THE HEALTH OF LINN COUNTY, IOWA
A COUNTYWIDE ASSESSMENT OF HEALTH STATUS AND HEALTH RISKS

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Linn County, Iowa
Chapter 7 Injury and Violence

Introduction
Injuries are preventable, yet still account for substantial morbidity and mortality among Linn County residents. Unintentional injuries are the fourth leading cause of death in Linn County, and the leading cause of death for Iowans aged 1 to 54 years. Unintentional injuries have the second highest rate of Years of Potential Life Lost for the population less than 65 years with a rate of 531.6 per 100,000 population < 65 years (Figure 7.1). Intentional injuries, such as abuse, homicide, and suicide also cause significant burden to Iowans. Suicide and/or homicide also rank among the top 5 leading causes of death among Iowans aged 1 to 54. Chapter 7 covers unintentional injuries and intentional injuries and violence in Linn County. Figure 7.2 shows the age-adjusted mortality rates for selected injuries and violence covered in this chapter.

Figure 7.1 Rate of Years of Potential Life Lost for population less than 65 years of age, Linn County, 2015

![Figure 7.1 Rate of Years of Potential Life Lost for population less than 65 years of age, Linn County, 2015](image)

Source: Vital Records, Bureau of Health Statistics, Iowa Department of Public Health

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Chapter 7 Injury and Violence
Figure 7.2 Age-adjusted mortality rates for selected injuries and violence, Linn County, 2016

Unintentional Injury – all types: 33.0
Unintentional fall: 12.1
Suicide: 9.0
Unintentional poisoning: 8.5
Motor vehicle related-crash: 6.9
Unintentional drowning: 0.3

Age-adjusted mortality rate per 100,000 population less than 65 years of age

Source: Vital Records, Bureau of Health Statistics, Iowa Department of Public Health
Unintentional Injury

All types

**Linn County 2020 Goal**
Reduce age-adjusted unintentional injury deaths to 29.7 per 100,000 population, a 10% decrease from 33.0 per 100,000 in 2010.

**Trends**
In 2016, there were 91 deaths in Linn County due to unintentional injury, for an age-adjusted mortality rate of 39.2 per 100,000 population. While the unintentional injury rate in Linn County increased between 2011 and 2016, the increase was not statistically significant. The current unintentional injury rate in Linn County is less than that of Iowa and the United States. However, the rates across the three geographies do not differ significantly (Figure 7.3).

**Figure 7.3 Age-adjusted unintentional injury mortality rate, Linn County, Iowa and United States, 1999-2016**

Table 7.1 shows the inpatient hospitalization rates due to unintentional injury from 2013 to 2015. The 3-year rate from 2013 to 2015 is 684.3 hospitalizations per 100,000 population.

**Table 7.1 Inpatient Hospitalization Rates per 100,000 Population**

<table>
<thead>
<tr>
<th>Type of Injury</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>3 Year 2013-2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Unintentional Injury</td>
<td>747.8</td>
<td>756.4</td>
<td>548.8</td>
<td>684.3</td>
</tr>
</tbody>
</table>

*Source: Linn County Inpatient Dataset*
As mentioned in Chapter 3, years of potential life lost (YPLL) measures premature death in the population. YPLL is a measure often used when describing injury data, as unintentional injuries are the leading cause of death among people aged 1 to 44 years of age.\(^{41}\)

In 2015, the years of potential life lost (YPLL) due to unintentional injuries for the population under 75 in Linn County was 750.0 per 100,000 population (Figure 7.4). In 2012, Linn County’s rate exceeded that of Iowa and the United States, but decreased in the following years. Alternately, both Iowa and United States have shown a similar trajectory increasing between 2015 and 2016. Among unintentional injuries in Iowa, Motor vehicle fatalities account for the largest YPLL in individuals under the age of 75 years with at 441.7 YPLL per 100,000 population, followed by poisoning, falls, suffocation, drowning, and fire/burns (Figure 7.5).

