

MPH FIELD EXPERIENCE AT JACKSON COUNTY HEALTH DEPARTMENT

by

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A FIELD EXPERIENCE REPORT

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Abstract

This report highlights my field experience as a public health intern at Jackson County Health Department, Independence, Missouri. This field 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.

CHAPTER 1 – JACKSON COUNTY HEALTH DEPARTMENT

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.¹

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.²

MISSION STATEMENT

“Jackson County Health Department provides public health services for disease prevention, health promotion and protection of the environment.”¹

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.”¹

SPECIALIZED SERVICES

The Jackson County Health Department serves Eastern Jackson County and provides the following services:³

- 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:

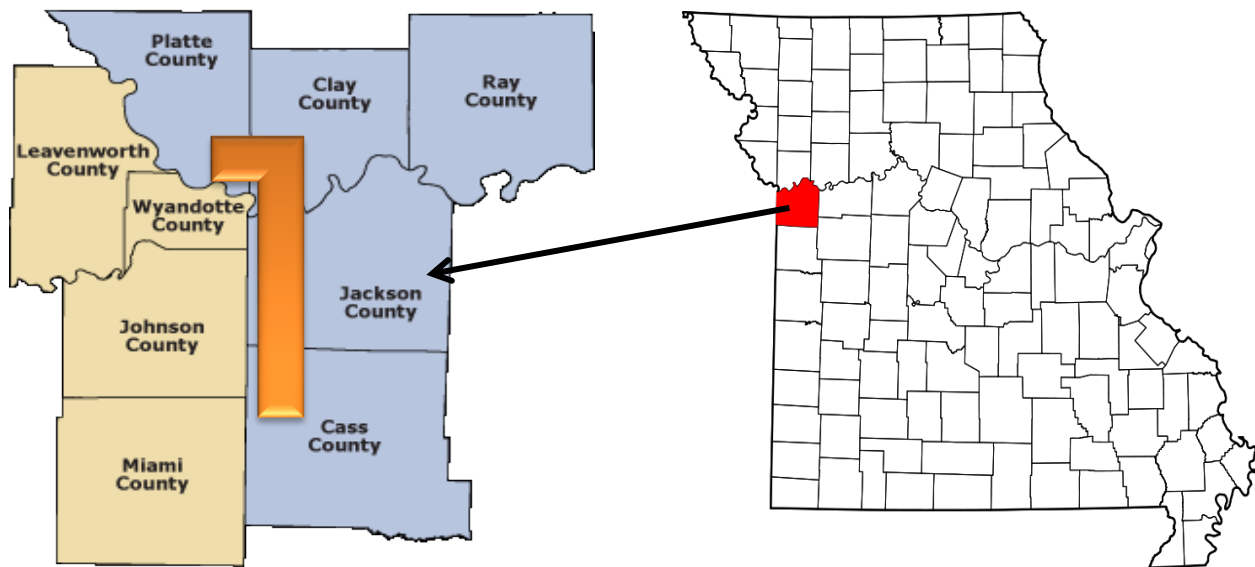
- Coordinate with Disease Control and Epidemiology
- Analyze and interpret data (communicable disease, chronic disease, etc.), maintain disease surveillance systems
- Lead outbreak investigations, provide consultation and educational programs
- Recommend interventions, evaluate and re-evaluate interventions
- 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

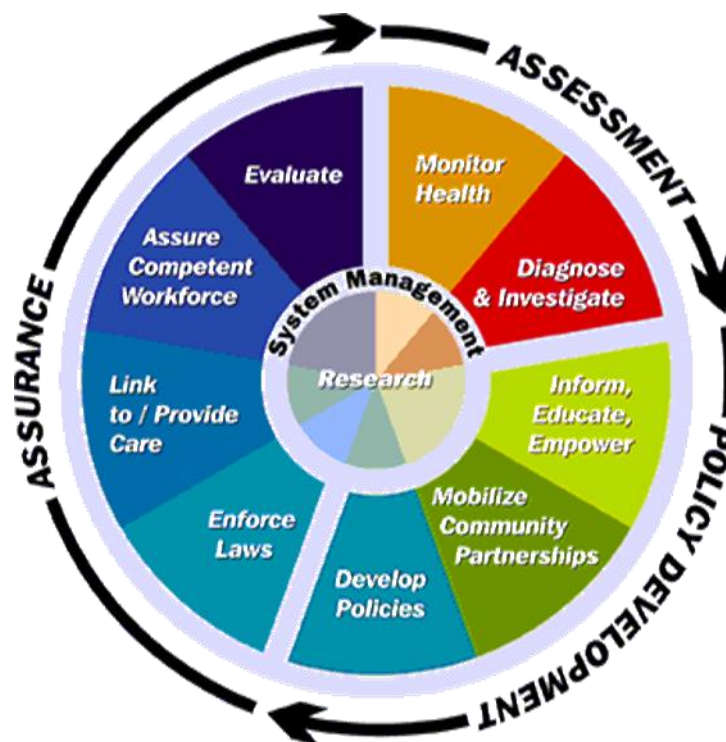
Jackson County is located in west central Missouri in the United States. According to the 2010 U.S. Census⁴, the total population of the county is 674,158, the second most populous county in the state (after St. Louis County).⁵ The county was established on December 15, 1826 and named for President Andrew 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) ⁶

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.”***⁷ 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".⁸ 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)⁷

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.⁹ We gathered and analyzed the data of the following health indicators: ¹⁰

- **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: ¹¹

- 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

- $$\text{Mortality Rate} = \frac{\text{Deaths occurring during a given time period}}{\text{Size of the population among which the deaths occurred}} \times 10^n$$

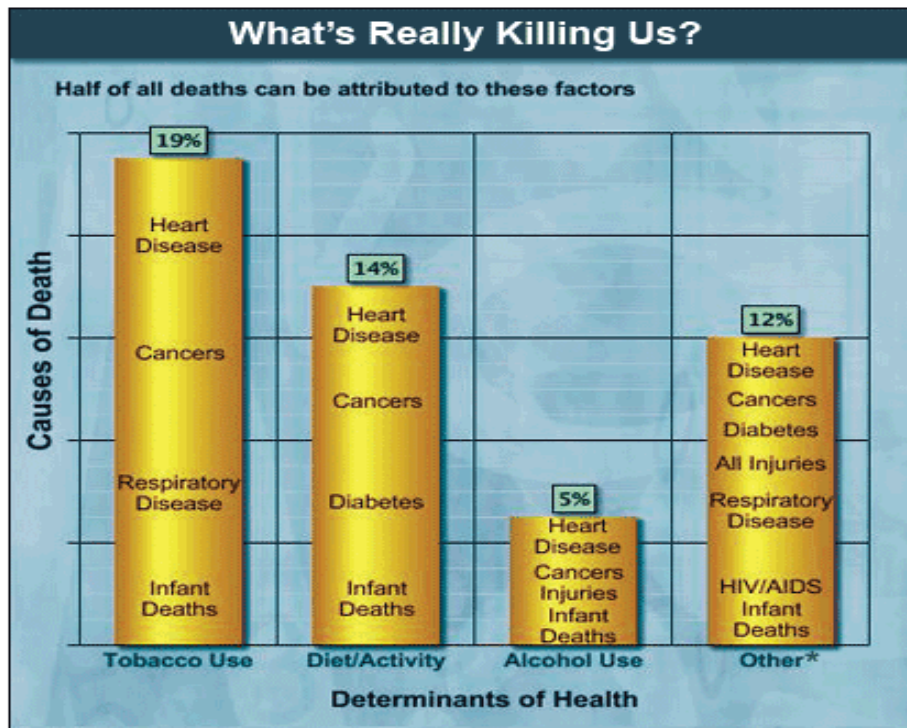
($10^n = 1,000 \text{ or } 100,000$)

U.S. Mortality Statistics:¹³

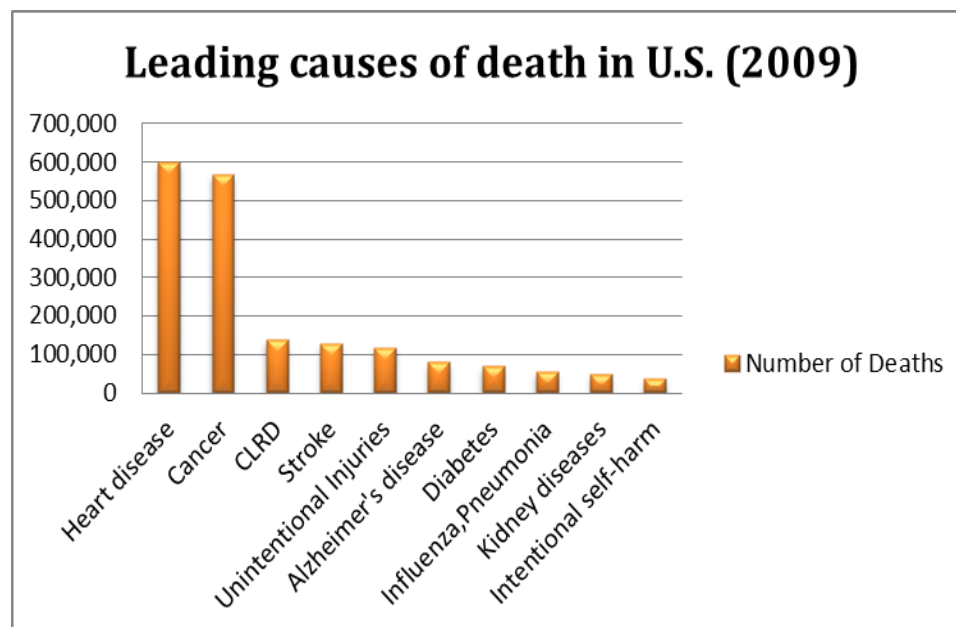
- Number of deaths: 2,513,171 (CDC preliminary data report 2011)
- Death rate: 793.8 deaths per 100,000 population
- Life expectancy: 78.5 years
- Infant Mortality rate: 6.39 deaths per 1,000 live births

