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ST. LOUIS COUNTY COMMUNITY HEALTH NEEDS ASSESSMENT



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I. EXECUTIVE SUMMARY

INTRODUCTION AND OBJECTIVES

In December 2010, the St. Louis County Department of Health contracted with the University of New England's Center for Community and Public Health (CCPH) to conduct a countywide Community Health Needs Assessment (CHNA). The assessment, conducted in collaboration with Market Decisions, Inc., was designed to identify the most important health issues in the county, both overall and within four distinct sub-county study regions, using scientifically valid health indicators and comparative information. The assessment also identifies priority health issues where better integration of public health and healthcare can improve access, quality, and cost effectiveness of services to residents of St. Louis County. This project represents St. Louis County Department of Health's efforts to share information that can lead to improved health status and quality of care available to St. Louis County residents, while building upon and strengthening existing infrastructure of services and providers.

The objectives for the 2011 St. Louis County Community Health Needs Assessment are as follows:

- I. Develop a comprehensive baseline epidemiological profile of the population of St. Louis County and sub-county regions;
- II. Identify health disparities and service needs at the county and sub-county level based on the profile and related information;
- III. Identify to the extent the data permits how health disparities and service needs differ among sub-groups of the population (age and gender groups, racial and ethnic minorities);
- IV. Identify barriers in the health system and the community that, if addressed, would improve population health, especially those identified as priority health issues;
- V. Provide recommendations on how to improve priority service needs in the county.

METHODOLOGY

To conduct the St. Louis County CHNA, a modified version of CCPH's Community and Institutional Assessment Process (CIAP) was used. The CIAP is a comprehensive health assessment planning process that identifies salient healthcare related issues in a community through a systematic analysis of scientifically derived health indicators and comparative and best practice information. Indicators are computed from an extensive set of health-related data and a community household telephone survey.

The CIAP starts with a comprehensive epidemiological-based health profile organized by health domain or condition such as cardiovascular health, respiratory health, cancer health, etc. Indicators for most domains are further organized by risk factors, prevalence (or incidence) of disease or condition, care management indicators, and care outcomes. These indicators permit us to identify, and subsequently explore, those aspects of the healthcare delivery system that may be over- or under-performing for a particular domain (e.g. primary prevention, secondary prevention, cancer treatment, etc.). This results in a list of priority health issues and questions for follow-up with providers, community leaders, agencies, and the public. The follow-up then identifies actionable plans that can improve the health of populations.

FINDINGS AND RECOMMENDATIONS

St. Louis County has several underlying socio-demographic characteristics that impact the health of its population. It has a population that is aging. While an aging population does not necessarily equate to having poor health, aging populations use more health services than younger populations. When older age is combined with other adverse factors like poverty or unemployment, health status is often poorer than in younger and higher income populations.

- **Income:** St. Louis County has a relatively high median income (\$57,502) compared with Missouri (\$46,005), but this varies tremendously within the county; in North county, the median income (\$44,919) is almost half that of the West county (\$85,210).
- **Unemployment:** The unemployment rate in St. Louis County (9.1%) is comparable to the Missouri rate (9.5%); however, several parts of the county (e.g. North and Mid County unemployment rates are 13% and 10%, respectively) have high rates of unemployment—well over 10%.
- **Education:** Educational attainment is relatively good in St. Louis County, as measured by the proportion of the population without a high school diploma (4.5%).

Occupational & Industrial Health: Overall, most of the St. Louis County workforce does not work in occupations that are considered to be at greater risk. Most residents are employed in management, professional, and other related occupations and are at low risk for workforce-related injury and/or death.

Access to Health Care/Provider Supply & Demand: Eleven percent (11%) of the St. Louis County population aged 18-65 is uninsured—lower than the U.S. (17%) and Missouri (15%). A relatively low proportion of county residents are without a usual source of care (16%), compared with the U.S. (24%). The supply of physicians, nurses, and dentists is adequate to meet the health demands of St. Louis County residents, based on the numbers of health professionals working in St. Louis County.

Primary Care Quality and Effectiveness: Access to and availability of high quality primary care, especially for the population with chronic health conditions, is not consistent across St. Louis County. The county overall has low ED rates and in-patient hospital use rates for ambulatory care sensitive conditions (ACS) (2,523 per 100,000 population and 1,947 respectively). These are visits/admissions for conditions such as asthma and diabetes among others that are less likely to result in inpatient or ED use when treated on an outpatient basis with high quality primary medical care and patient adherence. However, North County has very high ACSC ED rates (5,149) and hospital rates (2,903) relative to the rest of the county. This can indicate an inadequate availability of providers, lack of health insurance, or poor patient self-management, among other patient, health system, or population issues.

Behavioral Risk Factors: Behavioral health risk factors such as smoking (15%), obesity (27%), and sedentary lifestyle (22%) have a comparatively low prevalence in the county when compared with U.S. rates (smoking 18%; obesity 36%; sedentary lifestyle 24%) and Missouri rates (smoking 22%; obesity 31%; and sedentary lifestyle 27%). They are still priority health issues for the county, especially in certain regions. Several sub-counties have obesity rates approximate to or worse than the state rate (e.g., North County at 36%). The proportion of the population that leads a sedentary lifestyle is higher in several areas – especially North County (29%).

Smoking and obesity remain major preventive health issues across almost all age and gender groups. Initiatives to reduce obesity that address both children and adults and focus on the underlying causes of the problem are required. Local resources are needed to enhance access to exercise, nutrition, and treatment modalities, including stress management. Approaches should integrate the local public health infrastructure, community based resources, local providers, patients, and families.

Heart Health: Prevalence rates of medical risk factors for cardiovascular disease are of some concern (countywide high blood pressure prevalence is 31%; high cholesterol prevalence is 27%), as are high rates of morbidity and mortality for select cardiovascular conditions in certain parts of the county (e.g. heart disease mortality rate is 321 deaths per 100,000 population in North County; by comparison, the state mortality rate for heart disease is 239 deaths per 100,000 population) and for certain age demographics (e.g. those aged 65+ in Mid, North, and South County have congestive heart failure hospital admissions rates of 1,815, 2,354, and 1,931 respectively compared with the state rate of 1,787). Mortality rates for heart disease (258) and stroke (186) for the county overall and for each sub-county region (with the exception of West County) are all similar or higher than state mortality rates.

Lung Health: The overall proportion of the population that continues to smoke is low (15%) in St Louis County compared with state (22%) and U.S. (18%) figures, but it is high among men in Mid County (23%). Adult asthma prevalence (diagnosed) is also high in North (12%) and Mid County (12%), as are ED visits for asthma (2,080 per 100,000 population and 1,092, respectively).

Diabetes: Diabetes prevalence is slightly higher for the county overall (9.4%) compared with the state (8.7%) and with the U.S (8.0%). The prevalence rate is especially high in Mid and North Counties (11% and 12%, respectively), the two sub-county areas with higher rates of obesity and sedentary lifestyles as well. Inpatient admissions and ED visit rates for diabetes also correlate with diabetes prevalence and risk factors, as do diabetes mortality rates. Thus, lifestyle factors and care management of diabetes is a priority health issue for St. Louis County.

Addressing Care for Chronic Conditions: Approximately 90 million Americans are living with at least one chronic disease, and chronic disease contributes to over 70% of deaths in the U.S. each year. The majority of U.S. adults with high cholesterol and about half of adults with high blood pressure do not have their conditions under control. Despite the relatively low cost and proven effectiveness of treatments for these common and preventable - but potentially deadly - conditions, many Americans are not getting better.¹

Public policy changes and a much higher level of private-public partnering will be needed to improve care and care outcomes (as well as to address the cost of care) for these conditions. Efforts to date to improve chronic disease prevention and treatment may be insufficient. Changes in how care is reimbursed by public and private insurers may be required.²

¹ Released in February 2011 as a Centers for Disease Control and Prevention “Vital Signs” report, “High Blood Pressure and Cholesterol Out of Control” found that two out of three U.S. adults with high cholesterol and about 50 percent of adults with high blood pressure are not being treated effectively and are, therefore, at increased risk for heart attacks, strokes and other problems. The report calls on health professionals to manage high blood pressure and high cholesterol at every patient visit and to remind patients about follow-up care. Moreover, policy-makers should develop policies that reward effective disease prevention and chronic disease management and develop policies that allow other health care professionals to have a more active role in managing high blood pressure and cholesterol.

² A federal response to address the cost and quality issues in the US healthcare system is through the formation of accountable care organizations that are being promoted in the ACA. There has been growing interest in finding ways to encourage health care providers to take greater accountability for the overall cost as well as the quality of healthcare delivered to patients. An

It is also recommended that policy and practice changes be implemented to improve patient self management. Changes need to address core competencies around how to deliver patient centered care; how to partner with patients, providers and the community; and how to improve medication management and adherence. Policy initiatives and state level programs and resources to assist practices and communities in achieving these changes will be needed.

Cancer Health: St. Louis County has comparatively high cancer incidence rates relative to the state, overall, and by sub-county. Of the four leading cancers (breast, prostate, lung, and colorectal), female breast and male prostate cancers have the highest incidence rates. The cancer mortality-to-incidence ratio (a measure that assesses access and availability of cancer services for those diagnosed with cancer) indicates that county residents with these cancers have about an equal likelihood of access to treatment for their condition, with the exception of West County residents, who have better access and/or treatment outcomes.

Improved education and screening for preventing cancer is recommended, however, as well as follow-up on treatment access and availability. A significant challenge for the county will be determining the specific contribution of risk factors that contribute to higher incidence rates. Behavioral risk factors such as smoking, poor nutrition, and obesity are likely contributors, as are heredity, income, and other social-demographic determinants.

Reproductive Health: Overall reproductive health indicators among women in St. Louis County were generally favorable. However, the patterns in the regions exhibiting higher teen birth rates accompanied by elevated high risk hospital admissions, poorer birth outcomes, and low rates of adequate prenatal care warrant further exploration.

Substance Abuse and Mental Health Services: Prevalence of mental health conditions among county adults vary among sub-county regions and demographics. Eight point one percent (8.1%) of county residents report experiencing 11 or more days (in the past month) in which their mental health was not good; this rate was higher in North and South County. Five point nine percent (5.9%) of St. Louis County's population reported that they had needed mental health treatment in the past year but had not received it; this rate was higher in North and Mid County (7.1% and 7.4%, respectively). Nine point three percent (9.3%) of county residents reported receiving outpatient mental health treatment in the past 12 months; this rate was higher in Mid and South County (11% and 13%, respectively). Finally, 17% of county residents have been diagnosed with depression at some time in their lives, while 11% have been diagnosed with other psychiatric disorders at some point in their lives.

There is variation within the county of ED utilization for a wide range of mental health issues, including major depressive disorders (St. Louis County 68 per 100,000 population; North County 112); bipolar disorders (St. Louis County 77; North County 122, Mid County 97); schizophrenia (St. Louis County 54; North County 105; Mid County 83); and anxiety disorders (St. Louis County 583; North County 851; Mid County 673). These data suggest potential disparities in access to mental health services within the county.

Rates of problem drinking behavior such as binge drinking (13%) and heavy drinking (1%) among county residents are below U.S. rates. Binge drinking rates are higher among males (18%) than females (8.1%) and are highest in Mid County (16%) and South County (16%). Substance abuse hospital admissions

Accountable Care Organization consists of "a healthcare provider or group of providers that accepts accountability for the total cost of care received by a population of patients." Center For Healthcare Quality and Payment Reform (<http://www.chqpr.org>)

rates are slightly lower than the state-wide rates (134 per 100,000 population vs. 155, respectively). Certain groups – e.g. seniors (those aged 65+) in West County – have elevated hospital admissions rates (101). ED and hospital admissions rates for alcohol-related psychoses and acute alcohol-related mental disorders also vary among study regions. There are moderately high rates of ED admissions associated with acute alcohol-related mental disorders in Mid and North Counties (45 and 54, respectively) and for hospital admissions rates among the elderly (65+) in West County related to alcohol-related psychoses (39).

Substance abuse in general, and alcohol and illicit drug misuse in particular, requires three levels of intervention – prevention, screening, and detection. All three require concerted, collaborative action involving the public health, education, health care, and criminal justice systems at the community level to have an impact. Program planning among these entities and interventions based on these planning efforts are recommended.

Youth Health: The health status of youth (< 18 years) in St. Louis County is generally similar to that of the state. However, there are large differences in rates at the sub-county level for several health indicators, including teen pregnancy and use of inpatient and ED hospital care. Of particular concern are the very high ED visit rates and hospital admissions rates for asthma and bronchitis, as well as for mental health disorders, among Mid and North County youths (e.g., hospital admissions rates for asthma and bronchitis are 919 and 869 per 100,000 population for Mid and North County, respectively, for the population under the age of 17). Follow-up to pinpoint opportunities to address these issues with existing and new programs are recommended.

Infectious Disease: Incidence of infectious and sexually transmitted diseases (STDs) is generally low in St. Louis County, but rates vary considerably by study region. The North and Mid County have considerably higher rates of STDs than other study regions of the county (e.g. Chlamydia incidence rate is 1,194 per 100,000 in North County and 683 in Mid County compared with 86 in West County; Gonorrhea incidence rate is 370 in North County and 231 in Mid County compared with 12 in West County).

St. Louis County's rate of influenza vaccinations (49%) is better than the state (41%) and national (35%) percentages overall, and by all age and gender demographics, including the study regions with the lowest rates (North and Mid Counties at 45% and 47%, respectively).

COUNTY SUMMARY SHEETS

Assessment Summary St. Louis County

INDICATOR	ST. LOUIS COUNTY	MISSOURI
A. Demographics		
Population: 2009 Census Estimate	992,412	5,951,247
Median Household Income : 2005-2009 American Community Survey 5-Year average estimates	\$57,502	\$46,005
Age: Population under the age of 18	23%	24%
Age: Population age 65 and over	15%	13%
Race	White:76% Black: 20% Other: 4%	White: 83% Black: 12% Other: 5%
Education: Percentage of population (age 25+) without high school diploma	9.6%	14%
Uninsured (all ages): Percentage of population uninsured	9.3%	14%
B. Health Status		
3+ Chronic Conditions: Percentage of adults diagnosed with three or more chronic conditions	5.6%	5.5%
Wellness Profile: Percentage of adults within "well" category	39%	35%
Health Fair to Poor: Percentage of adults reporting fair to poor health status	10%	16%
C. Primary Care		
Access to Care: Percentage of adults who did not have access to care due to cost	9.2%	14%
ED visits – Ambulatory Care Sensitive (ACS) Conditions: Emergency Department visits rate for ACS conditions per 100,000 population	2,523	3,243
Regular Source of Care: Percentage of adults reporting no regular source of care	16%	17%
Hospital admissions - ACS Conditions: Admission rate for ACS conditions per 100,000 population	1,947	1,673
D. Cardiovascular Health		
High Blood Pressure: Percentage of adults diagnosed with high blood pressure	31%	31%
Acute Myocardial Infarction (AMI) Hospital Admissions: AMI hospitalization rate per 100,000 population	113	101
Heart Disease - Mortality: Number of deaths due to heart disease per 100,000 population	258	239
Current Smoking: Percentage of adults who currently smoke	15%	22%
Sedentary Lifestyle: Percentage of adults without physical activity	22%	27%
Obesity: Percentage of adults reporting BMI greater than 30.0	27%	31%
Cholesterol: Percentage of adults diagnosed with high cholesterol	27%	38%
Stroke: Hospital admissions rate per 100,000 population	186	263
Rehab – Heart Attack: Percentage of adults in rehabilitation after a heart attack	40%	41%
Rehab – Heart Stroke: Percentage of adults in rehabilitation after a stroke	33%	32%
E. Respiratory Health		
Current Asthma: Percentage of adults that currently have asthma	8.4 %	9.2%
Chronic Obstructive Pulmonary Disorder (COPD): Percentage of adults diagnosed with COPD	2.4%	NA
F. Diabetes		
Diabetes: Percentage of adults diagnosed with diabetes	9.4%	8.7%
Hemoglobin A1c Measurement: Percentage of adults diagnosed with diabetes who reported a hemoglobin A1c measurement at least once in past year	93%	94%
Diabetes - Hospital Admissions: Hospitalization rate per 100,000 population	168	116

Note: For detailed indicator information see Appendix 4: Health Status Profile, Appendix 7: Secondary Data Sources, Appendix 10: Detailed Data Sources.

St. Louis County Community Health Needs Assessment
Assessment Summary St. Louis County

INDICATOR	ST. LOUIS COUNTY	MISSOURI
G. Cancer Health		
All Cancer – Incidence Rate: All cancer incidence rate per 100,000 population.	556	502
Breast Cancer – Incidence Rate: Breast cancer incidence rate per 100,000 female population	162	137
Colorectal Cancer –Incidence Rate: Colorectal cancer incidence rate per 100,000 population	56	54
Prostate Cancer – Incidence Rate: Prostate cancer incidence rate per 100,000 male population	179	137
Lung and Bronchus Cancer – Incidence Rate: Lung and bronchus cancer incidence rate per 100,000 population	81	84
All Cancer – Mortality Rate: Number of deaths due to all cancers per 100,000 population	210	209
Pap Smear: Percentage of females reported having a pap smear within the past two year	62%	66%
Mammogram: Percentage of females (age 40+) reported having a mammogram within the last year	60%	58%
Colonoscopy: Percentage of adults (age 50+) reported having colonoscopy within past 5 years	60%	51%
H. Mental Health		
Depression: Percentage of adults ever diagnosed with depression	17%.	NA
Psychosis – Hospital Admission Rate: Hospitalization rate per 100,000 population	796	721
Major Depressive Disorder – Hospital Admission Rate: Hospitalization rate per 100,000 population	246	244
Schizophrenia – Hospital Admission Rate: Hospitalization rate per 100,000 population	191	150
Anxiety – Hospital Admission Rate: Hospitalization rate per 100,000 population	208	231
Suicide – Mortality rate: Number of deaths due to suicide per 100,000 population	11	14
I. Substance Abuse		
Substance Abuse – Hospital Admission Rate: Hospitalization rate per 100,000 population St. Louis County	134	155
Alcohol-related Deaths – Mortality Rate: Number of deaths due to alcohol per 100,000 population	4.0	6.0
Motor-vehicle Accidents – Mortality Rate: Number of deaths due to motor vehicle accidents per 100,000 population	8.2	16
Binge Drinking: Percentage of adults who reported binge drinking in past month	13%	NA
J. Infectious Disease		
Gonorrhea – incidence rate: Gonorrhea per 100,000 population	150	121
Chlamydia – incidence rate: Chlamydia per 100,000 population	501	423
K. Reproductive Health		
High-Risk Pregnancy – Hospital Admission Rate: Hospitalization rate per 100,000 female population, ages 10-44	539	461
Infant Mortality Rate: Deaths to infants from birth through 364 days of age, per 1,000 live births	8.0	7.4
Prematurity: Percentage of births following a gestational period less than 37 weeks	14 %	13%
Low Birthweight: Percentage of live births weighing less than 2500 grams	9.1%	8%
Teen Birth Rate: Teen (10-17) birth rate per 1,000 females	5.3	7.5
Inadequate Prenatal Care: Percentage of pregnant women with inadequate prenatal care (Modified Kessner Index)	8.5%	11%

Note: For detailed indicator information see Appendix 4: Health Status Profile, Appendix 7: Secondary Data Sources, Appendix 10: Detailed Data Sources.

St. Louis County Community Health Needs Assessment
Assessment Summary Mid County

INDICATOR	MID COUNTY	ST. LOUIS COUNTY
A. Demographics		
Population: 2009 Census Estimate	203,939	992,412
Median Household Income : 2005-2009 American Community Survey 5-Year average estimates	\$62,607	\$57,502
Age: Population under the age of 18	14%	23%
Age: Population age 65 and over	17%	15%
Race	White: 73% Black: 25% Other: 2%	White: 76% Black: 20% Other: 4%
Education: Percentage of population (age 25+) without high school diploma	9.1%	9.6%
Uninsured (all ages): Percentage of population uninsured	14%	9.3%
B. Health Status		
3+ Chronic Conditions: Percentage of adults diagnosed with three or more chronic conditions	7.5%	5.6%
Wellness Profile: Percentage of adults within “well” category	35%	39%
Health Fair to Poor: Percentage of adults reporting fair to poor health status	16%	10%
C. Primary Care		
Access to Care: Percentage of adults who did not have access to care due to cost	13%	9.2%
ED visits – Ambulatory Care Sensitive (ACS) Conditions: Emergency Department visits rate for ACS conditions per 100,000 population	2,841	2,523
Regular Source of Care: Percentage of adults reporting no regular source of care	17%	16%
Hospital admissions - ACS Conditions: Admission rate for ACS conditions per 100,000 population	2,168	1,947
D. Cardiovascular Health		
High Blood Pressure: Percentage of adults diagnosed with high blood pressure	27%	31%
Acute Myocardial Infarction (AMI) Hospital Admissions: AMI hospitalization rate per 100,000 population	112	113
Heart Disease - Mortality: Number of deaths due to heart disease per 100,000 population	238	258
Current Smoking: Percentage of adults who currently smoke	18%	15%
Sedentary Lifestyle: Percentage of adults without physical activity	21%	22%
Obesity: Percentage of adults reporting BMI greater than 30.0	27%	27%
Cholesterol: Percentage of adults diagnosed with high cholesterol	28%	27%
Stroke: Hospital admissions rate per 100,000 population	208	186
Rehab – Heart Attack: Percentage of adults in rehabilitation after a heart attack	31%	40%
Rehab – Heart Stroke: Percentage of adults in rehabilitation after a stroke	32%	33%
E. Respiratory Health		
Current Asthma: Percentage of adults that currently have asthma	11%	8.4 %
Chronic Obstructive Pulmonary Disorder (COPD): Percentage of adults diagnosed with COPD	3.0%	2.4%
F. Diabetes		
Diabetes: Percentage of adults diagnosed with diabetes	11%	9.4%
Hemoglobin A1c Measurement: Percentage of adults diagnosed with diabetes who reported a hemoglobin A1c measurement at least once in past year	91%	93%
Diabetes - Hospital Admissions: Hospitalization rate per 100,000 population	194	168

Note: For detailed indicator information see Appendix 4: Health Status Profile, Appendix 7: Secondary Data Sources, Appendix 10: Detailed Data Sources.

