**Appendix**

**Additional references**

Iowa Department of Transportation. Iowa crash analysis tool. 2020. [accessed November 12, 2020]. https://icat.iowadot.gov/#.

NCI. 2020. Joinpoint treand analysis software. Version v.4.0.1. https://surveillance.Cancer.Gov/joinpoint/.

State of Iowa. 2010. Motor vehicles and law of the road (iowa code section 321.446) https://www.Legis.Iowa.Gov/docs/code/321.446.Pdf.

**Iowa Code 2021, Section 321.446 (28, 0)**

**321.446 Child restraint devices.**

1. *a.* A child under one year of age and weighing less than twenty pounds who is being transported in a motor vehicle subject to registration, except a school bus or motorcycle, shall be secured during transit in a rear-facing child restraint system that is used in accordance with the manufacturer’s instructions.

*b.* A child under six years of age who does not meet the description in paragraph *“a”* and who is being transported in a motor vehicle subject to registration, except a school bus or motorcycle, shall be secured during transit by a child restraint system that is used in accordance with the manufacturer’s instructions.

1. A child at least six years of age but under eighteen years of age who is being transported in a motor vehicle subject to registration, except a school bus or motorcycle, shall be secured during transit by a child restraint system that is used in accordance with the manufacturer’s instructions or by a safety belt or safety harness of a type approved under [section 321.445](https://www.legis.iowa.gov/docs/code/321.445.pdf).
2. [This section](https://www.legis.iowa.gov/docs/code/321.446.pdf) does not apply to the following:
	1. Peace officers acting on official duty.
	2. The transportation of children in 1965 model year or older vehicles, authorized emergency vehicles, buses, or motor homes or motorsports recreational vehicles, except when a child is transported in a motor home’s or motorsports recreational vehicle’s passenger seat situated directly to the driver’s right.
	3. The transportation of a child who has been certified by a physician licensed under [chapter 148](https://www.legis.iowa.gov/docs/code//148.pdf) as having a medical, physical, or mental condition that prevents or makes inadvisable securing the child in a child restraint system, safety belt, or safety harness.
	4. A back seat occupant of a motor vehicle for whom no safety belt is available because all safety belts are being used by other occupants or cannot be used due to the use of a child restraint system in the seating position for which a belt is provided.
3. A person who violates [this section](https://www.legis.iowa.gov/docs/code/321.446.pdf) is guilty of a simple misdemeanor punishable as a scheduled violation under [section 805.8A, subsection 14](https://www.legis.iowa.gov/docs/code/805.8A.pdf), paragraph *“c”*. Violations shall be charged as follows:
	1. An operator who transports a passenger under fourteen years of age in violation of [subsection 1 or 2](https://www.legis.iowa.gov/docs/code/321.446.pdf) may be charged with a violation of [this section](https://www.legis.iowa.gov/docs/code/321.446.pdf).
	2. If a passenger fourteen years of age or older is unable to properly fasten a seatbelt due to a temporary or permanent disability, an operator who transports such a person in violation of [subsection 2](https://www.legis.iowa.gov/docs/code/321.446.pdf) may be charged with a violation of [this section](https://www.legis.iowa.gov/docs/code/321.446.pdf). Otherwise, a passenger fourteen years of age or older who violates [subsection 2](https://www.legis.iowa.gov/docs/code/321.446.pdf) shall be charged in lieu of the operator.
	3. If a child under fourteen years of age, or a child fourteen years of age or older who is unable to fasten a seatbelt due to a temporary or permanent disability, is being transported in a taxicab or in a personal vehicle operated by a transportation network company driver, as defined in [section 321N.1](https://www.legis.iowa.gov/docs/code/321N.1.pdf), in a manner that is not in compliance with [subsection 1 or 2](https://www.legis.iowa.gov/docs/code/321.446.pdf), the parent, legal guardian, or other responsible adult traveling with the child shall be served with a citation for a violation of [this section](https://www.legis.iowa.gov/docs/code/321.446.pdf) in lieu of the taxicab operator or transportation network company driver. Otherwise, if a passenger being transported in the taxicab or in a personal vehicle operated by a transportation network company driver is fourteen years of age or older, the citation shall be served on the passenger in lieu of the taxicab operator or transportation network company driver.
4. A person who is first charged for a violation of [subsection 1](https://www.legis.iowa.gov/docs/code/321.446.pdf) and who has not purchased or otherwise acquired a child restraint system shall not be convicted if the person produces in court, within a reasonable time, proof that the person has purchased or otherwise acquired a child restraint system which meets federal motor vehicle safety standards.
5. Failure to use a child restraint system, safety belts, or safety harnesses as required by [this section](https://www.legis.iowa.gov/docs/code/321.446.pdf) does not constitute negligence nor is the failure admissible as evidence in a civil action.
6. For purposes of [this section](https://www.legis.iowa.gov/docs/code/321.446.pdf), “child restraint system” means a specially designed seating