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



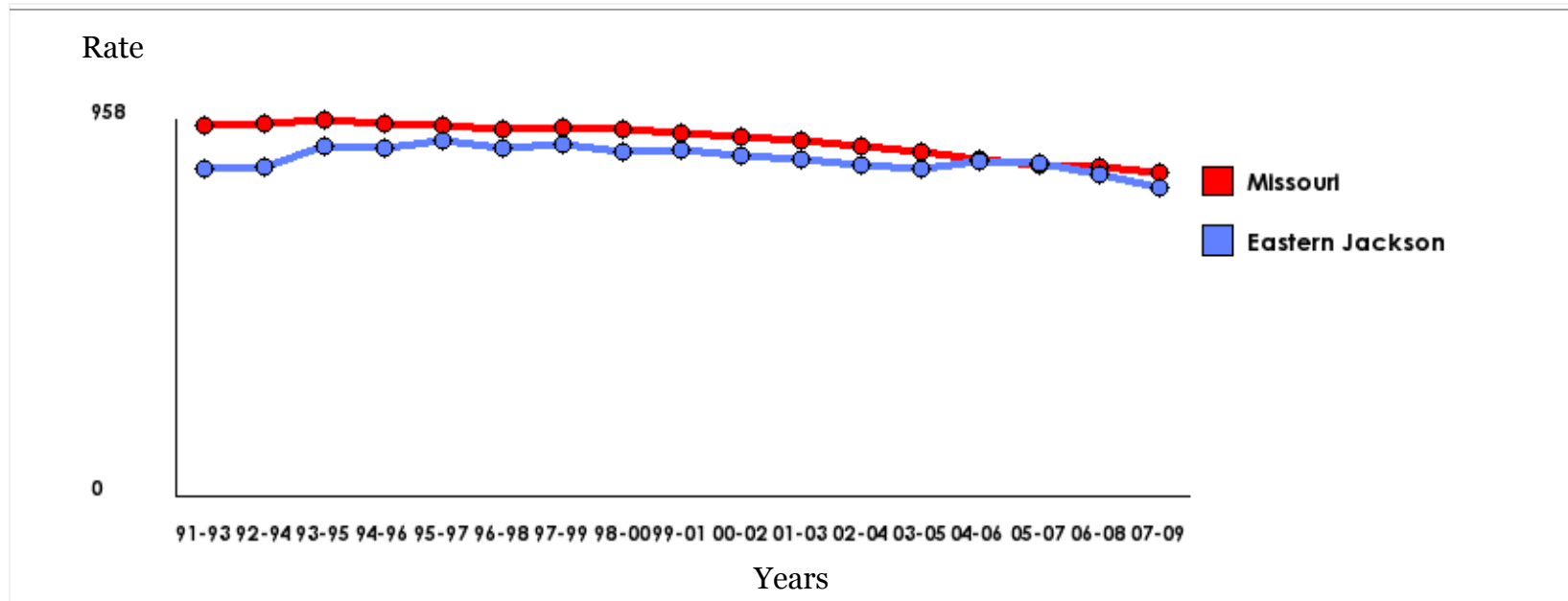
(Figure 2.3: Actual causes of Death - Source: McGinnis, J.M & Foege, W.H. (1993). Actual causes of death in the United States. JAMA, 270(18), 2207-2212)¹⁴



(Figure 2.4: Top 10 Leading causes of death in U.S. – CDC deaths final report 2009)¹⁵

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



Three-Year Moving Average Rates																	
	Years																
	91-93	92-94	93-95	94-96	95-97	96-98	97-99	98-00	99-01	00-02	01-03	02-04	03-05	04-06	05-07	06-08	07-09
Eastern Jackson	829.1	835.3	887.1	885.3	903.3	882.6	891.0	876.3	878.3	862.7	856.7	840.3	832.7	851.6	846.0	817.4	785.3
Missouri	942.5	948.3	957.4	947.6	940.5	933.7	935.8	930.2	920.6	911.5	904.6	890.7	872.5	855.9	842.4	836.9	822.4

(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 2.1 Eastern Jackson County, Independence, Kansas City, Missouri												
Year 2005-2009												
Deaths: All Causes												
Jurisdiction												
Eastern Jackson County				Independence			Kansas City			Missouri		
Year	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
2005	1,787	838.8	800.0 to 879.1	1,213	853.8	806.2 to 903.5	3,784	840	813.4 to 867.3	54,324	859.2	851.9 to 866.5
2006	1,952	898.2	858.3 to 939.4	1,247	873.1	825.0 to 923.3	3,809	826.6	800.5 to 853.4	54,475	845.3	838.2 to 852.5
2007	1,763	801.1	763.7 to 839.9	1,302	903.2	854.5 to 954.0	3,721	788.1	762.9 to 814.0	53,937	822.6	815.6 to 829.6
2008	1,786	753.1	718.0 to 789.4	1,331	906	857.5 to 956.5	3,903	813.8	788.3 to 839.9	56,278	842.7	835.7 to 849.8
2009	1,899	801.8	765.6 to 839.3	1,266	863.9	816.5 to 913.3	3,609	744.7	720.4 to 769.6	54,064	801.8	795.0 to 808.6
Total	9,187	817.1	800.3 to 834.2	6,359	880.1	858.5 to 902.2	18,826	802.3	790.8 to 813.9	273,078	834	830.9 to 837.2
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 ¹⁶

Table 2.2 Leading causes of Mortality in Missouri, Eastern Jackson County, Independence, Kansas City											
Year 1999-2009											
	Missouri		Eastern Jackson County			Independence			Kansas City		
	Numbers	Age-Adjusted Rate	Numbers	Age-Adjusted Rate	Signif Different	Numbers	Age-Adjusted Rate	Signif Different	Numbers	Age-Adjusted Rate	Signif Different
All Causes	602631	871.5	19487	838.5	L	13319	870.7	N/S	42256	863.2	N/S
Heart Disease	172202	245.6	5183	222.5	L	3380	217.7	L	9975	204.8	L
All Cancers (Malignant Neoplasms)	135732	197.7	4441	193	N/S	2971	192.6	N/S	9456	194.8	N/S
Lung Cancer	105354	61.4	3298	58.4	N/S	926	59.7	N/S	6957	60.3	N/S
Breast Cancer	43403	14.6	1323	15	N/S	247	16.1	N/S	4002	15	N/S
Stroke/Other Cerebrovascular Disease	42092	54.9	1372	47.6	L	806	51.4	N/S	2915	51.4	L
Chronic Lower Respiratory Disease	38628	48.7	1168	52.6	H	889	56.6	H	2490	46.6	N/S
Total Unintentional Injuries	33585	45.0	1088	37.1	L	599	43.9	N/S	2238	44.4	N/S
Motor Vehicle Accidents	29386	18.6	902	13.8	L	183	14.1	L	2221	12.8	L
Pneumonia and Influenza	16393	23.1	694	22	N/S	284	18.1	L	1287	16.6	L

Diabetes Mellitus	16373	23.8	518	20.5	L	388	25.2	N/S	1285	26.5	H
Alzheimer's Disease	15722	21.9	469	30.1	H	594	37.4	H	1149	21.5	N/S
Kidney Disease (Nephritis, Nephrosis)	11926	17.2	444	19.6	H	325	20.8	H	1046	20.5	H
Suicide	12047	12.9	360	13.6	N/S	212	16.2	H	993	13.1	N/S
Septicemia	10493	11.5	335	12.2	N/S	197	12.7	N/S	1050	13.3	H
Chronic Liver Disease and Cirrhosis	9972	7.3	339	6.3	N/S	100	6.8	N/S	817	8.4	H
Homicide	8211	7.1	341	4.5	L	69	5.7	N/S	733	20.4	H
HIV/AIDS	8077	2.3	282	1.2	L	32	2.5	N/S	647	6.4	H
Smoking-Attributable (estimated)	7947	152.2	271	143.5	L	2340	150.7	N/S	657	143.2	L
Alcohol/Drug-Induced	4891	16.4	151	13.1	L	304	23.3	H	645	25.6	H
All Injuries and Poisonings	4442	67.0	109	56	L	893	66.8	N/S	416	79.3	H
Firearm	1450	12.7	41	11	L	156	12.1	N/S	317	22.5	H
Injury at Work	1290	2.0	32	1.6	N/S	23	1.8	N/S	80	1.5	N/S
<p>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.</p> <p>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.</p> <p>**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)</p> <p>Key: Highlighted Age Adjusted Rates in EJC = EJC Rate Statistically Significantly Higher than MO Rate</p>											

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 2.3 EJC and MO Leading Causes of Death in Order (Average Age-Adjusted Rates)							
1999-2009							
Eastern Jackson Residents				Missouri			
Rank		Number of Events	Age-Adjusted Rate	Rank		Number of Events	Age-Adjusted Rate
	All Causes	19487	838.5		All Causes	602631	871.5
1	Heart Disease	5183	222.5	1	Heart Disease	172202	245.6
2	All Cancers (Malignant Neoplasms)	4441	193	2	All Cancers (Malignant Neoplasms)	135732	197.7
3	Smoking-Attributable (estimated)	3298	143.5	3	Smoking-Attributable (estimated)	105354	152.2
4	All Injuries and Poisonings	1372	56	4	All Injuries and Poisonings	43403	67
5	Lung Cancer	1323	58.4	5	Lung Cancer	42092	61.4
6	Chronic Lower Respiratory Disease	1168	52.6	6	Stroke/Other Cerebrovascular Disease	38628	54.9
7	Stroke/Other Cerebrovascular Disease	1088	47.6	7	Chronic Lower Respiratory Disease	33585	48.7
8	Total Unintentional Injuries	902	37.1	8	Total Unintentional Injuries	29386	45
9	Alzheimer's Disease	694	30.1	9	Diabetes Mellitus	16393	23.8
10	Pneumonia and Influenza	518	22	10	Pneumonia and Influenza	16373	23.1
11	Diabetes Mellitus	469	20.5	11	Alzheimer's Disease	15722	21.9
12	Kidney Disease (Nephritis, Nephrosis)	444	19.6	12	Kidney Disease (Nephritis, Nephrosis)	12047	17.2
13	Breast Cancer	360	15	13	Motor Vehicle Accidents	11926	18.6
14	Alcohol/Drug-Induced	341	13.1	14	Alcohol/Drug-Induced	10493	16.4
15	Suicide	339	13.6	15	Breast Cancer	9972	14.6
16	Motor Vehicle Accidents	335	13.8	16	Suicide	8211	12.8

17	Septicemia	282	12.2	17	Firearm	8077	12.7
18	Firearm	271	11	18	Septicemia	7947	11.5
19	Chronic Liver Disease and Cirrhosis	151	6.3	19	Chronic Liver Disease and Cirrhosis	4891	7.3
20	Homicide	109	4.5	20	Homicide	4442	7.1
21	Injury at Work	41	1.6	21	HIV/AIDS	1450	2.3
22	HIV/AIDS	32	1.2	22	Injury at Work	1290	2

(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.)

