

**Motor Vehicle-Related Deaths in Iowa,
2007-2010**

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Motor vehicle traffic injuries are the leading cause of unintentional injury deaths. They are also the **leading** cause from injury for years of potential life lost.

During 2007-2010, motor vehicle traffic injury deaths accounted for about one third of deaths from all unintentional injuries in Iowa.

A large population tends to generate more health events, such as deaths, than a smaller population. To make more meaningful comparisons of death-risk between the groups or time periods and to make a fair comparison with national rates it is best, therefore, to examine the death rate instead of merely looking at the numbers. The crude death rate, however, is somewhat inadequate because deaths can vary substantially by age. The variation in the age distribution between groups or time periods must be taken into account. Age adjustment uses a “standard population”. This standard is the year 2000 national population. Crude death rates are adjusted by weighting them so that they resemble what would be obtained from this standard population.

The national average crash death rate was 12.4 per 100,000 population during 2007-2010, the latest rate available. The average annual motor vehicle death age-adjusted rate in Iowa during the four years was 12.9 (14.0 crude rate) per 100,000 population.

CDC: A Healthy People 2020 National Objective

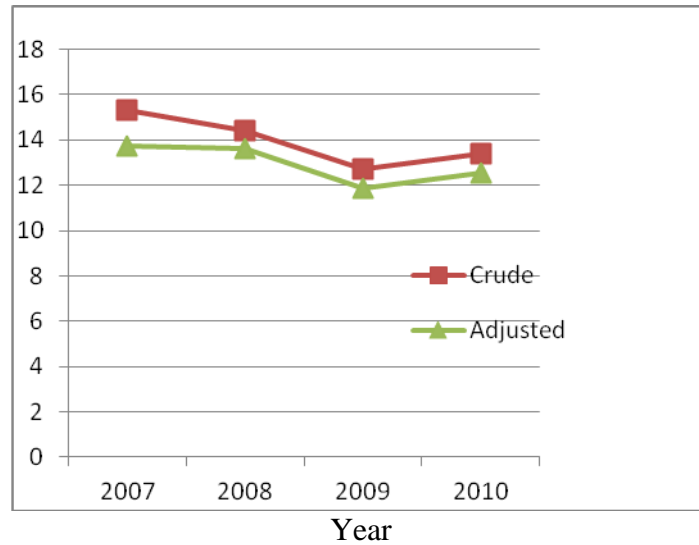
One of the national Healthy People 2020 objectives in this effort calls for reducing the motor vehicle traffic death rate to 12.4 per 100,000 population.

**Motor Vehicle-Related Injury Deaths
Occurring in Iowa, 2007-2010**

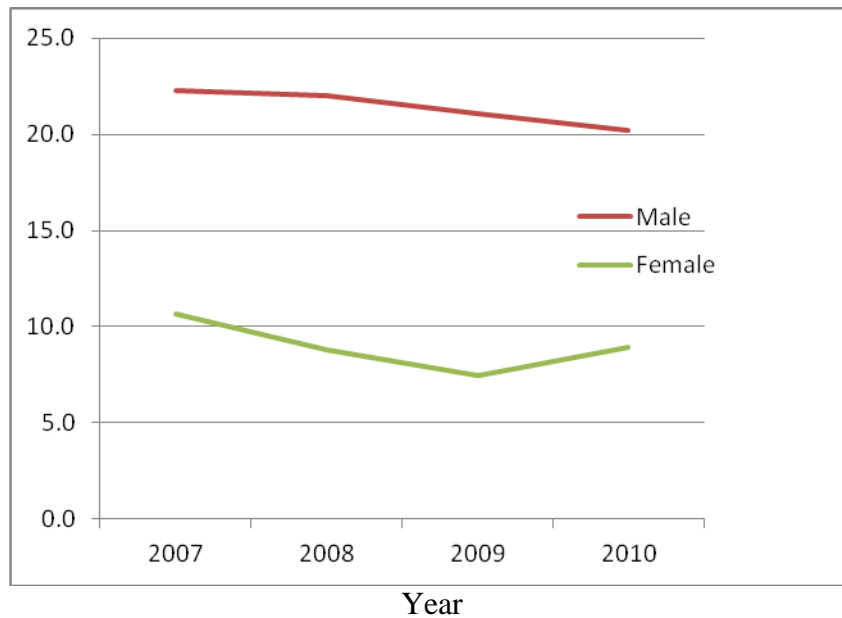
Year	Car Occu- pant	Pick- up Truck	Motor- cycle	Pedes- trian	Heavy Trans- port	Bicycle	Other	Total	DOT's Fatality Number
2007	223	106	60	27	12	5	25	458	446
2008	225	86	55	30	9	5	21	431	412
2009	189	87	47	20	9	3	28	383	371
2010	202	86	58	27	8	6	22	409	390

