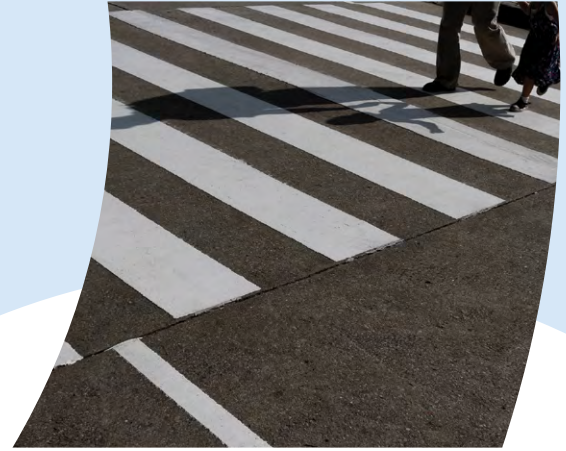


2017-2021  
**INJURIES IN  
OKLAHOMA**



OKLAHOMA  
State Department  
of Health

Injury  
Prevention  
Service

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# OVERVIEW: INJURIES IN OKLAHOMA ◀

## Injury Surveillance

Injury surveillance is the practice of regularly collecting, analyzing, and disseminating data on injury, and is a fundamental and critical element in injury prevention. As part of the public health approach, the Injury Prevention Service (IPS) of the Oklahoma State Department of Health (OSDH) conducts injury surveillance and utilizes the findings to advance prevention efforts across the state. Surveillance data are used to understand injury morbidity and mortality, leading mechanisms of injury, and which populations are most impacted by injury. These data are further used in policy development and injury prevention programming to establish priorities, guide activities, and evaluate programs.<sup>1</sup>

## Magnitude of the Problem in the United States and Oklahoma

Injury, including both unintentional and intentional injuries, is consistently one of the leading causes of death in the U.S. In 2021, injury was the fourth leading cause of death in the U.S. and Oklahoma, after heart disease, cancer, and COVID-19. Injury was the leading cause of death for individuals aged 1-54 years in the U.S. and for individuals aged 1-44 years in Oklahoma. For infants under one year, it was the third leading cause of death in the U.S. after congenital anomalies and short gestation. It was the fourth leading cause of death in Oklahoma, after congenital anomalies, short gestation, and sudden infant death syndrome.<sup>2</sup> The leading mechanism of injury resulting in nonfatal, inpatient hospitalization in Oklahoma (based on age-adjusted rates) was falls (**Table 1**). Hip fractures (among adults aged 65 years and older) and traumatic brain injuries were the top injuries. The leading mechanism of injury resulting in death was firearms, and traumatic brain injuries were the top injury.

Injury surveillance and prevention are distinctly important in Oklahoma, where the age-adjusted injury-related fatality rate was 20% higher than the U.S. as a whole. From 2017-2021, more than 3,800 Oklahomans died from injury each year, of which 68% were unintentional injuries, 21% were suicides, and 9% were homicides.<sup>2</sup> For every one injury-related death in Oklahoma, there were more than five nonfatal injury-related hospitalizations, with approximately 21,500 hospitalizations per year over this time period.

Years of potential life lost (YPLL) is a metric used to understand the impact of premature death by estimating how many years of life were lost due to a death. YPLL are calculated by subtracting the age of an individual at the time of their death from a standard age. For this report, YPLL were calculated using a standard age of 65 years (**Table 2**).

From 2017-2021, 342,204 years of potential life were lost due to an injury-related death among Oklahoma residents. This is an average of 17.6 years per individual fatality. Injury indicators with the highest number of total YPLL were suicides, firearm-related injuries, traumatic brain injuries, and unintentional motor vehicle traffic-related injuries. However, the injury indicators with the highest average number of YPLL per individual fatality were homicides and unintentional drownings, indicating a younger average age at time of death.

## ► OVERVIEW: INJURIES IN OKLAHOMA

Injuries resulted in disproportionately high numbers of YPLL in Oklahoma when compared to other leading causes of death. During this same time period, heart disease resulted in 130,905 YPLL (2.3 years per death), cancer resulted in 115,982 YPLL (2.8 years per death), and COVID-19 resulted in 40,021 YPLL (3.3 years per death). Intentional injuries resulted in higher YPLL, with 29.4 YPLL per homicide and 21.8 YPLL per suicide, compared to 14.9 YPLL per unintentional injury death.<sup>3</sup>

Injury deaths and hospitalizations also present an economic burden, with injury-related medical costs reaching \$7.98 billion for nonfatal, inpatient hospitalizations and \$319 million for deaths from 2017-2021 in Oklahoma.<sup>2,3</sup>

■ **Table 1.** Age-adjusted rates of nonfatal hospitalizations and fatalities for injury indicators, Oklahoma, 2017-2021

Injury Indicator	Nonfatal Hospitalizations 2017-2021		Fatalities 2017-2021	
	N	Age-Adjusted Rate (per 100,000)	N	Age-Adjusted Rate
All Injuries	107,389	503.6	19,390	94.8
Unintentional Drownings	124	0.7	345	1.7
Unintentional Fire-related	771	3.8	341	1.5
Unintentional Fall-related	50,448	219.7	3,720	16.1
Firearm-related	1,907	10.1	3,741	18.8
Hip Fracture ≥65 years	17,817	604.6	N/A	N/A
Unintentional Motor Vehicle Traffic-related	10,084	50.4	3,521	17.5
Nondrug Poisoning	1,862	9.5	398	2.1
Traumatic Brain Injuries	14,592	68.7	4,886	23.4
Nonfatal Assault/Homicide	4,312	23.1	1,600	8.4
Nonfatal Self-Harm/Suicide	10,624	56.2	4,109	20.7

■ **Table 2.** Years of potential life lost by injury indicator, Oklahoma, 2017-2021<sup>3</sup>

Injury Indicator	Years of Potential Life Lost	
	N	Average Per Fatality
All Injuries	342,204	17.6
Unintentional Drownings	9,661	28.0
Unintentional Fire-related	4,260	12.5
Unintentional Fall-related	5,992	1.6
Firearm-related	86,382	23.1
Unintentional Motor Vehicle Traffic-related	76,072	21.6
Nondrug Poisoning	8,176	20.5
Traumatic Brain Injuries	78,623	16.1
Homicide	47,024	29.4
Suicide	89,546	21.8

# OVERVIEW: INJURIES IN OKLAHOMA

## Data Sources

### Datasets

Inpatient hospital discharge data (HDD) are collected by the Oklahoma State Department of Health Center for Health Statistics. The data presented in this report include inpatient discharges from all nonfederal, acute care hospitals in the state. Data include all hospitalizations in Oklahoma among residents where an injury was the principal discharge diagnosis, and include readmissions and transfers.<sup>3</sup> Fatal injury data come from Oklahoma vital statistics (VS) death certificate data and include Oklahoma residents who died with an injury as the underlying cause of death (COD). The past five years of available data (2017-2021) are presented in this report.

### Population

Crude rates and age-adjusted rates are presented per 100,000 population. Rates were calculated using CDC WONDER single-race population estimates.<sup>4,5</sup> Weights for age-adjusted rates were determined using the 2000 U.S. standard population distribution from the National Center for Health Statistics.<sup>6</sup>

■ **Table 3.** Oklahoma population, 2017-2021<sup>4,5</sup>

Age Group	2017	2018	2019	2020	2021
<1 year	50,712	49,775	49,046	48,675	46,696
1-4 years	212,582	209,995	207,660	204,841	199,673
5-9 years	269,520	268,449	268,427	269,174	269,611
10-14 years	268,074	269,861	270,241	270,884	280,131
15-19 years	263,323	263,774	264,552	264,926	272,130
20-24 years	275,456	273,938	274,496	276,994	276,960
25-34 years	546,671	544,233	544,475	545,036	536,930
35-44 years	483,511	490,980	498,711	505,948	518,854
45-54 years	469,137	460,398	453,504	451,176	454,731
55-64 years	491,073	493,250	493,365	489,970	486,212
65-74 years	350,486	358,638	368,854	380,547	388,432
75-84 years	180,936	186,978	193,122	197,625	189,996
85+ years	72,121	73,219	74,223	74,987	66,283

# ► OVERVIEW: INJURIES IN OKLAHOMA

■ **Table 4.** U.S. 2000 standard population and weights<sup>1</sup>

Age Group	U.S. 2000 Standard Population	Adjustment Weights
<1 year	3,795,000	0.013818
1-4 years	15,192,000	0.055317
5-9 years	19,920,000	0.072533
10-14 years	20,057,000	0.073032
15-19 years	19,820,000	0.072169
20-24 years	18,257,000	0.066478
25-34 years	37,233,000	0.135573
35-44 years	44,569,000	0.162613
45-54 years	37,030,000	0.134834
55-64 years	23,961,000	0.087247
65-74 years	18,136,000	0.066037
75-84 years	12,315,000	0.044841
85+ years	4,259,000	0.015508
<i>All Ages</i>	<i>274,634,000</i>	<i>1.0</i>

■ **Table 5.** U.S. 2000 standard population and weights for individuals 65+ years<sup>1</sup>

Age Group	U.S. 2000 Standard Population	Adjustment Weights
65-74 years	18,136,000	0.522501
75-84 years	12,315,000	0.354797
85+ years	4,259,000	0.122702
<i>Total 65+ years</i>	<i>34,710,000</i>	<i>1.0</i>

# OVERVIEW: INJURIES IN OKLAHOMA

## Indicators

Injury prevention is divided into two main focus areas: unintentional injuries and intentional injuries, or violence. The OSDH IPS monitors the most common injuries using indicators, which measure the type of injury, mechanism of injury, and intent of injury. Injury indicator definitions were sourced from the Centers for Disease Control and Prevention’s (CDC) National Center for Injury Prevention and Control (NCIPC) and were created using annual state injury indicator report instructions.<sup>1</sup> Given the multiple ways of measuring injury, the indicators are not mutually exclusive and have several overlapping categories. For example, a firearm-related suicide would be included in the firearm-related fatalities indicator and the suicide indicator. However, the indicators for nonfatal all injury-related hospitalizations and all injury fatalities account for the total burden and include injuries that are not represented in more specific indicators (e.g., animal bites, hypothermia, heatstroke).

All indicators use either HDD or VS data. Below are the International Classification of Disease, 10th Revision (ICD-10) cause of death codes and ICD-10 Clinical Modification (ICD-10-CM) discharge diagnoses and external cause-of-injury codes (E codes) and data sources for each indicator. Solely utilizing ICD-10 cause of death codes reported on death certificates as the data for intentional (violence-related) and firearm-related indicators may result in an undercount of the true burden of injury. The Oklahoma Violent Death Reporting System collects additional data on all violent deaths from medical examiner reports, death certificates, and law enforcement reports. For more information on violent death surveillance in Oklahoma, visit <https://oklahoma.gov/health/okvdrs>.

■ **Table 6.** Indicator information

	Indicator	Source*	ICD-10 Codes**	Location***
1a.	Nonfatal all injury-related hospitalizations	HDD	S00-S99; T07-T34; T36-T50 with a 6th character of 1, 2, 3, or 4; T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9 with a 5th character of 1, 2, 3, or 4; T51-T76; T79; T9A.2-T9A.5; T84.04; M97	Principal diagnosis
1b.	All injury fatalities	VS	V01-Y36; Y85-Y87; Y89; U01-U03	Underlying COD
2a.	Nonfatal drowning-related hospitalizations	HDD	T75.1; V90; V92; W16 with a 6th character of 1; W16.41; W16.91; W22.041; W65-W74; X71; X92; Y21	Valid diagnosis code or E code in any field
2b.	Unintentional drowning-related fatalities	VS	W65-W74; V90; V92	Underlying COD
3a.	Nonfatal unintentional fire-related hospitalizations	HDD	X00-X08	Valid E code in any field
3b.	Unintentional fire-related fatalities	VS	X00-X09	Underlying COD
4a.	Nonfatal unintentional fall-related hospitalizations	HDD	V00.1-V00.8 with a 6th character of 1; W00-W15; W17; W19; W16 with a 6th character of 2; W16.42; W16.92; W18.1-18.3	Valid E code in any field
4b.	Unintentional fall-related fatalities	VS	W00-W19	Underlying COD
4c.	Nonfatal fall-related hip fracture hospitalizations in persons aged 65 years and older	HDD	S72.0; S72.1; S72.2; T84.040; T84.041; M97.0	Valid diagnosis code in any field

# ► OVERVIEW: INJURIES IN OKLAHOMA

► Table 6 Continued...

	Indicator	Source*	ICD-10 Codes**	Location***
5a.	Nonfatal firearm-related hospitalizations	HDD	W32; W33; W34.00; W34.09; W34.10; W34.19; X72; X73; X74.8; X74.9; X93; X94; X95.8; X95.8; Y38.4; Y22; Y23; Y24.8; Y24.9; Y35.00-Y35.03; Y35.09	Valid E code in any field
5b.	Firearm-related fatalities	VS	W32-W34; X72-X74; X93-X95; Y22-Y24; Y35.0; U01.4	Underlying COD
6a.	Nonfatal unintentional motor vehicle traffic-related hospitalizations	HDD	V02-V04 (.1, .9); V09.2; V09.3; V12-V14 (.3-.9); V19.4-V19.6; V19.9; V20-V28 (.3-.9); V83-V86 (.0-.3); V87.0-V87.8; V89.2; V80.3-V80.5; V81.1; V82.1	Valid E code in any field
6b.	Unintentional motor vehicle traffic-related fatalities	VS	V02-V04 (.1, .9); V09.2; V12-V14 (.3-.9); V19.4-V19.6; V20-V28 (.3-.9); V29.4-V29.9; V30-V39 (.4-.9); V40-V49 (.4-.9); V50-V59 (.4-.9); V60-V69 (.4-.9); V70-V79 (.4-.9); V80.3-V80.5; V81.1; V82.1; V83-V86 (.0-.3); V87.0-V87.8; V89.2	Underlying COD
7a.	Nonfatal nondrug poisoning hospitalizations	HDD	T51-T53; T55-T62; T64; T54.0; T65.0-T65.81; T65.83; T65.89; T65.9; Y38.7; Y35.2	Valid diagnosis code or E code in any field
7b.	Nondrug poisoning fatalities	VS	X45-X49; X65-X69; X86-X90; Y15-Y19; Y35.2; U01.6-U01.7	Underlying COD
8a.	Nonfatal traumatic brain injury hospitalizations	HDD	S02.0; S02.1; S02.8X; S02.80; S02.81; S02.82; S02.91; S04.02; S04.03; S04.04; S06; S07.1; T74.4	Valid diagnosis code in any field
8b.	Traumatic brain injury fatalities	VS	S01.0-S01.9; S02.0; S02.1; S02.3; S02.7-S02.9; S04.0; S06.0-S06.9; S07.0; S07.1; S07.8; S07.9; S09.7-S09.9; T90.1; T90.2; T90.4; T90.5; T90.8; T90.9	Any COD field
9a.	Nonfatal assault-related hospitalizations	HDD	X92-Y09; T36-T50 with a 6th character of 3; T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9 with a 5th character of 3; T51-T65 with a 6th character of 3; T51.9, T52.9, T53.9, T54.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T63.9, T64, and T65.9 with a 5th character of 3; T71 with a 6th character of 3; T74; T76; Y38	Valid diagnosis code or E code in any field
9b.	Homicides	VS	X85-Y09; Y87.1; U01; U02	Underlying COD
10a.	Nonfatal self-harm-related hospitalizations	HDD	X71-X83; T36-T50 with a 6th character of 2; T36.9, T37.9, T39.9, T41.4, T42.7, T43.9, T45.9, T47.9, T49.9 with a 5th character of 2; T51-T65 with a 6th character of 2; T51.9, T52.9, T53.9, T54.9, T56.9, T57.9, T58.0, T58.1, T58.9, T59.9, T60.9, T61.0, T61.1, T61.9, T62.9, T63.9, T64, and T65.9 with a 5th character of 2; T71 with a 6th character of 2; T14.91	Valid diagnosis or E code in any field
10b.	Suicides	VS	X60-X84; Y87.0; U03	Underlying COD

