MPH FIELD EXPERIENCE AT
JACKSON COUNTY HEALTH DEPARTMENT

by

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MBBS, Pramukhswami Medical College, Sardar Patel University, 2009

A FIELD EXPERIENCE REPORT

submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH
(Infectious Diseases and Zoonoses)

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College of Veterinary Medicine

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Approved by:

Major Professor
Dr. Michael B. Cates
Abstract

This report highlights my field experience as a public health intern at Jackson County Health Department, Independence, Missouri. This filed experience was one of the requirements of the Master of Public Health Program at Kansas State University. During spring 2012, I worked with Mrs. Ellen Dorshow-Gordon, MPH who is an epidemiologist at Jackson County Health Department (JACOHD). My participation in various community outreach activities at the health department improved my real-world public health experience. I worked on community health assessment projects and retrieved required data from Missouri Information for Community Assessment (MICA), Priorities MICA, Community Data Profile (from the Missouri Department of Health & Senior Services (DHSS) website), and US Census 2010. I identified and prioritized the health problems and analyzed the leading causes of death for the Eastern Jackson County (EJC). The data shows that rates are lower in the EJC compared to the state of Missouri, except for the year 2005-07. The primary cause of mortality in EJC is heart disease. I compared the health data for EJC with the state of Missouri to see the trend in health problems. In collaboration with the JACOHD epidemiologist, health educators, and communicable diseases (CD) staff, I worked on a Jackson County Health Survey tool, participated in different events, and learned the process of using the Communicable Disease and school health surveillance system. I observed patient care at STD clinic at the health department and went to restaurant inspections. I visited a few doctor’s offices and urgent care facilities and gave a presentation on the importance of reporting communicable diseases to the local health department.
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Thank you so much.
INTRODUCTION

The Jackson County Health Department is located in Independence, Missouri. It is affiliated with Truman Medical Centers, Kansas City, MO. For more than 80 years the Jackson County Health Department has been dedicated to preventing disease, promoting healthy lifestyles and protecting our communities and environment. The health department was established as a unit in January 1925 and provided communicable disease control, examination and immunization of school children, and teaching classes in home hygiene and care of the sick.  

Today, serving over 250,000 residents, Jackson County Health Department continues its dedication to the prevention of disease and the maintenance of quality health for families and the community through education, immunization, inspection and supportive care.

MISSION STATEMENT

“Jackson County Health Department provides public health services for disease prevention, health promotion and protection of the environment.”

VISION STATEMENT

“The population in Eastern Jackson County will practice preventative behaviors, there are appropriate, accessible public health services, adequate staffing and resources and the citizens are knowledgeable and proactive about public health and public health policy.”

SPECIALIZED SERVICES

The Jackson County Health Department serves Eastern Jackson County and provides the following services:
- Immunization Clinics
- Birth and Death Certificates
- Sexually Transmitted Disease Clinic
- Women’s Health
- Health Education and CPR Classes
- Epidemiology and Disease Prevention
- Tuberculosis Case Management
- Communicable Disease Surveillance
- Emergency Preparedness and Response
- Seniors Programs, Child Care Consultations
- Adult Traumatic Brain Injury Case Management
- Maternal and Child Health Programs

**EPIDEMIOLOGY**

**Services Include:**

- Coordinate with Disease Control and Epidemiology
- Analyze and interpret data (communicable disease, chronic disease, etc.), maintain disease surveillance systems
- Lead outbreak investigations, provide consultation and educational programs
- Recommend interventions, evaluate and re-evaluate interventions
- Collaborate with public health and community partners, develop or assist with the development of emergency response plans
CHAPTER 2 – FIELD EXPERIENCE

COMMUNITY HEALTH ASSESSMENT PROJECT

INTRODUCTION

Jackson County is located in west central Missouri in the United States. According to the 2010 U.S. Census, the total population of the county is 674,158, the second most populous county in the state (after St. Louis County). The county was established on December 15, 1826 and named for President Andrew Jackson. The Kansas City metropolitan area is mostly located in the Jackson County. That is why the western part of the county is covered under the jurisdiction of the Health Department of Kansas City, MO and the eastern part of the county comes under jurisdiction of Jackson County Health Department, MO.

(Figure 2.1: Geographical location of Jackson County, Missouri; L shape indicates distribution of Kansas City in four counties)
WHAT IS COMMUNITY HEALTH ASSESSMENT?

The fundamental purpose of public health is defined by three core functions: assessment, policy development and assurance. National Association of County & City Health Officials (NACCHO) explains this in simple message: "Prevent, Promote, and Protect." Community health assessments (CHAs) provide information for problem and asset identification and policy formulation, implementation, and evaluation. Community health assessment (CHA) is the project for the improvement and promotion the health of the community. The role of community assessment is to identify factors that affect the health of a population and determine the availability of resources within the community to adequately address these factors. It is a "systematic collection, assembly, analysis, and dissemination of information about the health of the community". It involves collaborative efforts of public health agencies, hospitals, private practitioners, and academic centers.

(Figure 2.2: Fundamentals of Public Health – Source: NAACHO CHA and planning)
A community health improvement process uses CHA data to identify health priorities, develop and implement strategies for action, and establish accountability to ensure measurable community health improvement. I retrieved different data for Eastern Jackson County, MO from MICA (Missouri Information for Community Assessment), Priorities MICA, Community Data Profile (from the Missouri Department of Health & Senior Services (DHSS) website), and the 2010 U.S. Census. We gathered and analyzed the data of the following health indicators:

- **Demographics** (Population, population density and distribution, household, employment, education, and school poverty)

- **Birth** (Birth rate, sex ratio, birth spacing, fertility rate, premature birth rate, low birth weight rate)

- **Leading causes of death** (Top 10 leading causes of death rates by jurisdiction, sex, age, and race)

- **Maternal and child health** (Maternal and child care, nutrition, infant mortality, marital status, abortion, smoking during pregnancy)

- **Unintentional injuries**

- **Health care system indicators** (Cost and access to health care)

- **Infectious and non-communicable diseases**

Community health assessment is a lengthy project so I was unable to finish it within a limited time. I retrieved complete data on each of the health indicators mentioned above and then analyzed the mortality data for Eastern Jackson County. I have included the detailed report on leading causes of death in this chapter.
LEADING CAUSES OF DEATH REPORT

EASTERN JACKSON COUNTY
COMMUNITY HEALTH ASSESSMENT
2012

Leading Causes of Death*

The purpose of this report is to assess the impact and burden of the top ten leading causes of deaths from chronic disease on the residents of Eastern Jackson County for the community assessment project. It can help us to develop new programs in the county to target and control these diseases, and also to improve the quality of lives of individuals living with these diseases.

Analysis of leading causes of mortality:

- Are trends for leading causes of death improving or worsening?
- How do rates compare with other cities or counties of similar size and or demographics?
- Discuss causes of mortality where rates are higher than the state
- To what extent do mortality rates reflect premature deaths?
- Identify the top 5 priorities (health issues) for Eastern Jackson County.

This statement was posted on the DHSS (Missouri Department of Health & Senior Services) MICA (Missouri Information for Community Assessment) web site related to mortality data. CAUTION concerning trends and combining years: Counts by cause for 1999 and later may not be comparable to counts 1998 and earlier, because of changes in the system for selecting and classifying causes of death. For certain causes, apparent changes in trends may be misleading. Before using any data spanning 1998-1999, please read the documentation for this MICA.

*When possible, data is reported by city/municipality. This data might not always be converted to age-adjusted rates.
   It should also be noted that different data sources might not agree, particularly for population estimates.
   Information related to MICA and Community Profile data sources and interpretation are found at the end of this document.
**TRENDS**

The preliminary number of deaths in the United States for 2011 was 2,513,171. The crude death rate of 806.6 per 100,000 population was 0.9 percent higher than the death rate of 799.5 per 100,000 in 2010. The estimated age-adjusted death rate, which accounts for changes in the age distribution of the population, reached a record low of 740.6 per 100,000 U.S. standard population, 0.9 percent lower than the 2010 rate of 747.0.\(^{12}\)

- *Mortality Rate = *Deaths occurring during a given time period\(^{\phantom{1}}\)
  \[ \times 10^n \]
  \[ \text{Size of the population among which the deaths occurred} \]
  \[ \left(10^n = 1,000 \text{ or } 100,000\right)\]

**U.S. Mortality Statistics:**\(^{13}\)
- Number of deaths: 2,513,171 (CDC preliminary data report 2011)
- Death rate: 793.8 deaths per 100,000 population
- Life expectancy: 78.5 years
- Infant Mortality rate: 6.39 deaths per 1,000 live births

**Number of deaths for leading causes of death in the U.S.:**\(^{13}\)
1. Heart disease: 599,413
2. Cancer: 567,628
3. Chronic lower respiratory diseases: 137,353
4. Stroke (cerebrovascular diseases): 128,842
5. Accidents (unintentional injuries): 118,021
6. Alzheimer's disease: 79,003
7. Diabetes: 68,705
8. Influenza and Pneumonia: 53,692
9. Nephritis, nephrotic syndrome, and nephrosis: 48,935
10. Intentional self-harm (suicide): 36,909
(Figure 2.3: Actual causes of Death - Source: McGinnis, J.M & Foege, W.H. (1993). Actual causes of death in the United States. JAMA, 270(18), 2207-2212)

(Figure 2.4: Top 10 Leading causes of death in U.S. – CDC deaths final report 2009)
Figure 2.5 compares three year moving death rates in Eastern Jackson County (EJC) and Missouri State (MO). Note that rates are lower in EJC compared to Missouri (except for the year 2005-07). Note the overall decrease in rates from 1999 through 2009 for both EJC and MO.

**Figure 4: Mortality Rates for Missouri and Eastern Jackson County (3 Year Moving Rates) 1991-2009**

<table>
<thead>
<tr>
<th>Rate</th>
<th>0</th>
<th>500</th>
<th>1000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years</td>
<td>91-93</td>
<td>92-94</td>
<td>93-95</td>
</tr>
<tr>
<td>Eastern Jackson</td>
<td>829.1</td>
<td>835.3</td>
<td>887.1</td>
</tr>
<tr>
<td>Missouri</td>
<td>942.5</td>
<td>948.3</td>
<td>957.4</td>
</tr>
</tbody>
</table>

(Figure 2.5: Mortality rates in Missouri and Eastern Jackson County - Source: Community Data Profiles - Missouri Department of Health and Senior Services)
Table 2.1 displays mortality rate trends for all mortality in Eastern Jackson County, Independence and Kansas City, Missouri (KCMO), and Missouri. Note that the overall mortality trends over last five years in EJC are lower than MO and Independence and the difference is statistically significant but the average rates are lower in Kansas City, MO compared to EJC.

Trends for Eastern Jackson County show decreases over time as also noted in Table 2.1. There is a statistically significant decrease from 2006 (898.2, 95% CI 858.3 to 939.4) to 2007 (801.1, 95% CI 763.7 to 839.9).

<table>
<thead>
<tr>
<th>Year</th>
<th>Eastern Jackson County</th>
<th>Independence</th>
<th>Kansas City</th>
<th>Missouri</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
<td>Number</td>
</tr>
<tr>
<td>2005</td>
<td>1,787</td>
<td>838.8</td>
<td>800.0 to 879.1</td>
<td>1,213</td>
</tr>
<tr>
<td>2006</td>
<td>1,952</td>
<td>898.2</td>
<td>858.3 to 939.4</td>
<td>1,247</td>
</tr>
<tr>
<td>2007</td>
<td>1,763</td>
<td>801.1</td>
<td>763.7 to 839.9</td>
<td>1,302</td>
</tr>
<tr>
<td>2008</td>
<td>1,786</td>
<td>753.1</td>
<td>718.0 to 789.4</td>
<td>1,331</td>
</tr>
<tr>
<td>2009</td>
<td>1,899</td>
<td>801.8</td>
<td>765.6 to 839.3</td>
<td>1,266</td>
</tr>
<tr>
<td>Total</td>
<td>9,187</td>
<td>817.1</td>
<td>800.3 to 834.2</td>
<td>6,359</td>
</tr>
</tbody>
</table>

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Table 2.2 displays data related comparing average rates (1994-2009) age adjusted rates for the leading causes of death in the State of Missouri, Eastern Jackson County (EJC), Independence and Kansas City, MO (KCMO) since they are separate jurisdictions within Jackson County. You can see that EJC age adjusted mortality rates are lower than the state or have no statistically significant difference except for chronic lower respiratory disease, Alzheimer’s disease and kidney diseases. A more complete analysis will be done related the five (5) leading causes of death in EJC in Tables 2.2