St. Louis County Community Health Needs Assessment

Assessment Summary Mid County

INDICATOR	MID COUNTY	ST. LOUIS COUNTY
G. Cancer Health		
All Cancer – Incidence Rate: All cancer incidence rate per 100,000 population.	557	556
Breast Cancer – Incidence Rate: Breast cancer incidence rate per 100,000 female population	167	162
Colorectal Cancer –Incidence Rate: Colorectal cancer incidence rate per 100,000 population	58	56
Prostate Cancer – Incidence Rate: Prostate cancer incidence rate per 100,000 male population	187	179
Lung and Bronchus Cancer – Incidence Rate: Lung and bronchus cancer incidence rate per 100,000 population	76	81
All Cancer – Mortality Rate: Number of deaths due to all cancers per 100,000 population	212	210
Pap Smear: Percentage of females reported having a pap smear within the past two year	63%	62%
Mammogram: Percentage of females (age 40+) reported having a mammogram within the last year	62%	60%
Colonoscopy: Percentage of adults (age 50+) reported having colonoscopy within past 5 years	57%	60%
H. Mental Health		
Depression: Percentage of adults ever diagnosed with depression	19%	17%.
Psychosis – Hospital Admission Rate: Hospitalization rate per 100,000 population	916	796
Major Depressive Disorder – Hospital Admission Rate: Hospitalization rate per 100,000 population	267	246
Schizophrenia – Hospital Admission Rate: Hospitalization rate per 100,000 population	257	191
Anxiety – Hospital Admission Rate: Hospitalization rate per 100,000 population	214	208
Suicide – Mortality rate: Number of deaths due to suicide per 100,000 population	9.3	11
I. Substance Abuse		
Substance Abuse – Hospital Admission Rate: Hospitalization rate per 100,000 population St. Louis County	134	134
Alcohol-related Deaths – Mortality Rate: Number of deaths due to alcohol per 100,000 population	3.4	4.0
Motor-vehicle Accidents – Mortality Rate: Number of deaths due to motor vehicle accidents per 100,000 population	6.9	8.2
Binge Drinking: Percentage of adults who reported binge drinking in past month	16%	13%
J. Infectious Disease		
Gonorrhea – incidence rate: Gonorrhea per 100,000 population	231	150
Chlamydia – incidence rate: Chlamydia per 100,000 population	683	501
K. Reproductive Health		
High-Risk Pregnancy – Hospital Admission Rate: Hospitalization rate per 100,000 female population, ages 10-44	629	539
Infant Mortality Rate: Deaths to infants from birth through 364 days of age, per 1,000 live births	9.0	8.0
Prematurity: Percentage of births following a gestational period less than 37 weeks	14%	14 %
Low Birthweight: Percentage of live births weighing less than 2500 grams	9.3%	9.1%
Teen Birth Rate: Teen (10-17) birth rate per 1,000 females	6.5	5.3
Inadequate Prenatal Care: Percentage of pregnant women with inadequate prenatal care (Modified Kessner Index)	9.3%	8.5%

Note: For detailed indicator information see Appendix 4: Health Status Profile, Appendix 7: Secondary Data Sources, Appendix 10: Detailed Data Sources.

Assessment Summary North County

INDICATOR	NORTH COUNTY	ST. LOUIS COUNTY
A. Demographics		
Population: 2009 Census Estimate	249,807	992,412
Median Household Income : 2005-2009 American Community Survey 5-Year average estimates	\$44,919	\$57,502
Age: Population under the age of 18	21%	23%
Age: Population age 65 and over	15%	15%
Race	White: 53% Black: 45% Other: 2%	White: 76% Black: 20% Other: 4%
Education: Percentage of population (age 25+) without high school diploma	15%	9.6%
Uninsured (all ages): Percentage of population uninsured	14%	9.3%
B. Health Status		
3+ Chronic Conditions: Percentage of adults diagnosed with three or more chronic conditions	6.4%	5.6%
Wellness Profile: Percentage of adults within "well" category	36%	39%
Health Fair to Poor: Percentage of adults reporting fair to poor health status	18%	10%
C. Primary Care		
Access to Care: Percentage of adults who did not have access to care due to cost	11%	9.2%
ED visits – Ambulatory Care Sensitive (ACS) Conditions: Emergency Department visits rate for ACS conditions per 100,000 population	5,149	2,523
Regular Source of Care: Percentage of adults reporting no regular source of care	20%	16%
Hospital admissions - ACS Conditions: Admission rate for ACS conditions per 100,000 population	2,903	1,947
D. Cardiovascular Health		
High Blood Pressure: Percentage of adults diagnosed with high blood pressure	38%	31%
Acute Myocardial Infarction (AMI) Hospital Admissions: AMI hospitalization rate per 100,000 population	153	113
Heart Disease - Mortality: Number of deaths due to heart disease per 100,000 population	321	258
Current Smoking: Percentage of adults who currently smoke	17%	15%
Sedentary Lifestyle: Percentage of adults without physical activity	29%	22%
Obesity: Percentage of adults reporting BMI greater than 30.0	36%	27%
Cholesterol: Percentage of adults diagnosed with high cholesterol	25%	27%
Stroke: Hospital admissions rate per 100,000 population	247	186
Rehab – Heart Attack: Percentage of adults in rehabilitation after a heart attack	40%	40%
Rehab – Heart Stroke: Percentage of adults in rehabilitation after a stroke	40	33%
E. Respiratory Health		
Current Asthma: Percentage of adults that currently have asthma	12%	8.4 %
Chronic Obstructive Pulmonary Disorder (COPD): Percentage of adults diagnosed with COPD	3.2%	2.4%
F. Diabetes		
Diabetes: Percentage of adults diagnosed with diabetes	12%	9.4%
Hemoglobin A1c Measurement: Percentage of adults diagnosed with diabetes who reported a hemoglobin A1c measurement at least once in past year	97%	93%
Diabetes - Hospital Admissions: Hospitalization rate per 100,000 population	306	168

Note: For detailed indicator information see Appendix 4: Health Status Profile, Appendix 7: Secondary Data Sources, Appendix 10: Detailed Data Sources.

Assessment Summary North County

INDICATOR	NORTH COUNTY	ST. LOUIS COUNTY
G. Cancer Health		
All Cancer – Incidence Rate: All cancer incidence rate per 100,000 population.	602	556
Breast Cancer – Incidence Rate: Breast cancer incidence rate per 100,000 female population	171	162
Colorectal Cancer –Incidence Rate: Colorectal cancer incidence rate per 100,000 population	65	56
Prostate Cancer – Incidence Rate: Prostate cancer incidence rate per 100,000 male population	174	179
Lung and Bronchus Cancer – Incidence Rate: Lung and bronchus cancer incidence rate per 100,000 population	102	81
All Cancer – Mortality Rate: Number of deaths due to all cancers per 100,000 population	236	210
Pap Smear: Percentage of females reported having a pap smear within the past two year	63%	62%
Mammogram: Percentage of females (age 40+) reported having a mammogram within the last year	57%	60%
Colonoscopy: Percentage of adults (age 50+) reported having colonoscopy within past 5 years	56%	60%
H. Mental Health		
Depression: Percentage of adults ever diagnosed with depression	15%	17%.
Psychosis – Hospital Admission Rate: Hospitalization rate per 100,000 population	1,248	796
Major Depressive Disorder – Hospital Admission Rate: Hospitalization rate per 100,000 population	336	246
Schizophrenia – Hospital Admission Rate: Hospitalization rate per 100,000 population	363	191
Anxiety – Hospital Admission Rate: Hospitalization rate per 100,000 population	324	208
Suicide – Mortality rate: Number of deaths due to suicide per 100,000 population	13	11
I. Substance Abuse		
Substance Abuse – Hospital Admission Rate: Hospitalization rate per 100,000 population St. Louis County	162	134
Alcohol-related Deaths – Mortality Rate: Number of deaths due to alcohol per 100,000 population	4.7	4.0
Motor-vehicle Accidents – Mortality Rate: Number of deaths due to motor vehicle accidents per 100,000 population	12	8.2
Binge Drinking: Percentage of adults who reported binge drinking in past month	9.1%	13%
J. Infectious Disease		
Gonorrhea – incidence rate: Gonorrhea per 100,000 population	370	150
Chlamydia – incidence rate: Chlamydia per 100,000 population	1,194	501
K. Reproductive Health		
High-Risk Pregnancy – Hospital Admission Rate: Hospitalization rate per 100,000 female population, ages 10-44	980	539
Infant Mortality Rate: Deaths to infants from birth through 364 days of age, per 1,000 live births	12	8.0
Prematurity: Percentage of births following a gestational period less than 37 weeks	17%	14 %
Low Birthweight: Percentage of live births weighing less than 2500 grams	11%	9.1%
Teen Birth Rate: Teen (10-17) birth rate per 1,000 females	10.0	5.3
Inadequate Prenatal Care: Percentage of pregnant women with inadequate prenatal care (Modified Kessner Index)	14%	8.5%

Note: For detailed indicator information see Appendix 4: Health Status Profile, Appendix 7: Secondary Data Sources, Appendix 10: Detailed Data Sources.

Assessment Summary South County

INDICATOR	SOUTH COUNTY	ST. LOUIS COUNTY
A. Demographics		
Population: 2009 Census Estimate	253,708	992,412
Median Household Income : 2005-2009 American Community Survey 5-Year average estimates	\$59,943	\$57,502
Age: Population under the age of 18	28%	23%
Age: Population age 65 and over	16%	15%
Race	White: 94% Black: 4% Other: 2%	White:76% Black: 20% Other: 4%
Education: Percentage of population (age 25+) without high school diploma	10%	9.6%
Uninsured (all ages): Percentage of population uninsured	6.8%	9.3%
B. Health Status		
3+ Chronic Conditions: Percentage of adults diagnosed with three or more chronic conditions	5.0%	5.6%
Wellness Profile: Percentage of adults within “well” category	38%	39%
Health Fair to Poor: Percentage of adults reporting fair to poor health status	12%	10%
C. Primary Care		
Access to Care: Percentage of adults who did not have access to care due to cost	8.9%	9.2%
ED visits – Ambulatory Care Sensitive (ACS) Conditions: Emergency Department visits rate for ACS conditions per 100,000 population	1,485	2,523
Regular Source of Care: Percentage of adults reporting no regular source of care	14%	16%
Hospital admissions - ACS Conditions: Admission rate for ACS conditions per 100,000 population	1,673	1,947
D. Cardiovascular Health		
High Blood Pressure: Percentage of adults diagnosed with high blood pressure	30%	31%
Acute Myocardial Infarction (AMI) Hospital Admissions: AMI hospitalization rate per 100,000 population	103	113
Heart Disease - Mortality: Number of deaths due to heart disease per 100,000 population	260	258
Current Smoking: Percentage of adults who currently smoke	14%	15%
Sedentary Lifestyle: Percentage of adults without physical activity	19%	22%
Obesity: Percentage of adults reporting BMI greater than 30.0	25%	27%
Cholesterol: Percentage of adults diagnosed with high cholesterol	30%	27%
Stroke: Hospital admissions rate per 100,000 population	186	186
Rehab – Heart Attack: Percentage of adults in rehabilitation after a heart attack	36%	40%
Rehab – Heart Stroke: Percentage of adults in rehabilitation after a stroke	43%	33%
E. Respiratory Health		
Current Asthma: Percentage of adults that currently have asthma	5.3%	8.4 %
Chronic Obstructive Pulmonary Disorder (COPD): Percentage of adults diagnosed with COPD	2.7%	2.4%
F. Diabetes		
Diabetes: Percentage of adults diagnosed with diabetes	9.0%	9.4%
Hemoglobin A1c Measurement: Percentage of adults diagnosed with diabetes who reported a hemoglobin A1c measurement at least once in past year	92%	93%
Diabetes - Hospital Admissions: Hospitalization rate per 100,000 population	117	168

Note: For detailed indicator information see Appendix 4: Health Status Profile, Appendix 7: Secondary Data Sources, Appendix 10: Detailed Data Sources.

Assessment Summary South County

INDICATOR	SOUTH COUNTY	ST. LOUIS COUNTY
G. Cancer Health		
All Cancer – Incidence Rate: All cancer incidence rate per 100,000 population.	527	556
Breast Cancer – Incidence Rate: Breast cancer incidence rate per 100,000 female population	146	162
Colorectal Cancer –Incidence Rate: Colorectal cancer incidence rate per 100,000 population	57	56
Prostate Cancer – Incidence Rate: Prostate cancer incidence rate per 100,000 male population	174	179
Lung and Bronchus Cancer – Incidence Rate: Lung and bronchus cancer incidence rate per 100,000 population	79	81
All Cancer – Mortality Rate: Number of deaths due to all cancers per 100,000 population	205	210
Pap Smear: Percentage of females reported having a pap smear within the past two year	61%	62%
Mammogram: Percentage of females (age 40+) reported having a mammogram within the last year	58%	60%
Colonoscopy: Percentage of adults (age 50+) reported having colonoscopy within past 5 years	60%	60%
H. Mental Health		
Depression: Percentage of adults ever diagnosed with depression	18%	17%.
Psychosis – Hospital Admission Rate: Hospitalization rate per 100,000 population	666	796
Major Depressive Disorder – Hospital Admission Rate: Hospitalization rate per 100,000 population	238	246
Schizophrenia – Hospital Admission Rate: Hospitalization rate per 100,000 population	113	191
Anxiety – Hospital Admission Rate: Hospitalization rate per 100,000 population	195	208
Suicide – Mortality rate: Number of deaths due to suicide per 100,000 population	11	11
I. Substance Abuse		
Substance Abuse – Hospital Admission Rate: Hospitalization rate per 100,000 population St. Louis County	124	134
Alcohol-related Deaths – Mortality Rate: Number of deaths due to alcohol per 100,000 population	2.4	4.0
Motor-vehicle Accidents – Mortality Rate: Number of deaths due to motor vehicle accidents per 100,000 population	7.6	8.2
Binge Drinking: Percentage of adults who reported binge drinking in past month	16%	13%
J. Infectious Disease		
Gonorrhea – incidence rate: Gonorrhea per 100,000 population	22	150
Chlamydia – incidence rate: Chlamydia per 100,000 population	139	501
K. Reproductive Health		
High-Risk Pregnancy – Hospital Admission Rate: Hospitalization rate per 100,000 female population, ages 10-44	349	539
Infant Mortality Rate: Deaths to infants from birth through 364 days of age, per 1,000 live births	4.3	8.0
Prematurity: Percentage of births following a gestational period less than 37 weeks	12%	14 %
Low Birthweight: Percentage of live births weighing less than 2500 grams	7.0%	9.1%
Teen Birth Rate: Teen (10-17) birth rate per 1,000 females	2.0	5.3
Inadequate Prenatal Care: Percentage of pregnant women with inadequate prenatal care (Modified Kessner Index)	3.9%	8.5%

Note: For detailed indicator information see Appendix 4: Health Status Profile, Appendix 7: Secondary Data Sources, Appendix 10: Detailed Data Sources.

Assessment Summary West County

INDICATOR	WEST COUNTY	ST. LOUIS COUNTY
A. Demographics		
Population: 2009 Census Estimate	284,958	992,412
Median Household Income : 2005-2009 American Community Survey 5-Year average estimates	\$85,210	\$57,502
Age: Population under the age of 18	29%	23%
Age: Population age 65 and over	12%	15%
Race	White: 85% Black: 5% Other: 10%	White:76% Black: 20% Other: 4%
Education: Percentage of population (age 25+) without high school diploma	5.2%	9.6%
Uninsured (all ages): Percentage of population uninsured	3.7%	9.3%
B. Health Status		
3+ Chronic Conditions: Percentage of adults diagnosed with three or more chronic conditions	3.6%	5.6%
Wellness Profile: Percentage of adults within “well” category	46%	39%
Health Fair to Poor: Percentage of adults reporting fair to poor health status	6.3%	10%
C. Primary Care		
Access to Care: Percentage of adults who did not have access to care due to cost	4.9%	9.2%
ED visits – Ambulatory Care Sensitive (ACS) Conditions: Emergency Department visits rate for ACS conditions per 100,000 population	918	2,523
Regular Source of Care: Percentage of adults reporting no regular source of care	11%	16%
Hospital admissions - ACS Conditions: Admission rate for ACS conditions per 100,000 population	1,194	1,947
D. Cardiovascular Health		
High Blood Pressure: Percentage of adults diagnosed with high blood pressure	28%	31%
Acute Myocardial Infarction (AMI) Hospital Admissions: AMI hospitalization rate per 100,000 population	86	113
Heart Disease - Mortality: Number of deaths due to heart disease per 100,000 population	188	258
Current Smoking: Percentage of adults who currently smoke	12%	15%
Sedentary Lifestyle: Percentage of adults without physical activity	20%	22%
Obesity: Percentage of adults reporting BMI greater than 30.0	20%	27%
Cholesterol: Percentage of adults diagnosed with high cholesterol	26%	27%
Stroke: Hospital admissions rate per 100,000 population	116	186
Rehab – Heart Attack: Percentage of adults in rehabilitation after a heart attack	61%	40%
Rehab – Heart Stroke: Percentage of adults in rehabilitation after a stroke	18%	33%
E. Respiratory Health		
Current Asthma: Percentage of adults that currently have asthma	6.6%	8.4 %
Chronic Obstructive Pulmonary Disorder (COPD): Percentage of adults diagnosed with COPD	0.7%	2.4%
F. Diabetes		
Diabetes: Percentage of adults diagnosed with diabetes	6.0%	9.4%
Hemoglobin A1c Measurement: Percentage of adults diagnosed with diabetes who reported a hemoglobin A1c measurement at least once in past year	88%	93%
Diabetes - Hospital Admissions: Hospitalization rate per 100,000 population	74	168

Note: For detailed indicator information see Appendix 4: Health Status Profile, Appendix 7: Secondary Data Sources, Appendix 10: Detailed Data Sources.

St. Louis County Community Health Needs Assessment
Assessment Summary West County

INDICATOR	WEST COUNTY	ST. LOUIS COUNTY
G. Cancer Health		
All Cancer – Incidence Rate: All cancer incidence rate per 100,000 population.	541	556
Breast Cancer – Incidence Rate: Breast cancer incidence rate per 100,000 female population	166	162
Colorectal Cancer –Incidence Rate: Colorectal cancer incidence rate per 100,000 population	47	56
Prostate Cancer – Incidence Rate: Prostate cancer incidence rate per 100,000 male population	184	179
Lung and Bronchus Cancer – Incidence Rate: Lung and bronchus cancer incidence rate per 100,000 population	69	81
All Cancer – Mortality Rate: Number of deaths due to all cancers per 100,000 population	174	210
Pap Smear: Percentage of females reported having a pap smear within the past two year	61%	62%
Mammogram: Percentage of females (age 40+) reported having a mammogram within the last year	64%	60%
Colonoscopy: Percentage of adults (age 50+) reported having colonoscopy within past 5 years	65%	60%
H. Mental Health		
Depression: Percentage of adults ever diagnosed with depression	14%	17%.
Psychosis – Hospital Admission Rate: Hospitalization rate per 100,000 population	429	796
Major Depressive Disorder – Hospital Admission Rate: Hospitalization rate per 100,000 population	160	246
Schizophrenia – Hospital Admission Rate: Hospitalization rate per 100,000 population	62	191
Anxiety – Hospital Admission Rate: Hospitalization rate per 100,000 population	115	208
Suicide – Mortality rate: Number of deaths due to suicide per 100,000 population	11	11
I. Substance Abuse		
Substance Abuse – Hospital Admission Rate: Hospitalization rate per 100,000 population St. Louis County	115	134
Alcohol-related Deaths – Mortality Rate: Number of deaths due to alcohol per 100,000 population	4.9	4.0
Motor-vehicle Accidents – Mortality Rate: Number of deaths due to motor vehicle accidents per 100,000 population	5.3	8.2
Binge Drinking: Percentage of adults who reported binge drinking in past month	11%	13%
J. Infectious Disease		
Gonorrhea – incidence rate: Gonorrhea per 100,000 population	12	150
Chlamydia – incidence rate: Chlamydia per 100,000 population	86	501
K. Reproductive Health		
High-Risk Pregnancy – Hospital Admission Rate: Hospitalization rate per 100,000 female population, ages 10-44	240	539
Infant Mortality Rate: Deaths to infants from birth through 364 days of age, per 1,000 live births	3.7	8.0
Prematurity: Percentage of births following a gestational period less than 37 weeks	12%	14 %
Low Birthweight: Percentage of live births weighing less than 2500 grams	7.0%	9.1%
Teen Birth Rate: Teen (10-17) birth rate per 1,000 females	1.3	5.3
Inadequate Prenatal Care: Percentage of pregnant women with inadequate prenatal care (Modified Kessner Index)	3.7%	8.5%

Note: For detailed indicator information see Appendix 4: Health Status Profile, Appendix 7: Secondary Data Sources, Appendix 10: Detailed Data Sources.

II. INTRODUCTION

The St. Louis County Department of Health of St. Louis County, Missouri commissioned the Center for Community and Public Health (CCPH) of the University of New England to conduct an independent Community Health Needs Assessment (CHNA) for St. Louis County of Missouri. The primary goal was to identify the most important health care service issues facing the population of St. Louis County. This would permit the Health Department to undertake action plans alone and with others using scientifically valid information. A secondary goal of the assessment was to assist the county in preparing necessary information to meet accreditation as a public health department with the State of Missouri.

The findings of the study reveal several priority health service issues – issues that, if addressed appropriately, will result in improved population health status and a more efficient healthcare delivery system. The report lays the foundation for targeted health services planning, be they for specific services in a region or across the entire county health care system. The report also contains recommendations that will require the collaborative efforts of many stakeholders to be successfully implemented.

The study was completed in collaboration with a steering committee. This was comprised of representatives from St. Louis County Department of Health (see Appendix 1 for a complete list of Steering Committee members). The committee's mission was to assist in a) focusing study objectives; b) assisting with identifying/securing data, candidates for provider interviews, and other resources relevant to the study; c) shaping recommendations; and d) developing a plan for the dissemination of study findings. Committee members were convened throughout the process.

