passengers and drivers. Among children in the smallest communities (1,000-2,499) proper child restraint use averaged 89.7% and ranged from a low of 80% to a high of 100%. Among drivers in these small communities, the average restraint use was 90.4% and ranged from a low of 81.5% to a high of 100%.

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, 71.2% of all children and youth were observed in the back seat. Almost all of the children in child safety seats (98.2%) and booster seats (98.8%) were placed in the backseat, while 52.1% of those restrained only with a seat belt were secured in the rear location. Of the passengers riding unrestrained, the percentage riding in the front seat increased from 36.6% in 2018 to 47.1% in 2019. These results highlight the continued need to reach out to teens on the importance of restraint use in all seating positions within a vehicle.

It should also be noted that the Iowa Legislature passed and the Governor signed into law bills that strengthened the Iowa Child Passenger Safety Law in their 2004 and 2010 sessions. In general terms, the revised law required 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.

The 2019 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. It is anticipated that a detailed analysis of teen drivers and passengers will be conducted.

Appendix B contains a five-year comparison of the 2015 through 2019 survey results.

Appendix A

Iowa's 2019 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

Principal Investigator

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Appendix B

Comparison of 2015 - 2019 Iowa Child Passenger Safety Survey Results

The following Tables allow for comparison between the 2015-2019 child passenger safety survey results.

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	2015	2016	2017	2018	2019
< 2	284 / 9.3%	243 / 8.0%	228 / 7.4%	204 / 6.9%	200 / 6.5%
2-5	839 / 27.5%	909 / 29.8%	843 / 27.4%	763 / 25.6%	834 / 27.0%
6-13	1,341 / 44.0%	1417 / 46.5%	1403 / 45.7%	145 / 48.5%	1501 / 48.6%
14-17	587 / 19.2%	480 / 15.7%	600 / 19.5%	568 / 19.1%	556 / 18.0%
Total	3,051 / 100%	3,049 / 100%	3,074 / 100%	2980 / 100%	3091 / 100%

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

% Not Restrained						% Restrained					
Age	2015	2016	2017	2018	2019	Age	2015	2016	2017	2018	2019
< 2	1.0%	0.4%	0.07%	0.0%	1.0%	< 2	98.9%	99.6%	99.9%	100%	99.0%
2-5	2.4%	2.5%	2.1%	1.3%	2.2%	2-5	97.6%	97.5%	97.9%	98.7%	97.8%
6-13	5.8%	7.1%	5.8%	3.3%	3.5%	6-13	94.2%	92.9%	94.2%	96.7%	96.5%
14-17	14.8%	16.5%	11.2%	4.9%	7.7%	14-17	85.2%	83.5%	88.8%	95.1%	92.3%
Total	6.2%	6.7%	5.5%	2.9%	3.7%	Total	93.8%	93.3%	94.5%	97.1%	96.3%

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

Child Safety Seat with Seatbelt						Booster Seat with Seatbelt					
Age	2015	2016	2017	2018	2019	Age	2015	2016	2017	2018	2019
< 2	98.6%	98.9%	98.7%	98.5%	99.0%	< 2	0.3%	0.0%	0.4%	1.0%	0.0%
2-5	47.7%	44.3%	55.8%	58.7%	58.0%	2-5	44.5%	48.3%	38.0%	33.8%	34.5%
6-13	0.0%	0.2%	1.1%	1.0%	1.9%	6-13	18.5%	18.6%	21.7%	20.8%	18.5%
14-17	0.0%	0.0%	0.0%	0.0%	0.0%	14-17	0.0%	0.2%	0.3%	0.2%	0.2%
Total	22.3%	21.3%	23.1%	22.3%	23.0%	Total	20.4%	23.1%	20.4%	18.8%	18.3%

Seatbelt Only						Not Restrained					
Age	2015	2016	2017	2018	2019	Age	2015	2016	2017	2018	2019
< 2	0.0%	0.0%	0.0%	0.5%	0.0%	< 2	1.1%	0.4%	0.9%	0.0%	1.0%
2-5	5.5%	4.8%	4.1%	6.2%	5.3%	2-5	2.4%	2.5%	2.1%	1.3%	2.2%
6-13	75.7%	74.0%	71.4%	75.0%	76.2%	6-13	5.8%	7.2%	5.8%	3.3%	3.5%
14-17	85.2%	83.3%	88.5%	94.9%	92.1%	14-17	14.8%	16.5%	11.2%	4.9%	7.7%
Total	51.2%	23.1%	51.0%	56.1%	55.0%	Total	5.8%	6.7%	5.5%	2.9%	3.7%