system, including a belt-positioning seat or a booster seat, that meets federal motor vehicle safety standards set forth in [49 C.F.R. §571.213](https://www.law.cornell.edu/cfr/text/49/571.213).

 [84 Acts, ch 1016, §1](https://www.legis.iowa.gov/docs/acts/1984/CH1016.pdf); [86 Acts, ch 1069, §1](https://www.legis.iowa.gov/docs/acts/86/CH1069.pdf); [2000 Acts, ch 1133, §11](https://www.legis.iowa.gov/docs/acts/2000/CH1133.pdf); [2001 Acts, ch 132, §11](https://www.legis.iowa.gov/docs/acts/2001/CH0132.pdf); [2001 Acts, ch 137, §5](https://www.legis.iowa.gov/docs/acts/2001/CH0137.pdf); [2004 Acts, ch 1113, §2, 3](https://www.legis.iowa.gov/docs/acts/2004/CH1113.pdf); [2005 Acts, ch 8, §32](https://www.legis.iowa.gov/docs/acts/2005/CH0008.pdf); [2008 Acts, ch 1088, §123](https://www.legis.iowa.gov/docs/acts/2008/CH1088.pdf); [2010 Acts, ch 1186, §8, 9](https://www.legis.iowa.gov/docs/acts/2010/CH1186.pdf); [2014 Acts, ch 1127, §11](https://www.legis.iowa.gov/docs/acts/2014/CH1127.pdf); [2016 Acts, ch 1101, §5, 24](https://www.legis.iowa.gov/docs/acts/2016/CH1101.pdf)
Referred to in [§321.210](https://www.legis.iowa.gov/docs/code/321.210.pdf), [321.445](https://www.legis.iowa.gov/docs/code/321.445.pdf), [321.555](https://www.legis.iowa.gov/docs/code/321.555.pdf), [805.8A(14)(c)](https://www.legis.iowa.gov/docs/code/805.8A.pdf)

**Table A1.** Demographic and situational characteristics of pediatric passenger observations by restraint use, Iowa, 2006-2019

