Injury Prevention Service

Oklahoma State Department of Health

Injuries in Oklahoma, 2010

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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) have 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, suicides/suicide attempts, hip fractures, and traumatic brain injuries.[1] Oklahoma's indicator data are also used in this separate state profile, *Injuries in Oklahoma*. This year's report utilizes data on injury deaths and hospitalizations that occurred in 2010.

Magnitude of the Problem

Approximately 2,900 Oklahomans die every year from an injury, including more than 2,100 unintentional (accidental) deaths, over 500 suicides, and more than 200 homicides.[2] In 2010, injuries accounted for 1 of every 15 deaths in Oklahoma[2]; nonfatal injuries accounted for 1 of every 11 hospital days and 1 of every 13 hospital discharges. Also, for every $8 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 2009, 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 2010, the leading causes of injury death in Oklahoma were poisonings, motor vehicle crashes, firearms, and falls. Males were two times more likely to die from injuries than females. Of the fatal motor vehicle traffic crashes in Oklahoma, 37% were alcohol/drug-related. Overall, 56% of fatal crash victims were not using safety belts or child restraint devices.[4]

According to the 2010 United States (U.S.) Census population estimates, the population of Oklahoma constituted 1.2% of the entire U.S. population. Oklahoma has the third 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, 2010

		Oklahoma		United States	
		Number	Percent	Number	Percent
Total Population		3,751,351		308,745,538	
Males		1,856,977	50%	151,781,326	49%
Females		1,894,374	50%	156,964,212	51%
Race	White	2,851,510	76%	241,937,061	78%
	African American	284,332	8%	40,250,635	13%
	Native American	335,664	9%	3,739,506	1%
Hispanic ethnicity		332,007	9%	50,477,594	16%
Under 5 years		264,126	7%	20,201,362	7%
Under 18 years		929,666	25%	74,181,467	24%
Over 65 years		472,169	13%	37,587,223	12%

Indicator 1: Injury Fatalities

Indicator 2: Injury Hospitalizations

Indicator 1 includes Oklahoma residents who died with an injury as the underlying cause of death (i.e., ICD-10 codes V01-Y36, Y85-Y87, or Y89). The source data are from Oklahoma vital statistics and rates were calculated using U.S. Census population estimates for the appropriate year. All rates are presented per 100,000 population. Indicator 2 includes all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission (i.e., principal diagnosis [ICD-9-CM code] 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, or 995.80-995.85). The source data are from Oklahoma's inpatient hospital discharge database, 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.

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 2010, 2,378 Oklahoma residents died as a result of an injury. Males accounted for 67% of all fatal injuries and had a higher mortality rate than females in all age groups except infants less than one year of age. The largest differences between males and females were among those 5-14 years and 25-34 years, where mortality rates for males were 3-4 times those of females. Overall, the highest injury-related mortality rates were for adults age 75 and older. Adults age 85 and older had mortality rates 2-3 times those of adults age 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

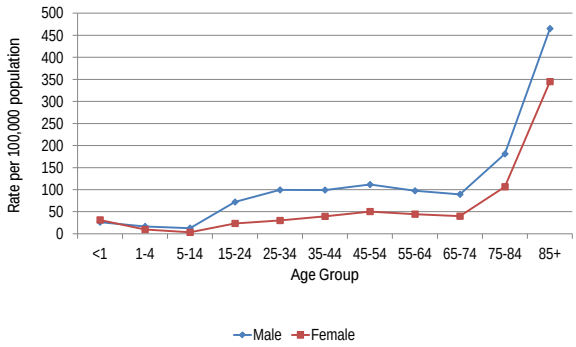


Figure 2. Injury Hospitalization Rates by Age Group and Gender, Oklahoma, 2010

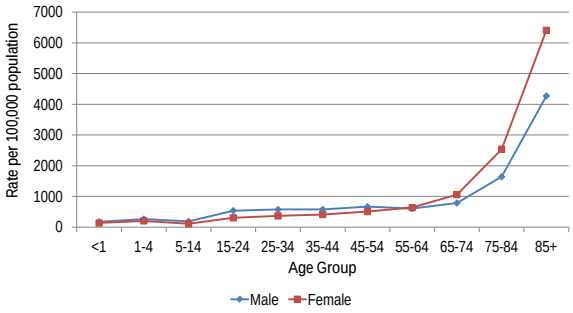


Table 2. Injury Fatality Rates by Age Group and Gender, Oklahoma, 2010

Age Group	Total	Male	Female
<1 year	28.8	26.3	31.3
1-4 years	13.2	16.6	9.6
5-14 years	8.2	12.9	3.2
15-24 years	48.3	72.0	23.5
25-34 years	65.5	99.4	30.1
35-44 years	69.6	99.1	39.5
45-54 years	80.6	111.5	50.4
55-64 years	70.2	97.4	44.5
65-74 years	63.1	89.4	39.9
75-84 years	138.1	181.1	106.5
85+ years	384.7	465.1	344.9

For every one injury death in Oklahoma in 2010, there were 10 injury hospitalizations. Oklahomans had a total of 23,788 injury-related hospitalizations in 2010, more than 450 Oklahomans hospitalized every day for an injury. 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 age 55 and older. Similar to injury-related deaths, the highest overall rates for both males and females were for adults age 65 and older. Adults age 85 and older had the highest injury-related hospitalization rates, 2.7 times higher than those of the next youngest age group. Injury-related hospitalization rates nearly tripled 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.