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

Community Size	Percent Restrained (by any means)					Percent Restrained Properly*					Percent Not Restrained				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
1,000-2,499	89.5%	91.1%	92.6%	93.3%	92.2%	88.5%	88.2%	91.5%	90.4%	89.7%	10.5%	8.9%	7.4%	6.7%	7.8%
2,500-9,999	91.7%	91.5%	92.3%	98.2%	95.6%	90.4%	90.4%	91.0%	97.1%	94.7%	8.3%	8.5%	7.7%	1.8%	4.4%
10,000-49,999	95.3%	93.1%	93.6%	96.0%	95.9%	95.1%	92.9%	92.1%	94.4%	94.4%	4.7%	6.9%	6.4%	4.0%	4.1%
≥ 50,000	96.4%	95.5%	97.4%	99.0%	98.9%	94.3%	93.2%	96.5%	97.5%	97.7%	3.6%	4.5%	2.6%	1.0%	1.1%
Total	93.8%	93.3%	94.5%	97.1%	96.3%	92.3%	91.7%	93.4%	95.4%	94.9%	7.0%	6.7%	5.5%	2.9%	3.7%

*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				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
1,000-2,499	20.6%	23.8%	18.9%	19.0%	18.4%	17.6%	21.6%	19.5%	16.1%	15.9%
2,500-9,999	21.8%	18.1%	22.9%	24.3%	23.4%	19.6%	22.1%	20.6%	18.8%	17.0%
10,000-49,999	20.1%	19.4%	19.7%	18.6%	23.2%	20.4%	23.6%	21.2%	19.7%	19.6%
≥ 50,000	24.8%	23.1%	27.4%	23.9%	24.4%	22.2%	24.1%	20.3%	19.4%	19.5%
Total	22.3%	21.3%	23.1%	21.9%	22.9%	20.4%	23.1%	20.4%	18.7%	18.3%

Community Size	Seatbelt only					Not Restrained				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
1,000-2,499	51.3%	45.7%	54.2%	56.9%	57.9%	10.6%	8.9%	7.4%	8.0%	7.8%
2,500-9,999	50.4%	51.3%	48.8%	55.1%	54.8%	8.3%	8.5%	7.7%	1.9%	4.8%
10,000-49,999	54.7%	50.1%	52.7%	57.3%	52.3%	4.7%	6.9%	6.4%	4.4%	4.9%
≥ 50,000	49.3%	48.4%	49.7%	55.5%	54.9%	3.6%	4.5%	2.6%	1.2%	1.1%
Total	51.2%	48.9%	51.0%	56.1%	54.8%	6.2%	6.7%	5.5%	3.3%	4.0%

