



Injuries in Oklahoma, 2010-2012

Suhayb Anwar, M.P.H.
Epidemiologist

Claire Nguyen, M.S.
Epidemiologist

Tracy Wendling, Dr.P.H.
Director of Surveillance



Oklahoma State
Department of Health
Creating a State of Health

For more information, please contact:
Injury Prevention Service
Oklahoma State Department of Health
1000 N.E. 10th Street
Oklahoma City, Oklahoma 73117-1299
(405) 271-3430
<http://ips.health.ok.gov>

October 2014

Table of Contents

Injury Indicators/Magnitude of the Problem	1
Indicator 1: Injury Fatalities.....	2
Indicator 2: Injury Hospitalizations	3
Indicator 3: Unintentional Drowning Fatalities.....	4
Indicator 4: Drowning-Related Hospitalizations	4
Indicator 5: Unintentional Fire-Related Fatalities	5
Indicator 6: Unintentional Fire-Related Hospitalizations	5
Indicator 7: Firearm-Related Fatalities.....	6
Indicator 8: Firearm-Related Hospitalizations	6
Indicator 9: Homicides	7
Indicator 10: Assault-Related Hospitalizations.....	7
Indicator 11: Suicides	8
Indicator 12: Suicide Attempt Hospitalizations.....	8
Indicator 13: Motor Vehicle Traffic Fatalities.....	9
Indicator 14: Motor Vehicle Traffic Hospitalizations	9
Indicator 15: Poisoning Fatalities	10
Indicator 16: Poisoning Hospitalizations	10
Indicator 17: Traumatic Brain Injury Fatalities.....	12
Indicator 18: Traumatic Brain Injury Hospitalizations.....	12
Indicator 19: Unintentional Fall-Related Fatalities.....	13
Indicator 20: Unintentional Fall-Related Hospitalizations.....	13
Indicator 21: Hip Fracture Hospitalizations in Persons Aged 65 Years and Older	13
Indicator 22: Acute Drug Overdose Fatalities	10
Core VIPP Priority Areas	15
How Indicator Data Are Calculated.....	16
References	17

Injuries in Oklahoma, 2010-2012

Injury Indicators

Injury surveillance, that is, the practice of collecting, analyzing, and disseminating data on injury, is a fundamental and critical element of controlling and preventing injuries. This information guides resource allocation and is a basis for developing programs and establishing prevention priorities. Surveillance data also illustrate the magnitude of injury morbidity and mortality, the leading mechanisms of injury, and the populations at highest risk.

The Centers for Disease Control and Prevention (CDC) has defined an injury indicator as a measure that “describes a health outcome of an injury, such as hospitalization or death, or a factor known to be associated with an injury, such as a risk or protective factor among a specified population.”¹ The indicators are calculated using standardized methodology created by the CDC and cover the following mechanisms and types of injury: drownings, falls, fires, firearms, assaults, motor vehicle crashes, poisonings, acute drug overdoses, suicides/suicide attempts, hip fractures, and traumatic brain injuries.¹ Oklahoma’s indicator data are used in this state profile, *Injuries in Oklahoma*. This report includes data on injury deaths and hospitalizations that occurred in 2010, 2011, and 2012.

Magnitude of the Problem

Approximately 3,300 Oklahomans die every year from an injury, including more than 2,300 unintentional (accidental) deaths, over 600 suicides, and more than 200 homicides.² In 2012, injuries accounted for approximately 1 of every 11 deaths in Oklahoma²; in 2012, nonfatal injuries accounted for 1 of every 11 hospital days and 1 of every 12 hospital discharges. Also, for every \$8.00 of inpatient healthcare charges, \$1 was for injuries.³

Injuries are the leading cause of death and lifelong disability among persons 1-44 years of age in Oklahoma. Unintentional injuries, suicides, and homicides are the three leading causes of death for Oklahomans age 15-34. Injuries account for more premature deaths before 65 years of age than cancer, heart disease, stroke, and diabetes combined. In 2012, Oklahoma’s death rates due to motor vehicle crashes, drownings, fire/burns, unintentional falls, poisoning, suicide and homicide were higher than the national average.²

According to vital statistics data, in 2012, the leading causes of injury death in Oklahoma were poisonings, motor vehicle crashes, firearms, and falls. Males were twice as likely to die from injuries than females. Of the fatal motor vehicle traffic crashes in Oklahoma, 38% were alcohol/drug-related. Overall, 54% of fatal crash victims were not using safety belts or child restraint devices.⁴

According to 2012 United States (U.S.) Census population estimates, the population of Oklahoma constituted 1.2% of the entire U.S. population. Oklahoma has the second highest Native American population in the nation and a lower proportion of African Americans than the national average (Table 1).⁵

Table 1. Selected Census Population, Oklahoma and United States, 2012

		Oklahoma		United States	
		Number	Percent	Number	Percent
Total Population		3,814,820		313,914,040	
Males		1,889,825	50%	154,492,067	49%
Females		1,924,995	50%	159,421,973	51%
Race	White	2,881,880	76%	244,495,567	78%
	African American	291,551	8%	41,204,793	13%
	Native American	341,844	9%	3,857,495	1%
Hispanic ethnicity		356,300	9%	53,027,708	17%
Under 5 years		261,958	7%	19,999,344	6%
Under 18 years		937,363	25%	73,728,088	23%
Over 65 years		534,247	14%	43,145,356	14%

Indicator 1: Injury Fatalities

Injuries are a leading cause of death in Oklahoma. Injury-related deaths result in the most years of potential life lost because they disproportionately affect the young. In 2012, 3,414 Oklahoma residents died as a result of an injury compared to 2,378 deaths in 2010. From 2010-2012, males accounted for 65% of all fatal injuries and had a higher mortality rate than females in all age groups. The largest differences between males and females were among those aged 15-34 years, where mortality rates for males were three times those of females. Overall, the highest injury-related mortality rates were for adults aged 75 and older. Adults aged 85 and older had mortality rates almost three times those of adults aged 75 and older. Among adults younger than 75, the highest mortality rates were seen in the 45-54 year age group.

Figure 1. Injury Fatality Rates by Age Group and Gender, Oklahoma, 2010-2012

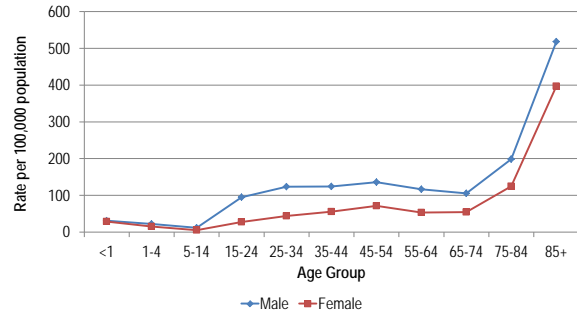
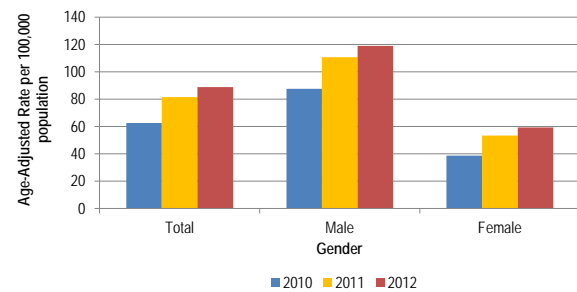


Figure 2. Age-Adjusted Injury Fatality Rates by Year of Death and Gender, Oklahoma, 2010-2012



	Male	Female	Total
All injuries	103.3	53.8	78.3
Unintentional drowning	2.5	0.8	1.6
Unintentional fire	1.8	1.3	1.5
Firearm	24.1	5.0	14.4
Homicide	9.1	2.7	5.9
Suicide	25.6	6.4	15.9
Motor vehicle crash	22.5	10.2	16.3
Poisoning	21.3	15.7	18.4
Traumatic brain injury	28.7	11.1	19.8
Falls	10.6	11.9	11.3