III. OBJECTIVES

The objectives of the 2011 Community Health Needs Assessment conducted for the St. Louis County Health Department were as follows:

1. Develop a comprehensive baseline epidemiological profile of the population of St. Louis County and sub-county regions;
2. Identify health disparities and service needs at the county and sub-county level based on the profile and related information;
3. Identify, to the extent the data permits, how health disparities and service needs differ among subgroups of the population (age and gender groups, racial and ethnic minorities);
4. Identify barriers in the health system and the community that, if addressed, would improve population health, especially those identified as priority health issues;
5. Provide recommendations on how to improve priority service needs in the county.

IV. METHODOLOGY

Understanding the health needs of a community is imperative for public health planning. It allows public health and health care organizations to design and implement cost-effective strategies that improve the health status of the populations they serve. A comprehensive data driven assessment process can identify, with a high degree of accuracy, priority health needs and issues related to prevention, diagnosis and treatment. Assessment tools also may assist in pinpointing access to care barriers, utilization of evidence based guidelines, and utilization of health services. For the 2011 St. Louis County CHNA, CCPH’s Community and Institutional Assessment Process (CIAP) was used. Appendix 3 provides a flow diagram of the full CIAP process.

SUB-COUNTY STUDY REGIONS

Using an entire county as the primary level of analysis in community health assessments can mask significant sub-county variations in health status and delivery system characteristics. Individual town-level analysis, however, is not possible in many cases primarily because of the statistical limitations of using small population sizes and rare health events. To address these issues in this study, we organized St. Louis County into study regions: Mid, North, South, and West County.

Table 1 lists the municipalities that comprise each study region, and Appendix 2 displays the study regions on a county map. The list of municipalities by region was obtained through the St. Louis County municipal league, which provides a detailed list on its website.

Table 1: Description of Study Regions in St. Louis County - Missouri.

REGION	Municipalities
Mid County	Bel Nor, Bel Ridge, Bellerive, Beverly Hills, Breckenridge Hills, Brentwood, Charlack, Clayton, Frontenac, Glen Echo Park, Glendale, Greendale, Hanley Hills, Hillsdale, Huntleigh, Kirkwood, Ladue, Maplewood, Normandy, Northwoods, Norwood Court, Oakland, Olivette, Overland, Pagedale, Pasadena Hills, Pasadena Park, Peerless Park, Pine Lawn, Richmond Heights, Rock Hill, Sycamore Hills, University City, Uplands Park, Velda City, Velda Village Hills, Vinita Park, Vinita Terrace, Warson Woods, Wellston
North County	Bellefontaine Neighbors, Berkeley, Black Jack, Bridgeton, Calverton Park, Castle Point CDP, Champ, Cool Valley, Country Club Hills, Dellwood, Edmundson, Ferguson, Flordell Hills, Florissant, Glasgow Village, Hazelwood, Jennings, Kinlock, Moline Acres, Riverview, Spanish Lake, St. Ann, Woodson Terrace
South County	Affton, Bella Villa, Concord, Crestwood, Fenton, Grantwood Village, Green Park, Lakeshire, Lemay, Mackenzie, Marlborough, Mehlville, Oakville, Sappington, Shrewsbury, St. George, Sunset Hills, Webster Groves, Wilbur Park
West County	Ballwin, Chesterfield, Clarkson Valley, Country Life Acres, Creve Coeur, Crystal Lake Park, Des Peres, Ellisville, Eureka, Grover, Manchester, Maryland Heights, Pacific, Town and Country, Twin Oaks, Valley Park, Westwood, Wildwood, Winchester

Data source: St. Louis County Municipal League. <http://ww5.stlouisco.com/scripts/communities/>.

Process

The CIAP uses epidemiological modeling of demographic, health access, utilization, and related population based health and health related indicators, together with qualitative information from health service providers and the community, to identify health status and service need issues in a geographic area and population. The CIAP starts with a comprehensive epidemiological-based health profile organized by health domain or condition such as cardiovascular health, respiratory health, cancer health, etc. Indicators for most domains are organized by risk factors, prevalence (or incidence) of disease or condition, care management indicators, and care outcomes. The analysis of indicators within each domain provides information to identify and subsequently explore which aspects of the public health and health care delivery system may be over- or under-performing for that particular domain (e.g. primary prevention, secondary prevention, etc.). This results in a list of priority health issues and questions for follow-up with domain-related providers, community leaders, agencies, and the public to determine delivery system strengths and deficits that may be driving the indicators.

Specific service needs of the overall population and the sub-populations within the community (e.g. age group and gender, where appropriate) are identified, where data permit, using a combination of quantitative data and qualitative information obtained from interviews. The process leads to an understanding of the health service issues facing a community. With additional information from the literature, the assessment also identifies health policy and delivery system change recommendations. Recommendations are based, in part, on what programs or policies have been successful elsewhere and might be appropriately adapted to the local delivery system. It is important to note that actual planning, program development, and/or implementation comes after completion of the CHNA.

For the St. Louis County CHNA, the CIAP methodology was used to produce a list of priority health issues and questions for follow-up with two sets of stakeholders identified by the Steering Committee. The first set was comprised of recognized community health leaders whose opinions were sought on what they perceived to be the most important health issues facing the county, the causes and potential solutions to addressing health disparities, and the role the St. Louis County Health Department could play in reducing those disparities. The second set of stakeholders interviewed was knowledgeable about specific health issues identified from the data and services in the community. This group of stakeholders provided insight and recommendations for *next steps* to address these issues. These interviews also provided the opportunity to identify additional public health and health care service issues that were not identified in the quantitative analysis stage.

Indicators within each domain were produced as actual population rates or proportions. They are not adjusted for age, gender, or other population artifacts. Unadjusted or “crude” rates capture the true burden of disease in a population - that is, the estimated size of the population that the health care system needs to serve. This information is critical for health services planning and is lost if rates are adjusted. To better understand the health status of a population, the indicators are analyzed by population subgroups such as gender, age groups, and/or race and ethnicity, provided the data are available and it is appropriate from a population health or clinical perspective. The CIAP does not generally test for statistical significance of rates between two or more populations. The identification of priority health issues is done through examining a pattern of indicators for a particular health condition—for example risk factors, disease prevalence, health services use, and/or health outcomes. The fact that any one indicator in a series of indicators for a particular condition is statistically significant does not usually add information for identifying or planning health interventions. In fact, it may lead one to false conclusions. Once a pattern

of indicators taken together suggests that follow-up on service adequacy is warranted, then statistical testing may be considered in special circumstances to better define population health needs.

The St. Louis County assessment focuses on the county as a whole and on four different study regions within the county. Thus, the Health Status Profile (see Appendix 4) contains 6 columns of indicators - one for the state, one for St. Louis County, and one for each study region. National indicators are in an additional column, where available. The number of U.S. indicators is limited in part by the difficulty of obtaining unadjusted national data. To identify domain and sub-domain levels by county and sub-county that are different from the state level and, thus, require additional follow-up, the study team adopted the use of a “20% rule.”³ The application of this rule means that indicators 20% or more above or below the state level are worth noting for follow-up. Generally, the domain-specific analyses in the report used this rule, and findings that are termed “much lower” or “much higher” have met this rule.

In sum, the CHNA methodology using CIAP is a systematic analysis of scientific-based health and health related indicators about a population and, therefore, informs the development of better health services planning. The analysis conducted using the above approach is meant to tell a story - a story based on a series of indicators that define the dimensions of health in a population. This leads to an initial identification of priority health issues for further action. Follow-up with qualitative information from key informants leads to the identification of specific actions and services that, if implemented, are likely to improve the indicators for that domain, thus improving care and the health status of the population.

To help guide the process used for the St. Louis County assessment, a CHNA Steering Committee with representatives from the St. Louis County Department of Health was convened. This committee’s role was to provide input on: (a) identification of existing data sources for the study; (b) content of the community household telephone survey questionnaire; (c) interpretation of survey findings; (d) identification of interviewees; (e) review of recommendations; and (f) data dissemination and a follow-up plan.

The Health Status Profile (HSP) created for the state and for each sub-county, required a comprehensive set of indicators to measure critical aspects of St. Louis County’s health care delivery system, including health status, access to care, and quality of care. Health status - the present state of wellness or illness in a community - is defined by indicators of beneficial and harmful health behaviors, the presence of symptoms and conditions indicative of illness and wellness, measures of the burden of illness in a community, the prevalence and incidence of specific diseases, and mortality. Because health status is the most important factor driving the demand for health care services⁴, the first step in this assessment was to describe the health status of St. Louis County and the four identified study regions. To accomplish this, a comprehensive set of health and medical indicators for the county and the four study regions was constructed and analyzed (see Appendix 4 - the Health Status Profile).

The set of measures used in this assessment was selected to reflect evolving national and state benchmarks for quality of care, service receipt, risk factors, and health status. Most indicators were derived from public data sources, including state birth and death records, hospital inpatient and

³ It is generally accepted view in health planning that when there is a 10% or more difference in health characteristics between two populations, there is likely some clinical, health delivery, or population-based reason that explains this difference. Using 20% provides a greater likelihood of this, and differences of this magnitude are generally statistically significant as well—Ronald Deprez, Ph.D., MPH.

⁴ This statement is based on many studies of health care utilization. Some examples are: Starfield B. Primary care visits and health policy. *CMAJ* 1998;159:795-6; Roos NP, Carriere KC, Friesen D. Factors influencing the frequency of visits by hypertensive patients to primary care physicians in Winnipeg. *CMAJ* 1998; 159(7):777-83; Connelly JE, Philbrick JT, Smith GRJ, Kaiser DL, Wymer A. Health perceptions of primary care patients and the influence on health care utilization. *Med Care* 1989;27(3 Suppl):S99-109.

emergency department (ED) datasets, cancer registry data, U.S. Census data, state infectious disease data, and the Behavioral Risk Factor Surveillance System (BRFSS) survey. A complete list of secondary data sources and years is included in Appendix 7. Other indicators were derived from a random sample household telephone survey conducted specifically for this study.

HOUSEHOLD SURVEY

Questionnaire Design

The household survey questionnaire used in the St. Louis County CHNA was developed collaboratively by the St. Louis County Department of Health, the University of New England Center for Community and Public Health (CCPH), and Market Decisions.

An initial review of elements was conducted by CCPH, in consultation with the CHNA Steering Committee, to determine specific data needs. A preliminary draft of the survey instrument was submitted to the St. Louis County DOH and the Steering Committee in December 2010. In subsequent weeks, refinements to the draft survey were made in a series of meetings with all key constituents, and a final pretest version of the survey was completed and tested. The final survey instrument (see Appendix 5) was approved and programmed for data collection in January 2011. The survey gathered information from St. Louis County residents in the following areas:

- Health Services Access and Utilization
- Functional Health Status and Chronic Conditions
- Chronic Disease Management
- Youth Health and Health Care
- Exercise
- Primary Care
- Height and Weight
- Dental Care
- Mental Health
- Drug use / Substance Abuse
- Risk Factors
- Health Insurance
- Health Care Barriers
- Community Health Needs
- Emergency Preparedness
- Sexual Behavior
- Wellness Activities and Programs
- Demographics

Sampling Methodology

This section outlines the sampling process used during the St. Louis County CHNA. The sampling process consisted of a stratified sampling methodology that divided the county into the aforementioned four separate regions: Mid, North, South, and West County. The goal of the sampling methodology was to complete approximately the same number of surveys within each of the four regions. The four regions were defined based on municipalities within the regions and their associated zip codes. The list of municipalities was provided by the St. Louis County Department of Health. Unincorporated areas of the county were assigned to a region based on proximity.

Sample Generation

The sample files for the strata were generated in-house using GENESYS sampling software. Each of the zip code based samples was generated in proportion to the distribution of “population” of exchanges and telephone numbers throughout each sampling stratum. Thus, a higher percentage of sample telephone numbers were generated in those areas with higher residential populations.

Completed Surveys

A total of 2,149 surveys were completed among residents. This included:

- 530 surveys in Mid County
- 543 surveys in North County
- 530 survey in South County
- 546 surveys in West County

Data Collection

The data collection phase of the St. Louis County Community Health Needs Assessment Survey was begun on January 20, 2011, and data collection was completed by March 20, 2011. A total of 2,149 respondents were interviewed during this period.

In order to ensure data accuracy for this study, a rigorous data collection strategy was used in conducting this survey. This included the following:

- Rotation of call attempts across all seven days at different times of the day according to industry standards for acceptability and legality in telemarketing;
- A minimum of 20 call back attempts per telephone number at the screener level (before the number was identified as a qualified residential number);
- 4 attempts to convert refusals (the exception were those households that made it clear they were not to be contacted again);
- A minimum of 10 callback attempts for “no answer” or answering machine only telephone non-contacts and for inappropriate contacts (contact only, etc), and scheduled callback appointments; and,
- A brief message with a toll free number was delivered to answering machine only attempts to encourage participation. (Messages were left on the first, third and seventh answering machine dispositions.)

Per industry standards, interviews were only conducted during the hours from 9 AM to 9 PM and seven days a week local time. The only exceptions were specific, scheduled appointments outside this range.

Survey Length

The St. Louis County Community Health Needs Assessment Survey required respondents to provide a great deal of information about themselves on a range of health topics. The goal was to obtain accurate information about all household members while limiting the time commitment required of the respondent.

On average, the 2,149 interviews required 21.6 minutes. One-half (50%) of the interviews were completed in 20 minutes or less. The shortest amount of time required was 10 minutes, while the longest survey required 47 minutes.

Survey Response Rates

The response, cooperation, and refusal rates of the St. Louis Community Health Needs Assessment Survey are presented below for each of the sampling strata as well as for the survey overall. The rates reported are based on the standard formulas developed by the American Association for Public Opinion Research (AAPOR) and the Council of American Survey Research Organizations (CASRO). The

AAPOR and CASRO rates differ because they rely on different formulas in calculating response rates. The CASRO rates are comparable to the formulas used in calculating response rates for the BRFSS.

Table 2: Summary of Response, Cooperation, and Refusal Rates by Survey Component and Strata

	CASRO Response Rate	Response Rate (AAPOR RR3)	AAPOR Respondent Cooperation Rate (COOP3)	AAPOR Respondent Refusal Rate (REF3)
Total	57%	52%	88%	1.6%
Mid County	59%	53%	84%	1.8%
North County	53%	49%	87%	1.5%
South County	54%	49%	87%	2.0%
West County	62%	55%	91%	1.4%

Data Weighting

The data have been weighted to adjust for non-response and also to match regional and county profiles based upon sex, age, race, and ethnic origin. The weighting procedures involved primarily three phases: initial based weights, non-response and probabilistic weighting adjustments, and post-stratification weighting adjustments. Weighting was handled sequentially by calculating initial based weights, applying non-response and probabilistic weighting adjustments, and then applying post-stratification adjustments.

A design weight was calculated for each sample record. This base weight was equal to the inverse of the probability of selecting a number within each of the sampling strata. A final design weight was then calculated. This represents the base sample weight multiplied by probabilistic and non-response weighting adjustments. The final stage, the post-stratification weighting process, relied on three steps. This included weighting adjustments of:

- Age by gender by region
- Race by age (countywide)
- Ethnic origin (countywide)

Population Size Reflected in the Final Data Set

The weighted data set is designed to provide data that can be generalized to the population of St. Louis County as a whole and to allow statements to be made about the county and regions, as well as for various sub-populations with a known standard error and confidence. The population size reflected in the final data set is the total population of St. Louis County, or 760,124 residents age 18 and older.

SECONDARY DATA

Below are brief descriptions of key administrative (secondary) datasets used in this assessment. A full list of secondary data sources can be found in Appendix 7.

Population Estimates and Demographics

Population data was accessed from the 2009 Census Estimates because the 2010 Census counts were not yet released at the time of this assessment. The 2005-2009 American Community Survey (ACS) 5-Year Estimates were accessed to obtain a detailed breakdown by age and gender. Education data were also accessed from the 2005-2009 ACS 5-Year Estimates. The population census estimates were also used to determine all rates (e.g. hospitalization rates) that included population-based denominators.

Median household income was obtained through the U.S. Census, and unemployment data was obtained through the Missouri Department of Economic Development. The Medicaid participation data by county and region were retrieved from the 2008-2009 Kaiser Health Facts. The uninsured data was obtained from the 2009 MO BRFSS.

Births and Mortality

The Bureau of Health Informatics at Missouri Department of Health and Senior Services (DHSS) provided birth and mortality datasets for 2007, 2008, and 2009.

Hospital Inpatient and Emergency Department (ED) Data

Discharge datasets for inpatient admissions and emergency department visits are from the Missouri Patient Abstract System provided by MO DHSS Bureau of Health Informatics. For each dataset, the two most recent years of available data were acquired, 2008-2009. The full list of ICD-9 and DRG codes used in these analyses can be found in Appendix 9.

Cancer Registry

The Missouri Cancer Registry and Research Center is a statewide population-based cancer surveillance system that collects data on all newly diagnosed and treated cancers in Missouri residents. The Cancer Registry and Research Center provided datasets for 2006, 2007, and 2008.

Infectious Disease

The Missouri Department of Health and Senior Services – Section for Disease Control and Environmental Epidemiology, Bureau of HIV, STD and Hepatitis provided incidence rates for HIV/AIDS, sexual transmitted diseases, and Hepatitis C.

Unintentional Injury

The MO DHSS, Bureau of Health Informatics provided the injury data for 2007-2009.

Youth Risk Behavior Surveillance System (YRBSS)

The Missouri YRBSS is designed to assess the health status of Missouri's youth and determine the positive and negative attitudes and behaviors that influence healthy development. Topics include: substance use, bullying and violence, unintentional injuries, sexual behavior, health status (including oral health) and disabilities, physical activity, weight control and nutrition, suicide/depression, and developmental assets. Data from the 2010 Missouri YRBSS was provided by the St. Louis University School of Public Health, which administers and coordinates the survey.

Missouri BRFSS

Missouri's Behavioral Risk Factor Surveillance System (BRFSS) is a population-based survey conducted throughout the year with robust sampling for state-level estimates. Since BRFSS questions are revised annually and many questions are not asked every year, the two most recent years of BRFSS data available (2008-2009) were obtained and used to compute indicators.

FINDINGS

The findings presented in the following sections are based on analyses of the quantitative indicators compiled for the assessment. All of the indicators used in the narrative of the report can be found in the Health Status Profile (HSP) (see Appendix 4). Exceptions to this are noted in the report. Data sources for calculating the indicators can be found in Appendix 7. For example, rates and percentages listed in the report and HSP for Mid, North, South, and West County, as well as for St. Louis County and the State of Missouri, are calculated from either population survey responses (the survey we conducted in St. Louis County or the state BRFSS) or from data obtained from secondary datasets provided to us by the State of Missouri (see Appendix 7). Data obtained from secondary datasets were then aggregated by each individual region, Mid, North, South, and West and the County.

The Health Status Profile (HSP), for example, provides information on preventive health services through an analysis of screening indicators and patterns of behavioral risk factors (e.g., smoking, insufficient physical activity, overweight). Detection services can be assessed based on patterns of medical risks (e.g., prevalence of diagnosed hypertension), while treatment services are assessed based on significant clinical outcomes (e.g., hospitalizations and deaths due to heart attacks). Explanatory notes and definitions to clarify the findings presented in this report are included throughout the document and in the following appendices: Appendix 7 (secondary data sources), Appendix 8 (list of definitions), and Appendix 9 (ICD9 and DRG codes used to compute selected indicators).

V. KEY POPULATION HEALTH STATUS FINDINGS

POPULATION AND DEMOGRAPHIC PROFILE

FINDINGS: The population of St. Louis County appears relatively stable over time and is not expected to grow.

- Between 2000 and 2010, St. Louis County's population declined 1.7%. This was the first decline recorded in one hundred thirty years. Statewide, Missouri population increased 7.0% over the same time period.
- The overall population of St. Louis County is expected to slowly decrease by 3.1% over the course of the next twenty years, while the population of Missouri is expected to increase by 6.3%.
- St. Louis County is expected to have its elderly population (age 65+) grow substantially over the coming two decades, by 2015 the 65+ population is projected to increase 8%; by 2020, 19%; and 2030.

See appendix 7 for Secondary Data Sources

An understanding of the health of a community begins with a comprehensive analysis of demographic characteristics and trends. To accomplish this, CCPH has developed and analyzed a population profile of St. Louis County and the four study regions based on 2009 Census Estimates. Population and demographic data are also used throughout the assessment to better understand indicators of current disease burden and to more precisely project future service needs.

Population Profile

St. Louis County makes up 16% of the State of Missouri's total population and includes approximately 992,412 adults and children. Currently, it is the most populous county in Missouri. Within the four designated study regions of St. Louis County, the most populous area is West County, which makes up approximately 29% of the county's population. Mid County, which accounts for about 20% of St. Louis County's population, is the least populous study region.

Per the U.S. Census Bureau, St. Louis County is made up of 524 square miles, with approximately 404,312 households and with a population density of 1,894 people per square mile.

Population Trend

A community's population growth may affect its demand for health services and its capacity to meet that demand. Between 2000 and 2010, the size of St. Louis's population decreased slightly by 1.7%. This decline is a significant contrast, however, with the overall state population, which grew by 7.0%.