Figure 7.4 Years of potential life lost for population under 75 years of age due to unintentional injury, Linn County, Iowa and United States, 2012-2016

Source: Iowa Vital Records, WISQARS

Figure 7.5 Age-adjusted rate YPLL<75 unintentional injury, Iowa, 2016

Source: WISQARS

Geographical Variation
Figure 7.6 displays unintentional injury deaths by census tract of the residence of the deceased in Linn County. Areas shaded red and orange had more deaths, areas shaded green had fewer deaths.
Figure 7.6 Linn County unintentional injury deaths by census tract, 2015

Source: Vital Records, Bureau of Health Statistics, Iowa Department of Public Health; Created by on 11/21/17
Disparities

Age and Sex
In 2015, the age-adjusted mortality rate for all unintentional injuries was highest among people over 85 years old at 596.6 deaths per 100,000 population, which is over three times higher than the second to highest rate, 174.8 among people 75-84 years old. Older adults have high rates of death due to falls and motor vehicle crashes, which contribute to the overall unintentional injury mortality rate for the 85 years and older age group. The mortality rate for unintentional injury is slightly higher among males compared to females (Figure 7.7).

Figure 7.7 Mortality rate for unintentional injury by age and sex, Linn County, 2015

Race and Ethnicity
In 2016, the YPLL among people less than 65 years is greater among non-Hispanics than Hispanics in Iowa. The YPLL among blacks is 1263.1 per 100,000 population, 1.5 times greater than the YPLL among whites, nearly twice the YPLL rate among American Indians or Alaska Natives and three times the rate compared to Asians or Pacific Islanders (Figure 7.8).
Risk and Protective Factors

Due to the variety of types of unintentional injuries, there are numerous factors that can increase risk of unintentional injury. Risk factors may be individual behaviors, the physical environment, access to services and the social environment. Interventions that address unintentional injuries often focus on modifications to the environment, improvements in product safety, legislation and enforcement, education and behavior change and technology and engineering.42

Motor Vehicle

Linn County 2020 Goal
Reduce motor vehicle crash-related deaths to 6.2 per 100,000 population, a 10% decrease from 6.9 per 100,000 in 2010.

Trends
In 2016, the motor vehicle crash-related mortality rate in Linn County was 10.8 deaths per 100,000 population (Figure 7.9). This rate falls slightly below that of the state of Iowa and the United States with a mortality rate of 13.5 and 12.1 deaths per 100,000 population, respectively. The lowest rate of deaths identified in Linn County over the 10-year study period was in 2008, with a rate of 6.2 deaths per 100,000 population.

Figure 7.9 Age-adjusted motor vehicle crash-related death rates, Linn County, Iowa and United States, 2007-2016

Source: CDC WONDER
Disparities

Age and Sex
Rates of motor vehicle crash-related deaths are highest among adults aged 80 to 84 years old and adults over 85 years old (Figure 7.10). Teens and young adults aged 15 to 24 years old have the fourth highest rate, with 13.9 deaths per 100,000 population. As previously discussed and shown in Figure 7.5, motor vehicle crash deaths account for the largest YPLL, due to the high mortality rates among young age groups as well as older populations.

Figure 7.10 Motor vehicle crash-related mortality rate by age and sex, Iowa, 2012-2016

Source: Linn County Death dataset

Race and Ethnicity
From 2012 to 2016, motor vehicle crash-related mortality rates in Iowa were highest among American Indian/Alaska Native’s with a rate of 15.8 deaths per 100,000 population (Figure 7.11).
Figure 7.11 Motor vehicle crash-related mortality rate by race, Iowa, 2012-2016

![Bar chart showing motor vehicle crash-related mortality rate by race, Iowa, 2012-2016.](source)

**Risk and Protective Factors**

Risk factors for motor vehicle crash-related deaths include impaired or distracted driving, being a teen driver, and driving in older adulthood.

Protective factors for motor vehicle crash-related deaths include using proper child passenger safety restraints and seat belt use among all riders.43

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Poisoning

**Linn County 2020 Goal**

Prevent an increase in unintentional poisoning deaths to maintain a rate of 8.5 per 100,000 population, the baseline value in 2010.

