2015 Community Health Assessment

Community Health Status Assessment

Linn County, IA

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Figure 5. Neonatal Deaths per 1,000 live births
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Community Health Status Assessment

The Community Health Status Assessment (CHSA) is one of four assessments that were used to guide Linn County’s Community Health Assessment. The CHSA is one of four assessments that will be used to inform the identification of the priority strategic issues that the community will seek to address in the Community Health Improvement Plan (CHIP). The assessment process was guided by a CHSA subcommittee with representation from multiple entities and organizations within the LPHS and is associated with the larger Together! Healthy Linn Steering Committee.

Purpose

The CHSA is a quantitative analysis of how healthy Linn County is as a whole and identifies potential areas of concern. The data captured in this assessment answers two questions:

1. How healthy is the community?
2. What does the health status of the community look like?

Method

An initial subcommittee meeting was held on March 12, 2015 to plan the assessment. At the initial meeting the subcommittee began by identifying the list of specific indicators that the assessment would capture. In addition, members worked together to identify sources that may be used to access the individual data points associated with the core indicators. The CHSA was guided by 11 core indicators, with multiple data points falling under each:

- Demographic Characteristics
- Socioeconomic Characteristics
- Heath Resource Availability
- Quality of Life
- Behavioral Risk Factors
- Environmental Health Indicators
- Social and Mental Health
- Maternal and Child Health
- Death, Illness, and Injury
- Communicable Disease
- Sentinel Events

The subcommittee reconvened in May 2015 to inform the layout of the report to ensure the data was clear, concise, attractive, and understandable to multiple audiences. Between March and August of 2015, data to address each of the selected indicators were gathered from multiple sources including partnering local public health agencies including Mercy hospital, Linn County Public Health, Cedar Rapids School District, and the Linn County Continuum of Care Planning and Policy committee. In addition, data was obtained from the Behavioral Risk Factor Surveillance System (BRFSS), Iowa Department of Public Health, Iowa Youth Survey, Feeding America, U.S. Census Bureau, County Health Rankings, National Survey on Drug Use and Health, Iowa Public Health Tracking Portal, Uniform Crime Reporting Statistics, Iowa Department of Human Services, Centers for Disease Control and Prevention (CDC), and the Surveillance Epidemiology and End Results (SEER) Program.
## Key Health Indicators Trend Summary

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Race/Ethnicity</th>
<th>Gender</th>
<th>Healthy People 2020</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LCPH</td>
<td>African American</td>
<td>American Indian/Alaskan Native</td>
</tr>
<tr>
<td><strong>Health Resource Availability</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uninsured</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td><strong>Behavioral Risk Factors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adult Binge Drinking</td>
<td>↓</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>Adult Tobacco Use</td>
<td>↓</td>
<td>↓</td>
<td>←</td>
</tr>
<tr>
<td>Adult Overweight</td>
<td>↑</td>
<td>↑</td>
<td>↓</td>
</tr>
<tr>
<td>Adult Obese</td>
<td>↑</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Adult Physical Inactivity</td>
<td>↓</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td><strong>Social and Mental Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poor Mental Health</td>
<td>←</td>
<td>←</td>
<td>←</td>
</tr>
<tr>
<td>Suicide</td>
<td>↓</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td><strong>Chronic Conditions</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>↑</td>
<td>↓</td>
<td>↓</td>
</tr>
<tr>
<td>Asthma</td>
<td>↑</td>
<td>↓</td>
<td>↓</td>
</tr>
</tbody>
</table>

### Key

<table>
<thead>
<tr>
<th>General Trend</th>
<th>Health Inequity</th>
<th>Healthy People 2020 Comparison</th>
</tr>
</thead>
<tbody>
<tr>
<td>Getting worse</td>
<td>Largest Inequality, increasing</td>
<td>Worse than LCPH</td>
</tr>
<tr>
<td>No Change</td>
<td>Largest inequality, no change</td>
<td>Similar to LCPH</td>
</tr>
<tr>
<td>Trend is improving</td>
<td>Largest Inequality, decreasing</td>
<td>Better than LCPH</td>
</tr>
</tbody>
</table>

*No data available or unreliable*
### Indicator | Race/Ethnicity | Gender | Healthy People 2020 Comparison
--- | --- | --- | ---
Chronic Conditions Continued | LCPH | | |
Cancer | | | |
Communicable Disease | | | |
Chlamydia | | | |
Gonorrhea | | | |
Syphilis (All Stages) | | | |
HIV | | | |
Number of 2 years who are not up to date on vaccines | | | |
Influenza Vaccine – Number of Adults unimmunized | | | |
Pneumonia Vaccine – Number of Unimmunized 65 year and older adults | | | |

**Key**

- **General Trend**
  - Getting worse
  - No Change
  - Trend is improving

- **Health Inequity**
  - Largest Inequality, increasing
  - Largest inequality, no change
  - Largest Inequality, decreasing

- **Healthy People 2020 Comparison**
  - Worse than LCPH
  - Similar to LCPH
  - Better than LCPH

*No data available or unreliable*
Demographic Characteristics

According to the U.S. Census Bureau (2015), there were 217,751 people living in Linn County in 2014, reflecting a 13.5% increase in population from 2000. In 2014, the population of Linn County accounted for 7.0% of Iowa’s total population, making Linn County the second most populous county in Iowa. Between 2010 and 2014, Linn County experienced a population growth of 3%, which exceeded that of the State of Iowa with a 1.9% population growth. Based on Woods and Poole (2009) projections for population growth, the population of Linn County will continue to grow at a rate of 7-8% per decade between the years 2010 and 2040, while Iowa’s decennial population growth rate will range between 4-5% for the same time period. From 2000-2010, 72% of the population growth was due to births and 28% was due to migration. The distribution of the individuals by age and sex were consistent between 2000 and 2010; however, due to the increase in population during this period a change is noted across all age and sex categories. The most significant population increase was among individuals aged 45 to 64 years (28.7%) and individuals 65 years of age and older (17.1%).