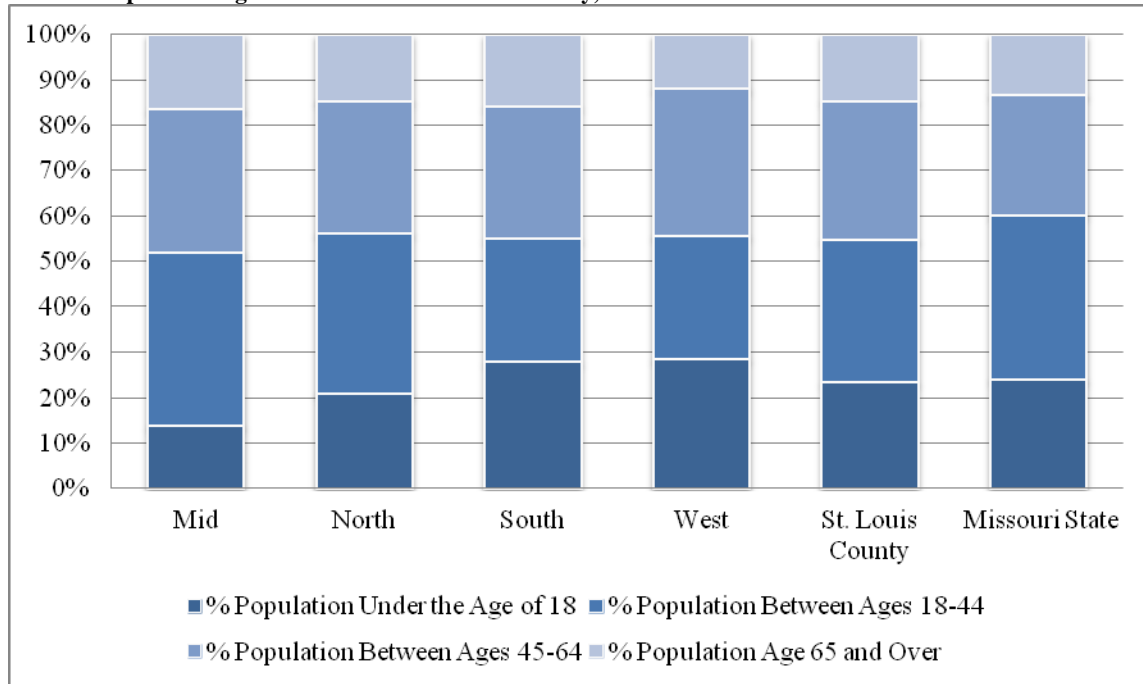
The population of Missouri is expected to increase by 6.3% between 2000 and 2015. The Missouri Office of Administration (MOA) projects that the overall population of St. Louis County will continue to incrementally decline through 2030, decreasing by 3.1% from its 2010 population.

Age Profile

The age structure of a population is a function of its past fertility, migration, and mortality and is an important determinant of health and health service needs. The median age of St. Louis County's

population is 39 years, slightly older than Missouri’s median age (37 years).⁵ Chart 1 shows the age distributions of each of the study regions.

Chart 1: Population Age Distribution of St. Louis County, 2009.



Source: 2009 Census Estimates.

The proportion of **youth under 18** in St. Louis County (23%) is similar to the state average (24%). Likewise, most of the study regions of St. Louis County are comparable to both the county and the state percentages in terms of the proportion of their populations under 18; South and West County are 28% and 29%, respectively, while North County is at 21%. The exception is in Mid County, where the proportion of those under 18 is 14%.

Per the MOA’s projections for those persons 19 and younger, the county’s youth population⁶ is expected to decrease by about 5.8% over the next 15 years from its 2010 population, while the Missouri youth population is expected to increase by about 5.9%.

The proportion of **adults aged 18-44** within St. Louis County (31%) is slightly less than the state average (36%). However, there is some slight variation among the study regions of St. Louis County (see Chart 1). For example, in North and Mid County, the 18-44 year old population comprises 35% and 38% of the population, respectively, while in South and West County, it comprises 27%.

Looking again at the MOA’s projections within St. Louis County for those aged 20-44⁵, it is expected that this segment of the population will increase statewide by about 7.8% through 2030 but decrease in St. Louis County by about 3.6% over the same time period.

The proportion of **adults aged 45-64** within St. Louis County (31%) is similar to the state average (27%), with only small regional variation within St. Louis County ranging from 29% in North and South County to 33% in West County (see Chart 1).

⁵ 2005-2009 American Community Survey 5-Year Estimates

⁶ Note: MOA population projections use an age distribution of 5-year increments; therefore these projections are for those aged 19 and younger

Per the MOA's projections for this age demographic, the population of those aged 45-64 is expected to decrease statewide by about 5.4% and countywide by 25% through 2030.

The proportion of *adults aged 65 years and older* living in St. Louis County (15%) is also similar to the state percentage (14%), with some small variation among county study regions (from 12% in West County to 17% in Mid County). North and South County also have slightly higher percentages of their populations over 65, 15% and 16%, respectively, (see Chart 1).

Growth in the number of adults aged 65 and older, a group that is more likely to have chronic medical conditions and require medical care, will have many implications on the demand for health services. Again looking at the MOA projections, those aged 65 and over are estimated to increase substantially from their 2010 population - by 2015 the 65+ population is projected to increase 8%; by 2020, 19%; and 2030, 42%. Statewide, this age demographic will grow by 13% by 2015; 30% by 2020; and 71% by 2030.

Race and Ethnicity Profile

Disparities in health status among racial and ethnic populations are one of the most critical, yet least understood, health problems facing the United States. Disparities include differences in the incidence, prevalence, mortality, and burden of diseases among specific populations as well as their access to preventive and treatment services.^{7,8}

A vast body of research suggests that factors such as socioeconomic conditions, health behaviors and environmental conditions interacting with race, ethnicity and culture can lead to disparities in health status and mortality. By 2050, the U.S. Census estimates that the percentage of Latinos and Asian/Pacific Islanders in the U.S. is expected to double; and nearly half of the U.S. population will be Latino, Black, Asian/Pacific Islander, and American Indian/Alaska Native.

According to the U.S. Census, the 2010 population of St. Louis County is 70% White, 23% Black, 3.5% Asian, and 2.9% other races.⁹ Two and one-half (2.5%) percent of the population in the county is Hispanic. Compared with St. Louis County, except for the Hispanic population, Missouri is less diverse: 83% White, 12% Black, 1.6 % Asian, and 3.4% other races. Three and one-half percent (3.5%) of the State of Missouri population is Hispanic. In comparison, the U.S. population is 75% White, 14% Black, 5.6% Asian, 1.7% American Indian and Alaska Native, and 3.7 % Native Hawaiian and Other Pacific Islanders or Other Races or Persons self identifying as more than one race. Nationally, 16% of the population is Hispanic.

The study regions that make up St. Louis County vary in their racial and ethnic composition. For example, South County has a much higher percentage of people who identify as White (94%) compared to North County (53%). Meanwhile, 45% of North County's residents identify as Black non-Hispanic compared to less than 6% of residents in South and West County. Table 3 illustrates the racial composition of the various study regions:

⁷ Agency for Healthcare Research and Quality, AHRQ Publication No. 05-0014. *2004 National Healthcare Disparities Report*. Rockville, MD. March 2005. www.ahrq.gov

⁸ Kaiser Family Foundation, *Key Facts: Race, Ethnicity, and Medical Care, June 2003 update*. <http://www.kff.org/minorityhealth/upload/Key-Facts-Race-Ethnicity-Medical-Care-Chartbook.pdf>

⁹ Source: <http://quickfacts.census.gov/qfd/states/29/29189.html>. Other races category includes American Indian and Alaska Native, Native Hawaiian and Other Pacific Islanders, and persons who are of some other race or more than one race.

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Table 3: Adult (18+) Race/Ethnicity Composition St. Louis County, 2009.

	White	Black	Other Race
Mid County	73%	25%	2.1%
North County	53%	45%	1.7%
South County	94%	4%	2.2%
West County	85%	5%	10%
St. Louis County	76%	20%	4.2%

Source: 2011 Household Survey

HEALTH-BASED SOCIAL AND ECONOMIC CHARACTERISTICS

FINDINGS: St. Louis County compares favorably with the state in many socioeconomic measures; Mid and North County are not performing as well in these measures as other regions in the county.

- In general, St. Louis County compares favorably with the state with respect to most socioeconomic measures.
- South and West County are by far the most socio-economically prosperous regions of St. Louis County; their populations are less likely to be unemployed and more likely to have a high school education.
- Mid and North County are lagging behind other study regions of St. Louis County socio-economically, with the highest percentages of adults without a high school diploma and the highest percentage of unemployed.
- North County also has a relatively low mean annual income – almost half of the mean annual income of West County.

See appendix 10 for Data Sources

Factors such as income, employment, educational attainment, and insurance status are overlapping characteristics and have been associated with the health status of a population.¹⁰ Educational attainment is an important indicator of future success, as those with at least a high school diploma will likely have better employment opportunities. Limited education and employment opportunities can also impact residents in other quality of life areas such as access to health care. Poverty and household income level affect whether a person will have an adequate diet, healthy lifestyle, and good medical care. Thus, it is important to understand the socioeconomic conditions of a community in order to completely understand the health and well being of its residents.

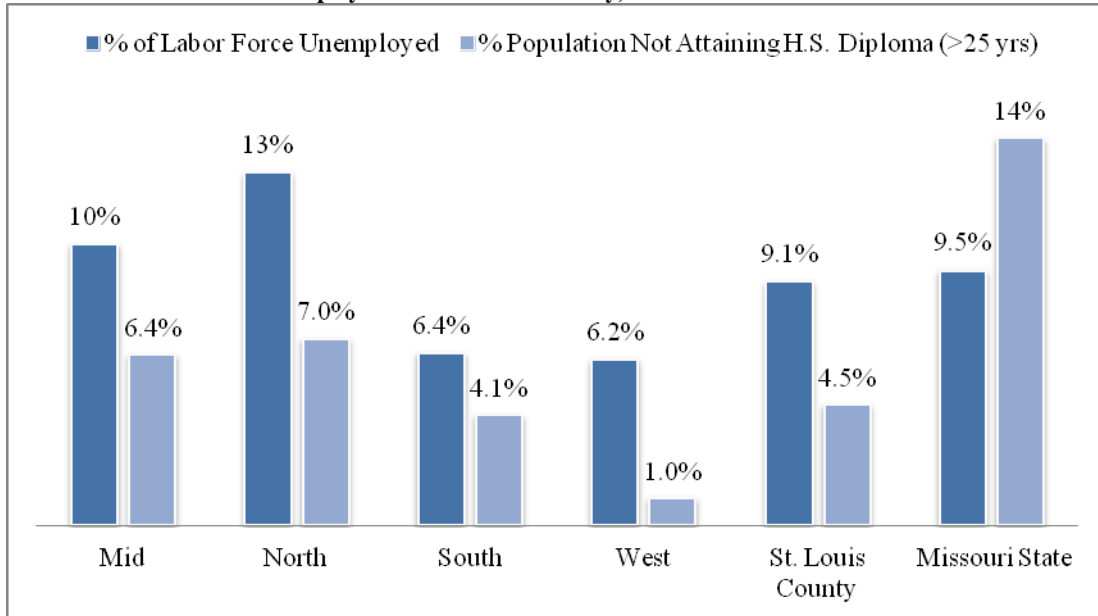
As shown in Chart 2, South and West County are the most socio-economically prosperous regions of St. Louis County because their populations are less likely to be unemployed and to lack a high school education. Conversely, Mid and North County are lagging behind other study regions of the county socio-economically, with the highest percentages of adults without a high school diploma and the highest percentage unemployed.

In general, St. Louis County compares favorably with the State of Missouri with respect to the socioeconomic measures. The county has a somewhat lower unemployment rate (9.1%) compared with the state rate (9.5%), as well as a much lower percentage of adult residents without a high school degree (4.5%) compared with the state (14%). St. Louis County also has a lower percentage living under the federal poverty level (9.2%) compared with the state percentage (13%).¹¹ However, in terms of population burden, St. Louis County has a large number of people (approximately 91,300) living below the federal poverty level compared with other counties in the state, including the City of St. Louis, ranking only behind Jackson County.

¹⁰ Mackenbach JP, Kunst AE, Groenhouf F. et. al. "Socioeconomic inequalities in mortality among women and men: An international study." *American Journal Public Health*. 1999. 89:1800-1806.

¹¹ 2005-2009 American Community Survey 5-Year Estimates. http://factfinder.census.gov/servlet/GCTTable?_bm=y&-context=gct&-ds_name=ACS_2009_5YR_G00_&-mt_name=ACS_2009_5YR_G00_GCT1701_ST2F&-CONTEXT=gct&-tree_id=5309&-geo_id=04000US29&-format=ST-2F&-lang=en

Chart 2: Education and Unemployment in St. Louis County, 2009-2010

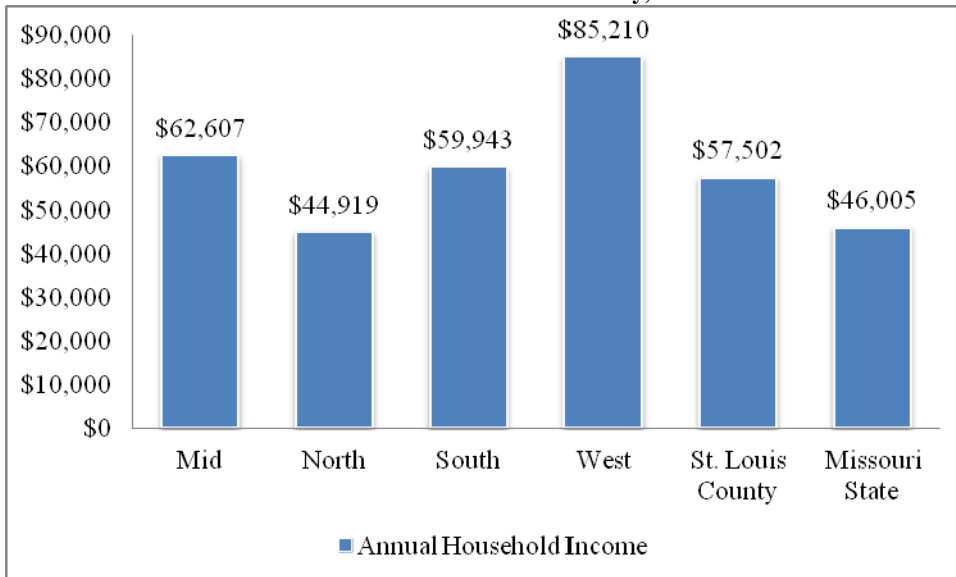


Source: Missouri Department of Economic Development, 2009-2010.

St. Louis County’s annual average household income (\$57,502) also compares favorably to the State’s (\$46,005). There are substantial differences within the four study regions, however (see Chart 3), ranging from a high of \$85,210 in West County to a low of \$44,919 in North County - in fact, it should be noted that North County’s average household income is 2.3% below the State of Missouri’s average household income. The other two study regions, Mid (\$62,607) and South County (\$59,943) approximate the overall mean annual income for the County. These differences in income levels are expected to have significant differences on health.

Overall, these findings indicate that socioeconomic conditions in Mid and North County may result in barriers to good health and/or may limit access to health care services in these communities.

Chart 3: Annual Mean Household Income in St. Louis County, 2005-2009



Source: 2005-2009 ACS 5-Year Estimates.

OCCUPATIONAL & INDUSTRIAL HEALTH

FINDINGS: St. Louis County has an occupational and industrial mix that has low proportions of its workers working in higher-risk environments. Mortality and injury/illness risk associated with employment is low in the county.

- In general, St. Louis County workforce is employed in management, professional, and related occupations.
- St. Louis County has high proportions of workers in low-risk occupations and low proportions of workers in high-risk occupations, making the county's estimated rate of occupation-related fatalities and illness/injury lower than the national average.

See appendix 10 for Data Sources

The St. Louis County workforce is disproportionately employed in management, professional, and related occupations. Forty percent of male workers and 43% of female workers are employed in these occupations. The major occupational groupings for St. Louis County workers within this category are: computer and mathematical occupations, architectural and engineering occupations, education and related occupations, and healthcare occupations. A much lower proportion of St. Louis County males and females are employed in construction, production, and transportation occupations than at the state and national levels. Slightly fewer St. Louis County workers are employed in service occupations than either at the national or state level. Thirteen percent of St. Louis County males and 17% of females are employed in service occupations. These figures compare to 18% and 20%, respectively, for the U.S. workforce and 13% and 20% for the Missouri workforce. St. Louis County workers within this category are most likely to be employed in food preparation or building maintenance occupations.

The lowest occupation-related fatality rates were for sales and office occupations, management/professional/related occupations and service occupations (1.1, 1.6 and 3.0, respectively). The overall mortality rate for all industries was 4.0 per 100,000 population.

Given that the St. Louis County workforce includes higher proportions of workers in low-risk occupations and lower proportions of workers in high-risk occupations, the estimated rate for occupation-related fatalities is 3.0 per 100,000 population or 25% lower than the national average. The risk of occupation-related fatalities varies somewhat from region to region within St. Louis County, but the pattern of predominant low risk occupations and the relative absence of high-risk occupations makes differences between the regions a matter of degree rather than substance.

Industrial Mix

St. Louis County workers are disproportionately employed in the following industries: professional, scientific, and management; education, healthcare and social services; and finance, insurance and real estate. However, the largest category of St. Louis County male workers is employed in the manufacturing industry. Males are also more likely to be employed, relative to state and national averages, in the education/healthcare/social services and arts and entertainment sectors. Male workers in St. Louis County are underrepresented in the construction, manufacturing, and transportation industries. Female workers are overrepresented in the finance/insurance/real estate, professional/scientific/management and information technology industries.

The industries with the highest risk of work-related injuries and illnesses are transportation/ warehousing, education/healthcare/social services, construction, manufacturing, agriculture/ mining/fishing, public administration, retail trade and arts/entertainment. Their rates per 100 full-time workers are 5.2, 5.0, 4.3, 4.3, 4.2, 4.0 and 3.9, respectively. The high rate of injuries and illnesses for the education/healthcare/social services category is primarily a function of the high proportion of workers employed in healthcare. The lowest rates of injuries and illnesses are found in the following industries: professional/scientific/ management (1.2), finance/insurance/real estate (1.5), information (1.9), other services (2.9), and wholesale trade (3.3). The overall rate of injuries and illnesses for all industries was 3.9.

Given that the St. Louis County workforce includes higher proportions of workers in low-risk industries and lower proportions of workers in high-risk industries, the estimated rate for industry-related injuries and illnesses is 3.7 per 100,000 full-time workers or 5.0% lower than the national average.

The industries with the highest risk of work-related deaths are agriculture/mining/fishing, transportation/warehousing, and manufacturing. Their rates per 100,000 workers are 5.2, 5.0, 29, 16 and 10, respectively. The lowest rates of work-related deaths are found in the following industries: education/healthcare/social services (0.9), finance/insurance/real estate (1.2), other services (1.5), and information (1.9). Moderate rates of mortality are recorded for retail trade, arts/entertainment, public administration, professional/scientific/management, and wholesale trade. The overall rate of work-related deaths for all industries is 3.9 per 100,000 workers.

Given that the St. Louis County workforce includes higher proportions of workers in the low-risk industries and lower proportions of workers in the high-risk industries, the estimated rate for industry-related injuries and illnesses is 3.2 per 100,000 workers or 18% lower than the national average.

At-Risk Groups

Given the low participation of St. Louis County residents in high-risk occupations and industries, there are no subgroups within the county's population that could be considered at greater risk due to occupational or industrial factors.

St. Louis County Community Health Needs Assessment

Table 4: Occupational Distribution for St. Louis County and the Four Regions, 2009

Category*	<u>St. Louis County</u>		<u>Mid County</u>		<u>North County</u>		<u>South County</u>		<u>West County</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
Management/Professional	40%	43%	51%	51%	24%	33%	39%	43%	53%	53%
Services	13%	17%	12%	15%	18%	21%	13%	16%	8.8%	13%
Sales/Office	21%	35%	20%	30%	20%	40%	21%	35%	24%	32%
Construction	11%	0.6%	7.8%	0.5%	16%	0.6%	14%	0.6%	7.3%	0.4%
Production/Transportation	15%	4.2%	10%	3.1%	23%	5.4%	13%	4.8%	6.6%	1.8%

Source: Missouri Department of Economic Development 2008-2009

Table 5: Industrial Distribution for St. Louis County and the Four Regions, 2009

Category*	<u>St. Louis County</u>		<u>Mid County</u>		<u>North County</u>		<u>South County</u>		<u>West County</u>	
	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>	<u>Male</u>	<u>Female</u>
Construction	8.7%	1.2%	7.0%	1.1%	10%	1.2%	11%	1.2%	7.3%	1.3%
Manufacturing	14%	6.7%	11%	5.4%	16%	8.1%	15%	7.3%	14%	5.0%
Wholesale	5.0%	2.3%	4.1%	2.0%	4.4%	2.7%	5.6%	2.4%	6.0%	2.9%
Retail	11%	12%	10%	10%	12%	11%	11%	11%	11%	12%
Transportation/Warehouse	7.1%	2.6%	4.7%	2.0%	10%	3.8%	5.3%	2.1%	4.6%	1.4%
Information	3.1%	2.9%	2.9%	3.0%	3.3%	2.6%	3.4%	2.4%	3.0%	2.6%
Fire	8.7%	10%	11%	9%	5.2%	9.7%	8.3%	9.5%	11%	12%
Professional/Science	14%	11%	16%	13%	10%	8.8%	18%	12%	16%	12%
Education/Healthcare	12%	35%	18%	37%	10%	33%	11%	34%	11%	35%
Arts/Entertainment	6.8%	6.5%	6.8%	4.8%	8.5%	7.2%	6.1%	6.7%	6.1%	6.1%

Source: Missouri Department of Economic Development 2008-2009

INSURANCE STATUS & OTHER BARRIERS TO HEALTHCARE

FINDINGS: In St. Louis County, 11% of adults aged 18 to 64 are currently uninsured, with highest uninsured rates in Mid and North County. The St. Louis County rate compares favorably to the state rate of 15%.

- The primary reasons St. Louis County residents do not have insurance coverage are that they cannot afford premiums, have lost their job/changed employer, or work for an employer who does not offer or who has discontinued offering coverage.
- Adults in Mid and North County are less likely to have employer-sponsored health insurance and are more likely to have Medicaid compared to adults in other study regions.
- Black residents are much more likely to report being uninsured than White residents.

See appendix 10 for Data Sources

People who do not have health insurance face health risks associated with inconsistent and inadequate care and the financial risk of large medical bills. The number of uninsured persons in an area also contributes disproportionately to the community's burden of disease and disability because health insurance is a resource that can enable access to health care. According to findings from the Kaiser Commission on Medicaid and the Uninsured,¹² the uninsured receive fewer preventive and diagnostic services, tend to be more severely ill when diagnosed, and receive less therapeutic care. Therefore, the health of the community may be compromised when high percentages of the population are uninsured.