**Trends**

In 2016, there were 14 deaths due to unintentional poisoning in Linn County, for a rate of 6.3 deaths per 100,000 population, the lowest rate observed since 2009 (Figure 7.12). Unlike the state of Iowa and the United States, the unintentional poisoning rate in Linn County has fluctuated overtime; however, the change during the study period is not statistically significant. When considering only unintentional poisonings due to drugs, an increasing trend across all three locations may be noted with the drug poisoning mortality rate in Linn County typically exceeding the state of Iowa, but falling below the United States (Figure 7.12). This trend is likely related to the increasing opioid issue across the country. However, this rate encompasses more than just overdose deaths related to opioids. In addition, it is important to note that like the overall mortality rate for unintentional poisonings, in 2016 the mortality rate for drug-related poisonings decreased from the previous year from 10.5 to 5.4 deaths per 100,000 population, respectively. This may reflect increased community efforts toward prevention of overdose related deaths in Linn County.

**Figure 7.12 Unintentional poisoning mortality rate, Linn County, Iowa and United States, 2007-2016**

Source: CDC WONDER
Figure 7.13 Mortality rate due to unintentional drug poisoning, Linn County, Iowa and United States, 2004-2016

Source: CDC WONDER

Disparities

Age and Sex
Unintentional poisoning death rates are highest among adults aged 35 to 54 years old. Between 2011 and 2016, the mortality rate for unintentional poisoning was 16.7 deaths per 100,000 population among adults aged 45 to 54 years old (Figure 7.14). Males have a greater rate of deaths occurring from unintentional poisoning compared to females with a rate of 11 deaths per 100,000 population compared to females with 6.5 deaths per 100,000 population.
Figure 7.14 Unintentional poisoning mortality rate by age and sex, Iowa, 2011-2016

Race and Ethnicity
Black and American Indian/Alaska Native residents experience the largest mortality rate for unintentional poisoning compared to their white and Asian/Pacific Islander counterparts (Figure 7.15).

Figure 7.15 Age-adjusted unintentional poisoning mortality rate by race, Iowa, 2012-2016

Source: WISQARS

Chapter 7 Injury and Violence
**Risk and Protective Factors**

Unintentional poisonings are often caused by drugs or medicines, household chemicals or carbon monoxide. Nationally, deaths from drug overdoses have increased significantly and are now the leading cause of injury death in the United States.\(^4^4\) Nationally, deaths from prescription painkillers increased 400% among women and 265% among men from 1999 to 2010.\(^4^5\) Due to the large increase in deaths from prescription painkillers, the CDC has specific recommendations to prevent drug or medicine poisonings from occurring, outlining that prescription medicines should: only be taken by the person it is prescribed, prescription drugs should be taken as prescribed and never sold or shared; kept in a secure place in their original bottles or containers; and if unused, unneeded or expired, they should be disposed of properly.\(^4^6\) To prevent household chemical poisonings from occurring, keep chemical products in their original containers and stored out of reach of children, always use the chemical according to directions and do not mix with other chemicals, wear protective clothing and ensure adequate ventilation when using chemicals or pesticides.


Drowning

Trends
Between 2012 and 2016, there were 12 deaths in Linn County attributed to unintentional drowning, this accounts for mortality rate over this period of 1.1 deaths per 100,000 population. This is similar to the annual rates for the state of Iowa and the United States (Figure 7.6). Overtime, unintentional drowning rates have remained stable in Iowa and the United States.

Figure 7.16 Age-adjusted unintentional drowning mortality rate, Iowa and United States, 2002-2010

Source: WISQARS, IDPH Vital Records

Disparities

Age and Sex
Between 2006 and 2016, unintentional drowning mortality rates in Iowa were highest among children 4 years of age and younger (Figure 7.16). As age increases, drowning rates decrease. However, an increase occurs at 15 years and older and remains stable in the following years. Males have a three times higher likelihood of drowning as compared to females.
Figure 7.167 Age-adjusted unintentional drowning mortality rate by age and sex, Iowa, 2006-2016

Race and Ethnicity
From 2012 to 2016, the mortality rate attributed to unintentional drowning was highest among Asian/Pacific Islander residents in Iowa with a mortality rate of 1.47 deaths per 100,000 population, similar to that of black residents at 1.46 deaths per 100,000 population (Figure 7.178). This rate was nearly two times the rate among white residents.