	Total			Male			Female		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
<1 year	28.8	30.0	31.1	26.3	29.3	38.0	31.3	30.7	23.9
1-4 years	13.2	23.5	19.5	16.6	27.7	22.4	9.6	19.1	16.5
5-14 years	8.2	9.6	8.0	12.9	10.9	11.2	3.2	8.3	4.7
15-24 years	48.3	68.2	70.1	72.0	103.4	109.2	23.5	30.9	28.5
25-34 years	65.5	88.0	99.4	99.4	127.0	143.6	30.1	47.5	53.6
35-44 years	69.6	95.1	106.3	99.1	126.2	147.6	39.5	63.5	64.5
45-54 years	80.6	116.9	112.3	111.6	157.7	138.1	50.4	77.0	87.1
55-64 years	70.2	81.3	99.2	97.4	115.9	135.0	44.6	48.8	65.6
65-74 years	63.1	81.8	89.3	89.4	112.2	114.3	39.9	55.0	67.2
75-84 years	138.1	143.4	186.5	181.1	181.1	233.1	106.5	115.4	151.5
85+ years	384.7	441.0	485.1	465.1	530.7	555.1	344.9	395.5	448.8

Indicator 2: Injury Hospitalizations

For every one injury death in Oklahoma from 2010-2012, there were eight injury hospitalizations. Oklahomans had a total of 23,832 injury-related hospitalizations in 2012, an increase from the 23,788 hospitalizations in 2010. Unlike injury-related deaths, females accounted for more than half (53%) of all injury hospitalizations. Males had higher rates of injury-related hospitalization than females for all groups less than 55 years of age. Females had higher rates of hospitalization than males for all groups aged 55 and older. Similar to injury-related deaths, the highest overall rates for both males and females were for adults aged 65 and older. Adults aged 85 and older had the highest injury-related hospitalization rates, 2.4 times higher than those of the next youngest age group. Injury-related hospitalization rates were 2-3 times higher for both males and females between the 5-14 and 15-24 year age groups. This is likely due to the large number of motor vehicle crash injuries for teen drivers and teen vehicle occupants.

Figure 3. Injury Hospitalization Rates by Age Group and Gender, Oklahoma, 2010-2012

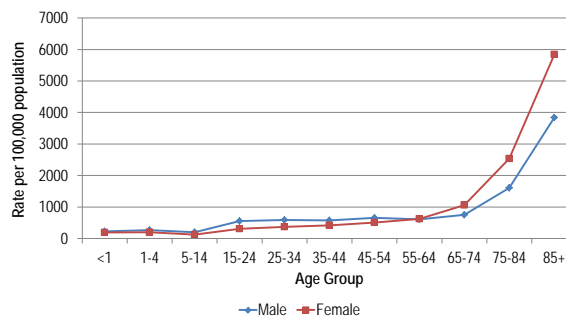


Figure 4. Age-Adjusted Injury Hospitalization Rates by Year of Discharge and Gender, Oklahoma, 2010-2012

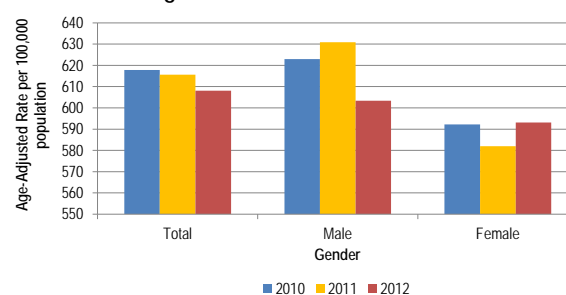


Table 4. Injury Hospitalization Rates by Indicator and Gender, Oklahoma, 2010-2012

	Male	Female	Total
All injuries	601.0	657.4	629.5
Unintentional drowning	1.3	0.8	1.0
Unintentional fire	7.5	2.7	5.1
Firearm	16.9	2.7	9.7
Assault	41.7	8.6	25.0
Suicide Attempt	52.3	76.4	64.5
MVC	88.4	53.6	70.9
Poisoning	105.8	147.4	126.8
TBI	117.1	76.4	96.5
Falls	178.3	329.4	254.6
Hip fractures (older adults)	435.0	885.3	687.9

Table 5. Injury Hospitalization Rates by Year of Discharge, Age Group, and Gender, Oklahoma, 2010-2012

	Total			Male			Female		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
<1 year	153.5	260.3	211.7	173.1	300.1	197.5	173.1	218.7	226.7
1-4 years	232.8	232.8	227.6	263.3	259.9	268.5	263.3	204.7	185.1
5-14 years	145.9	166.0	171.7	184.0	207.3	198.1	184.0	122.7	143.9
15-24 years	420.4	459.3	428.5	534.3	604.3	527.6	534.3	305.6	323.1
25-34 years	470.6	482.3	490.9	571.7	596.4	601.3	571.7	363.5	376.3
35-44 years	493.8	493.8	498.6	577.2	568.2	574.8	577.2	418.5	421.2
45-54 years	582.7	588.1	569.0	664.7	673.0	623.0	664.7	505.1	516.2
55-64 years	619.8	627.0	601.0	603.2	621.2	597.7	603.2	632.5	604.0
65-74 years	930.3	909.5	899.7	784.0	770.8	701.6	784.0	1031.6	1074.2
75-84 years	2155.8	2157.2	2107.2	1638.7	1615.9	1567.3	1638.7	2558.7	2511.7
85+ years	5702.8	4824.8	4996.9	4273.0	3668.5	3612.7	4273.0	5411.2	5712.4

Indicator 3: Unintentional Drowning Fatalities

Indicator 4: Drowning-Related Hospitalizations

Unintentional drowning is the second leading cause of injury death for children aged 1-18 in Oklahoma, and the leading cause of death for children aged 1-4.² From 2010-2012, 182 Oklahomans unintentionally drowned. Males accounted for more than three-fourths of all drowning deaths and were 3.2 times more likely to drown compared to females. Overall, the highest rates of drowning deaths were for females less than 1 year of age and males aged 1-4.

From 2010-2012, there were more drowning deaths than drowning-related hospitalizations (182 and 119, respectively). Males accounted for nearly two-thirds (61%) of drowning-related hospitalizations. Fifty-two percent of drowning-related hospitalizations were among children aged 1-4, and more than two-thirds (67%) occurred among children aged 1-14.

Figure 5. Unintentional Drowning Fatality Rates by Age Group and Gender, Oklahoma, 2010-2012

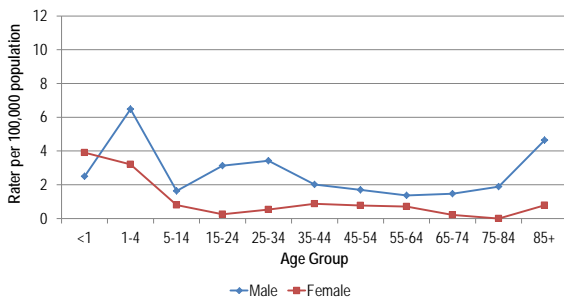


Figure 6. Drowning-Related Hospitalization Rates by Age Group and Gender, Oklahoma, 2010-2012

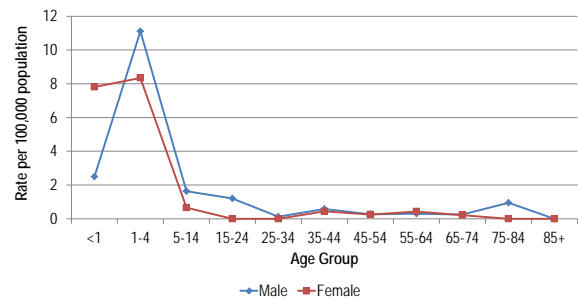


Figure 7. Age-Adjusted Unintentional Drowning Fatality Rates by Year of Death and Gender, Oklahoma, 2010-2012

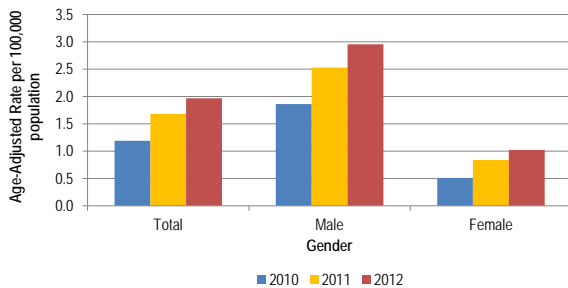
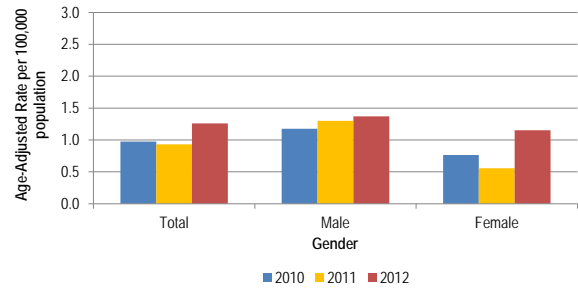


Figure 8. Age-Adjusted Drowning-Related Hospitalization Rates by Year of Discharge and Gender, Oklahoma, 2010-2012



Drowning Prevention Strategies

- Have a responsible, undistracted adult provide constant supervision to children bathing, swimming, or playing in and around water.
- Learn to swim well and learn cardiopulmonary resuscitation (CPR).
- Avoid alcohol use before and during water-related activities (e.g., boating, swimming, water skiing) and while supervising children.
- Install four-sided fencing around swimming pools that is at least four feet high and has a self-closing and self-latching gate.
- Everyone should wear U.S. Coast Guard approved life jackets when boating (regardless of swimming ability or age) and be aware of weather forecasts, dangerous waves, and rip currents.