The State of Missouri and St. Louis County compare favorably with the U.S. as a whole in the area of health insurance coverage. Most adults aged 65 and older are covered by Medicare, so the uninsured rates are primarily correlated with the population under 65 years. Approximately 17%¹³ of the U.S. population under age 65 is currently uninsured compared with 14% of Missouri's population and 11% of St. Louis County's population under 65. However, two study regions within St. Louis County--Mid and North County--have higher proportions of uninsured residents, with 17% and 16%, respectively. The other two regions--South and West County--have low rates of uninsured residents, with 8.8% and 4.5%, respectively.

Another measure of insurance coverage within a population is whether or not residents experience periods when they are uninsured. Within St. Louis County, 5.3% of currently-insured adults between 18 and 64 years old reported lacking health insurance at some point during the past year, and a total of 16% of St. Louis County residents have either experienced being uninsured in the past year or are currently uninsured. Again, the highest rates of residents who are uninsured or were uninsured at some point in the past 12 months, reside in Mid and North County (23% and 25%, respectively). Cost of coverage and not being able to get insurance through one's employer are two of the most commonly cited barriers to securing insurance. When those residents who were or who are uninsured were asked the primary reason they did not have insurance coverage (or experienced lapses in coverage), the most frequent response was that they could not afford premiums (40% of respondents). Other reasons for not being insured were loss of one's job/changing one's employer (25% of respondents) or working for an employer who does not offer or has discontinued offering coverage (9.3%).

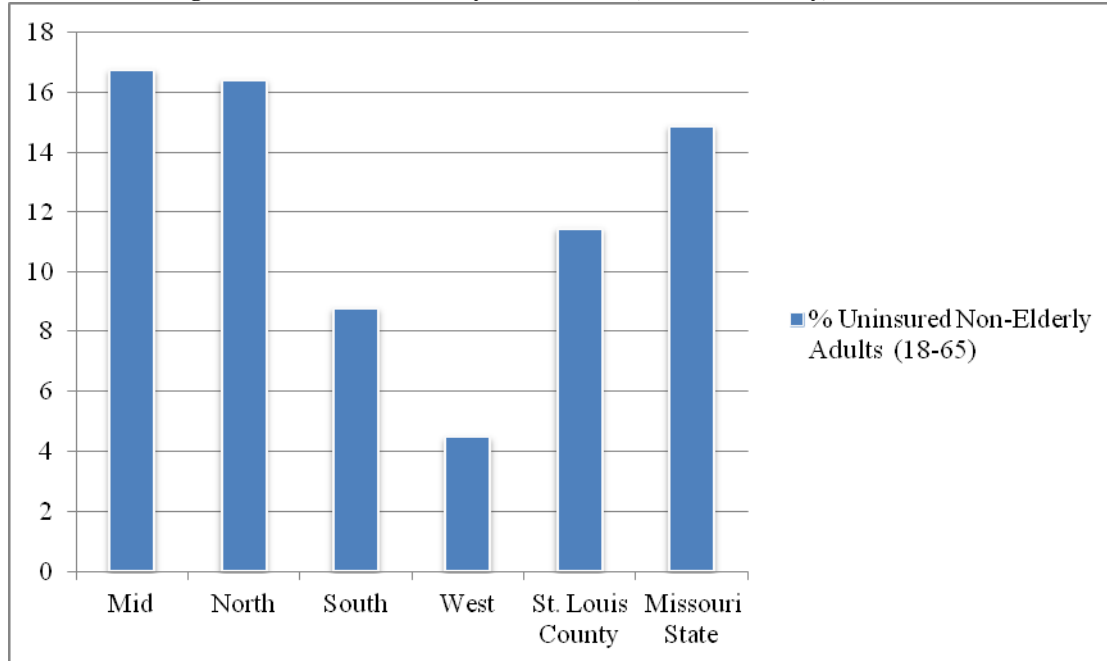
¹² Hadley J. Sicker and Poorer: The Consequences of Being Uninsured. Kaiser Commission on Medicaid and the Uninsured. May 2002. Institute of Medicine. Care without Coverage: Too Little, Too Late. May 2002.

¹³ Source: 2009 Behavioral Risk Factor Surveillance System

Of insured adults in St. Louis County, 67% are covered by private employer-sponsored health insurance. Twenty percent (20%) are covered by Medicare. Sixteen percent (16%) have private self-paid insurance. Five point six percent (5.6%) are covered by Medicaid, and 2.7% are covered by a government-sponsored insurance such as Champus. Several patterns in insurance coverage emerged within the county:

- Adults in Mid and North County are less likely than adults in other communities of St. Louis County to have employer-sponsored health insurance (59% and 64% vs. 69% and 74% in South and West County, respectively).
- Adults in Mid and North County are more likely to have Medicaid (8.4% and 9.3% vs. 4.5% and 1.2% in South and West County, respectively).

Chart 4: Percentage of Uninsured Non-Elderly Adults (18-65), St. Louis County, 2011



Source: CCPH/St. Louis County Household Survey, 2011
 US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)

A variety of factors influence whether individuals have access to insurance coverage. A discussion of these factors follows.

Gender

Nationally, males aged 18-64 years are more likely to be uninsured than females, reflecting the differing experiences of men and women in the workplace and public policies.¹⁴ For example, women tend to have lower rates of employment-based coverage, yet because they are more likely to be heads of low-income households with children, they are more likely to qualify for state health insurance programs. This gender trend does not hold true in St. Louis County, where about 9% of both males and females are uninsured.

Income

As mentioned earlier, socioeconomic factors influence whether an individual has health insurance coverage. Generally, adults with lower household incomes are more likely to be uninsured than those with higher incomes. Given that Mid and North County have lower average household incomes, higher

¹⁴ Institute of Medicine, The National Academy of Science. *Coverage Matters: Insurance and Health Care*. September 2001. www.nap.edu

unemployment and lower educational attainment than other study regions of St. Louis County, it is not surprising that residents of these areas are less likely to have insurance. In St. Louis County, the contrast in insurance status by income level is particularly sharp. In the study regions with low socioeconomic status (Mid and North County), the rates of uninsured adult (18-64) residents are almost two to three times those of study regions of higher economic status (South and West County).

Race and Ethnicity

Race and ethnicity are also associated with health insurance coverage. Black residents of St. Louis County have very high uninsured rates compared with White residents, with 24% of Black adults uninsured and 5.7% of White adults uninsured.

Chronic Illness

Those with chronic illnesses are a particularly vulnerable population in any community and require additional medical services. That makes health insurance even more crucial for this population. For example, among those who reported being diagnosed with diabetes or high blood sugar, 15% are also uninsured; among those who have been diagnosed with asthma, 11% are uninsured. Among adults in St. Louis County with 1 to 2 chronic conditions, 12% are uninsured. This is a similar percentage to the average uninsured rate among all adults aged 18-64 years (11%) but may have more significant implications, given that people with chronic illnesses need insurance to help manage and treat their conditions.

Household Insurance Status

Survey respondents were asked if anyone in their household, not including themselves, were uninsured at some point in the past 12 months. Among the currently uninsured respondents, 41% reported that at least one member of their household had also been uninsured. Among insured respondents who had been uninsured at some point in the past 12 months, 48% answered affirmatively. Only 8.0% of those who reported consistent insurance coverage in the past 12 months responded affirmatively.

ACCESS TO CARE

FINDINGS: Most residents of St. Louis County have access to health care. However, Mid and North County have lower access to care, experience greater barriers associated with cost of care, are more likely to use the emergency department (ED) as a source of primary care and are less likely to get needed prescription drugs.

- A relatively high percentage of St. Louis County residents (78%) have had a medical checkup within the past 2 years, with lower rates among the uninsured.
- St. Louis County adults in South and West County are more likely to have a regular source of care than other adults in the county and the state.
- St. Louis County residents who have a usual source of care are slightly more likely to visit a doctor's office or clinic instead of an ED or hospital outpatient clinic when sick.
- Approximately 11% of St. Louis County residents reported that they had needed prescription drugs within the past 12 months but were unable to get them because of cost. Rates were higher in Mid (14%) and North County (16%).
- ED utilization and hospitalization is comparatively high in North County for both the insured and uninsured population.

See appendix 10 for Data Sources

Access to Quality Health Care

Access to health care is critical for early diagnosis and treatment of medical conditions. Predictors of whether an individual has access to health care include: health insurance; household income level; usual source of primary care; and use of emergency rooms, particularly for ambulatory care sensitive conditions. Data on these indicators suggest access is reasonably good, although for some study regions access to care remains a challenge.

- **Usual source of care:** The national target for Healthy People 2020 (HP 2020) is that 84% of U.S. adults should have a usual source of primary care by 2020, representing a 10% increase over the 2007 U.S. rate of 76%.¹⁵ Both Missouri and St. Louis County are close to achieving this goal, with only 17% of Missourians and 16% of St. Louis County residents reporting a lack of a regular caregiver. However, North County has a higher proportion of residents without a regular source of care, at 20%, than the other study regions. Also of note: both Mid and North County have a large percentage of males reporting no usual source of care – 24% in Mid and 26% in North County. (See Table 6.)

Insurance status has a significant impact on whether individuals have a usual source of care. In St. Louis County, 64% of uninsured adults do not have a usual source of care compared with 10% of those with insurance. Even among those who are currently insured but were uninsured at some point in the past year, 26% report not having a usual source of care.

Gender and race/ethnicity are also critical factors to consider. St. Louis County men are less likely to have a usual source of care than women (19% vs. 13%). Likewise, Black county residents are much less likely to have a usual source of care than White residents (28% vs. 12%).

¹⁵ Source: Healthy People 2020 (<http://www.healthypeople.gov/hp2020/Objectives/TopicAreas.aspx>)

- Physical exams:** In St. Louis County, 78% of residents had received a physical exam within the past 2 years, a comparable rate to the state (76%). Locally, North County again has the lowest percentage of residents who have received a physical exam within the past two years, with 73%. Insurance status is also correlated with whether or not residents have received a physical exam; only 49% of adults in St. Louis County who are currently uninsured have had a recent exam within the past year, however. This indicates that the uninsured are somewhat less likely to receive preventive care. Newly insured, however, are more likely to have had a recent physical; among those who were uninsured at some point in the past year, 84% have had a physical – slightly higher than the insured (81%).

Another significant factor is gender. Males are less likely than females to have had an exam in the past two years, with 74% of St. Louis County men having had an exam, compared to 82% of females.

Interestingly, while race and ethnicity have been significant factors for reporting a usual source of care, Black residents are almost equally likely to have NOT received an exam within the past 2 years (8.3%) as White residents (9.5%).

- Immunizations:** Another measure of access to primary care is receipt of age-appropriate vaccinations. The flu vaccine was recommended for all ages in 2009-2010 due to a particularly virulent flu season and the emergence of H1N1 as a public health threat. Forty-nine percent of those polled reported receiving a flu shot or FluMist in the prior 12 months, much higher than the state rate (41%). Residents in Mid and North County were least likely to have received flu vaccination (45% and 47%). West County residents were most likely to have been vaccinated, with 53% reporting flu vaccination in the previous year. In addition, Black residents were much less likely to have received the flu vaccine (37%) compared with White residents (52%).

Pneumococcal vaccine is recommended for all adults over 65 years of age, which makes it an appropriate indicator of access to primary care among this population. In Missouri, 72% of residents over the age of 65 have ever received a pneumococcal vaccine. This exceeds the U.S. percentage (61%) but is less than the Healthy People 2020 target of 90%. Sixty-five percent (65%) of North County seniors report receiving the vaccine; the other three regions all report about 75% of their seniors having received a pneumococcal vaccination. However among Black seniors over the age of 65 in St. Louis County, only 56% report having received the vaccination compared with 74% of White seniors in the county. [Source: St. Louis County 2011 Household Survey]

Table 6: Usual Source of Care, St Louis County, 2011

	Mid	North	South	West	St. Louis County	Missouri
% Without Regular Source of Care	17	20	14	11	16	17
<i>Males</i>	24	26	17	10	19	22
<i>Females</i>	12	15	11	12	13	13
% Named a doctor's office as usual source of care	85	88	89	91	88	NA

Source: CCPH/St. Louis County Household Survey, 2011
 US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)

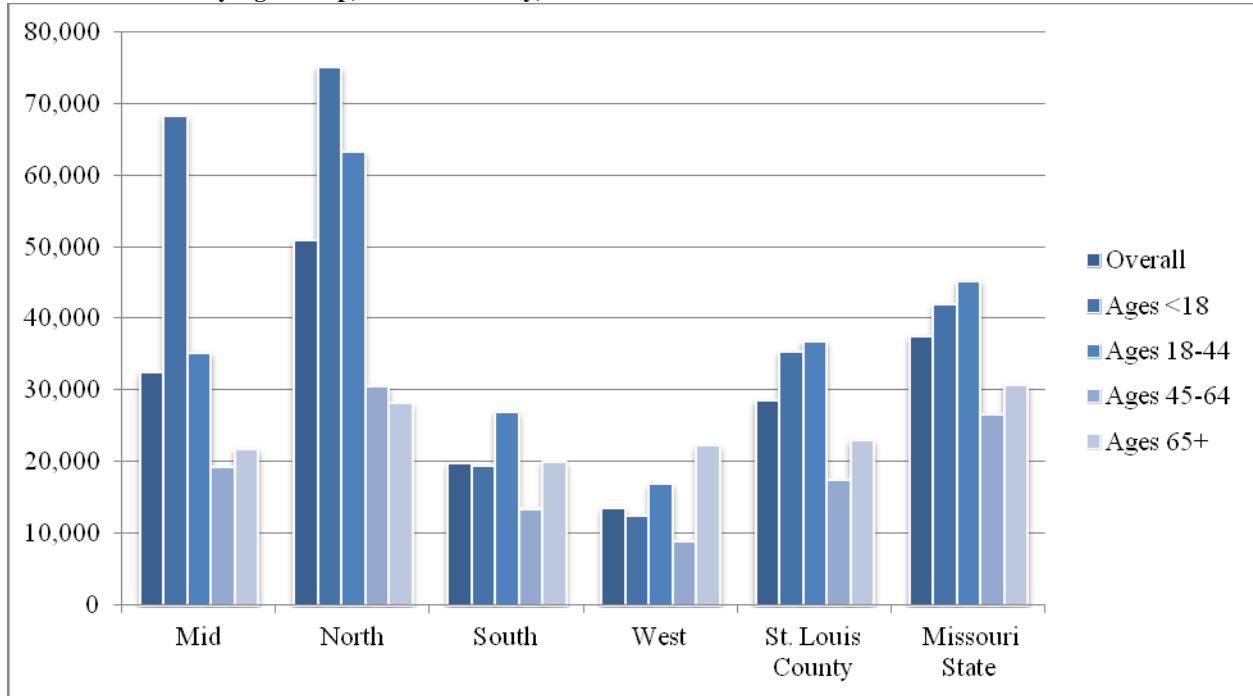
- **Hospital Emergency Department (ED) and Inpatient Utilization:** Those who have a usual source of care are more likely to visit a doctor's office or clinic instead of an ED or hospital outpatient clinic when needed. Of adults who have a usual source of care, 21% visited the ED at some point in the past year; in contrast, among individuals without a usual source of care, 27% visited the ED at least once.

Another factor that usually predicts whether individuals are more likely to use the ED or hospital when they are ill is insurance status. Insured residents visited the ED at least once in the past year at much lower rates (20%) than those who were uninsured (38%) or have been uninsured in the past year (28%). Uninsured residents were also more likely to use the ED more frequently. Among the previously uninsured and the currently uninsured, 11% and 13% used the ED at least twice in the past year, compared with 6.0% among insured residents.

Overall, ED utilization in St. Louis County (28,444 ED visits per 100,000 population) is less than the state average (37,481 ED visits). Only one study region had an overall ED utilization rate higher than the state rate: North County, with 50,963. This may be reflective of the fact that people are less likely to have a usual source of care in North County and therefore, are more likely to use the ED when care is needed. In addition, those in North County show the highest percentage of respondents reporting use of the ED at least once in the past 12 months, with 31%.

The age group 18-44 uses the ED at higher rates than other age groups in both St. Louis County and in the state (36,781 and 45,218 per 100,000 population, respectively). Among the four study regions, the highest age-specific ED utilization rates vary. In Mid and North County, those under 18 are using the ED at the highest rates (68,342 and 75,119 respectively). In West County, those aged 65 and older use the ED with the most frequency (22,150). In South County, those 18-44 have the highest ED visitation rate (26,925). It should be noted, however, that ED utilization is highest in North County for each age cohort.

Chart 5: ED Visits* by Age Group, St. Louis County, 2008-2009



* rate per 100,000 population

Source: Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2008-2009

Barriers to Medical Care

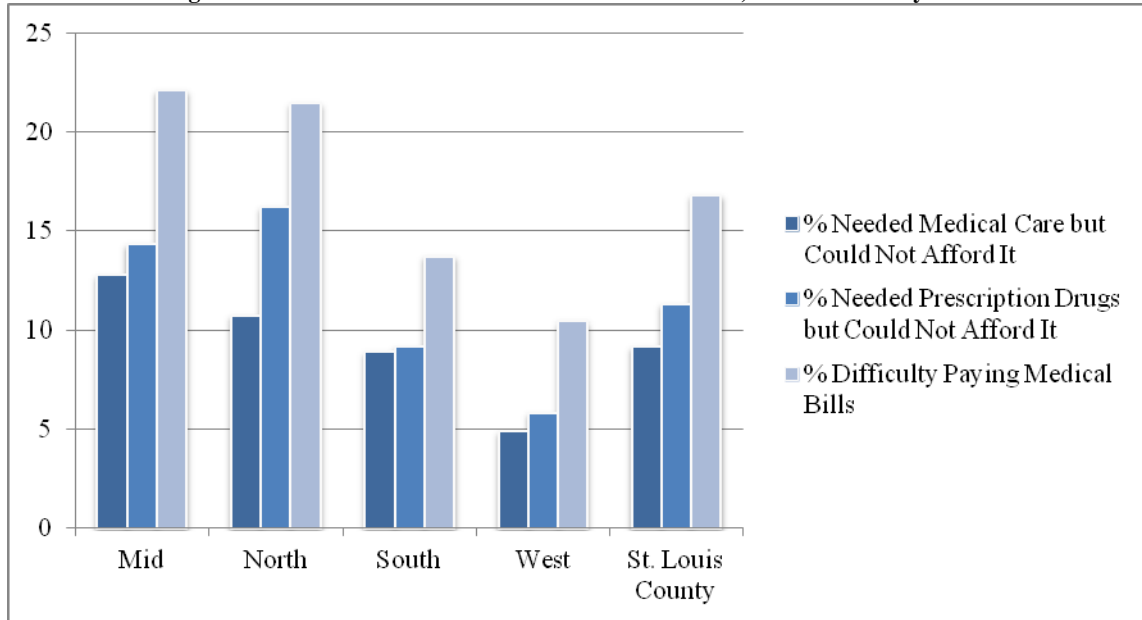
The Household Survey asked St. Louis County residents if they had needed medical care or prescriptions in the previous year but had been unable to obtain them due to cost (Chart 6). This indicator can be related to lack of insurance or under-insurance.

- Medical Care:** Approximately 9.2% of St. Louis County residents did not receive needed medical care in the last year due to cost, including 56% of the uninsured (versus 4.3% of the insured). Study regions ranged from a low of unmet medical care needs in West County (4.9%), to highs in Mid (13%) and North County (11%). Compared with the state - 14% of Missouri residents report having unmet medical needs due to cost – these rates of unmet care due to cost are lower.
- Prescription Drugs:** Approximately 11% of St. Louis County residents reported the need for prescription drugs within the past 12 months but were unable to pay for them. Rates were higher in Mid (14%) and North County (16%). Rates were also higher among the currently uninsured (44%) and those who had been uninsured at some point in the past year (38%).

Significant barriers to accessing medical treatment, including medications, exist for a segment of the St. Louis County population. In Mid and North County, 10% or more of residents report unmet medical needs. Among Black county residents, 19% report cost as a barrier to receiving medical care compared with 6.9% of White county residents. It is also important to note that more women reported unmet medical needs (11%) than men (5.1%). Additionally, 17% of residents report difficulty paying off medical bills in the past year, especially among Mid and North County residents (22% and 21%, respectively).

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Chart 6: Percentage of Adults who Face Cost Barriers for Medical Care, St. Louis County 2011



Source: CCPH/St. Louis County Household Survey, 2011

HEALTHCARE PROVIDERS

FINDINGS: St. Louis County overall currently has a sufficient supply of physicians, nurses, and dentists to meet the community's demand for services

- Overall, St. Louis County has a low population-to-physician ratio, signifying an adequate supply of physicians to serve the community's health needs. As there are indications that the population of St. Louis County will decline slightly over the next two decades, there may actually be an increasing surplus of physicians.
- St. Louis County also has adequate numbers of dentists to serve the demand for services; however, the area does not have the same surplus of dentists seen with physicians.
- Compared to national figures, St. Louis County also has above average numbers of nurses – almost twice the national rate – indicating that there may be sufficient numbers of nurses serving the community's health needs.

See appendix 10 for Data Sources

Data extracted from available physician databases indicated a total of 2,310 active physicians with offices in St. Louis County. Of these, 865 (37%) were primary care physicians, and 1,445 (63%) were specialists. The primary care physicians included 169 general/family practitioners, 391 internists, 150 pediatricians, and 155 OB/GYNs. The number of physicians supportable by the St. Louis County population was calculated based on accepted population-to-physician ratios. This calculation using 2005-2009 ACS population data indicated a demand for 911 physicians. Based on this calculation, it could be argued that the St. Louis County population is being served by two and one-half times the number of physicians required to meet the population's needs. Not only is there a low population-to-physician ratio, but, with evidence that the population is actually declining, there is the possibility that the "surplus" of physicians may actually increase over time. The analysis found a surplus of physicians in every category except for family practitioners and ophthalmologists.

An attempt was made to identify those physicians practicing in the county who accept Medicaid patients. While there is a database of physicians who are enrolled in the MoHealth program that serves Medicaid enrollees, the resource is not very helpful for developing an accurate picture of Medicaid-serving practitioners. For one thing, if a physician practices in more than one specialty area, he or she is listed separately for each area. Further, there appears to be limited quality control with regard to the database, and it includes physicians who have moved, died or retired. While it is technically possible to match these physicians against other databases in an effort to specifically identify Medicaid providers, this involves a complicated and time-consuming process. There was also some interest in the extent to which existing physicians served Medicare beneficiaries. A spot check of physicians throughout the county indicated essentially 100% participation in Medicare for all specialties expected to serve Medicare residents.

