

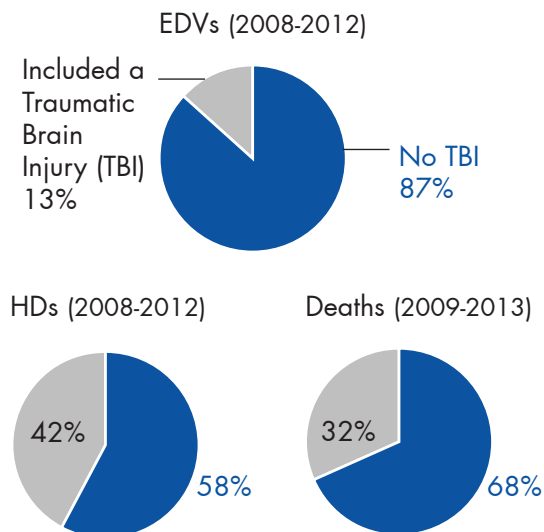
1,963
Deaths (2009-2013)
9,339
Hospital Discharges
(2008-2012)
76,222
Emergency Department
Visits (2008-2012)

Traumatic Brain Injury

As MVC injury severity increases so does the occurrence of traumatic brain injuries (TBI). The percentages of TBI injuries in MVC hospital discharges and deaths, which typically reflect more serious injuries, are twice as high as in MVC emergency department visits.

Motor Vehicle Crash Injury Severity

The more than 1,900 deaths that resulted from motor vehicle crashes (MVC) between 2009 and 2013 represent only a fraction of MVC injuries in Kansas. For every MVC death in Kansas during 2008 to 2012 there were approximately 5 times as many MVC related hospital discharges (HD) and 39 times as many MVC related emergency department visits (EDV).



How To Use this Document:

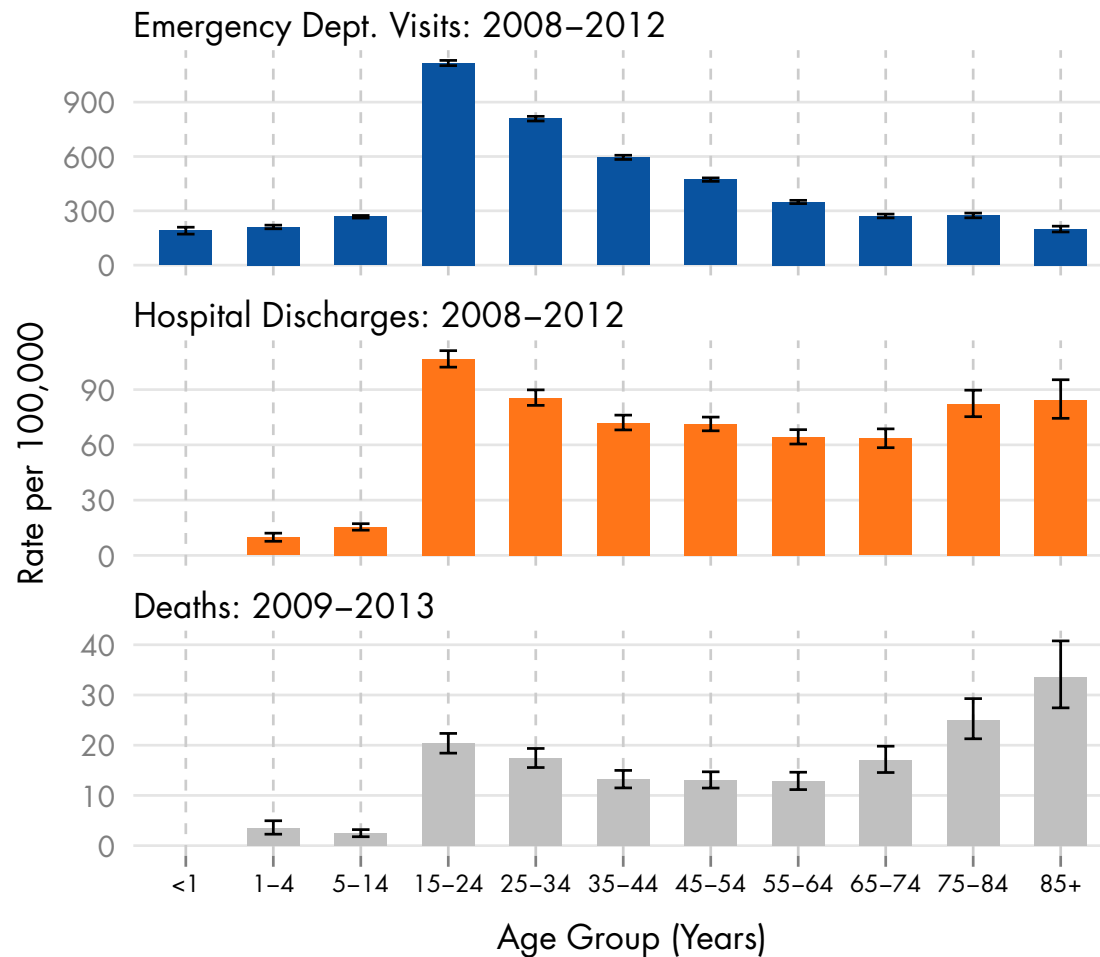
This document is intended to give readers an overview of motor vehicle crash injuries in Kansas. Most of the numbers used to create the charts and graphs can be found in data tables at the end of this document.