Table 1. Population Distribution by Age and Sex for Linn County, 2000 and 2010

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>Percent</th>
<th>2010</th>
<th>Percent</th>
<th>Change, 2000 to 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Total population</td>
<td>191,701</td>
<td>100.0</td>
<td>211,226</td>
<td>100.0</td>
<td>19,525</td>
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<tr>
<td>Age group (years)</td>
<td></td>
<td></td>
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<tr>
<td>Less than 5</td>
<td>13,425</td>
<td>7.0</td>
<td>14,160</td>
<td>6.7</td>
<td>735</td>
</tr>
<tr>
<td>5 to 17</td>
<td>34,997</td>
<td>18.3</td>
<td>37,687</td>
<td>17.8</td>
<td>2,690</td>
</tr>
<tr>
<td>18 to 24</td>
<td>19,386</td>
<td>10.1</td>
<td>20,680</td>
<td>9.8</td>
<td>1,294</td>
</tr>
<tr>
<td>25 to 44</td>
<td>58,003</td>
<td>30.3</td>
<td>56,607</td>
<td>26.8</td>
<td>1,396</td>
</tr>
<tr>
<td>45 to 64</td>
<td>42,425</td>
<td>22.1</td>
<td>54,604</td>
<td>25.9</td>
<td>12,179</td>
</tr>
<tr>
<td>65 and over</td>
<td>23,465</td>
<td>12.2</td>
<td>27,488</td>
<td>13.0</td>
<td>4,023</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>93,965</td>
<td>49.0</td>
<td>103,950</td>
<td>49.2</td>
<td>9,985</td>
</tr>
<tr>
<td>Female</td>
<td>97,736</td>
<td>51.0</td>
<td>107,276</td>
<td>50.8</td>
<td>9,540</td>
</tr>
<tr>
<td>18 and over</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>69,184</td>
<td>48.3</td>
<td>77,621</td>
<td>48.7</td>
<td>8,437</td>
</tr>
<tr>
<td>Female</td>
<td>74,095</td>
<td>51.7</td>
<td>81,758</td>
<td>51.3</td>
<td>7,663</td>
</tr>
<tr>
<td>65 and over</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>9,629</td>
<td>41.0</td>
<td>11,716</td>
<td>42.6</td>
<td>2,087</td>
</tr>
<tr>
<td>Female</td>
<td>13,836</td>
<td>59.0</td>
<td>15,772</td>
<td>57.4</td>
<td>1,936</td>
</tr>
<tr>
<td>Median age (years)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total population</td>
<td>35.2</td>
<td>.</td>
<td>36.5</td>
<td>.</td>
<td>1.3</td>
</tr>
<tr>
<td>Male</td>
<td>34.2</td>
<td>.</td>
<td>35.4</td>
<td>.</td>
<td>1.2</td>
</tr>
<tr>
<td>Female</td>
<td>36.2</td>
<td>.</td>
<td>37.7</td>
<td>.</td>
<td>1.5</td>
</tr>
</tbody>
</table>

(U.S. Census Bureau, 2000, 2010)
Race and Ethnicity

Between 2000 and 2010, minority populations in Linn County grew at a faster rate than the white race (Table 2). The numbers of several minority populations are small, so a small increase in numbers for minority races has a big impact on percent change in population. The smallest minority population, Native Hawaiian/Pacific Islanders, experienced an increase of 89 people from 2000 to 2010, resulting in a 97.8% increase in population. The largest minority population, black or African Americans, experienced an increase of 3,427 people, or 69.7%. The majority race population, white increased by 19,252 people resulting in a small population change of 9.2%. In both Iowa and the United States, minority populations are growing faster than the white population. From 2000 to 2010, the black population in Iowa increased 44.1% compared to an increase of 12.32% for the entire United States. The Hispanic population in Linn County grew by 2,812 people from 2000 to 2010, resulting in a change of 103.3%. In 2000, 1.4% of Linn County was of Hispanic ethnicity and in 2010, 2.6% of the population was Hispanic. While people of Hispanic ethnicity still comprise a small percentage of the overall population, the rate of growth is faster than among non-Hispanic populations, which only grew 8.8% from 2000 to 2010.

Table 2. Population by Race and Ethnicity in Linn County, 2000 and 2010

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th></th>
<th>2010</th>
<th></th>
<th>Change, 2000 to 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
<td>Percent</td>
<td>Number</td>
</tr>
<tr>
<td>Total population</td>
<td>191,701</td>
<td>100.0</td>
<td>211,226</td>
<td>100.0</td>
<td>19,525</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>188,942</td>
<td>98.6</td>
<td>206,293</td>
<td>97.7</td>
<td>17,351</td>
</tr>
<tr>
<td>Black/African American</td>
<td>4,919</td>
<td>2.6</td>
<td>8,346</td>
<td>4.0</td>
<td>3,427</td>
</tr>
<tr>
<td>American Indian/</td>
<td>418</td>
<td>0.2</td>
<td>565</td>
<td>0.3</td>
<td>147</td>
</tr>
<tr>
<td>Alaskan Native</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>2,634</td>
<td>1.4</td>
<td>3,806</td>
<td>1.8</td>
<td>1,172</td>
</tr>
<tr>
<td>Native Hawaiian/</td>
<td>91</td>
<td>0.1</td>
<td>180</td>
<td>0.1</td>
<td>89</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other race</td>
<td>881</td>
<td>0.5</td>
<td>1,512</td>
<td>0.7</td>
<td>631</td>
</tr>
<tr>
<td>Two or more races</td>
<td>2,759</td>
<td>1.4</td>
<td>4,933</td>
<td>2.3</td>
<td>2,174</td>
</tr>
<tr>
<td>Ethnicity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>2,722</td>
<td>1.4</td>
<td>5,534</td>
<td>2.6</td>
<td>2,812</td>
</tr>
<tr>
<td>Not Hispanic or Latino</td>
<td>188,979</td>
<td>98.6</td>
<td>205,692</td>
<td>97.4</td>
<td>16,713</td>
</tr>
</tbody>
</table>

(U.S. Census Bureau, 2000, 2010)
Socioeconomic Characteristics

The conditions and social context in which an individual lives, significantly impacts their quality of life as well as overall health. Individuals who live and work in low socioeconomic conditions are at an increased risk for mortality, morbidity, engaging in unhealthy behaviors, and receipt of inadequate health services (CDC, 2011). Socioeconomic status is most commonly defined by three indicators, education, income, and employment.

Educational Attainment

Twenty-seven percent of Linn County residents aged 25 years and older have attained a high school diploma only, which falls below that of the United States (32.9%) and the State of Iowa (28.1%). However, this is likely due to a higher level of post-secondary educational attainment. Compared to the United States and Iowa, Linn County exceeds the level of educational attainment at the Associate’s and Bachelor’s degree levels, but falls slightly below that of the United States at the Graduate level.

![Figure 1. Proportion of Population by Educational Attainment in Linn County, Iowa, and United States (n = 140,694; 2,026,719; 206,587,852)](U.S. Census Bureau, 2015c)

Level of Income

The largest proportion of households in Linn County (20%) and Iowa (20%) make between $50,000 - $74,000 annually. A slightly larger proportion of households in Linn County (37%) compared to Iowa as a whole (31.7%) make over $75,000 a year. This is likely due to a higher earning potential associated with increased educational attainment.

![Figure 2. Proportion of Population by Level of Income in Linn County, Iowa, and United States (n = 86,052; 1,226,547; 115,610,216), 2009-2013](U.S. Census Bureau, 2015f)
Employment and Poverty Status

In the state of Iowa, there are approximately 367,414 (12.4%) individuals who are estimated to be at or below poverty-level; approximately, 20,222 of whom reside in Linn County (U.S. Census Bureau, 2015d). The largest proportion of individuals at or below poverty level are among single family homes with children under the age of 18 where the female is the head of household as well as among individuals with less than a high school diploma (Table).