Figure 7.178 Age-adjusted unintentional drowning mortality rate by race, Iowa, 2012-2016

Source: WISQARS
*Stable rate cannot be calculated due to small number of events
Risk Factors
Groups at risk of unintentional drowning are children younger than four years, males and blacks. Several factors influence drowning risk, including lack of swimming ability, lack of barriers surrounding pools, lack of close supervision among young children, failure to wear life jackets, alcohol use and seizure disorders. Additionally, most children drown in home swimming pools, while drowning occurring in natural bodies of water increase with age.47

Fall

**Linn County 2020 Goal**
Prevent an increase in unintentional fall deaths to maintain a rate of 12.1 per 100,000 population, the baseline value in 2010.

**Trends**
In 2016, the unintentional fall mortality rate in Linn County was 14.8 deaths per 100,000, a decrease from the previous year with a rate of 17.8 deaths per 100,000 population (Figure 7.18). Both Iowa and Linn County have a higher mortality rate related to unintentional falls as compared to the United States. From 2008 to 2016, unintentional fall mortality rates have steadily increased in Iowa and the United States; however, the rate in Linn County has fluctuated overtime.

**Figure 7.18 Age-adjusted unintentional fall mortality rate, Linn County, Iowa and United States, 2008-2016**

Source: WISQARS, IDPH Vital Records
Disparities

Age and Sex
From 2012 to 2016, the greatest mortality rate related to unintentional falls in Iowa was among individuals 85 years of age and older with a mortality rate of 348.9 deaths per 100,000 population (Figure 7.). The rate among persons 85 years and over is more than 2 times greater than the next highest rate, among people 80 to 84 years of age. Overtime, the three age groups with the highest mortality rate related to falls has increased (Figure 7.). A statistically significant increase in mortality among the 85 years of age and older group occurred between 2010 and 2014, increasing from 254.5 to 378.1 deaths per 100,000 population over this period. Males tend to have a higher fall mortality rate compared to their female counterparts with a mortality rate of 15.9 deaths per 100,000 population compared to 9.9 deaths per 100,000 population (Figure 7.).

Figure 7.20 Age-adjusted unintentional fall mortality rate by age and sex, Iowa, 2012-2016

Source: WISQARS

Figure 7.19 Age-adjusted unintentional fall mortality rate by age and sex, Iowa, 2012-2016

Source: WISQARS
**Race and Ethnicity**
Between 2012 and 2016, white and Asian/Pacific Islander residents had the highest mortality rate for Unintentional Falls. (Figure 7.20).

**Figure 7.202 Age-adjusted unintentional fall mortality rate by race, Iowa, 2012-2016**

<table>
<thead>
<tr>
<th>Race</th>
<th>Mortality Rate per 100,000 population</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>12.6</td>
</tr>
<tr>
<td>Black</td>
<td>7.4</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>10.8</td>
</tr>
</tbody>
</table>

*Source: WISQARS*

**Risk and Protective Factors**
The risk of falls increases with age. There are things older adults can do to prevent falls, including exercising, managing medications that may cause dizziness or drowsiness, getting vision checked annually and eliminating tripping hazards in the home.\(^4^8\)

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**Intentional Injury and Violence**

**Child Maltreatment**
Adverse Childhood Experiences (ACEs) have been shown to be associated with health and well-being later in life. Child maltreatment, which includes abuse and neglect, are ACE categories.\(^\text{49}\)

**Linn County 2020 Goal**
Reduce nonfatal child maltreatment to 1,303 per 100,000 children, a 10% decrease from the 2014 rate of 1,447.8 per 100,000 children. This goal has been adjusted to accommodate changes in case handling following implementation of differential response.