Indicator 5: Unintentional Fire-Related Fatalities

Indicator 6: Unintentional Fire-Related Hospitalizations

Unintentional fire-related injuries are the third leading cause of injury death in Oklahoma among ages 1-9 years.² In 2012, there were 58 fire-related deaths in Oklahoma, compared to 60 deaths in 2010. The rate of fire-related death decreased slightly from 2010-2012. More than half (58%) of all fire-related deaths occurred among males. Adults aged 55+ accounted for 57% of all fire-related deaths from 2010-2012. There was one death among infants less than one year of age.

For every fire-related death, there were three fire-related hospitalizations. Males accounted for almost three-fourths (73%) of all fire-related hospitalizations, and the rate of hospitalization for males was 2.8 times that of females. Males had higher hospitalization rates than females in all age groups except ages 1-4. Males aged 25-54 accounted for 41% of fire-related hospitalizations, but only 20% of Oklahoma's population. Males aged 45-54 had the highest rate overall (11.5 per 100,000 population). Males aged 45-54 had a hospitalization rate 4 times that of females in the same age group (11.5 and 2.9 per 100,000 population, respectively).

Figure 9. Unintentional Fire-Related Fatality Rates by Age Group and Gender, Oklahoma, 2010-2012

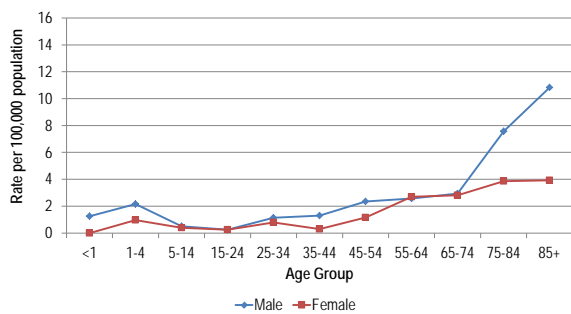


Figure 10. Unintentional Fire-Related Hospitalization Rates by Age Group and Gender, Oklahoma, 2010-2012

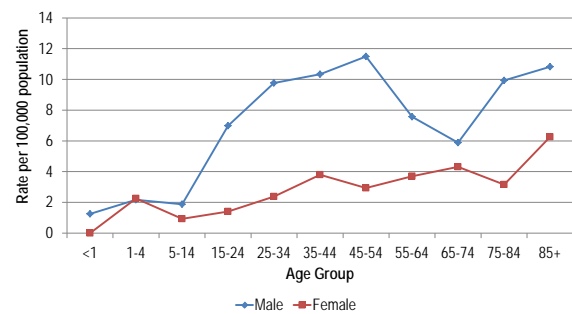


Figure 11. Age-Adjusted Unintentional Fire-Related Fatality Rates by Year of Death and Gender, Oklahoma, 2010-2012

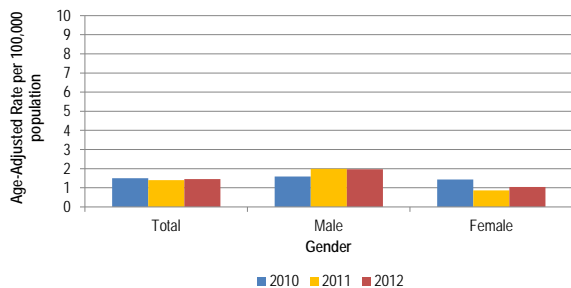
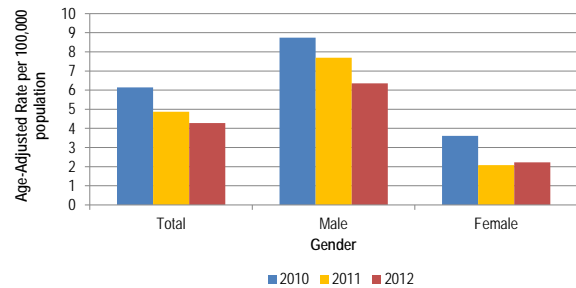


Figure 12. Age-Adjusted Unintentional Fire-Related Hospitalization Rates by Year of Discharge and Gender, Oklahoma, 2010-2012



Fire-Related Injury Prevention Strategies

- Install smoke alarms on every floor of the home, particularly near areas/rooms where people sleep. Test alarms every month.
- Create and practice a fire escape plan that includes at least two ways to get out of every room and designates a safe meeting area once outside.
- Quit smoking, or if unable to quit, practice safe smoking behaviors, such as not smoking in bed or while drowsy and completely extinguishing cigarettes and smoldering ashes.
- Never leave food unattended while cooking and keep cooking areas free of flammable objects.
- Keep matches and lighters out of children's reach.

Indicator 7: Firearm-Related Fatalities

Indicator 8: Firearm-Related Hospitalizations

Firearm-related deaths include all manner deaths: homicide, suicide, unintentional, and undetermined. Males accounted for 83% of firearm-related deaths and had a mortality rate 4.8 times higher than females (24.1 and 5.0 per 100,000, respectively). Males had much higher rates of firearm-related death in all age groups. There were no firearm-related deaths to children under one year of age.

During 2010-2012, there were fewer firearm-related hospitalizations in Oklahoma than deaths (1,106 and 1,642, respectively), and a similar proportion of

hospitalizations were among males (86%). Males aged 15-34 accounted for more than half (55%) of firearm-related hospitalizations, but only 14% of the Oklahoma population. Males had much higher rates of firearm-related hospitalization than females in almost all age groups. Males aged 15-24 had higher rates of firearm-related hospitalization than firearm-related death (41.5 and 29.5 per 100,000, respectively). For adults aged 35 and older, firearm-related fatality rates were higher in every age group than firearm-related hospitalizations. There were no firearm-related hospitalizations to infants under one year of age.

Figure 13. Firearm-Related Fatality Rates by Age Group and Gender, Oklahoma, 2010-2012

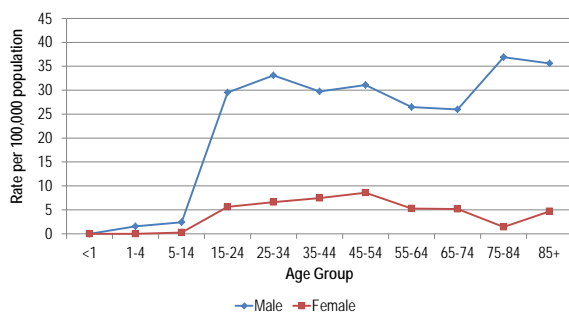


Figure 14. Firearm-Related Hospitalization Rates by Age Group and Gender, Oklahoma, 2010-2012

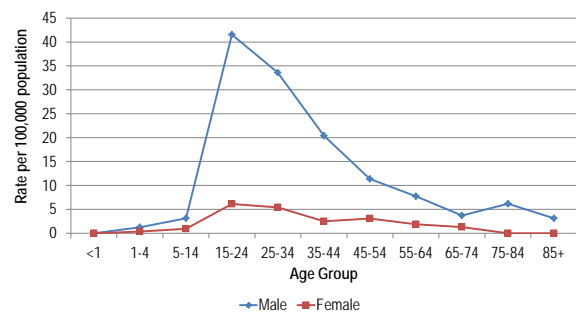


Figure 15. Age-Adjusted Firearm-Related Fatality Rates by Year of Death and Gender, Oklahoma, 2010-2012