Overall, 5.5% of Linn County residents who are 16 years of age and older are unemployed; which, mirrors that of the state of Iowa at 5.8%. Among Linn County residents 26.5% of individuals who are unemployed are also at or below poverty level.

<table>
<thead>
<tr>
<th>Core Indicators</th>
<th>Linn</th>
<th>Iowa</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Employment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent unemployed (16 years and older)</td>
<td>5.5</td>
<td>5.8</td>
</tr>
<tr>
<td><strong>Percent Below Poverty Level</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Families</td>
<td>5.8</td>
<td>8.1</td>
</tr>
<tr>
<td>With children under 18 years</td>
<td>9.3</td>
<td>13.9</td>
</tr>
<tr>
<td>Families with female householder, no husband</td>
<td>23.3</td>
<td>30.3</td>
</tr>
<tr>
<td>With children under 18 years</td>
<td>30.4</td>
<td>30.8</td>
</tr>
<tr>
<td>Individuals</td>
<td>9.7</td>
<td>12.4</td>
</tr>
<tr>
<td>Under 18 years</td>
<td>10.8</td>
<td>16.1</td>
</tr>
<tr>
<td>Related children under 18 years</td>
<td>10.2</td>
<td>15.7</td>
</tr>
<tr>
<td>18 to 64 years</td>
<td>10.1</td>
<td>12.2</td>
</tr>
<tr>
<td>65 years and over</td>
<td>6.1</td>
<td>7.4</td>
</tr>
<tr>
<td><strong>Percentage of the Population Below Poverty by Sex</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>8.8</td>
<td>11.2</td>
</tr>
<tr>
<td>Female</td>
<td>10.6</td>
<td>13.5</td>
</tr>
<tr>
<td><strong>Percentage of the Population Below Poverty by Level of Educational Attainment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Attainment (25 years and older)</td>
<td>7.1</td>
<td>8.8</td>
</tr>
<tr>
<td>Less than high school graduate</td>
<td>17.9</td>
<td>22.1</td>
</tr>
<tr>
<td>High school graduate/ GED</td>
<td>9.5</td>
<td>10.1</td>
</tr>
<tr>
<td>Some college, Associate’s degree</td>
<td>7.3</td>
<td>8.5</td>
</tr>
<tr>
<td>Bachelor’s degree or higher</td>
<td>2.6</td>
<td>3.3</td>
</tr>
</tbody>
</table>

(U.S. Census Bureau, 2015d,e, g)
Homeless

As of January 28, 2015 there were 461 women (29%), men (33%), and children (38%) served by local emergency shelters, transitional housing facilities, or who were found living on the street. Overtime, the number of individuals served has drastically increased from 345 in January of 2011 to January of 2015. However, there was a reduction of nearly 30 individuals between July of 2014 and the current count. A large portion of homeless individuals reported chronic substance abuse issues (20.4%), being victims of domestic violence (19.5%), and suffering from severe mental illness (13.9%).

Homeless Students

In the 2013-2014 academic school year, there were 535 students within the seven school districts within Linn County who were identified as being homeless. The largest number of homeless students (n = 360) attend the Cedar Rapids School District; Cedar Rapids was also the only school district where students were identified as being unsheltered (n = 13). Overall, a majority of students (66%) from all districts reported “Doubling Up” or bunking with another friend, family, or relative.
Community Resources - Homeless

To the right are the support services available to homeless in Linn County. Noted in the table is that a majority of these services were at near capacity at the time of evaluation. In addition, there are very few programs available to address permanent housing needs.

Table 4. Community Resources for Homeless

<table>
<thead>
<tr>
<th>Support Service</th>
<th># of Beds</th>
<th>Utilization</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Shelter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cedar Valley Friends of the Family</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Family Promise</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>Foundation 2 Youth Shelter</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Mission of Hope Shelter*</td>
<td>12</td>
<td>21</td>
</tr>
<tr>
<td>St. John of the Cross CWH</td>
<td>18</td>
<td>15</td>
</tr>
<tr>
<td>Waypoint Madge Phillips Center</td>
<td>40</td>
<td>25</td>
</tr>
<tr>
<td>Willis Dady Emergency Shelter</td>
<td>45</td>
<td>33</td>
</tr>
<tr>
<td>Transitional Housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ASAC Adult Residential Halfway House</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td>ASAC Heart of Iowa Halfway House</td>
<td>36</td>
<td>20</td>
</tr>
<tr>
<td>Catherine McAuley Center</td>
<td>15</td>
<td>10</td>
</tr>
<tr>
<td>Cross Roads Mission</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>HACAP Transitional Housing</td>
<td>202</td>
<td>186</td>
</tr>
<tr>
<td>The Safe Place Foundation</td>
<td>33</td>
<td>32</td>
</tr>
<tr>
<td>Waypoint DVP</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td>Permanent Supportive Housing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCIA CHOOSE Program</td>
<td>16</td>
<td>4</td>
</tr>
<tr>
<td>HACAP Chronically Homeless Project</td>
<td>8</td>
<td>7</td>
</tr>
</tbody>
</table>

*Linn County Homeless Point in Time Report, 2015

*Bed overflow was allowed due to freezing temperatures

Food Insecurity

In 2013, approximately 12% of the entire population of Linn County was food insecure. Food insecurity refers to the USDAs measure of lack of access to enough foods for an active, healthy life for all within a household and limited or uncertain availability of nutritionally adequate foods. Overtime, the rate of food insecurity in Linn County has remained relatively stable and is significantly lower than the national rate of approximately 16%.

Figure 5. Percent of the total population who are food insecure - Linn County, Iowa, and United States, 2009-2013

*Feeding America Map the Meal Gap, 2015*
Child Food Insecurity

Similarly, the rate of food insecurity among children is lower in Linn County (17.3%) compared to Iowa (19.3%) and the United States (21.4%). However, there has been some fluctuation in the rate over the past 5 years. Between 2009 and 2010 a reduction was noted. Despite the reduction, the rate of food insecure children has begun to increase each year.

Figure 6. Percent of children who are food insecure, Linn County, Iowa and United States, 2009-2013

Feeding America Map the Meal Gap, 2015
Health Resource Availability

A lack of access to health care services poses a significant threat to obtaining good overall health. An individual’s ability to access services may be hindered by financial, cultural, and/or geographic barriers as well as the availability of needed service providers.

Rate of Service Providers

The ratio of people to providers in both Linn County and Iowa exceeds what is recommended. Among the top performing counties in the County Health Rankings, the ratio of the population to providers is 1045:1 for primary care physicians, 1377:1 for dentists, and 386:1 for mental health providers.