**Trends**
In 2016, 546 children in Linn County were involved in 788 confirmed or founded child neglect or abuse reports for a rate of 1,521 child maltreatments per 100,000 children (Figure 7.21 Rate of type of abuse per 100,000 children, Linn County, 2011-2016).

![Graph showing trends in child maltreatment rates](image)

*Source: Iowa Department of Human Services*
*\(\text{Differential Response in place}\)*

**Figure 7.22.** This exceeds the Linn County 2020 Goal as well as that of 2014 and 2015. Compared to Iowa, Linn County has slightly lower rates in total maltreatments, unique

victims, neglect, physical abuse, and sexual abuse (Figure 7.21 Rate of type of abuse per 100,000 children, Linn County, 2011-2016)

![Graph showing rate of type of abuse per 100,000 children, Linn County, 2011-2016]

Source: Iowa Department of Human Services
*Differential Response in place

Figure 7.224). Due to different definitions used at the national level, only state and Linn County rates are provided for comparison. Overtime, the child maltreatment rate and number of unique victims has declined; however, child maltreatment still affects hundreds of Linn County children annually. As noted in Figure 7.23, the leading child maltreatment in 2016 was neglect, with 992.1 cases per 100,000 children in 2016. This accounts for 65.2% of child maltreatments in Linn County.

Figure 7.21 Rate of type of abuse per 100,000 children, Linn County, 2011-2016

![Graph showing rate of type of abuse per 100,000 children, Linn County, 2011-2016]

Source: Iowa Department of Human Services
*Differential Response in place
Figure 7.22 Child maltreatment rates for Linn County and Iowa, 2016

Source: Iowa Department of Human Services Child Maltreatment Statistical Report

**Disparities**

**Age**

In 2016, a majority (n = 317; 58%) of child maltreatment victims in Linn County were among children 5 years of age or younger (Figure 7.23). Considering this age group comprises 33.1% of the total child population in Linn County this suggests that approximately 2% of children 5 years of age or younger are victims of maltreatment.

Figure 7.23 Age of child maltreatment victims, Linn County, 2016

Source: Iowa Department of Human Services
Race and Ethnicity
Child maltreatment rates in Iowa are highest among American Indian/Alaska Native and African American children compared to Pacific Islander, Hispanic, Multiple Race, white, and Asian children (Figure 7.24).

Figure 7.24 Rate of child maltreatment by race and ethnicity of victim, Iowa, 2016

Risk Factors
Risk factors for child maltreatment include a child with a disability (mental retardation, emotional disturbance, visual or hearing impairment, learning disability, physical disability, behavioral problems, or another medical problem), a caregiver with alcohol, drug abuse or domestic violence in the home. The caregiver can be the perpetrator or victim of the domestic violence. Risk factors for child fatality include caregivers with alcohol abuse, drug abuse, domestic violence in the home, or receiving family preservation services within the past 5 years.

Source: Iowa Department of Human Services

Homicide

Linn County 2020 Goal
Reduce the homicide rate to 1.4 homicides per 100,000 population, a 10% decrease from the three year average of 1.6 per 100,000 population from 2009 to 2011.

Trends
The number of homicide-related deaths in Linn County each year is too small to calculate a stable rate. As such, the number of cases were combined in three-year segments. Between 2014 and 2016, there were 24 homicide-related deaths in Linn County for a rate of 3.6 per 100,000 population (Figure 7.25). This rate increased from the rate in 2011-2013 of 2.0 deaths per 100,000 population. The homicide rate in Linn County is similar to that of Iowa, but it is significantly lower than the United States. Of the 24 homicide-related deaths in Linn County between 2014 and 2016, 14 were related to the use of a firearm.

Figure 7.25 Homicide rates for Linn County, Iowa and United States 2002-2016

Source: CDC WONDER, Iowa Department of Public Health Vital Statistics
Disparities

Age and Sex
There was no difference in the sex of homicide victims. However, a majority of victims were between the ages of 15 and 34 years of age, accounting for 63% of all homicide related deaths (Figure 7.26).