\* HDD: Oklahoma inpatient hospital discharge database/VS: Oklahoma vital statistics death data

\*\* For HDD Sources: only included cases if the 7th character of the code is A or missing to reflect initial encounter, active treatment

\*\*\* COD: cause of death/E code: external cause-of-injury code



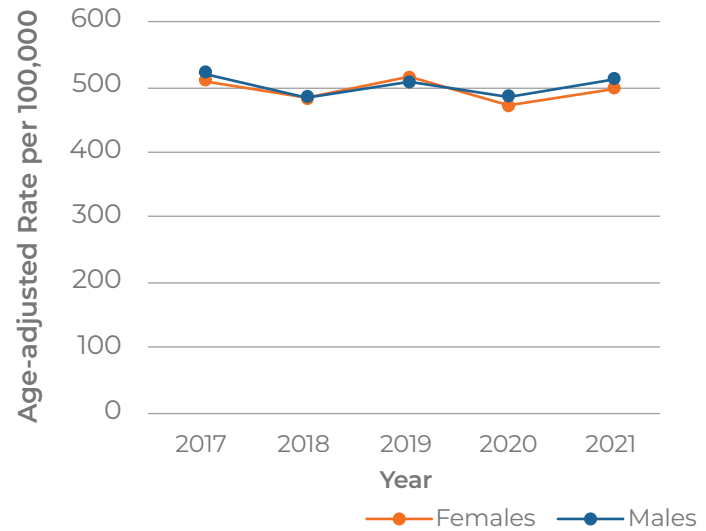
## All Injuries

The all-injury indicators measure nonfatal, inpatient hospitalizations and fatalities resulting from all possible injuries, injury mechanisms, and injury causes.

### Indicator 1a. Nonfatal All Injury-related Hospitalizations

From 2017-2021, there were a total of 107,389 nonfatal, inpatient, injury-related hospitalizations in Oklahoma, an average of over 21,000 hospitalizations per year. Although the overall age-adjusted rate of hospitalization from injury decreased from 2017, there were spikes in 2019 and 2021 (**Figure 1**).

**Figure 1.** Age-adjusted rates of nonfatal injury-related hospitalizations by sex and year of discharge, Oklahoma, 2017-2021



The highest rate of hospitalization was among adults aged 85 years and older and was more than double the rate of the next highest group, adults aged 75-84 years (**Table 7**). Among children and teenagers, teens 15-19 years old and infants less than one year had the highest rates of hospitalization.

**Table 7.** Rates of nonfatal injury-related hospitalizations by age group, Oklahoma, 2017-2021

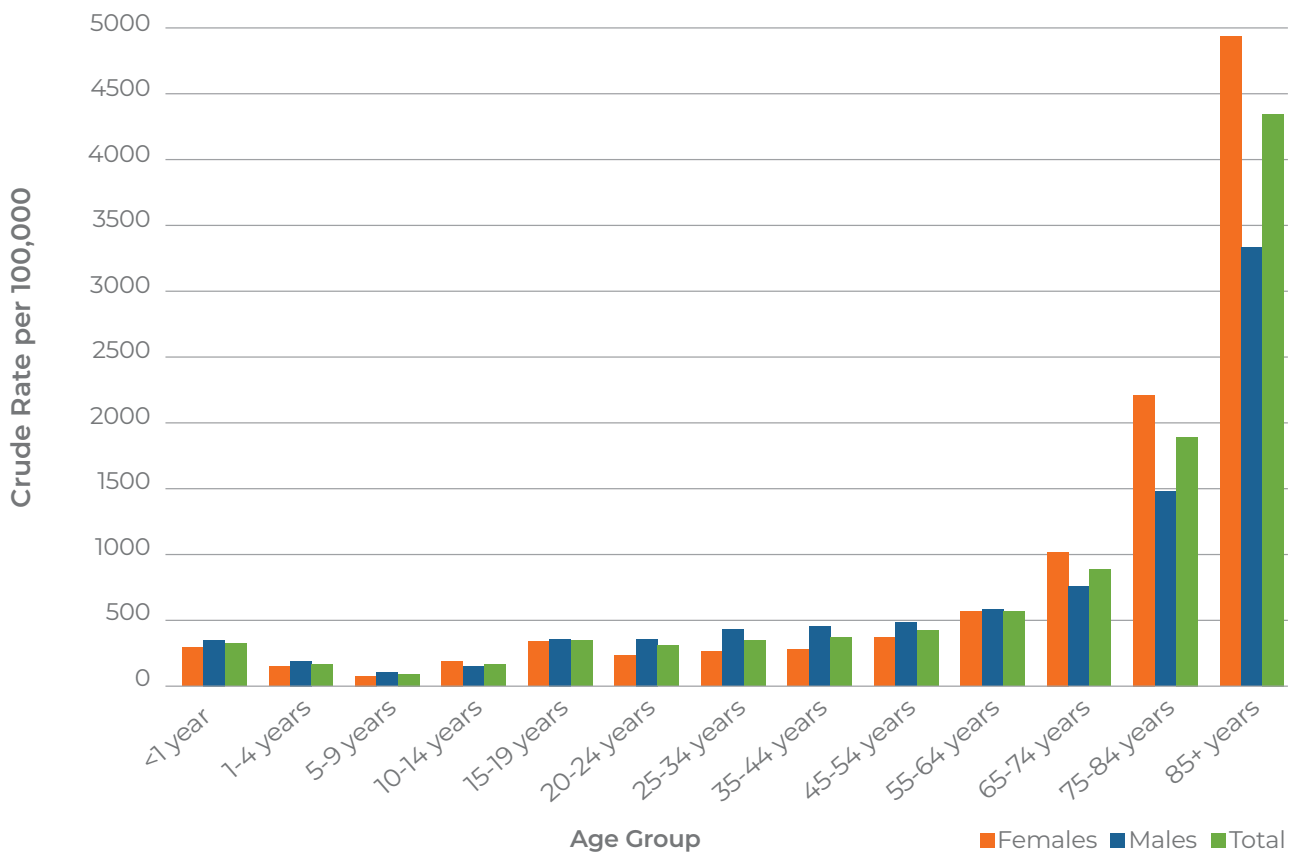
Age Group*	2017	2018	2019	2020	2021	2017-2021
<1 year	289.9	317.4	312.0	299.9	419.7	326.7
1-4 years	179.7	163.8	172.4	168.9	173.8	171.7
5-9 years	92.8	94.6	101.0	100.3	107.9	99.3
10-14 years	158.9	161.6	153.9	174.6	199.2	169.9
15-19 years	352.0	336.7	335.3	338.6	366.0	345.8
20-24 years	335.8	308.5	300.9	290.3	276.6	302.4
25-34 years	382.1	347.5	348.4	335.9	329.7	348.8
35-44 years	409.9	360.5	381.4	355.6	354.6	372.0
45-54 years	454.7	409.9	461.5	387.0	387.0	420.2
55-64 years	605.0	543.5	600.2	560.0	558.4	573.5
65-74 years	879.1	870.2	911.5	864.0	907.8	886.8
75-84 years	1881.9	1843.0	1968.7	1777.1	1985.3	1890.8
85+ years	4276.1	4183.3	4448.8	3952.7	4839.9	4329.1
<b>Total age-adjusted rate</b>	<b>521.3</b>	<b>490.3</b>	<b>517.9</b>	<b>479.7</b>	<b>509.9</b>	<b>503.6</b>

\*Rates are presented per 100,000 population, with crude rates for age groups and age-adjusted rates for total.

## ▶ INDICATORS

Although 54% of hospitalizations were female, males had a slightly higher age-adjusted rate of hospitalization (501.0 per 100,000) than females (493.4 per 100,000; **Figure 2**). Males also had higher rates of injury hospitalization than females in all age groups under 65 years, except for children aged 10-14 years; however, they had substantially lower rates than females for age groups above 65 (65-74, 75-84, and 85+ years). This difference in age distribution was also apparent in median age at discharge — 69 for females and 53 for males.

■ **Figure 2.** Crude rate of nonfatal injury-related hospitalizations by age group and sex, Oklahoma, 2017-2021

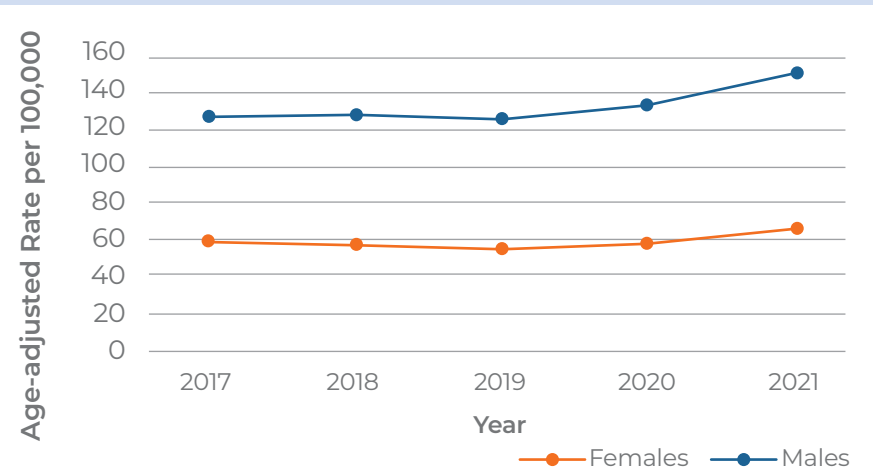


Injury-related hospitalizations also incurred a high economic burden. From 2017-2021, Oklahomans spent 593,198 days in the hospital and payers (which included individuals, private insurers, and public insurance programs) were charged approximately \$7.98 billion. The median amount charged for a nonfatal, inpatient, injury-related hospitalization increased every year since 2017, from approximately \$38,000 in 2017 to \$50,000 in 2021.

## Indicator 1b. All Injury Fatalities

From 2017-2021, 19,390 Oklahoma residents died as a result of an injury, averaging more than 3,800 deaths per year. After a slight decrease in the age-adjusted rate of injury-related fatalities from 2017-2019, rates increased in 2020 and 2021, resulting in a 16% increase in the rate from 2017-2021 (**Figure 3**).

**Figure 3.** Age-adjusted rates of injury-related fatalities by sex and year, Oklahoma, 2017-2021



Following a similar pattern to hospitalization rates, adults aged 85 years and older had the highest rates of injury-related death, adults aged 75-84 had the second highest rates, and children aged five to nine had the lowest rates (**Table 8**). The highest rates of injury-related death among children and teenagers were in infants less than one year and teens aged 15-19 years. Also similar to hospitalizations, the median age of injury-related death was higher for females (58 years) than for males (49 years).

**Table 8.** Rates of injury-related fatalities by age group, Oklahoma, 2017-2021

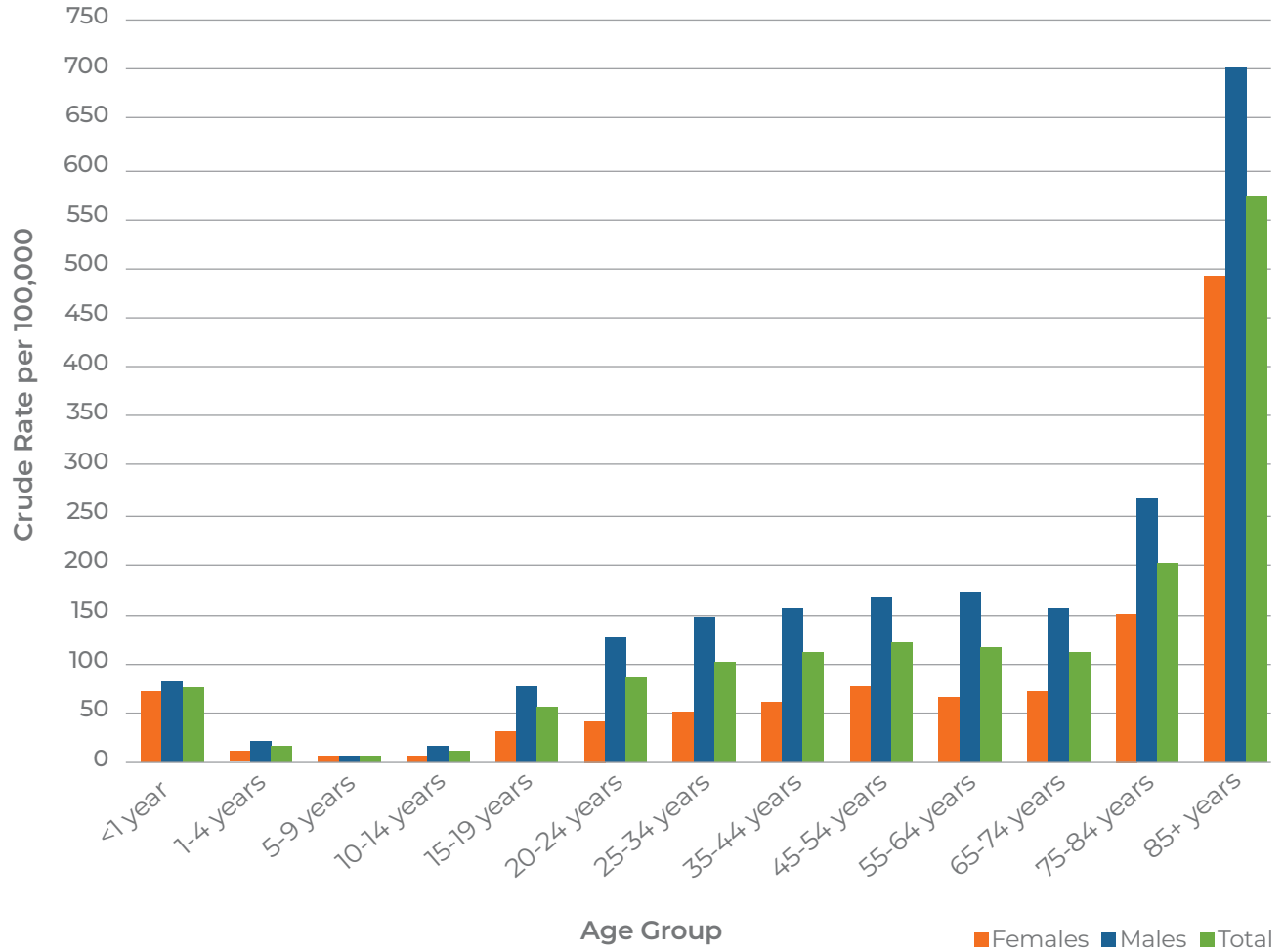
Age Group*	2017	2018	2019**	2020**	2021	2017-2021
<1 year	82.8	74.3	85.6	61.6	70.7	75.1
1-4 years	16.0	21.0	13.5	15.6	11.0	15.5
5-9 years	5.2	4.8	7.1	7.1	8.5	6.5
10-14 years	11.6	10.0	13.0	12.9	15.3	12.6
15-19 years	58.1	46.6	49.9	59.6	55.5	54.0
20-24 years	87.5	68.6	76.1	86.6	100.0	83.8
25-34 years	99.9	93.2	90.5	101.8	111.4	99.3
35-44 years	101.1	99.6	99.7	112.3	124.9	107.7
45-54 years	116.2	119.7	112.0	110.2	135.9	118.8
55-64 years	111.0	122.0	110.7	117.8	121.6	116.6
65-74 years	99.0	106.5	104.9	110.9	120.2	108.6
75-84 years	196.8	208.0	190.6	187.7	212.1	198.9
85+ years	510.3	551.8	543.0	529.4	725.7	569.0
<b>Total age-adjusted rate</b>	<b>91.9</b>	<b>91.7</b>	<b>89.2</b>	<b>94.4</b>	<b>107.0</b>	<b>94.8</b>

\*Rates are presented per 100,000 population, with crude rates for age groups and age-adjusted rates for total

\*\*2 males (2019) and 1 female (2020) missing age

# INDICATORS

**Figure 4.** Crude rates of injury-related fatalities by age group and sex, Oklahoma, 2017-2021



Unlike injury-related hospitalizations where the rates for males and females were similar, males had substantially higher rates of death from injury in Oklahoma (**Figure 4**). From 2017-2021, the age-adjusted rate of injury-related death among males was more than double that of females. This difference was reflected across ages as the crude death rates among males were higher than the rates among females for every age group.

