

Injuries in South Dakota

SOUTH DAKOTA DEPARTMENT OF HEALTH
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Executive Summary

Injuries are a preventable public health threat. This report aims to provide an overview of the major causes and burden of injuries in South Dakota. In 2018, injuries were the leading cause of death for South Dakotans aged 1-44 years (2018). More than 500 South Dakotans lose their lives to injuries each year, while thousands more seek care for injuries in hospitals and emergency departments across the state. Weekly in 2018, approximately 13 people died and more than 900 people visited an emergency department or were hospitalized due to an injury in South Dakota.

Injuries in South Dakota Highlights

Falls, motor vehicle traffic accidents, suicide by firearm, suicide by suffocation, and unintentional poisoning were the leading causes of injury-related death in South Dakota. Twice as many males die from injury-related causes as females. The rate of injury-related deaths among American Indians was 2.8 times as high as the White rate.

Unintentional, or accidental, injuries are the leading cause of injury-related hospitalizations and emergency department visits. Females made up 52% of injury-related hospitalizations and males made up 53% of injury-related emergency department visits. American Indians sought care in the emergency department and were hospitalized at a higher rate than any other race.

Suicide was the 10th leading cause of death in South Dakota. South Dakotans aged 15 to 24 years had the highest rate of suicides and self-inflicted injuries. Males made up a larger percentage of suicides (78%), while females made up a larger percentage of self-inflicted injury hospitalizations (62%). The rate of self-inflicted injury hospitalizations among American Indians was 4.5 times as high as the White rate.

Assault-related emergency department visits rates were 11.9 times higher among American Indians compared to Whites. The largest percentage of assault-related emergency department visits occurred among South Dakotans aged 25 to 34 years (32%). Being struck was the most common mechanism for both assault-related hospitalizations and emergency department visits.

Falls are the leading cause of injury-related deaths in South Dakota. South Dakotans aged 75 years and older had the most fall-related deaths compared to any other age group. Females made up 54% of fall-related deaths. The rate of fall-related deaths among South Dakotans aged 65 years and older was 1.9 times higher than the national mortality rate.

Motor Vehicle Traffic deaths are the second leading cause of injury-related deaths in South Dakota. The largest percentage of MVT deaths occurred among males (69%). Teens and young adults aged 15 to 24 years accounted for 22% of MVT deaths, the largest percentage compared to any other age group.

Terminology

Injury Intent

Intent of injury reflects the manner of injury. Whether an injury was caused by an act carried out on purpose by oneself or by another person.

Unintentional: Injury or poisoning that is not inflicted by deliberate means (i.e., not on purpose), regardless of whether the injury was inflicted by oneself or by another person.

Intentional: Injuries that are inflicted deliberately, by oneself or by another person, with the goal of injuring or killing. Includes suicide, self-harm, homicide, and assault.

Undetermined: Injuries where intent cannot be determined.

Legal intervention or war: Injuries caused by police or other legal authorities during law enforcement activities. Also includes injuries to military personnel or civilians caused by war or civil insurrection.

Injury Mechanism

Mechanism, or cause, of injury is the way a person sustained an injury or the process by which the injury occurred.

Cut/Pierce: Injury resulting from an incision, slash, perforation, or puncture by a pointed or sharp instrument. This category does not include injury from being struck by or against a blunt object or bite wounds.

Drowning: Suffocation (asphyxia) resulting from submersion in water or another liquid.

Fall: Injury received when a person descends abruptly due to the force of gravity and strikes a surface at the same or lower level.

Fire/Burn: Severed exposure to flames, heat, or chemicals that leads to tissue damage in the skin or places deeper in the body; injury from smoke inhalation to the upper airway, lower airway, or lungs.

Firearm: A penetrating force injury resulting from a bullet or other projectile shot from a powder-charged gun. This category includes gunshot wounds from powder-charged handguns, shotguns, and rifles; it does not include injury caused by compressed air-powder gun or a nail gun, which falls in the "other specified" category.

Machinery: Injury that involves operating machinery, such as drill presses, fork lifts, large power-saws, jack hammers, and commercial meat slicers. This category does not include injury involving machines in operation, falls from escalators or moving sidewalks, or injuries from powered lawn mowers or other powered hand tools or home appliances.

Transportation: Injury involving modes of transportation, such as cars, motorcycles, bicycles, and trains. This category is divided into subcategories according to the person injured and whether the injury occurred in traffic.

Natural/Environmental: Injury resulting from exposure to adverse natural and environmental conditions (such as severe heat, severe cold, lightning, sunstroke, large storms, and natural disasters) as well as lack of food or water.

Overexertion: Working the body or a body part too hard, causing damage to muscle, tendon, ligament, cartilage, joint, or peripheral nerve. This category includes overexertion from lifting, pushing, or pulling or from excessive force.

Poisoning: Ingestion, inhalation, absorption through the skin, or injection of so much of a drug, toxin (biologic or non-biologic), or other chemical that a harmful effect results, such as drug overdoses. This category does not include unexpected adverse effects from normal therapeutic drugs administered correctly to treat a condition or bacterial illnesses.

Struck by/Against: Injury resulting from being struck by or striking against a human, animal, or inanimate object or force other than a vehicle or machinery.

Suffocation: Injury that causes a threat to breathe. This includes suffocation due to hanging, strangulation, or objects that blocks the airway.

Other Specified: Injury association with any other specified causes that does not fit another category.

Unspecified: Injury for which there is not enough information provided to describe the cause of injury.

Fatal Injuries

Fatal Injuries in South Dakota (2009-2018)

From 2009 to 2018, there were 6,331 deaths related to injuries. Figure 1 shows South Dakota injury deaths and rates over ten years. The highest number of deaths occurred during 2017 with 775 deaths, for a rate of 89.1 per 100,000 population.

Figure 1: Number and Rate (per 100,000) of Fatal Injuries, South Dakota (2009-2018)

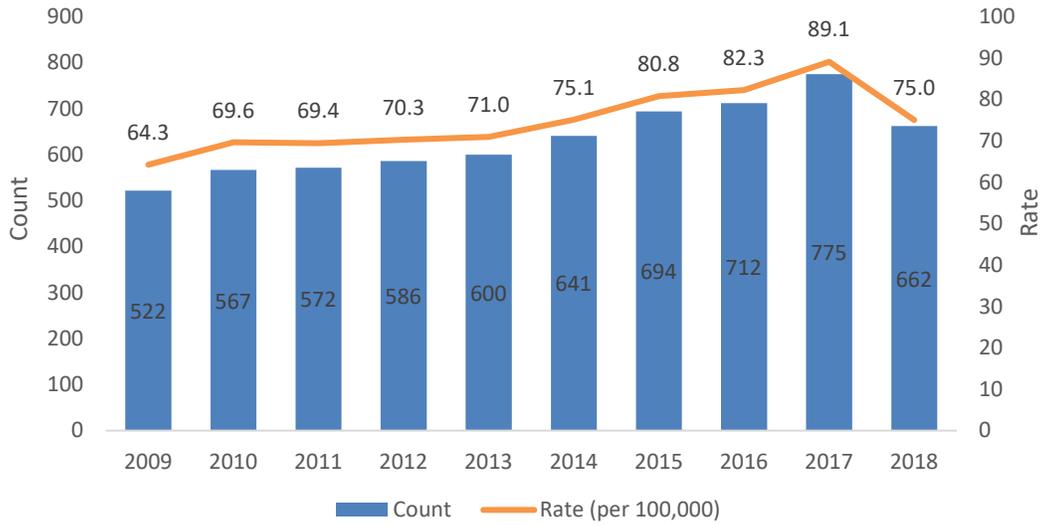
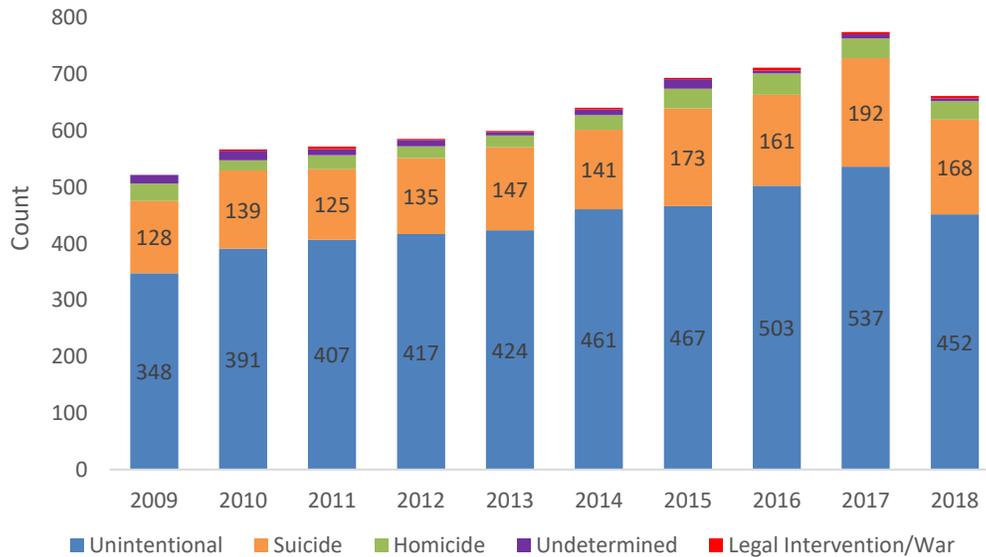


Figure 2 shows the number of fatal injuries by intent. From 2009 to 2018, 69.6% of fatal injuries were unintentional, 23.8% suicide, 4.5% homicide, 1.6% undetermined, and 0.4% legal intervention/war.

Figure 2: Fatal Injuries by Intent of Death, South Dakota (2009-2018)



Injuries in South Dakota

Table 1 shows the number of injury-related deaths by intent and mechanism. Counts less than five are suppressed.

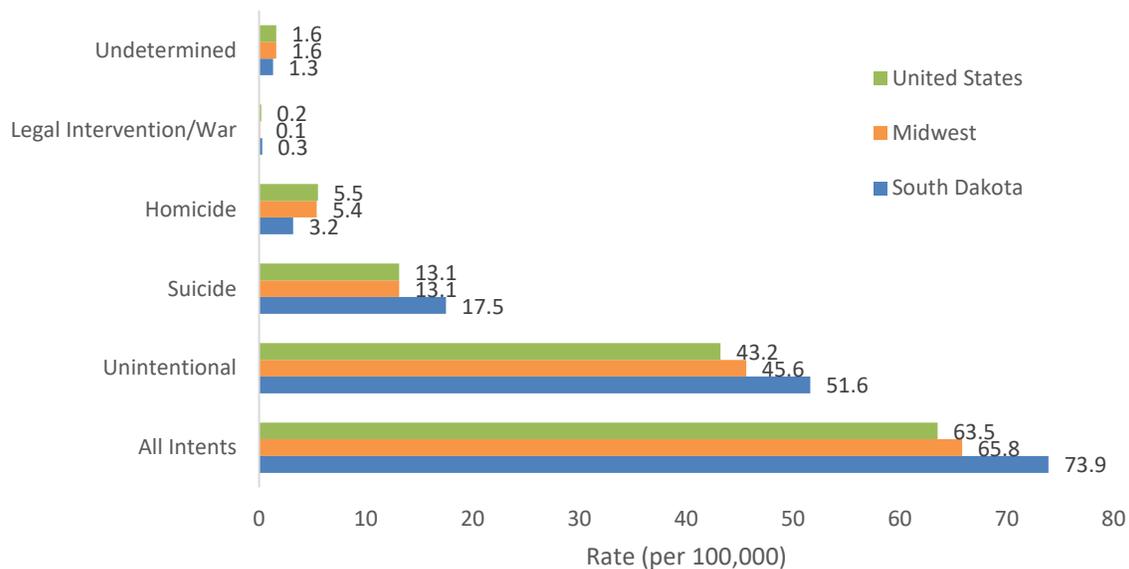
Table 1: Fatal Injuries by Intent and Mechanism of Death, South Dakota (2009-2018)

<u>Mechanism of Death</u>	<u>Intent of Death</u>					
	<u>All Injury</u>	<u>Unintentional</u>	<u>Suicide</u>	<u>Homicide</u>	<u>Undetermined</u>	<u>LI/War</u>
All Injury	6331	4407	1509	283	104	28
Cut/Pierce	83	8	18	56	<5	--
Drowning	107	95	8	--	<5	--
Fall	1565	1548	14	<5	<5	--
Fire/Burn	126	115	5	<5	<5	--
Firearm	895	34	738	95	<5	25
Machinery	52	52	--	--	--	--
Motor Vehicle Traffic (MVT)	1340	1340	--	--	--	--
Pedal Cyclist, Non-MVT	5	5	--	--	--	--
Pedestrian, Non-MVT	20	20	--	--	--	--
Other Transport	126	126	--	--	--	--
Natural/Environmental	126	126	--	--	--	--
Overexertion	<5	<5	--	--	--	--
Poisoning	754	515	179	<5	57	--
Struck By/Against	52	31	--	21	--	--
Suffocation	768	214	532	14	8	--
Other Specified	194	144	12	24	11	<5
Unspecified	116	37	--	63	16	--

Note: Motor vehicle traffic (MVT) includes pedestrians, pedal cyclists, motorcyclists, and vehicle occupants injured in a traffic accident. Non-MVT are injuries sustained in nontraffic accidents. Other transport includes transportation injuries involving animals, trains, boats, aircrafts, all-terrain vehicles, etc.