Uninsured

Of the 211,445 noninstitutionalized civilians in Linn County, 16,023 are uninsured. The largest proportion of the uninsured population within each of the race categories is among individuals designated as “Some other race”, with 32% without health insurance. With the exception of “Native Hawaiian” (0%), the percent of uninsured individuals among the other race categories was similar ranging from 7% to 12% uninsured. The percentage of uninsured by race, differed significantly compared to that of Iowa with all race categories.
except for “Other” exceeding that of Linn County.
There are a slightly higher percentage of males compared to females who are uninsured in both Linn County and Iowa as a whole.

Figure 9. Percent Uninsured in Linn County and Iowa by Sex, 2013

<table>
<thead>
<tr>
<th></th>
<th>Iowa</th>
<th>Linn County</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

U.S. Census Bureau, 2015a
Quality of Life

Health related quality of life and wellbeing describes multiple factors related to physical, mental, emotional, and social functioning (Healthy People 2020, 2015). Examination of these components goes beyond the measurement of population health and instead focuses on the impact of health status on a person’s life and satisfaction with one’s health and environment. Among adolescents, a high level of hope, engagement, and well-being have been associated with an increased level of academic achievement, school retention, and likelihood to obtain employment in the future.

Evaluation of Well-being

According to the 2014 Gallup-Healthways Well-being Index report, residents of Cedar Rapids and Marion are generally satisfied with where they reside (84.2% & 96.9%, respectively). However, a large proportion of respondents in both locations report that they are struggling in their lives indicating poor life evaluation. An additional, 14 and 37% indicate having experienced depression, worry, and high levels of stress in the previous year. However, a majority of respondents (84.2% & 96.9%, respectively) report experiencing happiness and joy indicating positive emotional health.

Student Well-being

A majority of students enrolled in grades 5-12 in the Cedar Rapids School District during the 2013 school year were generally positive about their ability and drive to succeed in the future. However, the remaining 42% indicated that they felt stuck or discouraged about the future and their individual success. Sixty-two percent of the students reported being actively engaged in school, which reflects the individual’s feeling of acceptance and ability to succeed. Overall, 67% of students reported a positive level of well-being.

Table 5. Adolescent Well-being, Cedar Rapids School District

<table>
<thead>
<tr>
<th>Category</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hope</strong></td>
<td></td>
</tr>
<tr>
<td>Hopeful</td>
<td>58%</td>
</tr>
<tr>
<td>Stuck</td>
<td>31%</td>
</tr>
<tr>
<td>Discouraged</td>
<td>11%</td>
</tr>
<tr>
<td><strong>Engagement</strong></td>
<td></td>
</tr>
<tr>
<td>Engaged</td>
<td>62%</td>
</tr>
<tr>
<td>Not Engaged</td>
<td>25%</td>
</tr>
<tr>
<td>Actively Disengaged</td>
<td>13%</td>
</tr>
<tr>
<td><strong>Well-Being</strong></td>
<td></td>
</tr>
<tr>
<td>Thriving</td>
<td>67%</td>
</tr>
<tr>
<td>Struggling</td>
<td>32%</td>
</tr>
<tr>
<td>Suffering</td>
<td>1%</td>
</tr>
</tbody>
</table>

2013 Gallup Hope Student Poll, Cedar Rapids School District
General Health

Overall, adults in Linn County have a good level of general health. The largest portion of adults ranked their general health as very good in all three assessment years. However, overtime the percentage of individuals who report a generally good level of health is decreasing. Likewise, between 2012 and 2013 there was an increase in the percentage of adults who report a fair to poor level of general health.

When the responses are evaluated for differences in demographic characteristics, it was noted that responses did not differ significantly among males and females. However, a slightly larger percentage of females rated themselves as having excellent health compared to their male counterparts.

Alternately, responses did differ within the race/ethnicity groups. Hispanic and Black respondents were generally in good health. Likewise, White respondents primarily reported being in good health; however, approximately 14% of respondents reported fair or poor health. Conversely, those of two or more races and American Indian/Alaska Native were overwhelmingly reported being in fair to poor health (64.9%, 100% respectively).

Behavior Risk Factor Surveillance System (BRFSS), 2011-2013

Figure 11. General Health Status in Linn County, 2011-2013

Figure 12. General Health Status by Sex

Figure 13. General Health Status by Race/Ethnicity

BRFSS, 2013
Substance Abuse, Adolescents

The percentage of youth in Linn County who report using alcohol, tobacco, and illicit drugs is slightly less than that of Iowa as a whole. According to the Iowa Youth Survey, 11% of students in Linn County use illicit drugs, 8% use alcohol, and 4% use tobacco.

Substance Abuse, Adults

Among adults in Linn County, 18% report having engaged in binge drinking within the 30 days prior to survey compared to 21.7% in Iowa. Binge drinking was defined as 4 or more alcoholic beverages for females and 5 or more alcoholic beverages for males. The percentage of adults who report using tobacco was similar in Linn County and Iowa, with Linn County having a slightly lower percentage (17.6 and 19.5, respectively).

Illicit Drugs

The percentage of people who use illicit drugs in Iowa differs slightly between the six regions. Within the Northeast region, which includes Linn County the percentage of people who engage in illicit drug use is between 6.25% and 7.46%. This is slightly less than the North Central and Southeast regions, but exceeds the percentage in the Northwest and Southwest regions.
Overweight/Obese*

A high percentage of adults in Linn County report being overweight or obese. Overtime, the percentage of overweight and obese adults has demonstrated an increase. Between 2011 and 2013, obesity has increased by nearly 6%; while the percentage of overweight adults has remained relatively similar with only a 1% increase over the same time. However, it is interesting to note that the obesity percentage is equal to the overweight percent.

A majority of the adults who are overweight identify as White. This is likely due to the demographic make-up of Linn County with a high percentage of individuals belonging to the White race. However, when we breakdown overweight/obesity status within the race categories there is a high percentage of individuals who are obese or overweight in each category. All (100%, n = 284) respondents who identified as “Other” also reported being obese. Overweight was reported much more frequently than obesity; however, among the Hispanic group obesity was much more likely to be reported (61.4%). The White group had a fairly equal representation of obese and overweight with a combined percentage of 68.3%.

Males were much more likely to report being overweight or obese with a combined percentage of 78.5% compared to females with 60.1%. Male respondents had a higher percent of being overweight as opposed to obese. Conversely, females were more
likely to report being obese as opposed to overweight.

**Childhood Obesity**

As demonstrated in the school Body Mass Index screening data obtained from the Cedar Rapids School District, there has been a significant increase in the percentage of children who report being overweight or obese. What is particularly troubling is the increased number of kindergartners who are overweight, exceeding that of the 5th graders. Equally troubling is the similar percentage of kindergarten students who are considered obese as well the high percentage of 5th grade students who are obese.