<table>
<thead>
<tr>
<th>Years</th>
<th>Missouri</th>
<th>Eastern Jackson County</th>
<th>Independence</th>
<th>Kansas City</th>
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</thead>
<tbody>
<tr>
<td>1999-2009</td>
<td>Numbers</td>
<td>Age-Adjusted Rate</td>
<td>Numbers</td>
<td>Age-Adjusted Rate</td>
</tr>
<tr>
<td>All Causes</td>
<td>602631</td>
<td>871.5</td>
<td>19487</td>
<td>838.5</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>172202</td>
<td>245.6</td>
<td>5183</td>
<td>222.5</td>
</tr>
<tr>
<td>All Cancers (Malignant Neoplasms)</td>
<td>135732</td>
<td>197.7</td>
<td>4441</td>
<td>193</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>105354</td>
<td>61.4</td>
<td>3298</td>
<td>58.4</td>
</tr>
<tr>
<td>Breast Cancer</td>
<td>43403</td>
<td>14.6</td>
<td>1323</td>
<td>15</td>
</tr>
<tr>
<td>Stroke/Other Cerebrovascular Disease</td>
<td>42092</td>
<td>54.9</td>
<td>1372</td>
<td>47.6</td>
</tr>
<tr>
<td>Chronic Lower Respiratory Disease</td>
<td>38628</td>
<td>48.7</td>
<td>1168</td>
<td>52.6</td>
</tr>
<tr>
<td>Total Unintentional Injuries</td>
<td>33585</td>
<td>45.0</td>
<td>1088</td>
<td>37.1</td>
</tr>
<tr>
<td>Motor Vehicle Accidents</td>
<td>29386</td>
<td>18.6</td>
<td>902</td>
<td>13.8</td>
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<tr>
<td>Pneumonia and Influenza</td>
<td>16393</td>
<td>23.1</td>
<td>694</td>
<td>22</td>
</tr>
<tr>
<td>Death Cause</td>
<td>Cases</td>
<td>Death Rate</td>
<td>Injuries</td>
<td>Suicide Rate</td>
</tr>
<tr>
<td>--------------------------------------------------</td>
<td>-------</td>
<td>------------</td>
<td>----------</td>
<td>--------------</td>
</tr>
<tr>
<td>Diabetes Mellitus</td>
<td>16373</td>
<td>23.8</td>
<td>518</td>
<td>20.5</td>
</tr>
<tr>
<td>Alzheimer's Disease</td>
<td>15722</td>
<td>21.9</td>
<td>469</td>
<td>30.1</td>
</tr>
<tr>
<td>Kidney Disease (Nephritis, Nephrosis)</td>
<td>11926</td>
<td>17.2</td>
<td>444</td>
<td>19.6</td>
</tr>
<tr>
<td>Suicide</td>
<td>12047</td>
<td>12.9</td>
<td>360</td>
<td>13.6</td>
</tr>
<tr>
<td>Septicemia</td>
<td>10493</td>
<td>11.5</td>
<td>335</td>
<td>12.2</td>
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<tr>
<td>Chronic Liver Disease and Cirrhosis</td>
<td>9972</td>
<td>7.3</td>
<td>339</td>
<td>6.3</td>
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<tr>
<td>Homicide</td>
<td>8211</td>
<td>7.1</td>
<td>341</td>
<td>4.5</td>
</tr>
<tr>
<td>HIV/AIDS</td>
<td>8077</td>
<td>2.3</td>
<td>282</td>
<td>1.2</td>
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<tr>
<td>Smoking-Attributable (estimated)</td>
<td>7947</td>
<td>152.2</td>
<td>271</td>
<td>143.5</td>
</tr>
<tr>
<td>Alcohol/Drug-Induced</td>
<td>4891</td>
<td>16.4</td>
<td>151</td>
<td>13.1</td>
</tr>
<tr>
<td>All Injuries and Poisonings</td>
<td>4442</td>
<td>67.0</td>
<td>109</td>
<td>56</td>
</tr>
<tr>
<td>Firearm</td>
<td>1450</td>
<td>12.7</td>
<td>41</td>
<td>11</td>
</tr>
<tr>
<td>Injury at Work</td>
<td>1290</td>
<td>2.0</td>
<td>32</td>
<td>1.6</td>
</tr>
</tbody>
</table>

Source: Missouri Community Data Profiles; All rates are per year per 100,000 population and are age-adjusted to the U.S. 2000 standard population.

Note: Causes of death at the left margin are listed in order from most to least prevalent statewide, excepting Smoking-Attributable, Alcohol/Drug-Induced, All Injuries and Poisonings, HIV/AIDS, Firearm and Injury at Work. These causes include deaths from other causes; e.g., some deaths due to Heart Disease and All Cancer (Malignant Neoplasms) are included in the count for Smoking-Attributable.

**Signif Diff indicates a statistically significant difference in the Age Adjusted Jurisdictional Rates related to the Age Adjusted Rates for Missouri (H=higher, L=lower, N/S=not significant)

Key: Highlighted Age Adjusted Rates in EJC = EJC Rate Statistically Significantly Higher than MO Rate

Mortality rates are per year per 100000 population and are age-adjusted to the U.S. 2000 standard population.

* Fewer than 20 events in numerator; rate is unstable.
Table 2.3 displays the leading causes of death ranked for EJC and Missouri. Mortality rates in Eastern Jackson County that are higher than the rates for Missouri include Chronic Lower Respiratory Disease (52.6/100,000 population) the 6th leading cause of death for EJC vs. 7th for MO (48.7 per 100,000 population); Alzheimer’s disease is 9th leading cause for EJC and 11th for MO; and Kidney disease is 12th leading cause for both EJC and MO.17

<table>
<thead>
<tr>
<th>Rank</th>
<th>Eastern Jackson Residents</th>
<th>Missouri</th>
<th>1999-2009</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number of Events</td>
<td>Age-Adjusted Rate</td>
<td>Rank</td>
</tr>
<tr>
<td>All Causes</td>
<td>19487</td>
<td>838.5</td>
<td>All Causes</td>
</tr>
<tr>
<td>1</td>
<td>Heart Disease</td>
<td>5183</td>
<td>222.5</td>
</tr>
<tr>
<td>2</td>
<td>All Cancers (Malignant Neoplasms)</td>
<td>4441</td>
<td>193</td>
</tr>
<tr>
<td>3</td>
<td>Smoking-Attributable (estimated)</td>
<td>3298</td>
<td>143.5</td>
</tr>
<tr>
<td>4</td>
<td>All Injuries and Poisonings</td>
<td>1372</td>
<td>56</td>
</tr>
<tr>
<td>5</td>
<td>Lung Cancer</td>
<td>1323</td>
<td>58.4</td>
</tr>
<tr>
<td>6</td>
<td>Chronic Lower Respiratory Disease</td>
<td>1168</td>
<td>52.6</td>
</tr>
<tr>
<td>7</td>
<td>Stroke/Other Cerebrovascular Disease</td>
<td>1088</td>
<td>47.6</td>
</tr>
<tr>
<td>8</td>
<td>Total Unintentional Injuries</td>
<td>902</td>
<td>37.1</td>
</tr>
<tr>
<td>9</td>
<td>Alzheimer's Disease</td>
<td>694</td>
<td>30.1</td>
</tr>
<tr>
<td>10</td>
<td>Pneumonia and Influenza</td>
<td>518</td>
<td>22</td>
</tr>
<tr>
<td>11</td>
<td>Diabetes Mellitus</td>
<td>469</td>
<td>20.5</td>
</tr>
<tr>
<td>12</td>
<td>Kidney Disease (Nephritis, Nephrosis)</td>
<td>444</td>
<td>19.6</td>
</tr>
<tr>
<td>13</td>
<td>Breast Cancer</td>
<td>360</td>
<td>15</td>
</tr>
<tr>
<td>14</td>
<td>Alcohol/Drug-Induced</td>
<td>341</td>
<td>13.1</td>
</tr>
<tr>
<td>15</td>
<td>Suicide</td>
<td>339</td>
<td>13.6</td>
</tr>
<tr>
<td>16</td>
<td>Motor Vehicle Accidents</td>
<td>335</td>
<td>13.8</td>
</tr>
</tbody>
</table>
Five (5) leading causes of death in Eastern Jackson County

1. **Heart Diseases**
2. All forms of **Cancer** (most common - Lung Cancer)
3. **Chronic lower respiratory diseases** (CLRD),
4. **Cerebrovascular diseases** (Stroke)
5. **Other diseases** (residual) deaths.

Comparative rates are displayed by year for MO and EJC as well as cross tables for EJC for gender by age, gender by race and race by age, except where race absolute numbers are small over the 5 year time frame.

(Source: Missouri Community Data Profiles; All rates are per year per 100,000 population and are age-adjusted to the U.S. 2000 standard population.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Cause</th>
<th>Rate</th>
<th>Year</th>
<th>Cause</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>Septicemia</td>
<td>282</td>
<td>17</td>
<td>Firearm</td>
<td>8077</td>
</tr>
<tr>
<td>18</td>
<td>Firearm</td>
<td>271</td>
<td>18</td>
<td>Septicemia</td>
<td>7947</td>
</tr>
<tr>
<td>19</td>
<td>Chronic Liver Disease and Cirrhosis</td>
<td>151</td>
<td>19</td>
<td>Chronic Liver Disease and Cirrhosis</td>
<td>4891</td>
</tr>
<tr>
<td>20</td>
<td>Homicide</td>
<td>109</td>
<td>20</td>
<td>Homicide</td>
<td>4442</td>
</tr>
<tr>
<td>21</td>
<td>Injury at Work</td>
<td>41</td>
<td>21</td>
<td>HIV/AIDS</td>
<td>1450</td>
</tr>
<tr>
<td>22</td>
<td>HIV/AIDS</td>
<td>32</td>
<td>22</td>
<td>Injury at Work</td>
<td>1290</td>
</tr>
</tbody>
</table>

*Note: Source: Missouri Community Data Profiles. All rates are per year per 100,000 population and are age-adjusted to the U.S. 2000 standard population.*
Deaths due to Heart Diseases

Heart disease mortality rates by year and jurisdiction are shown in Table 2.4. Cumulative rates for Missouri State 216.3 (95% CI 214.7 to 217.9) are statistically significantly higher compared with EJC 192.8 (95% CI 184.7 to 201.2). The cumulative rates for Kansas City 168.2 (95% CI 163.0 to 173.5) are statistically significantly lower than the rates for EJC.

Table 2.4 Heart Diseases Deaths for Eastern Jackson County, Independence, Kansas City, Missouri

<table>
<thead>
<tr>
<th>Year</th>
<th>Eastern Jackson County</th>
<th>Independence</th>
<th>Kansas City</th>
<th>Missouri</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
<td>Number</td>
</tr>
<tr>
<td>2005</td>
<td>444</td>
<td>208</td>
<td>188.9 to 228.5</td>
<td>286</td>
</tr>
<tr>
<td>2006</td>
<td>463</td>
<td>212.8</td>
<td>193.6 to 233.3</td>
<td>309</td>
</tr>
<tr>
<td>2007</td>
<td>446</td>
<td>203.2</td>
<td>184.6 to 223.2</td>
<td>301</td>
</tr>
<tr>
<td>2008</td>
<td>405</td>
<td>168.1</td>
<td>151.9 to 185.6</td>
<td>272</td>
</tr>
<tr>
<td>2009</td>
<td>418</td>
<td>175.5</td>
<td>158.8 to 193.5</td>
<td>275</td>
</tr>
<tr>
<td>Total</td>
<td>2,176</td>
<td>192.8</td>
<td>184.7 to 201.2</td>
<td>1,443</td>
</tr>
</tbody>
</table>

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Table 2.5  Heart disease Deaths in Eastern Jackson County and Missouri

Year 2005-2009

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Eastern Jackson County</th>
<th>Missouri</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
</tr>
<tr>
<td>2005</td>
<td>444</td>
<td>208</td>
</tr>
<tr>
<td>2006</td>
<td>463</td>
<td>212.8</td>
</tr>
<tr>
<td>2007</td>
<td>446</td>
<td>203.2</td>
</tr>
<tr>
<td>2008</td>
<td>405</td>
<td>168.1</td>
</tr>
<tr>
<td>2009</td>
<td>418</td>
<td>175.5</td>
</tr>
<tr>
<td>Total</td>
<td>2,176</td>
<td>192.8</td>
</tr>
</tbody>
</table>

Rates are per 100,000
Age adjustment uses 2000 standard population
Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Table 2.6 shows that cumulative heart disease mortality rates increase with age. Cumulative male rates (247.3, 95% CI 232.0-263.3) are higher than cumulative female rates (156.8, 95% CI 147.6-166.5) after age 25. However, due to small numerators, it is difficult to compare gender rates.

<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 15</td>
<td>0</td>
<td>0.0 @</td>
<td>0</td>
<td>3</td>
<td>2.3 @</td>
<td>0</td>
<td>3</td>
<td>1.1 @</td>
<td>0</td>
</tr>
<tr>
<td>15 to 24</td>
<td>1</td>
<td>1.4 @</td>
<td>0</td>
<td>1</td>
<td>1.4 @</td>
<td>0</td>
<td>2</td>
<td>1.4 @</td>
<td>0</td>
</tr>
<tr>
<td>25 to 44</td>
<td>35</td>
<td>20.7</td>
<td>14.4 to 28.8</td>
<td>14</td>
<td>7.8 @</td>
<td>0</td>
<td>49</td>
<td>14</td>
<td>10.4 to 18.5</td>
</tr>
<tr>
<td>45 to 64</td>
<td>232</td>
<td>150.8</td>
<td>132.0 to 171.5</td>
<td>96</td>
<td>60.3</td>
<td>48.9 to 73.7</td>
<td>328</td>
<td>104.8</td>
<td>93.8 to 116.8</td>
</tr>
<tr>
<td>65 and over</td>
<td>770</td>
<td>1487.8</td>
<td>1,384.5 to 1,596.7</td>
<td>1,024</td>
<td>1366.7</td>
<td>1,284.2 to 1,453.0</td>
<td>1,794</td>
<td>1416.1</td>
<td>1,351.4 to 1,483.2</td>
</tr>
<tr>
<td>All ages</td>
<td>1,038</td>
<td>247.3</td>
<td>232.0 to 263.3</td>
<td>1,138</td>
<td>156.8</td>
<td>147.6 to 166.5</td>
<td>2,176</td>
<td>192.8</td>
<td>184.7 to 201.2</td>
</tr>
</tbody>
</table>

Rates for “All Ages” are Age Adjusted. Others are age group specific.