Figure 3 shows the fatal injury rate by intent for South Dakota, Midwest Region, and the United States. The South Dakota rate was higher than the Midwest and National rate for suicide, unintentional injury, and overall for all intents.

Figure 3: Fatal Injury Rates (per 100,000) by Intent; South Dakota, Midwest, and United States (2008-2017)



Data Source: CDC WISQARS; Midwest States include: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota, and Wisconsin

Injuries in South Dakota

Fatal Injuries by Sex, Race, and Age Group, South Dakota (2009-2018)

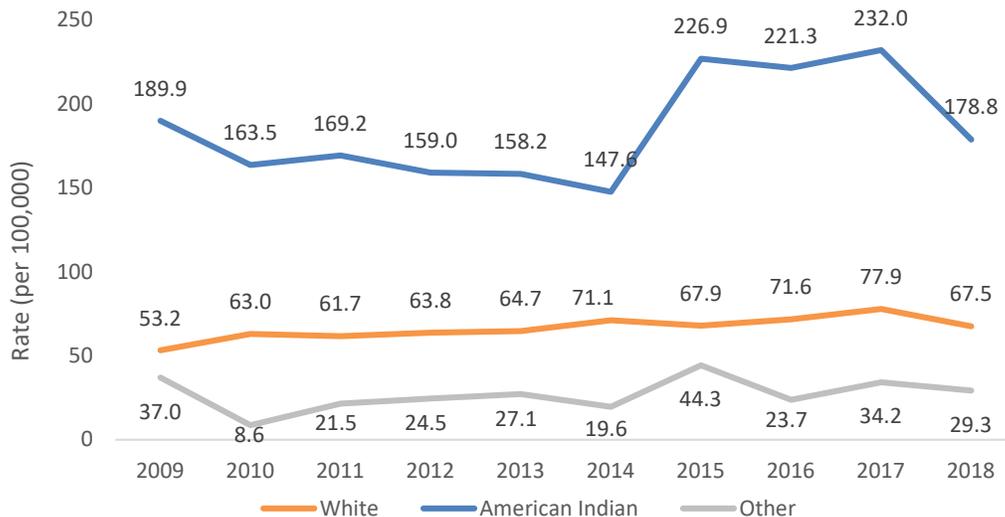
Table 2 shows injury-related deaths by sex, race, and age group. Almost 67% of injury-related deaths occurred among males. The rate of injury-related deaths among American Indians was 2.8 times as high as the White rate.

Table 2: Fatal Injuries by Sex, Race, and Age, South Dakota (2009-2018)

	Fatal Injuries		
	Count	Percent	Rate*
<u>Sex</u>			
Female	2,121	33.5%	62.5
Male	4,210	66.5%	122.5
<u>Race</u>			
White	4,817	76.1%	82.4
American Indian	1,393	22.0%	228.0
Other	121	1.9%	32.1
<u>Age Group</u>			
<1	102	1.6%	105.2
1-4	85	1.3%	21.9
5-14	154	2.4%	16.6
15-24	859	13.6%	91.4
25-34	818	12.9%	91.3
35-44	719	11.4%	92.5
45-54	809	12.8%	95.4
55-64	723	11.4%	80.8
65-74	465	7.3%	81.2
75-84	640	10.1%	200.1
85+	957	15.1%	575.9
TOTAL	6,331	-	92.7
*Rate per 100,000			

Figure 4 shows fatal injury rates for White, American Indian, and Other race groups for years 2009 to 2018. During these years the median American Indian rate (174.0 per 100,000) of fatal injuries was 2.6 times as high as the White race rate (66.1 per 100,000).

Figure 4: Rate of Fatal Injuries by Race (per 100,000), South Dakota (2009-2018)



Non-Fatal Injuries

Non-Fatal Injuries in South Dakota (2011-2018)

From 2011 to 2018, there were 28,935 hospitalizations and 329,446 emergency department (ED) visits related to non-fatal injuries. Figure 5 shows South Dakota non-fatal injuries by year.

Figure 5: Number of Non-Fatal Hospitalizations and Emergency Department Visits, South Dakota (2011-2018)

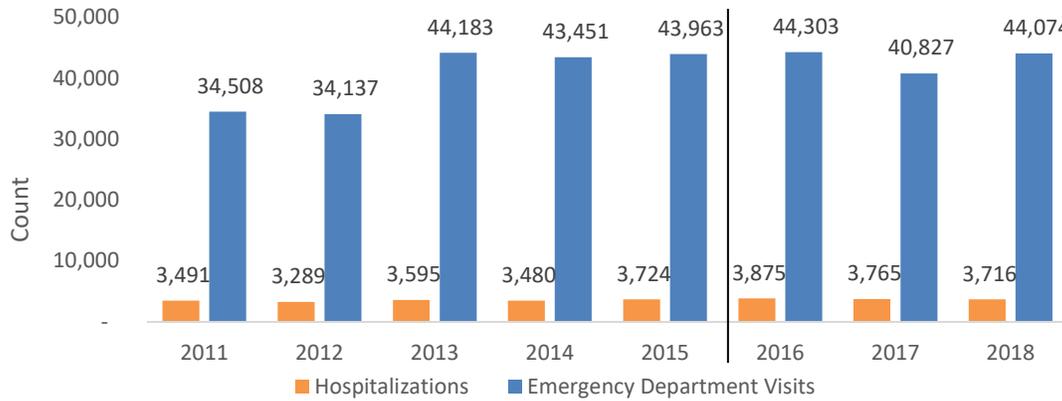


Table 3 shows non-fatal injury visits by intent, sex, race, and age group. Most ED visits and hospitalizations were unintentional in nature.

Table 3: Non-Fatal Injury Visits by Intent, Sex, Race, and Age, South Dakota (2011-2018)

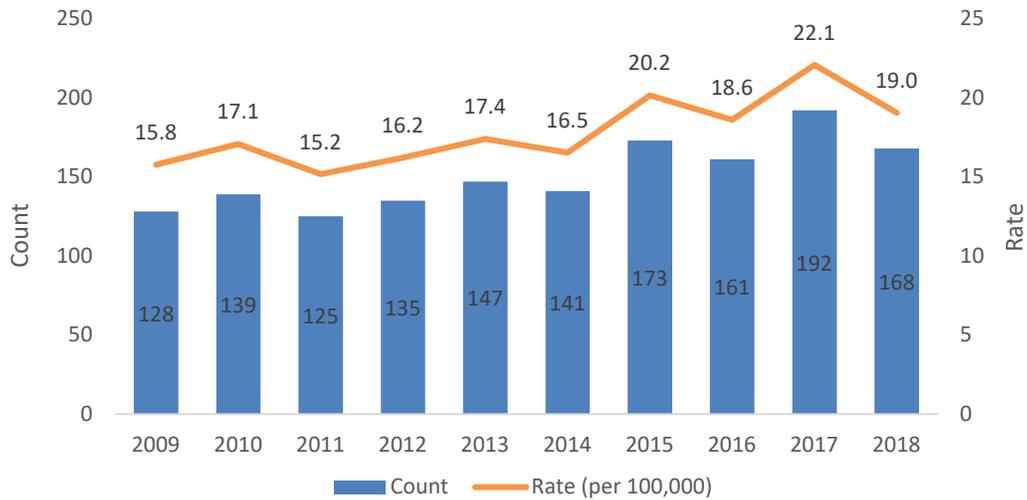
	Injury-Related Hospitalizations			Injury-Related ED Visits		
	Count	Percent	Rate*	Count	Percent	Rate*
Intent						
Unintentional	23,683	81.8%	346.7	306,352	93.0%	4484.5
Self-Inflicted	3,482	12.0%	51.0	6,069	1.8%	88.8
Assault	1,277	4.4%	18.7	15,355	4.7%	224.8
Undetermined	475	1.6%	7.0	1,386	0.4%	20.3
Legal Intervention	18	0.1%	0.3†	284	0.1%	4.2
Sex						
Female	15,122	52.3%	445.6	154,945	47.0%	4566.1
Male	13,812	47.7%	401.8	174,494	53.0%	5075.6
Race						
White	22,271	77.0%	381.1	244,229	74.1%	4179.5
American Indian/Alaska Native	5,183	17.9%	848.4	55,125	16.7%	9023.6
Black	387	1.3%	298.4	8,745	2.7%	6742.0
Asian	101	0.3%	111.6	1,560	0.5%	1723.8
Native Hawaiian/Pacific Islander	37	0.1%	708.7	350	0.1%	6703.7
Two or More Races	135	0.5%	89.1	2,629	0.8%	1735.2
Other/Unknown	821	2.8%	-	16,808	5.1%	-
Age Group						
<1	159	0.5%	164.0	3,829	1.2%	3948.6
1-4	482	1.7%	123.9	27,013	8.2%	6946.1
5-14	1,032	3.6%	111.0	45,688	13.9%	4915.0
15-24	3,198	11.1%	340.2	59,128	17.9%	6289.2
25-34	2,995	10.4%	334.3	50,098	15.2%	5591.2
35-44	2,489	8.6%	320.1	35,010	10.6%	4502.0
45-54	2,926	10.1%	344.9	31,788	9.6%	3746.9
55-64	3,358	11.6%	375.3	27,210	8.3%	3041.1
65-74	3,101	10.7%	541.2	18,888	5.7%	3296.5
75-84	4,201	14.5%	1313.7	15,844	4.8%	4954.8
85+	4,994	17.3%	3005.1	14,950	4.5%	8996.1
TOTAL	28,935	-	423.6	329,446	-	4822.6
*Rate per 100,000						
†Unstable rate due to fewer than 20 observations. Interpret with caution.						

Suicide and Self-Inflicted Injuries

Suicides in South Dakota (2009-2018)

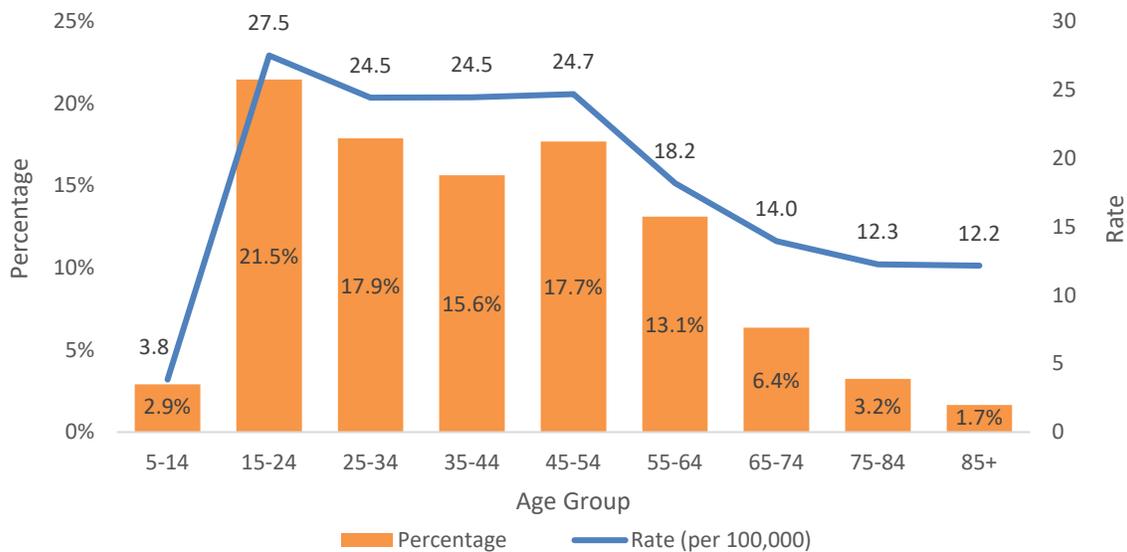
From 2009 to 2018, there were 1,509 suicides in South Dakota. Of those, 75.9% were White, 22.3% American Indian, and 1.8% Other race. Seventy-eight percent of suicides occurred among males and 22% female. By suicide method, 49% involved a firearm, 35% suffocation, 12% poisoning, 1% cut/pierce, 1% fall, 2% other mechanism. Figure 6 shows South Dakota suicide deaths and rates over ten years.