**Figure 20.** Percent of Children who are Overweight in the Cedar Rapids School District, 2004-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Kindergarten</th>
<th>5th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>15%</td>
<td>10%</td>
</tr>
<tr>
<td>2005</td>
<td>20%</td>
<td>15%</td>
</tr>
<tr>
<td>2006</td>
<td>25%</td>
<td>20%</td>
</tr>
<tr>
<td>2007</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>2008</td>
<td>35%</td>
<td>30%</td>
</tr>
<tr>
<td>2009</td>
<td>40%</td>
<td>35%</td>
</tr>
<tr>
<td>2010</td>
<td>45%</td>
<td>40%</td>
</tr>
<tr>
<td>2011</td>
<td>50%</td>
<td>45%</td>
</tr>
<tr>
<td>2012</td>
<td>55%</td>
<td>50%</td>
</tr>
<tr>
<td>2013</td>
<td>60%</td>
<td>55%</td>
</tr>
<tr>
<td>2014</td>
<td>65%</td>
<td>60%</td>
</tr>
</tbody>
</table>

Cedar Rapids School District

**Figure 21.** Percent of Children who are Obese in the Cedar Rapids School District, 2004-2014

<table>
<thead>
<tr>
<th>Year</th>
<th>Kindergarten</th>
<th>5th Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>2005</td>
<td>10%</td>
<td>8%</td>
</tr>
<tr>
<td>2006</td>
<td>15%</td>
<td>12%</td>
</tr>
<tr>
<td>2007</td>
<td>20%</td>
<td>18%</td>
</tr>
<tr>
<td>2008</td>
<td>25%</td>
<td>23%</td>
</tr>
<tr>
<td>2009</td>
<td>30%</td>
<td>28%</td>
</tr>
<tr>
<td>2010</td>
<td>35%</td>
<td>33%</td>
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<tr>
<td>2011</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>2012</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>2013</td>
<td>50%</td>
<td>50%</td>
</tr>
<tr>
<td>2014</td>
<td>55%</td>
<td>55%</td>
</tr>
</tbody>
</table>

Cedar Rapids School District

**Adult Nutrition**

A small percentage of adults consume five or more servings of fruits and vegetables a day. However, a significant portion of adults indicate that they typically consume one to four of each per day. However, what is concerning is the high percentage of adults who do not consume even one fruit or vegetable serving per day.

**Figure 22.** Number of Fruits/Vegetables Consumed per Day – Adult, Linn County

- Less than 1 per day
- 1 to 4 per day
- 5 or more per day

BRFSS, 2013

<table>
<thead>
<tr>
<th>Category</th>
<th>0%</th>
<th>20%</th>
<th>40%</th>
<th>60%</th>
<th>80%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetable Consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fruit Consumption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

BRFSS, 2013
Adolescent Nutrition

A majority of adolescents in Linn County report having consumed one to two fruits and vegetables per day. When combined, consumption of fruits and vegetables among the adolescent population still fall short of the recommended consumption of five or more fruits and vegetables per day. Of greatest concern are the percentages of adolescents who report not having consumed any fruits or vegetables in a week (4% and 6%, respectively).

Child Adolescent Physical Activity

According to the Centers for Disease Control and Prevention (CDC), children and adolescents should engage in at least 60 minutes of physical activity each day. Within Linn County, approximately 29% of adolescents in 6th, 8th, and 11th grades meet this guideline.

Adult Physical Activity

The CDC recommends that adults incorporate both aerobic and strength exercises into their weekly regimen. However, a majority of adults (40.6%) fail to meet either the aerobic or strength exercises, with only 17.3% having successfully met both guidelines.
Air Quality Index

Overtime, the number of air quality days that are unhealthy for sensitive groups has reduced from 18 in 2007 to 1 in 2014. The number of moderate and good air quality days has fluctuated from year to year. However, the good air quality days exceed that of moderate or poor.

Concentration in ambient air of PM2.5

Similar to the air quality data, ambient air concentration has drastically improved overtime. A higher level of ambient air concentration indicates higher levels of pollution in the air.
Concentration in ambient air of Ozone

Ozone concentration in Linn County has fluctuated slightly over time; however, for the most part the concentration level has remained stable. According to the most recent calculation the ozone concentration has even improved. When present at high levels, ozone may impact the public’s health. The most common affect ozone may have on health is on the respiratory system such as lungs and the lining of the airway. Someone with asthma or breathing issues is at a heightened risk for poor health outcomes related to ozone concentration.

Water Quality

Water fluoridation poses significant benefit to adults and children throughout their life including, fewer and less severe cavities, reduced tooth decay and development and maintenance of stronger adult teeth (CDC, 2015a). As of 2008, 72.4% of people in the U.S. were served by community water systems with optimally fluoridated water (U.S. Department of Health and Human Services [DHHS], 2015). Within Iowa, 92.7% of the population is served by fluoridated water. Linn County exceeds that of Iowa and the United States with 95%.
**Waterborne Disease**

Linn County tracks three waterborne diseases or diseases that are spread through consumption of contaminated water. As demonstrated in the graph to the right, Legionellosis is rarely seen among our community members. Legionellosis is a bacterium that may be spread through the air, soil, or water. Conversely, Cryptosporidiosis and Giardiasis are two diseases commonly seen. For the most part, the rate of Giardiasis has remained stable over the years. However, there has been sufficient fluctuation in the disease rate of Cryptosporidiosis. A significant peak in disease rate was noted in 2007 and again in 2010 as a result of an outbreak. The disease rate has since decreased.

**Foodborne Diseases**

Aside from an outbreak in 2001, the rate of Shigellosis or Shigella has remained low; as has that of Hepatitis A and E. Coli. While significantly higher than the other foodborne diseases, the rates of Camplyobacteriosis and Salmonellosis have remained relatively stable overtime.
Lead

Between 2000 and 2010, there was a significant reduction in the elevated lead blood levels identified in both Linn County and Iowa.

![Figure 32. Percent with Elevated Lead Blood Levels](image)

*Rabies*

The rate animal rabies cases are extremely low in both Linn County and Iowa, with the rate in Linn County continuing to decrease. As of 2014, no human or animal rabies cases have been identified.

![Figure 33. Animal Rabies cases per 100,000 population Linn County and Iowa, 2000-2014](image)
Social and Mental Health

Mental Health Days

Approximately, 29% of adults in Linn County experience one or more days of poor mental health. Sixteen percent report only experiencing one to five days of poor mental health. However, 6% report experiencing poor mental health on a daily basis (26 to 30 days out of 30 days).

Race/Ethnicity

A majority of respondents were White, likely due to Linn County’s demographic characteristics. Approximately 29.6% of White respondents experienced poor mental health. Similarly, 31.4% of Black respondents indicate experiencing one or more poor mental days. These individuals tended to experience poor mental health for 11 to 15 days in a month. The most surprising result was among the individuals who identify as Two or More Races. Sixty-five percent of respondents in this group indicated having poor mental health, all of whom experience poor mental health almost every day.