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.

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.

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												
Year 2005-2009												
	Jurisdiction											
	Eastern Jackson County			Independence			Kansas City			Missouri		
Year	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
2005	444	208	188.9 to 228.5	286	197.1	174.9 to 221.3	839	186.9	174.4 to 200.0	14,818	231	227.3 to 234.7
2006	463	212.8	193.6 to 233.3	309	212.3	189.2 to 237.5	815	177.7	165.6 to 190.3	14,647	223.5	219.9 to 227.1
2007	446	203.2	184.6 to 223.2	301	205.7	182.9 to 230.4	777	164.6	153.2 to 176.7	14,237	213.3	209.8 to 216.9
2008	405	168.1	151.9 to 185.6	272	180.7	159.8 to 203.7	812	168.3	156.8 to 180.3	14,550	213.7	210.2 to 217.2
2009	418	175.5	158.8 to 193.5	275	186.4	164.9 to 210.0	703	144.3	133.8 to 155.5	13,845	201.3	198.0 to 204.7
Total	2,176	192.8	184.7 to 201.2	1,443	196.2	186.2 to 206.7	3,946	168.2	163.0 to 173.5	72,097	216.3	214.7 to 217.9
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

Jurisdiction

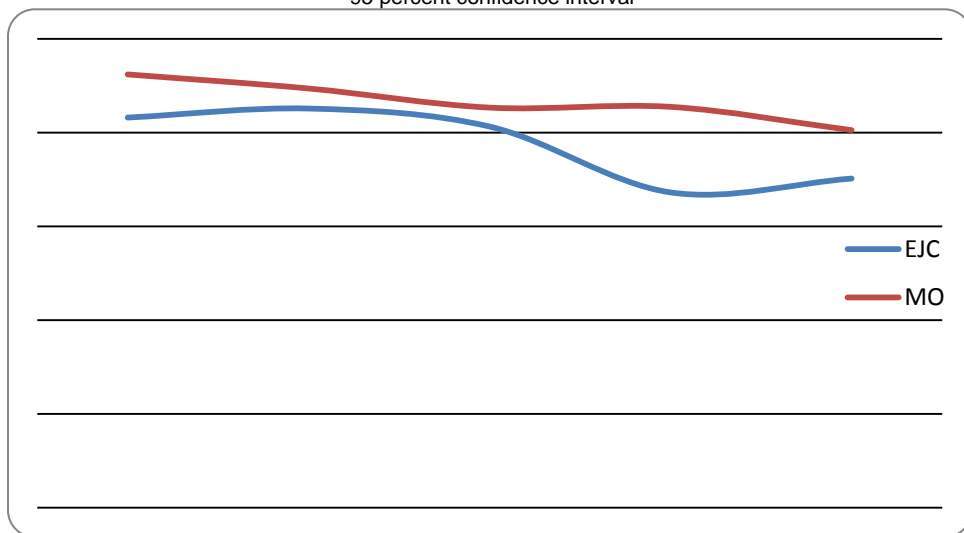
Year	Eastern Jackson County			Missouri		
	Number	Rate	CI	Number	Rate	CI
2005	444	208	188.9 to 228.5	14,818	231	227.3 to 234.7
2006	463	212.8	193.6 to 233.3	14,647	223.5	219.9 to 227.1
2007	446	203.2	184.6 to 223.2	14,237	213.3	209.8 to 216.9
2008	405	168.1	151.9 to 185.6	14,550	213.7	210.2 to 217.2
2009	418	175.5	158.8 to 193.5	13,845	201.3	198.0 to 204.7
Total	2,176	192.8	184.7 to 201.2	72,097	216.3	214.7 to 217.9

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 2.6 Heart Disease Deaths: Residents of Eastern Jackson County									
Year 2005-2009									
Cumulative Age by Gender									
	Gender								
	Male			Female			Both Sexes		
Age	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
Under 15	0	0.0 @	0	3	2.3 @	0	3	1.1 @	0
15 to 24	1	1.4 @	0	1	1.4 @	0	2	1.4 @	0
25 to 44	35	20.7	14.4 to 28.8	14	7.8 @	0	49	14	10.4 to 18.5
45 to 64	232	150.8	132.0 to 171.5	96	60.3	48.9 to 73.7	328	104.8	93.8 to 116.8
65 and over	770	1487.8	1,384.5 to 1,596.7	1,024	1366.7	1,284.2 to 1,453.0	1,794	1416.1	1,351.4 to 1,483.2
All ages	1,038	247.3	232.0 to 263.3	1,138	156.8	147.6 to 166.5	2,176	192.8	184.7 to 201.2
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 2.7 Heart disease Deaths: Residents of Eastern Jackson County Year 2005-2009											
Cumulative Age by Race											
	Race										
	White			Black/African-American			Other	All Races			
Age	Number	Rate	CI	Number	Rate	CI		Number	Rate	CI	Percents
Under 15	3	@	@ to @	0	@	@ to @		3	1.1 @	0	0.14%
15 to 24	2	@	@ to @	0	@	@ to @		2	1.4 @	0	0.09%
25 to 44	40	@	@ to @	9	@	@ to @		49	14	10.4 to 18.5	2.25%
45 to 64	278	@	@ to @	46	@	@ to @		328	104.8	93.8 to 116.8	15.07%
65 and over	1,719	@	@ to @	67	@	@ to @		1,794	1416.1	1,351.4 to 1,483.2	82.44%
All ages	2,042	@	@ to @	122	@	@ to @	12	2,176	192.8	184.7 to 201.2	99.99%
Percents	93.84%			5.61%			0.55%	100%			
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 2.8 Heart disease Deaths: Eastern Jackson County Year 2005-2009 Cumulative Race by Gender				
	Gender			
Race	Male	Female	Both Sexes	
	Number	Number	Number	Percent
White	967	1,075	2,042	93.84%
Black/African-American	64	58	122	5.6%
All Races	1,038	1,138	2,176	99.44%
Percent	47.70%	52.30%	100%	
Confidence Interval for rates by the Inverse Gamma Method				
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 2.9 Cancer Deaths for Eastern Jackson County, Independence, Kansas City, Missouri												
Year 2005-2009												
Jurisdiction												
	Eastern Jackson County			Independence			Kansas City			Missouri		
Year	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
2005	431	202.7	183.8 to 223.0	283	198.4	175.9 to 223.1	883	197.1	184.3 to 210.6	12,381	197	193.5 to 200.5
2006	445	207.4	188.3 to 227.8	278	193.5	171.3 to 217.8	854	187.1	174.7 to 200.2	12,484	194.8	191.4 to 198.3
2007	395	182.3	164.5 to 201.6	290	199	176.7 to 223.5	879	187.9	175.6 to 200.8	12,354	190	186.7 to 193.4
2008	377	158.6	142.6 to 175.8	281	188.1	166.7 to 211.6	876	184.3	172.2 to 197.0	12,497	188.4	185.1 to 191.8
2009	466	198	180.1 to 217.2	284	192.9	170.9 to 216.9	806	168	156.5 to 180.1	12,435	185	181.8 to 188.3
Total	2,114	189.4	181.3 to 197.8	1,416	194.4	184.3 to 204.8	4,298	184.7	179.2 to 190.3	62,151	191	189.5 to 192.5
Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)												

Table 2.10 Cancer deaths: Missouri and Eastern Jackson County

Year 2005-2009						
Jurisdiction						
	Eastern Jackson County			Missouri		
Year	Number	Rate	CI	Number	Rate	CI
2005	431	202.7	183.8 to 223.0	12,381	197	193.5 to 200.5
2006	445	207.4	188.3 to 227.8	12,484	194.8	191.4 to 198.3
2007	395	182.3	164.5 to 201.6	12,354	190	186.7 to 193.4
2008	377	158.6	142.6 to 175.8	12,497	188.4	185.1 to 191.8
2009	466	198	180.1 to 217.2	12,435	185	181.8 to 188.3
Total	2,114	189.4	181.3 to 197.8	62,151	191	189.5 to 192.5
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						
<p>Source: MICA; Rates Per 100,000 population; Age Adjustment Uses 2000 Standard Population; 95 percent Confidence Interval for Rates (CI)</p>						