Table 3. Injury Hospitalization Rates by Age Group and Gender, Oklahoma, 2010

Age Group	Total	Male	Female
<1 year	153.5	173.1	133.1
1-4 years	232.8	263.3	201.0
5-14 years	145.9	184.0	105.9
15-24 years	420.4	534.3	300.6
25-34 years	470.6	571.7	364.9
35-44 years	493.8	577.2	409.1
45-54 years	582.7	664.7	502.6
55-64 years	619.8	603.2	635.4
65-74 years	930.3	784.0	1058.8
75-84 years	2155.8	1638.7	2535.1
85+ years	5702.8	4273.0	6409.7

Table 4. Injury Fatality Rates by Indicator and Gender, Oklahoma, 2010

	Total	Male	Female
All injuries	62.5	87.5	38.6
Unintentional drowning	1.2	1.9	0.5
Unintentional fire	1.5	1.6	1.4
Firearm	11.5	19.7	3.5
Homicide	4.4	7.1	1.6
Suicide	12.9	21.1	5.0
Motor vehicle crash	13.8	19.5	8.4
Poisoning	13.9	17.6	10.2
Traumatic brain injury	15.5	23.7	7.8
Falls	8.9	10.4	7.7

Table 5. Injury Hospitalization Rates by Indicator and Gender, Oklahoma, 2010

	Total	Male	Female
All injuries	617.8	623.0	592.2
Unintentional drowning	1.0	1.2	0.8
Unintentional fire	6.1	8.7	3.6
Firearm	9.3	15.6	2.8
Assault	25.2	41.5	8.6
Suicide Attempt	62.5	49.6	75.6
MVC	71.7	88.2	55.4
Poisoning	120.8	100.8	140.3
TBI	95.0	119.9	69.8
Falls	249.8	199.4	281.0
Hip fractures (older adults)	720.5	476.6	909.5

Indicator 3: Unintentional Drowning Fatalities

Indicator 4: Drowning-Related Hospitalizations

Indicator 3 includes Oklahoma residents who died with an unintentional drowning/submersion as the underlying cause of death (i.e., ICD-10 codes W65-W74, V90, or V92). The source data are from Oklahoma vital statistics. Indicator 4 includes all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission (i.e., principal diagnosis [ICD-9-CM code] 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, or 995.80-995.85) and a submersion was the mechanism of injury (i.e., 994.1 and/or E830, E832, E910, E954, E964, or E984). The source data are from Oklahoma's inpatient hospital discharge database, which includes discharges from all acute care, nonfederal hospitals in the state. Data include readmissions and transfers. Rates were calculated using U.S. Census population estimates for the appropriate year and are presented per 100,000 population.

Unintentional drowning is the second leading cause of injury death for children age 1-18 in Oklahoma, and the leading cause of death for children age 1-4.[2] In 2010, 45 Oklahomans unintentionally drowned. Males accounted for more than three-fourths of all drowning deaths, and were more than three times more likely to drown compared to females. Overall, the highest rates of drowning deaths were for female infants and males age 0-4.

Figure 3. Unintentional Drowning Fatality Rates by Age Group and Gender, Oklahoma, 2010

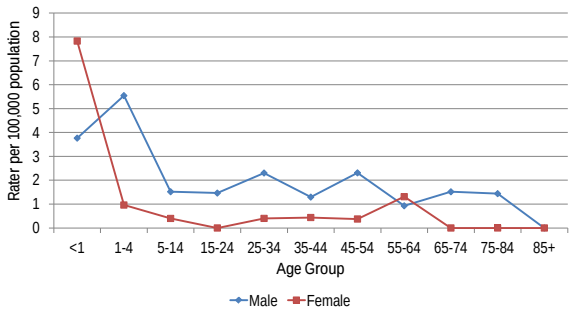
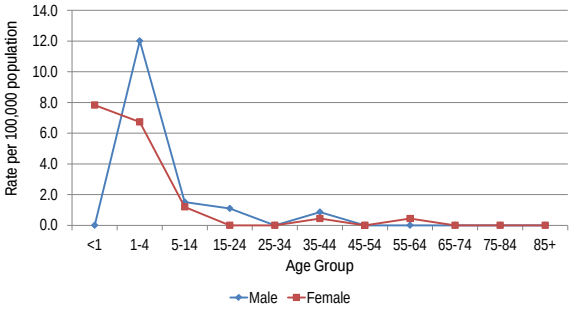


Figure 4. Drowning-Related Hospitalization Rates by Age Group and Gender, Oklahoma, 2010



In 2010, there were more drowning deaths than drowning-related hospitalizations (45 and 36, respectively). Males accounted for nearly two-thirds (61%) of drowning-related hospitalizations. Sixty-one percent of drowning-related hospitalizations were among children age 1-4, and more than 80% occurred among children age 1-14.