Figure 34. Percentage of Population Experiencing Poor Mental Health (Past 30 days)

BRFSS, 2013

Figure 35. Percentage of Population in Linn County Experiencing Poor Mental Health (Past 30 Days) by Race/Ethnicity

BRFSS 2013
Income

Income levels were distributed across all degrees of mental health severity. However, higher income levels were more likely to have lower numbers of poor mental health days compared to their lower income counterparts. Likewise, a majority of adults who reported 26 to 30 days of poor mental health have an annual income of less than $40,000 a year.

Age

The largest proportion of adults who indicated having experienced poor mental health in the previous 30 days were among those between the ages of 18 to 34 years. This is to be expected, as this group had a much higher sampling size than those of increased age. Of note is the large number of respondents in the 25 to 29 year category (n = 1110; 69%) who reported experiencing poor mental health nearly every day.

Sex

Overall, females were more likely to identify poor health days. However, the highest frequency of poor health days was 1-5 days for both sexes with females reporting this level of poor health twice as much as males.
Female/Mothers

There is a significant discrepancy between the number of poor mental health days among women without children and those with children. Women without children are less likely to experience poor mental health days than those with children. Women with children tend to experience poor mental health for 11 to 15 days per month.

Suicide

In 2011, there were 27 suicides in Linn County for an age-adjusted suicide rate of 11.0 per 100,000 population. Between 2007 and 2011, the suicide rate ranged from 8.0 to 11.0 suicides per 100,000 in Linn County. As noted in the graph to the right, the rate of suicide is increasing in Linn County but is still slightly below that of the United States and Iowa.

Between 2009 and 2011, the leading method of suicide in Linn County was by firearm (38%), followed by hanging/suffocation (35%), poisoning (19%), and other (8%).
Race/Ethnicity

In Linn County, 99% of suicide victims were non-Hispanic, 91.7% were white, 6.5% were black and 1.8% was of another race.

Sex

A majority of suicide victims are Males (83%) as opposed to Females (17%).

Iowa Department of Public Health Vital Statistics

Figure 42. Suicide deaths by race and ethnicity, Linn County, 2008-2012

Iowa Department of Public Health Vital Statistics

Figure 43. Suicide Deaths by Sex, 2008-2012
Maternal and Child Health

Infant Deaths

Between 1999 and 2012, there has been significant variation in the infant death rate in Linn County. Currently, the infant death rate is below that of Iowa and the United States; however, the rate exceed both locations in 2004 (7.6 per 1,000) and 2008 (8.1 per 1,000). Following the drastic increase in 2008, the infant death rate had significant decrease from 8.1 to 3.8 per 1,000 live births in 2009 and as of 2012 is at 4.4 per 1,000 lives.

Race/Ethnicity

Overall, the Iowa infant death rate in 2012 is 5.3 deaths per 1,000 live births. The highest rate of infant deaths in Iowa is by far among African American infants with an infant death rate of 15.7 per 1,000. Rates across the other race/ethnicities are similar to that of the total infant death rate.

Neonatal Deaths

The neonatal death rate demonstrated a decrease between 1999 and 2011 from 4.7 to 2.2 deaths per 1,000 live births. Currently, the Linn County rate is below that of Iowa and the United States.
Race/ Ethnicity

Similar to that of infant mortality, the neonatal death rate is highest among African Americans. The death rate among this group is twice the overall rate (6.7 vs 3.3, respectively).

![Figure 47. Rate of Neonatal Deaths by Race/Ethnicity](image)

**Iowa Vital Statistics**

Post-neonatal

There has been moderate fluctuation in the post-neonatal death rate in Linn County between 1999 and 2011. However, it is important that the rate has remained extremely low throughout this period.

![Figure 48. Rate of Post-neonatal Deaths per 1,000 live births](image)

**Iowa Vital Statistics**

Race/Ethnicity

Similar to that of infant and neonatal death, the post-neonatal death rate is highest among African Americans. The death rate among this group is significantly higher than the overall rate (9.0 vs 2.0, comparatively).

![Figure 49. Rate of Post-neonatal Deaths by Race/Ethnicity](image)

**Iowa Vital Statistics**
Low Birth Weight

Between 1999 and 2012, the percent of low birth weight births in Linn County increased slightly from 5.8% to 6.3%. The rate is similar to that of Iowa but lower than that of the United States.

Race

Though, there is a higher percentage of African American babies (25%) with lower birth weight, the percentage is similar across the race/ethnicity categories.
Prenatal Care

Linn County is performing better than both Iowa and the United States in providing prenatal care during the first trimester of pregnancy. Between 2007 and 2012, Linn County has increased the percentage of mothers who receive prenatal care during their first trimester from 66.9% in 2007 to 74.1% in 2012.

Figure 52. Percent of Mothers who Received Prenatal Care in the First Trimester

Teen Birth Rate

The teen birth rate has decreased in Linn County, Iowa, and the United States. Overtime, Linn County has consistently had a lower teen birth rate than both Iowa and the United States.

Figure 53. Teen Birth Rate

Iowa Vital Statistics
**Violence**

**Homicide**

The age-adjusted homicide rate in Iowa and Linn County are significantly lower than the United States. Among both Linn County and Iowa, the trend in homicide rate is similar, with both having a rate of 1.9 for 2012 compared to a rate of 5.1 per 100,000 per population in the United States.

**Homicide – Firearm**

The homicide by firearm rate is significantly lower in Linn County and Iowa compared to that of the United States. However, a slight increase in the rate in Linn County was noted between 2010 and 2011 (0.63 and 1.07, respectively).

**Violent Crimes**

Cedar Rapids violent crime rate in 2012 was 277.3 violent crimes per 100,000 population, slightly greater than Iowa (263.9 per 100,000) but less than the United States and has been steady since 2001. The violent crime rate of Marion in 2012 was 104.7 violent crimes per 100,000 population, which was less than the Iowa rate, but it has been gradually increasing since 2001.
Child Abuse

The most significant type of child abuse reported in Linn County is neglect. Between 2007 and 2013 the rate of child abuse has decreased among all three types. However, neglect continues to be the most significant issue regarding child abuse.

Dependent Adult Abuse

Between 2012 and 2014 there has been a significant increase in dependent adult abuse across all types of abuse. The largest increase in abuse type occurred in denial care of care by the caretaker in 2014.
Death, Illness, and Injury

Injuries are preventable, yet still account for substantial morbidity and mortality among Linn County residents. Unintentional injuries are the 5th leading cause of death in Linn County, and are 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. 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.

Figure 59. Rate of Years of Potential Life Lost for population less than 65 years of age, Linn County, 2011

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

Injury and Violence

The age-adjusted mortality rate for unintentional injuries is 33 per 100,000 population. The most significant type of unintentional injuries resulting in death is unintentional falls (12.1 per 100,000) followed by suicide (9.0 per 100,000).