Source: Vital Statistics of Iowa, Iowa Department of Public Health

Motor Vehicle-Related Injury Death Rates
Iowa: Crude Rates vs. Age-Adjusted Rates per 100,000 Population, 2007-2010

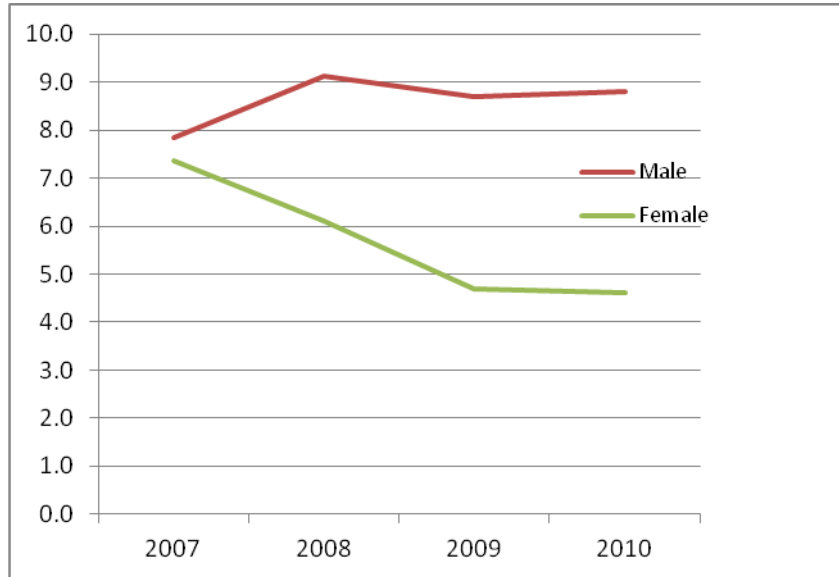


Motor Vehicle-Related Injury Death Rates by Gender
Iowa: Age-Adjusted Rates per 100,000 Population, 2007-2010

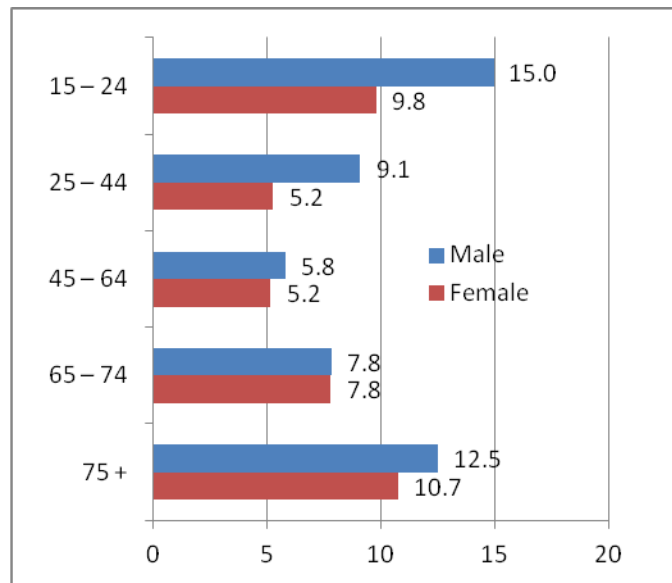


The motor vehicle death rate for males was more than two times higher than the female rate. The average annual death rate for males was 21.4 per 100,000 vs. 9.0 per 100,000 for females during 2007 – 2010.