## Drownings

These indicators measure nonfatal, inpatient hospitalizations and fatalities resulting from drownings and submersions, including, but not limited to, incidents resulting from falling, jumping, or diving; in swimming pools or natural bodies of water; and related to watercraft and water transport. For nonfatal hospitalizations, the indicator

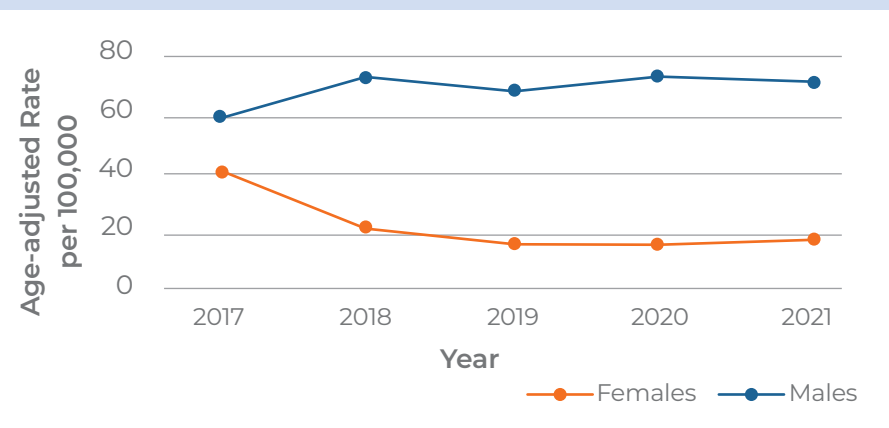
includes intentional, unintentional, and undetermined manner drownings and submersions. For fatalities, the indicator includes only unintentional drownings and submersions.

### Indicator 2a. Nonfatal Drowning-related Hospitalizations

There were 124 nonfatal drowning-related hospitalizations among Oklahoma residents from 2017-2021. Both the count and age-adjusted rate of hospitalization from drowning were approximately halved from 2017-2021 (**Figure 5**). Highest rates were seen in children, especially children aged one to four years (5.0 per 100,000).

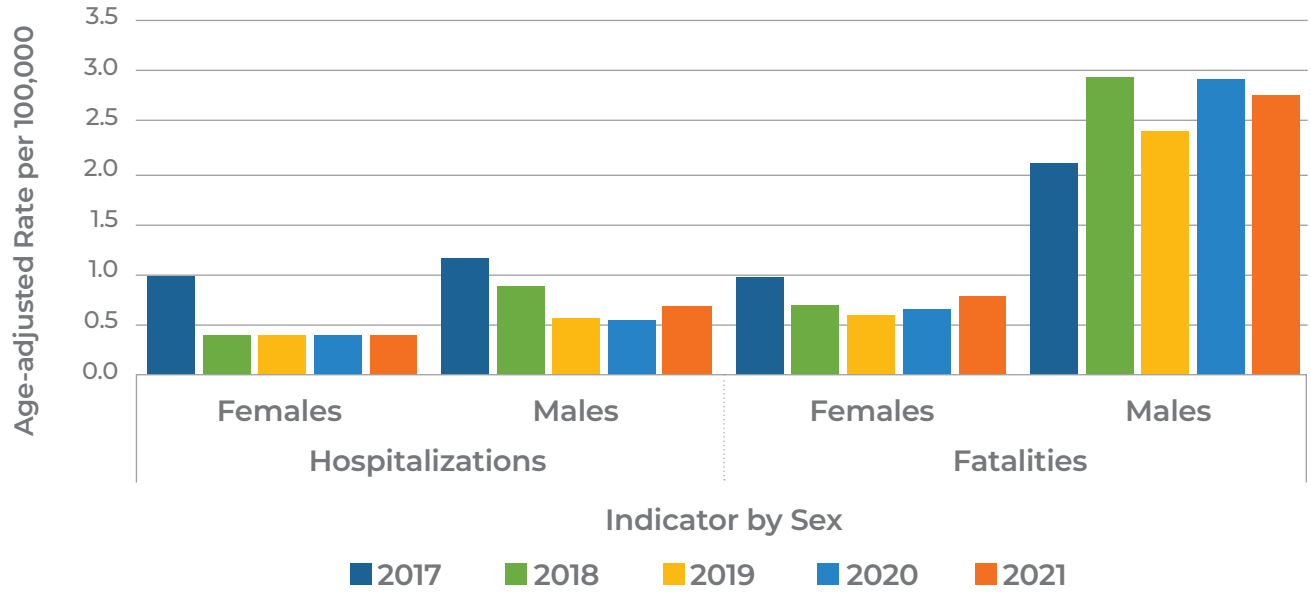
Males had a slightly higher overall rate of hospitalization from drowning than females. Among children aged one to four years, the rate for males was 1.4 times that of females (5.8 per 100,000 males; 4.2 per 100,000 females), and there were no females less than one year who were hospitalized for drowning. The high numbers of males hospitalized for drowning at a young age were reflected in the median age at hospitalization discharge, which was 10 years for females and four years for males.

■ **Figure 5.** Number of nonfatal drowning-related hospitalizations and drowning-related fatalities by year, Oklahoma, 2017-2021



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■ **Figure 6.** Age-adjusted rate of nonfatal drowning-related hospitalizations and drowning-related fatalities by sex and year, Oklahoma, 2017-2021



## Indicator 2b. Unintentional Drowning-related Fatalities

For most injury indicators in this report, the number of hospitalizations was greater than the number of fatalities. However, with 345 drowning-related deaths from 2017-2021, the number of fatalities in Oklahoma was, on average, more than 2.5 times the number of hospitalizations. Unlike drowning-related hospitalizations, which have decreased in recent years, the fatality rate in 2021 was slightly higher than it was in 2017 (**Figure 5**). The fatality count and age-adjusted fatality rate from drowning increased in 2018, decreased in 2019, increased again in 2020, and remained fairly constant in 2021. Although for hospitalizations the rate for males was only slightly higher than for females, the male age-adjusted fatality rate (2.7 per 100,000) was more than three times the rate for females from 2017-2021 (0.8 per 100,000; **Figure 6**).

As with hospitalizations, the age group with the highest fatality rate was children aged one to four years (4.3 per 100,000). Drownings were the leading cause of injury death for this age group in Oklahoma from 2017-2021, and they were the leading cause of all death for this age group in Oklahoma. The second highest rate was among young adults aged 20-24 years (2.0 per 100,000) and older adults aged 65-84 years (2.0 per 100,000). As with hospitalizations, the median age of fatalities for females (42 years) was greater than for males (36 years).

## Unintentional Fire-related Injuries

These indicators measure nonfatal, inpatient hospitalizations and fatalities resulting from unintentional fire-related injuries only. Fire injuries are defined as injuries resulting from exposure to smoke, fire, and flames.

### Indicator 3a. Nonfatal Unintentional Fire-related Hospitalizations

From 2017-2021, there were 771 nonfatal, inpatient, fire-related hospitalizations

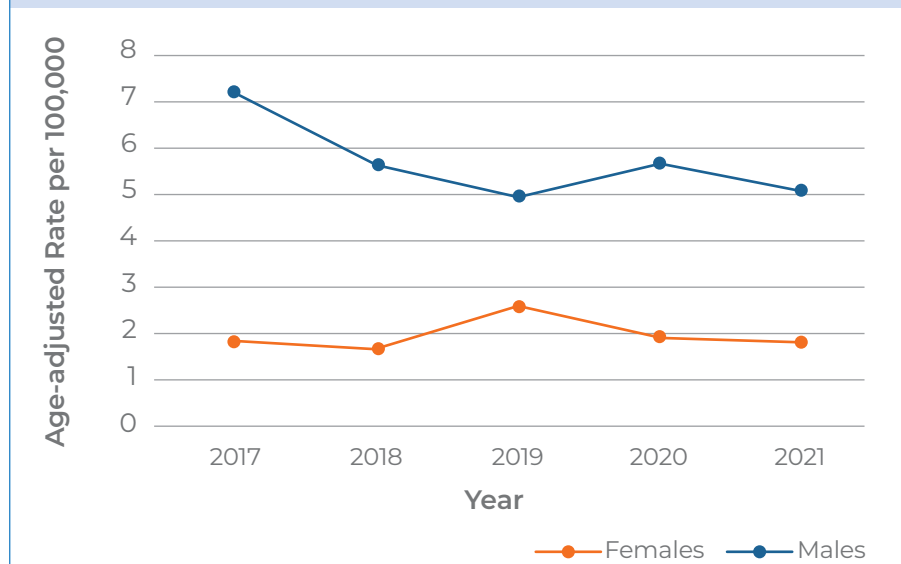
among Oklahoma residents. After a decrease from 2017-2018, age-adjusted rates of hospitalizations stayed relatively steady over the remaining four years (2018-2021; **Figure 7**). Males had, on average, approximately three times the rate of hospitalizations as females (5.7 per 100,000 males; 1.9 per 100,000 females). Adults aged 55-84 had the highest rates of hospitalizations (5.2 per 100,000 for 55-64 years; 5.4 per 100,000 for 65-74 years; 5.6 per 100,000 for 75-84 years). For males, rates were highest among adults aged 75-84 years (10.1 per 100,000), and for females, the highest rate was among adults aged 45-54 years (3.0 per 100,000).

### Indicator 3b. Unintentional Fire-related Fatalities

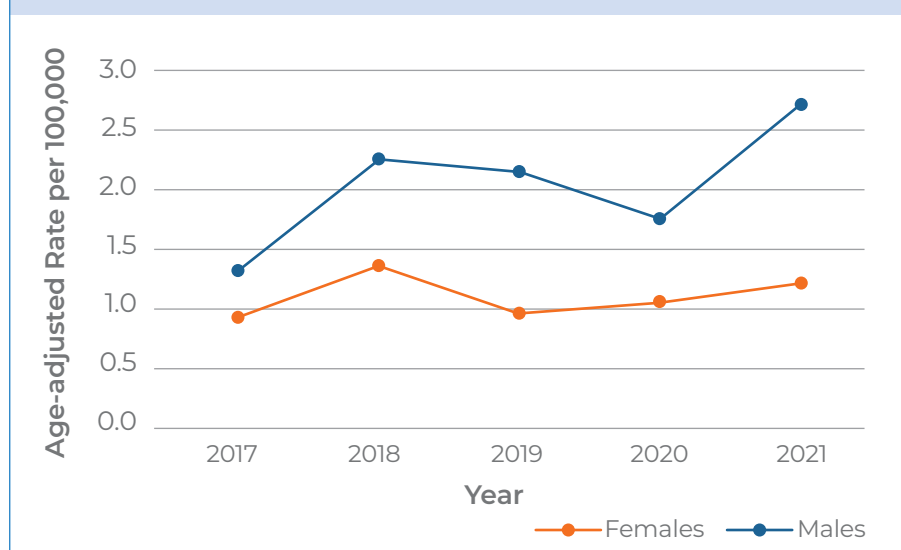
There were 341 fire-related deaths from 2017-2021, with a notable increase in the number and age-adjusted rate from 2020-2021 (**Figure 8**).

As with hospitalizations, the fatality rate was higher among males (2.0 per 100,000) than females (1.1 per 100,000); however, the disparity between sexes was smaller than observed in hospitalizations (**Figure 8**).

**Figure 7.** Age-adjusted rates of nonfatal fire-related hospitalizations by year, Oklahoma, 2017-2021



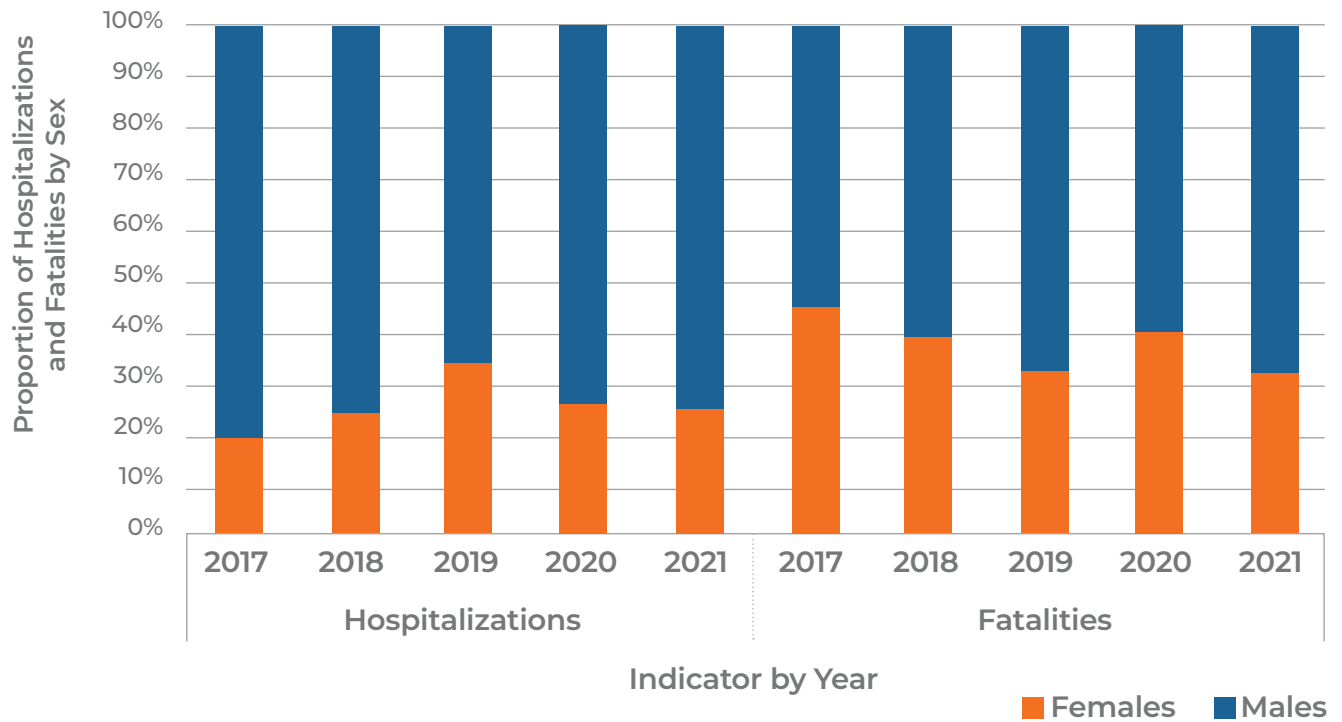
**Figure 8.** Age-adjusted rates of fire-related fatalities by year, Oklahoma, 2017-2021



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The highest death rates were among older adults aged 65 years and older, with adults aged 85 and older having the highest rates overall and by sex (6.4 per 100,000 total; 3.9 per 100,000 females; 10.6 per 100,000 males; **Figure 9**).