**Comparison Table 6
Restraint Use by Child Age and Survey Location**

	Percent Age < 2 Properly* Restrained					Percent Age 2-5 Properly* Restrained				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Algona	100%	100%	100%	100%	100%	100%	100%	95.9%	95.0%	95.8%
Ames	100%	100%	90.9%	100%	100%	97.4%	91.2%	100%	95.1%	91.7%
Belle Plaine	100%	100%	100%	100%	100%	82.6%	86.4%	84.6%	93.3%	94.7%
Cedar Rapids	100%	100%	100%	100%	100%	96.7%	93.8%	96.3%	83.3%	90.9%
Cherokee	85.7%	100%	100%	100%	100%	94.7%	88.0%	100%	95.5%	92.0%
Clinton	100%	100%	100%	100%	100%	96.3%	94.3%	88.5%	85.7%	96.2%
Corydon	100%	100%	100%	100%	100%	100%	100%	100%	91.7%	100%
Council Bluffs	100%	100%	100%	100%	100%	95.6%	95.7%	94.3%	100%	94.9%
Davenport	100%	100%	100%	75.0%	100%	85.7%	74.1%	88.9%	100%	69.7%
Des Moines	100%	100%	100%	100%	100%	97.1%	97.2%	100%	97.3%	100%
Dubuque	88.9%	100%	100%	100%	100%	96.8%	100%	93.0%	87.5%	100%
Fort Dodge	87.5%	100%	100%	100%	100%	100%	92.6%	96.6%	87.0%	100%
Guthrie Center	100%	100%	100%	100%	100%	90.9%	100%	100%	100%	100%
Guttenberg	100%	100%	100%	100%	100%	100%	94.7%	100%	82.4%	100%
Hawarden	100%	100%	100%	100%	100%	89.5%	94.4%	94.7%	100%	93.8%
Holstein	100%	100%	100%	100%	100%	86.7%	92.9%	92.3%	100%	100%
Iowa City	100%	100%	100%	100%	100%	87.5%	93.0%	98.2%	98.1%	96.8%
Jefferson	100%	100%	90.0%	100%	100%	91.7%	88.9%	100%	100%	100%
LaPorte City	100%	100%	100%	100%	100%	91.7%	100%	100%	75.0%	60.0%
Manchester	87.5%	100%	100%	100%	100%	72.7%	100%	93.1%	94.1%	87.5%
Marshalltown	100%	87.5%	100%	100%	66.7%	81.8%	69.4%	89.3%	96.8%	86.2%
Mason City	100%	100%	100%	100%	100%	91.7%	100%	96.8%	100%	96.2%
Mount Ayr	100%	100%	100%	100%	100%	100%	84.6%	100%	100%	72.7%
Mt. Pleasant	100%	100%	100%	100%	100%	94.4%	85.7%	80.8%	90.6%	89.5%
Newton	100%	100%	100%	88.9%	100%	100%	100%	92.6%	87.5%	100%
Northwood	----	100%	83.3%	100%	100%	71.4%	100%	85.7%	100%	78.6%
Ottumwa	100%	100%	100%	100%	100%	92.6%	85.0%	70.4%	77.8%	75.0%
Pocahontas	100%	100%	100%	100%	100%	100%	92.9%	100%	100%	95.7%
Red Oak	100%	100%	100%	100%	100%	90.0%	95.5%	100%	94.4%	95.0%
Sioux City	100%	100%	100%	100%	100%	97.2%	85.3%	96.3%	96.4%	100%
Spencer	100%	100%	100%	100%	100%	96.0%	100%	100%	96.2%	93.3%
Sumner	100%	100%	100%	100%	100%	100%	87.0%	100%	87.5%	83.3%
Wapello	100%	100%	100%	100%	100%	76.9%	92.9%	70.0%	68.8%	84.6%
Waterloo	100%	100%	100%	100%	100%	75.0%	100%	92.3%	81.8%	97.4%
Waverly	100%	100%	100%	100%	100%	100%	93.1%	94.7%	94.7%	100%
Wellman	100%	100%	100%	100%	100%	90.9%	100%	86.7%	78.6%	66.7%

*Properly refers to in compliance with Iowa law.