Figure 7.26 Age of homicide victims, Linn County, 2011-2015

Source: Iowa Department of Public Health Vital Statistics; Linn County death dataset
Race and Ethnicity
In Linn County, 94.6% of homicide victims were non-Hispanic (Figure 7.27). The majority of homicide victims were white (69%), with the remaining 31% being black.

Figure 7.27 Race and ethnicity of homicide victims, Linn County, 2011-2015

Source: Iowa Department of Public Health Vital Statistics

Risk and Protective Factors
While there are few homicides in Linn County, there are identified trends among the characteristics of homicide victims. Adults between 15 and 34 years old have higher homicide victim percentages than other age groups. While this age group comprises 27.3% of the population, 63% of homicide victims are between the ages of 15 and 34 years old. Among different races, a disproportionate percentage of homicide victims are black at 31% of victims and only comprising 4.7% of the population of Linn County. Of the homicide victims older than 18 years in Linn County, a majority were never married (60.7%). However, a similar proportion of individuals who were either divorced (17.9%) or married (14.3%) fell victim of homicide between 2011 and 2015. A majority of homicide victims attained a high school diploma (55.2%), followed by those with less than a high school diploma (20.6%) and those with some college (17.2%).
Suicide

**Linn County 2020 Goal**
Reduce the suicide rate to 8.6 per 100,000 population, a 10% decrease from the three-year average of 9.5 suicides per 100,000 population from 2009 to 2011.

**Trends**
In 2016, there were 40 suicides in Linn County for an age-adjusted suicide rate of 18.8 per 100,000 population (Figure 7.). Similar to the homicide rate, the suicide rate is also influenced by a change in a few more or less suicides from year to year. From 2009 to 2016, the suicide rate has ranged from 9.8 to 18.8 suicides per 100,000 in Linn County. Overtime, Linn County’s suicide rate has been similar to that of Iowa and the United States. However, in 2016 Linn County’s rate exceeded the rates of both geographic locations (14.6 and 13.5 deaths per 100,000 population, respectively).

**Figure 7.30 Age-adjusted suicide rates in Linn County, Iowa and United States, 2009-2016**

*Source: CDC WONDER, Iowa Department of Public Health Vital Statistics*
Between 2012 and 2016, the leading method of suicide in Linn County was by firearm (48%), followed by hanging/suffocation, poisoning, and other (Figure 7.28).

**Figure 7.28 Method of suicide, Linn County, 2012-2016**

<table>
<thead>
<tr>
<th>Method</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Firearm</td>
<td>48%</td>
</tr>
<tr>
<td>Hanging/ Suffocation</td>
<td>26%</td>
</tr>
<tr>
<td>Poisoning</td>
<td>21%</td>
</tr>
<tr>
<td>Other</td>
<td>5%</td>
</tr>
</tbody>
</table>

*Source: Iowa Department of Public Health Vital Statistics*

**Disparities**

**Age and Sex**

From 2012 to 2016, suicide among males was greater than suicide among females, with 80.5% male and 19.5% female. While the age of suicide victims varies, the largest proportion of suicide cases are among individuals between 45 and 54 years with 23.9% of suicide cases being in this age group (Figure 7.29).

**Figure 7.29 Suicide deaths by age, Linn County, 2012-2016**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-14</td>
<td>2.2%</td>
</tr>
<tr>
<td>15-24</td>
<td>18.8%</td>
</tr>
<tr>
<td>25-34</td>
<td>14.5%</td>
</tr>
<tr>
<td>35-44</td>
<td>16.7%</td>
</tr>
<tr>
<td>45-54</td>
<td>23.9%</td>
</tr>
<tr>
<td>55-64</td>
<td>13.0%</td>
</tr>
<tr>
<td>65-74</td>
<td>7.2%</td>
</tr>
<tr>
<td>75+</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

*Source: Iowa Department of Public Health Vital Statistics*
Race and Ethnicity
In Linn County, 98.6% of suicide victims were non-Hispanic, 87.5% were white, 6.9% were black and 5.6% was of another race (Figure 7.30).