■ **Figure 9.** Sex disparity in nonfatal fire-related hospitalizations and fire-related fatalities Oklahoma, 2017-2021

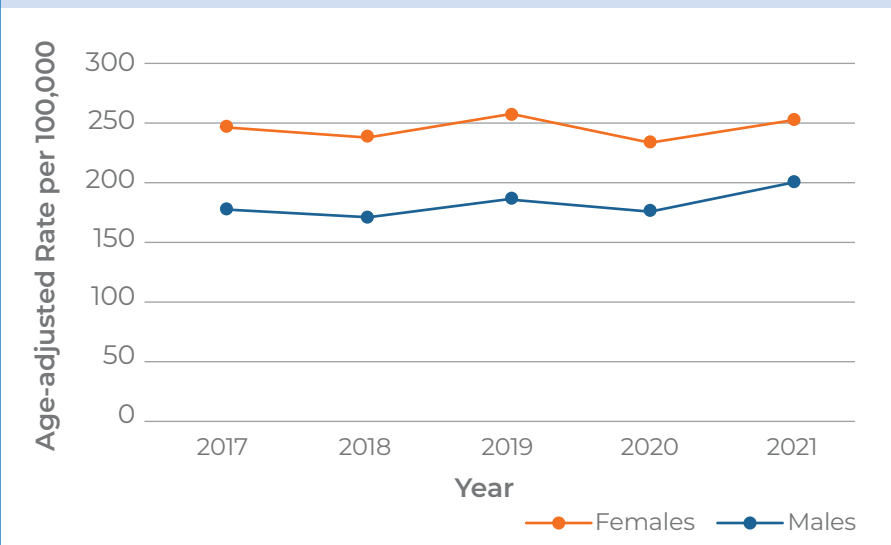




## Unintentional Falls

These indicators measure nonfatal, inpatient hospitalizations and fatalities resulting from unintentional fall-related injuries only, and are intended to measure falls as a mechanism of injury; other injuries may result from the fall. Nonfatal, fall-related hospitalizations include falls related to pedestrian conveyance, falls into water, and other falls. The nonfatal hip fracture hospitalization indicator describes hip fractures resulting from a fall in persons aged 65 years and older.

■ **Figure 10.** Age-adjusted rates of nonfatal fall-related hospitalizations by year, Oklahoma, 2017-2021



### Indicator 4a. Nonfatal Unintentional Fall-related Hospitalizations

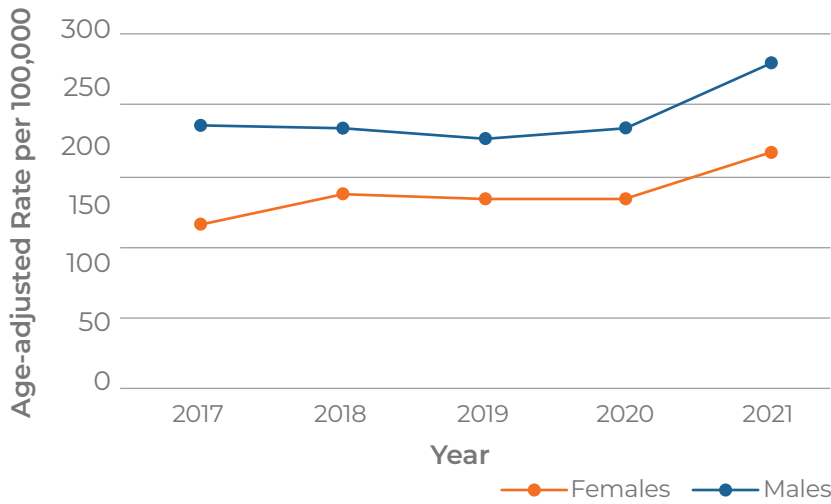
There were 50,448 fall-related hospitalizations from 2017-2021, making it the leading mechanism of injury-related hospitalization in Oklahoma. Rates fluctuated over the five-year period, increasing in 2021 to 232.4 fall-related hospitalizations per 100,000 Oklahomans (**Figure 10**).

Females and older adults had higher rates of fall-related hospitalizations than males and younger individuals. The rate among adults aged 85 years and older (3,711.7 per 100,000) was more than double that of the age group with the next highest rate (75-84 years: 1,459.1 per 100,000) and approximately 1,850 times that of the age group with the lowest rate (15-19 years: 20.3 per 100,000; **Table 9**). Among adults aged 85 years and older, the rate of hospitalization among females (4,260.3 per 100,000) was 1.5 times the rate among males (2,758.5 per 100,000).

Among all falls resulting in a hospitalization, 7,640 (15%) involved a traumatic brain injury (TBI), and for fall-related hospitalizations among individuals 65 years and older, 17,817 (47%) resulted in a hip fracture.

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**Figure 11.** Age-adjusted rates of fall-related fatalities by year, Oklahoma, 2017-2021



## Indicator 4b. Unintentional Fall-related Fatalities

With 3,720 fatalities from 2017-2021, the number of fall-related deaths was much lower than the number of hospitalizations (**Table 9**). As with hospitalizations, the age-adjusted fall-related fatality rate increased from 2020-2021 (**Figure 11**).

Males had a higher age-adjusted fatality rate from falls (19.1 per 100,000) than females (13.7 per 100,000)

despite a similar crude rate (18.9 per 100,000 males; 18.6 per 100,000 females). As with hospitalizations, adults aged 85 years and older had the highest rate of fall-related fatalities (**Table 9**). The rate among this group (434.0 per 100,000) was approximately four times the rate among adults aged 75-84 years (110.6 per 100,000). The fatality rates among younger persons were very low, with a rate of 0.2 among all individuals under the age of 25 years.

The incidence proportion of TBIs among fall-related fatalities was much higher than the proportion seen in nonfatal fall-related hospitalizations, with 1,458 (39%) fall-related fatalities involving a TBI from 2017-2021.

**Table 9.** Crude rates of nonfatal fall-related hospitalizations and fall-related fatalities by age group, Oklahoma, 2017-2021

Age Group	Number Of Hospitalizations	Hospitalization Rate**	Number Of Fatalities	Fatality Rate**
<25 years*	1,871	28.0	13	0.2
25-34 years	913	33.6	31	1.1
35-44 years	1,327	53.1	53	2.1
45-54 years	2,343	102.4	107	4.7
55-64 years	6,217	253.4	291	11.9
65-74 years	10,542	570.8	610	33.0
75-84 years	13,842	1,459.1	1,049	110.6
85+ years	13,393	3,711.7	1,566	434.0

\* <25 years condensed into one category to account for low fatality counts  
 \*\*Rates are presented per 100,000 population

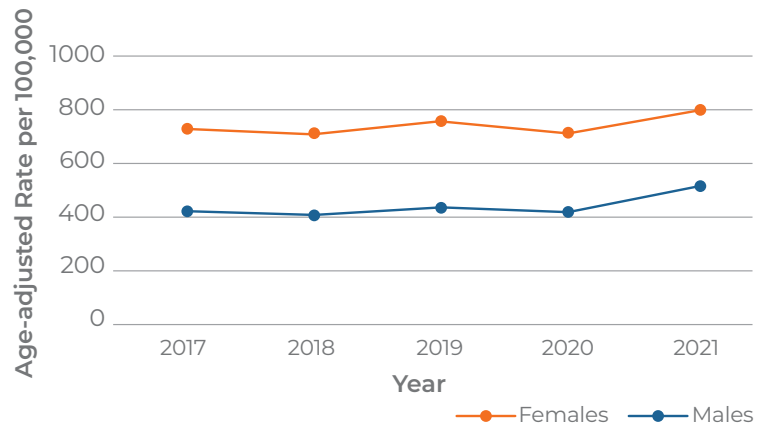
## Indicator 4c. Nonfatal Unintentional Fall-related Hip Fracture Hospitalizations in Persons Aged 65 Years and Older

From 2017-2021, 17,817 adults aged 65 years and older were hospitalized for a nonfatal fall-related hip fracture. Older adults are particularly susceptible to fracturing a hip during a fall, with 47% of fall-related hospitalizations among those 65 years and older involving a hip fracture compared to 20% for those under 65 years. Crude hospitalization rates increased as age increased. Individuals under 65 years had a rate of 15.4 hospitalizations related to hip fractures per 100,000 population; 65-74 years had a rate of 223.8; 75-84 years had a rate of 693.3; and 85 years and older had a rate of 1,969.6.

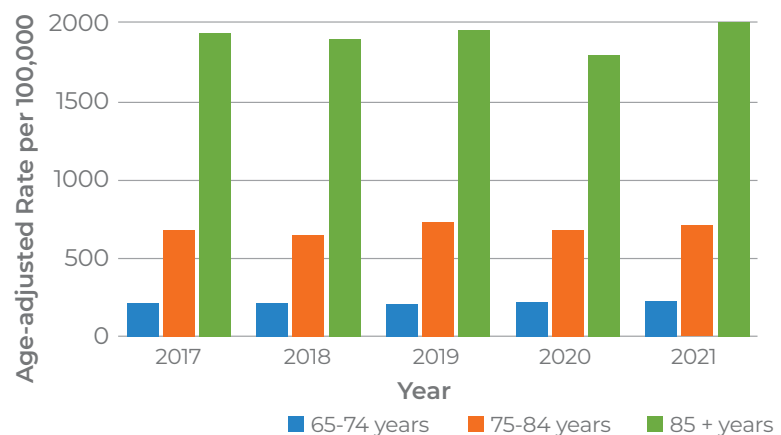
Females also experienced more hospitalizations from fall-related hip fractures than males (**Figure 12**). From 2017-2021, females aged 65 years and older had more than two times the number of hip fracture hospitalizations than their male counterparts.

The age-adjusted rate among females (727.1 per 100,000) was more than 1.5 times the rate among males (434.1 per 100,000).

**Figure 12.** Age-adjusted rates of nonfatal fall-related hip fracture hospitalizations among persons aged 65+ years by sex and year, Oklahoma, 2017-2021



**Figure 13.** Crude rates of nonfatal fall-related hip fracture hospitalizations among persons aged 65+ years by age group, Oklahoma, 2017-2021



**Table 10.** Number of nonfatal fall-related hip fracture hospitalizations by age group, Oklahoma, 2017-2021

Age Group	2017	2018	2019	2020	2021	2017-2021
<65 years	501	485	545	497	537	2,565
65-74 years	767	786	799	860	921	4,133
75-84 years	1,230	1,224	1,414	1,355	1,354	6,577
85+ years	1,394	1,382	1,444	1,342	1,545	7,107
<b>Total</b>	<b>3,391</b>	<b>3,392</b>	<b>3,657</b>	<b>3,557</b>	<b>3,820</b>	<b>17,817</b>

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## Firearm-related Injuries

These indicators measure nonfatal, inpatient hospitalizations and fatalities resulting from the use of a firearm, and include injuries of all intents. The nonfatal firearm-related hospitalization indicator includes unintentional firearm discharges, unintentional malfunctions, intentional self-harm or assault, firearm discharges of undetermined intent, legal interventions involving a firearm discharge

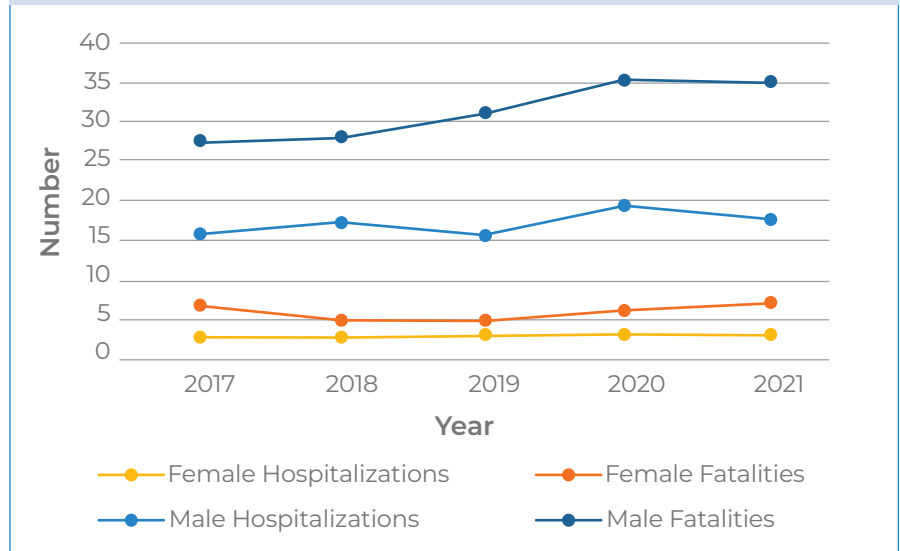
(also including discharges using rifle pellets), and terrorism. The hospitalization indicator excludes firearm injuries resulting from war or military operations, and gas, air, or spring-operated guns (i.e., airguns, BB guns, and paintball guns).

The firearm-related fatality indicator includes unintentional firearm discharges, unintentional malfunctions, intentional self-harm or assault, firearm discharges of undetermined intent, legal interventions involving a firearm discharge (including rifle pellets or rubber bullets), and terrorism. It excludes firearm injuries resulting from war or military operations. Unlike the hospitalization indicator, the death data do not contain the same level of specificity as discharge data, so it is not possible to exclude gas, air, or spring-operated guns.