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

Indicator 5 includes Oklahoma residents who died with an unintentional fire-related injury as the underlying cause of death (i.e., ICD-10 codes X00-X09). The source data are from Oklahoma vital statistics. Indicator 6 includes all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission (i.e., principal diagnosis [ICD-9-CM code] 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, or 995.80-995.85) and an unintentional fire was the mechanism of injury (i.e., E890-E899). The source data are from Oklahoma's inpatient hospital discharge database, which includes discharges from all acute care, nonfederal hospitals in the state. Data include readmissions and transfers. Rates were calculated using U.S. Census population estimates for the appropriate year and are presented per 100,000 population.

Unintentional fire-related injuries are the third leading cause of injury death in Oklahoma among ages 1-9 years and the ninth leading cause among all ages combined.[2] In 2010, there were 60 fire-related deaths in Oklahoma. Slightly more than half of all fire-related deaths occurred among females; however, males had a 10% higher rate of fire-related death. Females age 55-84 accounted for nearly one-third (32%) of fire-related deaths in 2010. There were no deaths among infants less than one year of age.

For every fire-related death, there were nearly four (3.7) fire-related hospitalizations. Unlike fire-related deaths, males accounted for 70% of all fire-related hospitalizations, and the rate of hospitalization for males was 2.4 times that of females. Males had higher hospitalization rates than females in all age groups. Males age 25-54 accounted for 41% of fire-related hospitalizations, but only 20% of the Oklahoma population. Males age 85 and older had the highest rate overall (19.4 per 100,000 population). Females age 35-44 had a hospitalization rate half that of males in the same age group (6.6 and 13.4 per 100,000 population, respectively), but more than twice that of the next youngest and next oldest age groups (2.4 and 3.0).

Figure 5. Unintentional Fire-Related Fatality Rates by Age Group and Gender, Oklahoma, 2010

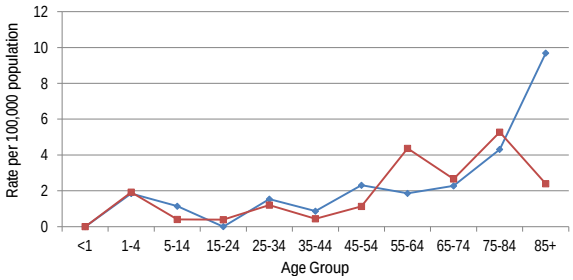
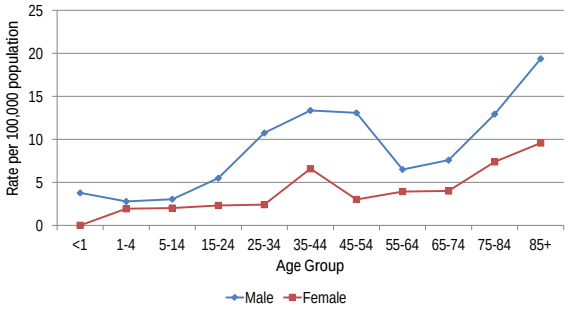


Figure 6. Unintentional Fire-Related Hospitalization Rates by Age Group and Gender, Oklahoma, 2010



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

Indicator 7 includes Oklahoma residents who died with a firearm-related injury as the underlying cause of death (i.e., ICD-10 codes W32-W34, X72-X74, X93-X95, Y22-Y24, or Y35.0). The source data are from Oklahoma vital statistics. Indicator 8 includes all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission (i.e., principal diagnosis [ICD-9-CM code] 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, or 995.80-995.85) and a firearm was the mechanism of injury (i.e., E922.0-E922.3, E922.8, E922.9, E955.0-E955.4, E965.0-E965.4, E985.0-E985.4, E970, or E979.4). The source data are from Oklahoma's inpatient hospital discharge database, which includes discharges from all acute care, nonfederal hospitals in the state. Data include readmissions and transfers. Rates were calculated using U.S. Census population estimates for the appropriate year and are presented per 100,000 population.

Firearm-related deaths include all manner deaths: homicide, suicide, unintentional, and undetermined. Males accounted for 85% of firearm-related deaths and had a mortality rate 5.6 times higher than females (19.7 and 3.5 per 100,000, respectively). Males had much higher rates of firearm-related death in all age groups. There were no firearm-related deaths to infants under one year of age or females under 15 years.