Figure 6: Number and Rate (per 100,000) of Suicides, South Dakota (2009-2018)



The largest proportion of suicides occurred among South Dakotans aged 15 to 54 years. Suicide was the 10th leading cause of death in South Dakota and was the second leading cause of death among individuals aged 15 to 34 years. Figure 7 shows the percentage of suicides by age group.

Figure 7: Suicides by Age, South Dakota (2009-2018)

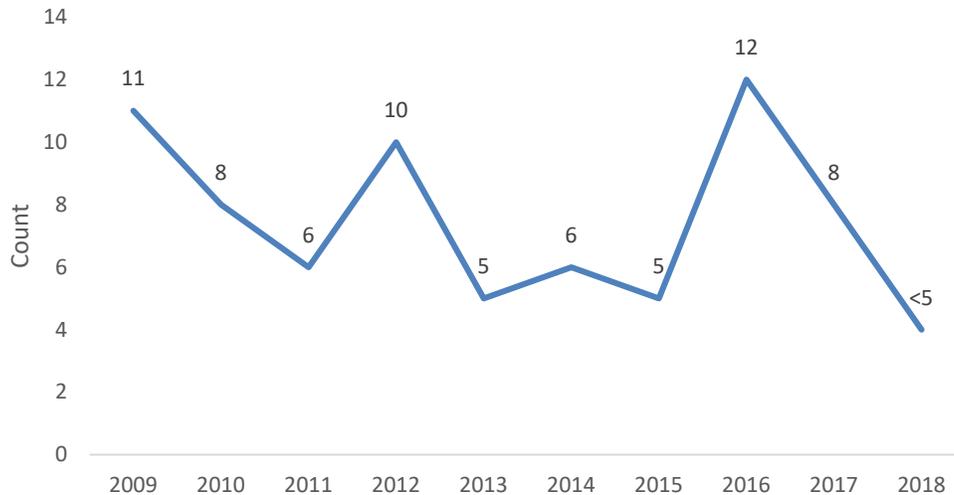


Farmer and Rancher Suicides, South Dakota (2009-2018)

Figure 8 shows the number of farmer and rancher suicides in South Dakota over the last ten years. Suicide counts among farmers and ranchers are based on occupational field text variations of farmer or rancher.

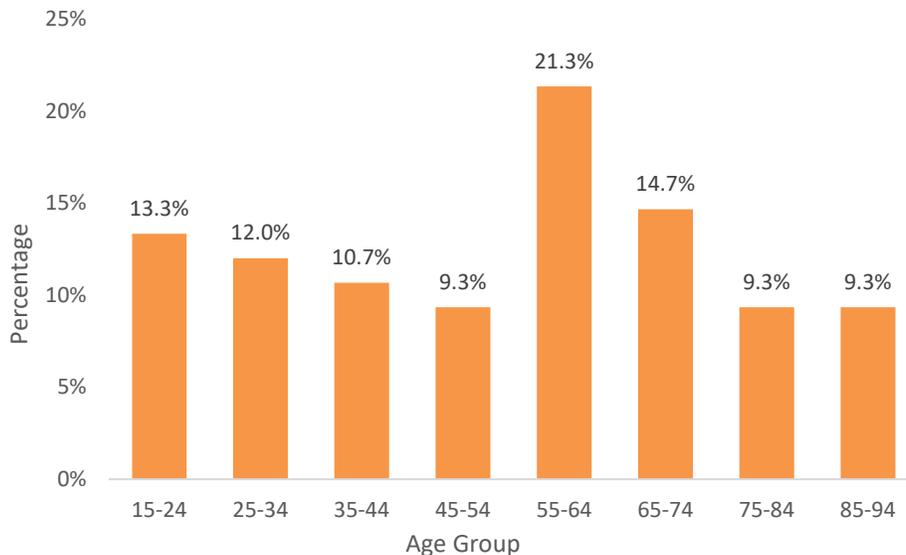
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Figure 8: Number of Farmer and Rancher Suicides, South Dakota (2009-2018)



The figure below shows farmer and rancher suicides by age group in South Dakota. Adults aged 55 to 64 years accounted for most farmer and rancher suicides (21.3%).

Figure 9: Farmer and Rancher Suicides by Age, South Dakota (2009-2018)



Self-Inflicted Injuries in South Dakota (2011-2018)

From 2011 to 2018, there were 3,482 hospitalizations and 6,069 emergency department visits for self-inflicted injuries. For emergency department visits, 57% of self-inflicted injuries were related to poisoning, 29% cut/pierce, 3% suffocation, 1% firearm, 6% other, and 4% unspecified. For hospitalizations, 92% of self-inflicted injuries were related to poisoning, 4% cut/pierce, 2% suffocation, 1% firearm, and 2% other. Figure 10 shows the number of self-inflicted injury hospitalizations and emergency department visits in South Dakota.

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Figure 10: Number of Self-Inflicted Injury Hospitalizations and Emergency Department Visits, South Dakota (2011-2018)

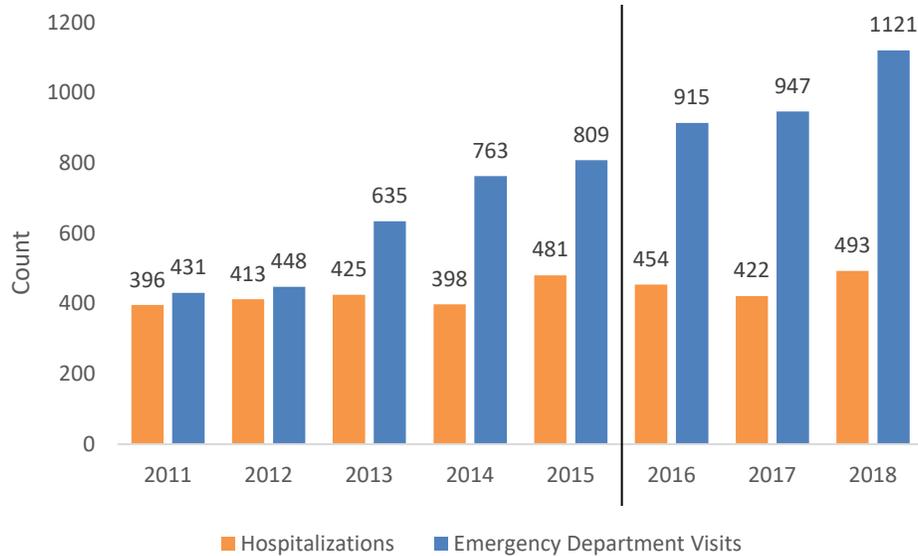


Table 4 shows self-inflicted injury visits by sex, race, and age group from 2011 to 2018. Females had the most self-inflicted injury hospitalizations (62%) and emergency department visits (60%). South Dakotans aged 15 to 24 years made up a larger percentage of visits compared to other age groups during this time.

Table 4: Self-Inflicted Injury Visits by Sex, Race, and Age, South Dakota (2011-2018)

	Self-Inflicted Injury Hospitalizations			Self-Inflicted Injury ED Visits		
	Count	Percent	Rate*	Count	Percent	Rate*
Sex						
Female	2,153	61.8%	63.4	3,637	59.9%	107.2
Male	1,329	38.2%	38.7	2,432	40.1%	70.7
Race						
White	2,216	63.6%	37.9	3,447	56.8%	59.0
American Indian/Alaska Native	1,038	29.8%	169.9	2,034	33.5%	333.0
Black	69	2.0%	53.2	117	1.9%	90.2
Asian	14	0.4%	15.5†	24	0.4%	26.5
Other/Unknown	145	4.2%	-	447	7.4%	-
Age Group						
<15	198	5.7%	21.3	604	10.0%	42.7
15-24	1,023	29.4%	108.8	2,635	43.4%	280.3
25-34	793	22.8%	88.5	1,308	21.6%	146.0
35-44	667	19.2%	85.8	785	12.9%	100.9
45-54	500	14.4%	58.9	478	7.9%	56.3
55-64	209	6.0%	23.4	192	3.2%	21.5
65-74	55	1.6%	9.6	40	0.7%	7.0
75-84	29	0.8%	9.1	18	0.3%	5.6†
85+	8	0.2%	4.8†	9	0.1%	5.4†
TOTAL	3,482	-	51.0	6,069	-	88.8
*Rate per 100,000						
†Unstable rate due to fewer than 20 observations. Interpret with caution.						

Homicide and Assault

Homicides in South Dakota (2009-2018)

From 2009 to 2018, there were 283 homicides in South Dakota. Males made up 73.5% of homicide deaths. In the ten-year time span, 48.4% of homicide deaths were American Indian, 45.2% White, and 6.4% Other race. Of the 283 homicides, 33.6% involved firearms, 22.3% were unspecified, 19.8% cut/pierced by sharp object, 7.4% struck by/against by blunt force, 4.9% suffocation, and 12.0% other (includes: fall, fire/flame, poisoning, motor vehicle traffic, and other specified). Figure 11 shows South Dakota homicide deaths and rates over ten years.

Figure 11: Number and Rate (per 100,000) of Homicides, South Dakota (2009-2018)

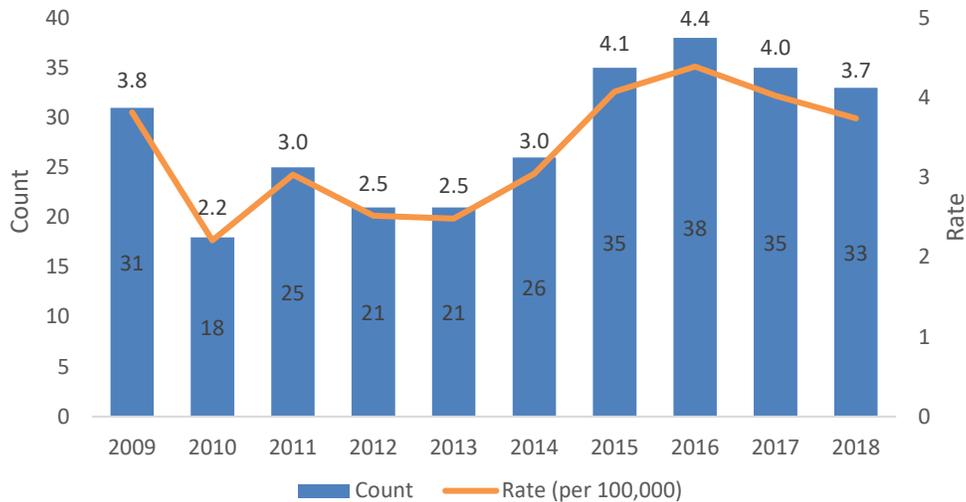
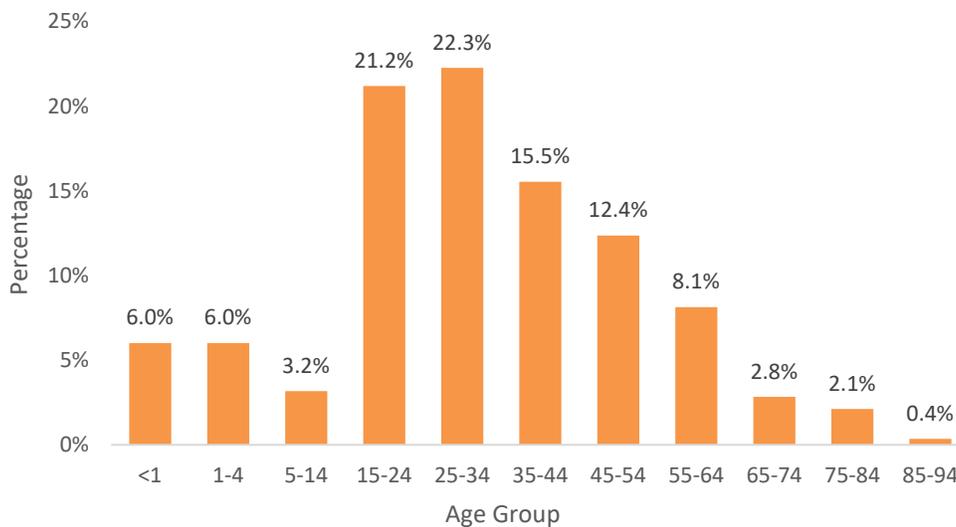


Figure 12 shows homicides by age group. South Dakotans aged 15 to 34 years had the highest number of homicides of any age group.