|  |  |
| --- | --- |
|  Variables |  Pediatric passenger restraint |
| Compliant restraintn (%) | Non-compliant restraint or unrestrainedn (%) | ALLN (%) |
| n | 37576 (89.5) | 4431 (10.5) | 42007 (100) |
| Youth Age in Years |   |  |  |
|  <1 | 1219 (99.1) | 11 (0.9) | 1230 (100) |
|  1 – 5  | 13708 (88.6) | 1773 (11.4) | 15481 (100) |
|  6 – 11  | 14712 (90.8) | 1492 (9.2) | 16204 (100) |
|  12 – 17  | 7937 (87.3) | 1155 (12.7) | 9092 (100) |
| Driver Belt use |  |  |  |
|  Yes | 35744 (93.2) | 2611 (6.8) | 38355 (100) |
|  No | 1832 (50.2) | 1820 (49.8) | 3652 (100) |
| Driver age in years |  |  |  |
|  16 – 17  | 1317 (81.3) | 303 (18.7) | 1620 (100) |
|  18+ | 26183 (92.1) | 2260 (7.9) | 28443 (100) |
|  Missing | 10076 (84.4) | 1868 (15.6) | 11944 (100) |
| Rurality |  |  |  |
|  Urban | 30897 (90.4) | 3285 (9.6) | 34182 (100) |
|  Rural  | 6679 (85.4) | 1146 (14.6) | 7825 (100) |
| Vehicle type |  |   |  |
|  Car | 14245 (87.3) | 2080 (12.7) | 16325 (100) |
|  Pickup | 1084 (71.7) | 427 (28.3) | 1511 (100) |
|  Pickup club cab | 2873 (86.1) | 463 (13.9) | 3336 (100) |
|  SUV | 9305 (92.6) | 740 (7.4) | 10045 (100) |
|  Van | 10069 (93.3) | 721 (6.7) | 10790 (100) |
| Youth position within the vehicle |  |  |  |
|  Back | 29131 (90.0) | 3225 (10.0) | 32356 (100) |
|  Front | 8445 (87.5) | 1206 (12.5) | 9651 (100) |
| Type of Restraint Used |   |  |  |
|  Belted | 19446 (93.9) | 1268 (6.1) | 20714 (100) |
|  Booster | 8641 (99.99) | 1 (0.01) | 8642 (100) |
|  Child Safety Seat | 9489 (99.96) | 4 (0.04) | 9493 (100) |
|  None | 0 (0.0) | 3158 (100.0) | 3158 (100) |

**Table A2.** Child restraint use by age, Iowa, 2006-2019

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Child Age** | **Child Safety Seat** | **Booster** | **Seat Belt** | **Unrestrained** |
| < 1 year old | 1219 (99.1) | 1 (0.1) | 0 (0.0) | 10 (0.8) |
| 1 year old | 2312 (97.8) | 24 (1.02) | 6 (0.3) | 22 (0.9) |
| 2 years old | 2670 (90.9) | 189 (6.4) | 25 (0.9) | 54 (1.8) |
| 3 years old | 2170 (61.3) | 1156 (32.6) | 114 (3.2) | 102 (2.9) |
| 4 years old | 745 (21.7) | 2213 (64.3) | 337 (9.8) | 145 (4.2) |
| 5 years old | 274 (8.6) | 1955 (61.2) | 786 (24.6) | 182 (5.7) |
| 6 years old | 73 (2.04) | 1913 (53.4) | 1393 (38.9) | 205 (5.7) |
| 7 years old | 11 (0.4) | 717 (23.9) | 1977 (65.8) | 300 (10.0) |
| 8 years old | 5 (0.2) | 340 (10.1) | 2669 (79.5) | 342 (10.2) |
| 9 years old | 6 (0.2) | 69 (2.8) | 2149 (86.9) | 249 (10.1) |
| 10 years old | 3 (0.1) | 39 (1.5) | 2340 (87.5) | 293 (11.0) |
| 11 years old | 1 (0.1) | 5 (0.4) | 1002 (90.2) | 103 (9.3) |
| 12 years old | 2 (0.1) | 5 (0.3) | 1776 (91.2) | 165 (8.5) |
| 13 years old | 0 (0.0) | 4 (0.3) | 1150 (88.9) | 139 (10.8) |
| 14 years old | 1 (0.1) | 4 (0.3) | 1239 (89.2) | 145 (10.4) |
| 15 years old | 0 (0.0) | 2 (0.1) | 1466 (87.5) | 208 (12.4) |
| 16 years old | 1 (0.1) | 2 (0.1) | 1354 (82.7) | 280 (17.1) |
| 17 years old | 0 (0.0) | 4 (0.4) | 931 (81.0) | 214 (18.6) |
| TOTAL | 9493 (22.6) | 8642 (20.6) | 20714 (49.3) | 3158 (7.5) |

**Figure A1.** Restraint use by restraint type and age group, Iowa, 2006 to 2019