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 2.11 Cancer deaths: Residents of Eastern Jackson County									
Year 2005 - 2009									
Cumulative Age by Gender									
	Male			Female			Both Sexes		
Age	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
Under 15	1	0.7 @	0	2	1.5 @	0	3	1.1 @	0
15 to 24	7	9.5 @	0	2	2.9 @	0	9	6.3 @	0
25 to 44	32	18.9	12.9 to 26.7	40	22.2	15.8 to 30.2	72	20.6	16.1 to 25.9
45 to 64	372	241.8	217.9 to 267.7	288	180.9	160.6 to 203.1	660	210.9	195.1 to 227.6
65 and over	691	1335.1	1,237.4 to 1,438.5	678	904.9	838.1 to 975.6	1,369	1080.7	1,024.2 to 1,139.5
All ages	1,104	237.1	222.8 to 252.0	1,010	158	148.2 to 168.2	2,114	189.4	181.3 to 197.8
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 2.12 Cancer Deaths: Residents of Eastern Jackson County									
Year 2005 - 2009									
Cumulative Age by Race									
	White			Black/African-American			All Races		
Age	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
Under 15	3	@	@ to @	0	@	@ to @	3	1.1 @	0
15 to 24	6	@	@ to @	3	@	@ to @	9	6.3 @	0
25 to 44	62	@	@ to @	9	@	@ to @	72	20.6	16.1 to 25.9
45 to 64	597	@	@ to @	60	@	@ to @	660	210.9	195.1 to 227.6
65 and over	1,278	@	@ to @	86	@	@ to @	1,369	1080.7	1,024.2 to 1,139.5
All ages	1,947	@	@ to @	158	@	@ to @	2,114	189.4	181.3 to 197.8
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 2.13 Cancer Deaths: Eastern Jackson County			
Year 2005-2009			
Cumulative Race by Gender			
	Gender		
	Male	Female	Both Sexes
Race	Number	Number	Number
White	1,016	931	1,947
Black/African-American	84	74	158
All Races	1,104	1,010	2,114
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 2.14 Lung Cancer Deaths (Cancer of the Trachea, Bronchus and Lungs)												
Eastern Jackson County, Missouri, Independence, Kansas City MO												
Year 2005-2009												
	Missouri			Eastern Jackson County			Independence			Kansas City		
Year	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
2005	3,882	62	60.0 to 64.0	143	68.7	57.8 to 81.2	89	63.1	50.6 to 77.7	266	59.7	52.7 to 67.4
2006	3,921	61.4	59.5 to 63.4	127	61.1	50.8 to 72.9	86	59.7	47.7 to 73.8	278	61.6	54.5 to 69.3
2007	3,857	59.6	57.7 to 61.5	131	60.8	50.7 to 72.4	88	60.4	48.3 to 74.4	253	54.4	47.9 to 61.6
2008	3,933	59.4	57.5 to 61.3	110	46	37.6 to 55.6	80	53.4	42.3 to 66.5	285	61	54.1 to 68.5
2009	3,836	57.2	55.4 to 59.1	125	53.4	44.3 to 63.8	93	62.2	50.0 to 76.3	236	49.8	43.6 to 56.7
Total	19,429	59.9	59.0 to 60.7	636	57.8	53.3 to 62.5	436	59.8	54.3 to 65.7	1,318	57.2	54.2 to 60.4
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 2.15 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 2.15 Lung Cancer Deaths: Residents of Eastern Jackson County									
Year 2005 - 2009									
Cancers of trachea/bronchus/lung									
	Gender								
	Male			Female			Both Sexes		
Age	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
Under 15	0	0.0 @	0	0	0.0 @	0	0	0.0 @	0
15 to 24	0	0.0 @	0	0	0.0 @	0	0	0.0 @	0
25 to 44	8	4.7 @	0	10	5.5 @	0	18	5.1 @	0
45 to 64	125	81.3	67.6 to 96.8	68	42.7	33.2 to 54.2	193	61.7	53.3 to 71.0
65 and over	218	421.2	367.1 to 481.0	207	276.3	239.9 to 316.6	425	335.5	304.3 to 368.9
All ages	351	74	66.2 to 82.4	285	45.9	40.7 to 51.7	636	57.8	53.3 to 62.5
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)									

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 2.16 Chronic lower respiratory diseases Deaths												
Year 2005-2009												
	Jurisdiction											
	Eastern Jackson County			Independence			Kansas City			Missouri		
Year	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
2005	108	54.4	44.5 to 65.8	78	53.1	41.8 to 66.5	208	47.1	40.9 to 54.0	3,063	48.6	46.9 to 50.3
2006	129	60.8	50.7 to 72.4	62	42.4	32.4 to 54.5	206	46.1	40.0 to 52.8	3,008	47	45.3 to 48.7
2007	91	42.5	34.1 to 52.3	79	54.2	42.8 to 67.6	207	44.4	38.5 to 50.9	3,070	47	45.3 to 48.7
2008	124	55.4	45.9 to 66.3	108	72.2	59.1 to 87.2	247	52.5	46.1 to 59.5	3,743	56.5	54.7 to 58.4
2009	104	45.8	37.3 to 55.7	94	62.6	50.5 to 76.7	225	47.1	41.2 to 53.8	3,436	51.3	49.6 to 53.1
Total	556	51.7	47.5 to 56.3	421	57	51.7 to 62.8	1,093	47.5	44.7 to 50.4	16,320	50.1	49.3 to 50.9
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)												

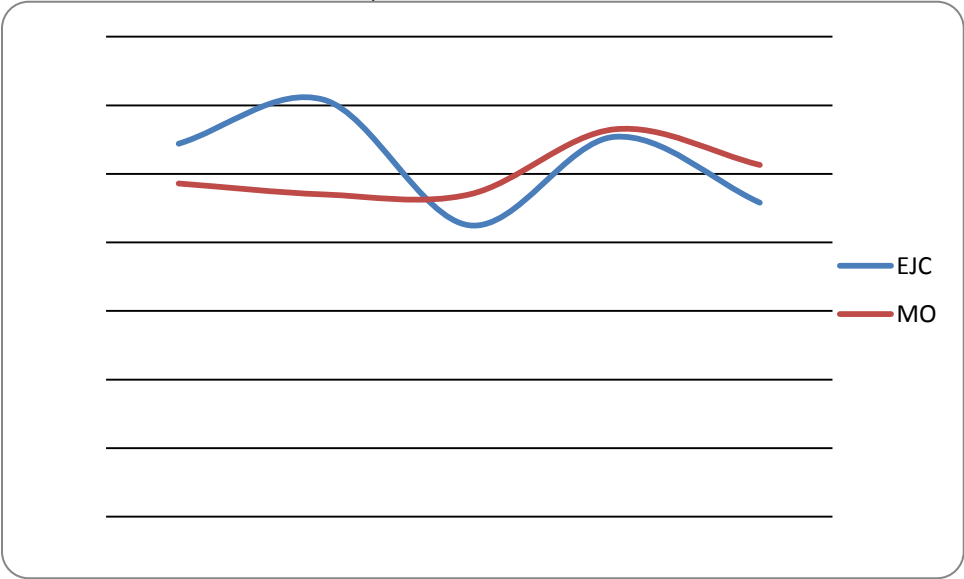
Table 2.17 Chronic lower respiratory diseases Deaths						
Year 2005-2009						
Jurisdiction						
	Eastern Jackson County			Missouri		
Year	Number	Rate	CI	Number	Rate	CI
2005	108	54.4	44.5 to 65.8	3,063	48.6	46.9 to 50.3
2006	129	60.8	50.7 to 72.4	3,008	47	45.3 to 48.7
2007	91	42.5	34.1 to 52.3	3,070	47	45.3 to 48.7
2008	124	55.4	45.9 to 66.3	3,743	56.5	54.7 to 58.4
2009	104	45.8	37.3 to 55.7	3,436	51.3	49.6 to 53.1
Total	556	51.7	47.5 to 56.3	16,320	50.1	49.3 to 50.9
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 2.18 Chronic lower respiratory diseases Deaths: Residents of Eastern Jackson County									
Year 2005 – 2009									
Cumulative Age by Gender									
	Gender								
	Male			Female			Both Sexes		
Age	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
Under 15	0	0.0 @	0	1	0.8 @	0	1	0.4 @	0
15 to 24	0	0.0 @	0	0	0.0 @	0	0	0.0 @	0
25 to 44	1	0.6 @	0	0	0.0 @	0	1	0.3 @	0
45 to 64	34	22.1	15.3 to 30.9	37	23.2	16.4 to 32.0	71	22.7	17.7 to 28.6
65 and over	202	390.3	338.3 to 448.0	281	375	332.5 to 421.5	483	381.3	348.0 to 416.8
All ages	237	58.2	50.9 to 66.3	319	48.9	43.6 to 54.7	556	51.7	47.5 to 56.3
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 2.19 Chronic lower respiratory diseases Deaths: Residents of Eastern Jackson County									
Year 2005 – 2009									
Cumulative Age by Race									
	Race								
	White			Black/African-American			All Races		
Age	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
Under 15	0	@	@ to @	1	@	@ to @	1	0.4 @	0
15 to 24	0	@	@ to @	0	@	@ to @	0	0.0 @	0
25 to 44	1	@	@ to @	0	@	@ to @	1	0.3 @	0
45 to 64	67	@	@ to @	4	@	@ to @	71	22.7	17.7 to 28.6
65 and over	474	@	@ to @	8	@	@ to @	483	381.3	348.0 to 416.8
All ages	542	@	@ to @	13	@	@ to @	556	51.7	47.5 to 56.3
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 2.20 Chronic lower respiratory diseases Deaths: Eastern Jackson County			
Year 2005-2009			
Cumulative Race by Gender			
	Gender		
	Male	Female	Both Sexes
Race	Number	Number	Number
White	230	312	542
Black/African-American	7	6	13
All Races	237	319	556
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 2.21 Cerebrovascular Disease (Stroke) Deaths for Eastern Jackson County, Independence, Kansas City, Missouri												
Year 2005-2009												
Jurisdiction												
	Eastern Jackson County			Independence			Kansas City			Missouri		
Year	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
2005	79	37.8	29.8 to 47.2	58	39.6	30.0 to 51.3	182	40.9	35.1 to 47.3	3,316	51.5	49.8 to 53.3
2006	115	53.4	44.0 to 64.3	78	53.6	42.3 to 67.0	197	42.9	37.1 to 49.4	3,243	49.6	47.9 to 51.3
2007	101	45.6	37.1 to 55.6	71	48	37.4 to 60.6	199	43	37.2 to 49.4	3,226	48.3	46.6 to 50.0
2008	73	30.9	24.1 to 39.1	72	48.2	37.6 to 60.7	223	47.1	41.1 to 53.7	3,252	47.8	46.1 to 49.5
2009	94	40.7	32.8 to 50.0	73	48.5	38.0 to 61.1	197	41.2	35.6 to 47.5	3,013	43.9	42.3 to 45.5
Total	462	41.5	37.8 to 45.5	352	47.6	42.7 to 52.9	998	43	40.4 to 45.8	16,050	48.2	47.4 to 48.9
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