Figure 12: Homicides by Age, South Dakota (2009-2018)



Assault in South Dakota (2011-2018)

From 2011 to 2018, there were 1,277 hospitalizations and 15,355 emergency department visits for assault-related injuries. Assault-related emergency department visits increased 70.7% from 2011 to 2018. Figure 13 shows the number of assault-related injury hospitalizations and emergency department visits in South Dakota.

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Figure 13: Number of Assault-Related Hospitalizations and Emergency Department Visits, South Dakota (2011-2018)

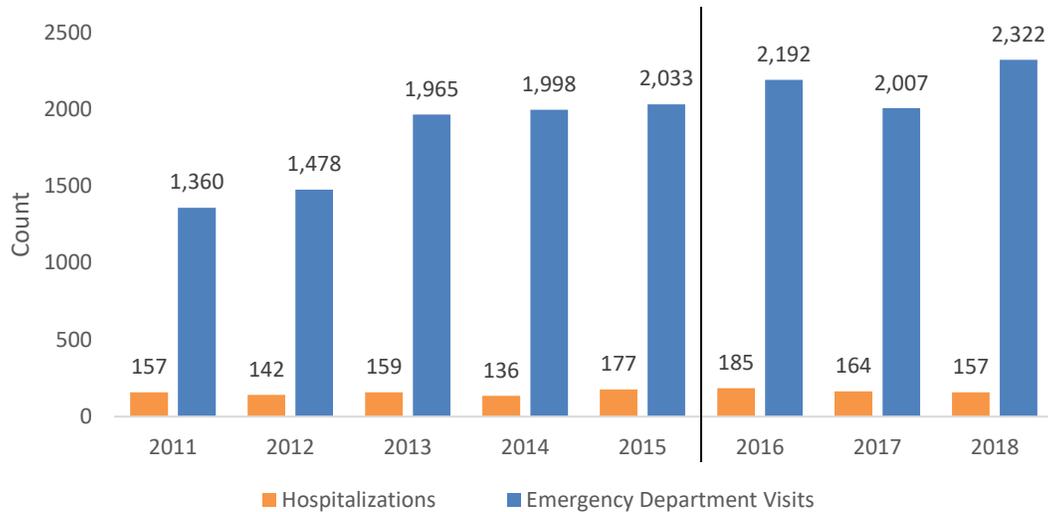


Table 5 shows assault-related visits by sex, race, and age group in South Dakota. Two populations, males and American Indians, had the highest number of assault-related hospitalizations and emergency department visits. South Dakotans aged 25 to 34 years made up the largest percentage of assault-related visits and had some of the highest rates compared to other age groups.

Table 5: Assault-Related Visits by Sex, Race, and Age Group, South Dakota (2011-2018)

	Assault-Related Hospitalizations			Assault-Related ED Visits		
	Count	Percent	Rate*	Count	Percent	Rate*
<u>Sex</u>						
Female	261	20.4%	7.7	6,949	45.3%	204.8
Male	1,016	79.6%	29.6	8,406	54.7%	244.5
<u>Race</u>						
White	318	24.9%	5.4	6,093	39.7%	104.3
American Indian/Alaska Native	856	67.0%	140.1	7,592	49.4%	1242.8
Black	55	4.3%	42.4	691	4.5%	532.7
Other/Unknown	48	3.8%	-	979	6.4%	-
<u>Age Group</u>						
<1	43	3.4%	44.3	47	0.3%	48.5
1-4	21	1.6%	5.4	123	0.8%	31.6
5-14	18	1.4%	1.9†	552	3.6%	59.4
15-24	285	22.3%	30.3	4,548	29.6%	483.8
25-34	395	30.9%	44.1	4,884	31.8%	545.1
35-44	247	19.3%	31.8	2,827	18.4%	363.5
45-54	185	14.5%	21.8	1,606	10.5%	189.3
55-64	63	4.9%	7.0	626	4.1%	70.0
65-74	13	1.0%	2.3†	95	0.6%	16.6
75-84	5	0.4%	1.6†	32	0.2%	10.0
85+	<5	0.2%	1.2†	15	0.1%	9.0†
TOTAL	1,277	-	18.7	15,355	-	224.8
*Rate per 100,000						
†Unstable rate due to fewer than 20 observations. Interpret with caution.						

Table 6 shows assault-related visits by race and sex for individuals ages 15 to 44 years. Assault-related visits were highest among American Indian males. Hospitalization rates were 24.2 times higher for American Indian males compared to White males and 45.3 times higher for American Indian females compared to White females.

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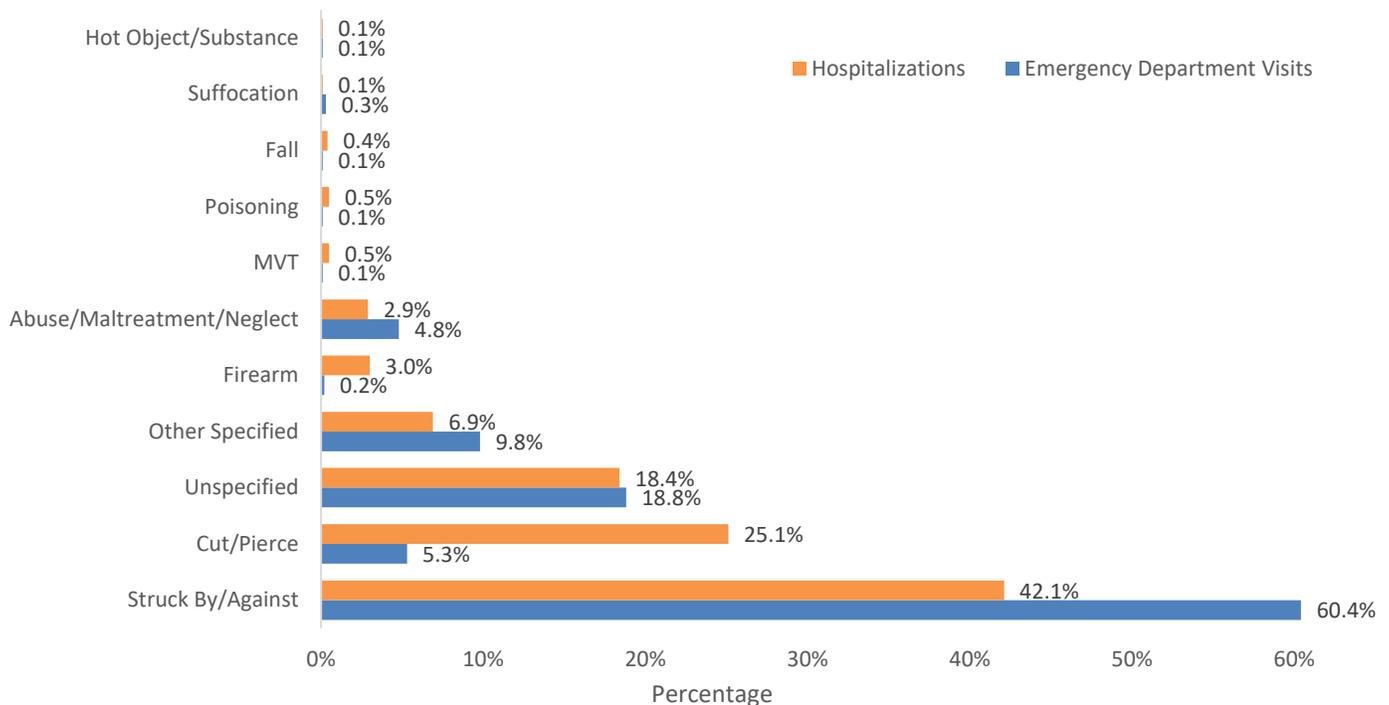
Table 6: Rate of Assault-Related Visits by Race and Sex, Ages 15-44 Years, South Dakota (2009-2018)

Race and Sex	Assault- Related Hospitalizations	Assault-Related ED Visits
	Rate*	Rate*
White Male	15.8	235.0
White Female	2.3	201.6
American Indian Male	382.5	2314.5
American Indian Female	104.2	2323.4

*Rate per 100,000

Figure 14 shows assault-related injuries by mechanism. Struck by/against was the most common mechanism for both hospitalizations (42%) and emergency department visits (60%).

Figure 14: Assaults by Mechanism, South Dakota (2011-2018)



Fall-Related Deaths and Injuries

Fall-Related Deaths in South Dakota (2009-2018)

From 2009 to 2018, 1,565 fall-related deaths occurred in South Dakota. During the ten-year period, 92.9% of fall-related deaths occurred among Whites, 6.5% American Indian, and 0.6% Other races. Females made up 53.5% of fall-related deaths and males 46.5%. Ninety-nine percent of fall-related deaths were unintentional (accidents). Of the 1,565 fall-related deaths, 47.2% of falls occurred at home, 38.7% occurred at residential institutions, and 14.1% occurred in other locations. Figure 15 shows the number and rate of fall-related deaths by year.

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Figure 15: Number and Rate (per 100,000) of Fall-Related Deaths, South Dakota (2009-2018)

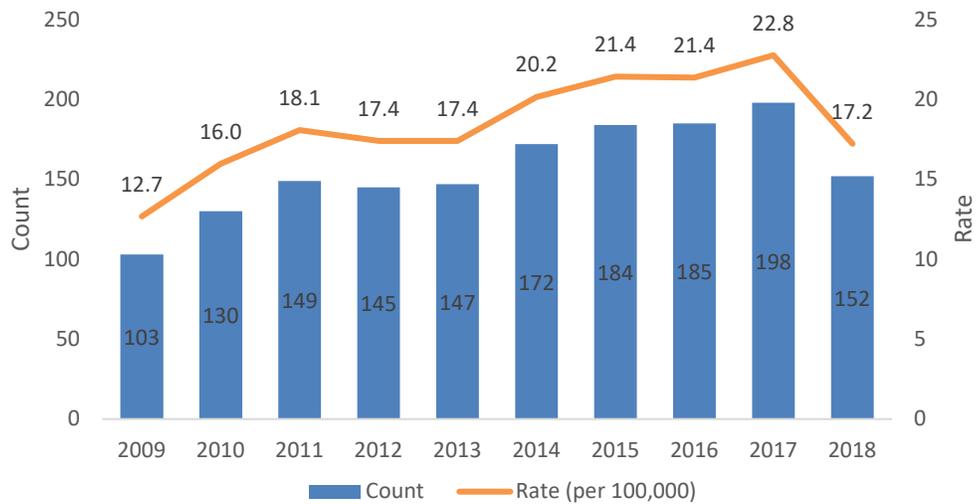
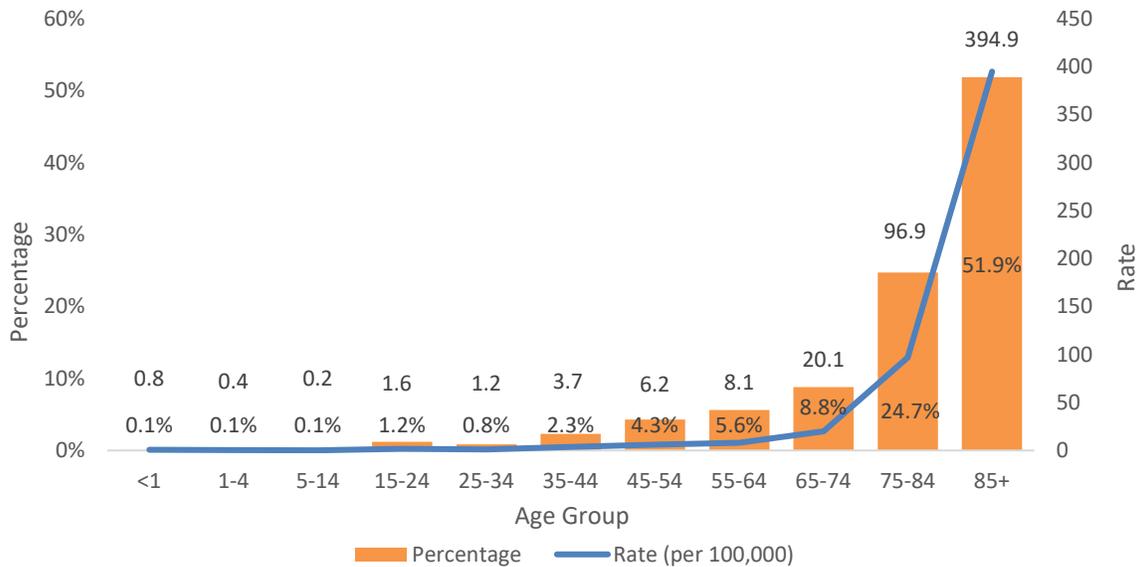


Figure 16 shows fall-related deaths by age group. South Dakotans aged 75 and older had the most fall-related deaths compared to any other age group.