In 2010, there were fewer firearm-related hospitalizations in Oklahoma than deaths (342 and 432, respectively), and a similar proportion of hospitalizations were among males (84%). Males age 15-34 accounted for more than half (53%) of firearm-related hospitalizations, but only 14% of the Oklahoma population. Males had much higher rates of firearm-related hospitalization in almost all age groups. Males age 25-34 had only slightly higher rates of firearm-related hospitalization than firearm-related death (29.5 and 28.8 per 100,000, respectively). For adults age 35 and older, firearm-related fatality rates were higher in almost every age group than firearm-related hospitalizations. There were no firearm-related hospitalizations to infants under one year of age or females under 5 years.

Figure 7. Firearm-Related Fatality Rates by Age Group and Gender, Oklahoma, 2010

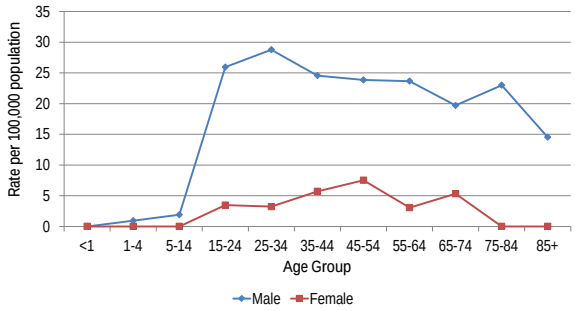
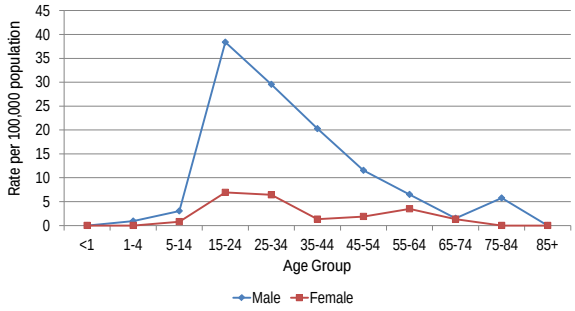


Figure 8. Firearm-Related Hospitalization Rates by Age Group and Gender, Oklahoma, 2010



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 and educate and train at-risk individuals.

Indicator 9: Homicides

Indicator 10: Assault-Related Hospitalizations

Indicator 9 includes Oklahoma residents who died with an assault as the underlying cause of death (i.e., ICD-10 codes X85-Y09 or Y87.1). The source data are from Oklahoma vital statistics. Indicator 10 includes all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission (i.e., principal diagnosis [ICD-9-CM code] 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, or 995.80-995.85) and an assault was the mechanism of injury (i.e., E960-E969, E979, or E999.1). The source data are from Oklahoma's inpatient hospital discharge database, which includes discharges from all acute care, nonfederal hospitals in the state. Data include readmissions and transfers. Rates were calculated using U.S. Census population estimates for the appropriate year and are presented per 100,000 population.

Homicide is the third leading cause of death in Oklahoma for ages 1-4 and 15-34 years.[2] Among all age groups, homicide by firearm is the sixth leading cause of injury death. Males accounted for 82% of homicides in Oklahoma in 2010. Males had higher rates of homicide in all age groups compared to females. The highest rate of homicide for females was in the <1 year age group (7.8 per 100,000), which was nearly three times (2.8) higher than the next highest rate for females (2.8 per 100,000 for the 25-34 year age group). There were no homicides of adults age 85 or older.

For every homicide, there were nearly six (5.7) assault-related hospitalizations in Oklahoma in 2010. Like homicides, males were at much higher risk of assault-related hospitalizations compared to females (5:1). The highest rates of hospitalization for both males and females were in the <1 year age group (86.5 and 47.0 per 100,000, respectively). Infants less than one year had rates more than three times that of children age 1-4. For females, the highest risk age groups were children 0-4 years and teen and adults age 15-44. For males, the highest risk age groups were infants less than one year and teen and adults age 15-54.

Figure 9. Homicide Rates by Age Group and Gender, Oklahoma, 2010

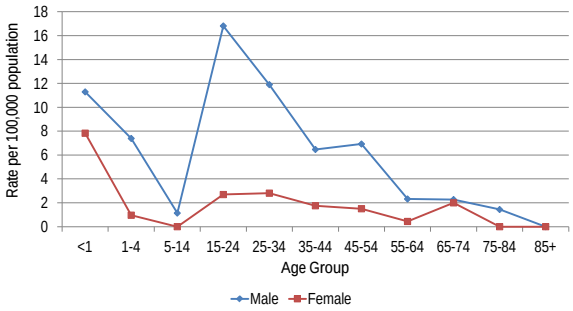
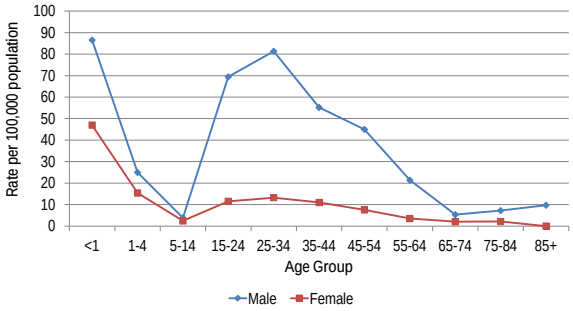