Jurisdiction

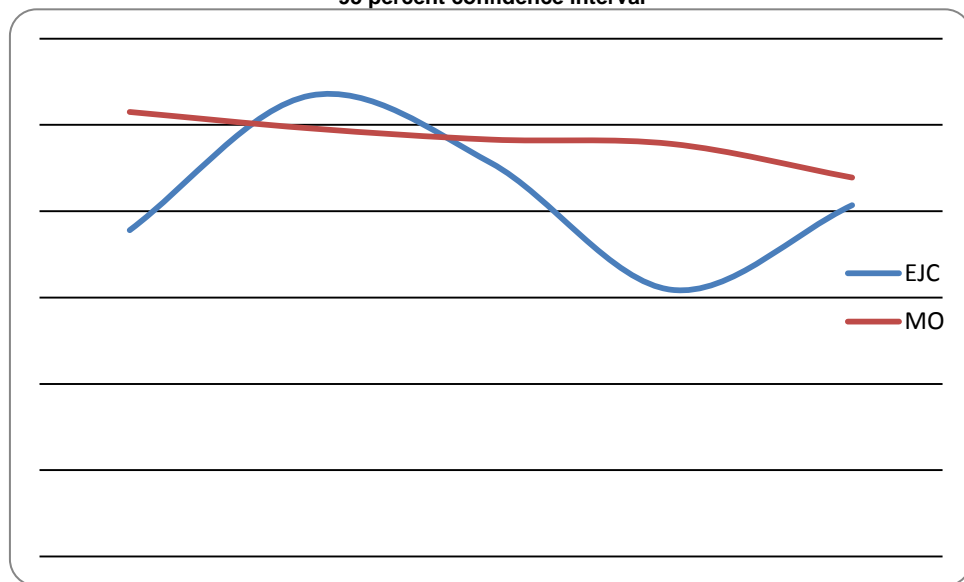
Year	Eastern Jackson County			Missouri		
	Number	Rate	CI	Number	Rate	CI
2005	79	37.8	29.8 to 47.2	3,316	51.5	49.8 to 53.3
2006	115	53.4	44.0 to 64.3	3,243	49.6	47.9 to 51.3
2007	101	45.6	37.1 to 55.6	3,226	48.3	46.6 to 50.0
2008	73	30.9	24.1 to 39.1	3,252	47.8	46.1 to 49.5
2009	94	40.7	32.8 to 50.0	3,013	43.9	42.3 to 45.5
Total	462	41.5	37.8 to 45.5	16,050	48.2	47.4 to 48.9

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 2.23 Cerebrovascular Disease (Stroke) Deaths: Residents of Eastern Jackson County									
Year 2005 - 2009									
Cumulative Age by Gender									
Gender									
	Male			Female			Both Sexes		
Age	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
Under 15	0	0.0 @	0	2	1.5 @	0	2	0.7 @	0
15 to 24	0	0.0 @	0	0	0.0 @	0	0	0.0 @	0
25 to 44	3	1.8 @	0	5	2.8 @	0	8	2.3 @	0
45 to 64	28	18.2	12.1 to 26.3	28	17.6	11.7 to 25.4	56	17.9	13.5 to 23.2
65 and over	133	257	215.2 to 304.5	263	351	309.9 to 396.1	396	312.6	282.6 to 345.0
All ages	164	40.1	34.0 to 46.9	298	41.9	37.2 to 47.1	462	41.5	37.8 to 45.5
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									
Race									
	White			Black/African-American			All Races		
Age	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
Under 15	2	@	@ to @	0	@	@ to @	2	0.7 @	0
15 to 24	0	@	@ to @	0	@	@ to @	0	0.0 @	0
25 to 44	5	@	@ to @	2	@	@ to @	8	2.3 @	0
45 to 64	38	@	@ to @	15	@	@ to @	56	17.9	13.5 to 23.2
65 and over	373	@	@ to @	22	@	@ to @	396	312.6	282.6 to 345.0
All ages	418	@	@ to @	39	@	@ to @	462	41.5	37.8 to 45.5
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 2.25 Cerebrovascular disease (Stroke)Deaths: Eastern Jackson County			
Year 2005 - 2009			
Cumulative Race by Gender			
	Gender		
	Male	Female	Both Sexes
Race	Number	Number	Number
White	142	276	418
Black/African-American	20	19	39
All Races	164	298	462
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 2.26 Cause of Deaths: Other diseases (residual)												
Year 2005-2009												
	Jurisdiction											
	Eastern Jackson County			Independence			Kansas City			Missouri		
Year	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
2005	157	71.9	61.0 to 84.3	99	70.5	57.2 to 86.1	398	88	79.5 to 97.1	4,790	75.2	73.1 to 77.4
2006	185	83.2	71.5 to 96.2	110	78.2	64.1 to 94.4	393	85	76.8 to 93.9	5,252	80.5	78.4 to 82.8
2007	179	81.5	69.8 to 94.5	113	79.1	65.0 to 95.2	385	81.4	73.4 to 90.0	5,225	78.7	76.6 to 80.9
2008	225	94.6	82.4 to 108.0	142	95.8	80.6 to 113.1	434	89.9	81.6 to 98.9	5,753	85	82.8 to 87.2
2009	231	95.5	83.4 to 108.8	149	100.4	84.8 to 118.1	438	90.4	82.1 to 99.3	5,552	80.9	78.8 to 83.1
Total	977	85.7	80.3 to 91.3	613	85.1	78.4 to 92.1	2,048	87	83.2 to 90.8	26,572	80.2	79.2 to 81.1
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

Jurisdiction

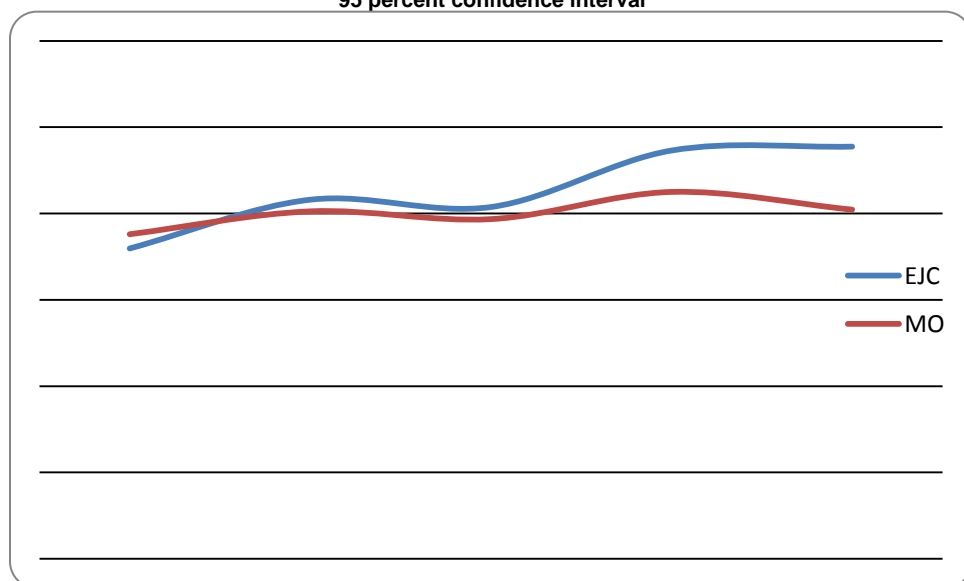
	Eastern Jackson County			Missouri		
Year	Number	Rate	CI	Number	Rate	CI
2005	157	71.9	61.0 to 84.3	4,790	75.2	73.1 to 77.4
2006	185	83.2	71.5 to 96.2	5,252	80.5	78.4 to 82.8
2007	179	81.5	69.8 to 94.5	5,225	78.7	76.6 to 80.9
2008	225	94.6	82.4 to 108.0	5,753	85	82.8 to 87.2
2009	231	95.5	83.4 to 108.8	5,552	80.9	78.8 to 83.1
Total	977	85.7	80.3 to 91.3	26,572	80.2	79.2 to 81.1

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									
Year 2005-2009									
Cumulative Age by Gender									
	Gender								
	Male			Female			Both Sexes		
Age	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
Under 15	6	4.4 @	0	1	0.8 @	0	7	2.6 @	0
15 to 24	6	8.1 @	0	2	2.9 @	0	8	5.6 @	0
25 to 44	23	13.6	8.6 to 20.4	24	13.3	8.5 to 19.8	47	13.4	9.9 to 17.9
45 to 64	83	54	43.0 to 66.9	73	45.9	35.9 to 57.7	156	49.8	42.3 to 58.3
65 and over	253	488.8	430.4 to 552.9	505	674	616.5 to 735.4	758	598.3	556.5 to 642.5
All ages	372	86	77.2 to 95.5	605	82.9	76.2 to 89.9	977	85.7	80.3 to 91.3
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 2.29 Other diseases (residual) Deaths for Eastern Jackson County									
Year 2005-2009									
Cumulative Age by Race									
	Race								
	White			Black/African-American			All Races		
Age	Number	Rate	CI	Number	Rate	CI	Number	Rate	CI
Under 15	6	@	@ to @	1	@	@ to @	7	2.6 @	0
15 to 24	4	@	@ to @	4	@	@ to @	8	5.6 @	0
25 to 44	35	@	@ to @	12	@	@ to @	47	13.4	9.9 to 17.9
45 to 64	142	@	@ to @	13	@	@ to @	156	49.8	42.3 to 58.3
65 and over	713	@	@ to @	43	@	@ to @	758	598.3	556.5 to 642.5
All ages	900	@	@ to @	73	@	@ to @	977	85.7	80.3 to 91.3
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)									

Disease Mortality rates higher in Eastern Jackson County compared to Missouri

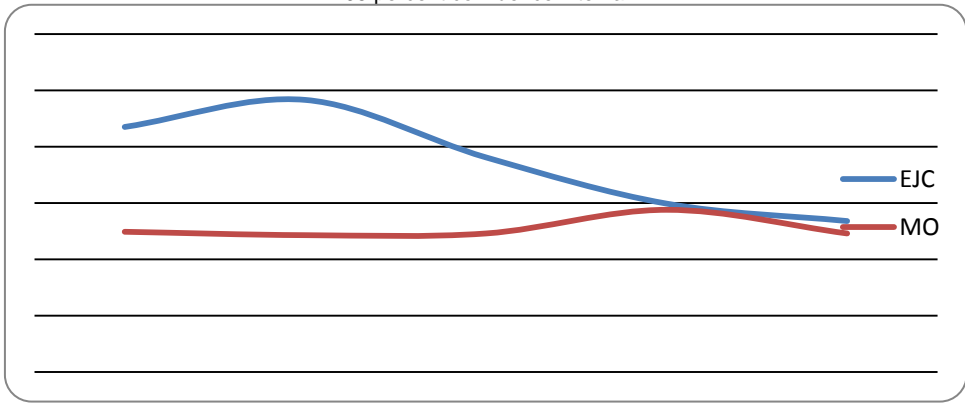
- 1) Chronic lower respiratory disease (CLRD): Already discussed above.
- 2) Alzheimer's Disease
- 3) Kidney Diseases