**Comparison Table 6 (continued)
Restraint Use by Child Age and Survey Location**

	Percent Age 6-13 Restrained					Percent Age 14-17 Restrained				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Algona	100%	92.1%	88.9%	89.2%	93.9%	73.7%	81.3%	84.6%	100%	76.9%
Ames	97.9%	96.2%	100%	97.9%	100%	93.1%	92.6%	88.5%	100%	100%
Belle Plaine	97.1%	73.8%	97.8%	100%	97.4%	100%	60.0%	77.8%	100%	100%
Cedar Rapids	95.6%	91.5%	100%	98.2%	97.1%	77.5%	100%	88.9%	100%	100%
Cherokee	90.0%	100%	100%	100%	97.0%	100%	91.7%	92.3%	87.5%	75.0%
Clinton	95.2%	92.3%	93.8%	98.1%	100%	100%	88.2%	100%	100%	100%
Corydon	88.0%	90.5%	84.0%	85.7%	84.4%	85.7%	71.4%	57.1%	58.3%	80.0%
Council Bluffs	97.8%	98.1%	100%	100%	96.1%	100%	92.3%	94.4%	95.7%	100%
Davenport	95.9%	90.3%	100%	100%	100%	87.5%	72.2%	88.5%	100%	100%
Des Moines	98.2%	96.2%	100%	97.9%	98.3%	100%	83.3%	90.9%	91.3%	93.8%
Dubuque	100%	100%	94.3%	97.4%	98.4%	100%	100%	100%	100%	100%
Fort Dodge	95.8%	90.5%	94.4%	97.8%	97.7%	84.2%	87.0%	90.9%	94.4%	100%
Guthrie Center	96.0%	89.2%	84.6%	89.5%	93.3%	60.0%	100%	92.3%	86.7%	81.3%
Guttenberg	100%	100%	92.6%	100%	100%	100%	77.8%	80.0%	100%	100%
Hawarden	82.4%	90.2%	70.6%	91.4%	86.5%	73.7%	54.5%	66.7%	100%	81.3%
Holstein	72.7%	86.4%	91.3%	100%	92.3%	55.6%	81.8%	90.0%	100%	60%
Iowa City	98.2%	92.6%	100%	100%	100%	94.1%	60.0%	100%	100%	100%
Jefferson	92.3%	97.6%	90.2%	100%	97.4%	88.9%	100%	54.5%	100%	54.6%
LaPorte City	94.4%	100%	100%	96.2%	100%	91.7%	77.8%	91.7%	100%	85.7%
Manchester	90.0%	100%	100%	100%	100%	100%	78.6%	100%	100%	100%
Marshalltown	90.9%	95.8%	95.7%	96.7%	83.0%	88.9%	100%	95.2%	85.0%	83.3%
Mason City	97.7%	96.3%	97.5%	94.0%	97.7%	87.0%	94.1%	77.8%	92.0%	95.5%
Mount Ayr	69.6%	77.3%	82.6%	79.3%	90.0%	69.2%	72.7%	66.7%	80.0%	73.3%
Mt. Pleasant	90.0%	97.2%	95.7%	100%	100%	63.6%	76.2%	100%	100%	100%
Newton	97.6%	82.4%	97.3%	97.5%	87.0%	88.9%	93.3%	83.3%	90.9%	94.1%
Northwood	84.0%	92.0%	88.2%	82.6%	82.6%	81.8%	71.4%	61.5%	78.6%	66.7%
Ottumwa	94.9%	90.6%	81.0%	90.4%	100%	66.7%	68.2%	82.8%	92.3%	100%
Pocahontas	95.0%	93.1%	66.7%	100%	84.6%	66.7%	66.7%	92.9%	84.6%	72.7%
Red Oak	94.6%	88.6%	76.3%	96.7%	94.3%	58.3%	70.0%	77.8%	93.3%	100%
Sioux City	94.5%	92.6%	94.9%	93.6%	100%	95.2%	100%	87.5%	100%	95.8%
Spencer	100%	100%	94.7%	100%	100%	100%	95.2%	90.9%	100%	90.9%
Sumner	95.7%	100%	100%	100%	95.2%	100%	100%	100%	100%	100%
Wapello	100%	84.6%	92.0%	95.8%	96.6%	77.8%	37.5%	100%	100%	100%
Waterloo	88.5%	100%	96.2%	100%	100%	81.8%	100%	95.5%	100%	100%
Waverly	96.2%	90.3%	97.4%	100%	100%	100%	87.5%	100%	100%	100%
Wellman	95.2%	95.5%	91.3%	87.0%	100%	73.3%	73.3%	100%	100%	100%

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

Restraint Type	Front Seat					Back Seat				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Child Safety Seat with Seatbelt	.07%	0.2%	0.8%	0.6%	1.8%	99.3%	99.8%	99.2%	99.4%	98.2%
Booster Seat with Seatbelt	0.8%	0.7%	1.1%	1.9%	1.2%	99.2%	99.3%	98.9%	98.1%	98.8%
Seatbelt only	45.8%	46.0%	51.1%	49.5%	47.9%	54.2%	54.0%	48.9%	50.5%	52.1%
Not Restrained	42.5%	29.9%	52.4%	36.6%	47.1%	57.5%	70.1%	47.6%	63.4%	52.9%
Total	27.4%	24.8%	29.3%	29.4%	28.8%	73.6%	75.2%	70.7%	70.6%	71.2%

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

Community Size	Driver Belted					Driver Not Belted				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
1,000-2,499	87.3%	89.8%	81.9%	89.2%	90.4%	12.7%	10.2%	18.1%	10.8%	9.6%
2,500-9,999	93.2%	91.7%	88.1%	94.8%	92.2%	6.8%	8.3%	11.9%	5.2%	7.8%
10,000-49,999	97.1%	94.1%	91.5%	93.6%	93.9%	2.9%	5.9%	8.5%	6.4%	6.1%
≥ 50,000	98.6%	98.0%	96.1%	96.5%	97.5%	1.4%	2.1%	3.9%	3.5%	2.5%
Total	95.0%	94.2%	90.7%	94.0%	94.1%	5.0%	5.8%	9.3%	6.0%	5.9%