Figure 7.30 Suicide deaths by race and ethnicity, Linn County, 2008-2012

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>87.5%</td>
</tr>
<tr>
<td>Black</td>
<td>6.9%</td>
</tr>
<tr>
<td>Not Hispanic</td>
<td>98.6%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>1.4%</td>
</tr>
</tbody>
</table>

Source: CDC WONDER

Education
A majority of the victims of suicide between 2011 and 2015 had a high school diploma or its equivalent making up 41.7% of all deaths related to suicide (Figure 7.30). Risk tends to decrease with a higher level of education, but is greatest among those who achieve a high school diploma.

Figure 7.31 Suicide deaths by level of education, Linn County, 2011-2015

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than High School</td>
<td>19.4%</td>
</tr>
<tr>
<td>High School/GED</td>
<td>41.7%</td>
</tr>
<tr>
<td>Some College</td>
<td>17.3%</td>
</tr>
<tr>
<td>Associates Degree</td>
<td>5.8%</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>12.2%</td>
</tr>
<tr>
<td>Master’s Degree or Higher</td>
<td>3.6%</td>
</tr>
</tbody>
</table>

Source: Linn County Death dataset
Risk and Protective Factors
A combination of individual, relational, community and societal factors contribute to the risk of suicide. Risk factors for suicide may or may not be direct causes, but are characteristics, which include: family history of suicide; family history of child maltreatment; previous suicide attempt; history of mental disorders, particularly clinical depression, history of alcohol and substance abuse, feelings of hopelessness, impulsive or aggressive tendencies; cultural and religious beliefs; local epidemics of suicide; feeling isolated; barriers to accessing mental health treatment; a personal loss (relationship, social, work or financial); physical illness; easy access to lethal methods and unwillingness to seek help because of stigma attached to mental health and substance abuse disorders or to suicidal thoughts.51

Protective factors for prevention of suicide include: effective clinical care for mental; physical and substance abuse disorders; easy access to clinical interventions and support for help seeking; family and community support; support from ongoing medical and mental health care relationships; skills in problem solving, conflict resolution, and nonviolent ways of handling disputes; and cultural and religious beliefs that discourage suicide and support instincts for self-preservation.

Violent Crime

Trends

Violent crime statistics are available from the Uniform Crime Reporting Statistics for the cities of Cedar Rapids and Marion within Linn County, the two largest cities. As seen in Figure 7.32, Cedar Rapids violent crime rate in 2014 was 301 violent crimes per 100,000 population, slightly greater than Iowa (273.5 per 100,000) but less than the United States and has been steady since 2001. The violent crime rate of Marion in 2014 was 134.3 violent crimes per 100,000 population, which was less than the Iowa rate, but it has been gradually increasing since 2001. At this time, data on disparities within violent crime rates for age, sex, race and ethnicity is not available within the Uniform Crime Reporting Statistics online database.

Figure 7.32 Violent crime rate, Cedar Rapids, Marion, Iowa and United States, 2001-2014

Source: Uniform Crime Reporting Statistics
Summary
Injury and violence causes a significant health burden to Linn County residents. Over the last couple of years, the rate of deaths related to unintentional injuries has been on a rise, continuing to be the second leading cause of years of potential life lost among individuals younger than 65 years of age. In Iowa, motor vehicle crashes account for the greatest number of YPLL among unintentional injury related deaths for those under the age of 75 years. However, deaths related to motor vehicle crashes are most common among individuals over the age of 75 years and males. Overtime, mortality rates due to unintentional poisonings and falls have increased. Though, interestingly unintentional poisonings and poisonings related to drugs decreased significantly between 2015 and 2016. While mortality rates remain low for unintentional drowning, the YPLL is high due to the young age that most drowning occurs. While the rate of child maltreatment cases have been on a steady decrease, hundreds of young children are impacted by child maltreatment each year; most commonly associated with neglect. Homicide rates in Linn County remain well below the national rate, however suicides have substantially increased. Injuries and violence are preventable, and strategies can be implemented to reduce the health and economic burden of injuries and violence.