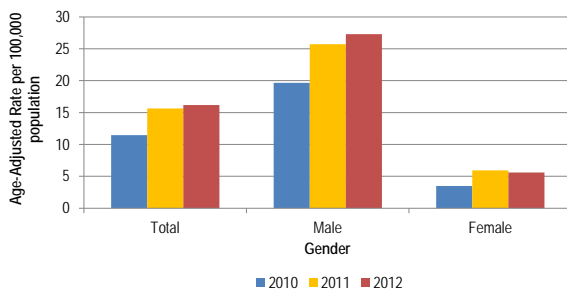
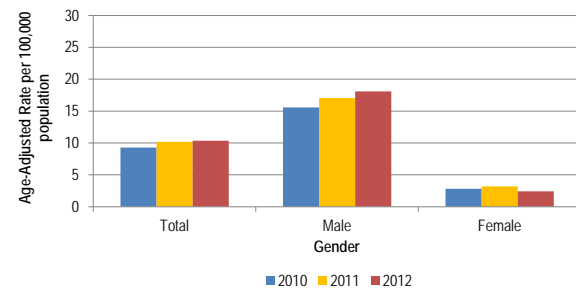


Figure 16. Age-Adjusted Firearm-Related Hospitalization Rates by Year of Discharge and Gender, Oklahoma, 2010-2012



Firearm-Related Injury Prevention Strategies

- Do not keep firearms in the home, or if choosing to do so, store firearms unloaded and in a locked place.
- Use gun/trigger locks, load indicators, and other safety devices on all firearms.
- Do not handle or purchase a firearm without the appropriate knowledge for safely using it.
- Keep firearms out of reach of children; do not overestimate a child's ability to differentiate between toy and real guns.
- Support school-, home-, and community-based programs designed to reduce violence, including suicide, and educate and train at-risk individuals.

Indicator 9: Homicides

Indicator 10: Assault-Related Hospitalizations

Homicide is the third leading cause of death in Oklahoma for ages 1-4 and 15-34 years.² Among all age groups combined, homicide by firearm is the fifth leading cause of injury death. Males accounted for 77% of homicides in Oklahoma from 2010-2012. Males had higher rates of homicide in almost all age groups compared to females. The highest rate of homicide for females was in the <1 year age group (9.1 per 100,000 compared to 7.5 for males), which was two times higher than the next highest rate for females (4.1 per 100,000 for the 25-34 years age group).

For every homicide, there were four assault-related hospitalizations in Oklahoma from 2010-2012. Like homicides, males were at much higher risk of assault-related hospitalizations compared to females (4.8:1). The highest rates of hospitalization for both males and females were in the <1 year age group (91.0 and 61.2 per 100,000, respectively). Infants <1 year had rates more than five times that of children age 1-4. For females, the highest risk age groups were <1 year of age and teens and adults aged 15-44. For males, the highest risk age groups were infants <1 year of age and teen and adults aged 15-34.

Figure 17. Homicide Rates by Age Group and Gender, Oklahoma, 2010-2012

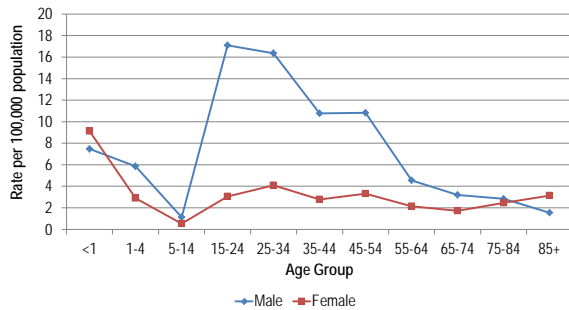


Figure 18. Assault-Related Hospitalization Rates by Age Group and Gender, Oklahoma, 2010-2012

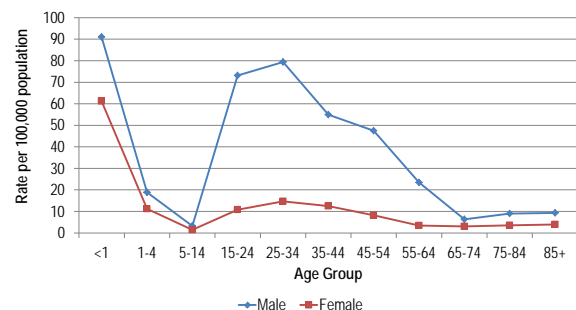


Figure 19. Age-Adjusted Homicide Rates by Year of Death and Gender, Oklahoma, 2010-2012

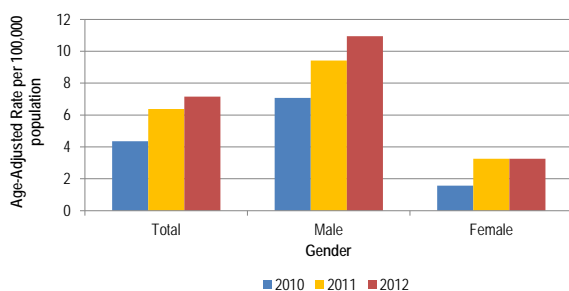
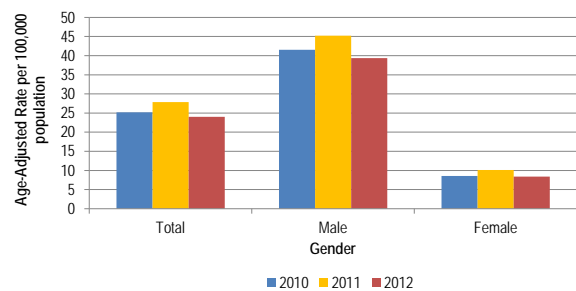


Figure 20. Age-Adjusted Assault-Related Hospitalization Rates by Year of Discharge and Gender, Oklahoma, 2010-2012



Homicide/Assault Prevention Strategies

- Reduce the availability of firearms (e.g., purchasing procedures, legislation, locking/safety mechanisms) and practice safe use and storage procedures.
- Support violence prevention programs that focus on topics such as mentoring/tutoring/language development, empowerment/community development, reducing risk taking/substance abuse, anger management skills, and social relations/positive interactions.
- Provide tools to promote safe, stable, and nurturing relationships between children and caregivers to prevent child maltreatment and abusive head trauma.
- Do not tolerate violence and criminal activity in the community; opposing the acceptability of such behaviors will work to change the social climate and cultural norms.
- Provide youth with educational and recreational opportunities that promote emotional and social competencies to help them make good life choices.

Indicator 11: Suicides

Indicator 12: Suicide Attempt Hospitalizations

Suicide is the second leading cause of death, behind unintentional injuries, for ages 10-34 years in Oklahoma. Suicide by firearm is the fourth leading cause of injury death, and three of the top 10 causes of injury death are suicide.² Similar to homicides, males account for the majority of suicides (80%) and have a much higher risk than females (4.0:1). Males in all age groups had higher rates than females. Males aged 75 and older and females aged 35-54 had the highest rates of suicide. Males aged 75-84 had a much higher

rate of suicide compared to females of the same age (36.9 and 1.8 per 100,000, respectively).

The demographics of suicide attempt hospitalizations are much different than completed suicides. Males accounted for 80% of completed suicides, but females accounted for 60% of suicide attempt hospitalizations. Females had a higher rate of suicide attempt hospitalizations for all age groups, except ages 75 and older.

Figure 21. Suicide Rates by Age Group and Gender, Oklahoma, 2010-2012

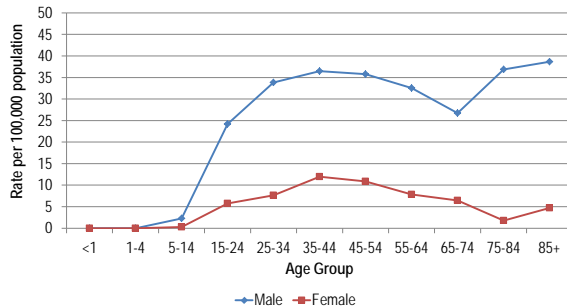


Figure 22. Suicide Attempt Hospitalization Rates by Age Group and Gender, Oklahoma, 2010-2012

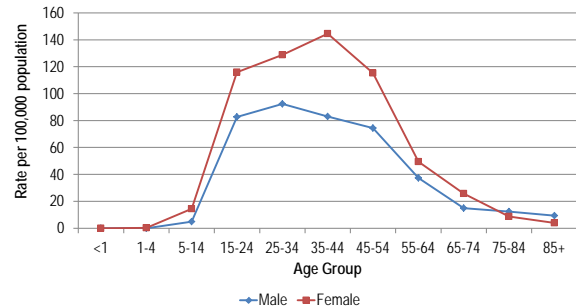


Figure 23. Age-Adjusted Suicide Rates by Year of Death and Gender, Oklahoma, 2010-2012