Rates are per 100,000.

Age adjustment uses 2000 standard population.

Confidence Interval (CI) for rates by the Inverse Gamma Method.

95 percent confidence interval.

@ Rate is unstable; numerator less than 20.

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
In Table 2.7 the percent of White (Caucasian) deaths (93.84%) is very high compared to the percent for African Americans (5.61%) and the percent for others (0.55%) in EJC. It is difficult to analyze the data because rates are not calculated in MICA and small denominator numbers lead to difficulty with accurate data analysis.

<table>
<thead>
<tr>
<th>Age</th>
<th>White</th>
<th>Black/African-American</th>
<th>Other</th>
<th>All Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 15</td>
<td>3</td>
<td>@ @ to @</td>
<td>0</td>
<td>@ @ to @</td>
</tr>
<tr>
<td>15 to 24</td>
<td>2</td>
<td>@ @ to @</td>
<td>0</td>
<td>@ @ to @</td>
</tr>
<tr>
<td>25 to 44</td>
<td>40</td>
<td>@ @ to @</td>
<td>9</td>
<td>@ @ to @</td>
</tr>
<tr>
<td>45 to 64</td>
<td>278</td>
<td>@ @ to @</td>
<td>46</td>
<td>@ @ to @</td>
</tr>
<tr>
<td>65 and over</td>
<td>1,719</td>
<td>@ @ to @</td>
<td>67</td>
<td>@ @ to @</td>
</tr>
<tr>
<td>All ages</td>
<td>2,042</td>
<td>@ @ to @</td>
<td>122</td>
<td>@ @ to @</td>
</tr>
<tr>
<td>Percent</td>
<td>93.84%</td>
<td>5.61%</td>
<td>0.55%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Rates for "All Ages" are Age Adjusted. Others are age group specific.
Rates are per 100,000.
Age adjustment uses 2000 standard population.
Confidence Interval (CI) for rates by the Inverse Gamma Method.
95 percent confidence interval.
@ Rate is unstable; numerator less than 20.
Table 2.8 shows cumulative mortality percents for heart disease for race by gender. This data is difficult to analyze because rates were not calculated in MICA and small denominators lead to difficulty with accurate data analysis.

<table>
<thead>
<tr>
<th>Race</th>
<th>Male</th>
<th>Female</th>
<th>Both Sexes</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>967</td>
<td>1,075</td>
<td>2,042</td>
<td>93.84%</td>
</tr>
<tr>
<td>Black/African-American</td>
<td>64</td>
<td>58</td>
<td>122</td>
<td>5.6%</td>
</tr>
<tr>
<td>All Races</td>
<td>1,038</td>
<td>1,138</td>
<td>2,176</td>
<td>99.44%</td>
</tr>
<tr>
<td>Percent</td>
<td>47.70%</td>
<td>52.30%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

95 percent confidence interval
Deaths due to Cancers

Table 2.9 displays death rates for all forms of cancer by year and jurisdiction. There are no statistically significant changes over last 5 years in EJC. Cumulative rates for Missouri (191, 95% CI 189.5-192.5) are not statistically significantly higher than EJC (189.4, 95% CI 181.3-197.8). There is no statistically significant difference for cumulative death rates for Independence (194.4, 95% CI 184.3-204.8) and KCMO (184.7, 95% CI 179.2-190.3) relative to EJC.

<table>
<thead>
<tr>
<th>Year</th>
<th>Eastern Jackson County</th>
<th>Independence</th>
<th>Kansas City</th>
<th>Missouri</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
<td>Number</td>
</tr>
<tr>
<td>2005</td>
<td>431</td>
<td>202.7</td>
<td>183.8 to 223.0</td>
<td>283</td>
</tr>
<tr>
<td>2006</td>
<td>445</td>
<td>207.4</td>
<td>188.3 to 227.8</td>
<td>278</td>
</tr>
<tr>
<td>2007</td>
<td>395</td>
<td>182.3</td>
<td>164.5 to 201.6</td>
<td>290</td>
</tr>
<tr>
<td>2008</td>
<td>377</td>
<td>158.6</td>
<td>142.6 to 175.8</td>
<td>281</td>
</tr>
<tr>
<td>2009</td>
<td>466</td>
<td>198</td>
<td>180.1 to 217.2</td>
<td>284</td>
</tr>
<tr>
<td>Total</td>
<td>2,114</td>
<td>189.4</td>
<td>181.3 to 197.8</td>
<td>1,416</td>
</tr>
</tbody>
</table>

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Eastern Jackson County</th>
<th>Missouri</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year</td>
<td>Number</td>
<td>Rate</td>
</tr>
<tr>
<td>2005</td>
<td>431</td>
<td>202.7</td>
</tr>
<tr>
<td>2006</td>
<td>445</td>
<td>207.4</td>
</tr>
<tr>
<td>2007</td>
<td>395</td>
<td>182.3</td>
</tr>
<tr>
<td>2008</td>
<td>377</td>
<td>158.6</td>
</tr>
<tr>
<td>2009</td>
<td>466</td>
<td>198</td>
</tr>
<tr>
<td>Total</td>
<td>2,114</td>
<td>189.4</td>
</tr>
</tbody>
</table>

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval
Table 2.11 displays cumulative mortality rates for all forms of cancer increase with age by gender. Due to small numerator numbers, it is difficult to compare gender rates; however, death rates appear to increase with age. Cumulative male rates (237.1, 95% CI 222.8-252.0) are statistically significantly higher than cumulative female rates (158, 95% CI 148.2-168.2). The average cancer deaths rate for both sexes is 189.4.

<table>
<thead>
<tr>
<th>Age</th>
<th>Male Number</th>
<th>Male Rate</th>
<th>Male CI</th>
<th>Female Number</th>
<th>Female Rate</th>
<th>Female CI</th>
<th>Both Sexes Number</th>
<th>Both Sexes Rate</th>
<th>Both Sexes CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 15</td>
<td>1</td>
<td>0.7 @</td>
<td>0</td>
<td>2</td>
<td>1.5 @</td>
<td>0</td>
<td>3</td>
<td>1.1 @</td>
<td>0</td>
</tr>
<tr>
<td>15 to 24</td>
<td>7</td>
<td>9.5 @</td>
<td>0</td>
<td>2</td>
<td>2.9 @</td>
<td>0</td>
<td>9</td>
<td>6.3 @</td>
<td>0</td>
</tr>
<tr>
<td>25 to 44</td>
<td>32</td>
<td>18.9</td>
<td>12.9 to 26.7</td>
<td>40</td>
<td>22.2 @</td>
<td>0</td>
<td>72</td>
<td>20.6</td>
<td>16.1 to 25.9</td>
</tr>
<tr>
<td>45 to 64</td>
<td>372</td>
<td>241.8</td>
<td>217.9 to 267.7</td>
<td>288</td>
<td>180.9</td>
<td>160.6 to 203.1</td>
<td>660</td>
<td>210.9</td>
<td>195.1 to 227.6</td>
</tr>
<tr>
<td>65 and over</td>
<td>691</td>
<td>1335.1</td>
<td>1,237.4 to 1,438.5</td>
<td>678</td>
<td>904.9</td>
<td>838.1 to 975.6</td>
<td>1,369</td>
<td>1080.7</td>
<td>1,024.2 to 1,139.5</td>
</tr>
<tr>
<td>All ages</td>
<td>1,104</td>
<td>237.1</td>
<td>222.8 to 252.0</td>
<td>1,010</td>
<td>158</td>
<td>148.2 to 168.2</td>
<td>2,114</td>
<td>189.4</td>
<td>181.3 to 197.8</td>
</tr>
</tbody>
</table>

Rates for “All Ages” are Age Adjusted. Others are age group specific.

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

@ Rate is unstable; numerator less than 20

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
The Cumulative age by race cancer mortality percents displayed in Table 2.12 are difficult to analyze because rates are not calculated in MICA and small denominator numbers lead to difficulty with accurate data analysis. The percent of Caucasian deaths (92, 10%) exceeds the percent for the Caucasian population of EJC and the percent for African Americans is lower (7.3%) than the percent for the African American population in EJC.

<table>
<thead>
<tr>
<th>Table 2.12</th>
<th>Cancer Deaths: Residents of Eastern Jackson County</th>
<th>Year 2005 - 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cumulative Age by Race</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td><strong>White</strong></td>
<td><strong>Black/African-American</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Number</strong></td>
<td><strong>Rate</strong></td>
</tr>
<tr>
<td>Under 15</td>
<td>3</td>
<td>@</td>
</tr>
<tr>
<td>15 to 24</td>
<td>6</td>
<td>@</td>
</tr>
<tr>
<td>25 to 44</td>
<td>62</td>
<td>@</td>
</tr>
<tr>
<td>45 to 64</td>
<td>597</td>
<td>@</td>
</tr>
<tr>
<td>65 and over</td>
<td>1,278</td>
<td>@</td>
</tr>
<tr>
<td>All ages</td>
<td>1,947</td>
<td>@</td>
</tr>
</tbody>
</table>

Rates for "All Ages" are Age Adjusted. Others are age group specific.

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

@ Rate is unstable; numerator less than 20

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Table 2.13 shows cumulative mortality percents for all forms of cancer for race by gender data are difficult to analyze because rates were not calculated in MICA and small denominators numbers lead to difficulty with accurate data analysis.

<table>
<thead>
<tr>
<th>Table 2.13</th>
<th>Cancer Deaths: Eastern Jackson County</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year 2005-2009</td>
</tr>
<tr>
<td></td>
<td>Cumulative Race by Gender</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Race</td>
<td>Male</td>
</tr>
<tr>
<td>White</td>
<td>1,016</td>
</tr>
<tr>
<td>Black/African-American</td>
<td>84</td>
</tr>
<tr>
<td>All Races</td>
<td>1,104</td>
</tr>
</tbody>
</table>

Confidence Interval for rates by the Inverse Gamma Method

95 percent confidence interval

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
## Deaths due to Lung Cancer

Table 2.14 presents lung cancer mortality rates by year and jurisdiction. There are no clear-cut trends over time in EJC (95% CI overlap for all years). Cumulative rates for Missouri (59.9, 95% CI 59.0-60.7) are higher than EJC (57.8, 95% CI 53.3-62.5) but not statistically significant. There is no statistically significant difference for EJC death rates vs. the Independence (59.8, 95% CI 54.3-65.7) and KCMO 57.2, 95% CI 54.2-60.4).

<table>
<thead>
<tr>
<th>Year</th>
<th>Missouri</th>
<th>Eastern Jackson County</th>
<th>Independence</th>
<th>Kansas City</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
<td>Number</td>
</tr>
<tr>
<td>2005</td>
<td>3,882</td>
<td>62</td>
<td>60.0 to 64.0</td>
<td>143</td>
</tr>
<tr>
<td>2006</td>
<td>3,921</td>
<td>61.4</td>
<td>59.5 to 63.4</td>
<td>127</td>
</tr>
<tr>
<td>2007</td>
<td>3,857</td>
<td>59.6</td>
<td>57.7 to 61.5</td>
<td>131</td>
</tr>
<tr>
<td>2008</td>
<td>3,933</td>
<td>59.4</td>
<td>57.5 to 61.3</td>
<td>110</td>
</tr>
<tr>
<td>2009</td>
<td>3,836</td>
<td>57.2</td>
<td>55.4 to 59.1</td>
<td>125</td>
</tr>
<tr>
<td>Total</td>
<td>19,429</td>
<td>59.9</td>
<td>59.0 to 60.7</td>
<td>636</td>
</tr>
</tbody>
</table>

Rates are per 100,000 population

- Age adjustment uses 2000 standard population
- Confidence Interval (CI) for rates by the Inverse Gamma Method
- 95 percent confidence interval
- @ Rate is unstable; numerator less than 20

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Table 2.15 displays cumulative lung cancer mortality rates increase with age. Cumulative male rates (74, 95% CI 66.3-82.4) are statistically significantly higher than cumulative female rates (57.8, 95% CI 53.3-62.5).

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Both Sexes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
</tr>
<tr>
<td>Under 15</td>
<td>0</td>
<td>0.0 @</td>
<td>0</td>
</tr>
<tr>
<td>15 to 24</td>
<td>0</td>
<td>0.0 @</td>
<td>0</td>
</tr>
<tr>
<td>25 to 44</td>
<td>8</td>
<td>4.7 @</td>
<td>0</td>
</tr>
<tr>
<td>45 to 64</td>
<td>125</td>
<td>81.3</td>
<td>67.6 to 96.8</td>
</tr>
<tr>
<td>65 and over</td>
<td>218</td>
<td>421.2</td>
<td>367.1 to 481.0</td>
</tr>
<tr>
<td>All ages</td>
<td>351</td>
<td>74</td>
<td>66.2 to 82.4</td>
</tr>
</tbody>
</table>

Rates for “All Ages” are Age Adjusted. Others are age group specific.

Rates are per 100,000.

Age adjustment uses 2000 standard population.

Confidence Interval (CI) for rates by the Inverse Gamma Method.

95 percent confidence interval.

@ Rate is unstable; numerator less than 20.