Figure 10. Assault-Related Hospitalization Rates by Age Group and Gender, Oklahoma, 2010



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.
- Consider appropriate environmental modifications, such as improved street lighting, safe walking routes, neighborhood watch groups, and changes to building designs and landscaping.
- 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

Indicator 11 includes Oklahoma residents who died with a suicide as the underlying cause of death (i.e., ICD-10 codes X60-X84, or Y87.0). The source data are from Oklahoma vital statistics. Indicator 12 includes all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission (i.e., principal diagnosis [ICD-9-CM code] 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, or 995.80-995.85) and a suicide attempt was the mechanism of injury (i.e., E950-E959). The source data are from Oklahoma's inpatient hospital discharge database, which includes discharges from all acute care, nonfederal hospitals in the state. Data include readmissions and transfers. Rates were calculated using U.S. Census population estimates for the appropriate year and are presented per 100,000 population.

Suicide is the second leading manner of death, behind unintentional injuries, for ages 15-34 years in Oklahoma. Suicide by firearm is the third leading cause of injury death, and three of the top ten causes of injury death are suicide.[2] Similar to homicides, males account for the majority of suicides (81%) and had a much higher risk than females (4:1). There were no suicides among children less than 5 years of age. Males and females age 35-54 had the highest rates of suicide among their respective age groups. Males age 75 and older had a much higher rate of suicide compared to females of the same age (23.3 and 0.7 per 100,000, respectively).

Figure 11. Suicide Rates by Age Group and Gender, Oklahoma, 2010

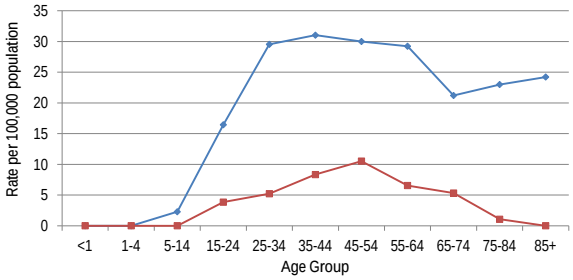
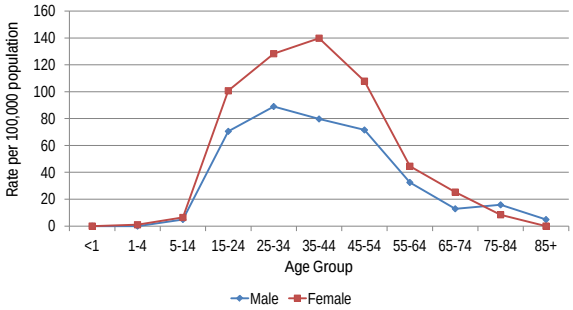


Figure 12. Suicide Attempt Hospitalization Rates by Age Group and Gender, Oklahoma, 2010



The demographics of suicide attempt hospitalizations are much different than completed suicides. Males accounted for 81% 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.

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.
- 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

Indicator 13 includes Oklahoma residents who died with a motor vehicle traffic-related injury as the underlying cause of death (i.e., ICD-10 codes 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], or V89.2). The source data are from Oklahoma vital statistics. Indicator 14 includes all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission (i.e., principal diagnosis [ICD-9-CM code] 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, or 995.80-995.85) and a motor vehicle traffic crash was the mechanism of injury (i.e., E810-E819). The source data are from Oklahoma's inpatient hospital discharge database, which includes discharges from all acute care, nonfederal hospitals in the state. Data include readmissions and transfers. Rates were calculated using U.S. Census population estimates for the appropriate year and are presented per 100,000 population.

From 2008-2010, motor vehicle traffic crashes were a leading cause of injury death, averaging 700 deaths annually.[2] Overall, males had a higher rate of motor vehicle crash death than females (19.5 and 8.4 per 100,000, respectively). Males had a higher rate of motor vehicle crash death than females for every age group except females age 1-4. Motor vehicle crash death rates increased dramatically between the 5-14 and 15-24 year age groups (3.1 and 19.7 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 decreased slightly from age 55-84, and then nearly doubled for the oldest old.

Figure 13. Motor Vehicle Traffic Fatality Rates by Age Group and Gender, Oklahoma, 2010

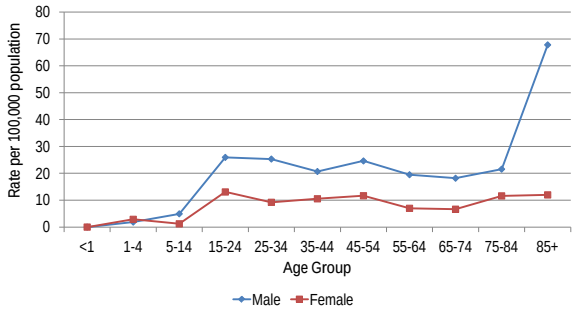
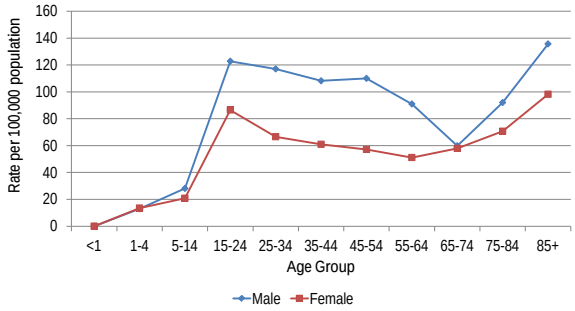