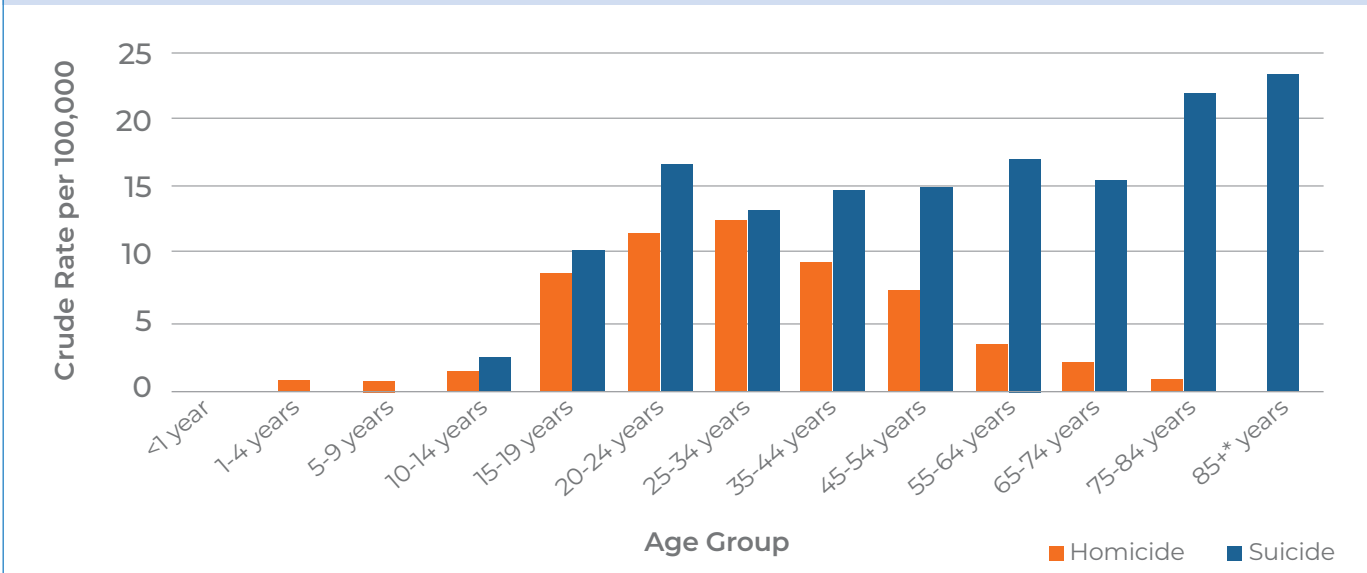
### Indicator 5a. Nonfatal Firearm-related Hospitalizations

There were 1,907 nonfatal firearm-related hospitalizations among Oklahoma residents from 2017-2021. Age-adjusted firearm-related hospitalization rates have fluctuated slightly since 2017, with an increase in 2020 (9.4 per 100,000 in 2019 to 11.2 per 100,000 in 2020), followed by a small decrease in 2021 (10.4 per 100,000; **Figure 14**). A sharp increase in hospitalizations among males from 2019-2020 contributed to the overall increase in 2020. From 2019-2020, crude hospitalization rates in males increased in the age groups 15-19, 20-24, 25-34, and 45-54 years. Males had much higher rates of hospitalizations than females with an age-adjusted rate, on average, of more than five times that of females (16.9 per 100,000 males; 3.1 per 100,000 females). Teens and young adults (15-34 years) had the highest rates of hospitalizations, with the highest rate experienced by persons aged 20-24 years (24.0 per 100,000), followed by teens aged 15-19 years (20.0 per 100,000).

■ **Figure 14.** Number of nonfatal firearm-related hospitalizations and firearm-related fatalities by year and sex, Oklahoma, 2017-2021



**Figure 15.** Crude rates of intentional firearm-related fatalities by age group and intent, Oklahoma, 2017-2021 (unintentional firearm-related fatalities not included due to low counts)



\*85+ years firearm-related homicide fatality rate suppressed due to low counts

## Indicator 5b. Firearm-related Fatalities

Unlike the majority of injury indicators in which there are more nonfatal hospitalizations than fatalities, for firearm-related incidents, the numbers and rates of fatalities are substantially higher than hospitalizations. From 2017-2021, there were 3,741 firearm-related fatalities among Oklahoma residents, almost twice the number of hospitalizations. The age-adjusted fatality rate increased each year since 2019.

The age-adjusted firearm-related fatality rate among males (31.8 per 100,000) was approximately five times the rate among females (6.3 per 100,000). Young adults (20-34 years) had the highest rates of firearm-related fatalities overall (28.8 per 100,000 for 20-24 years; 26.5 per 100,000 for 25-34 years). For females, the highest rates were among persons aged 45-54 years (9.9 per 100,000), followed by 25-44 years (8.7 per 100,000). However, for males, the age groups with the highest rates were older adults aged 85 years and older (60.7 per 100,000), followed by 75-84 years (49.8 per 100,000) and 20-24 years (48.2 per 100,000), driven by the higher rates of suicide in older populations and males compared to younger adults and females (**Figure 15**).

When separating firearm-related fatalities by intent (homicide, suicide, unintentional), differences in age distribution were evident (**Figure 15**). The age group with the highest age-adjusted rates of firearm-related homicides were persons aged 20-34 years (11.6 per 100,000 for 20-24 years; 12.5 per 100,000 for 25-34 years). The highest rates of suicides were observed in persons aged 75 years and older (21.9 per 100,000 for 75-84 years; 23.3 per 100,000 for 85 years and older), while the highest rates of unintentional firearm-related fatalities were among children aged 5-19 years (0.4 per 100,000). In total, 99% of all firearm-related fatalities were intentional (67% suicide, 32% homicide); 1% were unintentional; and for the remaining 1%, the intent was unknown.

# ▶ INDICATORS

## Motor Vehicle Traffic Crashes

These indicators measure nonfatal, inpatient hospitalizations and fatalities resulting from unintentional motor vehicle traffic (MVT) crashes only, that is, crashes on public roadways. Indicators include individuals injured as a motor vehicle occupant (any motor vehicle including a car, bus, three-wheeled vehicle, transport vehicle, etc.), pedestrian, cyclist, motorcyclist, and any others involved in an MVT crash.

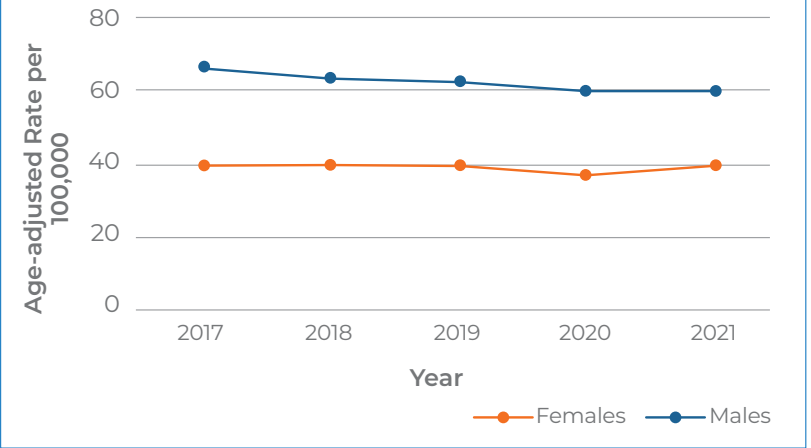
### Indicator 6a. Nonfatal Unintentional Motor Vehicle Traffic-related Hospitalizations

Motor vehicle traffic crashes are a leading cause of injury hospitalization in Oklahoma, with 10,084 nonfatal hospitalizations from 2017-2021. The number and age-adjusted rate decreased from 2017-2020, then increased in 2021 (**Figure 16**). Of crashes resulting in a nonfatal hospitalization, 2,961 (29%) also resulted in a TBI.

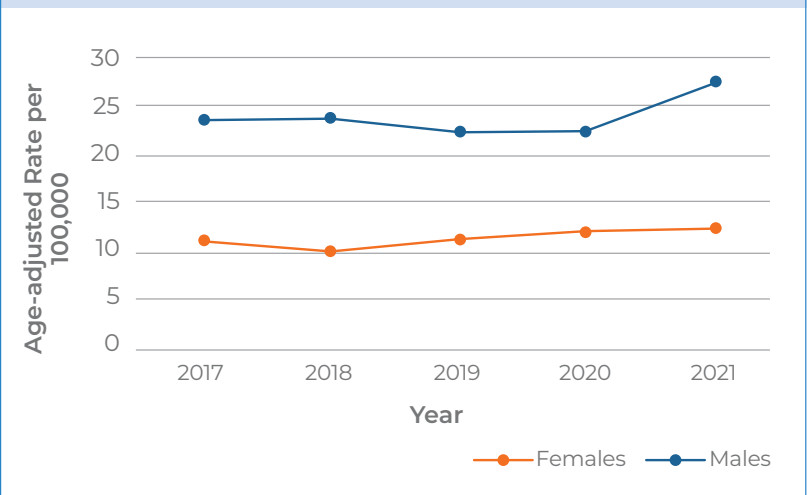
Adults aged 75 years and older had the highest rates of MVT-related hospitalizations (69.2 per 100,000 for 75-84 years; 69.8 per 100,000 for 85 years and older; **Figure 17**).

When disaggregated by sex, the age group patterns differed. Males had, on average, 1.6 times the number of MVT-related hospitalizations per year as females. Among males, the highest rates were among adults aged 85 years and older (89.5 per 100,000), followed by 25-34 years (83.5 per 100,000). Among females, the highest rates were among adults aged 75-84 years (68.9 per 100,000), followed by adults aged 85 years and older (58.5 per 100,000). For both sexes and overall, there were low MVT-related hospitalization rates among children and young teens (less than 15 years).

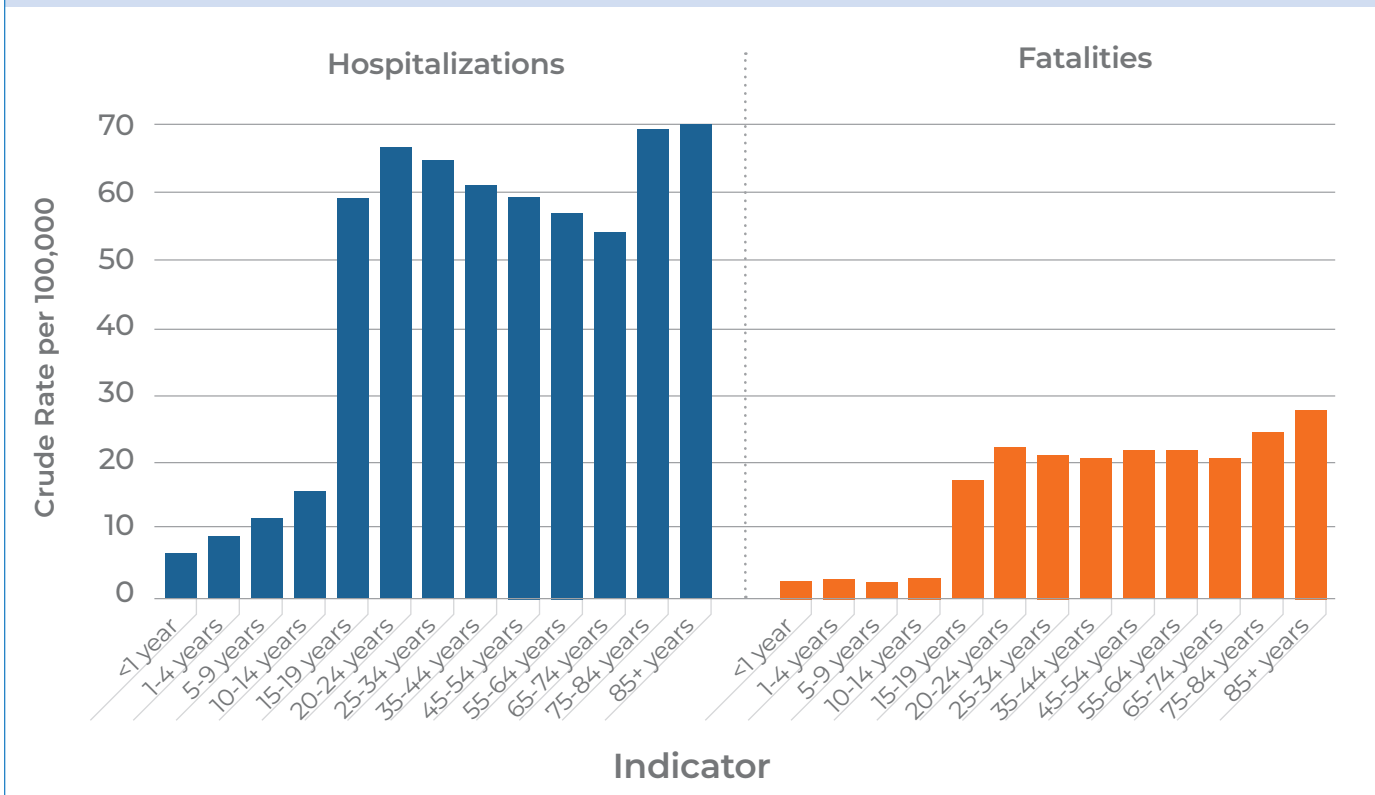
■ **Figure 16.** Age-adjusted rates of nonfatal MVT-related hospitalizations by sex, Oklahoma, 2017-2021



■ **Figure 17.** Age-adjusted rates of MVT-related fatalities by sex and year, Oklahoma, 2017-2021



**Figure 18.** Crude rates of nonfatal MVT-related hospitalizations and MVT-related fatalities by age group, Oklahoma, 2017-2021



### Indicator 6b. Unintentional Motor Vehicle Traffic-related Fatalities

After a decline from 2017-2019, MVT-related fatalities increased in 2020 and 2021 (**Figure 17**). From 2017-2021, there were 3,521 MVT-related fatalities, averaging approximately 700 fatalities per year. In 2021, there were 807 fatalities with an age-adjusted rate of 20.0 per 100,000 Oklahoma residents, compared to 2017 with 692 fatalities and an age-adjusted rate of 17.3 per 100,000 Oklahomans. Of all MVT crash fatalities, 464 (13%) involved a TBI.

As with hospitalizations, males had higher rates of MVT-related fatalities than females, with an age-adjusted rate more than twice that of females. Males had higher rates than females in every age group, except for children aged five to nine years where females had a rate of 2.7 per 100,000 and males 2.3 per 100,000.

The highest rates of fatalities were seen among adults aged 75 years and older (25.6 per 100,000; **Figure 18**). This group also had the highest rates among both males and females (36.3 per 100,000 and 17.9 per 100,000, respectively). As with hospitalizations, the lowest rates were among children and young teens (less than 15 years).

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## Nondrug Poisonings

These indicators measure nonfatal, inpatient hospitalizations and fatalities resulting from nondrug poisonings, including alcohol, gases, organic solvents and halogenated hydrocarbons, other chemicals, and more. They include all intents and involve unintentional poisonings, assaults, self-poisonings, poisonings of undetermined intent, legal intervention involving gas, and terrorism involving biological or chemical

weapons. Indicators do not include war or military operations involving chemical weapons.

This indicator does not include drug overdose as drug overdose hospitalizations and deaths are tracked separately through the State Unintentional Drug Overdose Reporting System and the Drug Overdose Surveillance and Epidemiology System through the CDC Overdose Data to Action program.