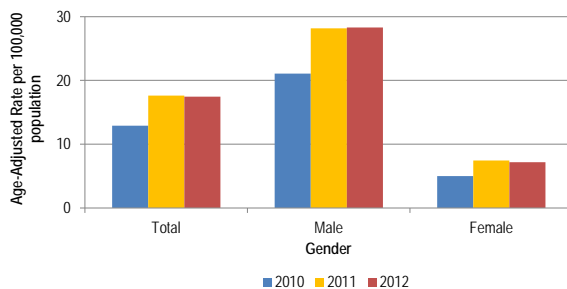
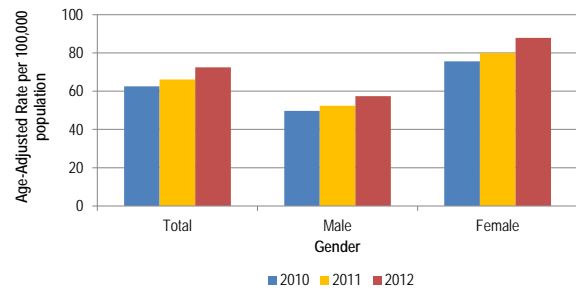


Figure 24. Age-Adjusted Suicide Attempt Hospitalization Rates by Year of Discharge and Gender, Oklahoma, 2010-2012



Suicide Prevention Strategies

- Learn and watch for the warning signs of suicide, which include changes in mood, behavior, diet, sleeping, and habits, increased substance use, and ideation.
- Reach out to a mental health professional, intervention center, or telephone hotline if in crisis or know of someone who is in crisis.
- Provide avenues for easily accessing mental health care, substance abuse treatment, and opportunities to strengthen problem solving and conflict resolution skills.
- Restrict/reduce access to lethal means and methods of self-harm (e.g., firearms, excessive amounts of medications, illicit substances).
- Encourage physicians, teachers, faith leaders, and other health professionals to recognize at-risk behavior and screen individuals when appropriate.

Indicator 13: Motor Vehicle Traffic Fatalities

Indicator 14: Motor Vehicle Traffic Hospitalizations

Motor vehicle traffic crashes are a leading cause of injury death, averaging nearly 700 deaths annually.² Overall, males had a higher rate of motor vehicle crash death than females (22.5 and 10.2 per 100,000, respectively). Males had a higher rate of motor vehicle crash death than females for every age group except females aged 1-4. Motor vehicle crash death rates increased dramatically between the 5-14 and 15-24 year age groups (2.6 and 21.0 per 100,000, respectively). This is likely due to a high rate of crashes for teen drivers. Death rates were fairly stable from ages 15-54. Rates increased steadily from ages 55-74, and then increased nearly 50% for adults aged 85 and older.

More than 10% of all injury hospitalizations involved a motor vehicle traffic crash. Males accounted for more than half (62%) of all motor vehicle traffic crash-related hospitalizations and had a hospitalization rate 65% higher than females. Males had higher hospitalization rates than females in all age groups except infants less than 1 year of age (2.5 and 2.6 per 100,000, respectively). The highest overall hospitalization rates for motor vehicle traffic crash-related injuries were in the 15-34 year age group and the 85 years and older age group.

Figure 25. Motor Vehicle Traffic Fatality Rates by Age Group and Gender, Oklahoma, 2010-2012

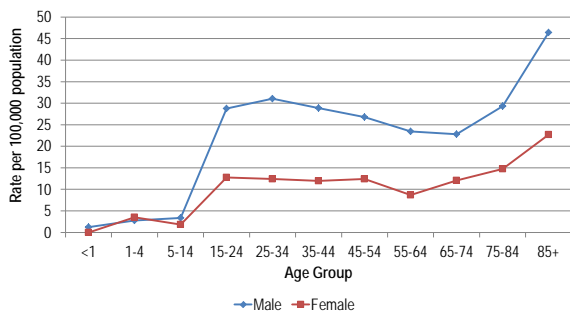


Figure 26. Motor Vehicle Traffic Hospitalization Rates by Age Group and Gender, Oklahoma, 2010-2012

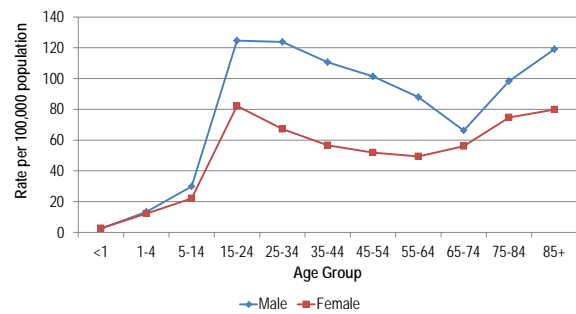


Figure 27. Age-Adjusted Motor Vehicle Traffic Fatality Rates by Year of Death and Gender, Oklahoma, 2010-2012

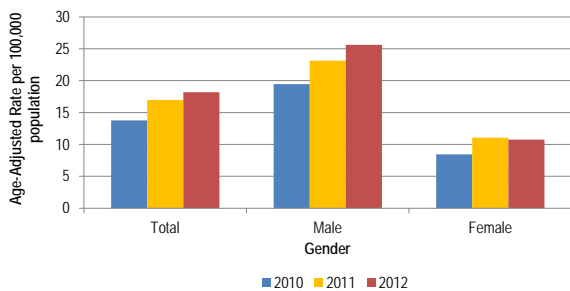
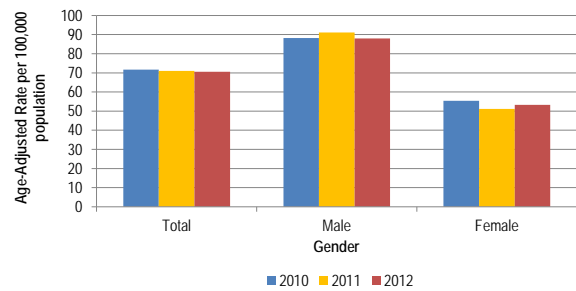


Figure 28. Age-Adjusted Motor Vehicle Traffic Hospitalization Rates by Year of Discharge and Gender, Oklahoma, 2010-2012



Motor Vehicle Traffic Injury Prevention Strategies

- Always wear a seat belt and properly restrain infants and young children in age- and size-appropriate child safety seats (have car/booster seats installed and checked by a certified child passenger safety technician).
- Always wear a helmet when riding bicycles, motorcycles, scooters, and all-terrain vehicles.
- Do not drive or allow others to drive while drowsy or under the influence of alcohol, illicit drugs, or medications.
- Do not become distracted by outside influences (e.g., cell phone/texting, radio, food, makeup, other passengers) while driving.
- Become educated on graduated driver licensing laws and ensure young drivers follow them.

Indicator 15: Poisoning Fatalities

Indicator 16: Poisoning Hospitalizations

Indicator 22: Acute Drug Overdose Fatalities

In 2009, poisonings surpassed motor vehicle crashes as the leading cause of injury death in Oklahoma.² In 2012, more Oklahomans died due to poisoning than motor vehicle crashes (831 and 690, respectively). More than half (54%) of poisoning decedents were male. Overall, the age groups most at risk for poisoning-related death were adults aged 35-54. This age group accounted for 50% of poisoning deaths, but only 26% of the population. The death rate for this age group was 42% higher than the death rate of the next highest age group, adults aged 55-64 (14.2 and 10.9 per 100,000, respectively). Beginning with 2011 data, acute drug overdose was added as an injury indicator.

Acute drug overdose deaths include poisoning deaths involving prescription, illicit, or over-the-counter drugs. From 2011-2012, 91% of poisoning deaths involved drugs. Overall, males had higher rates of acute drug overdose death. However, females aged 35-54 and 65 and older had higher rates of death than males. Unlike poisoning-related deaths, females accounted for more than half (59%) of poisoning-related hospitalizations and had a hospitalization rate 39% higher than males. Females had a higher hospitalization rate than males in all age groups except children aged 1-4.