Figure 16: Fall-Related Deaths by Age Group, South Dakota (2009-2018)



Fall-Related Injuries (2011-2018)

From 2011 to 2018, there were 14,751 fall-related hospitalizations and 117,229 fall-related emergency department visits. Figure 17 shows the number of fall-related hospitalizations and emergency department visits by year.

Injuries in South Dakota

Figure 17: Fall-Related Hospitalizations and Emergency Department Visits, South Dakota (2011-2018)

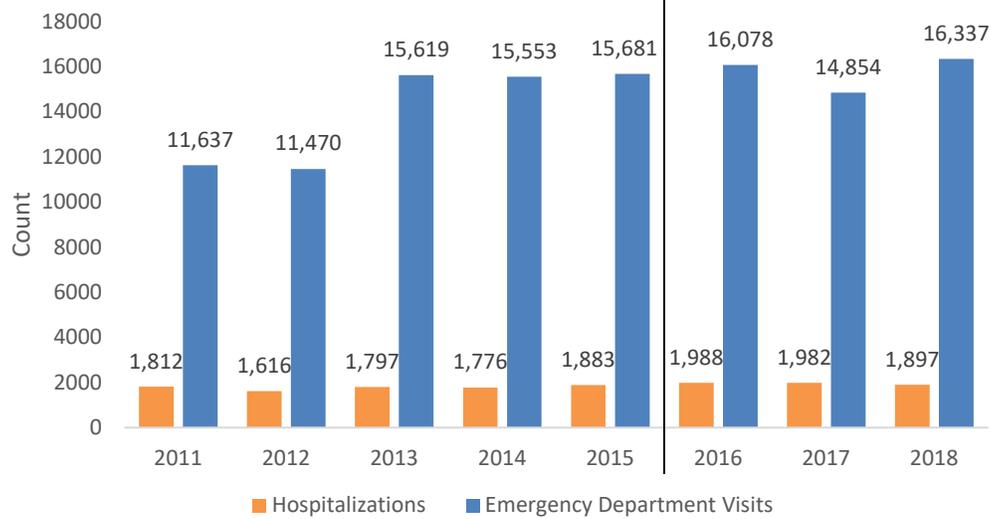


Table 7 shows fall-related visits by sex, race, and age group. The fall-related hospitalization rate was 1.7 times higher among females than males and ED visit rate was 1.2 times higher among females. The American Indian fall-related hospitalization rate was 1.0 times higher than the Whites and ED visit rate was 1.8 times higher among American Indians compared to the White race. South Dakotans aged 55 and older make up the largest percentage of fall-related hospitalizations and have some of the highest rates compared to other age groups.

Table 7: Fall-Related Visits by Sex, Race, and Age Group, South Dakota (2011-2018)

	Fall-Related Hospitalizations			Fall-Related ED Visits		
	Count	Percent	Rate*	Count	Percent	Rate*
Sex						
Female	9,180	62.2%	270.5	64,701	55.2%	1906.7
Male	5,570	37.8%	162.0	52,522	44.8%	1527.7
Race						
White	12,834	87.0%	219.6	91,570	78.1%	1567.0
American Indian/Alaska Native	1,385	9.4%	226.7	16,771	14.3%	2745.3
Black	70	0.5%	54.0	2,295	2.0%	1769.3
Asian	30	0.2%	33.1	439	0.4%	485.1
Other/Unknown	432	2.9%	-	6,154	5.2%	-
Age Group						
<1	51	0.3%	52.6	2,058	1.8%	2122.31
1-4	152	1.0%	39.1	11,498	9.8%	2956.59
5-14	239	1.6%	25.7	14,842	12.7%	1596.7
15-24	267	1.8%	28.4	10,981	9.4%	1168.0
25-34	395	2.7%	44.1	11,035	9.4%	1231.6
35-44	492	3.3%	63.3	9,214	7.9%	1184.8
45-54	918	6.2%	108.2	10,994	9.4%	1295.9
55-64	1,821	12.3%	203.5	12,044	10.3%	1346.1
65-74	2,157	14.6%	376.5	10,525	9.0%	1836.9
75-84	3,591	24.3%	1123.0	11,442	9.8%	3578.2
85+	4,668	31.6%	2809.0	12,596	10.7%	7579.6
TOTAL	14,751	-	215.9	117,229	-	1716.1
*Rate per 100,000						

Injuries in South Dakota

Fall-Related Deaths Among Adults Aged 65 and Older, South Dakota

From 2009 to 2018, 1,337 fall-related deaths occurred among adults aged 65 and older. Figure 18 shows fall-related deaths by year. In 2017, the rate (per 100,000) of falls was 117.2 in South Dakota and the national rate was 61.7. Of the 1,337 fall-related deaths, 46% of injuries occurred at home, 44% at a residential facility, and 10% in other locations.

Figure 18: Fall-Related Deaths, Adults Aged 65 and Older, South Dakota (2009-2018)

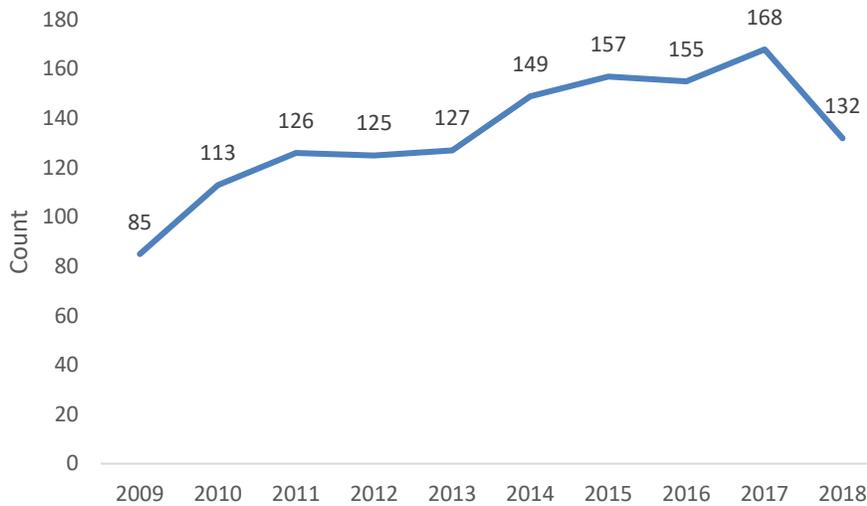
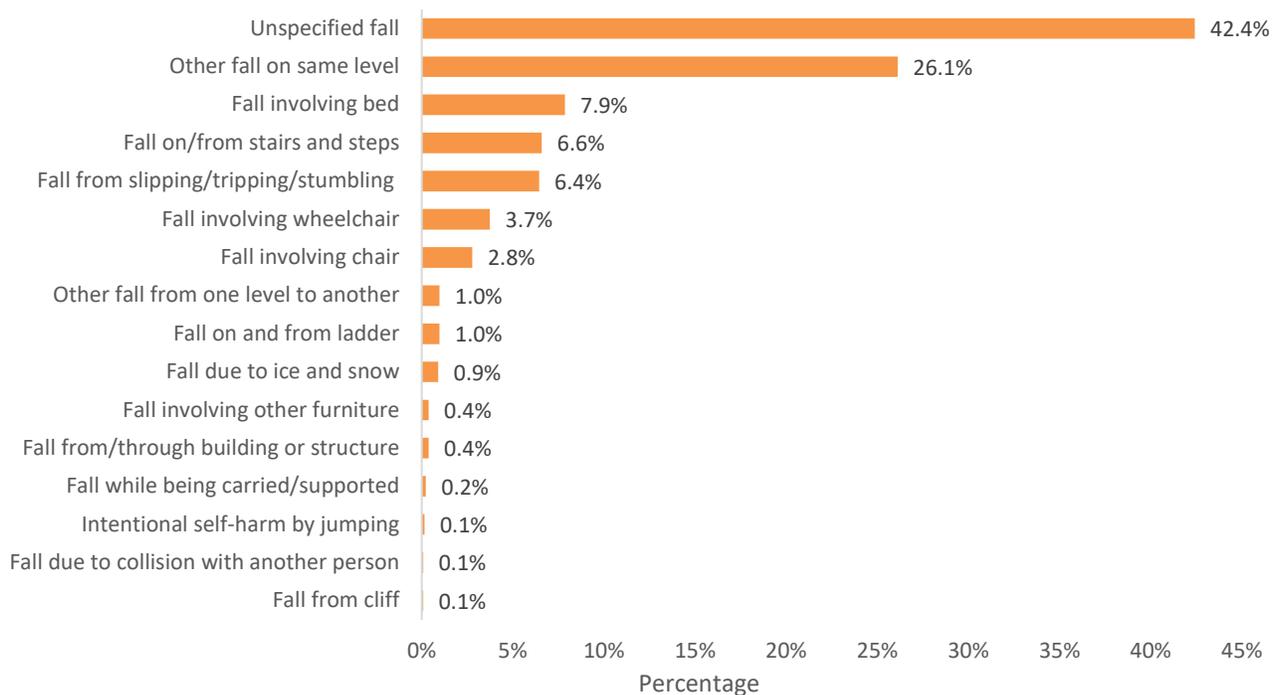


Figure 19 shows fall-related deaths by type of fall for adults aged 65 and older. Some of the most common types of falls include a fall on the same level (26.1%), fall involving a bed (7.9%), fall involving stairs or steps (6.6%), and fall from slipping, tripping, or stumbling (6.4%).

Figure 19: Fall-Related Deaths by Type of Fall Among Adults Aged 65 and Older, South Dakota (2009-2018)



Motor Vehicle Traffic Deaths and Injuries

Motor Vehicle Traffic Deaths in South Dakota (2009-2018)

From 2009 to 2018, 1,340 motor vehicle traffic (MVT) deaths occurred in South Dakota. Figure 20 shows the number and rate of MVT deaths by year. Sixty-nine percent were male and 31% female. Over the ten years, 68.1% of MVT deaths occurred among Whites, 29.4% American Indian, and 2.5% Other races. Of the 1,340 MVT deaths, 72.4% were vehicle occupants, 8.9% pedestrians, 8.8% motorcyclists, 0.5% pedal cyclists, and 9.4% unspecified.

Figure 20: Number and Rate (per 100,000) of Motor Vehicle Traffic Deaths, South Dakota (2009-2018)

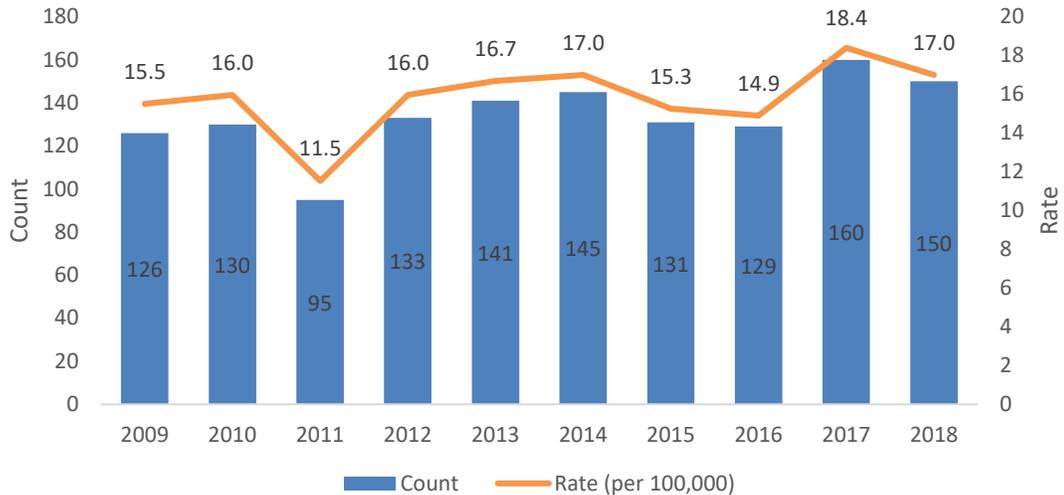


Figure 21 shows motor vehicle traffic deaths by age group. Teens and young adults aged 15 to 24 years accounted for 21.9% of MVT deaths, the most MVT deaths of any age group.