Dentist Supply and Demand

According to the Missouri dental licensure board, there are currently (i.e., 2010) 614 dentists active in practice in St. Louis County. While there are no generally agreed upon standards for dentist-to-population ratios, the national rate can be used as a benchmark for analyzing dentist supply and demand in St. Louis County. The current national ratio of dentists to population is 61 dentists per 100,000 residents. The comparable figure for St. Louis County is 62 dentists. Thus, the supply in the county is slightly above the national average. No portion of the county is designated as a dental shortage area by HRSA. While the dentist-to-population ratio is favorable, the figures suggest that dentists have not been attracted to the county at the same rate as physicians.

Nurse Supply and Demand

In 2010, 15,625 active registered nurses list residences in St. Louis County. The assumption was made that those residing within the county were employed within the county and, to the extent that resident nurses worked outside St. Louis County, any out-migration of nurses from the county was offset by in-migration of nurses from other counties to St. Louis County for employment. This figure calculated for this analysis yields a ratio of 1,564 registered nurses per 100,000 residents. The national average is 825, indicating that St. Louis County is home to nearly twice as many nurses per capita as the national average. These figures suggest that, to the extent this measure is meaningful, the supply of nurses available to the resident population is more than adequate.

HEALTH STATUS AND WELLNESS

FINDINGS: Health status, chronic disease burden, and functional health levels vary among the St. Louis County study regions. In general, residents of those areas with the largest chronic disease burden also report very high levels of poor functional health.

- Thirty-nine percent of St. Louis County adults are classified as “well,” with the highest percentage of “well” in West County.
- Seventeen percent of St. Louis County adults are “not well,” with the highest percentage in Mid County.
- West County had the lowest chronic disease burden, defined as the proportion of the population with 3 or more chronic diseases. The study areas with the greatest chronic disease burden are North and Mid Counties.

See appendix 10 for Data Sources

Two measures were used to evaluate the disease burden in the population and the overall population wellness. These include:

1. Chronic disease burden as measured by the percentage of the population with three or more diagnosed chronic health conditions;
2. A wellness profile that integrates data on diagnosed chronic health conditions, medical risks, health risk behaviors, and health functioning into a composite measure of overall functional health status of a population.

Chronic Disease Burden: Five point six percent of St. Louis County residents report they have been diagnosed by a medical provider with three or more chronic diseases including high blood pressure or hypertension, high cholesterol, diabetes or high blood sugar, and current asthma. (See Appendix 8, Definitions of Indicators.) In general, adults with multiple chronic diseases also exhibit significant risk factors, such as smoking and being overweight, and have higher health care costs and use.

Mid (7.5%) and North (6.4%) County display the highest percentage of adults with three or more chronic conditions. West County (3.6%) has the lowest burden of chronic disease prevalence.

Functional Health Status: Indicators of functional health status in this assessment include self reported health status and the proportion of residents experiencing 11 or more days of poor mental or physical health. The measures of chronic disease burden and the wellness profile are also indicators of functional health status.

CCPH’s wellness measure categorizes respondents into four categories: (1) Well; (2) At Risk for Future Medical Problems; (3) Some Health Problems, and; (4) Not Well:

- Well = Survey respondents who have never been diagnosed with any of the following long-standing conditions: high blood pressure, hypertension, high cholesterol, diabetes; who reported their health as excellent, very good, or good; have good functional health, and, if over 35 years old, do not smoke and are not obese based on their body mass index. Thirty-nine percent (39%) of St. Louis County residents are classified as “Well”.

- **At Risk for Future Medical Problems** = Survey respondents never diagnosed with any of the following long-standing conditions: high blood pressure, hypertension, high cholesterol, diabetes but are 35 years of age or older and smoke cigarettes regularly or are obese based on their body mass index. Six point eight percent (6.8%) of St. Louis County adults were classified as “At Risk for Future Medical Problems.”
- **Some Health Problems** = Survey respondents who reported their health as fair or poor, have reduced functional health, or have been diagnosed with high blood pressure, hypertension, high cholesterol, or diabetes. Thirty-eight percent (38%) of St. Louis County adults are classified with “Some Health Problems.”
- **Not Well** = Survey respondents who have been diagnosed with three of the following long-standing conditions: high blood pressure, hypertension, high cholesterol, diabetes; or had been diagnosed with at least one chronic disease and reported their health as either fair or poor; or experienced significant functional health problems. Seventeen percent (17%) of St. Louis County adults were classified as “Not Well”.

Health status is an important factor that drives the demand for health care services. Overall, 13% of St. Louis County adults reported fair to poor health. As Table 8 illustrates, residents in two study regions – North County (18%) and Mid County (16%) - were more likely than residents in the other two study areas to describe their overall health as being either fair or poor. Also of note: A higher proportion of Black residents reported fair to poor health (16%) compared with White residents (12%).

Table 7: Health Status, St Louis County, 2011

	Mid	North	South	West	St. Louis County	Missouri
% Health Fair to Poor	16	18	12	6.3	10	16
% 11+ Days Physical Health Not Good	13	10	8.2	6.4	9.4	12
% 11+ Days Mental Health Not Good	8.4	10	9.3	5.1	8.2	12
% 11+ Days Lost due to Poor Mental or Physical Health	10	7.6	6.2	4.5	7.1	8.4
% 3+ Chronic Conditions	7.5	6.4	5.0	3.6	5.6	5.5
Wellness Categories:						
% Well	35	36	38	46	39	35
% At Risk for Future Medical Problems	7.1	6.7	9.0	4.8	6.8	8.5
% Some Health Problems	37	37	40	37	38	38
% Not Well	21	20	14	12	17	18

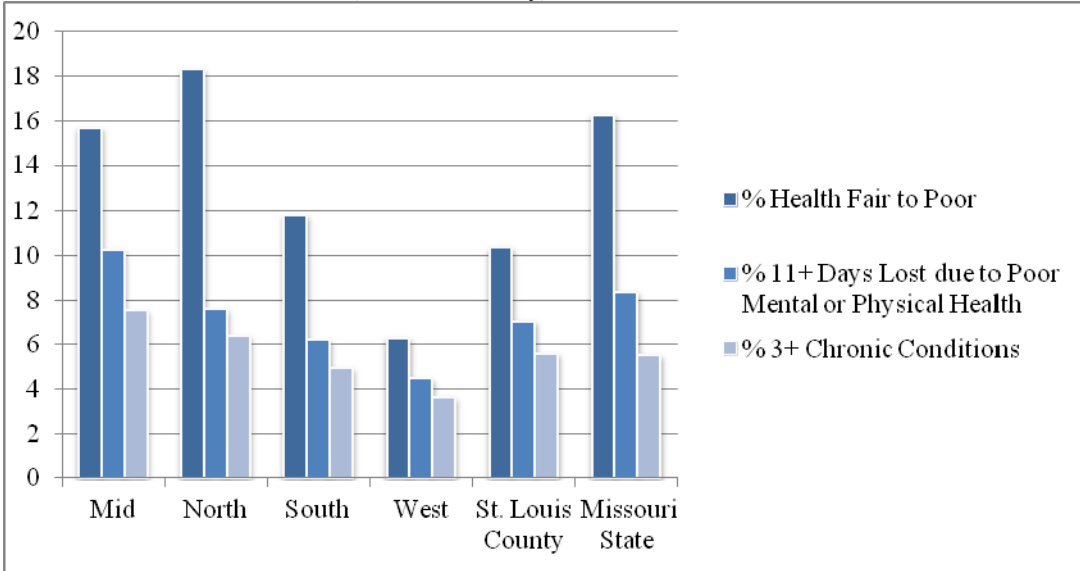
Source: CCPH/St. Louis County Household Survey, 2011
 US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)

In some cases, poor mental or physical health status results in reduced functioning, or days lost to poor health. Reduced functioning among St. Louis County adults corresponds somewhat closely with reported health status (e.g., percentage who reported they had fair or poor health). Mid County has the highest percentage of respondents who reported some sort of physical limitation (13%) in at least 11 of the 30 days prior to the survey, as well as the highest rate of individuals who reported losing at least 11 days to poor mental or physical health (10%). This approximates the state rates for these two indicators, with 12% of Missourians reporting poor physical health and 8.4% reporting at least 11 days lost due to poor mental or physical health. In addition, North County has the highest percentage of respondents reporting 11+ days with poor mental health, with 13% (see Chart 8).

St. Louis County Community Health Needs Assessment

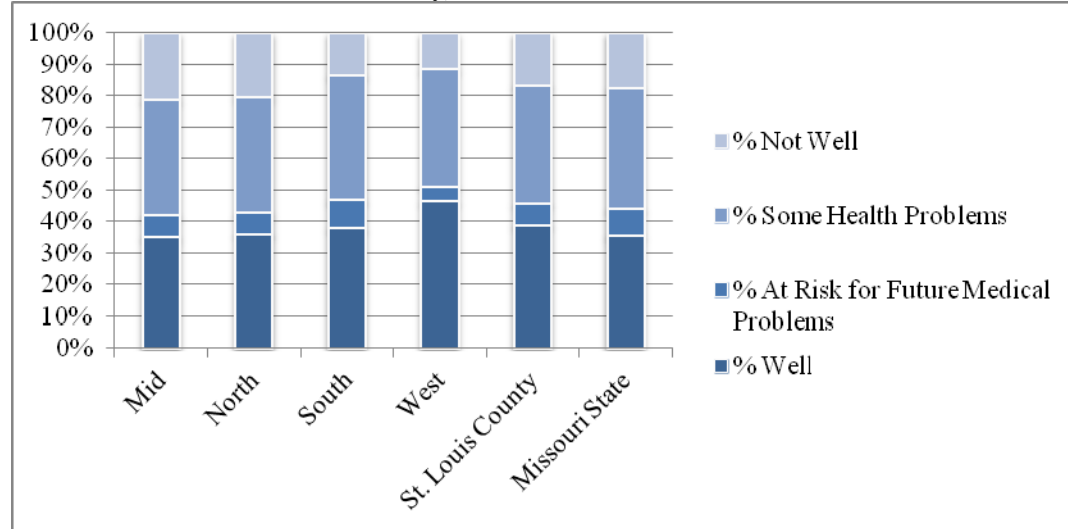
Poor functional health and high levels of reduced functioning are also more common in areas with a high proportion of adults with multiple chronic diseases. Once again, Mid and North County have the highest proportion of adults who reported having three or more chronic illnesses, with 7.5% and 6.4%, respectively. Both sub-counties have higher percentages of residents with 3+ chronic diseases compared with the county overall (5.6%) and the state (5.5%). This would indicate that the functional health status for these two regions is impacted by the high chronic disease burden.

Chart 7: Functional Health Status, St. Louis County, 2011



Source: CCPH/St. Louis County Household Survey, 2011
 US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)

Chart 8: Wellness Profile St. Louis County, 2011



Source: CCPH/St. Louis County Household Survey, 2011
 US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)

QUALITY AND EFFECTIVENESS OF CARE

FINDINGS: Despite other indicators showing adequate access to primary care, inpatient hospital utilization for Ambulatory Care Sensitive (ACS) conditions is slightly elevated – especially in certain regions of the county - compared to the state.

- ACS rates for inpatient hospital admissions for St. Louis County are elevated compared to the state rates; however, ACS emergency room visit rates are lower than the state's, indicating a potential preference for using inpatient rather than outpatient resources to treat these conditions.
- North County has the highest ACS rates for both ED visits and inpatient hospital admissions in St. Louis County. The ED visit rate in particular is elevated – almost twice the state ACS rate.

See appendix 10 for Data Sources

In this section, several measures of quality and effectiveness of care, statewide and county, are presented. The objective is to get an overall impression of access to high quality care and secondary prevention for populations with one or more chronic health conditions, as measured by rates of inpatient and ER admissions for ambulatory care sensitive (ACS) conditions.

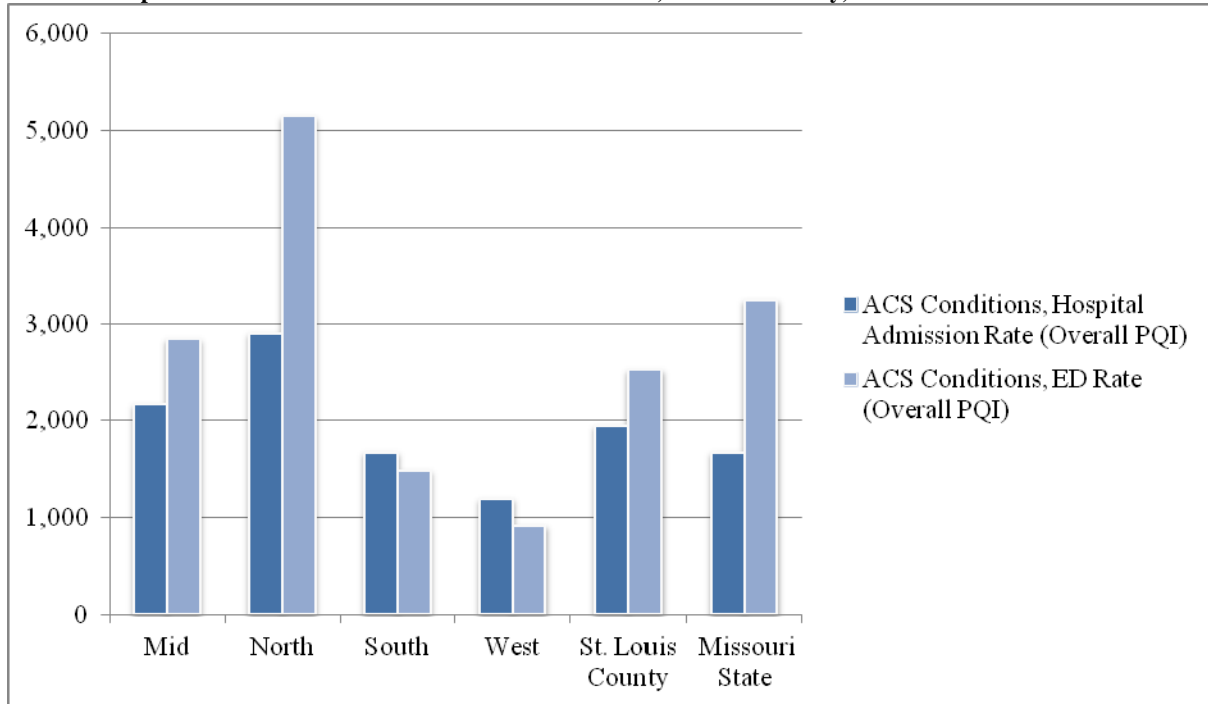
Hospitalizations/ED Visits for ACS Conditions: The rates of hospital admissions for ACS conditions are considered an indicator of primary care access and quality in a population. ACS conditions are those that are less likely to result in an inpatient or ED hospitalization when treated on an outpatient basis with high quality primary medical care and patient adherence (see List of Definitions). ACS conditions include:¹⁶

- Adult Asthma
- Angina without Procedure
- Bacterial Pneumonia
- Congestive Heart Failure
- Chronic Obstructive Pulmonary Disease
- Dehydration
- Diabetes Short-term Complications
- Diabetes Long-term Complications
- Hypertension
- Lower-extremity Amputation among Diabetics
- Perforated Appendix Admission Rate
- Urinary Tract Infection
- Uncontrolled Diabetes

Higher rates of hospitalizations and ED use for ACS conditions may be an indication that access to and/or quality of primary care in a region needs to be improved. Higher rates may also be due to poorer underlying health status (disease prevalence) in a population, since a higher prevalence of disease can account for elevated ACS hospitalization rates when comparing two geographic areas. The differences in prevalence can be compared to the differences in utilization rates to determine differences in access and/or quality.

¹⁶ SOURCE: http://www.qualityindicators.ahrq.gov/pqi_overview.htm (Note: three of the sixteen indicators not included because they are pediatric ACSC measures)

Chart 9: Hospital Admission and ED Rates for ACS Conditions, St. Louis County, 2008-2009



All Rates are per 100,000 population unless otherwise stated
 Source: Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2008-2009

This analysis suggests that, while overall chronic disease prevalence is higher in certain study regions for several conditions that are included in ACS rates, access to and/or quality of care plays a significant role in the levels of ACS hospitalizations. In North County especially, where ACS hospitalization rates were elevated above most adult age groups – particularly among those under the age of 18 and in the 18-44 age group—the rates appear to be somewhat associated with elevated disease prevalence rates in these cohorts.

Compared to the state, overall rates for both inpatient and ED admissions were lower in South and West County (see Chart 9). This occurs among all age groups except in South County for the 18-44 age group, where the rate was slightly higher than the state rate. Contrarily, Mid and North County had higher ACS rates for inpatient admissions in each age group, with the exception being for the 65+ age group in Mid County. Likewise, the ACS rate for ED admissions is also elevated for most age demographics in North County relative to the state, with the exception being for those aged 65 and over.

Of note are the very high ACS rates for hospital and ED admissions for younger populations; the under-18 age group for both Mid and North County have ACS hospitalization and ED visit rates that are about three times the state rate (see Table 8).

Disease prevalence (3+ chronic conditions) and proportion of the population “not well” was high in Mid and North County and low in South and West County, which corresponds to the high and low ACS rates for each study region. This may be indicative of an increased prevalence of ACS conditions in Mid and North County, as indicated by the percentage “not well” from the wellness profile. It may also be due to the lack of access to high quality care for chronic medical conditions, including accurate diagnosis, treatment, and patient self-management, in these two study areas.

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Table 7: Hospital Admission and ED Rates for ACS Conditions, St. Louis County, 2008-2009.

	Mid	North	South	West	St. Louis County	Missouri
<i>ACS Conditions, Hospital Admission Rate (Overall PQI)</i>	2,168	2,903	1,673	1,194	1,947	1,673
<i>Ages 0-17 yrs</i>	1,394	1,469	426	329	743	484
<i>Ages 18-44 yrs</i>	889	1,529	630	376	887	568
<i>Ages 45-64 yrs</i>	1,864	2,935	1,181	591	1,567	1,678
<i>Ages 65+ yrs</i>	6,323	8,157	6,513	6,704	6,930	6,774
<i>ACS Conditions, ED Rate (Overall PQI)</i>	2,841	5,149	1,485	918	2,523	3,243
<i>Ages 0-17 yrs</i>	5,285	6,808	1,349	679	2,813	2,211
<i>Ages 18-44 yrs</i>	2,869	5,885	1,682	987	2,998	3,662
<i>Ages 45-64 yrs</i>	1,960	3,711	1,074	613	1,754	2,887
<i>Ages 65+ yrs</i>	2,432	3,893	2,144	2,158	2,657	4,675

Source: St. Louis County HSP, see Appendix 4.

VI. KEY FINDINGS FOR SPECIFIC AREAS OF HEALTHCARE

CARDIOVASCULAR HEALTH

Behavioral Risk Factors

FINDINGS: Risk factors for chronic disease vary somewhat within the county and between St. Louis County and the state. Levels of obesity and sedentary life styles are highest in North County.

- Overall prevalence of smoking for adults is much lower in the county (15%) compared to the state (22%). Prevalence of smoking is higher in Mid and North County than in South and West County (18%, 17%, 14%, and 12% respectively).
- Prevalence of adult obesity in the county is 27% with West County lowest at 20% and North County highest at 36%.
- Sedentary lifestyles were most prevalent in North County (29%) and lowest in South County (19%).

See appendix 10 for Data Sources

Cardiovascular disease (CVD) is a category of disorders affecting the heart and blood vessels and includes coronary heart disease, diseases of the heart, arteriosclerosis, hypertension, and cerebrovascular disease (stroke). The major behavioral risk factors for CVD are smoking, physical inactivity, hypertension, and overweight/obesity. Diabetes is a medical risk factor for CVD. Behavioral risk factors for cardiovascular disease are not high overall, but there is variation within the county (see Chart 10).

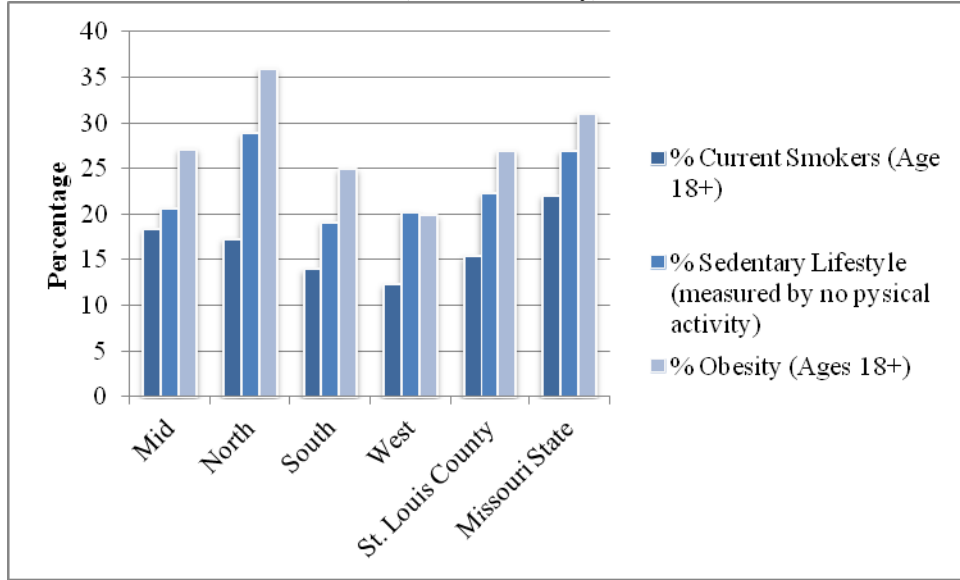
Smoking: Smoking is widely regarded as the single most preventable cause of disease and death in the U.S. During 2009, the median adult smoking prevalence among all 50 states and the District of Columbia was 17% (Range: Utah at 9.8% - West Virginia at 25%).¹⁷ The prevalence of smoking is more than 20% higher in the State of Missouri compared to St. Louis County. All but one sub-county region is lower than the state, while West County currently meets the nation's goal under Healthy People 2020 of 12% adult smoking prevalence (see Chart 10).