Figure 29. Poisoning Fatality Rates by Age Group and Gender, Oklahoma, 2010-2012

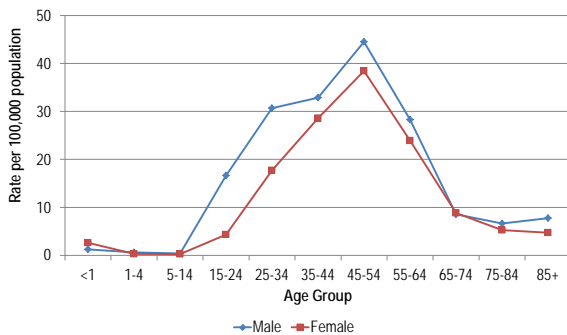


Figure 30. Poisoning Hospitalization Rates by Age Group and Gender, Oklahoma, 2010-2012

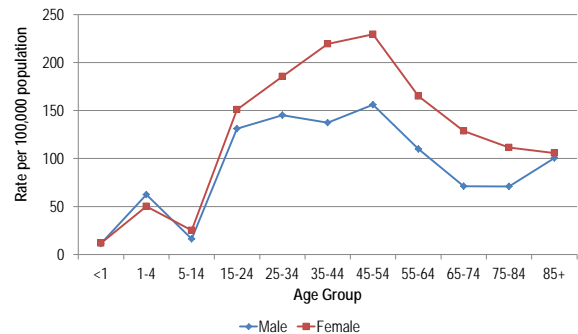


Figure 31. Age-Adjusted Poisoning Fatality Rates by Year of Death and Gender, Oklahoma, 2010-2012

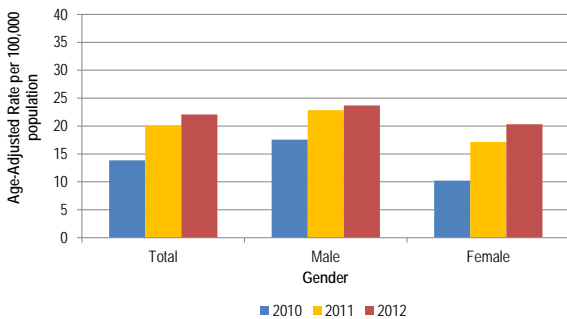


Figure 32. Age-Adjusted Poisoning Hospitalization Rates by Year of Discharge and Gender, Oklahoma, 2010-2012

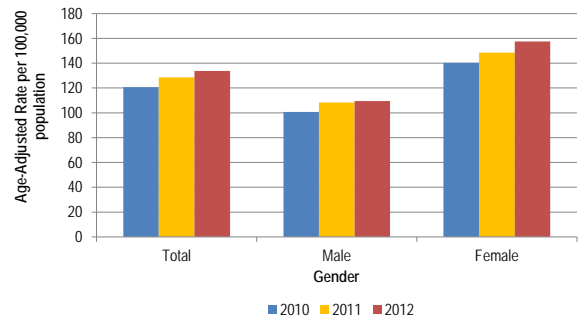


Figure 33. Acute Drug Overdose Fatality Rates by Age Group and Gender, Oklahoma, 2011-2012

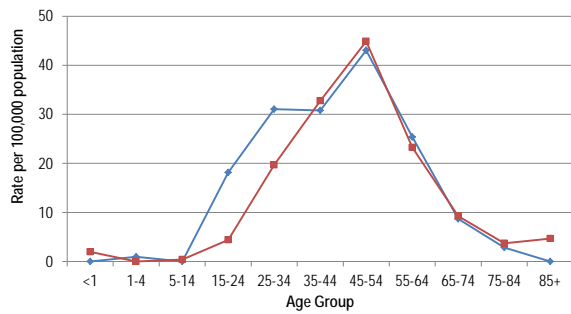
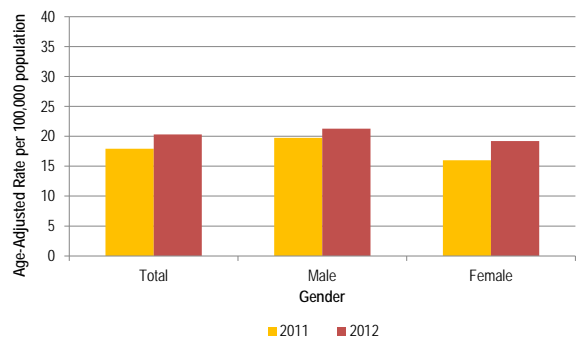


Figure 34. Age-Adjusted Acute Drug Overdose Fatality Rates by Year of Death and Gender, Oklahoma, 2011-2012



Poisoning Prevention Strategies

- Post the number for the poison center helpline (1-800-222-1222) on or near telephones and call right away in the event of an exposure.
- Read and follow all directions and warnings on the labels of all medications used; discuss prescription and over-the-counter medications taken and their potential interactions with health care providers.
- Dispose of any unused, unneeded, or expired medications at your local prescription drug drop box. Locations available at: <https://portal.obn.ok.gov/takeback/default.aspx>.
- Never drink alcohol while taking medication.
- Provide avenues for easily accessing mental health care and substance abuse treatment.
- Store all medications, household products, and other chemicals in their original containers and out of sight and reach of children.
- Read and follow all directions and warnings on the labels of household products and other chemicals before use. Do not mix products and only use them with adequate ventilation and appropriate protective clothing.

Indicator 17: Traumatic Brain Injury Fatalities

Indicator 18: Traumatic Brain Injury Hospitalizations

According to the CDC, traumatic brain injury (TBI) is a contributing factor in 30% of injury-related deaths in the United States each year. Leading causes of TBI include falls, being struck by/against an object, motor vehicle crashes, and assaults.⁶ In 2012, 40% percent of all fatal TBIs were suicide related. From 2010-2012, 2,252 Oklahomans sustained a fatal TBI. Oklahoma males were 2.6 times more likely than females to sustain a fatal TBI. Risk of death increased with age; although, infants less than one year of age had a much higher rate of fatal TBI compared to children aged 1-4 years (9.6 and 5.0 per 100,000, respectively).

For every TBI death, there were five hospitalizations related to a TBI diagnosis. Males were 1.5 times more likely than females to be hospitalized with a TBI (117.1 and 76.4 per 100,000, respectively). Rates were higher for males in all age groups except 75-84. Rates generally increased with age and more than doubled between the 65-74 and 75-84 year age groups, and again between the 75-84 and 85 years and older age groups. Three-fourths (76%) of TBI-related hospitalizations for adults aged 65 and older were fall related.

Figure 35. Traumatic Brain Injury Fatality Rates by Age Group and Gender, Oklahoma, 2010-2012

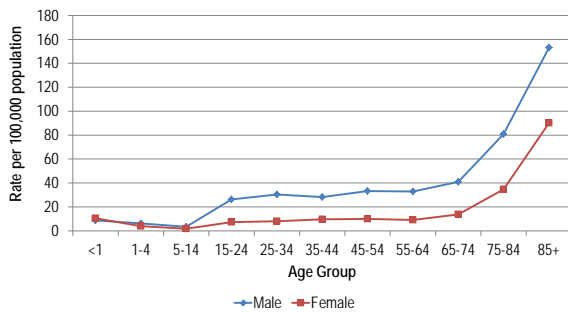


Figure 36. Traumatic Brain Injury Hospitalization Rates by Age Group and Gender, Oklahoma, 2010-2012

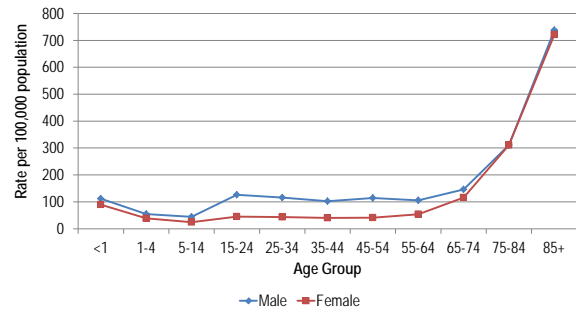


Figure 37. Age-Adjusted Traumatic Brain Injury Fatality Rates by Year of Death and Gender, Oklahoma, 2010-2012

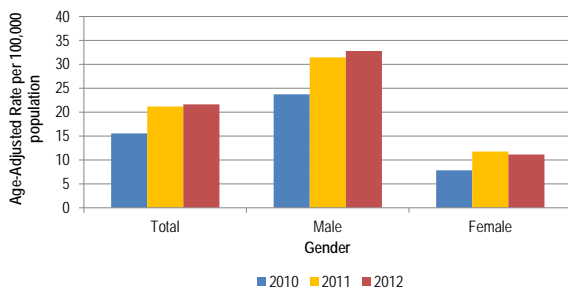
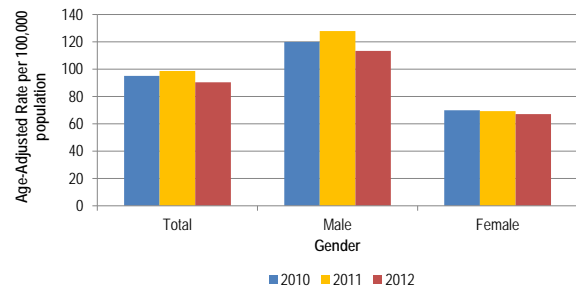