Data Sources:

This document uses three databases to describe different severities of motor vehicle crash injuries. The most serious is deaths. The two other databases reflect injuries that result in hospital care. The emergency department visit (EDV) database includes injuries that have a hospital stay of less than 24 hours, the least serious injuries. Hospital stays longer than 24 hours are hospital discharges (HD). All data for deaths refer to the 2009 to 2013 time period. All data for EDV and HD refer to the 2008 to 2012 time period.

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Kansas Age-specific Motor Vehicle Crash Injury Rates

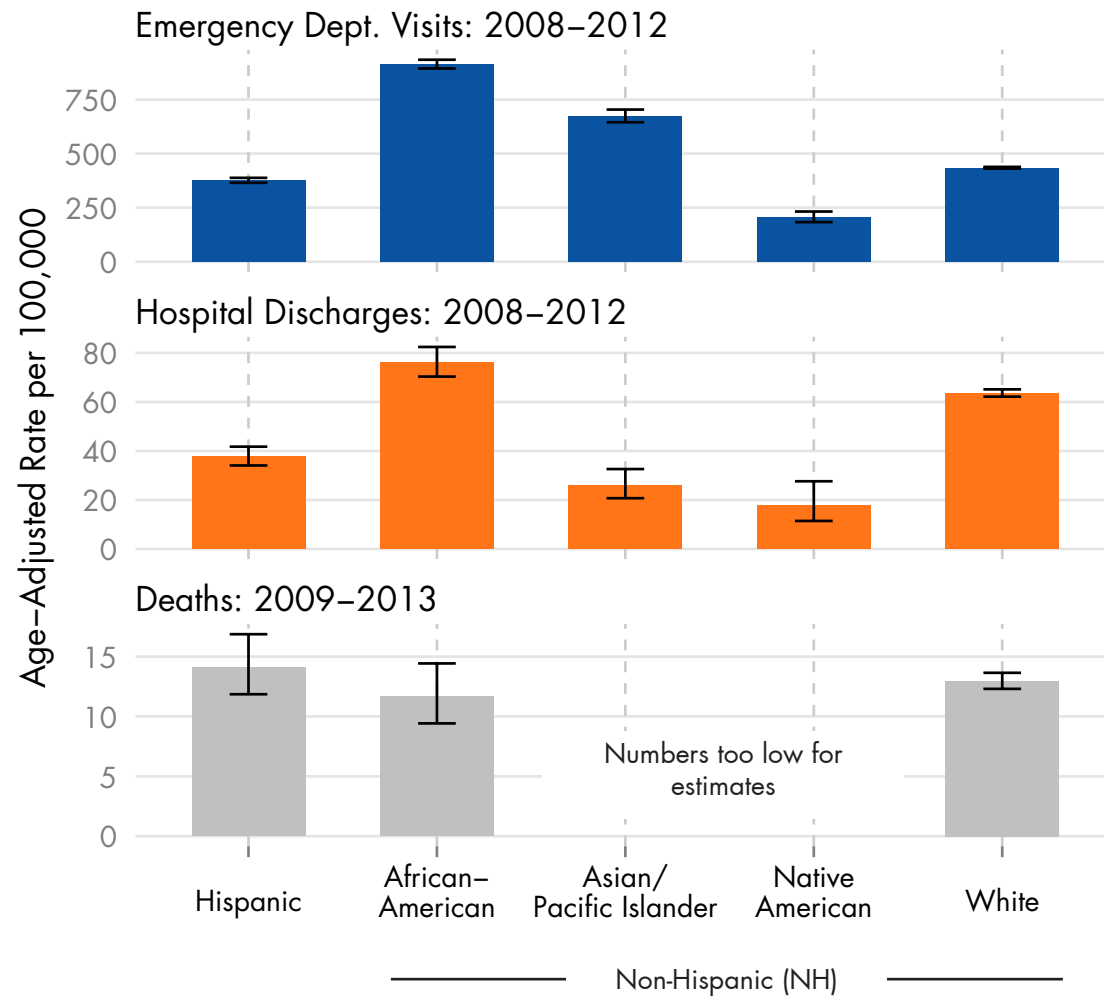


Motor vehicle crash injuries change over the lifespan. All three databases show a different trend. Motor vehicle crash injury EDV rates are highest in adolescents and young adults 15 to 24 years old and rapidly decline as age increases.

Motor vehicle crash injury hospital discharge rates are more stable, with higher rates starting at 15 to 24 year olds and generally declining slightly with increasing age. Notice the slight increase in rates starting at the 75 to 84 years old age group.

Motor vehicle crash death rates differ from EDVs and HDs with higher rates among adolescents and older adults 75 years old and older. This higher risk for deaths and hospitalizations in older adults is mainly due to complications with increasing age (1).