Figure 14. Motor Vehicle Traffic Hospitalization Rates by Age Group and Gender, Oklahoma, 2010



More than 10% of all injury hospitalizations involved a motor vehicle traffic crash. Males accounted for more than half (61%) of all motor vehicle traffic crash-related hospitalizations and had a hospitalization rate 59% higher than females. Males had higher hospitalization rates than females in all age groups except 1-4 year olds (12.9 and 13.5 per 100,000, respectively). The highest overall hospitalization rates for motor vehicle traffic crash-related injuries were in the 15-24 year age group and for the oldest old.

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 15 includes Oklahoma residents who died with a poisoning as the underlying cause of death (i.e., ICD-10 codes X40-X49, X60-X69, X85-X90, Y10-Y19, or Y35.2). The source data are from Oklahoma vital statistics. Indicator 16 includes all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission (i.e., principal diagnosis [ICD-9-CM code] 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, or 995.80-995.85) and a poisoning was diagnosed (i.e., E850-E858, E860-E869, E950-E952, E962, E972, E980-E982, or E979 [.6-.7]). The source data are from Oklahoma's inpatient hospital discharge database, which includes discharges from all acute care, nonfederal hospitals in the state. Data include readmissions and transfers. Rates were calculated using U.S. Census population estimates for the appropriate year and are presented per 100,000 population.

In 2009, poisonings surpassed motor vehicle crashes as the leading cause of injury death in Oklahoma.[2] In 2010, approximately the same number of Oklahomans died due to poisoning as motor vehicle crashes (522 and 519, respectively). Nearly two-thirds (62%) of poisoning deaths were male. Overall, the age groups most at risk for poisoning-related death were adults age 35-64. This age group accounted for 71% of poisoning deaths, but only 38% of the population. The death rate for this age group was more than three times that of the next highest age group, adults age 75-84 (25.9 and 8.5 per 100,000, respectively).

Figure 15. Poisoning Fatality Rates by Age Group and Gender, Oklahoma, 2010

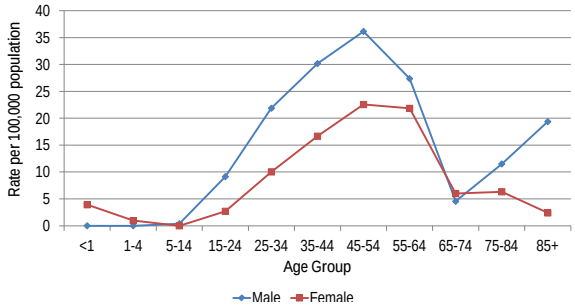
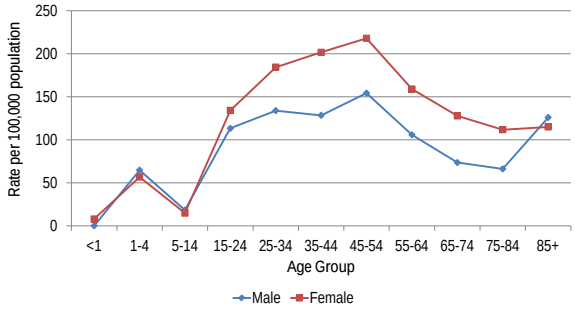


Figure 16. Poisoning Hospitalization Rates by Age Group and Gender, Oklahoma, 2010



Unlike poisoning-related deaths, females accounted for more than half (59%) of poisoning-related hospitalizations and had a hospitalization rate 40% higher than males. Females had a higher hospitalization rate than males in all age groups except children age 1-14 and adults over 85 years old. Similar to poisoning deaths, the majority (56%) of poisoning-related hospitalizations were to adults age 25-54. There were no poisoning-related hospitalizations of males less than one year of age.

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.
- 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.
- Have all fuel-burning equipment and appliances (e.g., furnaces, stoves, fireplaces) inspected before each heating season to ensure proper functioning and to prevent carbon monoxide exposure. Do not use generators inside; do not use an oven as a home heater; and do not leave a car's engine running in an enclosed space (not even with the garage door open).