Figure 60. Age-adjusted mortality rates for selected injuries and violence among those younger than 65 years of age - Linn County, 2010

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

In 2011, there were 69 deaths in Linn County due to unintentional injury, for an age-adjusted mortality rate of 32.1 per 100,000 population. While Linn County’s unintentional injury rate increased from 2002 to 2008, it has declined from 2008 to 2011. The unintentional injury rate in Linn County is less than Iowa and Iowa is generally less than the United States rate.

Unintentional Fall

In 2010, the unintentional fall mortality rate in Linn County was 12.1 deaths per 100,000, the highest rate observed from 2002 to 2010 and higher than the state and national rates. From 2002 to 2010, unintentional fall mortality rates have steadily increased in Linn County, Iowa and the United States.

Age

The rate of emergency department visits for unintentional falls is most prominent among individuals aged 85 years or more.
**Age/ Sex**

In Iowa from 2006 to 2010, the fall mortality rate among Iowans aged 85 years or over was 265.8 deaths per 100,000. The rate among persons 85 years and over is more than 4 times greater than the next highest rate, among people 75 to 84 years of age. Males have a fall mortality rate of 12.1 deaths per 100,000, higher than females, which have a rate of 7.4 deaths per 100,000.

**Race/Ethnicity**

Non-Hispanics in Iowa had a higher fall mortality rate than Hispanics from 2006 to 2010 and the rate among blacks was slightly higher than the rate among whites in the same period.

**Drowning**

In 2010, the 3 year average age-adjusted unintentional drowning mortality rate was 0.3 per 100,000 population. The 3 year average rate of Linn County is lower than Iowa’s rate of 1.0 per 100,000 population. Even when using a 3 year average, Linn County and Iowa’s rates fluctuate due to the small numbers of unintentional drowning deaths annually. Nationally, the rate is steady at about 1.2 deaths per 100,000 population.
**Age/Sex**

Unintentional drowning mortality rates in Iowa were highest among children under 4 years of age from 2006 to 2010. As age increases, drowning rates decrease. Among males, the mortality rate is three times greater than among females.

**Race/Ethnicity**

From 2006 to 2010, the mortality rate among blacks of 2.3 per 100,000 population was more than two times the rate among whites. Among Hispanics and people aged 65 years or over, data was insufficient to calculate reliable age-adjusted rates due to the low frequency of deaths within these groups.

**Poisoning**

In 2012, there were 26 deaths due to unintentional poisoning in Linn County, for a rate of 12.1 deaths per 100,000 population, the highest rate observed from 2002 to 2012. While the 2010 rate in Linn County was less than the national rate, it was greater than the rate of Iowa, and continually increased from 2002 to 2010. The increase from 2003 to 2012 is statistically significant.
Age and Sex

Unintentional poisoning death rates are highest among adults aged 25 to 54 years old. Among adults aged 45 to 54 years old, the mortality rate due to unintentional poisoning is 10.5 deaths per 100,000 population from 2006 to 2010. Poisoning mortality rates among males of 7.2 deaths per 100,000 population are almost two times greater than the rate among females of 3.7 deaths per 100,000 population.

Race/Ethnicity

Blacks and non-Hispanics experience greater mortality rates than their white and Hispanic counterparts.

Motor Vehicle

In 2010, the motor vehicle crash-related mortality rate in Linn County was 6.9 deaths per 100,000 population. The 2010 rate is the lowest Linn County rate observed from 2002 to 2010. In order to meet the 2020 goal, two motor vehicle-crash related deaths would need to be prevented each year. Linn County consistently has lower rates of motor vehicle crash-related deaths than Iowa and the United States.
Age and Sex

Rates of motor vehicle crash-related deaths are highest among adults aged 75 to 84 years old and adults over 85 years old. Teens and young adults aged 15 to 24 years old have the third highest rate, with 19.7 deaths per 100,000 population. Motor vehicle crash deaths account for the largest YPLL, due to the high mortality rates among young age groups as well as older populations.

Race/Ethnicity

From 2006 to 2010, motor vehicle crash-related mortality rates were similar among Hispanics and non-Hispanics, and blacks had lower mortality rates than whites.
Cancer

In 2010, there were 1,055 new cases of cancer in Linn County, which translated into an age-adjusted cancer incidence rate of 463.7 per 100,000 population. From 2006 to 2010, the five most common cancers were prostate, female breast, lung and bronchus, colon and rectum and urinary bladder cancer. While prostate had the highest incidence rate, lung and bronchus had the highest death rate.

Table 6. Top 5 Cancer Types in Linn County, 2006-2010

<table>
<thead>
<tr>
<th>Site</th>
<th>Age-adjusted Incidence Rate per 100,000 population</th>
<th>Total Cases</th>
<th>Age-adjusted Death Rate per 100,000 population</th>
<th>Total Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>129.8</td>
<td>650</td>
<td>20.8</td>
<td>91</td>
</tr>
<tr>
<td>Female Breast</td>
<td>121.5</td>
<td>707</td>
<td>21.5</td>
<td>132</td>
</tr>
<tr>
<td>Lung and Bronchus</td>
<td>72.7</td>
<td>792</td>
<td>50.0</td>
<td>545</td>
</tr>
<tr>
<td>Colon and Rectum</td>
<td>45.7</td>
<td>506</td>
<td>14.7</td>
<td>167</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>25.7</td>
<td>278</td>
<td>3.6</td>
<td>40</td>
</tr>
</tbody>
</table>

Source: Surveillance, Epidemiology, and End Results (SEER) Program, Iowa Public Health Tracking Portal, and Vital Records, Bureau of Health Statistics, Iowa Department of Public Health
Age

Among all cancer patients diagnosed in Linn County from 2002 to 2010, 5.5% were less than 30 years old when diagnosed, 32.5% were less than 60 years old and 56.6% were under 70 years old at the time of diagnosis.

Sex and Race

In Linn County, males have a higher incidence rate than females for all-site cancer and blacks have higher incidence rates than whites. When compared to the state of Iowa, Linn County has a higher incidence and mortality rates of all site cancers among black males and females. In Linn County, the incidence and mortality rates of white males and females are lower than the state average for white males and females.
Heart Disease

In 2010, the age-adjusted mortality rate due to heart disease was 142.5 deaths per 100,000 population among Linn County residents. From 2002 to 2011, age-adjusted mortality rates for heart disease have declined in Linn County, Iowa and the United States. The decrease in Linn County’s heart disease mortality rate from 2002 to 2011 is statistically significant and was consistently less than the state or national rates during this timeframe.

Stroke

In 2011 the mortality rate for stroke was 32.9 deaths per 100,000 population. From 2002 to 2011, the age-adjusted mortality rate for stroke in Linn County was less than the state and national rates. The stroke rate steadily decreased from 2002 (51.7 deaths per 100,000) to 2011, with the change being statistically significant.

Diabetes

The rate of diabetes is increasing. Between 2004 and 2012, the diagnosis rate in Linn County increased from 6.3 to 8.6 per 100,000 population. In essence, the rate of diabetes is increasing.