Due to small numerators, as seen in previous tables, data will not be presented for cumulative lung cancer deaths for race by age and race by gender since race and gender data can be seen in Table 2.15. There were 43 African American deaths for the 5 year period (2005-09) or 6.76% in EJC. This is lower than the 92.7% of White deaths in the EJC.
Deaths due to Chronic lower respiratory disease (CLRD)

Table 2.16 shows chronic lower respiratory disease rates. Numbers for each year are low (91-129 cases) with a total of 556 cases over the 5 year period. No trends are seen over time in EJC. The cumulative rate for EJC 51.7 (95% CI 47.5-56.3) is higher than MO 50.1 (95% CI 49.3-50.9). The rate is highest in Independence 57 and lowest in KCMO 47.5 for 5 year period.

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Year 2005-2009</th>
<th>Chronic lower respiratory diseases Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
</tr>
<tr>
<td>Eastern Jackson County</td>
<td>2005</td>
<td>108</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>129</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>124</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>104</td>
</tr>
<tr>
<td>Total</td>
<td>556</td>
<td>51.7</td>
</tr>
</tbody>
</table>

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
### Table 2.17  Chronic lower respiratory diseases Deaths  
**Year 2005-2009**

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Eastern Jackson County</th>
<th>Missouri</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Year</strong></td>
<td><strong>Number</strong></td>
<td><strong>Rate</strong></td>
</tr>
<tr>
<td><strong>2005</strong></td>
<td>108</td>
<td>54.4</td>
</tr>
<tr>
<td><strong>2006</strong></td>
<td>129</td>
<td>60.8</td>
</tr>
<tr>
<td><strong>2007</strong></td>
<td>91</td>
<td>42.5</td>
</tr>
<tr>
<td><strong>2008</strong></td>
<td>124</td>
<td>55.4</td>
</tr>
<tr>
<td><strong>2009</strong></td>
<td>104</td>
<td>45.8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>556</td>
<td>51.7</td>
</tr>
</tbody>
</table>

Rates are per 100,000  
Age adjustment uses 2000 standard population  

Confidence Interval (CI) for rates by the Inverse Gamma Method  

95 percent confidence interval  

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Table 2.18 shows cumulative death rates for age and gender. Data cannot be compared by age and gender because rates could not be generated due to small numerators (<20). Rates increase with age from ages 45-64 and > age 65 for males and females. There is not a statistically significant difference between males and females, with males (58.2, 95% CI 50.9-66.3) exceeding females (48.9, 95% CI 43.6-54.7).

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th></th>
<th></th>
<th>Female</th>
<th></th>
<th></th>
<th>Both Sexes</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
</tr>
<tr>
<td>Under 15</td>
<td>0</td>
<td>0.0 @</td>
<td>0</td>
<td>1</td>
<td>0.8 @</td>
<td>0</td>
<td>1</td>
<td>0.4 @</td>
<td>0</td>
</tr>
<tr>
<td>15 to 24</td>
<td>0</td>
<td>0.0 @</td>
<td>0</td>
<td>0</td>
<td>0.0 @</td>
<td>0</td>
<td>0</td>
<td>0.0 @</td>
<td>0</td>
</tr>
<tr>
<td>25 to 44</td>
<td>1</td>
<td>0.6 @</td>
<td>0</td>
<td>0</td>
<td>0.0 @</td>
<td>0</td>
<td>1</td>
<td>0.3 @</td>
<td>0</td>
</tr>
<tr>
<td>45 to 64</td>
<td>34</td>
<td>22.1</td>
<td>15.3 to 30.9</td>
<td>37</td>
<td>23.2</td>
<td>16.4 to 32.0</td>
<td>71</td>
<td>22.7</td>
<td>17.7 to 28.6</td>
</tr>
<tr>
<td>65 and over</td>
<td>202</td>
<td>390.3</td>
<td>338.3 to 448.0</td>
<td>281</td>
<td>375</td>
<td>332.5 to 421.5</td>
<td>483</td>
<td>381.3</td>
<td>348.0 to 416.8</td>
</tr>
<tr>
<td>All ages</td>
<td>237</td>
<td>58.2</td>
<td>50.9 to 66.3</td>
<td>319</td>
<td>48.9</td>
<td>43.6 to 54.7</td>
<td>556</td>
<td>51.7</td>
<td>47.5 to 56.3</td>
</tr>
</tbody>
</table>

Rates for “All Ages” are Age Adjusted. Others are age group specific.

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

@ Rate is unstable; numerator less than 20

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Table 2.19 shows cumulative percentages of chronic lower respiratory deaths by age and race. Note that rates were not available in MICA and that the numerators and denominators are small. The percent of Caucasian deaths 97.4% far exceeds the percent for the Caucasian population (--- %) of EJC and the percent for African Americans is lower (2.3%) than the percent for the African American population in EJC (--- %).

<table>
<thead>
<tr>
<th>Age</th>
<th>White</th>
<th></th>
<th>Black/African-American</th>
<th></th>
<th>All Races</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
<td>Rate</td>
<td>CI</td>
<td>Rate</td>
</tr>
<tr>
<td>Under 15</td>
<td>0</td>
<td>@</td>
<td>to @</td>
<td>1</td>
<td>@</td>
<td>to @</td>
</tr>
<tr>
<td>15 to 24</td>
<td>0</td>
<td>@</td>
<td>to @</td>
<td>0</td>
<td>@</td>
<td>to @</td>
</tr>
<tr>
<td>25 to 44</td>
<td>1</td>
<td>@</td>
<td>to @</td>
<td>0</td>
<td>@</td>
<td>to @</td>
</tr>
<tr>
<td>45 to 64</td>
<td>67</td>
<td>@</td>
<td>to @</td>
<td>4</td>
<td>@</td>
<td>to @</td>
</tr>
<tr>
<td>65 and over</td>
<td>474</td>
<td>@</td>
<td>to @</td>
<td>8</td>
<td>@</td>
<td>to @</td>
</tr>
<tr>
<td>All ages</td>
<td>542</td>
<td>@</td>
<td>to @</td>
<td>13</td>
<td>@</td>
<td>to @</td>
</tr>
</tbody>
</table>

Rates for “All Ages” are Age Adjusted. Others are age group specific.

Rates are per 100,000.

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

@ Rate is unstable; numerator less than 20

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
In Table 2.20 again note that the cumulative numerators are low for African Americans (<20 deaths) and accurate data analysis cannot be accomplished for chronic respiratory disease deaths.

<table>
<thead>
<tr>
<th>Year 2005-2009</th>
<th>Cumulative Race by Gender</th>
<th>Gender</th>
<th>Number</th>
<th>Number</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Race</td>
<td>Male</td>
<td>Female</td>
<td>Both Sexes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>230</td>
<td>312</td>
<td>542</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Black/African-American</td>
<td>7</td>
<td>6</td>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Races</td>
<td>237</td>
<td>319</td>
<td>556</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Confidence Interval for rates by the Inverse Gamma Method

95 percent confidence interval

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Deaths due to Cerebrovascular Stroke

Table 2.21 presents cerebrovascular stroke mortality rates by year and jurisdiction. No clear-cut trends over a 5 year period of time are seen in EJC (95% CI overlap for all years). Cumulative rates for Missouri (48.2, 95% CI 47.4-48.9) are statistically significantly higher than EJC (41.5, 95% CI 37.8-45.5). There is no statistically significant difference for death rates for Independence (47.6, 95% CI 42.7-52.9) vs. EJC and KCMO average rates are higher (43, 95% CI 40.4-45.8) than EJC.

<table>
<thead>
<tr>
<th>Year</th>
<th>Eastern Jackson County</th>
<th>Independence</th>
<th>Kansas City</th>
<th>Missouri</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
<td>Number</td>
</tr>
<tr>
<td>2005</td>
<td>79</td>
<td>37.8</td>
<td>29.8 to 47.2</td>
<td>58</td>
</tr>
<tr>
<td>2006</td>
<td>115</td>
<td>53.4</td>
<td>44.0 to 64.3</td>
<td>78</td>
</tr>
<tr>
<td>2007</td>
<td>101</td>
<td>45.6</td>
<td>37.1 to 55.6</td>
<td>71</td>
</tr>
<tr>
<td>2008</td>
<td>73</td>
<td>30.9</td>
<td>24.1 to 39.1</td>
<td>72</td>
</tr>
<tr>
<td>2009</td>
<td>94</td>
<td>40.7</td>
<td>32.8 to 50.0</td>
<td>73</td>
</tr>
<tr>
<td>Total</td>
<td>462</td>
<td>41.5</td>
<td>37.8 to 45.5</td>
<td>352</td>
</tr>
</tbody>
</table>

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

Source: MiCA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
### Table 2.22  Cerebrovascular Disease (Stroke) Deaths: Eastern Jackson County and Missouri

#### Year 2005-2009

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Eastern Jackson County</th>
<th>Missouri</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
</tr>
<tr>
<td>2005</td>
<td>79</td>
<td>37.8</td>
</tr>
<tr>
<td>2006</td>
<td>115</td>
<td>53.4</td>
</tr>
<tr>
<td>2007</td>
<td>101</td>
<td>45.6</td>
</tr>
<tr>
<td>2008</td>
<td>73</td>
<td>30.9</td>
</tr>
<tr>
<td>2009</td>
<td>94</td>
<td>40.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>462</td>
<td>41.5</td>
</tr>
</tbody>
</table>

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

---

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Table 2.23 displays cumulative stroke mortality rates increase with age. There are no statistically significant differences between rates for males (40.1, 95% CI 34.46.9) and females (41.5, 95% CI 37.8-45.5).

<table>
<thead>
<tr>
<th>Age</th>
<th>Male</th>
<th>Female</th>
<th>Both Sexes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
</tr>
<tr>
<td>Under 15</td>
<td>0</td>
<td>0.0 @</td>
<td></td>
</tr>
<tr>
<td>15 to 24</td>
<td>0</td>
<td>0.0 @</td>
<td></td>
</tr>
<tr>
<td>25 to 44</td>
<td>3</td>
<td>1.8 @</td>
<td></td>
</tr>
<tr>
<td>45 to 64</td>
<td>28</td>
<td>18.2</td>
<td>12.1 to 26.3</td>
</tr>
<tr>
<td>65 and over</td>
<td>133</td>
<td>257</td>
<td>215.2 to 304.5</td>
</tr>
<tr>
<td>All ages</td>
<td>164</td>
<td>40.1</td>
<td>34.0 to 46.9</td>
</tr>
</tbody>
</table>

Rates for “All Ages” are Age Adjusted. Others are age group specific.

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

@ Rate is unstable; numerator less than 20

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Table 2.24 Numerator numbers for stroke-related deaths are small and rates are not presented here. The percentages of White 90.5% compared to the percentages of Black/African Americans 8.5%.

Table 2.24  Cerebrovascular Disease (Stroke) Deaths: Residents of Eastern Jackson County  
Year 2005 – 2009  
Cumulative Age by Race  

<table>
<thead>
<tr>
<th>Race</th>
<th>White</th>
<th>Black/African-American</th>
<th>All Races</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
</tr>
<tr>
<td>Under 15</td>
<td>2</td>
<td>@ to @</td>
<td>0.7 @</td>
</tr>
<tr>
<td>15 to 24</td>
<td>0</td>
<td>@ to @</td>
<td>0</td>
</tr>
<tr>
<td>25 to 44</td>
<td>5</td>
<td>@ to @</td>
<td>2.3 @</td>
</tr>
<tr>
<td>45 to 64</td>
<td>38</td>
<td>@ to @</td>
<td>17.9</td>
</tr>
<tr>
<td>65 and over</td>
<td>373</td>
<td>@ to @</td>
<td>312.6</td>
</tr>
<tr>
<td>All ages</td>
<td>418</td>
<td>@ to @</td>
<td>41.5</td>
</tr>
</tbody>
</table>

Rates for “All Ages” are Age Adjusted. Others are age group specific  
Rates are per 100,000  
Age adjustment uses 2000 standard population  
Confidence Interval (CI) for rates by the Inverse Gamma Method  
95 percent confidence interval  
@ Rate is unstable; numerator less than 20  
Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
In Table 2.24 again note that the cumulative numerators are very low for African Americans and accurate data analysis cannot be accomplished for CV Stroke deaths.

<table>
<thead>
<tr>
<th>Race</th>
<th>Male</th>
<th>Female</th>
<th>Both Sexes</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>142</td>
<td>276</td>
<td>418</td>
</tr>
<tr>
<td>Black/African-American</td>
<td>20</td>
<td>19</td>
<td>39</td>
</tr>
<tr>
<td>All Races</td>
<td>164</td>
<td>298</td>
<td>462</td>
</tr>
</tbody>
</table>

Confidence Interval for rates by the Inverse Gamma Method

95 percent confidence interval

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Deaths due to Other (Residual) Diseases

Table 2.26 displays other (residual) disease mortality rates. Increase in events and mortality rates are seen over time in EJC. The cumulative rate for EJC 85.7 (95% CI 80.3-91.3) is higher than MO 80.2 (95% CI 79.2-81.1). The rate is highest in KCMO 87 and lowest for MO 80.2 for 5 year period. There is no significant difference in the rates for Independence 85.1 (95% CI 78.4-92.1) vs. EJC.