Indicator 17: Traumatic Brain Injury Fatalities

Indicator 18: Traumatic Brain Injury Hospitalizations

Indicator 17 includes Oklahoma residents who died with a traumatic brain injury as the underlying or a contributing cause of death (i.e., ICD-10 codes 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). The source data are from Oklahoma vital statistics. Indicator 18 includes all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission (i.e., principal diagnosis [ICD-9-CM code] 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, or 995.80-995.85) and a traumatic brain injury was diagnosed (i.e., 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). The source data are from Oklahoma's inpatient hospital discharge database, which includes discharges from all acute care, nonfederal hospitals in the state. Data include readmissions and transfers. Rates were calculated using U.S. Census population estimates for the appropriate year and are presented per 100,000 population.

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, motor vehicle crashes, and being struck by/against an object.[6] Forty-two percent of all fatal TBIs were suicide related. In 2010, Oklahoma males were 2.6 times more likely than females to sustain a fatal TBI. Nearly 600 Oklahomans sustained 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 age 1-4 years (9.6 and 2.8 per 100,000, respectively).

Figure 17. Traumatic Brain Injury Fatality Rates by Age Group and Gender, Oklahoma, 2010

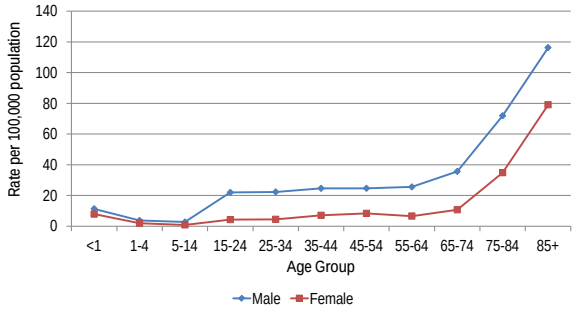
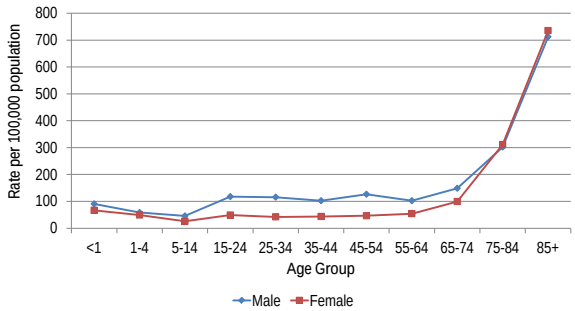


Figure 18. Traumatic Brain Injury Hospitalization Rates by Age Group and Gender, Oklahoma, 2010



For every TBI death, there were six hospitalizations related to a TBI diagnosis. Males were 72% more likely than females to be hospitalized with a TBI (119.9 and 69.8 per 100,000, respectively). Rates were higher for males in all age groups except adults age 75 and older, where rates for females were slightly higher. Rates tended to increase 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. More than three-fourths (78%) of TBI-related hospitalizations for adults age 65 and older were fall related.

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.
- Do not handle firearms without appropriate safety training.

Indicator 19: Unintentional Fall-Related Fatalities

Indicator 20: Unintentional Fall-Related Hospitalizations

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

Indicator 19 includes Oklahoma residents who died with a fall as the underlying cause of death (i.e., ICD-10 codes W00-W19). The source data are from Oklahoma vital statistics. Indicator 20 includes all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission (i.e., principal diagnosis [ICD-9-CM code] 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, or 995.80-995.85) and a fall was the mechanism of injury (i.e., E880-E886, or E888). Indicator 21 includes all hospitalizations in Oklahoma among Oklahoma residents where an injury was the principal reason for admission (i.e., principal diagnosis [ICD-9-CM code] 800-909.2, 909.4, 909.9-994.9, 995.5-995.59, or 995.80-995.85) and a hip fracture was diagnosed (i.e., 820). The source data for indicators 20 and 21 are from Oklahoma's inpatient hospital discharge database, which includes discharges from all acute care, nonfederal hospitals in the state. Data include readmissions and transfers. Rates were calculated using U.S. Census population estimates for the appropriate year and are presented per 100,000 population.

In 2010, falls were the leading cause of injury death for adults age 65 and older, and more than twice as many older adults died as a result of a fall compared to motor vehicle crashes.[2] In 2010, more than 350 Oklahomans died as a result of a fall. A slightly larger number of females died as a result of a fall compared to males, but males had a 35% higher age-adjusted fatality rate compared to females. More than half of all fall-related deaths to females were in the 85 years and older age group. There were 21 fall-related deaths to Oklahomans less than 55 years of age. The oldest old (adults age 85 years and older) had a death rate nearly four times than of the next highest age group, adults age 75-84 (240.4 and 64.5 per 100,000, respectively).

For every fall-related fatality in Oklahoma, there were 28 fall-related hospitalizations. Similar to fall-related deaths, fall-related hospitalizations were much more common among older adults. Adults age 65 years and older accounted for nearly three-fourths (72%) of all fall-related hospitalizations, compared to 14% of the state population. Adults age 85 years and older had hospitalization rates nearly three times higher than the next highest age group, adults age 75-84 (4776.4 and 1610.7 per 100,000, respectively). Males had a higher rate of fall-related hospitalizations than females for all age groups except older adults. Unlike most injuries, females had a 41% higher overall rate of hospitalization for falls compared to males.