Physical activity: The proportion of adults who reported engaging in at least 30 minutes of physical activity five or more times a week is highest in South County (24%), while overall the county rate is lower than the state rate (20% and 28% respectively). Twenty-two percent (22%) of St. Louis County adults have a sedentary lifestyle, as measured by adults who reported no physical activity, compared to 33% in the state. Sedentary lifestyles are most prevalent for adults in North County, at 29% (see Chart 10).

¹⁷ America's Health Rankings, 2009. <http://www.americashealthrankings.org/Measure/2010/List%20All/Prevalence%20of%20Smoking.aspx>

Obesity: Risks related to being overweight and obese are a significant issue in the U.S. including Missouri. Currently, approximately 31% of adults in Missouri are obese, having a body mass index greater than or equal to 30. This is comparable to the U.S. rate of 28% and a St. Louis County overall adult obesity rate of 27%. The St. Louis County rate is driven in large part by the higher rate in North County (36%).

Chart 10: Cardiovascular Risk Factors, St. Louis County, 2011



Source: CCPH/St. Louis County Household Survey, 2011
 US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)

Medical Risk Factors for CVD

FINDINGS: The prevalence of diagnosed high blood pressure continues to be a significant risk factor in large segments of the population in St. Louis County and in Missouri. The prevalence of high cholesterol is lower in St. Louis County than in the state.

- North County has the highest prevalence of adults with diagnosed high blood pressure in the county (38%). It is also much higher than the state prevalence (31%).
- The prevalence of diagnosed high cholesterol (27%) is much lower in the county overall (38%) and in each region than in the state.
- Diagnosed heart disease rate (3.6) is lower in St. Louis County than in the state (4.3). The low rates in Mid (3.2) and West County (3.2) are largely responsible for this.

See appendix 10 for Data Sources

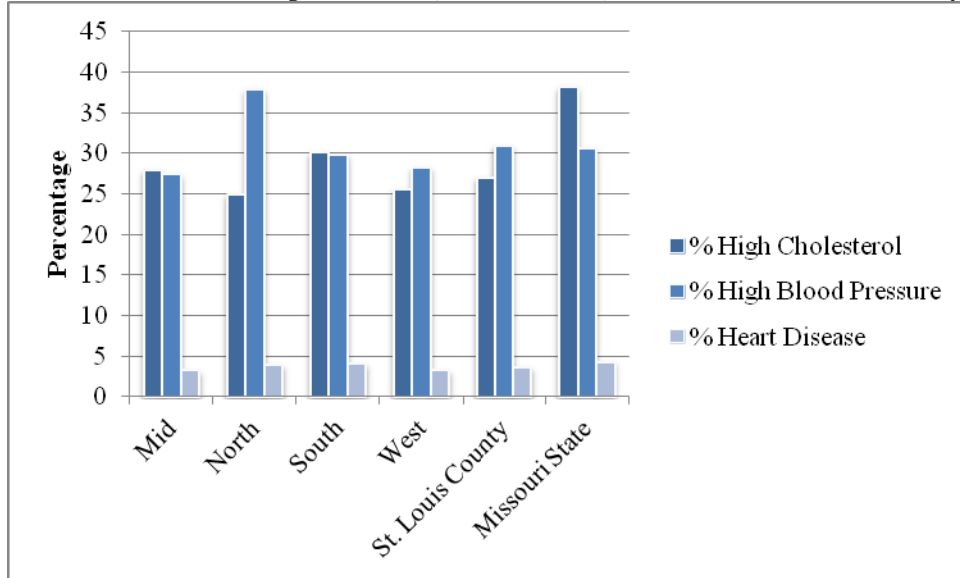
Less than three in ten adults in St. Louis County (27%) have been diagnosed with high cholesterol.¹⁸ All regions of St. Louis County have rates much lower than the state average (38%). Cholesterol screening rates in St. Louis County (75%) and all regions are much higher than the state rate (56%); thus the low diagnosed prevalence in the county is not likely due to lack of screening (see Chart 11).

High blood pressure or hypertension, a major risk factor for stroke and heart disease, has no physiological symptoms - regular blood pressure measurements are needed for detection and control. Approximately 31% of the St. Louis County and the Missouri adult population – and of the U.S. adult population – reports having been diagnosed with high blood pressure by a medical provider.

The prevalence of high blood pressure within the county is similar in all regions of the county with the exception of North County, which is higher at 38%. Obesity prevalence and sedentary life styles are higher in North County as well. This impacts how well patients with high blood pressure are able to manage their conditions. The combined effect of behavioral and medical risk factors for CVD also puts this population at risk for additional health problems and disease complications (see Table 9 and Chart 11).

¹⁸ High Cholesterol is defined as having a cholesterol level exceeding 240 milligrams per deciliter (mg/dL).

Chart 11: Prevalence of High Cholesterol, Blood Pressure, & Heart Disease St. Louis County, 2011



Source: CCPH/St. Louis County Household Survey, 2011
US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)

Findings on the prevalence of behavioral risk factors among those diagnosed with high blood pressure and high cholesterol include the following:

- The prevalence of obesity among those who reported having been diagnosed with high blood pressure is 42%; in addition, 36% of those with high blood pressure are classified as overweight. Obesity prevalence ranges from a high of 36% in North County to a low of 20% in West County.
- The prevalence of obesity and overweight is 34% and 40%, respectively, among those who say they have been diagnosed with high cholesterol.
- Those with high blood pressure or high cholesterol are also slightly more likely to be sedentary. Among those diagnosed with high blood pressure, 26% lead sedentary lifestyles. Among those diagnosed with high cholesterol, 33% lead sedentary lifestyles.

Mortality and Morbidity

FINDINGS: Rates of heart disease morbidity and mortality are generally lower in St. Louis County than in the state. The one exception is in North County which has high rates of Congestive Heart Failure (CHF) and Acute Myocardial Infarction (AMI).

- Morbidity, as measured by hospitalization for an acute myocardial infarction (AMI) or heart attack, congestive heart failure (CHF), cerebrovascular disease or stroke (CVD), or Coronary Artery Bypass Graft (CABG) surgery, is generally lower in St. Louis County than in the state.
- CABG rates for Mid and North County among the 45 and over age groups are low indicating a potential access issue for these populations. Rehabilitation services following a stroke are also low in North County, indicating the same.
- Mortality rates for heart disease are high in North County, overall, and for older adults. County rates are similar compared to the state's rate.

See appendix 10 for Data Sources

In this section, cardiovascular health is assessed through morbidity and mortality rates for various forms of heart disease. The focus is on overall rates and rates among the age groups that are most at risk for cardiovascular health events, which include adults age 45-64, and seniors 65 years and older.

Morbidity for CVD: Of the cardiovascular medical hospitalizations in St. Louis County, adults are hospitalized most frequently for congestive heart failure (CHF), followed by AMI and cerebrovascular disease (stroke). CABG (coronary artery bypass graft), a surgical admission, ranks lower than medical admission rates. Hospital admissions rates for CHF in the county are higher than in the state, but this is due to the very high rates in Mid and North County.

Hospital admission rates for acute myocardial infarction (AMI) are considered a good indicator for heart attack incidence, as most people with serious chest pain go to a hospital for possible diagnosis of an AMI. Based on this assumption, North County has by far the highest AMI incidence rate in the county overall and for older adults (153 per 100,000 population and 720, respectively). West County has the lowest (86). The state rate is 101, and the U.S. rate is 192.

CABG surgery rates overall are consistently lower in St. Louis County and its regions than in the state. This is a potential concern in Mid and North County given their higher heart disease medical risk and morbidity (and mortality) rates.. One would expect higher CABG rates, not lower rates, compared to the state. It suggests a possible access disparity for this population (see Table 9).

Mortality: The burden of heart disease mortality is somewhat higher in the county than in the state and is highest in North County where high CHF, AMI, and cerebrovascular disease (stroke) admissions rates are also seen. Although there have been great strides in medical technology

available to reduce deaths from heart disease, the population of North County has a much higher death rate due to heart disease than other regions or the state. The source of this apparent disparity needs follow-up.

Prevention: Taking aspirin regularly has been shown to reduce the risk of heart attack and stroke in some populations. Among the age 35+ population, the rate of respondents who said they currently take aspirin to reduce their risk of heart attack or stroke is similar across the county, with the lowest in North County.

In general, the cardiovascular health profile of populations in St. Louis County suggests that primary and secondary prevention activities to reduce behavioral and medical risks for heart attacks and strokes are generally good except for the population residing in North County and, to a lesser extent, those residing in Mid County.

Table 8: Selected Cardiovascular Health Indicators, St Louis County, 2011

Indicator	Mid	North	South	West	St. Louis County	Missouri
% Current Smokers (Age 18+)	18	17	14	12	15	22
% Sedentary Lifestyle (measured by no physical activity)	21	29	19	20	22	27
% Physical Activity (150+ minutes per week)	19	16	24	20	20	28
% Obesity (Ages 18+)	27	36	25	20	27	31
% High Cholesterol	28	25	30	26	27	38
% High Blood Pressure	27	38	30	28	31	31
% Heart Disease	3.2	3.9	4.0	3.2	3.6	4.3
Heart Disease, Mortality Rate	238	321	260	188	258	239
Ages 45-64	127	194	86	65	119	157
Ages 65+	1,162	1,733	1,455	1,371	1,483	1,406
AMI, Mortality Rate	68	101	78	52	76	145
Ages 45-64	32	66	21	24	36	61
Ages 65+	341	550	448	363	440	389
AMI, Hospital Admission Rate	112	153	103	86	113	101
Ages 45-64	72	132	59	29	70	86
Ages 65+	519	720	533	631	600	560
Cerebrovascular Disease (stroke), Mortality Rate	58	58	60	47	57	53
Ages 45-64	22	32	13	10	19	22
Ages 65+	299	319	350	363	341	340
Cerebrovascular Disease (stroke), Hospital Admission Rate	208	247	186	116	186	263
Ages 45-64	171	284	110	47	146	263
Ages 65+	854	977	928	802	894	970
CABG, Hospital Admission Rate	63	64	74	60	65	75
Ages 45-64	82	94	105	76	89	125
Ages 65+	210	228	258	281	245	291

All Rates are per 100,000 population unless otherwise stated
 Source: CCPH/St. Louis County Household Survey, 2011
 US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)
 Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2008-2009

RESPIRATORY HEALTH

FINDINGS: Risk for disease from smoking (current and former) is lower in St. Louis County and its regions than in the state; use of the hospital for respiratory health conditions (asthma, emphysema and COPD) tends to be higher in St. Louis County due to high rates in Mid and North County and indicates potential disparities of care.

- Prevalence of current smoking among adults in St. Louis County is low compared to the state (15% to 22%).
- Male smoking rates are similar to female rates across the county—except for Mid County where the male rate is higher (23% to 15%).
- The prevalence of adults diagnosed with current asthma is similar to the state rate (8.4% to 9.2%) but much higher in Mid and North County (11% and 12%).
- Mid and North County have higher hospital inpatient and ED rates for asthma and bronchitis.
- COPD prevalence across the county is low. This is in line with the low smoking rates.
- Flu shot or mist rates across the county are similar to or higher than the state for all age and gender groups.
- Countywide lung cancer incidence rates are similar to the state rates among both males and females, except in North County where the rates are higher.
- Hospital admission rates for pneumonia, bronchitis, and asthma are the highest for the 65+ cohort living in West County.
- With some exceptions mortality from respiratory disease is much lower across St. Louis County than the state.

See appendix 10 for Data Sources

According to the World Health Organization, the burden of chronic respiratory diseases (CRDs), including asthma, Chronic Obstructive Pulmonary Disease (COPD), and lung cancer, will continue to increase because of tobacco use and population aging.¹⁹ Smoking is a risk factor for many respiratory diseases, including asthma, lung cancer, COPD,²⁰ emphysema and bronchitis. Current and former smoking levels are, therefore, important indicators of the risk for respiratory disease in a community. Although the prevalence of current smoking was described earlier, because smoking is such a strong risk factor for respiratory illness, this section will discuss additional issues associated with smoking and smoking cessation.

19 World Health Organization. *WHO Strategy for Prevention and Control of Chronic Respiratory Diseases*. Geneva, Switzerland, 2002. http://whqlibdoc.who.int/hq/2002/WHO_MNC_CRA_02.1.pdf

20 Chronic Obstructive Pulmonary Disease (COPD) refers to a permanent condition of lung disease with the presence of chronic bronchitis and/or emphysema that has led to the development of an airway obstruction. COPD (chronic bronchitis, emphysema, chronic airway obstruction) is thought to result from direct interaction of lung tissue with environmental agents, of which tobacco smoke is the most significant; cigarette smoking is thus the strongest risk factor for COPD.

Smoking: The prevalence of smoking in St. Louis County is much lower than in the state (15% to 22%). Rates in all four sub-county regions are lower than the state rate—three are much lower. West County currently meets the nation’s goal of 12% adult smoking prevalence.

Lifetime smoking rates (those who have smoked more than 100 cigarettes in their life) are an important indicator because former smokers are also at increased risk for respiratory disease. Lifetime smoking rates are lower in St. Louis County compared to the state, indicating that risk of disease is lower.

Smoking Cessation: Smoking cessation can greatly impact cardiovascular and respiratory health, and health care provider support for current smokers to quit can assist in cessation success. In St. Louis County, 62% of current smokers reported that they have been advised by their health care provider in the past year to quit smoking. This is lower than in many other communities across the country and can be improved on. All regions are similar except for Mid County, which was somewhat lower at 51%.

Pneumonia and Influenza: An estimated 49% of adults in the county received a flu shot or mist in the past 12 months. Sub-county regions vary, with significantly higher rates in South and West counties. Current hospitalization rates for pneumonia are similar in the county and the state. However adults in the 45-64 age group had much higher rates in Mid and North County, while West County had much lower rates compared to the state, except for the 65+ age cohort.

Asthma: The size of the adult population in St. Louis County currently diagnosed with asthma is estimated at 8.4%; in Missouri it is 9.2%, and in the U.S. it is 8.8%. Mid and North Regions have much higher asthma rates compared to the state (11% and 12% respectively). These regions also have the highest levels of hospital admissions for asthma and bronchitis. However, by contrast, ED visit rates for asthma and bronchitis are high only in North County but not for the 65+ age group. For those aged 65+, the highest percentage admitted are from West County.

Because most patients can be effectively managed on an outpatient basis, pediatric and adult asthma is considered an ACS condition that should not typically require hospitalization(s). ACS respiratory-related conditions - conditions where hospitalizations can be averted by proper outpatient care and good patient adherence - include Chronic Obstructive Pulmonary Disease (COPD), adult asthma, congestive heart failure (CHF), and bacterial pneumonia. Thus, hospitalization rates for asthma give us insight into how well asthma is being managed (e.g., self management, access to care and services) in these regions.

COPD: COPD refers to two lung diseases, chronic bronchitis and emphysema, that are characterized by obstruction to airflow that interferes with normal breathing. COPD cannot be cured and does not improve. It can be managed to prevent increased severity. The major risk factor for onset of COPD is current or former smoking. Patients with COPD who continue to smoke likely get worse. Overall the prevalence of diagnosed COPD in St. Louis County is estimated at 2.4%. This is very low and due to the low smoking rates in the county.

COPD, like asthma, is an ACS condition. COPD hospitalization rates in a population are, therefore, strong indicators of the health system's ability to manage COPD patients and patient ability to self-manage. COPD hospital inpatient rates are low across St. Louis County as are mortality rates from COPD. COPD ED rates are very high in North County (1,258 per 100,000 population), while much lower in South and West Counties (341 and 255, respectively). Mid County falls in between these two ranges (640).

Smoking-Related Cancers: Lung cancer incidence across St. Louis County is similar to that throughout the state. The only exception is that the female rate in North County is higher. The smoking related cancer mortality rates, which include all cancers associated with smoking, are similarly lower than the state rates.

Risk Factor Prevalence

Despite the known harmful effects of smoking as the leading cause of respiratory illnesses, the proportion of the population with COPD or asthma who continue to smoke is high in most regions. Patients suffering from these conditions who continue to smoke will have difficulty keeping their disease from getting worse, and/or managing exacerbations of their illness.

Smoking prevalence is high among those with diagnosed respiratory illnesses, especially COPD and asthma. Thirty eight percent (38%) of patients who say they have been diagnosed with COPD also say they smoke everyday; an additional 6.5% say they smoke some days. Thirty five percent (35%) of patients diagnosed with asthma continue to smoke every day.

The respiratory health profile of the population of St. Louis County is overall quite good. The only exceptions are in the management of asthma and bronchitis in Mid and North County and in the 65+ population in West County. These data suggest potential disparities in access and quality of care including patient self-management. Access to and availability of primary prevention and treatment modalities for asthma in these communities are priorities for follow-up.

Table 9: Selected Respiratory Health Indicators by Study Region

Indicator	Mid	North	South	West	St. Louis County	Missouri
% Current Smokers - Male	23	18	14	12	16	23
% Current Smokers - Female	15	17	14	13	15	22
% Current Asthma (Ages 18+)	11	12	5.3	6.6	8.4	9.2
% Chronic Obstructive Pulmonary Disease-COPD	3.0	3.2	2.7	0.7	2.4	NA
Lung and Bronchus Cancer, Males, Incidence Rate	73	113	83	68	84	95
Lung and Bronchus Cancer, Females, Incidence	78	92	76	70	79	75
Bronchitis and Asthma, Hospital Admission Rate	247	358	108	88	194	171
Asthma, ED Visits	1,092	2,080	407	259	927	1,163
COPD, Mortality Rate	31	41	40	31	37	51
COPD, Hospital Admission Rate	232	320	184	105	206	295
Pneumonia/Influenza, Mortality Rate	19	22	27	23	24	23
Pneumonia, Hospital Admission Rate	334	363	346	273	327	400
Lung Cancer Mortality Rate (Males)	52	67	52	47	55	55
Lung Cancer Mortality Rate (Females)	60	76	57	49	60	72
Smoking-Related Cancers, Mortality Rate (Males)	63	93	88	66	78	87
Smoking-Related Cancers, Mortality Rate (Females)	41	49	49	49	48	47
% Received Pneumococcal Shot ever (65+)	75	65	74	75	72	68
% Received Flu Shot (past 12 months)	47	45	50	53	49	41

All Rates are per 100,000 population unless otherwise stated

Source: CCPH/St. Louis County Household Survey, 2011

US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)

Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2008-2009

DIABETES HEALTH

FINDINGS: Diabetes in the US adult population is a persistent and growing health issue among all age groups. Risk factors for diabetes, such as being overweight, obese, or having a sedentary lifestyle correlate with diabetes prevalence in most communities. The prevalence of diabetes across St. Louis County is higher in those regions with higher obesity and sedentary lifestyles, in particular Mid and North County.

- Overall diabetes prevalence in St. Louis County is 9.4%; it is 8.7% in the state and 8.8% in the U.S.
- The prevalence in Mid and North County is much higher at 11% and 12% respectively. These are also the regions with the highest prevalence of obesity and sedentary lifestyles.
- Management of diabetes is fairly consistent across the county, indicating that physician care for the disease is similar in respect to following best practice guidelines.
- Rates of inpatient admissions and ED visits for diabetes track with prevalence and risk factors but not with diabetes care indicators.
- The diabetes mortality rate is highest in North County.

See appendix 10 for Data Sources

Diabetes is the leading cause of end-stage renal disease among adults of all ages and is also the leading cause of blindness among working age adults. Diagnosed diabetes prevalence is 8.0% in the U.S., 8.7% in Missouri and 9.4% in St. Louis County. Mirroring national and statewide trends, diabetes prevalence is higher and continues to increase in regions where there are high risk factors such as obesity and sedentary lifestyles (see Table 11).

Elevated rates of diabetes occur in Mid and North County among almost all age groups. Only the 45-64 age group in Mid County has a rate similar to those of St. Louis County and the state. Diabetes prevalence is low in West County for all age groups (see Table 11).

The estimated prevalence figures may under-represent the true burden of diabetes. Diabetes has historically been under-diagnosed, although improved surveillance systems and detection measures are expected to improve accuracy in the estimation of a region's diabetes burden.

Approximately 90% of adults with diabetes have Type II (adult onset) diabetes. Several factors contribute to Type II diabetes. These include behavioral elements (increased fat consumption and other nutritional factors, decreased physical activity, and obesity), demographic changes (including aging, and growth of at-risk populations), and the limited effectiveness of interventions to change individual, community, or organizational behaviors.²¹ The aging of the population potentially increases disease burden. However, the increased onset in the 18-44 age

²¹ US Government Printing Office, Healthy People 2010, <http://www.healthypeople.gov/document/HTML/Volume1/05Diabetes.htm>

group suggests that risks such as inactivity and obesity are the prime drivers. Primary prevention targeting diet and activity levels is a priority health issue in Mid and North County.

Use of evidence-based guidelines for the management of patients with diabetes is fairly consistent across the county and in the state overall. In general, residents of the county with diabetes are equally likely to receive appropriate diabetes care, including retinal eye exams, foot exams, or A1C testing. The one exception is the rate of retinal eye exams in Mid County, which is low (41% compared to 69% in the state) (see Table 11). It should be noted that the sample size available from the survey to calculate these estimates is small, so caution in interpretation is warranted.

Diabetes-related hospital admissions rates are significantly higher in St. Louis County compared to the state (168 per 100,000 population versus 116 respectively). However, this is due to high rates in Mid and North County (194 and 306 respectively). While we expect rates of hospital admissions to track with higher disease prevalence rates, in North County, in particular, the admission rate is more than twice the state rate, while the prevalence rate is only 37% higher. This indicates that care management is not equating to better health status in this region. This may be due to a number of factors—poor self-management, lack of access to primary care when health issues arise, or other problems and barriers. Follow-up is needed.

Short-term complications are curable symptomatic conditions that can be overcome through proper management of diabetes and include hypoglycemic coma, ketoacidosis, and hyperosmolarity. Secondary prevention plays an important role in preventing short-term complications. Diet, exercise, and proper self-administering of medications help mitigate the development of short-term complications. Short-term complications are most often treated in an outpatient setting. ED inpatient utilization rates for short-term diabetes complications are high in North but not in Mid County.