Figure 21: Motor Vehicle Traffic Deaths by Age Group, South Dakota (2009-2018)

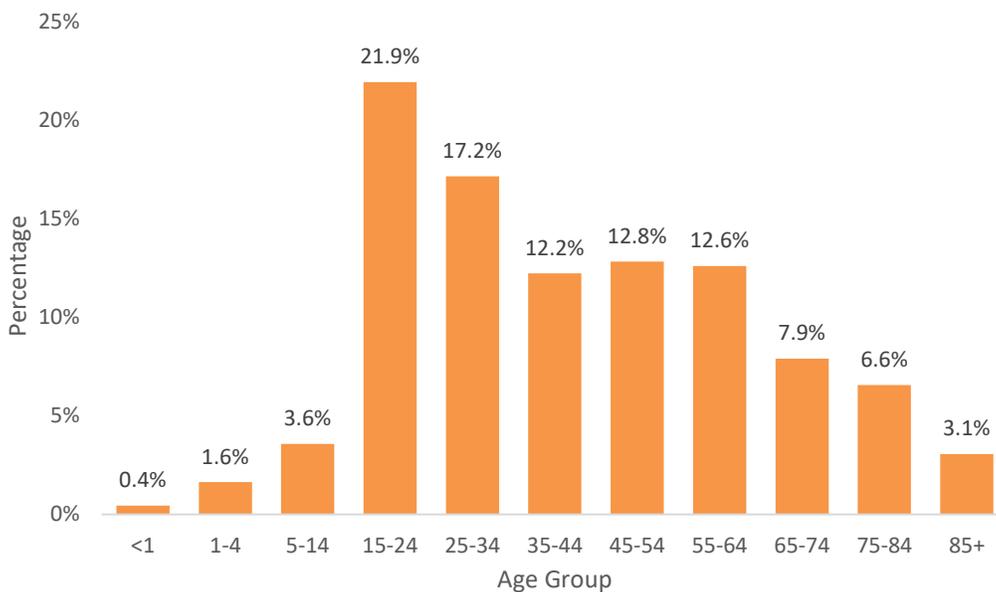
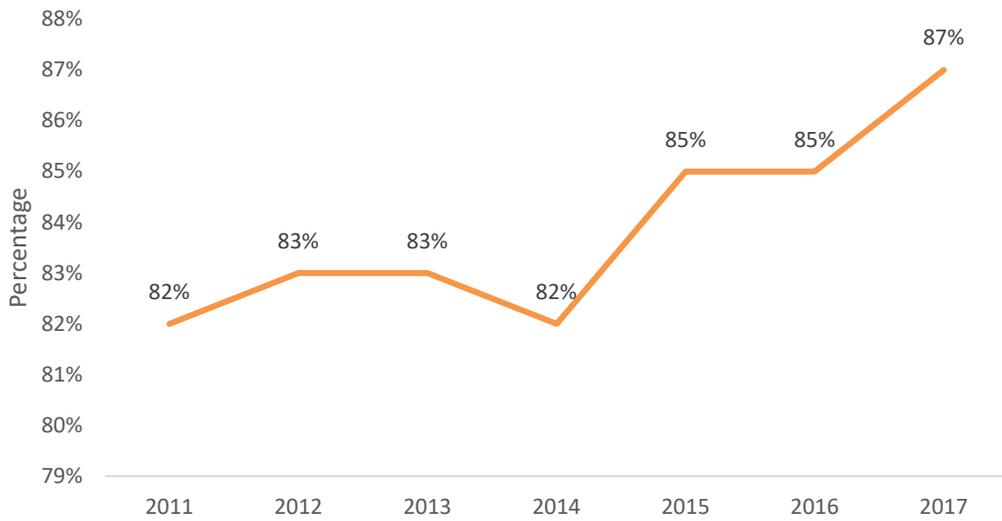


Figure 22 shows the percent of South Dakotans who always or nearly always wear a seat belt. This data is based on self-reported seat belt use from the Behavioral Risk Factor Surveillance System (BRFSS) survey. In 2017, the percentage of South Dakotans reporting that they always or nearly always wear a seat belt was 87% and the nationwide median was 94%.

Injuries in South Dakota

Figure 22: Percent of South Dakotans Who Always or Nearly Always Wear a Seat Belt, BRFSS (2011-2017)



Source: Behavioral Risk Factor Surveillance System (BRFSS), South Dakota

Motor Vehicle Traffic Injuries in South Dakota (2011-2018)

From 2011 to 2018, there were 3,247 hospitalizations and 26,182 emergency department visits related to motor vehicle traffic injuries. Figure 23 shows the number of MVT-related hospitalizations and emergency department visits by year. Of the 3,247 MVT injury hospitalizations, 63.2% were vehicle occupants, 16.3% motorcyclists, 7.5% pedestrians, 1.6% pedal cyclists, 1.4% other, and 10.0% unspecified. Of the 26,182 MVT injury emergency department visits, 77.6% were vehicle occupants, 6.4% motorcyclists, 3.0% pedestrians, 2.4% pedal cyclists, 0.4% other, and 10.2% unspecified.

Figure 23: Motor Vehicle Traffic Injury Hospitalizations and Emergency Department Visits, South Dakota (2011-2018)

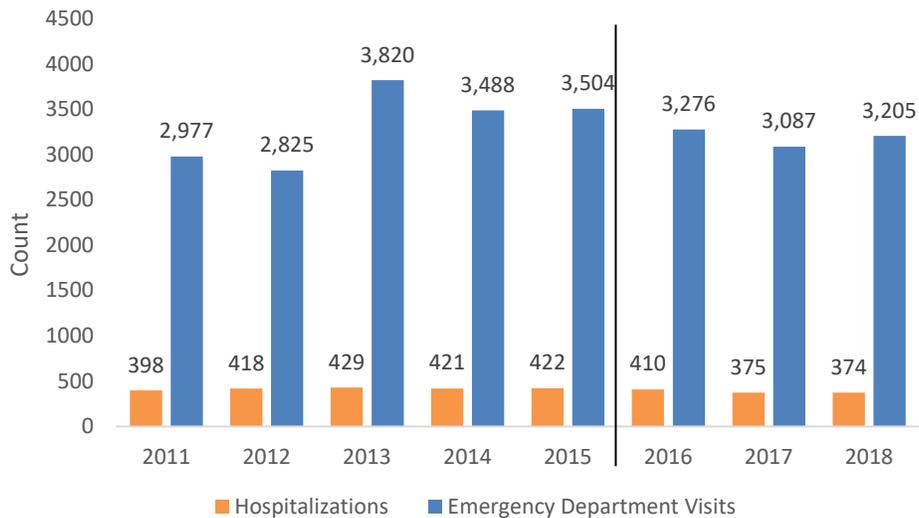


Table 8 shows motor vehicle traffic injury visits by sex, race, and age group. A higher percentage of individuals aged 15 to 24 years sought care in the emergency department or were hospitalized compared to all other age groups.

Injuries in South Dakota

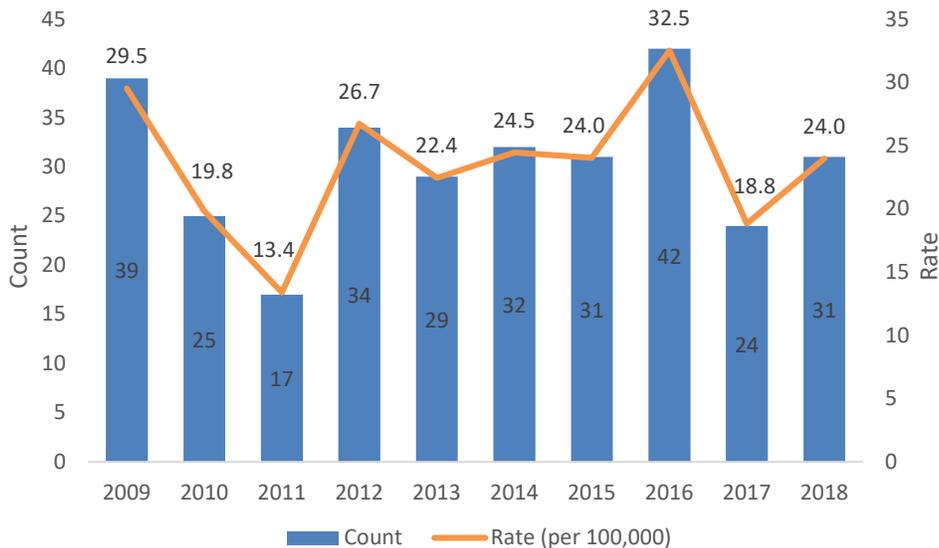
Table 8: Motor Vehicle Traffic Injury Visits by Sex, Race, and Age Group, South Dakota (2011-2018)

	MVT Injury Hospitalizations			MVT Injury ED Visits		
	Count	Percent	Rate*	Count	Percent	Rate*
<u>Sex</u>						
Female	1,234	38.0%	36.4	14,021	53.6%	413.2
Male	2,013	62.0%	58.6	12,161	46.4%	353.7
<u>Race</u>						
White	2,302	70.9%	39.4	19,373	74.0%	331.5
American Indian/Alaska Native	731	22.5%	119.7	3,895	14.9%	637.6
Black	76	2.3%	58.6	1,177	4.5%	907.4
Asian	26	0.8%	28.7	212	0.8%	234.3
Other/Unknown	112	3.4%	-	1,525	5.8%	-
<u>Age Group</u>						
<1	7	0.2%	7.2†	172	0.7%	177.4
1-4	51	1.6%	13.1	643	2.5%	165.3
5-14	140	4.3%	15.1	2,288	8.7%	246.1
15-24	765	23.6%	81.4	7,831	29.9%	833.0
25-34	565	17.4%	63.1	5,113	19.5%	570.6
35-44	378	11.6%	48.6	3,135	12.0%	403.1
45-54	452	13.9%	53.3	2,787	10.6%	328.5
55-64	411	12.7%	45.9	2,151	8.2%	240.4
65-74	235	7.2%	41.0	1,180	4.5%	205.9
75-84	170	5.2%	53.2	645	2.5%	201.7
85+	73	2.2%	43.9	237	0.9%	142.6
TOTAL	3,247	-	47.5	26,182	-	383.3
*Rate per 100,000						
†Unstable rate due to fewer than 20 observations. Interpret with caution.						

Motor Vehicle Traffic Deaths and Injuries Among Teens and Young Adults Aged 14 to 24 Years, South Dakota

For individuals aged 14 to 24 years, there were 304 deaths, 803 hospitalizations, and 8,329 emergency department visits related to motor vehicle traffic injuries in South Dakota (2009-2018, 2011-2018). Of the 304 MVT deaths, 77.6% were vehicle occupants, 7.6% pedestrians, 4.3% motorcyclists, 0.7% pedal cyclists, and 9.9% unspecified. Figure 24 shows MVT deaths by year.

Figure 24: Motor Vehicle Traffic Deaths Among Teens and Young Adults Aged 14 to 24 Years, South Dakota (2009-2018)



Injuries in South Dakota

The figure below displays MVT death rates by race and sex for teens and young adults aged 14 to 24. Motor vehicle traffic death rates are higher among American Indians for both males and females.

Figure 25: Motor Vehicle Traffic Deaths Rates (per 100,000) by Race and Sex, Ages 14 to 24 Years, South Dakota (2009-2018)

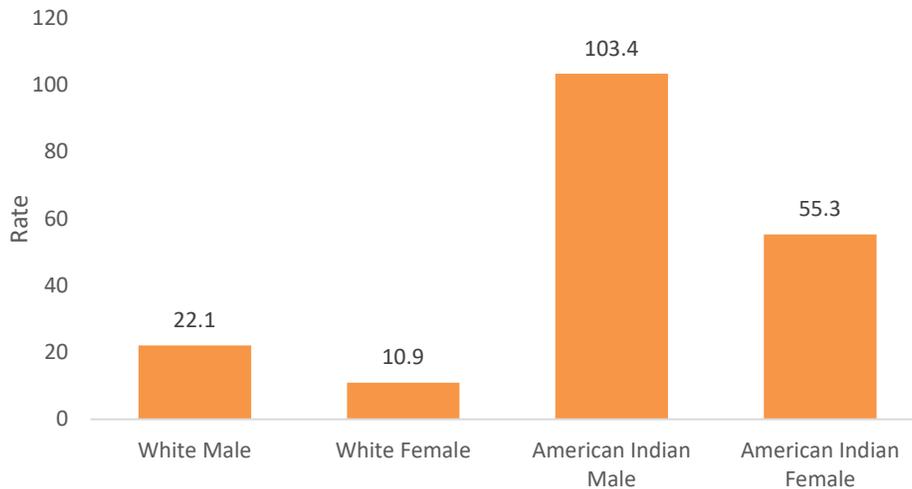


Table 9 shows motor vehicle traffic deaths and injury visits by age group. A higher percentage of 20 to 24 year olds sought care in the emergency department or were hospitalized compared to the other age groups. Individuals aged 18 to 19 years experienced a higher rate of deaths, hospitalizations, and emergency department visits compared to all other age groups.