Figure 19. Unintentional Fall-Related Fatality Rates by Age Group and Gender, Oklahoma, 2010

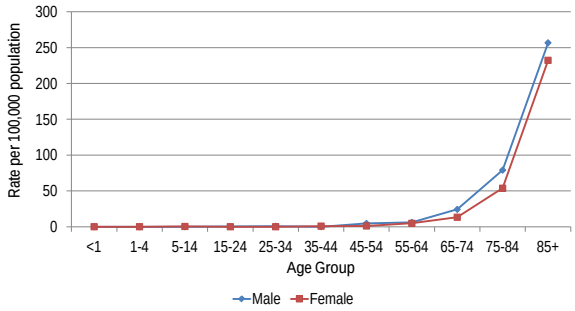


Figure 20. Unintentional Fall-Related Hospitalization Rates by Age Group and Gender, Oklahoma, 2010

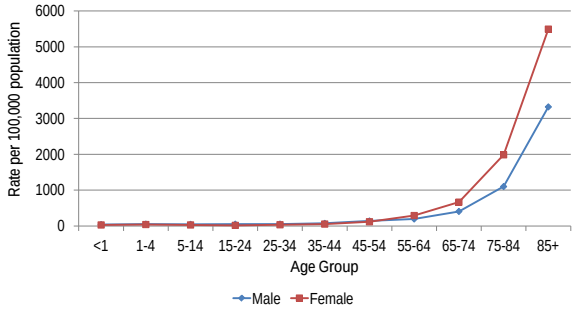
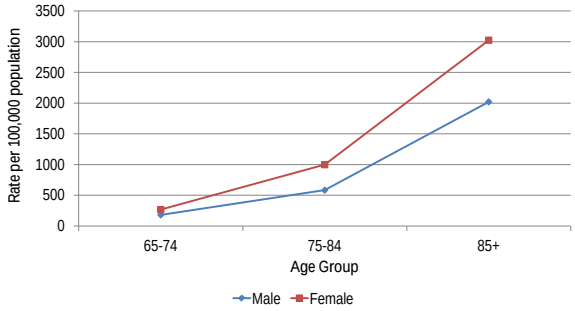


Figure 21. Hip Fracture Hospitalization Rates by Age Group and Gender, Oklahoma, 2010



Falls are a leading cause of traumatic brain injuries and hip fractures, especially among older adults.[6] More than 3,500 older adults were hospitalized for a hip fracture in Oklahoma in 2010. Eighty-three percent of older adults hospitalized were 75 years of age or older, and the oldest old had hospitalization rates more than three times that of older adults age 75-84 (2692.7 and 821.8 per 100,000, respectively) and more than 10 times that of adults age 65-74 (225.7 per 100,000). Overall, females had a hip fracture-related hospitalization rate nearly twice that of males (909.5 and 476.6 per 100,000, respectively). Seventy-one percent of older adults hospitalized for a hip fracture were female.

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 will conduct 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 will collect data on all hospitalized TBI 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 included sports-related TBI hospitalizations as a special focus for surveillance in 2012 and will be reaching out to youth-serving sports organizations to educate on injury prevention and concussion policy development.

Motor Vehicle Crashes

Motor vehicle crashes are a leading cause of death in Oklahoma. The IPS Traffic Data Linkage Project, funded by the Oklahoma Highway Safety Office, links death, hospitalization, emergency medical services, and law enforcement data for all motor vehicle crashes that occur on public roadways. The IPS is working to expand its child safety seat program to include additional training and educational efforts. The IPS also 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 drivers 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 (OSDH). IPS staff have created a surveillance system that provides 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 is collaborating with agencies and stakeholders across the state to develop a state plan for unintentional poisoning prevention, specifically prescription opioid misuse/abuse.

References:

1. Thomas KE, Johnson RL. *State Injury Indicators Report: instructions for preparing 2010 data.* Atlanta, GA: Centers for Disease Control and Prevention, National Center for Injury Prevention and Control; 2012.
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 September 18, 2012.
3. Oklahoma State Department of Health. *OK2SHARE: Inpatient Discharge Data*. Available at http://ok2share.health.ok.gov. Accessed on September 18, 2012.
4. Oklahoma Department of Public Safety, Oklahoma Highway Safety Office. *Oklahoma Crash Facts 2010*. Available at http://ok.gov/ohso/Data/Crash_Data_and_Statistics/Crash_Facts_2010.html. Accessed on September 13, 2012.
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, 2010. Available at http://www.census.gov/popest/data/intercensal/state/state2010.html. Accessed on July 10, 2012.
6. Centers for Disease Control and Prevention, National Center for Injury Prevention and Control. *Injury Prevention and Control: Traumatic Brain Injury. How Many People Have TBI?* Available at http://www.cdc.gov/traumaticbraininjury/statistics.html. Accessed on September 13, 2012.