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

	Percent Drivers Belted					Percent Drivers NOT Belted				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Algona	88.0%	90.7%	82.4%	84.8%	84.8%	12.0%	9.3%	17.6%	15.2%	15.2%
Ames	99.2%	93.6%	92.0%	95.8%	100%	0.8%	6.4%	8.0%	4.2%	0.0%
Belle Plaine	100%	97.3	91.3%	97.8%	98.0%	0.0%	2.7%	8.7%	2.2%	2.0%
Cedar Rapids	100%	100%	96.4%	93.9%	98.8%	0.0%	0.0%	3.6%	6.1%	1.2%
Cherokee	90.7%	96.0%	87.2%	91.5%	91.3%	9.3%	4.0%	12.8%	8.5%	8.7%
Clinton	99.0%	96.0%	97.9%	97.5%	100%	1.0%	4.0%	2.1%	2.5%	0.0%
Corydon	78.0%	90.0%	59.4%	77.8%	90.6%	22.0%	10.0%	40.6%	22.2%	9.4%
Council Bluffs	95.2%	100%	93.7%	94.8%	94.7%	4.8%	0.0%	6.3%	5.2%	5.3%
Davenport	100%	97.6%	94.4%	98.8%	100%	0.0%	2.4%	5.6%	1.2%	0.0%
Des Moines	98.4%	96.0%	96.2%	93.7%	97.1%	1.6%	4.0%	3.8%	6.3%	2.9%
Dubuque	100%	100%	99.2%	97.4%	98.9%	0.0%	0.0%	0.8%	2.6%	1.1%
Fort Dodge	98.0%	93.0%	92.4%	92.2%	98.3%	2.0%	7.0%	7.6%	7.8%	1.7%
Guthrie Center	88.0%	90.0%	77.1%	81.1%	90.3%	12.0%	10.0%	22.9%	18.9%	9.7%
Guttenberg	98.0%	96.0%	97.4%	97.3%	100%	2.0%	4.0%	2.6%	2.7%	0.0%
Hawarden	81.3%	84.0%	77.5%	91.1%	87.8%	18.8%	16.0%	22.5%	8.9%	12.2%
Holstein	78.0%	88.0%	75.9%	86.7%	87.5%	22.0%	12.0%	24.1%	13.3%	12.5%
Iowa City	100%	100%	100%	100%	98.4%	0.0%	0.0%	0.0%	0.0%	1.6%
Jefferson	93.3%	82.7%	83.3%	97.6%	89.1%	6.7%	17.3%	16.7%	2.4%	10.9%
LaPorte City	96.0%	96.0%	97.3%	94.9%	94.4%	4.0%	4.0%	2.7%	5.1%	5.6%
Manchester	100%	97.3%	100%	98.1%	100%	0.0%	2.7%	0.0%	1.9%	0.0%
Marshalltown	94.0%	93.0%	95.2%	89.5%	86.2%	6.0%	7.0%	4.8%	10.5%	13.8%
Mason City	95.0%	90.0%	92.3%	95.0%	98.4%	5.0%	10.0%	7.7%	5.0%	1.6%
Mount Ayr	64.0%	72.0%	61.1%	80.0%	81.8%	36.0%	28.0%	38.9%	20.0%	18.2%
Mount Pleasant	98.7%	100%	91.2%	98.0%	100%	1.3%	0.0%	8.8%	2.0%	0.0%
Newton	97.0%	91.9%	85.7%	88.1%	87.9%	3.0%	8.1%	14.3%	11.9%	12.1%
Northwood	72.0%	84.0%	68.4%	80.7%	81.5%	28.0%	16.0%	31.6%	13.4%	18.5%
Ottumwa	99.0%	100%	85.1%	93.1%	98.7%	1.0%	0.0%	14.9%	6.9%	1.3%
Pocahontas	88.0%	90.0%	80.7%	86.5%	85.2%	12.0%	10.0%	19.3%	13.5%	14.8%
Red Oak	86.7%	85.3%	72.0%	94.1%	94.2%	13.3%	14.7%	28.0%	5.9%	5.8%
Sioux City	97.6%	94.4%	92.3%	94.6%	100%	2.4%	5.6%	7.7%	5.4%	0.0%
Spencer	98.0%	95.0%	89.1%	98.6%	93.0%	2.0%	5.0%	10.9%	1.5%	7.0%
Sumner	98.0%	100%	100%	100%	97.1%	2.0%	0%	0.0%	0.0%	2.9%
Wapello	100%	86.0%	93.9%	97.4%	97.4%	0.0%	14.0%	6.1%	2.6%	2.6%
Waterloo	96.8%	100%	98.3%	100%	100%	3.2%	0.0%	1.7%	0.0%	0.0%
Waverly	100%	92.0%	98.5%	100%	100%	0.0%	8.0%	1.5%	0.0%	0.0%
Wellman	100%	96.1%	82.9%	94.7%	100%	0.0%	3.9%	17.1%	5.3%	0.0%
TOTAL	93.0%	94.2%	90.7%	94.0%	95.5%	7.0%	5.8%	9.3%	6.0%	4.5%