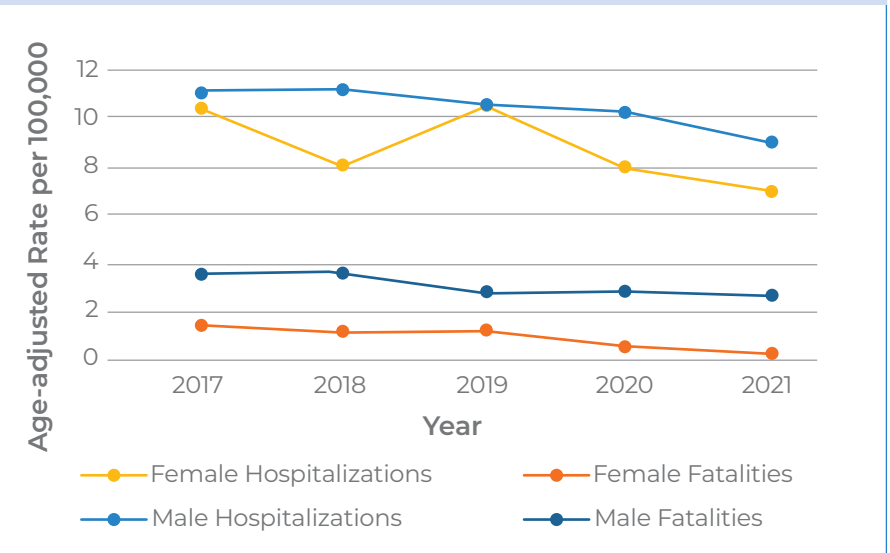
### Indicator 7a. Nonfatal Nondrug Poisoning Hospitalizations

There were 1,862 nonfatal nondrug poisoning hospitalizations from 2017-2021 with an overall decrease in the age-adjusted hospitalization rate over that time, excluding a spike in 2019 (**Figure 19**).

Overall, males had a higher rate of nondrug poisoning hospitalizations than females with the greatest sex disparity seen in individuals aged 65-74 years (5.6 per 100,000 females; 9.5 per 100,000 males) and one to four years (5.2 per 100,000 females; 8.5 per 100,000 males). The rate of nondrug poisoning hospitalizations for females was higher than that for males in individuals aged 10-14 years (3.3 per 100,000 females; 2.4 per 100,000 males), 15-19 years (11.8 per 100,000 females; 10.4 per 100,000 males), and 20-24 years (9.8 per 100,000 females; 8.0 per 100,000 males).

The highest crude rates of nonfatal nondrug poisoning hospitalizations were among individuals aged 15-64 years. In that range, the highest rates were seen in individuals aged 45-54 (15.1 per 100,000 Oklahomans), followed by 35-44 years (12.5 per 100,000). The age distribution was similar among males and females. The median age at hospital discharge was 40 years for females and 43 years for males. For both sexes, the age group with the highest rate of hospitalization was 45-54 years (12.8 per 100,000 females; 17.3 per 100,000 males).

■ **Figure 19.** Age-adjusted rates of nonfatal nondrug poisoning hospitalizations and nondrug poisoning fatalities by sex and year, Oklahoma, 2017-2021





## Indicator 7b. Nondrug Poisoning Fatalities

There were 398 nondrug poisoning fatalities among Oklahomans from 2017-2021, with the age-adjusted rate of nondrug poisoning fatalities decreasing over the time period (**Figure 19**).

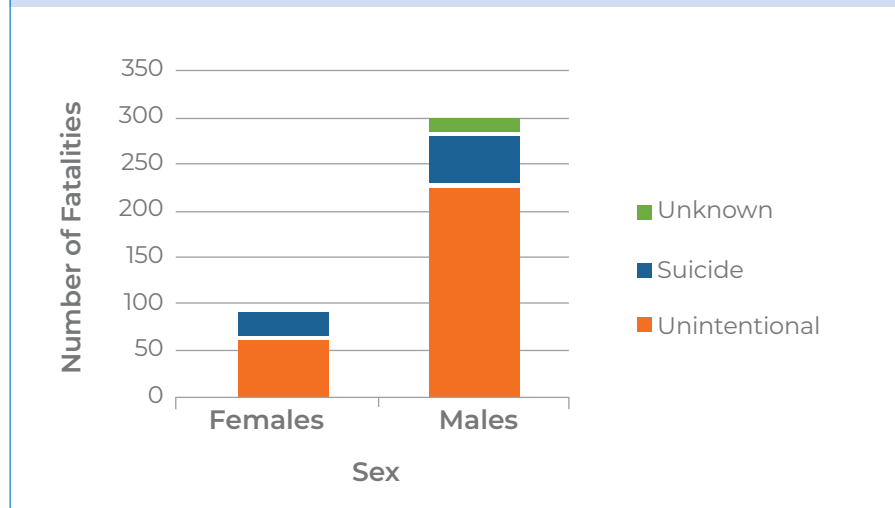
While there was a small difference in the rate of males compared to females for hospitalizations, that disparity was much larger with fatalities. From 2017-

2021, the age-adjusted rate of fatalities for males (3.1 per 100,000) was three times the rate for females (1.0 per 100,000). The rate of fatalities for females decreased more than it did for males. From 2017-2021, there was over a 70% decrease in the age-adjusted fatality rate for females versus a 25% decrease for males. By 2021, males accounted for 85% of all nondrug poisoning fatalities.

Younger (<20 years) and older (>74 years) individuals had very low rates of nondrug poisoning deaths. The highest rates of fatalities were among individuals aged 35-54 years. The age distribution was similar between sexes with a median age of 45 years for both females and males.

Of the 398 fatalities, 80 (20%) were suicides, 292 (73%) were unintentional, none were homicides, and for 26 (7%) the intent was unknown. Females had a higher proportion of fatalities with the intent of suicide than males (**Figure 20**).

■ **Figure 20.** Intent of nondrug poisoning fatalities by sex, Oklahoma, 2017-2021



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## Traumatic Brain Injuries

These indicators measure nonfatal, inpatient hospitalizations and fatalities resulting from head, skull, and brain injuries from any mechanism and any intent, including open head wounds, skull and facial bone fractures, injuries to optic pathways, intracranial injuries, crush injuries of the head, and any other injuries of the head.

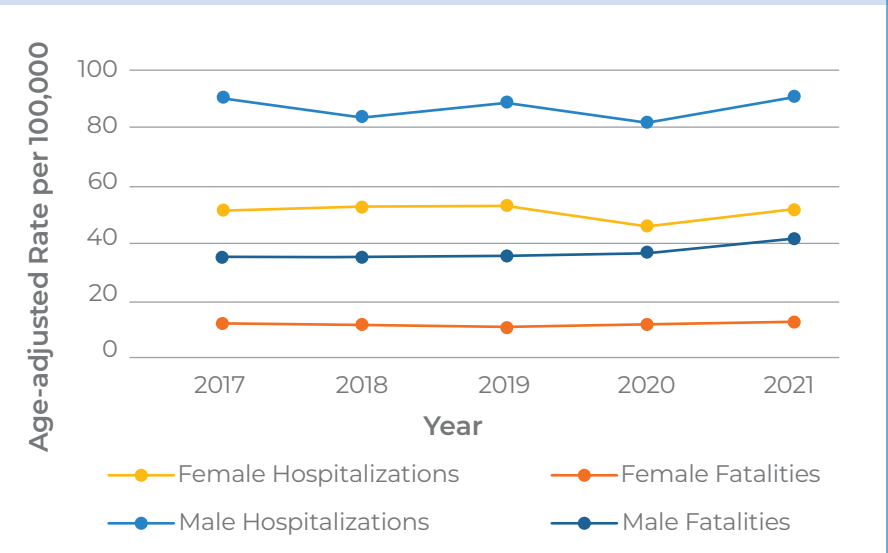
### Indicator 8a. Nonfatal Traumatic Brain Injury Hospitalizations

From 2017-2021, there were 14,592 nonfatal TBI-related hospitalizations, an average of 2,900 per year. After remaining fairly steady from 2017-2019, there was a decrease in the age-adjusted hospitalization rate in 2020 followed by an increase in 2021, returning to approximately the same rate as 2019 (**Figure 21**). The overall age-adjusted rate for males (87.1 per 100,000) was approximately 1.7 times the rate for females (50.8 per 100,000), and males had higher crude rates in every age group.

TBI hospitalization rates generally increased with age, with the highest rates in older adults aged 85 and older (582.5 per 100,000) and 75-84 years (270.8 per 100,000). The main exceptions to this were infants less than one year who had the third highest hospitalization rate (149.0 per 100,000) and children aged one to four years (22.1 per 100,000) whose rate was low overall but still greater than children aged five to nine years (15.8 per 100,000). High rates in older adults are likely due to the large number of TBIs caused by falls, which occur most often in older adults. These patterns remained fairly consistent from year to year, except in 2019 where children aged five to nine (17.1 per 100,000) had a higher hospitalization rate than children aged one to four (16.4 per 100,000) and 10-14 (15.2 per 100,000).

Of all TBI hospitalizations, 52% were related to a fall (7,640), 20% a motor vehicle traffic crash (2,961), and 1% a firearm (175).

■ **Figure 21.** Age-adjusted rates of nonfatal TBI hospitalizations and TBI fatalities by sex, Oklahoma, 2017-2021



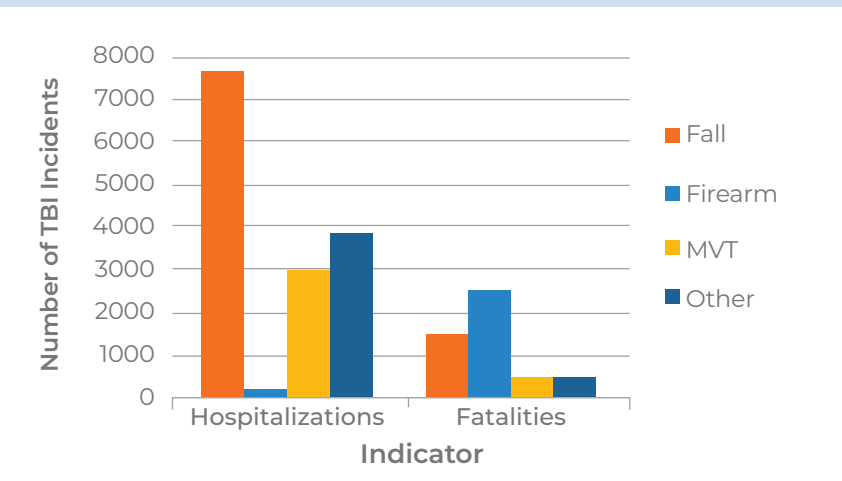
## Indicator 8b. Traumatic Brain Injury Fatalities

From 2017-2021, there were 4,886 TBI-related fatalities, an average of 975 per year. The age-adjusted rate of TBI-related fatalities increased since 2017 (22.6 per 100,000 in 2017; 26.3 per 100,000 in 2021; **Figure 21**). Males also had substantially higher rates of fatalities with an age-adjusted rate more than three times the rate for females.

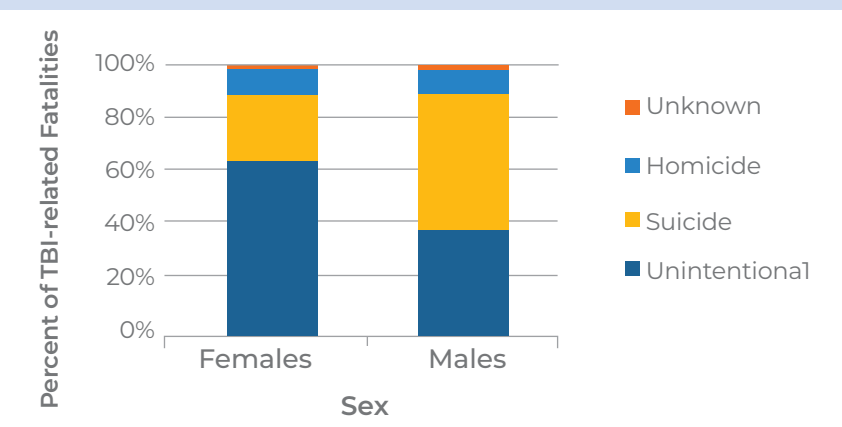
Fatalities follow a similar age distribution as hospitalizations, with rates generally increasing with age after age nine, and the highest rate seen in adults aged 85 years and older. However, infants less than one year did not have comparably high rates of fatality as with hospitalizations. Though infants less than one year did have higher rates than other children under 15 years, their fatality rate was lower than all age groups 15 years and older. Young adults aged 20-24 years also had a higher rate than adults aged 25-54 years.

Over half of fatal TBIs were firearm-related (51%; 2,510), of which 85% were suicides. Thirty percent were related to a fall (1,458) and 10% a motor vehicle traffic crash (464; **Figure 22**). Most TBIs were unintentional (45%; 2,211) or self-inflicted (44%; 2,150). The remaining injuries were inflicted by others (9%; 443) and undetermined manner (2%; 82). Firearms were involved in 99.5% of TBI-related suicides and 73% of TBI-related homicides. There were age and sex differences between intents of TBI-related injuries with a median age of 73 years for unintentional deaths, 46 for suicides, and 31 for homicides. For males, the highest proportion of TBI deaths were suicides (49%; 1,833), while for females, the majority of TBI deaths were unintentional (59%; 821; **Figure 23**).

■ **Figure 22.** Mechanisms involved in nonfatal TBI-related hospitalizations and TBI-related fatalities, Oklahoma, 2017-2021



■ **Figure 23.** Intent of injury for TBI-related fatalities, Oklahoma, 2017-2021



# ▶ INDICATORS

## Assaults and Homicides

These indicators measure nonfatal, inpatient hospitalizations and fatalities resulting from intentional injuries inflicted on another person. These indicators include confirmed and suspected adult and child abuse, neglect, and other maltreatment.

### Indicator 9a. Nonfatal Assault-related Hospitalizations

There were 4,312 nonfatal assault-related hospitalizations from 2017-2021. Except for a dip in 2019, age-adjusted rates remained fairly consistent over this time with an average of 23.1 assault-related hospitalizations per 100,000 Oklahomans (**Figure 24**).