<table>
<thead>
<tr>
<th>Year</th>
<th>Jurisdiction</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>Eastern Jackson County</td>
<td>157</td>
<td>71.9</td>
<td>61.0 to 84.3</td>
<td>99</td>
<td>70.5</td>
<td>57.2 to 86.1</td>
<td>398</td>
<td>88</td>
<td>79.5 to 97.1</td>
<td>4,790</td>
<td>75.2</td>
<td>73.1 to 77.4</td>
</tr>
<tr>
<td>2006</td>
<td>Eastern Jackson County</td>
<td>185</td>
<td>83.2</td>
<td>71.5 to 96.2</td>
<td>110</td>
<td>78.2</td>
<td>64.1 to 94.4</td>
<td>393</td>
<td>85</td>
<td>76.8 to 93.9</td>
<td>5,252</td>
<td>80.5</td>
<td>78.4 to 82.8</td>
</tr>
<tr>
<td>2007</td>
<td>Eastern Jackson County</td>
<td>179</td>
<td>81.5</td>
<td>69.8 to 94.5</td>
<td>113</td>
<td>79.1</td>
<td>65.0 to 95.2</td>
<td>385</td>
<td>81.4</td>
<td>73.4 to 90.0</td>
<td>5,225</td>
<td>78.7</td>
<td>76.6 to 80.9</td>
</tr>
<tr>
<td>2008</td>
<td>Eastern Jackson County</td>
<td>225</td>
<td>94.6</td>
<td>82.4 to 108.0</td>
<td>142</td>
<td>95.8</td>
<td>80.6 to 113.1</td>
<td>434</td>
<td>89.9</td>
<td>81.6 to 98.9</td>
<td>5,753</td>
<td>85</td>
<td>82.8 to 87.2</td>
</tr>
<tr>
<td>2009</td>
<td>Eastern Jackson County</td>
<td>231</td>
<td>95.5</td>
<td>83.4 to 108.8</td>
<td>149</td>
<td>100.4</td>
<td>84.8 to 118.1</td>
<td>438</td>
<td>90.4</td>
<td>82.1 to 99.3</td>
<td>5,552</td>
<td>80.9</td>
<td>78.8 to 83.1</td>
</tr>
<tr>
<td>Total</td>
<td>Eastern Jackson County</td>
<td>977</td>
<td>85.7</td>
<td>80.3 to 91.3</td>
<td>613</td>
<td>85.1</td>
<td>78.4 to 92.1</td>
<td>2,048</td>
<td>87</td>
<td>83.2 to 90.8</td>
<td>26,572</td>
<td>80.2</td>
<td>79.2 to 81.1</td>
</tr>
</tbody>
</table>

Rates are per 100,000
Age adjustment uses 2000 standard population
Confidence Interval (CI) for rates by the Inverse Gamma Method
95 percent confidence interval
Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)

Other (Residual) Disease deaths include deaths due to different types of Anemia, Parkinson’s disease, Ill-defined illnesses, malnutrition, meningitis, in situ neoplasm/neoplasm of unknown behavior and all other residual diseases.
### Table 2.27 Other diseases (residual) Deaths

#### Year 2005-2009

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Eastern Jackson County</th>
<th>Missouri</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Year</td>
<td>Number</td>
</tr>
<tr>
<td></td>
<td>2005</td>
<td>157</td>
</tr>
<tr>
<td></td>
<td>2006</td>
<td>185</td>
</tr>
<tr>
<td></td>
<td>2007</td>
<td>179</td>
</tr>
<tr>
<td></td>
<td>2008</td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>2009</td>
<td>231</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td>977</td>
</tr>
</tbody>
</table>

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Table 1.28 shows the other (residual) diseases mortality rates increase with age by gender. Due to small numerators, it is difficult to compare gender rates; however, death rates appear to increase with age. Most of the deaths due to other (residual) diseases occurred after 65 years of age, note the rate in males (488.8), females (674) and in both (598.3). Cumulative male rates (86, 95% CI 77.2-95.5) are higher than cumulative female rates (82.9, 95% CI 76.2-89.9) but no statistically significant difference. The average cancer deaths rate for both sexes is 85.7.

Table 2.28 Other diseases (residual) Deaths for Eastern Jackson County

<table>
<thead>
<tr>
<th>Age</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 15</td>
<td>6</td>
<td>4.4 @</td>
<td>0</td>
<td>1</td>
<td>0.8 @</td>
<td>0</td>
</tr>
<tr>
<td>15 to 24</td>
<td>6</td>
<td>8.1 @</td>
<td>0</td>
<td>2</td>
<td>2.9 @</td>
<td>0</td>
</tr>
<tr>
<td>25 to 44</td>
<td>23</td>
<td>13.6</td>
<td>8.6 to 20.4</td>
<td>24</td>
<td>13.3</td>
<td>8.5 to 19.8</td>
</tr>
<tr>
<td>45 to 64</td>
<td>83</td>
<td>54</td>
<td>43.0 to 66.9</td>
<td>73</td>
<td>45.9</td>
<td>35.9 to 57.7</td>
</tr>
<tr>
<td>65 and over</td>
<td>253</td>
<td>488.8</td>
<td>430.4 to 552.9</td>
<td>505</td>
<td>674</td>
<td>616.5 to 735.4</td>
</tr>
<tr>
<td>All ages</td>
<td>372</td>
<td>86</td>
<td>77.2 to 95.5</td>
<td>605</td>
<td>82.9</td>
<td>76.2 to 89.9</td>
</tr>
</tbody>
</table>

Rates for “All Ages” are Age Adjusted. Others are age group specific.

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

@ Rate is unstable; numerator less than 20

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Table 2.29 Numerators for other (residual) diseases mortality are small and it is difficult to calculate rates. Note the percentages of Whites 92.12% compared to the percentages of Black/African Americans 7.5%.

<table>
<thead>
<tr>
<th>Race</th>
<th>Age</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>Under 15</td>
<td>6</td>
<td>@</td>
<td>@ to @</td>
<td>1</td>
<td>@</td>
<td>@ to @</td>
<td>7</td>
<td>2.6</td>
<td>@ to @</td>
</tr>
<tr>
<td>Black/African-American</td>
<td>15 to 24</td>
<td>4</td>
<td>@</td>
<td>@ to @</td>
<td>4</td>
<td>@</td>
<td>@ to @</td>
<td>8</td>
<td>5.6</td>
<td>@ to @</td>
</tr>
<tr>
<td>All Races</td>
<td>25 to 44</td>
<td>35</td>
<td>@</td>
<td>@ to @</td>
<td>12</td>
<td>@</td>
<td>@ to @</td>
<td>47</td>
<td>13.4</td>
<td>9.9 to 17.9</td>
</tr>
<tr>
<td></td>
<td>45 to 64</td>
<td>142</td>
<td>@</td>
<td>@ to @</td>
<td>13</td>
<td>@</td>
<td>@ to @</td>
<td>156</td>
<td>49.8</td>
<td>42.3 to 58.3</td>
</tr>
<tr>
<td></td>
<td>65 and over</td>
<td>713</td>
<td>@</td>
<td>@ to @</td>
<td>73</td>
<td>@</td>
<td>@ to @</td>
<td>758</td>
<td>598.3</td>
<td>556.5 to 642.5</td>
</tr>
<tr>
<td></td>
<td>All ages</td>
<td>900</td>
<td>@</td>
<td>@ to @</td>
<td>73</td>
<td>@</td>
<td>@ to @</td>
<td>977</td>
<td>85.7</td>
<td>80.3 to 91.3</td>
</tr>
</tbody>
</table>

Rates for “All Ages” are Age Adjusted. Others are age group specific.

Rates are per 100,000 population.

Age adjustment uses 2000 standard population.
Confidence Interval (CI) for rates by the Inverse Gamma Method.
95 percent confidence interval.
@ Rate is unstable; numerator less than 20.

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)

### Disease Mortality rates higher in Eastern Jackson County compared to Missouri

1) Chronic lower respiratory disease (CLRD): Already discussed above.
2) Alzheimer’s Disease
3) Kidney Diseases
Deaths due to Alzheimer’s disease

The Alzheimer’s disease mortality rates for EJC are statistically significantly higher than the rates for MO from 2005 to 2007. Then there is a decrease in mortality rates for EJC but they are still higher than MO. The cumulative rates for EJC (37, 95% CI 33.4-40.7) are statistically significantly higher than the cumulative rates for MO (25.4, 95% CI 24.9-26.0)

<table>
<thead>
<tr>
<th>Year</th>
<th>Jurisdiction</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>Eastern Jackson County</td>
<td>95</td>
<td>43.5</td>
<td>35.1 to 53.3</td>
<td>1,631</td>
<td>24.9</td>
<td>23.7 to 26.1</td>
</tr>
<tr>
<td>2006</td>
<td>Eastern Jackson County</td>
<td>103</td>
<td>48.3</td>
<td>39.3 to 58.6</td>
<td>1,632</td>
<td>24.3</td>
<td>23.2 to 25.5</td>
</tr>
<tr>
<td>2007</td>
<td>Eastern Jackson County</td>
<td>83</td>
<td>38.1</td>
<td>30.3 to 47.4</td>
<td>1,682</td>
<td>24.6</td>
<td>23.4 to 25.8</td>
</tr>
<tr>
<td>2008</td>
<td>Eastern Jackson County</td>
<td>70</td>
<td>29.9</td>
<td>23.2 to 37.9</td>
<td>2,014</td>
<td>28.8</td>
<td>27.6 to 30.1</td>
</tr>
<tr>
<td>2009</td>
<td>Eastern Jackson County</td>
<td>65</td>
<td>26.8</td>
<td>20.6 to 34.3</td>
<td>1,719</td>
<td>24.6</td>
<td>23.4 to 25.7</td>
</tr>
<tr>
<td>Total</td>
<td>Eastern Jackson County</td>
<td>416</td>
<td>37</td>
<td>33.4 to 40.7</td>
<td>8,678</td>
<td>25.4</td>
<td>24.9 to 26.0</td>
</tr>
<tr>
<td>Year</td>
<td>Missouri</td>
<td>Number</td>
<td>Rate</td>
<td>CI</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2005</td>
<td>1,631</td>
<td>24.9</td>
<td>23.7 to 26.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>1,632</td>
<td>24.3</td>
<td>23.2 to 25.5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>1,682</td>
<td>24.6</td>
<td>23.4 to 25.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td>2,014</td>
<td>28.8</td>
<td>27.6 to 30.1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td>1,719</td>
<td>24.6</td>
<td>23.4 to 25.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>8,678</td>
<td>25.4</td>
<td>24.9 to 26.0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Rates are per 100,000
Age adjustment uses 2000 standard population
Confidence Interval (CI) for rates by the Inverse Gamma Method
95 percent confidence interval

Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
**Deaths due to Kidney Diseases**

The Kidney Diseases responsible for the deaths include renal failure, nephritic/nephrotic syndrome and nephritis. The cumulative rates for EJC (19.5, 95% CI 17.0-22.4) are higher (not statistically significant) than the cumulative rates for MO (17.9, 95% CI 17.5-18.4) during 5 years period. Note that in 2006-2007 the rates were lower in EJC compared to MO.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
<th>Number</th>
<th>Rate</th>
<th>CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>48</td>
<td>23.4</td>
<td>17.2 to 31.1</td>
<td>1,154</td>
<td>18.1</td>
<td>17.1 to 19.2</td>
</tr>
<tr>
<td>2006</td>
<td>35</td>
<td>16.6</td>
<td>11.5 to 23.2</td>
<td>1,106</td>
<td>16.9</td>
<td>15.9 to 18.0</td>
</tr>
<tr>
<td>2007</td>
<td>36</td>
<td>16.6</td>
<td>11.6 to 23.1</td>
<td>1,192</td>
<td>18</td>
<td>17.0 to 19.0</td>
</tr>
<tr>
<td>2008</td>
<td>49</td>
<td>21.7</td>
<td>16.0 to 28.9</td>
<td>1,275</td>
<td>18.7</td>
<td>17.7 to 19.8</td>
</tr>
<tr>
<td>2009</td>
<td>44</td>
<td>19.3</td>
<td>13.9 to 26.1</td>
<td>1,226</td>
<td>18</td>
<td>17.0 to 19.0</td>
</tr>
<tr>
<td>Total</td>
<td>212</td>
<td>19.5</td>
<td>17.0 to 22.4</td>
<td>5,953</td>
<td>17.9</td>
<td>17.5 to 18.4</td>
</tr>
</tbody>
</table>

Rates are per 100,000

Age adjustment uses 2000 standard population

Confidence Interval (CI) for rates by the Inverse Gamma Method

95 percent confidence interval

Source: MiCA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)
Child Health Profile for Eastern Jackson County

Table 3 shows data for children and adolescent health from the child health MICA data profile. The mortality rates in Eastern Jackson County are lower or have no statistical difference compared to Missouri. These include total intentional injuries, motor vehicle deaths, all forms of cancers, birth defects, homicide and heart disease deaths for children age 1-14 and total unintentional deaths, motor vehicle deaths, homicide, suicide, all cancer and heart diseases deaths for adolescents.