Table 9: Motor Vehicle Traffic Deaths and Injury Visits, Ages 14 to 24 Years, South Dakota (2009-2018, 2011-2018)

Age Group	MVT Deaths			MVT Injury Hospitalizations			MVT Injury ED Visits		
	Count	Percent	Rate*	Count	Percent	Rate*	Count	Percent	Rate*
14-15	28	9.2%	12.7	110	13.7%	49.9	1179	14.2%	534.3
16-17	54	17.8%	24.1	129	16.1%	57.5	1733	20.8%	772.8
18-19	66	21.7%	27.5	163	20.3%	68.0	1858	22.3%	775.3
20-24	156	51.3%	25.9	401	49.9%	66.6	3559	42.7%	590.9
TOTAL	304	-	23.6	803	-	62.4	8329	-	647.3

*Rate per 100,000

Poisoning-Related Deaths and Injuries

Poisoning-Related Deaths in South Dakota (2009-2018)

From 2009 to 2018, 754 poisoning-related deaths occurred in South Dakota. Poisoning deaths include both drug and non-drug substances. Figure 26 shows the number and rate of poisoning-related deaths in South Dakota by year. Males account for 58.5% of poisonings and females for 41.5%. Seventy-six percent of poisoning deaths were among Whites, 22% American Indian, and 2% Other races. Of the 754 poisoning-related deaths, 68.3% were unintentional, 23.7% suicide, 7.6% undetermined, and 0.4% homicide.

Injuries in South Dakota

Figure 26: Number and Rate (per 100,000) of Poisoning-Related Deaths, South Dakota (2009-2018)

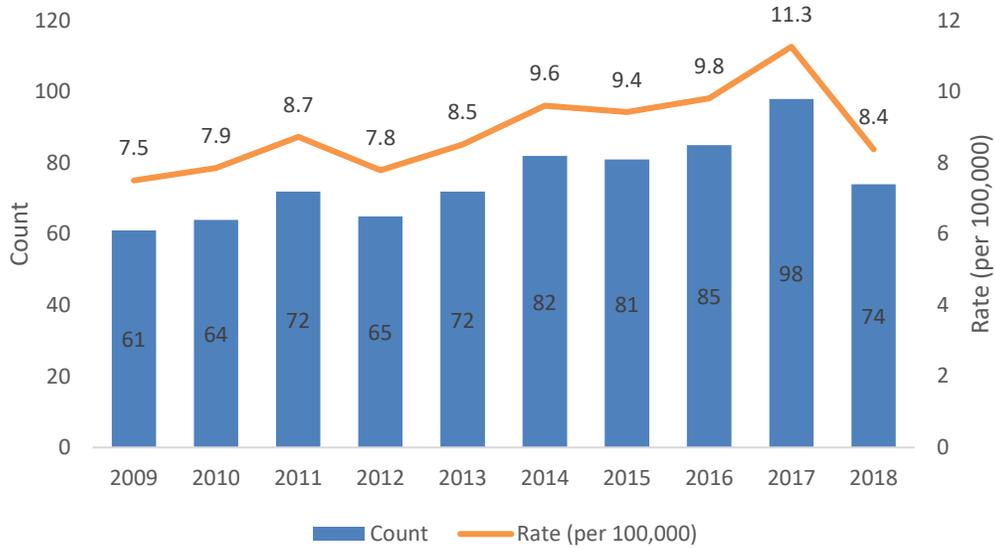
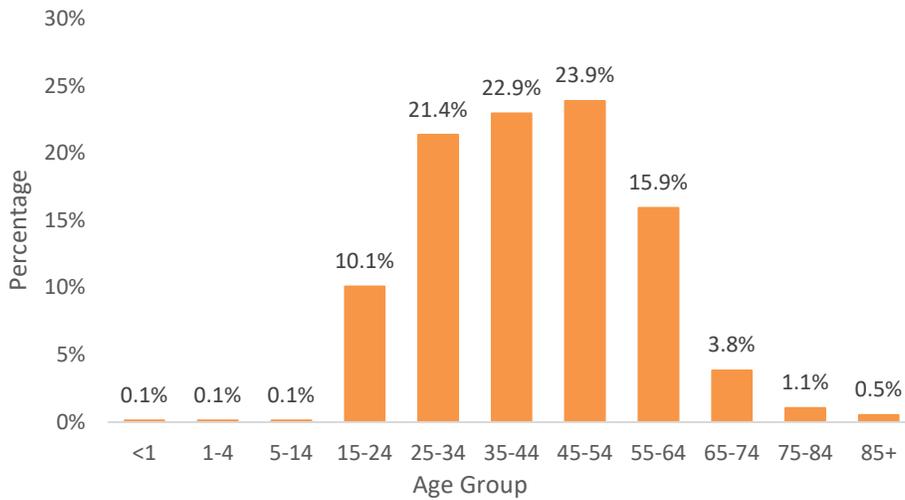


Figure 27 shows poisoning-related deaths by age group. South Dakotans aged 25 to 54 years accounted for 68.2% of all poisoning-related deaths.

Figure 27: Poisoning-Related Deaths by Age Group, South Dakota (2009-2018)



Non-Fatal Poisonings in South Dakota (2011-2018)

From 2011 to 2018, there were 5,039 hospitalizations and 8,625 emergency department visits related to drug and non-drug poisonings. Figure 28 shows poisoning-related hospitalizations and emergency department visits by year. Of the 5,039 poisoning-related hospitalizations, 63.6% were self-inflicted, 27.6% unintentional, 8.7% undetermined, and 0.1% assault. For poisoning-related emergency department visits, 49.0% were unintentional, 39.8% self-inflicted, 10.8% undetermined, and 0.3% assault.

Injuries in South Dakota

Figure 28: Poisoning-Related Hospitalizations and Emergency Department Visits, South Dakota (2011-2018)

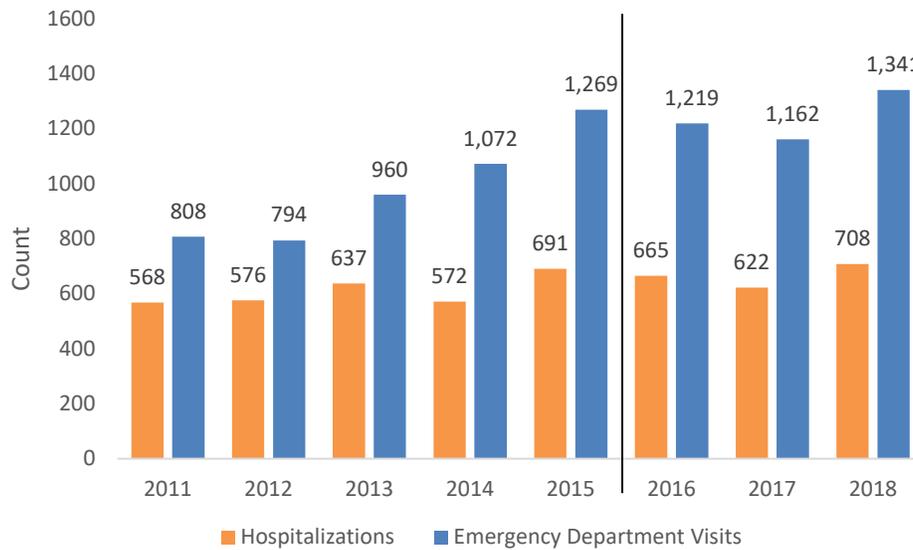


Table 10 shows poisoning-related visits by sex, race, and age group. Females had more poisoning-related ED visits and hospitalizations compared to males. Whites made up a larger percentage of poisonings, but American Indians had a higher rate. South Dakotans aged 15 to 24 years had the most poisoning-related hospitalizations compared to any other age group, but children aged 1 to 4 years were more frequently seen in the emergency department (297.3 ED visits per 100,000) for poisoning-related incidents.

Table 10: Poisoning-Related Visits by Sex, Race, and Age Group, South Dakota (2011-2018)

	Poisoning-Related Hospitalizations			Poisoning-Related ED Visits		
	Count	Percent	Rate*	Count	Percent	Rate*
Sex						
Female	2,999	59.5%	88.4	4,902	56.8%	144.5
Male	2,040	40.5%	59.3	3,723	43.2%	108.3
Race						
White	3,372	66.9%	57.7	5,604	65.0%	95.9
American Indian/Alaska Native	1,305	25.9%	213.6	2,175	25.2%	356.0
Black	114	2.3%	87.9	210	2.4%	161.9
Asian	21	0.4%	23.2	42	0.5%	46.4
Other/Unknown	227	4.5%	-	594	6.9%	-
Age Group						
<1	10	0.2%	10.3†	161	1.9%	166.0
1-4	89	1.8%	22.9	1,156	13.4%	297.3
5-14	249	4.9%	26.8	822	9.5%	88.4
15-24	1,232	24.4%	131.0	2,487	28.8%	264.5
25-34	1,001	19.9%	111.7	1,343	15.6%	149.9
35-44	851	16.9%	109.4	930	10.8%	119.6
45-54	748	14.8%	88.2	767	8.9%	90.4
55-64	433	8.6%	48.4	440	5.1%	49.2
65-74	239	4.7%	41.7	255	3.0%	44.5
75-84	138	2.7%	43.2	165	1.9%	51.6
85+	49	1.0%	29.5	99	1.1%	59.6
TOTAL	5,039	-	73.8	8,625	-	126.3
*Rate per 100,000						
†Unstable rate due to fewer than 20 counts. Interpret with caution.						

Suffocation-Related Deaths and Injuries

Suffocation-Related Deaths in South Dakota (2009-2018)

From 2009 to 2018, 768 suffocations occurred in South Dakota. Figure 29 shows the number and rate of suffocations over a ten-year period. Seventy-three percent of suffocations were males and 27% female. Fifty-seven percent of suffocations were White, 40.5% American Indian, and 2.5% Other race. Of the 768 suffocation-related deaths, 69.3% were suicide, 27.9% unintentional, 1.8% homicide, and 1.0% undetermined.

Figure 29: Number and Rate (per 100,000) of Suffocation-Related Deaths, South Dakota (2009-2018)

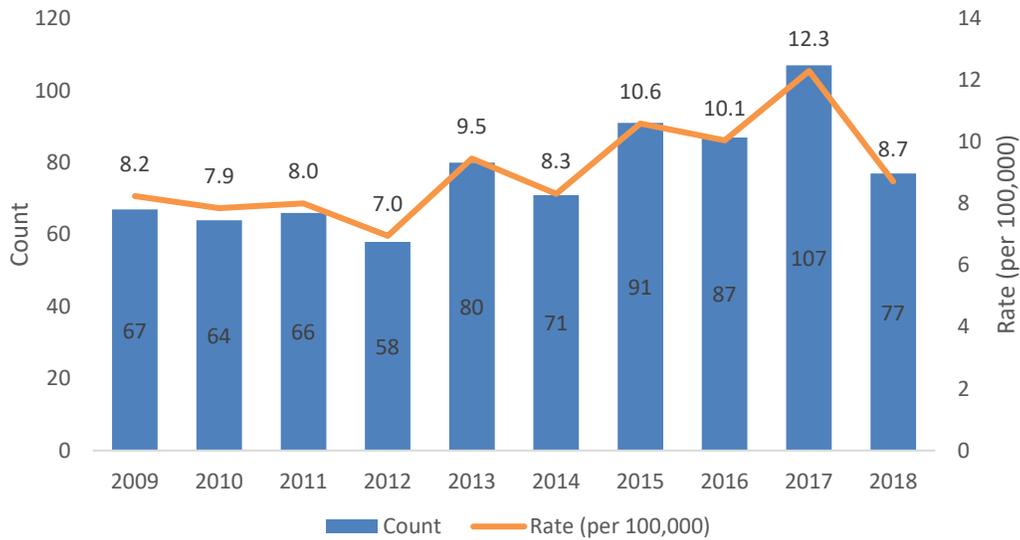
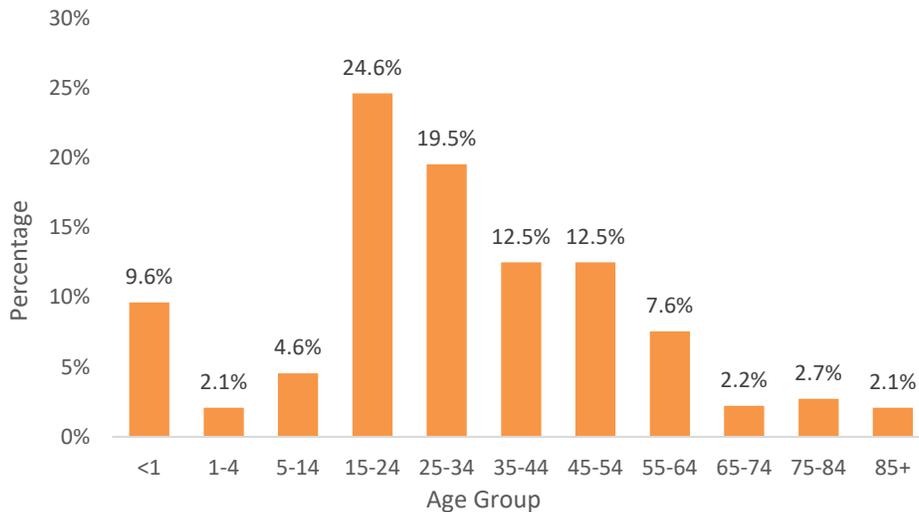


Figure 30 shows suffocation-related deaths by age group. South Dakotans aged 15 to 24 years had the highest percentage of suffocation-related deaths.