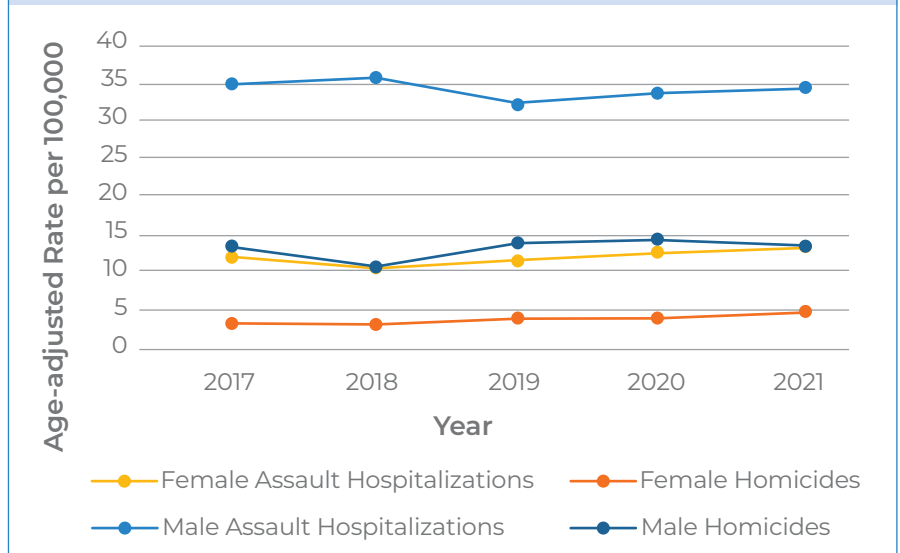
The age-adjusted rate of hospitalization in males (34.0 per 100,000) was 2.8 times the rate of females (12.1 per 100,000). Although adults aged 25-34 years had the highest number of assault hospitalizations (976), infants less than one year had the highest rate (157.6 per 100,000). The hospitalization rate for infants less than one year was more than four times that of the group with the next highest rate (35-44 years, 37.0 per 100,000; **Figure 25**). In males, the hospitalization rate for infants less than one year (177.7 per 100,000) was 3.1 times that of the group with the second highest rate (35-44 years, 57.8 per 100,000), while in females, the rate for infants less than one year (136.5 per 100,000) was 8.6 times that of the group with the second highest rate (35-44 years, 15.9 per 100,000).

Of all assault-related hospitalizations, 1,127 (26%) involved a TBI, 828 (19%) involved a cut or pierce injury, and 824 (19%) involved a firearm injury.

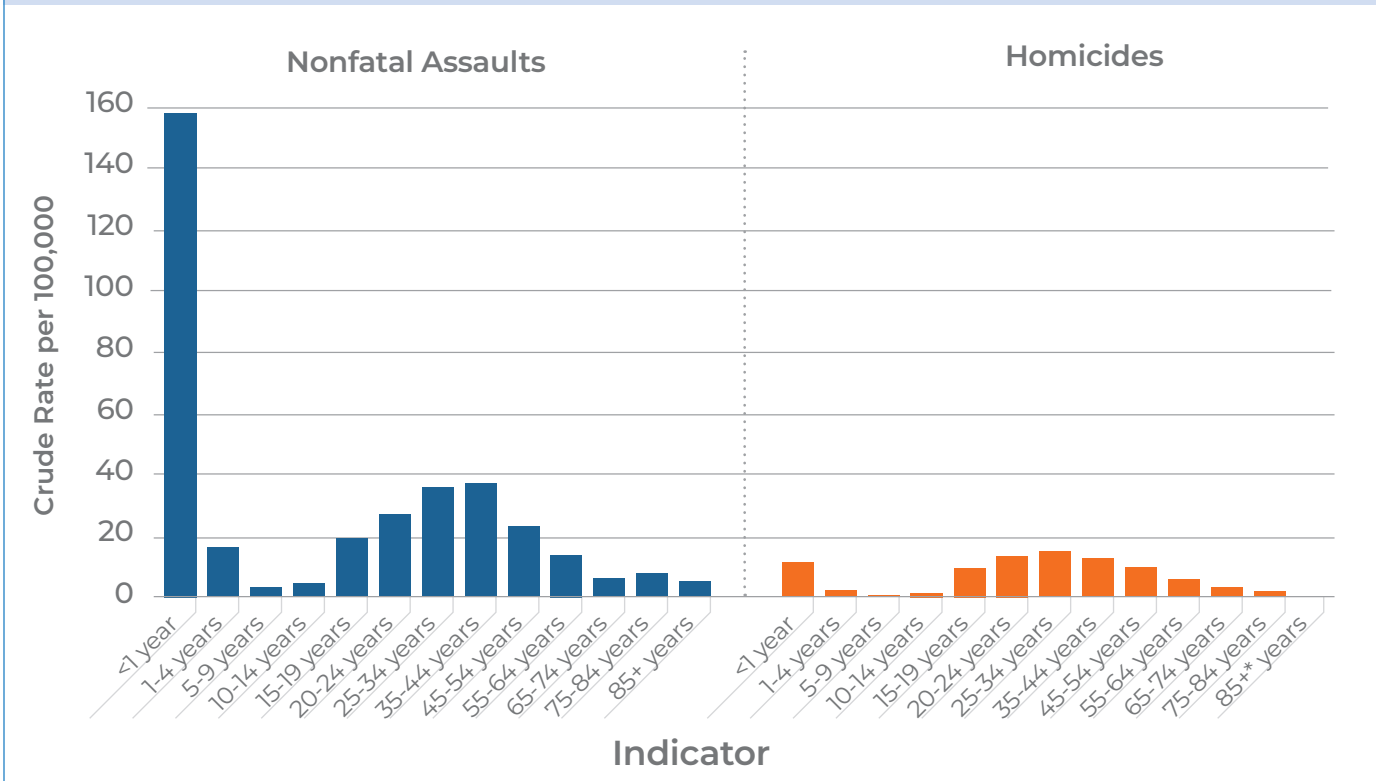
### Indicator 9b. Homicides

From 2017-2021, there were 1,600 homicides among Oklahoma residents. The age-adjusted rate of homicide decreased from 2017-2018, increased in 2019, and stayed mostly steady through 2021 (**Figure 24**). The age-adjusted homicide rate among males (13.2 per 100,000) was more than 3.5 times the rate among females (3.6 per 100,000).

■ **Figure 24.** Age-adjusted rates of nonfatal assault-related hospitalizations and homicides by sex and year, Oklahoma, 2017-2021



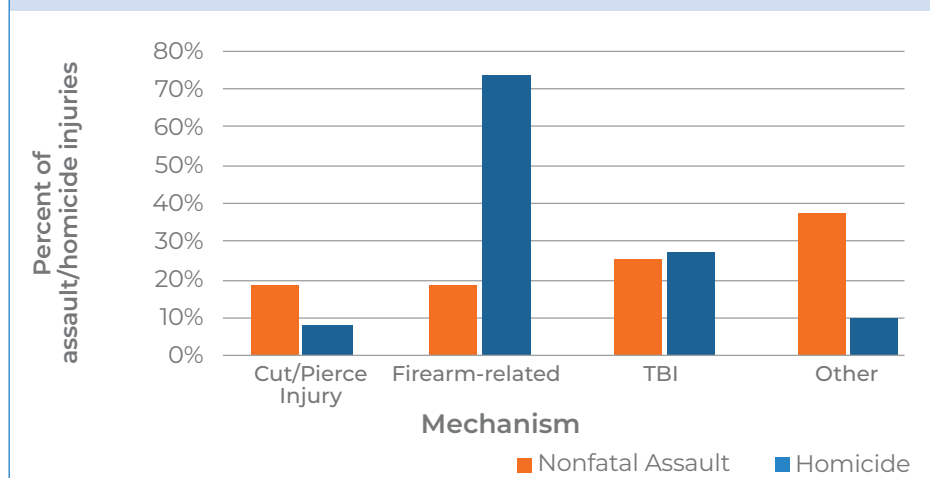
**Figure 25.** Crude rates of nonfatal assault hospitalizations and homicide fatalities by age group, Oklahoma, 2017-2021



\*85+ years homicide rate suppressed due to low counts

For fatalities, the highest number and crude rate of homicide was seen in adults aged 25-34 years (15.2 per 100,000). This age group had the highest rate among males (24.4 per 100,000); however, among females, the highest rate was among infants less than one year (8.4 per 100,000) with the second highest in adults aged 25-35 years (5.7 per 100,000). Overall, infants less than one year experienced the highest rate of homicide among all children and teenage age groups (11.4 per 100,000; **Figure 25**).

**Figure 26.** Percent of nonfatal assault hospitalizations and homicides by mechanism and nature of injury, Oklahoma, 2017-2021



Over 80% of the 1,600 homicides involved a firearm (74%; 1,186), a TBI (28%; 443), or both (20%; 322; **Figure 26**).

## ► INDICATORS

### Self-Harm and Suicides

These indicators measure nonfatal, inpatient hospitalizations and fatalities resulting from intentional, self-inflicted injuries. They account for all mechanisms and injury types.

#### Indicator 10a. Nonfatal Self-Harm-related Hospitalizations

From 2017-2021, there were 10,624 nonfatal self-harm-related hospitalizations among Oklahoma residents, an average of more than

2,000 per year. The age-adjusted hospitalization rate decreased during this time (2017: 62.2 per 100,000; 2021: 50.4 per 100,000; **Figure 27**). The age-adjusted rate of hospitalization for self-harm among females (70.5 per 100,000) was over 1.5 times that of males (42.3 per 100,000).

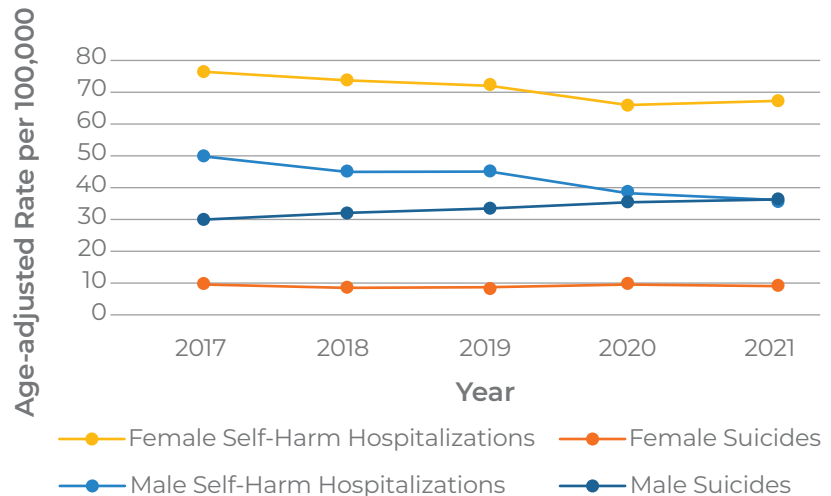
Teenagers aged 15-19 years had the highest rate of nonfatal self-harm hospitalizations (142.5 per 100,000). Rates decreased with increasing age groups above 19 years (**Figure 28**).

The most common mechanism of injury involved in self-harm hospitalizations was drug overdose (86%; 9,169). Other types of self-harm injuries included nondrug poisonings (7%; 766), cut or pierce injuries (7%; 753), firearm-related injuries (1%; 158), suffocation (1%; 151), falls (1%; 133), and TBIs (1%; 121).

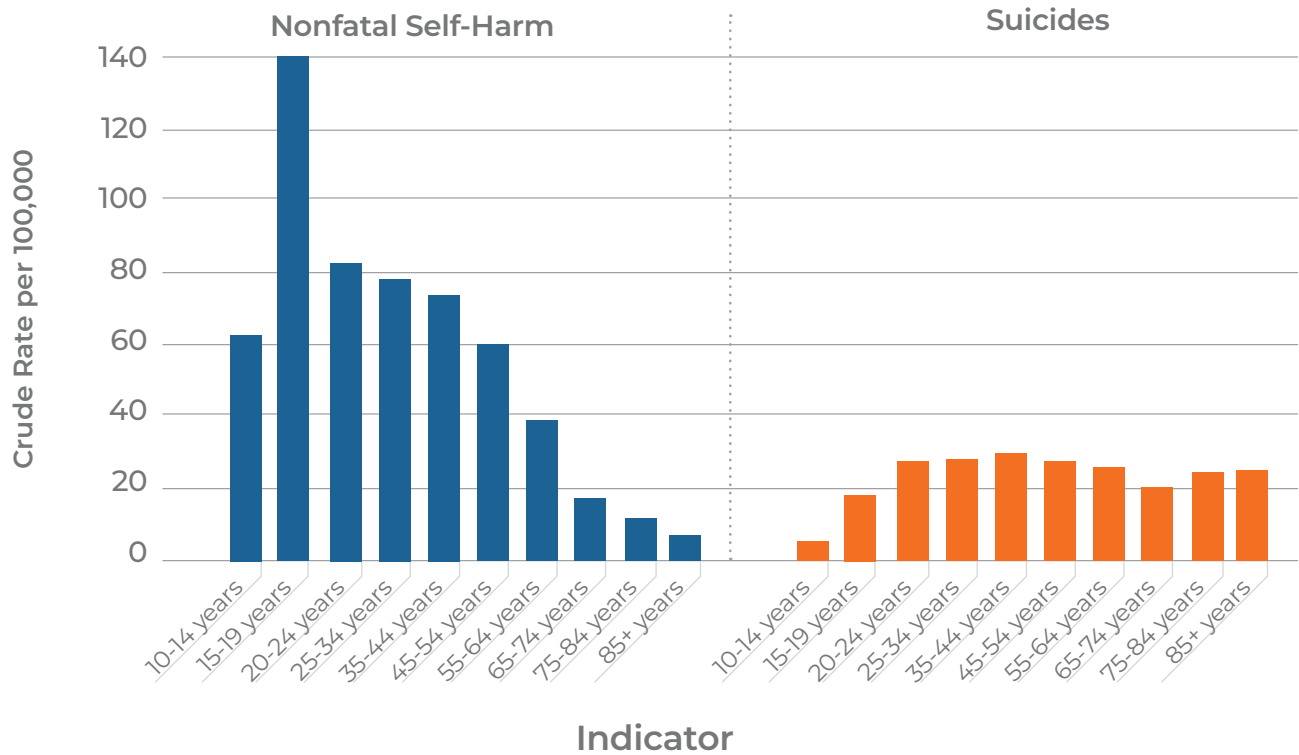
#### Indicator 10b. Suicides

There were 4,109 suicides in Oklahoma from 2017-2021, with both the count and age-adjusted rate increasing slightly each year over that time (**Figure 27**). While females had higher age-adjusted rates of hospitalizations from nonfatal self-harm than males, males had much higher rates of fatal self-harm, with an age-adjusted suicide rate more than 3.5 times the rate of females. Further, while the age-adjusted suicide rate for females slightly decreased over that time, the rate for males increased. This disparity increased in older adults with the crude rate of suicides among females aged 75 years and older being relatively low while their male counterparts had the highest rates of all age groups. Overall, adults aged 35-44 years had the highest rates of suicides, with high rates seen generally between ages 20-54 years (**Figure 28**).

■ **Figure 27.** Age-adjusted rates of nonfatal self-harm hospitalizations and suicide fatalities by sex, Oklahoma, 2017-2021

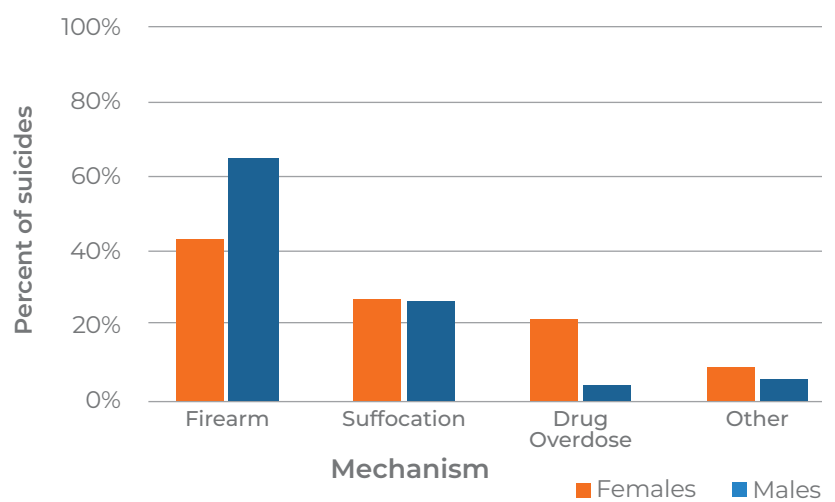


**Figure 28.** Crude rates of nonfatal self-harm hospitalizations and suicide fatalities by age group, Oklahoma, 2017-2021



Firearms were the most common mechanism of injury in a suicide (60%; 2,466), followed by suffocation (27%; 1,089; **Figure 29**). Nearly all suicides involving TBIs (99.5%) were the result of a firearm. The median age of individuals who died by suicide involving suffocation (36 years) was much lower than the median age for those who died by other common mechanisms (firearm: 48 years; drug overdose: 50 years).