Lower rates also are unstable due to lower numbers, mortality numbers for the 10 year period less than 20 deaths, for motor vehicle deaths, all forms of cancer, birth defects, homicide, and heart disease for children and homicide, suicide, all forms of cancer and heart disease for adolescents.17

<table>
<thead>
<tr>
<th>Deaths Ages 1-14</th>
<th>Data</th>
<th>Number of Events</th>
<th>EJC Rate</th>
<th>Signif*</th>
<th>MO Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Causes</td>
<td>1999-2009</td>
<td>81</td>
<td>15.1</td>
<td>L</td>
<td>22.6</td>
</tr>
<tr>
<td>Total Unintentional Injuries</td>
<td>1999-2009</td>
<td>23</td>
<td>4.3</td>
<td>L</td>
<td>8.7</td>
</tr>
<tr>
<td>Motor Vehicle Deaths</td>
<td>1999-2009</td>
<td>11</td>
<td>2.0*</td>
<td>L</td>
<td>4.3</td>
</tr>
<tr>
<td>All Cancers (Malignant Neoplasms)</td>
<td>1999-2009</td>
<td>9</td>
<td>1.7*</td>
<td>N/S</td>
<td>2.2</td>
</tr>
<tr>
<td>Birth Defects</td>
<td>1999-2009</td>
<td>10</td>
<td>1.9*</td>
<td>N/S</td>
<td>1.7</td>
</tr>
<tr>
<td>Homicide</td>
<td>1999-2009</td>
<td>5</td>
<td>0.9*</td>
<td>N/S</td>
<td>1.9</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>1999-2009</td>
<td>4</td>
<td>0.8*</td>
<td>N/S</td>
<td>0.9</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Deaths Ages 15-19</th>
<th>Data</th>
<th>Number of Events</th>
<th>EJC Rate</th>
<th>Signif*</th>
<th>MO Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Causes</td>
<td>1999-2009</td>
<td>120</td>
<td>68</td>
<td>N/S</td>
<td>81.3</td>
</tr>
<tr>
<td>Total Unintentional Injuries</td>
<td>1999-2009</td>
<td>63</td>
<td>35.7</td>
<td>N/S</td>
<td>44.1</td>
</tr>
<tr>
<td>Motor Vehicle Deaths</td>
<td>1999-2009</td>
<td>51</td>
<td>28.9</td>
<td>N/S</td>
<td>35.8</td>
</tr>
<tr>
<td>Homicide</td>
<td>1999-2009</td>
<td>11</td>
<td>6.2*</td>
<td>L</td>
<td>12.6</td>
</tr>
<tr>
<td>Suicide</td>
<td>1999-2009</td>
<td>24</td>
<td>13.6</td>
<td>N/S</td>
<td>9.1</td>
</tr>
<tr>
<td>All Cancers (Malignant Neoplasms)</td>
<td>1999-2009</td>
<td>4</td>
<td>2.3*</td>
<td>N/S</td>
<td>3.4</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>1999-2009</td>
<td>2</td>
<td>1.1*</td>
<td>N/S</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Missouri Community Data Profiles
Death rates are per year per 100,000 specified age population
* Fewer than 20 events in numerator; rate is unstable.
Table 2.33 - Top 5 priorities (health problems) in Eastern Jackson County

Prioritization of Health Problems in Eastern Jackson County

Sex: Both Sexes, Race: All Races, Age Group: All Ages

<table>
<thead>
<tr>
<th>Disease/Condition</th>
<th>Rank</th>
<th>Total Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes</td>
<td>1</td>
<td>289.5</td>
</tr>
<tr>
<td>Alcohol- and Substance-Related</td>
<td>2</td>
<td>279.0</td>
</tr>
<tr>
<td>Chronic Obstructive Pulmonary Disease (COPD)</td>
<td>3</td>
<td>277.0</td>
</tr>
<tr>
<td>Lung Cancer</td>
<td>4</td>
<td>264.0</td>
</tr>
<tr>
<td>Heart Disease</td>
<td>5</td>
<td>261.5</td>
</tr>
</tbody>
</table>

The purpose of the Priority MICA is to provide a structured process to determine the priority health needs of a community. The prioritization of health problems has been derived from MICA Priority tool on DHSS website. The criteria used for prioritization are Amenability to change, Death Trend Statistically significance, Hospital Days of care, Numbers of deaths under 65, Racial Disparity for ER visits, Community Support, Disability Burden, Number of deaths, Number of Hospitalization and ER visits and Racial Disparity for deaths.
3. HEALTH ASSESSMENT SURVEY TOOL

In this phase, the Community Health Assessment Team collects local data to discover the community's viewpoint and concerns about life in the community and health issues. The data collected from survey tool are important in assessing the current status of the community health according to the people. In collaboration with JACOHD health educators, communicable disease nurses, and other staff, we prepared the health survey tool for Eastern Jackson County (EJC). This health survey was going to be mailed to random sample (method and number of sample were not decided at that time) in EJC area. The following is the draft of JACOHD community health survey 2012:

**Jackson County Health Department Community Health Survey 2012**

This community survey is part of a larger study to help guide health programs in Eastern Jackson County over the next five years. Results will be made available to the public. Filling out the survey should only take **10-15 minutes**, and your responses are completely anonymous (secret). Your opinion is important!

Please return this survey in the enclosed envelope by For questions, please call: 816.404-6415

1. What is your zip code?  
   - [ ] 64013  
   - [ ] 64014  
   - [ ] 64015  
   - [ ] 64016  
   - [ ] 64017  
   - [ ] 64029  
   - [ ] 64030  
   - [ ] 64034  
   - [ ] 64054  
   - [ ] 64030  
   - [ ] 64063  
   - [ ] 64064  
   - [ ] 64066  
   - [ ] 64070  
   - [ ] 64075  
   - [ ] 64081  
   - [ ] 64082  
   - [ ] 64086  
   - [ ] 64087  
   - [ ] 64088  
   - [ ] 64089  
   - [ ] 64133  
   - [ ] 64138  
   - Other__________

2. What is your sex?  
   - [ ] Male  
   - [ ] Female

3. What is your year of birth?___________ and age in years ____________

4. How do you describe yourself? Please check all that apply.  
   - [ ] White  
   - [ ] African American  
   - [ ] Native Hawaiian or Other Pacific Islander  
   - [ ] Hispanic or Latino  
   - [ ] Asian  
   - [ ] American Indian or Alaskan Native  
   - [ ] 2 or more (please specify)__________________________

5. What language do you usually speak at home?  
   - [ ] English  
   - [ ] Spanish  
   - [ ] Other (please specify)_

6. During the past 12 months, what was the total combined income of all members of your household before taxes?  
   - [ ] <$10,000  
   - [ ] $10,000-$14,999  
   - [ ] $15,000-$24,999  
   - [ ] $25,000-$34,999  
   - [ ] $35,000-$49,999  
   - [ ] $50,000-$64,999  
   - [ ] $65,000-$74,999  
   - [ ] $75,000-$99,999  
   - [ ] >$100,000

7. What is the highest educational level you have completed?  
   - [ ] Less than 12 years  
   - [ ] High school/GED  
   - [ ] Some college  
   - [ ] Bachelor’s degree  
   - [ ] Masters or higher
8. How would you rate your overall health?
   - Poor
   - Fair
   - Good
   - Excellent

9. Where do you get your health information (information on local health care resources, educational information, etc.)?
   Please check all that apply.
   - Billboards
   - Bulletin boards
   - Churches
   - Friends/Family
   - Grocery stores
   - Health Dept.
   - Healthcare providers
   - Local newspapers
   - Internet (WebMD, CDC, etc.)
   - Newsletters
   - Posters
   - Social Services Organization
   - Radio
   - Social Media (Facebook, Twitter)
   - TV news
   - WIC
   - Other (please specify)________________________

10. Where do you/your household members go for normal/routine care? Please check all that apply.
    - Chiropractor
    - Doctor’s office
    - Emergency room
    - Health department
    - Pharmacy (e.g. Take Care Clinic, Minute Clinic)
    - Planned Parenthood
    - Specialty doctor (e.g. OBGN)
    - Urgent care
    - Other (please specify)________________________

11. Is anyone in your household currently having trouble getting medical care?
    - Yes
    - No
    If yes, what issues are they having getting medical care? Please check all that apply.
    - Cost of medical care
    - Cost of prescription drugs
    - Deductible too high
    - Fear of deportation
    - Not enough insurance coverage
    - Not enough information about available medical resources
    - No access to transportation
    - Other (please specify)________________________

12. What type of healthcare coverage do people in your household use to pay for MOST medical care?
    - Employee plan
    - Medicaid
    - Medicare
    - Military
    - Out of pocket (self-pay)
    - Private insurance

13. Who in your household has health and/or dental insurance? Please check all that apply.

<table>
<thead>
<tr>
<th></th>
<th>Health Insurance</th>
<th>Dental Insurance</th>
<th>No Insurance</th>
<th>Not Applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>You</td>
<td></td>
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<td></td>
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<tr>
<td>Spouse/Partner</td>
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<tr>
<td>Children</td>
<td></td>
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<tr>
<td>Parent(s)</td>
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<tr>
<td>Roommate(s)</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
14. Have you visited a doctor or other healthcare provider in the last year? [ ] Yes [ ] No

15. Please check all of the following that you have done in the last year:
   [ ] Blood pressure check [ ] Blood sugar test [ ] Cholesterol screen
   [ ] Colonoscopy examination [ ] Dental visit [ ] Eye Exam [ ] Mammogram [ ] Pap smear
   [ ] Physical exam [ ] Prostate cancer screening [ ] Skin cancer screening

16. Did you get a flu (influenza) shot in the last year?
   [ ] Yes [ ] No
   If yes, where did you get it?
   [ ] Pharmacy (CVS, Walgreens, etc.) [ ] Jackson County Health Department
   [ ] Doctor’s office [ ] Other (please specify)______________________________

17. Are the children in your household current on their recommended vaccines and immunizations?
   [ ] Yes [ ] No [ ] Not Applicable
   If no, why not? Please check all that apply.
   [ ] Cost [ ] Don’t know where to go [ ] Hours do not meet my needs
   [ ] Medical reasons [ ] No insurance [ ] No transportation
   [ ] Religious reasons
   [ ] Need more education from your healthcare provider
   [ ] Vaccine unsafe (please specify)__________________________________________

18. Which of the following vaccines have adults in your household had within the last 24 months?
   Please check all that apply.
   [ ] Hepatitis A [ ] Hepatitis B [ ] Whooping cough/Diphtheria/Tetanus [ ] Pneumonia [ ] Shingles

Nutrition

19. How many times in a day do you eat meals?
   [ ] None or 0 [ ] 1-2 [ ] 3-4 [ ] 5-6 [ ] 7 or more

20. How many times in a day do you snack?
   [ ] None or 0 [ ] 1-2 [ ] 3-4 [ ] 5-6 [ ] 7 or more

21. How many times a week do you eat food from a restaurant; sit down, take-out/carry out or fast food?
   [ ] None or 0 [ ] 1-2 [ ] 3-4 [ ] 5-6 [ ] 7 or more

22. How many times a week do you eat food you or your family makes with 3 or more ingredients?
   [ ] None or 0 [ ] 1-2 [ ] 3-4 [ ] 5-6 [ ] 7 or more

23. How many servings of fruits do you eat in a day? (1 serving=1cup)
   [ ] None or 0 [ ] 1-2 [ ] 3-4 [ ] 5-6 [ ] 7 or more

24. Are your fruit servings usually (most to least with 1 as used most, 2 as used next and 3 as used the least)
   Fresh_____ Frozen_____ Canned_____
25. How many servings of vegetables do you eat in a day? (1 serving=1 cup)
   □ None or 0 □ 1-2 □ 3-4 □ 5-6 □ 7 or more

26. Are your vegetable servings usually (most to least with 1 as used most, 2 as used next and 3 as used the least)
   Fresh_____ Frozen_____ Canned____

27. Where do you get your fresh fruits and vegetables? Please check all that apply.
   □ Convenience store □ Ethnic store □ Farmer’s market
   □ Food pantry □ Grocery store □ Community garden
   □ I do not eat fresh fruits and vegetables
   □ I cannot eat fresh fruits and vegetables
   □ Other (please specify)__________________________

---

**Physical Activity**

28. How many hours a week do you spend doing…
   I am not able to exercise | 0 or None | 1-2 | 3-4 | 5-6 | 7 or more
   Light physical activity (e.g., walking) | □ | □ | □ | □ | □ | □ |
   Moderate physical activity (e.g., jogging) | □ | □ | □ | □ | □ | □ |
   High intensity physical activity? (e.g., running) | □ | □ | □ | □ | □ | □ |

29. Where do you spend your time exercising? Please check all that apply
   Home | Private Gym | Work Facility | Community Center | Local Parks & Trails | Local Sidewalks | Other
   Walking | □ | □ | □ | □ | □ | □ |
   Running | □ | □ | □ | □ | □ | □ |
   Biking | □ | □ | □ | □ | □ | □ |
   Swimming | □ | □ | □ | □ | □ | □ |
   Free Weights | □ | □ | □ | □ | □ | □ |
   Weight machines | □ | □ | □ | □ | □ | □ |
   Structured Classes | □ | □ | □ | □ | □ | □ |
   Group/team sports | □ | □ | □ | □ | □ | □ |
   Gaming Systems (e.g. exercise DVD, Wii) | □ | □ | □ | □ | □ | □ |

---

**My Community**

30. Do you feel it is safe to walk in your neighborhood?
   □ Yes □ No
If no, why not? Please check all that apply. ☐ Fear of crime ☐ Loose dogs/animals
☐ No sidewalks ☐ Sidewalks in bad shape ☐ Traffic ☐ Other (please specify)____________

31.