Figure 30: Suffocation-Related Deaths by Age Group, South Dakota (2009-2018)



Suffocation-Related Injuries in South Dakota (2011-2018)

From 2011 to 2018, there were 143 hospitalizations and 567 emergency department visits related to suffocations. Figure 31 shows suffocation-related hospitalizations and emergency department visits by year. Of the 143 hospitalizations, 56.6% were unintentional, 42.7% self-inflicted, and 0.7% assault. For suffocation-related emergency department visits, 54.0% were unintentional, 36.7% self-inflicted, 7.4% assault, and 1.9% undetermined.

Injuries in South Dakota

Figure 31: Suffocation-Related Hospitalizations and Emergency Department Visits, South Dakota (2011-2018)

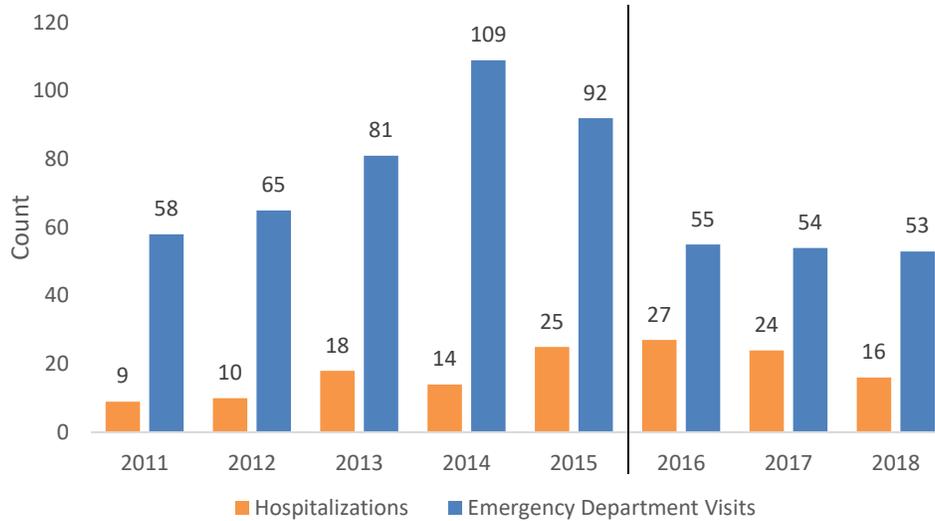


Table 11 shows suffocation-related visits by sex, race, and age group. Two populations, males and Whites, made up the largest percentage of suffocation-related visits.

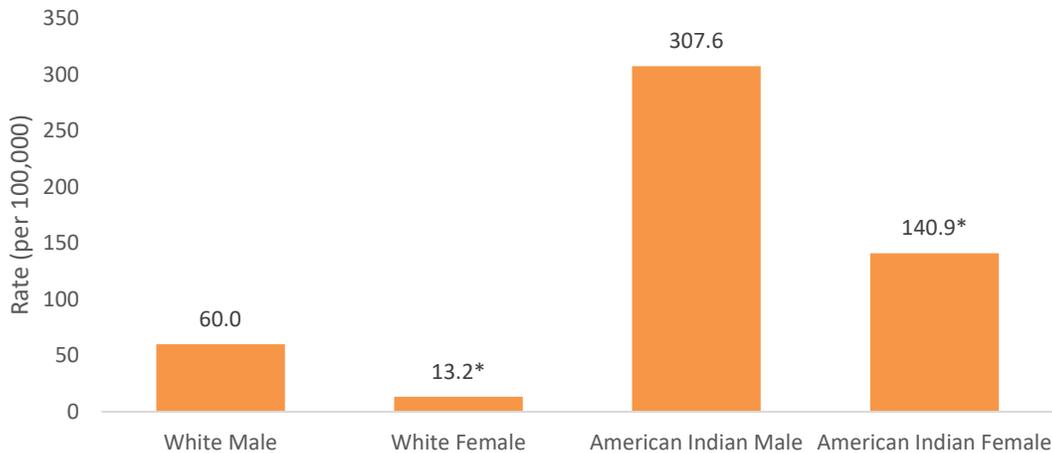
Table 11: Suffocation-Related Visits by Sex, Race, and Age Group, South Dakota (2011-2018)

	Suffocation-Related Hospitalizations			Suffocation-Related ED Visits		
	Count	Percent	Rate*	Count	Percent	Rate*
<u>Sex</u>						
Female	56	39.2%	1.7	260	45.9%	7.7
Male	87	60.8%	2.5	307	54.1%	8.9
<u>Race</u>						
White	90	62.9%	1.5	351	61.9%	6.0
American Indian/Alaska Native	51	35.7%	8.3	162	28.6%	26.5
Other/Unknown	<5	1.4%	-	54	9.5%	-
<u>Age Group</u>						
<1	9	6.3%	9.3†	32	5.6%	33.0
1-4	15	10.5%	3.9†	80	14.1%	20.6
5-14	<5	2.8%	††	31	5.5%	3.3
15-24	24	16.8%	2.6	119	21.0%	12.7
25-34	19	13.3%	2.1†	97	17.1%	10.8
35-44	13	9.1%	1.7†	56	9.9%	7.2
45-54	9	6.3%	1.1†	33	5.8%	3.9
55-64	20	14.0%	2.2	25	4.4%	2.8
65-74	13	9.1%	2.3†	29	5.1%	5.1
75-84	11	7.7%	3.4†	28	4.9%	8.8
85+	6	4.2%	3.6†	37	6.5%	22.3
TOTAL	143	-	2.1	567	-	8.3
*Rate per 100,000						
†Unstable rate due to fewer than 20 counts. Interpret with caution.						
††Suppressed rate due to fewer than 5 counts.						

Suffocation-Related Deaths Among Infants (Aged <1 Year), South Dakota

From 2009 to 2018, 74 suffocation-related deaths occurred among infants. Of the 74 deaths, 64.9% were due to accidental suffocation and strangulation in bed, 21.6% to unspecified threat to breathing, and 13.5% to other inhalation, ingestions, or threats to breathing. Figure 32 shows suffocation rates among infants by race and sex. Suffocation rates among infants was highest among American Indians and males. Suffocation rates were 5.1 times higher for American Indian males compared to White males and 10.7 times higher for American Indian females and White females. Because of the few suffocations among females, the comparison should be interpreted with caution.

Figure 32: Suffocation Rates (per 100,000) Among Infants by Race and Sex, South Dakota (2009-2018)



*Rates with counts less than 20 are considered unstable and should be interpreted with caution

Methods and Data Sources

Numbers in this report may differ from other data reports due to how the data was analyzed. See below for data sources and analysis methods.

Mortality Data

Mortality data used in this report comes from the South Dakota Department of Health (DOH) Vital Statistics. The completeness of mortality data is dependent upon how thoroughly the death certificate is completed, which can affect how a death is categorized and how much data is available to analyze. Mortality data is representative of South Dakota residents. Data from the Centers for Disease Control and Prevention (CDC) Web-Based Injury Statistics Query and Reporting System (WISQARS) is utilized for national, regional, and state comparisons.

Methods and Case Definitions for Mortality Data

Death records from the years 2009-2018 are analyzed for the presence of an injury-related death code in the cause of death field. Injury fatality ICD-10 codes utilized in this report include: U01-U03, V01-Y36, Y85-Y87, Y89.

Hospital and Emergency Department Data

Hospital and Emergency Department data comes from the South Dakota Association of Healthcare Organizations (SDAHO). Data in these data sets does not include cases from Indian Health Services and Veteran Affairs locations. Principle diagnosis codes are used to identify an injury record and external cause of injury codes (E-Codes) are used to classify visits by intent and mechanism of the injury. Some records are missing a valid E-Code, which can lead to an underestimation of the number of nonfatal injuries that occurred in South Dakota. This report reflects the number of inpatient and outpatient visits by South Dakota residents by year of discharge.

Methods and Case Definitions for Hospital and Emergency Department Data

Hospital data from 2011-2018 was analyzed to identify injury related hospitalizations. The principle diagnosis field is analyzed for the presence of injury codes and all other records are excluded. Deaths are also excluded from the data set. Principle diagnosis codes used in this report include:

- ICD-9 codes: 800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85
- ICD-10 codes: all S codes, T07-T34, T36-T50 with a 6th character of 1, 2, 3, or 4 (Exceptions: T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, and T49.9 with 5th character of 1, 2, 3, or 4), T51-T65, T66-T77, T79, T84.04, O9A.2-O9A.5, and M97. 7th character of A, B, C, or missing (reflects initial encounter, active treatment).

The hospital discharge records are then analyzed to identify the first listed valid E-Code in any field. E-codes used in this report include:

- ICD-9 codes: E800-E848, E850-E869, E880-E929, E950-E999
- ICD-10 codes: V00-X58, X71-X83, X92-Y09, Y21-Y33, Y35-Y38, T14.91, T15-T19, T36-T50 with a 6th character of 1, 2, 3, or 4 (Exceptions: T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, and T49.9 with 5th character of 1, 2, 3, or 4), T51-T65, T71, T73-T74, T75.0, T75.2, T75.3, T76. 7th character of A or missing.

Emergency Department data from 2011-2018 was analyzed to identify injury related Emergency Department visits for either an injury diagnosis code or a valid E-Code. Emergency Department visits were identified by a place of service code. Deaths are excluded from the data set.

- ICD-9 codes: 800-909.2, 909.4, 909.9, 910-994.9, 995.5-995.59, 995.80-995.85 or any valid external cause of injury code E800-E848, E850-E869, E880-E929, E950-E999
- ICD-10-CM: all S codes, T07-T34, T36-T50 with a 6th character of 1, 2, 3, or 4 (Exceptions: T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, and T49.9 with 5th character of 1, 2, 3, or 4), T51-T65, T66-T77, T79, T84.04, O9A.2-O9A.5, M97 or any valid E-Code V00-V99, W00-X58, X71-X83, X92-Y09, Y21-Y33, Y35-Y38, T14.91, T15-T19, T36-T50 with a 6th character of 1, 2, 3, or 4 (Exceptions: T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, and T49.9 with 5th character of 1, 2, 3, or 4), T51-T65, T71, T73, T74, T76, T75.0, T75.2, T75.3. 7th character of A, B, C, or missing (reflects initial encounter, active treatment).

Hospital and Emergency Department Data Quality

From 2011-2018, there were 28,933 hospitalization records with a principal diagnosis of injury and an external cause of injury code. There were 7,144 records with a principle diagnosis of injury but had no external cause of injury code. This gives the data an 80.2% completeness.

From 2011-2018, there were 329,446 emergency department records with an injury code in any field and external cause of injury information. There were 34,159 records with an injury code in any field but had no external cause of injury information. This gives the data an 90.6% completeness.

Data Analysis and Reporting Resources

Death Data

https://www.cdc.gov/nchs/injury/injury_tools.htm

Hospitalization and Emergency Department Data

https://www.cdc.gov/injury/pdfs/2015_state_injury_indicator_instructions-a.pdf

<https://www.safestates.org/page/ISWReports>

Terminology

<https://www.cdc.gov/ncipc/wisqars/nonfatal/definitions.htm>