Kansas Motor Vehicle Crash Injury Rates by Race/Ethnicity

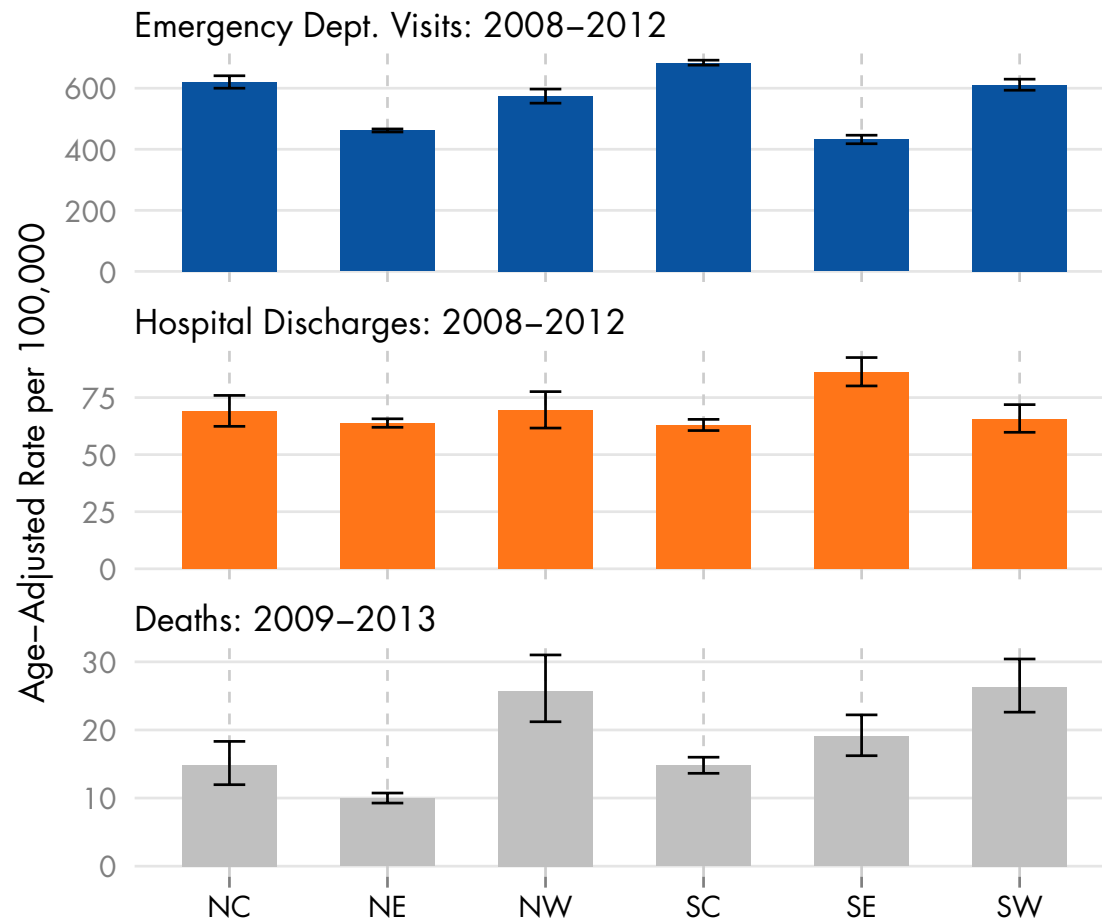


Racial/ethnic differences exist when looking at MVC injuries. For MVC emergency department visits and hospital discharges Non-Hispanic African-Americans had the highest rates of MVC injury. There were no significant differences in MVC death rates across race/ethnic groups.

One possible explanation for the higher injury rates in NH African-Americans is that MVC injuries and deaths are due to being in lower income areas (1). Lower income areas may have disadvantages such as older vehicles and poorly designed and maintained roads (1). In Kansas, it is estimated that 40% of African-Americans are living in poverty while only 12% of whites live in poverty (2).

Note: MVC injury rates by race/ethnicity are per 100,000 population and are age-adjusted to the 2000 U.S. Standard population using the direct method.

Kansas Motor Vehicle Crash Injury Rates by Trauma Region



Motor vehicle crash injury rates differ by trauma region in Kansas. The lowest MVC injury EDV rate was seen in the southeast region as compared with the rest of the regions. The lowest MVC death rate was seen in the northeast as compared to the rest of the regions. There were no significant differences in MVC HD rates across trauma regions.