Car Occupant-Related Injury Death Rates by Gender
 Iowa: Age-Adjusted Rates per 100,000 Population 2007 – 2010

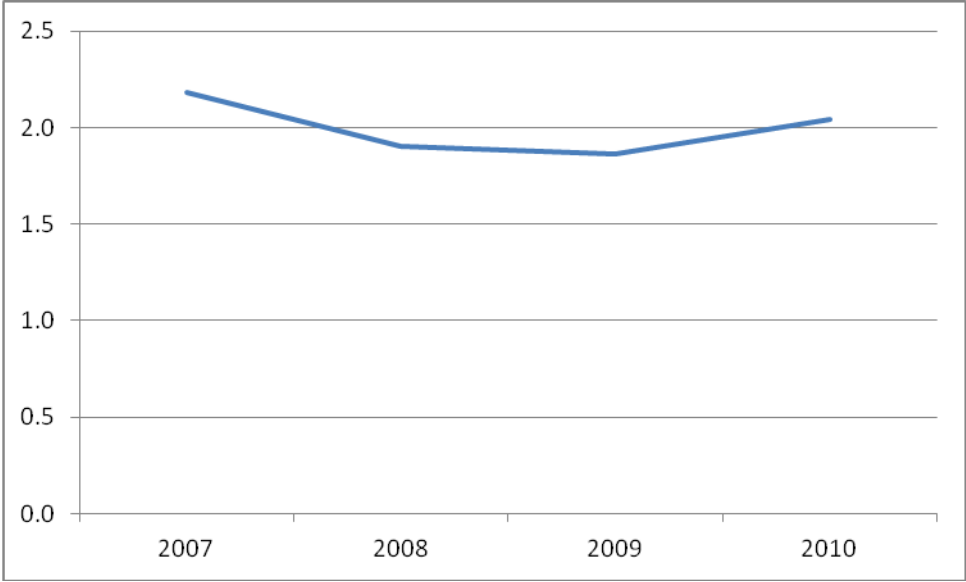


Car Occupant Average Death Rates
 by Gender and Age Group
 Iowa 2007 - 2010

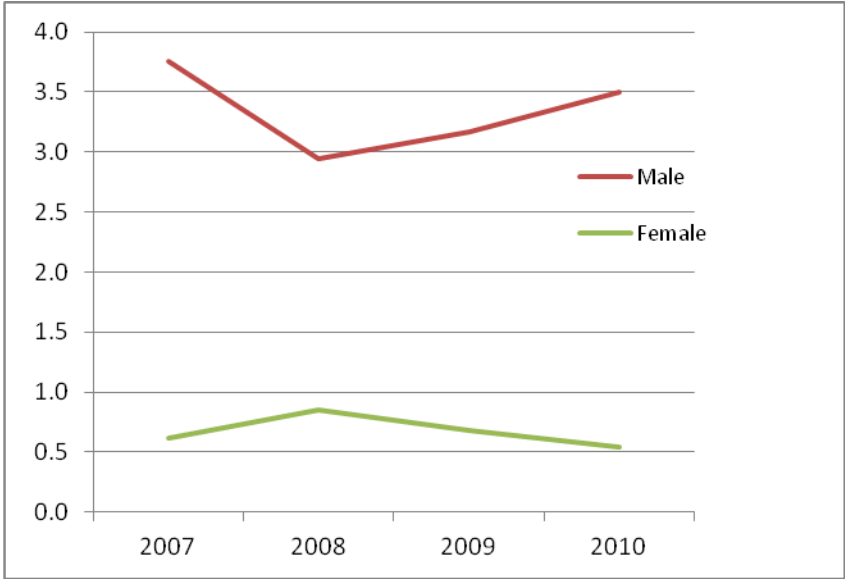


Young males aged 15-24 had the highest number of car occupant deaths: average 35 annually in the four years as well as the highest death rate.

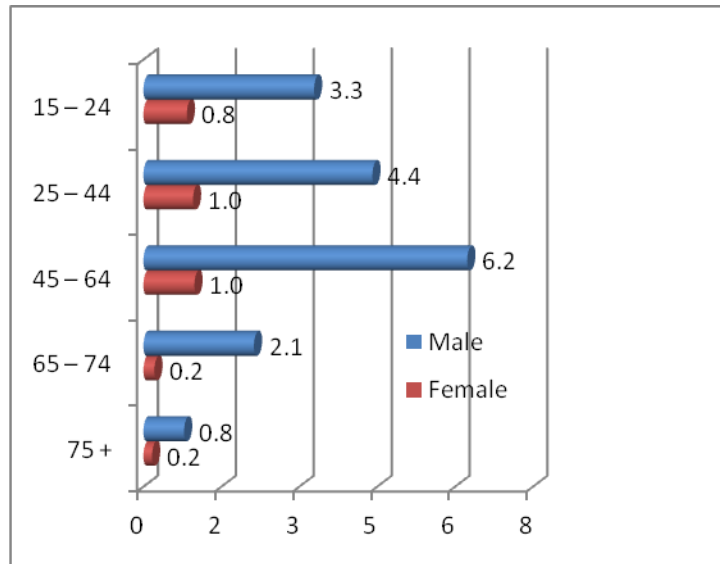
Motorcycle Injury-Related Deaths
Age-Adjusted Rates per 100,000
Iowa 2007-2010