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 2.30

Cause of Death: Alzheimer's disease

Year 2005-2009						
Jurisdiction						
Eastern Jackson County				Missouri		
Year	Number	Rate	CI	Number	Rate	CI
2005	95	43.5	35.1 to 53.3	1,631	24.9	23.7 to 26.1
2006	103	48.3	39.3 to 58.6	1,632	24.3	23.2 to 25.5
2007	83	38.1	30.3 to 47.4	1,682	24.6	23.4 to 25.8
2008	70	29.9	23.2 to 37.9	2,014	28.8	27.6 to 30.1
2009	65	26.8	20.6 to 34.3	1,719	24.6	23.4 to 25.7
Total	416	37	33.4 to 40.7	8,678	25.4	24.9 to 26.0
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 2.31

Cause of Death: Kidney diseases

Year 2005-2009

Jurisdiction

Eastern Jackson County

Missouri

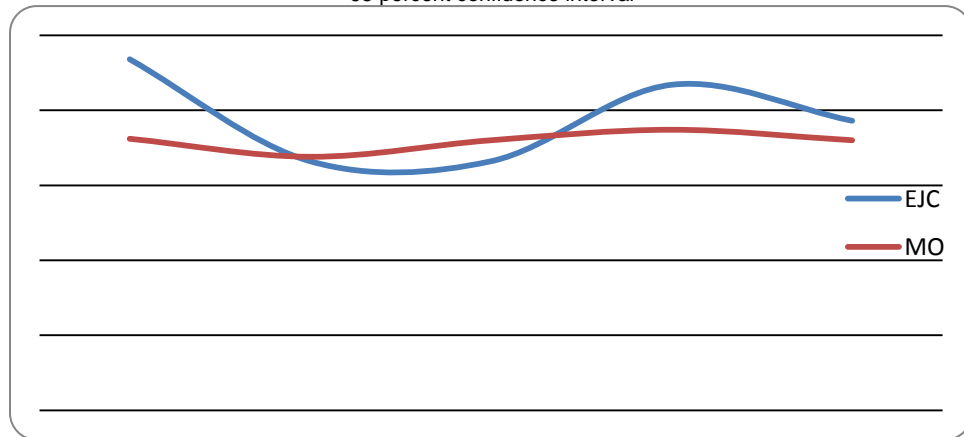
Year	Number	Rate	CI	Number	Rate	CI
2005	48	23.4	17.2 to 31.1	1,154	18.1	17.1 to 19.2
2006	35	16.6	11.5 to 23.2	1,106	16.9	15.9 to 18.0
2007	36	16.6	11.6 to 23.1	1,192	18	17.0 to 19.0
2008	49	21.7	16.0 to 28.9	1,275	18.7	17.7 to 19.8
2009	44	19.3	13.9 to 26.1	1,226	18	17.0 to 19.0
Total	212	19.5	17.0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

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 2.32 Child Health Profile for Eastern Jackson Residents					
Year 1999-2009					
	Data	Number of	EJC	Signif*	MO
Deaths Ages 1-14	Years	Events	Rate	Different	Rate
All Causes	1999-2009	81	15.1	L	22.6
Total Unintentional Injuries	1999-2009	23	4.3	L	8.7
Motor Vehicle Deaths	1999-2009	11	2.0*	L	4.3
All Cancers (Malignant Neoplasms)	1999-2009	9	1.7*	N/S	2.2
Birth Defects	1999-2009	10	1.9*	N/S	1.7
Homicide	1999-2009	5	0.9*	N/S	1.9
Heart Disease	1999-2009	4	0.8*	N/S	0.9
Deaths Ages 15-19					
All Causes	1999-2009	120	68	N/S	81.3
Total Unintentional Injuries	1999-2009	63	35.7	N/S	44.1
Motor Vehicle Deaths	1999-2009	51	28.9	N/S	35.8
Homicide	1999-2009	11	6.2*	L	12.6
Suicide	1999-2009	24	13.6	N/S	9.1
All Cancers (Malignant Neoplasms)	1999-2009	4	2.3*	N/S	3.4
Heart Disease	1999-2009	2	1.1*	N/S	2
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 County¹⁸

Prioritization of Health Problems in Eastern Jackson County		
Sex: Both Sexes, Race: All Races, Age Group: All Ages		
Disease/Condition	Rank	Total Weight
Diabetes	1	289.5
Alcohol- and Substance-Related	2	279.0
Chronic Obstructive Pulmonary Disease (COPD)	3	277.0
Lung Cancer	4	264.0
Heart Disease	5	261.5

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. HEATH 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?

<input type="checkbox"/> 64013	<input type="checkbox"/> 64014	<input type="checkbox"/> 64015	<input type="checkbox"/> 64016	<input type="checkbox"/> 64029	<input type="checkbox"/> 64030	<input type="checkbox"/> 64034
<input type="checkbox"/> 64054	<input type="checkbox"/> 64030	<input type="checkbox"/> 64063	<input type="checkbox"/> 64064	<input type="checkbox"/> 64066	<input type="checkbox"/> 64070	<input type="checkbox"/> 64075
<input type="checkbox"/> 64081	<input type="checkbox"/> 64082	<input type="checkbox"/> 64086	<input type="checkbox"/> 64088	<input type="checkbox"/> 64133	<input type="checkbox"/> 64138	<input type="checkbox"/>

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.

<input type="checkbox"/> White	<input type="checkbox"/> African American	<input type="checkbox"/> Native Hawaiian or Other Pacific Islander
<input type="checkbox"/> Hispanic or Latino	<input type="checkbox"/> Asian	<input type="checkbox"/> American Indian or Alaskan Native
<input type="checkbox"/> 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?

<input type="checkbox"/> <\$10,000	<input type="checkbox"/> \$10,000-\$14,999	<input type="checkbox"/> \$15,000-\$24,999	<input type="checkbox"/> \$25,000-\$34,999	
<input type="checkbox"/> \$35,000-\$49,999	<input type="checkbox"/> \$50,000-\$64,999	<input type="checkbox"/> \$65,000-\$74,999	<input type="checkbox"/> \$75,000- \$99,999	<input type="checkbox"/> >\$100,000

7. What is the highest educational level you have completed?

<input type="checkbox"/> Less than 12 years	<input type="checkbox"/> High school/GED	<input type="checkbox"/> Some college	<input type="checkbox"/> Bachelor's degree
<input type="checkbox"/> Masters or higher			

About Your Health

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 ☐ Radio ☐ Social Media (Facebook, Twitter)
☐ Social Services Organization ☐ 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. OB/GN) ☐ 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
☐ No insurance coverage ☐ Language or cultural differences 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.

	Health Insurance	Dental Insurance	No Insurance	Not Applicable
You	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Spouse/Partner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Children	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parent(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Roommate(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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:

- | | | |
|--|--|--|
| <input type="checkbox"/> Blood pressure check | <input type="checkbox"/> Blood sugar test | <input type="checkbox"/> Cholesterol screen |
| <input type="checkbox"/> Colonoscopy examination | | |
| <input type="checkbox"/> Dental visit | <input type="checkbox"/> Eye Exam | <input type="checkbox"/> Mammogram |
| <input type="checkbox"/> Physical exam | <input type="checkbox"/> Prostate cancer screening | <input type="checkbox"/> Pap smear |
| | | <input type="checkbox"/> Skin cancer screening |

16. Did you get a flu (influenza) shot in the last year?

☐ Yes ☐ No

If yes, where did you get it?

- | | |
|--|---|
| <input type="checkbox"/> Pharmacy (CVS, Walgreens, etc.) | <input type="checkbox"/> Jackson County Health Department |
| <input type="checkbox"/> Doctor's office | <input type="checkbox"/> 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.

- | | | |
|--|---|---|
| <input type="checkbox"/> Cost | <input type="checkbox"/> Don't know where to go | <input type="checkbox"/> Hours do not meet my needs |
| <input type="checkbox"/> Medical reasons | <input type="checkbox"/> No insurance | <input type="checkbox"/> 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.

- | | | | | |
|--------------------------------------|--------------------------------------|--|------------------------------------|--------------------------|
| <input type="checkbox"/> Hepatitis A | <input type="checkbox"/> Hepatitis B | <input type="checkbox"/> Whooping cough/Diphtheria/Tetanus | <input type="checkbox"/> Pneumonia | <input type="checkbox"/> |
| 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=1cup)

☐ 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)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moderate physical activity (e.g., jogging)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
High intensity physical activity? (e.g., running)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Running	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biking	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Swimming	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Free Weights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Weight machines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Structured Classes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Group/team sports	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gaming Systems (e.g. exercise DVD, Wii)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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.

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

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.)

☐ Nicotine replacement (gum, inhaler, skin patch, nose spray, etc.)