Abbreviations: NC= North central, NE=Northeast, NW=Northwest, SC=South central, SE=Southeast and SW=Southwest.

Note: Motor vehicle crash injury rates by trauma region are per 100,000 population and are age-adjusted to the 2000 U.S. Standard population using the direct method.

Category	#Deaths	Death Rate per 100k*	95% CI	#HD	HD Rate per 100k*	95% CI	#EDV	EDV Rate per 100k*	95% CI
Age Group (in years, age specific rates)									
<1	...	...	...	13	...	...	388	189.7	171.3- 209.5
1-4	28	3.4	2.3- 5.0	79	9.7	7.7- 12.1	1,719	210.7	200.9- 220.9
5-14	48	2.4	1.8- 3.2	303	15.4	13.7- 17.2	5,260	267.1	259.9- 274.4
15-24	422	20.3	18.4-22.3	2,206	106.6	102.2-111.1	23,093	1,115.80	1,101.4-1,130.3
25-34	331	17.4	15.6-19.4	1,613	85.6	81.4- 89.8	15,245	808.7	795.9- 821.6
35-44	227	13.2	11.5-15.0	1,255	72.0	68.1- 76.1	10,367	595.1	583.7- 606.7
45-54	257	13	11.5-14.7	1,430	71.3	67.6- 75.1	9,474	472.2	462.7- 481.8
55-64	218	12.8	11.2-14.6	1,061	64.3	60.5- 68.2	5,758	348.7	339.8- 357.9
65-74	169	17.0	14.6-19.8	606	63.4	58.5- 68.7	2,593	271.4	261.0- 282.0
75-84	157	25.0	21.3-29.3	515	82.3	75.3- 89.7	1,717	274.2	261.4- 287.5
85+	103	33.6	27.4-40.8	258	84.4	74.4- 95.3	608	198.9	183.4- 215.3