<table>
<thead>
<tr>
<th>My neighborhood has enough…</th>
<th>Very Satisfied</th>
<th>Satisfied</th>
<th>Dissatisfied</th>
<th>Very Dissatisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access to fresh fruits and vegetables</td>
<td></td>
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<td></td>
<td></td>
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<tr>
<td>Sidewalks</td>
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<tr>
<td>Trails (for walking or biking)</td>
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<tr>
<td>Bike lanes on roads</td>
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<tr>
<td>Parks</td>
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<tr>
<td>Emergency points in parks/on trails</td>
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<tr>
<td>Food inspection and safety programs</td>
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<tr>
<td>Neighborhood or school playgrounds</td>
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<tr>
<td>Recreational programs … for children</td>
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<tr>
<td>… for teens</td>
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<tr>
<td>… for adults</td>
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<tr>
<td>… for seniors(age 65+)</td>
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<tr>
<td>Protection from secondhand smoke outdoors</td>
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<tr>
<td>Public transportation</td>
<td></td>
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<tr>
<td>Health education for children in schools</td>
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<tr>
<td>Childcare facilities</td>
<td></td>
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<tr>
<td>Services for children with special needs</td>
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<tr>
<td>Disaster response plans (e.g. to natural disasters, disease outbreaks)</td>
<td></td>
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</tbody>
</table>

Tobacco Use

32. How often are you exposed to secondhand smoke?
☐ Daily ☐ Weekly ☐ Monthly ☐ Less than monthly ☐ Never

33. Do you currently smoke cigarettes on a daily basis, less than daily, or not at all? (Please check one)
☐ Daily ☐ Less than daily ☐ No

If you do not smoke or use smokeless tobacco products please skip questions 34-38.

34. On a normal day, how many cigarettes do you currently smoke? (Please check one)
☐ 0 ☐ 1-5 ☐ ½ Pack ☐ 1 Pack ☐ 2 Packs ☐ 3+ Packs

35. During the past 12 months, have you tried to stop smoking cigarettes?
☐ Yes; ☐ No

Number of tries (Please check one)
☐ 0 ☐ 1-3 ☐ 4-6 ☐ 6-9 ☐ 10 or more

If yes, did you use anything to help? Please check all that apply.
☐ Counseling ☐ Electric cigarette ☐ Medication (Zyban, Chantix, etc.)
36. In the past year, have you used smokeless tobacco products (such as snuff, chewing tobacco, snus, orbs, etc.) on a daily basis, less than daily, or not at all?
   - Daily
   - Less than daily
   - Not at all

37. Do you currently use smokeless tobacco products (such as snuff, chewing tobacco, snus, orbs, etc.) on a daily basis, less than daily, or not at all?
   - Daily
   - Less than daily
   - Not at all

38. Would you commit to using a program to help quit smoking offered by the health department?
   - Yes
   - No

Thank you so much for completing the survey!

RECOMMENDATION

Alcohol and substance abuse is the 2nd number in the health priority list for the Eastern Jackson County. The JACOHD does not provide any preventive or health promotion program for alcoholism. I recommended the health department staff to include the part on alcohol related questions, such as CAGE evaluation, to identify the need for making strategies to work on this health issue. The data collected from community will help to initiate the program for alcohol and substance abuse.
PRESENTATION

Besides working on community health assessment project, I had an opportunity to participate in many activities and meetings. I visited a few doctor’s offices during my internship and gave a presentation on “Communicable Diseases Reporting.” The reason behind this meeting and presentation is to encourage the physicians and nursing staff to report all reportable diseases and other emerging infectious diseases to local health department. By reporting to the health department they are part of international communicable disease surveillance system and help the health department to know instantly what is happening in the community. According to the definition by the CDC, “Public health surveillance is the ongoing, systematic collection, analysis, interpretation, and dissemination of health data to help guide public health decision making and action.” 19 It portrays ongoing trend and helps to make action plans, to investigate disease outbreaks, and to make preventive strategies.

(Figure 3.1: Surveillance Cycle – Source: CDC - Principles of Epidemiology)
PRESENTATION SLIDES

CORE PUBLIC HEALTH FUNCTIONS

- **ASSESSMENT**
  - Assessment and monitoring of the health of communities and populations at risk to identify health problems and priorities

- **PUBLIC POLICY**
  - Formulating public policies, in collaboration with community and government leaders, designed to solve identified local and national health problems and priorities

- **ASSURANCE**
  - Assuring that all populations have access to appropriate and cost-effective care, including health promotion and disease prevention services, and evaluation of the effectiveness of that care

(Institute of Medicine 1988 Consensus Report)

ESSENTIAL PUBLIC HEALTH SERVICES

- Monitor health status to identify and solve community health problems
- Diagnose and investigate health problems and health hazards in the community
- Inform, educate, and empower people about health issues
- Mobilize community partnerships and action to solve health problems
- Develop policies and plans that support individual and community health efforts
- Enforce laws and regulations that protect health and assure safety
- Link people to needed personal health services and assure the provision of health care when otherwise unavailable
- Assure a competent workforce—public health and personal care
- Evaluate effectiveness, accessibility, and quality of personal and population-based health services
- Research for new insights and innovative solutions to health problems

EPIDEMIOLOGY – DERIVED FROM GREEK

- **EPI** On or upon
- **DEMOS** Population/People
- **LOGOS** Study of
“EPIDEMIOLOGY IS THE STUDY OF FACTORS DETERMINING DISEASE IN A POPULATION”

EPIDEMIOLOGIC MODEL

HOST (WHO)          TIME

AGENT (WHAT)        ENVIRONMENT (WHERE)

TIME - Incubation period of infectious disease, duration of illness

HISTORY OF EPIDEMIOLOGY

- Endemic vs. Epidemic
  - Hippocrates (460-377 BC)
  - Vital statistics - Bills of Mortality
    - John Graunt (1620-1674)
- Smallpox vaccine - 1774 (Jesty)
  - William Jenner published 1798
- Broad Street Pump (1854)
  - John Snow (1813-1858)
- Germ Theory
  - Louis Pasteur (1822-1895)
  - Robert Koch (1843-1910)
- Surgical wounds - 1865
  - Sir John Lister (1827-1912)
- Child Bed Fever
  - Ignaz Semmelweis (1818-1865)
- Crimean War - Air, water, sunshine
  - Florence Nightingale (1820-1910)

CHAIN OF INFECTION

Break the Chain

Early Diagnosis
Prompt Treatment
ROLE OF EPIDEMIOLOGIST AT JACOHD
- Oversee Disease Control and Epidemiology
- Coordinate with Nurse Manager and CD Nurses
- Analyze, and interpret data (CD, chronic disease, etc.)
- Oversee CD Quality Assurance
- Lead outbreak investigations
- Maintain disease surveillance systems (ESSENCE, X-Sentinel, Internal CD Surveillance)
- Recommend interventions, evaluate and re-evaluate interventions
- Collaborate with public health and community partners
- Develop, or assist with the development of, emergency response plans
- Write and revise policies and procedures
- Provide consultation to staff and community
- Provide educational programs to staff and community

APPROACHES
- Observational
  - Descriptive
    - Person
    - Place
    - Time
  - Analytic - risk factors and trends
- Experimental studies
  - Clinical trials
  - Control programs

SOME EPIDEMIOLOGIC DISCIPLINES
- Chronic Diseases
- Communicable Diseases
- Accidents and Injuries
- Environment
- Occupational Health
- Social & Behavioral Health
- Health Planning

PURPOSE OF COMMUNICABLE DISEASE SURVEILLANCE
- Identify potential outbreaks or public health threats
- Manage the situation
- Minimize exposure of clients
- Define internal response team
- Define responsibilities of team members & respective services and units
SURVEILLANCE CYCLE

Public health surveillance is the ongoing, systematic collection, analysis, interpretation, and dissemination of health data to help guide public health decision making and action.

Feedback

Public and Health Care Providers
- Clinicians
- Laboratories
- Hospitals

Reporting

Health Department

(From: CDC - Principles of Epidemiology)

EPIDEMIOLOGY

Local Public Health/Hospitals/Nursing Homes

- Surveillance
  - Collect Data, Conduct Interviews
- Assessment
  - Interpret Data
- Communicable Disease Control (based on data)
- Outbreak Investigation
- Education
- Consultation

OUTBREAK INVESTIGATION

- Establish outbreak, cluster, epidemic (confirm)
- Develop case definition
- Characterize cases re: person, place, time
  - Personal
  - Demographic
  - Onset, duration of symptoms
- Form hypothesis
- Test hypothesis
- Implement and evaluate interventions
- Write report
SYNDROMIC SURVEILLANCE

- Based on signs and symptoms
- Sentinel event, possible predictor of reportable disease
- Report to local health department
  - Enter data
  - Analyze data
  - Look for trends
  - Alert partners of increases

SENTINEL EVENTS

- Pandemic Influenza
- Deliberate adulteration of food/water
- Chemical Terrorism
- Bioterrorism
  - Bacterial
    - Anthrax
    - Brucellosis
    - Cholera
    - Glenda
    - Pneumococcal
    - Typhus
    - Q fever
- Bioterrorism continued
  - Viruses
    - Smallpox
    - Viral hemorrhagic fever
    - Viral oncokokalases
  - Toxins
    - Botulinum
    - Slaa enterotox
    - Ricin
    - T-2 Mycotoxins

Terrorism Diseases by Category: Definitions

**Category A**
- The U.S. public health system and primary healthcare providers must be prepared to address various biological agents, including pathogens that are rarely seen in the United States. High-priority agents include organisms that pose a risk to national security because they can be easily disseminated or transmitted from person to person; result in high mortality rates and have the potential for major public health impact; might cause public panic and social disruption; and require special action for public health preparedness.

**Category B**
- Second highest priority agents include those that are moderately easy to disseminate; result in moderate mortality rates and low mortality rates; and require specific enhancements of CUD's diagnostic capacity and enhanced disease surveillance.

**Category C**
- Third highest priority agents include emerging pathogens that could be engineered for mass dissemination in the future because of ease of production and dissemination; potential for high mortality and morbidity rates and major health impact.

Terrorism Diseases by Category

**Category A Agents/Diseases**
- Anthrax (Bacillus anthracis)
- Botulism (Clostridium botulinum)
- Yersinia (Yersinia pestis)
- Plague (Yersinia pestis)
- Rabies (Rabies virus)
- Malaria (Plasmodium falciparum)
- Yellow fever (Flavivirus)
- Ebola (Ebolavirus)
- Marburg (Marburgvirus)

**Category B Agents/Diseases**
- Brucellosis (Brucella species)
- E. coli infection (Escherichia coli)
- Typhus fever (Rickettsia prowazekii)
- Campylobacter infection (Campylobacter jejuni)
- Yersina pestis infection (Yersina pestis)
- Rift Valley fever (Bunyaviridae)
- Q fever (Coxiella burnetii)
- Relapsing fever (Rickettsialpaca)
- Tularemia (Francisella tularensis)
- Plague (Yersinia pestis)
- Marburg (Marburgvirus)
- Ebola (Ebolavirus)
- Yellow fever (Flavivirus)
- Dengue (Flavivirus)
- Zika virus (Flavivirus)
- Cholera (Vibrio cholerae)
- Typhoid fever (Salmonella typhi)
- Salmonella (Salmonella enterica)

**Category C Agents**
- Emerging infectious diseases such as Nipah virus and hantavirus
WHAT TO REPORT?

- Immediately report:
  Unusual occurrence of any disease, infection, or condition that threatens the health of the public

WHERE AND HOW TO REPORT?

- All communicable disease reports should be reported to the local health department based on local ordinances and practices.

- Reports may be made by phone or by fax depending on the local health department

INDEX OF SUSPICION

- Are there an unusual number of patients presenting with similar symptoms?
- Is there an unusual presentation of symptoms?
- Are patients presenting with a similar set of exposures?
- Is this an unexplained case of a previously healthy individual with an apparently infectious disease?

WHAT IS ESSENCE?

- Electronic
- Surveillance
- System for the
- Early
- Notification of
- Community-based
- Epidemics
ESSENCE

- Developed by Johns Hopkins University and Department of Defense
- Automated surveillance tool
- Analysis & reporting of pre-defined syndrome groups
- Data mining ability
  - In MO, DHSS installed system to retrieve information from Emergency Department visits
  - Information includes
    - Hospital
    - Age range
    - Date of birth
    - City of residence
    - Syndrome
    - Medical record number
- Web based and secured

PURPOSE OF ESSENCE

➢ Our mission is to help state and local partners respond to public health events by providing information and tools for early event detection and situational awareness

-- Public Health Event Detection & Assessment Program

ROLE OF ESSENCE IN SYNDROMIC SURVEILLANCE

- Utilization of nontraditional data sources to detect health events earlier than possible with traditional methods like laboratory-confirmed diagnoses
  - Early event detection
  - Situational awareness

EARLY EVENT DETECTION

- Analysis of time-sensitive data for the purpose of detecting outbreaks as early as possible
- “Flag” a syndrome group whose number of visits was higher than expected to detect anomalies as early as possible
SITUATIONAL AWARENESS

- ESSENCE can be used during ongoing health events to track impact in terms of time, geography, and demographics
  - Examples:
    - ESSENCE syndromes
    - Influenza-like illness
    - Carbon monoxide poisonings following an ice storm
    - Injuries related to falls following an ice storm
    - Injuries related to activities dealing with flooding conditions
    - Influenza-like illness

ESSENCE DATA SOURCE

- Utilizes data from the “Hospital Information System” that each hospital maintains for its own purposes, like
  - Billing
  - Patient records
- Each have their own methodology and criteria to interact with ESSENCE
- No special data entry required: use data already being entered into hospital’s information system

ESSENCE CATEGORIES

- ESSENCE Categories Related to ED Chief Complaints
  - Respiratory (cough, pneumonia, influenza)
  - Gastrointestinal (vomiting, diarrhea)
  - Neurological (malaria, altered mental status, dizzy)
  - Fever
  - Rash (vesicular rash, chicken pox)
  - Botulism-like (weakness, blurred vision, speech)
  - Shock/Coma (syncope)
  - Hemorrhagic Illness (blood)