Figure 38. Age-Adjusted Traumatic Brain Injury Hospitalization Rates by Year of Discharge and Gender, Oklahoma, 2010-2012



Traumatic Brain Injury Prevention Strategies

- Always follow safe driving practices, including wearing seat belts, restraining young children in appropriate child safety seats, and not operating motor vehicles while impaired or distracted.
- Create safe living environments—remove or secure tripping hazards, improve lighting, install handrails in stairways, and utilize safety gates and window guards where children are present.
- Create safe recreational areas for children by ensuring playground surfaces are made of shock-absorbing materials.
- Always wear a helmet when riding a motorcycle, bicycle, scooter, or all-terrain vehicle; playing a contact sport (e.g., football, hockey, boxing); and participating in recreational activities such as bull riding, horse riding, skateboarding, in-line skating, and snowboarding.

Indicator 19: Unintentional Fall-Related Fatalities

Indicator 20: Unintentional Fall-Related Hospitalizations

Indicator 21: Hip Fracture Hospitalizations in Persons Aged 65 Years and Older

In 2012, falls were the leading cause of injury death for adults aged 65 and older, and nearly four times as many older adults died as a result of a fall compared to motor vehicle crashes.² From 2010-2012, nearly 1,300 Oklahomans died as a result of a fall. A slightly larger number of females died as a result of a fall compared to males. Nearly half of all fall-related deaths to females were in the 85 years and older age group. There were 88 fall-related deaths to Oklahomans less than 55 years of age, compared to 531 for adults 85 years and older. Adults 85 years and older had a death rate four times higher than adults aged 75-84 (276.1 and 76.3 per 100,000, respectively).

For every fall-related fatality in Oklahoma, there were 23 fall-related hospitalizations. Similar to fall-related deaths, fall-related hospitalizations were much more common among older adults. Adults aged 65 years and older accounted for nearly three-fourths (72%) of all fall-related hospitalizations and only 14% of the state's population. Adults aged 85 years and older had

hospitalization rates nearly three times higher than adults aged 75-84 (4295.9 and 1590.9 per 100,000, respectively). Males had a higher rate of fall-related hospitalizations than females for all age groups less than 55 years of age. Unlike most injuries, females had an 85% higher overall rate of hospitalization for falls compared to males.

Falls are a leading cause of traumatic brain injuries and hip fractures, especially among older adults.⁶ More than 10,000 older adults were hospitalized for a hip fracture in Oklahoma from 2010-2012. Eighty-two percent of older adults hospitalized were 75 years of age or older. Adults 85 years and older had hospitalization rates nearly three times higher than adults aged 75-84 (2392.0 and 839.3 per 100,000, respectively) and more than 10 times higher than adults aged 65-74 (225.8 per 100,000). Overall, females had a hip fracture-related hospitalization rate nearly twice that of males (885.3 and 435.0 per 100,000, respectively). Seventy-two percent of older adults hospitalized for a hip fracture were female.

Figure 39. Unintentional Fall-Related Fatality Rates by Age Group and Gender, Oklahoma, 2010-2012

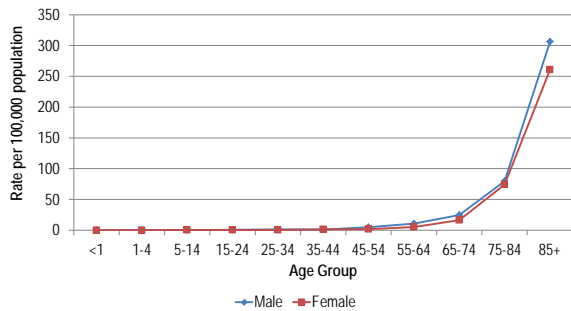


Figure 40. Unintentional Fall-Related Hospitalization Rates by Age Group and Gender, Oklahoma, 2010-2012

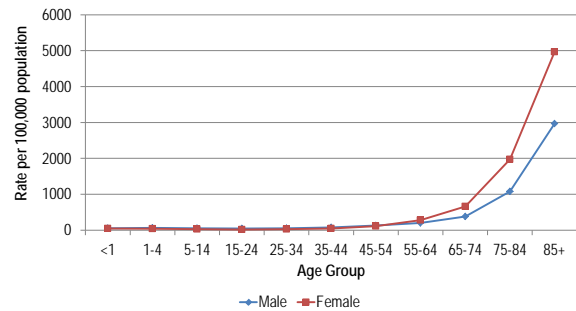


Figure 41. Age-Adjusted Unintentional Fall-Related Fatality Rates by Year of Death and Gender, Oklahoma, 2010-2012

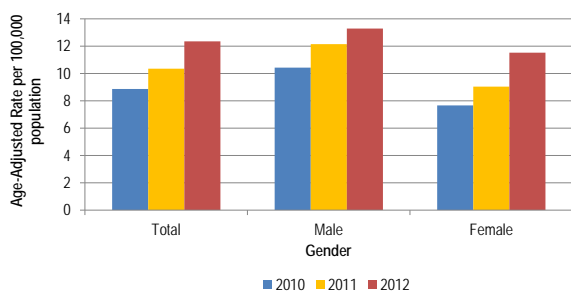


Figure 42. Age-Adjusted Unintentional Fall-Related Hospitalization Rates by Year of Discharge and Gender, Oklahoma, 2010-2012

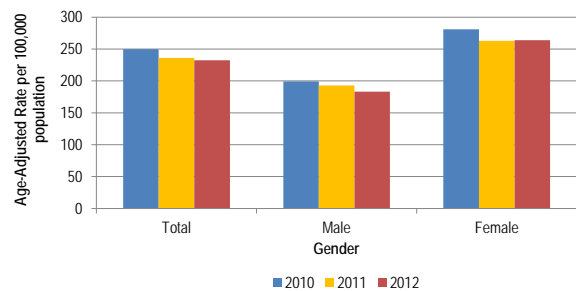


Figure 43. Hip Fracture Hospitalization Rates in Persons Aged 65 and Older by Age Group and Gender, Oklahoma, 2010-2012

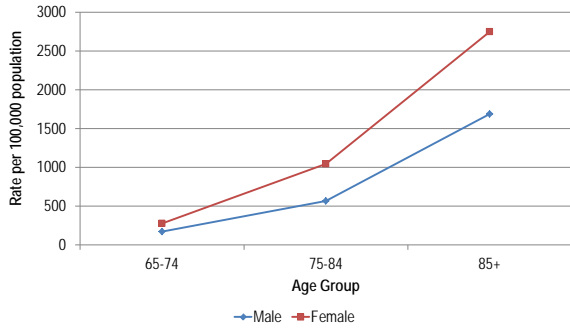
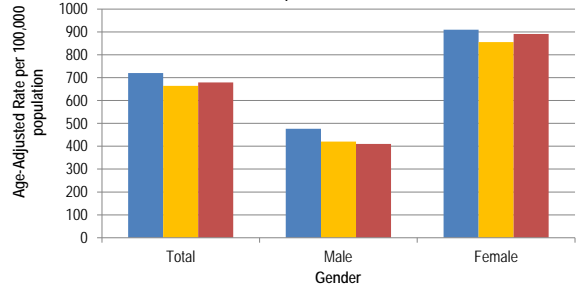


Figure 44. Hip Fracture Hospitalization Rates in Persons Aged 65 Years and Older by Year of Discharge and Gender, Oklahoma, 2010-2012



Fall Prevention Strategies

- Exercise regularly; perform activities approved by a health care provider that improve balance, strength, and flexibility.
- Have a doctor or pharmacist periodically review all medications taken to identify and reduce potential interactions and side effects.
- Create safe living environments by removing or repairing fall hazards, such as loose rugs and cords, poor lighting, uneven walkways, and clutter.
- Supervise children while playing on playgrounds and do not allow them to play on or near balconies, stairs, railings, windows, or fire escapes.
- Never leave infants alone on an elevated place like a bed, sofa, or changing table; walk carefully while carrying infants and children.