Mortality

*Sampling methodology changed
The mortality rate for diabetes has historically exceeded that of Iowa. However, between 2010 and 2011 the mortality rate for diabetes decreased from 19.2 in 2010 to 17.0 in 2011. Overtime, the rate has varied significantly, but is now less than that of Iowa.

Race/Ethnicity

The majority of diabetes diagnoses are among White participants (93%). The next larger percentage is among individuals of two or more races.

Sex

There is not a significant difference between females and males related to the proportion of each who receive a diabetes diagnosis. However, males (55.3%) are slightly more likely to have received a diabetes diagnosis compared to females (44.7%).
Asthma

The percentage of adults with asthma in Linn County exceeds that of Iowa and the United States. Between 2011 and 2013 the percentage of adults with asthma has increased from 13% to 14%.

Emergency Visits

The rate of asthma emergency department visits is similar among Iowa and Linn County as is the trend across time. Between 2005 and 2014 the emergency department visit has remained stable.

Hospitalization

Historically, the hospitalization rate for asthma has been similar to that of Iowa. However, between 2008 and 2013 Linn County exceeded the rate in Iowa. Of particular note is the jump in hospitalization rate from 2011 to 2012 with an increase from 6.56 to 9.83 per 10,000 people in Linn County.
Race/Ethnicity

A majority of asthma patients are White. The rate of race/ethnicity includes black, Hispanic, and the American Indian/Alaska Native.

Figure 88. Proportion of Asthma Diagnosis by Race/Ethnicity in Linn County

BRFSS, 2013
Communicable Disease

Immunization Coverage

Overtime, Linn County has increased the proportion of children who have received all recommended vaccines. Vaccines include 4 Dtap, 3 Polio, 1 Measles, Mumps and Rubella (MMR), 3 Haemophilus influenza type B (Hib), 3 Hepatitis B, 1 Varicella, and 4 Pneumococcal immunizations. Despite the improvement to 74%, there is still need for improvement.

Influenza

Based on the records in the Iowa Immunization Registry, also known as IRIS, the proportion of adults and children who received their flu vaccine in 2013 is extremely low with only 15.2% of adults and 25.6% of children covered by the flu vaccine. Alternately, adults aged 65 years and older are much more likely to have been immunized for influenza. Between 2011 and 2013, the proportion of this population in Linn County who received their influenza vaccine increased from 64.2% to 73.8%, which exceeds the percentage in both Iowa and the United States.
Pneumonia

Despite the appeared significant fluctuation in the proportion of adults in Linn County aged 65 years and older who have ever been immunized for Pneumonia, only a moderate difference has occurred overtime. Between 2011 and 2013, there was a small increase in the percentage of adults aged 65 years and older who had ever been immunized for pneumonia (64.4% and 69.6%, respectively). Iowa is performing slightly better with 72.6% of this population having been immunized.

Sexually Transmitted Disease*

The Syphilis rate has been consistent overtime; however, there was a significant increase in rate that occurred between 2012 and 2013, from 3.3 to 10.6 per 100,000 population. This rate has continued to stay high with a rate of 10.1 per 100,000 in 2014. Chlamydia continues to be on an upward trend with a rate of 486 per 100,000 population. Conversely, Gonorrhea appears to be on a downward trend falling from 107 to 50 cases per 100,000 between 2012 and 2014.

Chlamydia*

As expected the rate of Chlamydia is highest among individuals 20-24 years of age with a significant number of cases beginning at ages 15 to 19 years and beginning to ramp down at ages 25 to 29 years. Cases are three times more likely to be among females compared to males. The largest percentage of cases are among individuals who identify as white (63%) followed by Black (23%). However, cases occur across all racial and ethnic groups.
Gonorrhea

Cases are most common among individuals 20 to 29 years of age. Combined, this population makes up 63% of the cases in Linn County. Like Chlamydia, there is a ramp-up and fall-off period prior to and following these ages; which makes up 22% of cases. Unlike Chlamydia, males are slightly more likely to have Gonorrhea (52%) than their female counterpart (48%). However, there is not a significant difference in frequency of cases by sex.

Half of the cases are among Whites (51%) followed closely by Blacks (36%). Similar to Chlamydia, Gonorrhea cases occur across all race and ethnic groups.
Syphilis

Syphilis cases are unique sexually transmitted diseases, as they may occur across the lifespan. As seen in the graph to the right, there is no true peak age where cases typically occur. However, a syphilis diagnosis is approximately 6 times more likely to occur among males compared to females. A majority of which occur among Whites (75%), followed again by Blacks (15%), then Hispanics (5%) and Asians (5%).

Human Immunodeficiency Virus (HIV)

Linn County far exceeds the rate of new HIV cases (incidence) as compared to Iowa. A large increase in HIV incidence was noted between 2011 and 2012. During this time period, HIV incidence in Linn County increased from 3.9 to 6.5 cases per 100,000 people; which was followed by another jump to 7.9 cases in 2013. However, there was a slight decrease in 2014 of 6.9 cases per 100,000 population.

Alternately, Linn County has noted a decrease in the number of people living with HIV (prevalence). This may be due to people moving in and out of the county.
However, the state rate is on an increase. Those living with HIV are spread fairly equally across the lifespan. The smallest percentage of individuals living with HIV in Linn County are among those who are 55 years of age or older. The largest percentage of individuals with HIV is among the 25 to 34 years of age group.

Risk Factor

The largest percentage of HIV cases in Linn County and Iowa are among men who have sex with other men (MSM).

**Definition**
- **MSM** = Men who have sex with other men
- **IDU** = Injection Drug Users
- **MSM/IDU** = Men who have sex with men and inject drugs
- **Heterosexual** = A person who is sexually attracted to the opposite sex
- **NIR** = No identified risk

Unexpected Events 2011-2015*

Between 2011 and 2015, Linn County experienced three primary disease outbreaks that required disease investigation and public health mitigation. Beginning in early May of 2015, Linn County had a Shigella outbreak. Infection occurs very easily primarily related to poor hygiene and hand washing technique and only requires microscopic exposure to infected feces. Though there were
cases spread throughout the county, the disease cases were primarily among daycares. As of August 2015, there have been 273 cases, approximately 271 more cases than typically seen in a year.

The second outbreak, Cyclospora, occurred in 2013. The Cyclospora disease is caused by through food or water contaminated by a microscopic parasite. The outbreak lasted only two months and had 45 cases that were linked to leafy greens served in one of the chain restaurants. The leafy greens were found to be contaminated by the water serving the plants in the field, which contained feces/parasite.

The third outbreak was a statewide outbreak in 2012 that involved Pertussis. Pertussis is associated with severe coughing that makes it difficult to breath, eat, and drink. It is caused by breathing in the pertussis bacteria carried on the droplets from other’s coughs and sneezes. Throughout 2012, Linn County had 328 cases spanning all 12 months. People of all ages and backgrounds were affected by this outbreak, which led to increased vaccination campaign initiatives across the state.
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