DISPLAYED PATIENT LEVEL

- Admission date and time
- Hospital name
- Zip code (patient)
- County (patient)
- Age group
- Age
- Sex
- Chief complaint
- Category (Rash, GI, etc.)
- Discharge diagnosis (ICD-9 code, if available)
- Discharge disposition (chief complaint, working diagnosis, final diagnosis)
- Medical Record Number
- County (hospital)
- Zip Code (hospital)
X-SENTINEL

- Regional local public health system
- Allows secure transfer of data from one public health jurisdiction to another
- Supports event and outbreak notification and inter-jurisdictional event management.
- Provides integrated data for epidemiologic investigations and management:
  - Case reporting
  - Epi curves
  - Spatial representations of data

REPORTING TO JACKSON COUNTY HEALTH DEPARTMENT

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Communicable Disease Nurse
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Fax to CD 816-404-9885

EMERGENCY PREPAREDNESS

Rhonda Charbonneau-Coppert, RN
Regional Response Planner
rhonda.charbonneau@tmomed.org
Phone: 816-404-8432
Fax: 816-404-6429

“Ready in 3”
by Department of Health and Senior Services, Missouri

- Three Steps To Prepare For An Emergency:
  1) Create a Plan
  2) Prepare a Kit
  3) Listen for Information

(Order online: http://health.mo.gov/emergencies/readyin3/)

RESOURCES

- www.jsohd.org
- www.health.org
- http://health.mo.gov/data/CommunityDataProfiles/index.html
- http://health.mo.gov/data/mortality/Mortality
- www.cdc.gov
- www.pbs.org
- www.nrdc.org
- www.who.int/social_determinants/descriptions/en/index.html
- www.fda.gov
- www.apha.org
- www.aphra.org
- www.bphc.org
- www.marco.org
- www.whosnuff.org
- www.coughsafe.com
- other
RESOURCES

- www.jacohd.org
- www.health.gov
  - http://health.mo.gov/data/CommunityDataProfiles/index.html
  - http://health.missouri.gov/data/mica/MICA/
- www.cdc.gov
  - www.cdc.gov/nchs/healthy_people.htm
  - http://www.cdc.gov/ncidod/diseases/definitions.html
  - http://www.who.int/social_determinants/WHO/AFR/record/key_concepts/indicators.html
- www.fda.gov
- www.spha.org
- www.statec.org
- www.naco.org
- www.maric.org
- www.whoopingcough.net
- www.coughsafe.com
- others

RESOURCES (CONTINUED)

- Peds Red Book (American Academy of Pediatrics)
- Control of Communicable Diseases (APHA)
- CDC Pink Book - Epidemiology and Prevention of Vaccine-Preventable Diseases (CDC WEB site)
- Manuals - DHSS WEB site
- TB Core Curriculum (on line at CDC WEB site)
- DHSS and Other
- Local Public Health Agencies

THE END

THANK YOU!

JACOHD
List of community outreach activities and meetings attended:

1. Jackson County Health Department (JACOHD) visit and introduction to the staff

2. Attended guest lecture – **Applied Epidemiology** – at Research Medical Center, Kansas City (Ms. Ellen Dorshow-Gordon, MPH)

3. Truman Medical Center **HIPPA** and **SIPS** (Security, Infection Prevention, Safety) training at TMC, HH

4. **Presentation** - “**Communicable Disease Reporting Overview**”
   - Pediatric Associates, Lee’s Summit, Missouri (MO)
   - Concentra Urgent Care, Grandview, MO
   - Cockerell & McIntosh Pediatrics, Blue Springs, MO

5. APIC seminar on **Tuberculosis Management** Updates, at Johnson County Health Department, Kansas

6. **MARC** (Mid-American Regional Council) Public Health Subcommittee meeting at MARC building, Kansas City, MO

7. **Restaurant (Food) Inspections** at IHOP, Lee’s Summit and Subway, Blue Springs with Mr. Wayne McGrath and Mr. Andrew Carpenter (Jackson County Environmental Health Specialists)

8. County Environmental Health Specialists

9. Northwest chapter of MPHA (Missouri Public Health Association) meeting, Independence, MO

10. **Clay County Public Health Center visit** (Meeting with Dr. Ximena Somoza)

11. **Cryptosporidium Outbreak Prevention Plan** meeting at Legacy Park Community Center, Lee’s Summit, MO

12. Infection Prevention & Control Corporate Meeting at Truman Medical Center, Lakewood

13. Eastern Jackson County **Emergency Managers monthly meetings**, Independence, MO
14. Jackson County Health Department all staff monthly meetings

15. **Communicable Disease Meeting**, The Department of Health Kansas City, MO

16. Healthy Lifestyle Choices by Ms. Amanda Grodie, JACOHD

17. TAR (Technical Assistance Review) meeting, JACOHD

18. CRI (Cities Readiness Initiatives) Advisory meeting, JACOHD

19. Communicable Disease Conference call

20. Monthly CQC (Corporate Quality Care) meeting, TMC Lakewood

21. Communicable Diseases-Environmental Health meeting, TMC Lakewood

**RESTAURANT INSPECTIONS**

I attended restaurant/food inspections with Jackson County Environmental Health department staff. This was a great experience in which I learned the applied aspects of food safety and proper sanitation. I learned about the checking food temperature, and proper storage of frozen foods. We discovered some critical violations at some of the restaurants. I have included a snapshot copy of restaurant inspection report on next page showing critical and non-critical violations (with the permission of Jackson County Environmental Health department, MO).
DEPARTMENT OF HEALTH
ENVIRONMENTAL PUBLIC HEALTH
FOOD ESTABLISHMENT INSPECTION REPORT

Wednesday, May 02, 2012

Owner Name: 11-19-02
Person In Charge: Sheena
Establishment: IHOP
City Code: Lee's Summit
Priority: High

Address: 628 NE 291 HWY
LEE'S SUMMIT, MO 64086

Food Service: Retail Food
Purpose: Routine
Water Supply: Sewage

Temperature Observations

<table>
<thead>
<tr>
<th>Food Product</th>
<th>Temperature</th>
<th>Storage Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gravy</td>
<td>39-41 F</td>
<td>Reach-in coolers</td>
</tr>
<tr>
<td>Sour cream</td>
<td>40 F</td>
<td>Walk-in cooler</td>
</tr>
<tr>
<td></td>
<td>151 F</td>
<td>Steam table</td>
</tr>
<tr>
<td></td>
<td>41 F</td>
<td>Prep cooler</td>
</tr>
</tbody>
</table>

Critical Violations

<table>
<thead>
<tr>
<th>Violation</th>
<th>Count</th>
<th>Title</th>
<th>Correct By</th>
<th>Initial</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-501.16</td>
<td>1</td>
<td>Potentially hazardous food, Hot and Cold Holding.*</td>
<td>5/4/2012</td>
<td></td>
<td>A package of roasted tomatoes was observed sitting on the cook's line under no form of temperature control and it was 107 F. It was discarded. The soup in the left-side warmer was 125 F and there was no water in the warmer. The soup was discarded.</td>
</tr>
</tbody>
</table>

Total Critical Violations: 1

Non-Critical Violations

<table>
<thead>
<tr>
<th>Violation</th>
<th>Count</th>
<th>Title</th>
<th>Correct By</th>
<th>Initial</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-501.11</td>
<td>1</td>
<td>Good Repair and Proper Adjustment.</td>
<td>7/1/2012</td>
<td></td>
<td>The gaskets on the cook's line prep cooler doors were in disrepair.</td>
</tr>
<tr>
<td>4-602.11</td>
<td>2</td>
<td>Equipment Food-contact surfaces and Utensils.*</td>
<td>5/2/2012</td>
<td></td>
<td>A knife with food debris on it was observed on the cook's line magnetic knife strip. Food debris was observed in the lid and utensil containers in the dishwashing room. CORRECTED.</td>
</tr>
</tbody>
</table>

Total Non-Critical Violations: 2

Comments
A re-inspection fee of one hundred dollars ($100) will be charged for a violation (critical violation or non-critical violation) when a re-inspection is required. This fee is due at time of re-inspection in the form of a check or money order made out to JACKSON COUNTY (inspectors cannot accept cash in the field). This re-inspection will check for the correction of critical violation 3-501.16.

Received By: Sheena
Received Date: Friday, May 04, 2012

Inspected By: Wayne McGrath
San No: 009
Phone/Fax: (816)881-4415

Inspection Date: Wednesday, May 02, 2012
Time In: Time Out
CHAPTER 5 – DISCUSSION AND RECOMMENDATIONS

DISCUSSION

My internship at Jackson County Health Department, MO was a great learning experience about applied epidemiology. I am highly impressed with the advance public health set up and professionalism. I was able to apply my education at Kansas State University in various activities at JACOHD. I understood the geographical and jurisdictional differences between the school districts, county health department (JACOHD), and health department of the city (the health department of Kansas City). Visiting a few doctor’s offices and urgent care facilities was rewarding to me and the health department. I recognized that there is a need to encourage physicians, microbiologists, veterinary physicians, and laboratories for reporting infectious and zoonotic diseases to local health departments. I felt that I would have participated more in providing health education to community. Overall, this filed experience provided a real-world perceptive in public health field in the United States.

RECOMMENDATIONS

During my field experience at JACOHD, I participated in different community outreach activities. I realized that there is a huge room for improvement in some of the public health areas. Public Health can play a major role in decreasing the risk of chronic diseases and development of antibiotic resistance, and in improvement of quality of life of people. As a physician I would like to correlate both clinical and public health in my medical practice for the betterment of community health. From my experience, I recommend that following areas should be promoted for further research and innovation which will help to create new ideas that would contribute in continuous efforts towards the global health.21
1. Developing Community-Wide Antibiograms

- A community-wide antibiogram (CWA) is based on the results of culture and sensitivity reports from laboratories and hospitals in the local region. The antimicrobial surveillance is a systematic collection, analysis, and dissemination of data that can be used to identify resistance trends and assess the need for intervention.

- Many hospitals generate individual antibiograms for their clinicians, but individual antibiograms are not sufficient to perform antibiotic resistance surveillance for the whole community. As one of the 12 steps to prevent antimicrobial resistance in various healthcare settings, the CDC encourages clinicians to use CWAs. The CWA also helps in tacking antibiotic resistance trends and guides in making changes in empiric treatment.

- For successful antibiogram surveillance, we need cooperation and collaboration of many disciplines including clinical medicine, public health, infection control, microbiology, veterinary medicine, agriculture, entomology, public safety, law, and health communication. In my opinion, CWA should be used to monitor antimicrobial resistance in local regions and to develop preventive strategies for intervention.

- **Advantages of CWA:**

An initial goal should be to create a CWA to be used by physicians in the community for empirical therapy. Development of a CWA has the following advantages:

a) It provides the opportunity to develop intervention strategies for decreasing antimicrobial resistance in the community
b) A CWA for a local region would allow us to consider resistance patterns in hospitals referring patients and to select appropriate “presumptive” antimicrobial therapy or change drugs in non-responding patients. In this way it will optimize the use of antimicrobial agents in in-patient healthcare settings.24

c) “Antibiotics are the only drug where use in one patient can impact the effectiveness in another. If everyone does not use antibiotics well, we will all suffer the consequences” said CDC.25 A study conducted by CDC shows that improving antibiotic usage improves infection cure rates and reduces mortality, antibiotic resistance, and cost of treatment.

d) It allows participating hospitals to compare their internal antibiograms with the regional master antibiogram.26

2. **Reporting to local health department**

- The key part of communicable disease surveillance is case reporting. Surveillance cycle starts with the hospital and doctor’s office. They report the reportable diseases to the local health department → State health department → CDC. Then CDC investigates to determine whether or not there is similar outbreak occurring in another part of the country or the world, and sends recommendations to prevent future events.

- Sometimes laboratories or hospitals report directly to the national level and because of that the regional health department does not receive important information immediately. This may lead to a major outbreak of infectious disease. That is why we tried to communicate and visit different doctor’s offices, urgent care clinics, and major laboratories.
3. Implementation of Preventive Strategies at the school level

- In my opinion, preventive health can play a major role in decreasing the death rates due to heart diseases, cerebrovascular stroke.

- Today, we have great technology and equipment, advance medicines and research but heart disease is the leading cause of death in the United States. Strict control of primary risk factors such as obesity, hypertension, and diabetes is required. We need to work on “Behavioral Modification” to improve overall community health.²⁷

- Healthy People 2020 is emphasizing social and behavioral determinants of health. Implementation of preventive strategies and changes in health policies at the school level will make a big difference in lifestyle of next generations.

ACCOMPLISHMENTS

- Worked on Community Health Assessment Project and retrieved different data from MICA, community profile (DHSS website) and census 2010.

- Participated in preparing Jackson County Health Survey 2012

- Collaborated with Jackson County Health Department epidemiologist, health educators and other staff in different events.

- Identified and prioritized the community health problems. Analyzed the data on leading causes of death for Eastern Jackson County.

- Visited Doctor’s offices and Urgent Care facilities and gave presentation on “Communicable Disease Reporting Overview.”

- Attended appropriate meetings and seminars

- Observed Restaurant (Food) Inspections with Jackson County Environmental Health staff.
- Observed STD Clinic at the Health Department
- Learned about the disease outbreak investigation and outbreak table top exercise
- Learned the process of Communicable Disease Surveillance Systems and use of ESSENSE (Electronic Surveillance System for the Early Notification of Community-based Epidemics), X-Sentinel and school surveillance system
REFERENCES


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12. Sherry L. Murphy BS, Jiaquan Xu MD, and Kenneth D. Kochanek, M.A., Division of Vital 


16. Missouri Department of Health and Senior Services. Death MICA. 


20. Jackson County M. Environmental health. 