**Figure 29.** Percent of suicides involving certain mechanisms, Oklahoma, 2017-2021



\*Categories are not mutually exclusive; therefore, some injury events are counted in multiple categories. "Other" includes injuries not involving a firearm, suffocation, or drug overdose.

# ▶ COUNTY-LEVEL DATA

## All Injuries Hospitalizations

■ **Table 11.** Counts and crude rates of all nonfatal injuries, Oklahoma, 2017-2021

County Name	Count	Crude Rate*
McIntosh	845	863.4
Craig	593	835.0
Kiowa	359	826.2
Muskogee	2,761	813.6
Okmulgee	1,474	773.6
Creek	2,770	772.9
Pawnee	591	727.0
Okfuskee	425	719.8
Mayes	1,453	713.6
Greer	196	688.2
Coal	189	686.9
Tulsa	22,457	685.1
Harmon**	88	675.7
Hughes**	448	675.6
Osage	1,552	663.9
Stephens	1,432	662.7
Pittsburg	1,424	650.2
Cherokee	1,569	645.4
Washita	344	627.6
Beckham	683	627.3
Seminole	758	623.7
Murray	424	608.7
Lincoln	1,026	591.0
Blaine**	274	589.0
Dewey	141	588.8
Nowata	295	588.7
Roger Mills	105	587.3
Rogers	2,722	584.3
Kingfisher	459	584.0
Ellis	113	583.7
Carter	1,406	581.7
Pontotoc	1,111	579.9
Wagoner	2,354	577.4
Pushmataha	316	574.1
Garvin	775	566.5
Kay	1,240	565.8
Garfield	1,683	548.0
Major**	209	547.4
Caddo	775	543.6

County Name	Count	Crude Rate*
Washington	1,407	539.8
Atoka	372	535.1
Noble	297	532.0
Pottawatomie	1,915	526.8
Cotton	149	523.4
Oklahoma	20,033	503.7
Comanche	2,910	479.1
Jefferson	141	476.0
Latimer	238	475.3
Alfalfa	136	473.2
Tillman	171	471.2
McClain	951	465.0
Grant	99	460.0
Grady	1,269	457.4
Adair	492	455.7
Johnston**	243	447.4
Woodward	449	444.7
Love	224	440.8
Jackson	540	437.9
Custer	627	436.7
Logan	1,047	432.9
Cleveland	6,190	432.7
Haskell	268	429.9
Marshall	344	415.6
Woods	179	406.8
Ottawa	616	397.1
Choctaw	290	396.9
Canadian	2,934	392.1
Delaware	822	386.4
Payne	1,566	382.3
Harper	65	360.3
Bryan	726	305.0
Sequoyah	522	253.3
Beaver	64	244.5
McCurtain	374	230.4
Cimarron	24	221.0
Le Flore	423	170.3
Texas	49	47.7

\*Rates presented as number of nonfatal hospitalization discharges per 100,000 Oklahoma residents

\*\* Counties with one of the top 5 highest fatality rates



## All Injuries Fatalities

■ **Table 12.** Counts and crude rates of all injury fatalities, Oklahoma, 2017-2021

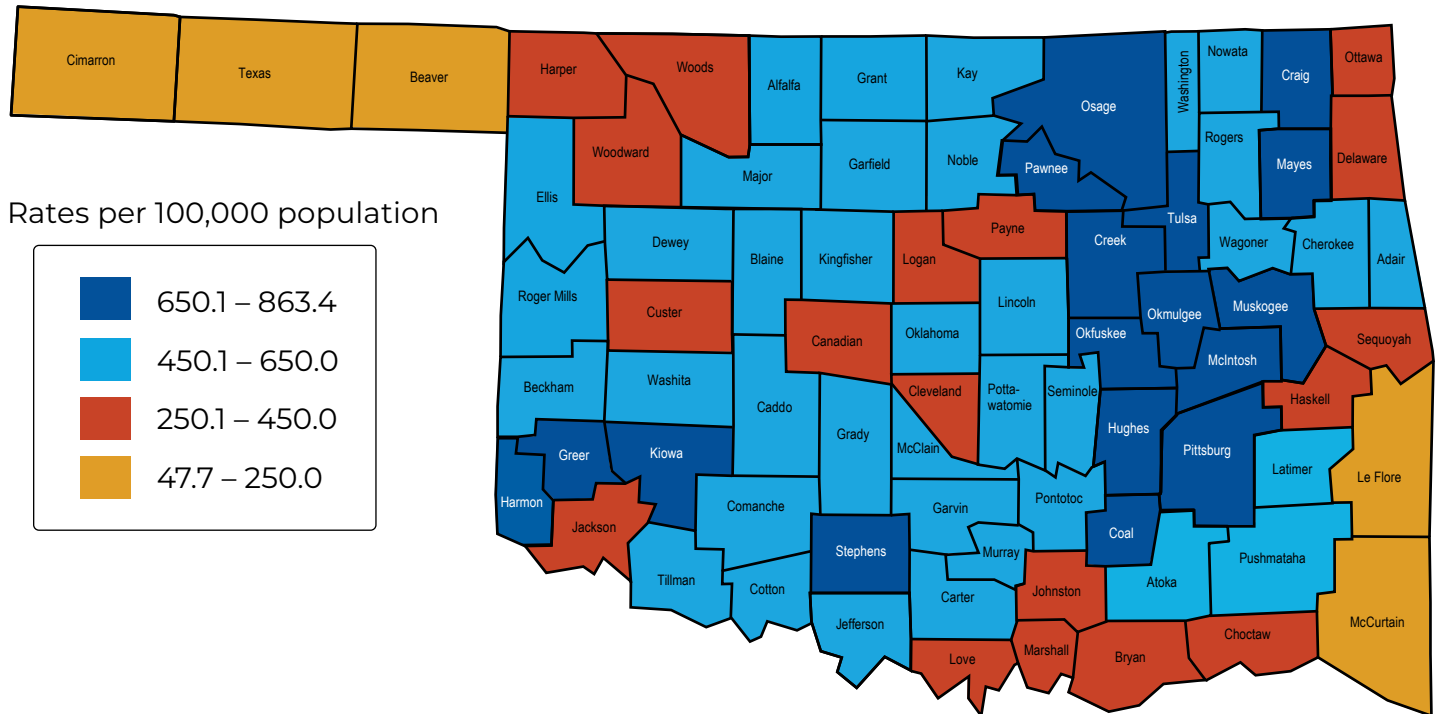
County Name	Count	Crude Rate*	County Name	Count	Crude Rate*
Harmon	26	199.6	Pittsburg	241	110.0
Blaine	85	182.7	Greer	31	108.8
Johnston	93	171.2	Jackson	134	108.7
Major	64	167.6	Stephens	233	107.8
Hughes	110	165.9	Pontotoc	203	106.0
Coal	45	163.5	Woodward	106	105.0
Okfuskee	90	152.4	Lincoln	182	104.8
Roger Mills	27	151.0	Mayes	213	104.6
Beaver	36	137.6	Alfalfa	30	104.4
McCurtain	223	137.4	Osage	239	102.2
Choctaw	100	136.9	Oklahoma	4,066	102.2
Seminole	166	136.6	Haskell	63	101.1
Pushmataha	75	136.3	Bryan	239	100.4
Caddo	188	131.9	Delaware	213	100.1
Washita	72	131.4	Creek	356	99.3
Latimer	65	129.8	Garfield	304	99.0
Ellis	25	129.1	Sequoyah	203	98.5
McIntosh**	126	128.7	Le Flore	243	97.9
Craig**	91	128.1	Tillman	35	96.4
Cotton	36	126.4	McClain	197	96.3
Dewey	30	125.3	Cherokee	232	95.4
Woods	55	125.0	Atoka	66	94.9
Pawnee	100	123.0	Nowata	47	93.8
Kay	269	122.7	Comanche	554	91.2
Garvin	166	121.3	Tulsa	2,935	89.5
Carter	292	120.8	Custer	126	87.8
Beckham	131	120.3	Washington	216	82.9
Okmulgee**	229	120.2	Kingfisher	63	80.2
Noble	67	120.0	Logan	188	77.7
Jefferson	35	118.2	Harper	14	77.6
Ottawa	182	117.3	Wagoner	311	76.3
Marshall	97	117.2	Texas	78	75.9
Murray	81	116.3	Canadian	552	73.8
Grant	25	116.2	Cleveland	1,13	70.8
Love	59	116.1	Rogers	322	69.1
Pottawatomie	418	115.0	Payne	248	60.5
Adair	121	112.1	Cimarron	6	55.2
Muskogee**	418	115.0			
Grady	307	110.7			
Kiowa**	48	110.5			

\*Rates presented as number of fatalities per 100,000 Oklahoma residents

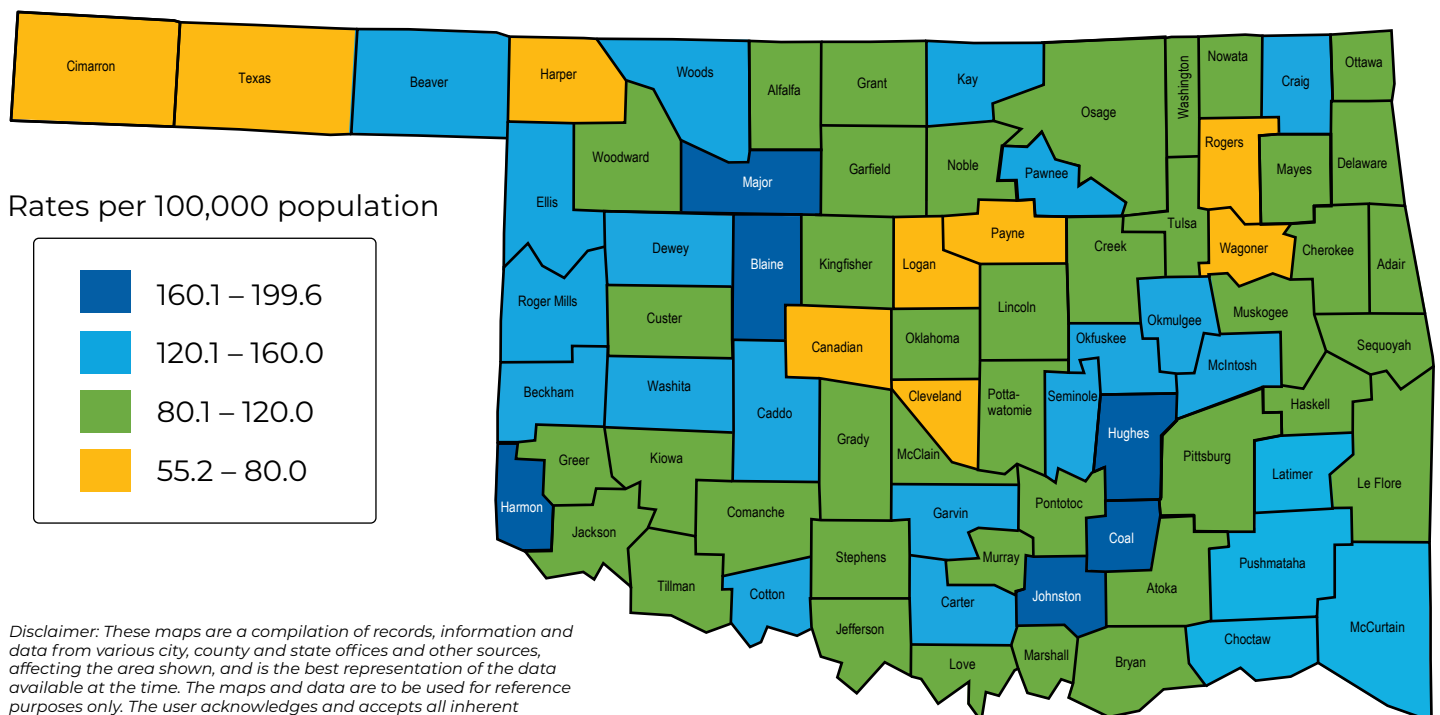
\*\* Counties with one of the top 5 highest hospitalization rates

# COUNTY-LEVEL DATA

■ **Nonfatal Injury Inpatient Hospital Discharge Rates** by County of Residence  
Oklahoma, 2017-2021



■ **Fatal Injury Rates** by County of Residence, Oklahoma, 2017-2021



*Disclaimer: These maps are a compilation of records, information and data from various city, county and state offices and other sources, affecting the area shown, and is the best representation of the data available at the time. The maps and data are to be used for reference purposes only. The user acknowledges and accepts all inherent limitations of the map, including the fact that the data are dynamic and in a constant state of maintenance.*

# REFERENCES ◀

1. Thomas KE, Johnson RL. State Injury Indicators Report: Instructions for Preparing 2021 Data. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. 2023.
2. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. Web-based Injury Statistics Query and Reporting System (WISQARS). Accessed at <https://wisqars.cdc.gov/>.
3. Oklahoma State Department of Health, Center for Health Statistics, Health Care Information, Vital Statistics 2022, on Oklahoma Statistics on Health Available for Everyone (OK2SHARE). Accessed at <https://www.health.state.ok.us/ok2share/>.
4. Single-race Population Estimates, United States, 2010-2020. July 1st Resident Population by State, Age, Sex, Single-race, and Hispanic Origin, on CDC WONDER Online Database. Vintage 2020 estimates released by U.S. Census Bureau on July 27, 2021. Accessed at <https://wonder.cdc.gov/single-race-single-year-v2020.html>.
5. Single-race Population Estimates, United States, 2020-2021. July 1st Resident Population by State, Age, Sex, Single-race, and Hispanic Origin, on CDC WONDER Online Database. The 2020-2021 postcensal series of estimates of the July 1 resident population are based on the Blended Base produced by the U.S. Census Bureau in lieu of the April 1, 2020 decennial population count, released by the Census Bureau on June 30, 2022. Accessed at <https://wonder.cdc.gov/single-race-single-year-v2021.html>.
6. Anderson RN, Rosenberg HM. Age Standardization of Death Rates: Implementation of the Year 2000 Standard. National Vital Statistics Reports Vol 47 No 3. Hyattsville, MD: National Center for Health Statistics. 1998. Accessed at: [https://www.cdc.gov/nchs/data/nvsr/nvsr47/nvs47\\_03.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr47/nvs47_03.pdf).

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