☐ Other (please specify) _____

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

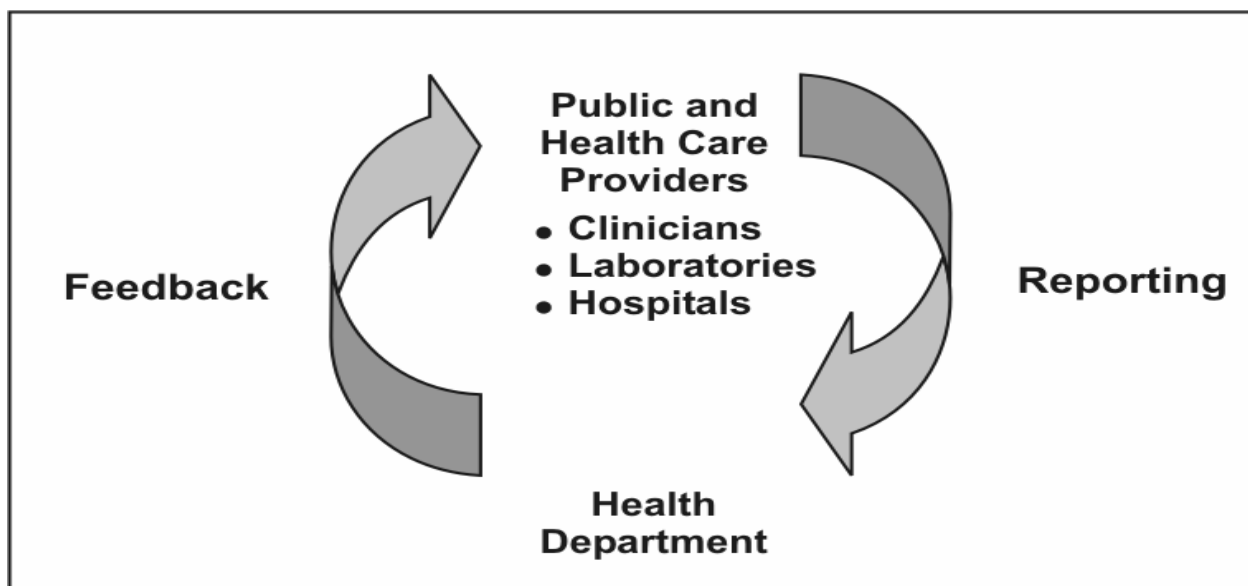
Alcohol and substance abuse is the 2nd number in the health priority list for the Eastern Jackson County.

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.

CHAPTER 3 – COMMUNITY OUTREACH ACTIVITIES

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



Jackson County Health Department

Presented by

Ellen Dorshow-Gordon, MPH

Dr. Pranav Bhatt, MBBS, (MPH Student)



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



3

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)



2

EPIDEMIOLOGY – DERIVED FROM GREEK



- **EPI** On or upon
- **DEMOS** Population/People
- **LOGOS** Study of



4

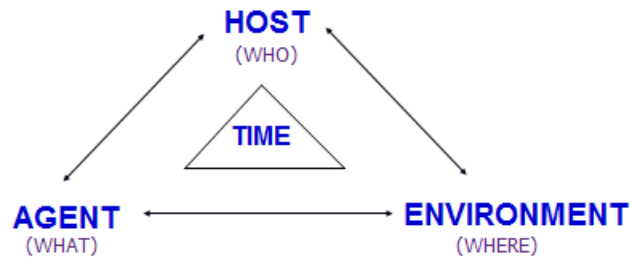


“EPIDEMIOLOGY IS THE STUDY OF FACTORS DETERMINING DISEASE IN A POPULATION”



5

EPIDEMIOLOGIC MODEL



TIME - Incubation period of infectious disease, duration of illness



7

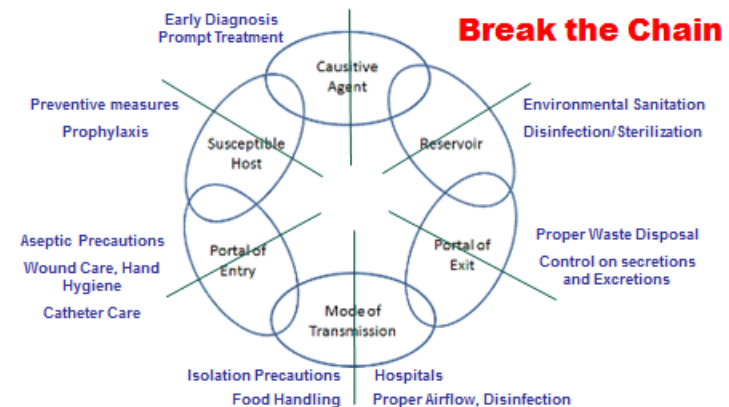


HISTORY OF EPIDEMIOLOGY

- **Endemic vs. Epidemic**
 - Hippocrates (460-377 BC)
- **Vital statistics - Bills of Mortality**
 - John Graunt (1620-1674)
- **Small pox 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





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



9

APPROACHES

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



11

SOME EPIDEMIOLOGIC DISCIPLINES

- **Chronic Diseases**
- **Communicable Diseases**
- **Accidents and Injuries**
- **Environment**
- **Occupational Health**
- **Social & Behavioral Health**
- **Health Planning**



10

PURPOSE OF COMMUNICABLE DISEASE SURVEILLANCE

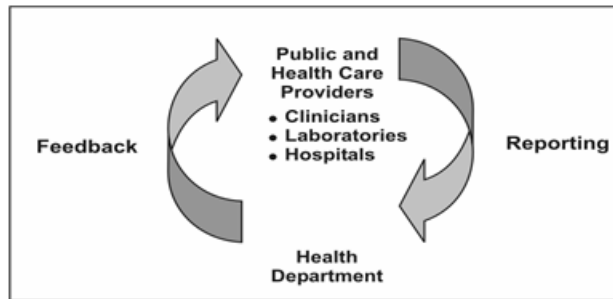
- **Identify potential outbreaks or public health threats**
- **Manage the situation**
- **Minimize exposure of clients**
- **Define internal response team**
- **Define responsibilities of team members & respective services and units**



12

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



(From: CDC - Principles of Epidemiology)

13

Diseases and Conditions Reportable in Missouri (19 CDR 20-20.030)
Numbers in parentheses represent ICD-9 and ICD-10 Codes
Report Diseases and Conditions to your local health agency or to:
**Missouri Department of Health and Senior Services, Division of Disease Prevention, 175 N. 15th St.,
 Jefferson City, MO 64501, after hours and on weekends 800-392-6272 or by fax 771-728-6272**

<p>A. Communicable diseases or health conditions reportable to the local health agency or to the Department of Health and Senior Services, Division of Disease Prevention, 175 N. 15th St., Jefferson City, MO 64501, after hours and on weekends 800-392-6272 or by fax 771-728-6272</p> <p>1. Infectious diseases, including but not limited to:</p> <ul style="list-style-type: none"> Adenovirus (011, A02) Botulism (001, A01.0) Brucellosis (014, B57.0) Cryptosporidiosis (014, B59.0) Giardiasis (014, B59.0) Hepatitis A (014, B15) Hepatitis B (014, B16) Hepatitis C (014, B17) Hepatitis E (014, B18) Human immunodeficiency virus (HIV) (014, B20) Scarlet fever (041, A04.0) Shigellosis (041, A04.0) Shingles (041, A04.0) Staphylococcal scalded skin syndrome (SSSS) (041, A04.0) Streptococcal toxic shock syndrome (STSS) (041, A04.0) Typhoid fever (041, A04.0) Yersinia enterocolitica (041, A04.0) <p>2. Parasitic diseases, including but not limited to:</p> <ul style="list-style-type: none"> Amoebiasis (014, B59.0) Cryptosporidiosis (014, B59.0) Giardiasis (014, B59.0) Isosporiasis (014, B59.0) Leishmaniasis (014, B59.0) Malaria (014, B59.0) Onchocerciasis (014, B59.0) Schistosomiasis (014, B59.0) Toxoplasmosis (014, B59.0) Trichinellosis (014, B59.0) Yersinia enterocolitica (041, A04.0) <p>3. Zoonotic diseases, including but not limited to:</p> <ul style="list-style-type: none"> Brucellosis (014, B57.0) Cryptosporidiosis (014, B59.0) Giardiasis (014, B59.0) Isosporiasis (014, B59.0) Leishmaniasis (014, B59.0) Malaria (014, B59.0) Onchocerciasis (014, B59.0) Schistosomiasis (014, B59.0) Toxoplasmosis (014, B59.0) Trichinellosis (014, B59.0) Yersinia enterocolitica (041, A04.0) 	<p>B. Communicable diseases or health conditions reportable to the local health agency or to the Department of Health and Senior Services, Division of Disease Prevention, 175 N. 15th St., Jefferson City, MO 64501, after hours and on weekends 800-392-6272 or by fax 771-728-6272</p> <p>4. Infectious diseases, including but not limited to:</p> <ul style="list-style-type: none"> Adenovirus (011, A02) Botulism (001, A01.0) Brucellosis (014, B57.0) Cryptosporidiosis (014, B59.0) Giardiasis (014, B59.0) Hepatitis A (014, B15) Hepatitis B (014, B16) Hepatitis C (014, B17) Hepatitis E (014, B18) Human immunodeficiency virus (HIV) (014, B20) Scarlet fever (041, A04.0) Shigellosis (041, A04.0) Shingles (041, A04.0) Staphylococcal scalded skin syndrome (SSSS) (041, A04.0) Streptococcal toxic shock syndrome (STSS) (041, A04.0) Typhoid fever (041, A04.0) Yersinia enterocolitica (041, A04.0) <p>5. Parasitic diseases, including but not limited to:</p> <ul style="list-style-type: none"> Amoebiasis (014, B59.0) Cryptosporidiosis (014, B59.0) Giardiasis (014, B59.0) Isosporiasis (014, B59.0) Leishmaniasis (014, B59.0) Malaria (014, B59.0) Onchocerciasis (014, B59.0) Schistosomiasis (014, B59.0) Toxoplasmosis (014, B59.0) Trichinellosis (014, B59.0) Yersinia enterocolitica (041, A04.0) <p>6. Zoonotic diseases, including but not limited to:</p> <ul style="list-style-type: none"> Brucellosis (014, B57.0) Cryptosporidiosis (014, B59.0) Giardiasis (014, B59.0) Isosporiasis (014, B59.0) Leishmaniasis (014, B59.0) Malaria (014, B59.0) Onchocerciasis (014, B59.0) Schistosomiasis (014, B59.0) Toxoplasmosis (014, B59.0) Trichinellosis (014, B59.0) Yersinia enterocolitica (041, A04.0)
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15

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



14

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



16

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



17

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 morbidity rates and low mortality rates; and
 - require specific enhancements of CDC'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
 - availability;
 - ease of production and dissemination; and
 - potential for high morbidity and mortality rates and major health impact.