Motorcycle Death Rates by Gender
Iowa 2007-2010



**Motorcycle Injury-Related Average Death Rates
by Gender and Age Group
Iowa 2007-2010**



The highest number and rate of motorcycle injury deaths is for males age 45 to 64. Unlike earlier in the decade, there was no significant trend over time.

**Injury Diagnosis by Body Region for All MV-Related Deaths
Iowa 2007-2010**

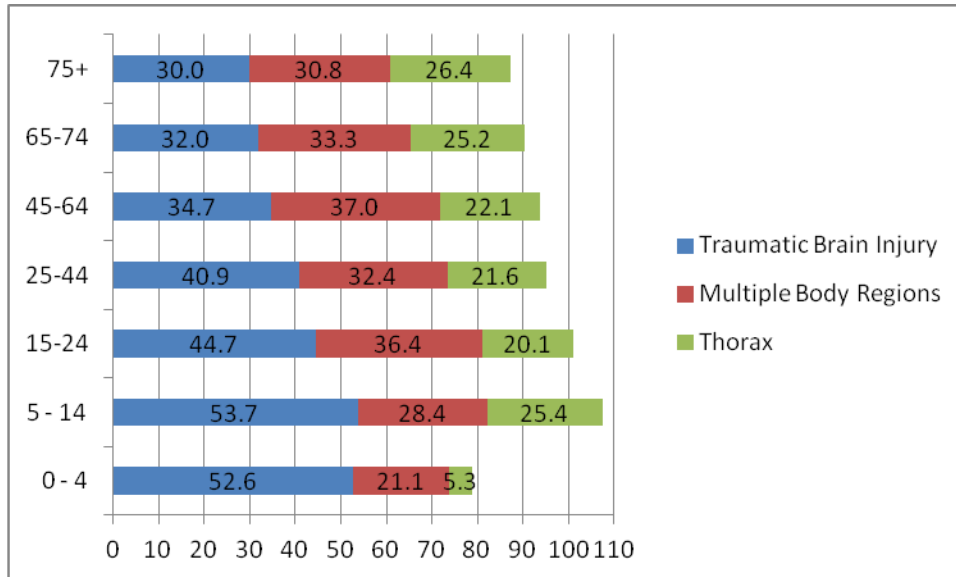
Injuries were analyzed based on the recorded ICD-10 codes from multiple cause of death. The most common body region injured was the head: 43 percent of the decedents sustained a head injury

Injury Diagnosis by Body Region	%
Traumatic Brain Injury	43.1
Multiple Body Regions	38.7
Thorax	25.3
Unspecified Region	4.9
Neck	13.0
Abdomen, lower back, & pelvis	9.8
Others	6.0