Category	#Deaths	Death Rate per 100k*	95% CI	#HD	HD Rate per 100k*	95% CI	#EDV	EDV Rate per 100k*	95% CI
Racial/Ethnic Group									
Hispanic	188	14.1	11.9-16.9	511	37.7	34.1-41.8	5,346	376.3	365.1-388.0
NH African-American	100	11.7	9.4-14.4	674	76.2	70.3-82.4	8,422	913.7	893.7-934.1
NH Asian/Pacific Islander	17	...	...	98	25.7	20.7-32.6	2,426	673.5	644.9-703.7
NH Native American	18	..	...	26	17.7	11.4-27.6	311	206.1	183.2-232.1
NH White	1,535	13.0	12.3-13.6	7,356	63.6	62.2-65.1	48,029	434.6	430.7-438.6

NH: Non-Hispanic

...: Suppressed due to low counts

Category	#Deaths	Death Rate per 100k*	95% CI	#HD	HD Rate per 100k*	95% CI	#EDV	EDV Rate per 100k*	95% CI
Gender									
Female	589	7.9	7.3- 8.6	3,450	47.6	46.0-49.3	41,631	599.7	593.9-605.6
Male	1,374	19.4	18.3-20.4	5,885	83.0	80.9-85.2	34,581	486.5	481.4-491.8
Trauma Region									
NC	100	14.9	12.0-18.3	438	68.9	62.4-75.9	3,743	620.1	600.0-640.8
NE	737	10.0	9.3-10.7	4,650	63.8	62.0-65.7	33,500	461.6	456.6-466.6
NW	127	25.7	21.2-31.0	333	69.2	61.6-77.6	2,589	573.7	551.0-597.2
SC	635	14.8	13.6-16.0	2,646	63.0	60.5-65.4	27,992	683.6	675.6-691.8
SE	176	19.0	16.2-22.2	799	86.1	80.1-92.5	3,886	431.9	418.2-446.1
SW	187	26.3	22.6-30.4	473	65.6	59.8-71.9	4,512	611.3	593.4-629.6
Total	1,963	13.5	12.9-14.1	9,339	65.4	64.0-66.7	76,222	541.7	537.8-545.6

Technical Notes:

All motor vehicle crash injuries in this analysis are unintentional motor vehicle occupant injuries. Motor vehicle crash EDVs and HDs were defined as cases with the following ICD-9CM E-codes: E810-E19[.0-.9]. Motor vehicle crash deaths were defined as death with following ICD-10 codes: V02-V04[.1-.9], V09.2, V12-V14[.3-.9], V19[.4-.6], V20-V28[.3-.9], V29-V79[.4-.9], V80[.3-.5], V81.1, V82.1, V83-V86[.0-.3], V87[.0-.8], V89.2

95% CI: 95% Confidence Interval

*Motor vehicle crash injury rates are per 100,000 population and are age-adjusted to the 2000 U.S. Standard population using the direct method (unless noted as age specific).

Source: 2008-2012 Kansas Emergency Department and Hospital Discharge Database, Kansas Hospital Association, 2009-2013 Kansas Vital Statistics, Bureau of Epidemiology and Public Health Informatics.

Trauma Region: Abbreviations: NC= North Central, NE=Northeast, NW=Northwest, SC=South Central, SE=Southeast and SW=Southwest. Trauma regions are defined by the Kansas Trauma Program. For more information on the current boundaries please visit www.kstrauma.org.

References

1. Baker S, O'Neill B, Ginsburg M. *The Injury Fact Book*. 2nd ed. New York: Oxford University Press; 1992.
1. Poverty Rate by Race/Ethnicity for The Henry J. Kaiser Family Foundation. Available at: <http://kff.org/other/state-indicator/poverty-rate-by-raceethnicity/>. Accessed September 19, 2014.