Core VIPP Priority Areas

The Injury Prevention Service (IPS) selected four priority areas of focus for the CDC's Core Violence and Injury Prevention Program funding. These priority areas were selected and approved with consultation from the Oklahoma Injury Prevention Advisory Committee (OIPAC).

Abusive Head Trauma

The IPS is collaborating with the *Preparing for a Lifetime: It's Everyone's Responsibility* Initiative to increase the percentage of Oklahoma birthing hospitals participating in the *Period of PURPLE Crying*[®] program, an evidence-based prevention strategy to reduce abusive head trauma among infants. The IPS conducted a qualitative evaluation of the program in fully implemented hospitals to assess program fidelity and develop recommendations for expanding the program. An IPS staff member serves on the injury prevention and data analysis workgroups for the *Preparing for a Lifetime* Initiative.

Injury surveillance data involving traumatic brain injury (TBI) hospitalizations and deaths have been collected for many years in Oklahoma. Through Core VIPP funding, the IPS continues to collect data on all hospitalized TBIs to children and young adults under age 25, with a special focus on abusive head trauma and sports-related TBI.

Sports-Related Traumatic Brain Injuries

Locally and nationally, awareness of the effects of sports-related concussions and brain injuries has grown. The IPS has worked with middle school, junior high, and high school athletic programs as well as community sports groups over the last several years to distribute CDC *Heads Up* educational materials. The IPS has contacted youth-serving sports organizations to distribute educational materials on injury prevention and concussion policy development and to offer technical assistance for sports-related concussion and brain injury prevention programs. The IPS continues to offer educational trainings to coaches, educators, parents, athletes, and other interested groups. The IPS continues to collect sports-related TBI hospitalization data as a special focus of surveillance.

Motor Vehicle Crashes

Motor vehicle crashes are a leading cause of death in Oklahoma. The Commissioner of Health has selected motor vehicle crash prevention as a priority area for the Oklahoma State Department of Health. The IPS Traffic Data Linkage Project, funded by the Oklahoma Highway Safety Office from 2008 to 2012, linked death, hospitalization, emergency medical services, and law enforcement data for all motor vehicle crashes that occurred on public roadways. The IPS has expanded its child safety seat program to include additional training and educational efforts. The IPS strives to educate policy makers, stakeholders, and the public on evidence-based strategies for preventing motor vehicle-related injuries, with particular focus on distracted driving prevention, graduated driver licensing, and proper safety restraints and equipment.

Unintentional Poisonings

Along with motor vehicle crashes, unintentional poisoning is a leading cause of death in Oklahoma. The Commissioner of Health has also selected unintentional poisoning prevention as a priority area for the Oklahoma State Department of Health. An unintentional poisoning surveillance system was developed by the IPS to provide detailed information on these deaths using data abstracted from medical examiner reports. These data have been used for educational materials and for bringing awareness to this major public health problem, which has increased 470% over the past decade. The IPS collaborated with agencies and stakeholders across the state to develop a state plan to reduce prescription opioid misuse/abuse. The IPS also collaborated with agencies and stakeholders to develop opioid prescribing guidelines for emergency departments and urgent care clinics and the office-based setting.

How Indicator Data Are Calculated

The data for fatal injuries includes Oklahoma residents who died with an injury as the underlying cause of death (COD). The source data are from Oklahoma vital statistics (VS) and rates were calculated using U.S. Census population estimates for the appropriate year. All rates are presented per 100,000 population.

Hospitalization data include all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission. The source data are from Oklahoma's inpatient hospital discharge database (HDD), which includes discharges from all acute care, nonfederal hospitals in the state. Data include readmissions and transfers. These selection criteria produced the subset from which all other indicators were calculated. Rates were calculated using U.S. Census population estimates for the appropriate year and are presented per 100,000 population.

Table 6. Injury Indicator Selection Criteria

Indicator	Source	Classification system	ICD Codes	Location
1 Injury fatalities	VS	ICD-10	V01-Y36, Y85-Y87, Y89	Underlying COD
2 Injury hospitalizations	HDD	ICD-9-CM	800-909.2, 909.4, 909.9-994.9, 995.5-995.59, 995.80-995.85	Principal diagnosis
3 Unintentional drowning fatalities	VS	ICD-10	W65-W74, V90, V92	Underlying COD
4 Drowning-related hospitalizations	HDD	ICD-9-CM	994.1, E830, E830, E910, E954, E964, E984	Any diagnosis field or valid E-code
5 Unintentional fire-related fatalities	VS	ICD-10	X00-X09	Underlying COD
6 Unintentional fire-related hospitalizations	HDD	ICD-9-CM	E890-E899	Valid E-code
7 Firearm-related fatalities	VS	ICD-10	W32-W34, X72-X74, X93-X95, Y22-Y24, Y35.0	Underlying COD
8 Firearm-related hospitalizations	HDD	ICD-9-CM	E922.0-E922.3, E922.8-E922.9, E955.0-E955.4, E965.0-E965.4, E985.0-E985.4, E970, E979.4	Valid E-code
9 Homicides	VS	ICD-10	X85-Y09, Y87.1	Underlying COD
10 Assault-related hospitalizations	HDD	ICD-9-CM	E960-E969, E979, E999.1	Valid E-code
11 Suicides	VS	ICD-10	X60-X84, Y87.0	Underlying COD
12 Suicide attempt hospitalizations	HDD	ICD-9-CM	E950-E959	Valid E-code
13 Motor vehicle traffic fatalities	VS	ICD-10	V02-V04 [.1-.9], V09.2, V12-V14 [.3-.9], V19 [.4-.6], V20-V28 [.3-.9], V29 [.4-.9], V30-V39 [.4-.9], V40-V49 [.4-.9], V50-V59 [.4-.9], V60-V69 [.4-.9], V70-V79 [.4-.9], V80 [.3-.5], V81.1, V82.1, V83-V86 [.0-.3], V87 [.0-.8], V89.2	Underlying COD
14 Motor vehicle traffic hospitalizations	HDD	ICD-9-CM	E810-E819	Valid E-code
15 Poisoning fatalities	VS	ICD-10	X40-X49, X60-X69, X85-X90, Y10-Y19, Y35.2	Underlying COD
16 Poisoning hospitalizations	HDD	ICD-9-CM	E850-E858, E860-E869, E950-E952, E962, E972, E980-982, E979 [.6-.7]	Valid E-code
17 Traumatic brain injury fatalities	VS	ICD-10	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, or T90.9	Contributing COD
18 Traumatic brain injury hospitalizations	HDD	ICD-9-CM	800.00-801.99, 803.00-804.99, 850.0-850.9, 851.00-854.19, 950.1-950.3, 959.01, or 995.55	Any diagnosis field
19 Unintentional fall-related fatalities	VS	ICD-10	W00-W19	Underlying COD
20 Unintentional fall-related hospitalizations	HDD	ICD-9-CM	E880-E886, E888	Valid E-code
21 Hip fracture hospitalizations in older adults	HDD	ICD-9-CM	820	Any diagnosis field
22 Acute drug overdose fatalities	VS	ICD-10	X40-X44, X60-X64, X85, Y10-Y14	Underlying COD

References:

1. Thomas KE, Johnson RL. *State Injury Indicators Report: instructions for preparing 2012 data*. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2014.
2. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. *Web-based Injury Statistics Query and Reporting System (WISQARS)*. Available at <http://www.cdc.gov/ncipc/wisqars>. Accessed on October 21, 2014.
3. Oklahoma State Department of Health, Center for Health Statistics, Health Care Information, Oklahoma Inpatient Discharge data 2012, on Oklahoma Statistics on Health Available for Everyone (OK2SHARE). Available at <http://www.health.ok.gov/ok2share>. Accessed on October 22, 2014.
4. Oklahoma Department of Public Safety, Oklahoma Highway Safety Office. *Oklahoma Crash Facts 2012*. Available at http://ok.gov/ohso/Data/Crash_Data_and_Statistics/Crash_Facts_2012.html. Accessed on October 21, 2014.
5. United States Census Bureau, Population Division. *Intercensal Estimates of the Resident Population by Single Year of Age and Sex for States and the United States: April 1, 2000 to July 1, 2012*. Available at http://www.census.gov/popest/data/historical/2010s/vintage_2012/state.html. Accessed on October 21, 2014.
6. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. *Traumatic Brain Injury in the United States: Fact Sheet*. Available at http://www.cdc.gov/traumaticbraininjury/get_the_facts.html. Accessed on October 22, 2014.