SENTINEL EVENTS

- Pandemic Influenza
- Deliberate adulteration of food/water
- Chemical Terrorism
- Bioterrorism
 - Bacterial
 - Anthrax
 - Brucellosis
 - Cholera
 - Glanders
 - Plague
 - Tularemia
 - Q fever
 - Viruses
 - Smallpox
 - Viral hemorrhagic fevers
 - Viral encephalitis
 - Toxins
 - Botulinum
 - Staph enterotoxin-B
 - Ricins
 - T-2 Mycotoxins



18

Terrorism Diseases by Category

Category A Agents/Diseases

- Anthrax (*Bacillus anthracis*)
- Botulism (*Clostridium botulinum* toxin)
- Plague (*Yersinia pestis*)
- Smallpox (*variola major*)
- Tularemia (*Francisella tularensis*)
- Viral hemorrhagic fevers (filoviruses [e.g., Ebola, Marburg] and arenaviruses [e.g., Lassa, Machupo])

Category C Agents

- Emerging infectious diseases such as Nipah virus and hantavirus

Category B Agents/Diseases

- Brucellosis (*Brucella* species)
- Epsilon toxin of *Clostridium perfringens*
- Food safety threats (e.g., *Salmonella* species, *Escherichia coli* O157:H7, *Shigella*)
- Glanders (*Burkholderia mallei*)
- Melioidosis (*Burkholderia pseudomallei*)
- Psittacosis (*Chlamydia psittaci*)
- Q fever (*Coxiella burnetii*)
- Ricin toxin from *Ricinus communis* (castor beans)
- Staphylococcal enterotoxin B
- Typhus fever (*Rickettsia prowazekii*)
- Viral encephalitis (alphaviruses [e.g., Venezuelan equine encephalitis, eastern equine encephalitis, western equine encephalitis])
- Water safety threats (e.g., *Vibrio cholerae*, *Cryptosporidium parvum*)



WHAT TO REPORT?

➤ Immediately report:

Unusual occurrence of any disease, infection, or condition that threatens the health of the public



21

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?



22

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.



23

WHAT IS ESSENCE?

- **E**lectronic
- **S**urveillance
- **S**ystem for the
- **E**arly
- **N**otification of
- **C**ommunity-based
- **E**pidemics



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



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



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*



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



(From: ESSENCE Introduction- DHSS)

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 CATEGORIES

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



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**



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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Epidemiologist

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EMERGENCY PREPAREDNESS

Rhonda Charboneau-Cooper, RN

Regional Response Planner

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Phone: 816-404-6432

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/>)



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RESOURCES

- www.jacohd.org
- www.health.gov
- <http://health.mo.gov/data/CommunityDataProfiles/index.html>
- <http://health.mo.gov/data/mica/MICA/>
- www.cdc.gov
- www.cdc.gov/nchs/healthy_people.htm
- <http://www.cdc.gov/socialdeterminants/Definitions.html>
- http://www.who.int/social_determinants/thecommission/finalreport/key_concepts/en/index.html
- www.fda.gov
- www.apha.org
- www.apic.org
- www.naccho.org
- www.marc.org
- www.whoopingcough.net
- www.coughsafe.com
- others

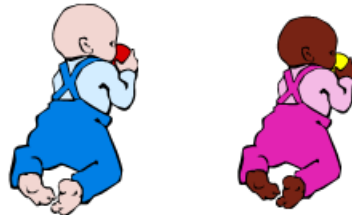


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- www.apic.org
- www.naccho.org
- www.marc.org
- www.whoopingcough.net
- www.coughsafe.com
- others



THE END



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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



THANK YOU!

JACOHD



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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
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).²⁰

DEPARTMENT OF HEALTH
ENVIRONMENTAL PUBLIC HEALTH
FOOD ESTABLISHMENT INSPECTION REPORT

Wednesday, May 02, 2012

BASED ON AN INSPECTION THIS DAY, THE ITEMS NOTED BELOW IDENTIFY NONCOMPLIANCE IN OPERATIONS OR FACILITIES WHICH MUST BE CORRECTED BY THE NEXT ROUTINE INSPECTION, OR SUCH SHORTER PERIOD OF TIME AS MAY BE SPECIFIED IN WRITING BY THE REGULATORY AUTHORITY. FAILURE TO COMPLY WITH ANY TIME LIMITS FOR CORRECTIONS SPECIFIED IN THIS NOTICE MAY RESULT IN CESSATION OF YOUR FOOD OPERATIONS.

<u>Owner Name</u> 11-19-02	<u>Person In Charge</u> Sheena	<u>Establishment</u> IHOP	<u>City Code</u> Lee's Summi	<u>Priority</u> High
<u>Address</u> 628 NE 291 HWY LEE'S SUMMIT, MO 64086	<u>Phone</u> (816)525-6068	<u>Fax</u> () - - - -	<u>Dist</u> NW	<u>Co</u> Jackson
<u>Food Service</u> Restaurant	<u>Retail Food</u> *****	<u>Purpose</u> Routine	<u>Water Supply</u> *****	<u>Sewage</u> *****

Temperature Observations

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

Critical Violations

<u>Violation</u>	<u>Count</u>	<u>Title</u>	<u>Correct By</u>	<u>Initial</u>	<u>Remarks</u>
3-501.16	1	Potentially hazardous food, Hot and Cold Holding.*	5/4/2012		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.
Total Critical Violations				1	

Non-Critical Violations

<u>Violation</u>	<u>Count</u>	<u>Title</u>	<u>Correct By</u>	<u>Initial</u>	<u>Remarks</u>
4-501.11	1	Good Repair and Proper Adjustment.	7/1/2012		The gaskets on the cook's line prep cooler doors were in disrepair.
4-602.11	2	Equipment Food-contact surfaces and Utensils.*	5/2/2012		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.
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

Inspected By
Wayne McGrath

San No
009

Phone/Fax
(816)881-4415

Re-Inspection Date

Friday, May 04, 2012

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 field experience provided a real-world perspective 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 Antibigrams

- A community-wide antibiogram (CWA) is based on the results of culture and sensitivity reports from laboratories and hospitals in the local region.²² 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.²³
- 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 tracking antibiotic resistance trends and guides in making changes in empiric treatment.²²
- 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.²⁴ 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 settings²⁴
- 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 antibiogram²⁶

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

1. Jackson County Missouri Health Department. JACOHD. <http://www.jacohd.org/>. Updated 2011.
2. Truman Medical Centers, Kansas City, MO. TMC.
<http://www.trumed.org/truweb/jacohd/JACOHD.aspx>. Updated 2010.
3. Jackson County Missouri Health Department. Services. <http://www.jacohd.org/Services.aspx>. Updated 2011.
4. United States Census Bureau. U.S. census 2010. <http://2010.census.gov/2010census/>. Updated 2010.
5. Wikipedia. Jackson county, missouri. http://en.wikipedia.org/wiki/Jackson_County,_Missouri. Updated 2012. Accessed Spetember, 2012.
6. Wikipedia. Map of Missouri highlighting Jackson county. Updated 2006.
7. National Association of County & City Health Officials. NACCHO - community health assessment and improvement. <http://www.naccho.org/topics/infrastructure/CHAIP/index.cfm>. Updated 2012.
8. North Carolina Division of Public Health. Community health assessment.
<http://publichealth.nc.gov/lhd/cha/about.htm>. Updated 2012. Accessed September, 2012.
9. Missouri Department of Health and Senior Services. MICA.
<http://health.mo.gov/data/mica/MICA/>. Updated 2012.

10. Missouri Department of Health and Senior Services. Community health status indicators.
<http://www.communityhealth.hhs.gov/homepage.aspx?j=1>. Updated 2011.
11. Missouri Department of Health and Senior Services. Community health improvement resources. <http://health.mo.gov/data/chir/index.html>. Updated 2011.
12. Sherry L. Murphy BS, Jiaquan Xu MD, and Kenneth D. Kochanek, M.A., Division of Vital Statistics. National vital statistics reports. . 2012;60:1.
13. CDC. Leading causes of death in th U.S. 2011.
14. McGinnis JM FW. **Actual causes of death in the united states**. . 1993;270 (18):2207-2212.
15. CDC. Deaths: Final report 2009 - deaths .2010.
16. Missouri Department of Health and Senior Services. Death MICA.
<http://health.mo.gov/data/mica/DeathMICA/>. Updated 2011.
17. Missouri Department of Health and Senior Services. Community data profile.
<http://health.mo.gov/data/CommunityDataProfiles/index.html>. Updated 2011.
18. Missouri Department of Health and Senior Services. Priorities.
<http://health.mo.gov/data/mica/PriorityMICA/index.html>. Updated 2011.
19. CDC. Principles of epidemiology. In: *Principles of epidemiology*. 3rd ed. Atlanta, GA: U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES; 2006, updated 2012:1-20.
20. Jackson County M. Environmental health.
<http://www.jacksongov.org/content/2494/2984/default.aspx>. Updated 2012.

21. United States Department of Health and Human Services. Global health. <http://www.globalhealth.gov/>. Updated 2012.
22. Antibigram surviellance. In: Nkuchia M. M'ikanatha, Ruth Lynfield, Chris A. Van Beneden, ed. *Infectious disease surveillance*. Blackwell Publishing; 2007:170-178.
23. Diane C. Halstead*, Noel Gomez and Yvette S. McCarter. **Reality of developing a community-wide antibiogram**. . 2004;42, No. 1:1-6.
24. Mohamed El-Azizi,* Adnan Mushtaq,* Cheryl Drake,† Jerry Lawhorn,† Joan Barenfanger,† Steven Verhulst,* and Nancy Khardori. Evaluating antibiograms to monitor drug resistance. . 2005;11:1301-1302.
25. CDC. *Get smart for healthcare*. <http://www.cdc.gov/getsmart/healthcare/>. Updated 2012. Accessed October, 2012.
26. Centers for Disease Control and Prevention. ANTIBIOGRAM SURVEILLANCE METHOD USING CUMULATIVE SUSCEPTIBILITY DATA. . 2005.
27. U.S. Department of Health and Human Services. **HealthyPeople 2020** - social determinants of health. <http://www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=39>. Updated 2012. Accessed June, 2012.