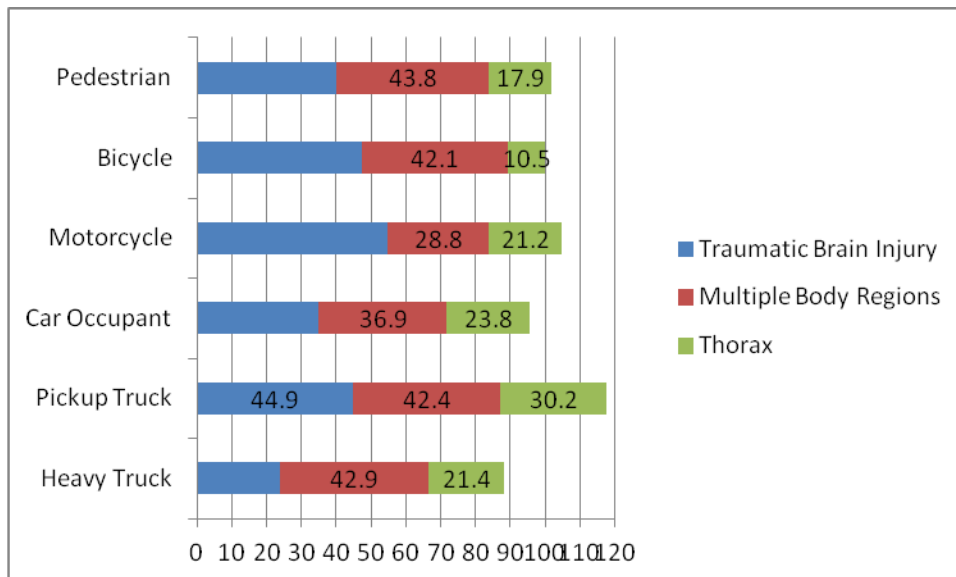
Since these are multiple contributors to death the total percentage will add to more than 100 percent.

Injury Diagnosis by Body Region by Age Group

For Iowa 2007-2010, 86 child decedents (<15 years) were recorded. 57 percent were boys. Compared with adult decedents, children sustained much higher head injury rates. 374 decedents were older than 64 years and 58.8 percent of them were males. Multiple body region injuries were recorded in 31.8 percent of this group.



Injury Diagnosis by Body Region by Vehicle Type Iowa 2007-2010



Linkage between Crash Data and Death Certificates Iowa 2007-2010

The linkage between crash and death certificates was higher compared to other linkages CODES produced: links between crash and inpatient, crash and emergency department visits (ED).

89.4 percent of crash fatalities were linked to death certificates in 2007 through 2010.

Restraint Use in Linked Cases

Iowa 2007-2010

Motorcycle	15.0%
Car Occupant	50.0%
Pick-up Truck	32.3%
Heavy Transport Vehicle	39.5%
Total	37.5%

Motorcycle Riders by Helmet Use and Injury Types

Iowa 2007-2010 Linked Cases

Helmet Use	Head Injury	Non-Head Injury
Yes	32.4% (N = 11)	55.9% (N = 19)
No	60.2% (N = 109)	40.3% (N = 73)

More than half of those motorcycle riders killed in fatal crashes died of head injuries and 90.8 percent of them did not wear a helmet when the crash occurred.

In total, 84.2 percent of linked motorcycle riders did not wear a helmet excluding the cases where helmet use was unknown.

60.2 percent of un-helmeted riders died of traumatic brain injury (TBI) or other head injuries, compared with 32.4 percent of helmeted riders who died of head injury.

2010 Death Certificates Linked with Medical Records by Vehicle Type and Average Charges

Vehicle Type	Persons Who Died at ED	Average ED Charges
Car Occupant	263	\$4,245.60
Pick-up Truck	100	\$4,151.25
Motorcycle	73	\$4,344.10
Pedestrian	19	\$7,654.09
Heavy Transport Vehicle	8	\$1,417.43
Other	28	\$3,727.51
Total	491	\$4,297.30

There were insufficient numbers of people who died from crashes who were admitted to hospital from linked data to determine costs. Since linked data does not necessarily include everyone, total charges cannot be determined. However group comparisons of average charges are possible.

Conclusion

From 2007-2010,

Among car occupant deaths in Iowa, the age group 25-44 had the largest death numbers: 61 annually. However, the highest death rates were among those 15 to 24 years old: 51.6 deaths per 100,000 population. While this age group had the highest death rate for males, the age group with the highest death rate for females was age 75 years and older.

The most common body region injured for the motor vehicle-related injury death was the head, with 43.1 percent of decedents sustaining a head injury. Multiple body injuries were recorded in 38.7 percent of fatalities.

89.4 percent of fatal crash cases were linked to death certificates.

Injuries severe enough to result in death represent only a small proportion of the overall burden of motor vehicle injury.

In 2010, motor vehicle crashes were the cause of more than 15,000 emergency department visits, and Nearly 1,600 hospitalized inpatients in Iowa (based on Iowa hospital data).

A more comprehensive evaluation including all these data sets linkages could answer the question: What are the characteristics of crashes that distinguish the crashes where MV riders suffered less-severe injuries and survived either from ED or hospital treatment from those who died in crashes?