Long-term diabetes complications are permanent conditions that cannot be cured but may be prevented. These include complications that affect kidney functioning, eyesight, and neurology and may contribute to the development of stroke or heart disease. In addition, amputations are often a response to complications arising from long-term complications. ED visit rates for long-term complications are high in Mid and North County compared to the state. Typically, those who have had diabetes for a longer period of time and who manage their disease inadequately are more likely to develop long-term complications. Additionally, the more frequent the onset of short-term complications, the more likely one will experience long-term complications.

Risk Factor Prevalence

The disconnect between patient and provider in effecting lifestyle changes that will both assist in disease management and/or prevent diabetes is often cited as a reason behind continued elevated diabetes prevalence and/or morbidity/complication rates in this population. The association of obesity, dietary choices, and lifestyle habits with diabetes has been widely accepted, yet improvements in reducing the proportion of the population with Type II diabetes are not observed in the populations of Mid and North County. While prevalence and levels of risk factors help us understand why diabetes prevalence is high in a region, indicating a need for addressing primary prevention issues, secondary prevention also needs to be addressed. Elevated

ED and hospital admission rates and increased mortality rates from complications associated with diabetes prevalence indicate that patients with diabetes are not managing their condition effectively.

According to survey findings, among adults who say they have been diagnosed with diabetes, 31% are also classified as overweight, and 54% are obese. Additionally, sedentary lifestyle prevalence among those who say they have been diagnosed with diabetes (33%) is somewhat higher than those without the disease (21%).

Table 10: Diabetes Indicators

Indicator	Mid	North	South	West	St. Louis County	Missouri
% Sedentary Lifestyle (No physical activity)	21	29	19	20	22	27
% Overweight (Ages 18+)	31	35	39	39	36	35
% Obesity (Ages 18+)	27	36	25	20	27	31
% Diagnosed Diabetes (All Adults 18+)	11	12	9.0	6.0	9.4	8.7
Ages 18-44	3.9	3.6	0.2	1.0	2.3	2.5
Ages 45-64	12	16	10	6.8	11	12
Ages 65+	24	25	22	15	22	19
% Reported hemoglobin A1c measurement (at least once) in past year (Age 18+)	91	97	92	88	93	94
% Reported retinal eye exam in past year (Age 18+)	41	66	63	67	59	69
% Reported foot examination in past year (Age 18+)	62	82	83	68	75	75
% Reported influenza immunization in past year (Age 65+)	79	68	76	78	75	67
Diabetes, Hospital Admission Rate	194	306	117	74	168	116
Ages 45-64	229	384	132	66	193	135
Ages 65+	388	612	305	290	398	211
Short-term Complications, ACSC Hospital Admission Rate	60	99	37	21	53	57
Long-term Complications, ACSC Hospital Admission Rate	134	207	80	54	115	93
Uncontrolled Complications, ACSC Hospital Admission Rate	25	44	10	6.7	21	18
Diabetes, Mortality Rate	20	29	19	16	21	23
Ages 45-64	14	26	14	6.8	15	22
Ages 65+	92	131	88	111	108	121

All Rates are per 100,000 population unless otherwise stated
 Source: CCPH/St. Louis County Household Survey, 2011
 US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)
 Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2008-2009

CANCER HEALTH

The burden of cancer in a population or a community is influenced, in part, by prevention of modifiable risk factors, screening and early detection, appropriate treatment, and patient and family involvement in care decisions and end-of life issues. (Genetics and environmental risk exposure also contribute.) Differences in the prevalence of population risk factors and health system screening and detection practices impact both the incidence rate and detection stage of cancer. This section of the CHNA report examines population-based indicators on cancer risk factors, screening and detection, incidence and mortality in order to gain an overview of the current burden of the disease on populations in St. Louis County and the type of follow-up that may be necessary to improve the cancer health in the county.

The three leading cancers with the highest incidence rates among males in Missouri are prostate, lung, and colorectal cancer. Among women, the leading cancers are breast, lung and colorectal cancer. These four cancers (breast, prostate, colorectal and lung) are further analyzed in this report using incidence and mortality data, knowledge of major causal factors, and/or the availability of effective screening tests that can detect these cancers at an early stage. In general, the incidence of these cancers is influenced by modifiable risk factors and can be treated successfully when detected at an early stage of the disease.

Risk Factors

FINDINGS: Behavioral risk factors for cancer such as smoking, obesity rates and sedentary life styles are not generally high in St. Louis County. Only in North County is the rate of obesity high. To the extent that these risk factors can be reduced, a lower incidence of cancer in this population will result.

See appendix 10 for Data Sources

Reducing cancer risk factors can prevent many cancers. Modifiable health behaviors associated with the development of cancer (and many other conditions) include tobacco use, physical inactivity, obesity, poor diet, and, to a lesser extent, alcohol use. Most of these health behaviors are not elevated in St Louis County compared to the state; smoking is estimated at 15% for adults, obesity affects 27% of the adult population, and 22% of St. Louis County adults live a sedentary life style. Levels of these risk factors, while not high compared to the state rates, can be reduced with appropriate public and private health interventions. These risk factors, discussed in prior sections of the report, will not be reviewed again here.

Overall Incidence and Mortality

FINDINGS: Cancer incidence rates are higher in St. Louis County than in the state; however, cancer mortality rates, with few exceptions, are not very different from those of the state. Mortality/incidence ratios do not suggest disparities in the availability of and access to cancer screening and treatment in St. Louis County despite the high cancer rates.

- Approximately 7.6% of adults living in St. Louis County have had a diagnosis of cancer.
- All-cancer incidence rate in St. Louis County is just over 10% higher than the state rate. There is some variation by region, but all are above the state rate.
- Of the four leading cancers (breast, prostate, lung and colorectal cancer), female breast and male prostate cancer incidence rates are driving the higher county rate.
- Cancer mortality rates overall and for the four leading cancers are similar in St. Louis County to the state rates.
- Mortality/incidence ratios in the county are lower than in the state; this is a general indication of good availability of and access to cancer screening and treatment in St. Louis County.

See appendix 10 for Data Sources

In 2007, Missouri's age-adjusted cancer incidence rate was 468 cases per 100,000 population, and the state ranked 26th in the nation. Like the U.S. rates, Missouri's cancer incidence rates have been declining in recent years. Missouri's all-cancer mortality rate has been moderately high; the 2007 mortality rate was the 14th highest in the nation.²²

Cancer Incidence: Cancer incidence rates include all new cases of cancer observed over a period of time and are calculated based on the total population of each study region.²³ The incidence rate for all cancers in St. Louis County for the years 2006-2008 is 556 cases per 100,000 population; in Missouri it is 502. Across the county, cancer incidence rates for all types of cancers vary from a low in South County (527) to a high in North County (602). Cancer incidence in the county is high for female breast cancer compared to the state (162 to 137 respectively) and for male prostate compared to the state (179 to 137). Colorectal, lung and cervical cancer rates are similar to those of the state. West County also has the highest percentage of females 40+ years reporting a mammogram within the previous 12 months. It also has the highest reported percentage (51%) of localized breast cancer cases. Typically, a high percentage of cancers detected at the local stage suggest more widespread cancer screening and early detection—see below.

Cancer Mortality: Mortality rates for all cancers are similar compared to those of the state (209 and 210 deaths per 100,000 population respectively.) Across the county, the highest rates were observed in North County (236 deaths) and the lowest in West County (174).

²² Source: National Cancer Institute, 2007

²³ Rates reported here are unadjusted and provide an estimate of disease burden

Cancer Mortality/Incidence: Several measures can be used to assess access and availability of cancer services for the population diagnosed with cancer. One measure we use is the cancer mortality-to-incidence ratio (see Table 12). This ratio predicts the likelihood of death in a population newly diagnosed with cancer; the higher the ratio, the higher the likelihood of death due to that condition. If a county level ratio is higher than the state ratio (or any other standard), it indicates that more people who are diagnosed with new cancers are more likely to die from those conditions compared to their statewide counterparts. This ratio can serve as an indication of potential disparities in access to cancer management and treatment. It can also indicate potential disparities in screening and detection of early stage diagnosis. CCPH developed this measure for use in health care assessment and planning. While the measure has not been scientifically validated, it has proven useful in identifying potential care access issues for specific cancers.

It should be noted, however, that the mortality-to-incidence ratio is constructed using cumulative index data collected during the period 2006-2008 and cumulative mortality data collected between 2007-2009. The measure is not a mortality metric for any given cohort, so people in the mortality data may not be the same people as are in the incidence data. In cases where the ratio is equal to 100%, the number of deaths may have exceeded the incidence for that county. Although imperfect, the measure does provide a reasonable measure of a county's cancer mortality risk, since incidence and mortality rates do not drastically differ from year to year.

Overall in Missouri the likelihood of dying from any cancer, once having been diagnosed, is 42%. It is somewhat lower in St. Louis County (38%). Rates across most of the county are similar (Mid 38%, North 39%, South 39%), but West County is the exception, with 32%. From a risk perspective, West Region residents with cancer are 10% less likely to die from cancer than residents with cancer in the state overall. It is important to note that these findings are from a county with a higher incidence rate than the state's. This suggests that St. Louis County cancer patients have the same or a lower likelihood of dying from cancer as cancer patients statewide.

In addition to mortality/incidence ratios, cancer staging data are used as indicators of how early cancer is being detected in the population through screening or other techniques. Cancer staging measures the proportion of cases detected at the local stage or before the cancer has spread to the surrounding tissues (regional) or to distant sites (organs, bones, etc). In general, when cancer is detected at the local stage, survival rates tend to be higher - provided access to care is not an issue. Thus, the stage of diagnosis can affect the mortality rate in the area and the mortality-to-incidence ratio. When viewed in conjunction with mortality/incidence ratios, staging data indirectly measures access and availability of cancer treatment and detection in different regions. Typically, a high percentage of cancers detected at the local stage suggest more widespread cancer screening and early detection. This study reports on cancer staging for specific cancer sites, since that is most meaningful for planning.

In the sections that follow, there will be a closer look taken at specific cancers, in order to better elucidate differences among the study regions.

Table 11: Cancer Mortality to Incidence Ratios, St. Louis County, 2006-2008

Cancer Site	Value	Mid	North	South	West	St. Louis County	Missouri
Breast Cancer (Female)	Female	0.103	0.104	0.106	0.100	0.104	0.108
Cervical Cancer (Female)	Female	0.214	0.283	0.271	0.137	0.227	0.181
Colorectal Cancer (Total)	Total	0.365	0.338	0.318	0.354	0.353	0.365
Prostate Cancer (Male)	Male	0.159	0.168	0.197	0.156	0.172	0.191
Lung & Bronchus Cancer (Total)	Total	0.765	0.707	0.746	0.670	0.730	0.767
	Male	0.826	0.674	0.683	0.724	0.716	0.612
	Female	0.715	0.743	0.809	0.620	0.743	0.955
All Cancer/Sites	Total	0.380	0.393	0.389	0.322	0.378	0.416

All Rates are per 100,000 population unless otherwise stated
 Source: Missouri Cancer Registry, 2006-2008.

Lung Cancer

FINDINGS: Rates for lung cancer incidence in St. Louis County are similar compared to the state rates; however, the rate in North County is significantly higher. Mortality rates for St. Louis County are significantly lower among males. Mortality rates in North County are high for females. The proportion of lung cancer detected at the local (early) stage is slightly higher for both males and females from St. Louis County compared to the state, while the proportion of late stage diagnosis rates are similar.

- Lung cancer incidence rate for St. Louis County is 81 per 100,000 population: it is 84 in the state and 102 in North County.
- Lung cancer mortality rate in St. Louis County is 59 per 100,000 population; in the state it is 65; in North County it is 72.
- Lung cancer mortality/incidence ratios by gender vary somewhat across the regions and between the county and the state.
- Lung cancer mortality/incidence ratios are highest in Mid County for males (83%) and South County for females (81%). The female rate is lowest in West County (62%) and the lowest male rate is in North County (67%.)
- Early lung cancer detection is similar across the regions, but the county differs when compared to the state.

See appendix 10 for Data Sources

Smoking is the most significant risk factor associated with lung cancer. Modifying this risk can significantly impact the incidence of this cancer. Epidemiological evidence suggests that smokers who quit before middle age can substantially benefit from this behavior change and can avoid 90 percent of the excess risk of lung cancer linked to tobacco use. While St. Louis as a

whole has relatively low smoking rates, it is still at increased risk for cancer from past and current smoking among other risk factors.

Lung cancer incidence rates vary little between St. Louis County (81 per 100,000 population) and the state (84). The rate for the county is driven largely by the rate within North County (102 cases). The lung cancer mortality rate, however, is somewhat lower in the county compared to the state (59 deaths compared to 65 in the state), despite a much higher death rate in North County (72).

Lung cancer mortality/incidence ratios for males are higher than those of the state for St. Louis County (72% St. Louis County to 61% state). For females, the ratio in St. Louis County is lower than the state ratio by 20% (74% to 96% respectively). Lung cancer mortality/incidence ratios are highest in Mid County for males (83%) and South County for females (81%). The female rate is lowest in West County (62%), and the male rate is lowest in North County (67%). However, these need to be interpreted with caution, as they are based on small numbers of cases in these regions.

Early lung cancer detection is similar across county regions but the county differs from the state. Nineteen percent (19%) of lung cancer in St. Louis County is detected in males at the early stage; 16% is detected early in the state. The difference is similar for females. There is very little difference in late stage diagnosis of lung cancer across the regions, by gender and between the county and the state. Generally, approximately 50% of lung cancer is detected at late stage (see Table 14).

Colorectal Cancer

FINDINGS: Colorectal cancer incidence and mortality rates vary little between St. Louis County and the state. Only North County is higher and only for incidence. Approximately one third of all cases are diagnosed early. Screening rates are fairly consistent across sub-county regions and the state.

- Incidence rate for colorectal cancer is highest in North County at 65 new cases per 100,000 population per year.
- Mortality rates and mortality/incidence ratios vary little across county regions and between St. Louis County and the state.
- Only 34% of all colorectal cancer is diagnosed in the early stage in St. Louis County; 37% in the state. North County has the lowest at 29%. Sixty percent of the population in St. Louis County age 50+ report being internally screened for colorectal cancer in the past five years.

See appendix 10 for Data Sources

Across the U.S., approximately 50,000 people will die from colorectal cancer in 2011 (American Cancer Society). Colorectal cancer is the third most commonly diagnosed cancer and the third leading cause of cancer death. Approximately one-quarter or more of the colorectal cancers diagnosed could be prevented through changes in lifestyle (obesity, red meat consumption,

processed meat consumption, smoking, alcohol use). Additionally, physical activity, calcium intake and milk consumption reduce the risk of colorectal cancer (ACS). Most colorectal cancer deaths are preventable if the cancer is diagnosed at an early stage using existing knowledge and established screening tests.

Missouri has the 15th highest incidence rate and the 15th highest mortality rate in the U.S. among Non-Hispanic White males. Among Non-Hispanic White females, Missouri has the 18th highest incidence rate and the 15th highest mortality rate. Among Non-Hispanic Black males, Missouri has the 4th highest incidence rate and the 16th highest mortality rate for colorectal cancer. Among Non-Hispanic Black females, Missouri has the 16th highest incidence rate and the 13th highest mortality rate.²⁴

Colorectal cancer incidence and mortality rates vary little between St. Louis County and the state. Only in North County is incidence higher than in the state. There is a wide range in colorectal incidence rates across regions for both men and women.

The mortality/incidence ratio for St. Louis County is .35, meaning that 35% of those being diagnosed die from the disease. It varies little by county region and is similar to the state ratio.

Only 34% of all colorectal cancer is diagnosed in the early stage in St. Louis County. This is low compared to some parts of the county but is similar to the state rate of 37%. For North County, it is lower at 29%. Sixty percent (60%) of the population in St. Louis County age 50+ reported being screened for colorectal cancer in the past 5 years with a colonoscopy or sigmoidoscopy. North County also has the lowest rate at 56%, while in West County it is 65%. These data are suggestive of a disparity in access to or in the quality of screening services available to North County residents.

Prostate Cancer

FINDINGS: Prostate cancer incidence is much higher in St. Louis County and in all sub-county regions compared to the state rate. Mortality rates are not elevated compared to those of the state except for the rates of Mid County. Screening and detection rates are not associated with lower mortality rates.

- Prostate cancer incidence rates are 30% higher in St. Louis County compared to the state rates. There is very little difference by sub-county region.
- Prostate cancer mortality rates are similar across all of St. Louis County compared to the statewide rate, except in Mid County. Mid County is 26% higher.
- Mortality/incidence ratios are low overall in the regions and compared to those of the state. South County has the highest at 20% and is comparable to the state's (19%).
- Around 80% of prostate cancer is detected at the local stage in the county and statewide.
- Approximately 75% of men age 50+ report having a Prostate Specific Antigen (PSA) test in the past 2 years.

²⁴ Colorectal Cancer Facts & Figures 2011-2013, American Cancer Society

- Approximately 65% of men 50+ countywide report having a digital rectal exam (DRE) in the past 2 years, with the highest percentage in West County (73%) and the lowest in North County (58%).

See appendix 10 for Data Sources

Prostate cancer is the most frequently diagnosed cancer among males. Prostate cancer incidence rates are significantly higher in the county and in all sub-county regions compared to statewide rates. However higher incidence rates in the county do not lead to high mortality rates compared to the state rates. (See Table 13.)

Prostate cancer incidence rates are 30% higher in St. Louis County compared to the state rates. These high rates are consistent for each of the sub-county regions. Why these rates are higher is not clear and needs follow-up by the health department at the county or state level. While one would expect these rates to lead to higher mortality rates in the county, they do not. Prostate cancer mortality rates are similar across the county, except in Mid County, and are similar to the statewide rates. Mid County is 26% higher.

The high incidence rates coupled with low mortality rates result in low mortality/incidence ratios overall in the regions and when compared to the state ratios. South County has the highest at 20% and is comparable to the state (19%). Combined, these data indicate good access to care for patients diagnosed with prostate cancer.

Cancer staging data reveals that a relatively high percentage of males are detected at the early stage of the disease. Approximately 80% of prostate cancer is detected at the local stage in the county and statewide. This is relatively high and is also a reason for the lower than expected mortality rates, as prostate cancer is very treatable in the early stage.

Approximately 75% of men aged 50+ reported having a Prostate Specific Antigen (PSA) test in the past 2 years. Approximately 65% of men 50+ statewide reported having had a digital rectal exam (DRE) in the past 2 years.

The Prostate-Specific Antigen (PSA) test rates for men 50+ are generally higher than the state rates (75% of men across the county in the past 2 years). High levels of PSA in the blood indicate a greater likelihood that cancer is present, although there is great controversy in the use of this test to predict prostate cancer.

While less sensitive than the PSA test, a digital rectal exam (DRE) is another screening test that can detect prostate cancer. The proportion of the male population 50+ who have received a digital rectal exam in the past two years is a little lower than the PSA test rate. Countywide, 65% of men 50+ report having had a digital rectal exam (DRE) in the past 2 years, with the highest percentage in West County (73%) and the lowest in North County (58%).

It should be noted that according to the U.S. Preventive Services Task Force, PSAs and DREs are not recommended as a routine screening procedure for detecting prostate cancer.

Breast Cancer

FINDINGS: The breast cancer incidence rates in St. Louis County and its regions are high compared to state wide rates, but mortality rates are not. Rates of screening and early detection for breast cancer are similar across the county and the state, as are mortality/incidence ratios.

- Breast cancer incidence rates are high in the county due to very high rates in Mid, North and West County.
- Breast cancer mortality rates are not high in the county overall or in any region compared to the state.
- Approximately 50% of all breast cancer cases are detected in the early stage. These rates are similar across the county and to the state's rates.
- Approximately 60% of women 40+ across the county and in the state report having had a mammogram in the past year.
- Mortality/incidence ratios for breast cancer are low (St. Louis County 10%). This is similar across the county and statewide.

See appendix 10 for Data Sources

Breast cancer is the most common cancer diagnosed among females. In St. Louis County, breast cancer incidence rates are high compared to the state rates. The county rate is being driven by very high rates in Mid, North and West County. All three rates are much higher than the state rates. Factors associated with these high rates are unclear. At the same, time breast cancer mortality rates are not high in any of the county regions compared to the statewide rates.

Approximately 50% of all breast cancer cases are detected in the early stage. This detection rate is similar in the state and in the sub-county regions. Mammograms are the principal medical screening test for breast cancer. In St. Louis County, approximately 60% of women 40+ report having had a mammogram in the past year. This rate is consistent across the county and with the statewide rate.

Approximately one in 10 women (10%) detected with breast cancer dies from the disease in St. Louis County based on the mortality/incidence ratio. This is similar across the county and in the state.

These data on breast cancer health in the county are generally very favorable. The exceptions are the high incidence rates and the screening rates for mammograms. Follow-up on the high cancer incidence is indicated at the county and/or state level. Efforts to increase access to and use of mammograms is also indicated.

St. Louis County Community Health Needs Assessment

Table 12: Cancer Incidence & Mortality, St. Louis County, 2006-2008

Indicator	Mid	North	South	West	St. Louis County	Missouri
All Cancers, Incidence Rate	557	602	527	541	556	502
All Cancers, Mortality Rate	212	236	205	174	210	209
Female Breast Cancer, Incidence Rate	167	171	146	166	162	137
Female Breast Cancer, Mortality Rate	17	18	16	17	17	15
Female Cervix Uteri, Incidence Rate	7.6	8.0	5.8	6.0	6.8	7.9
Female Cervix Uteri, Mortality Rate	1.6	2.3	1.6	0.8	1.5	1.4
Colorectal, Incidence Rate	58	65	57	47	56	53
Colorectal, Mortality Rate	21	22	18	17	20	20
Lung and Bronchus Cancer, Incidence Rate	76	102	79	69	81	84
Lung Cancer, Mortality Rate	58	72	59	46	59	65
Males	64	78	66	45	64	76
Females	52	67	52	47	55	55
Male Prostate, Incidence Rate	187	174	174	184	179	137
Male Prostate, Mortality Rate	24	22	19	15	20	19

All Rates are per 100,000 population unless otherwise stated

Source: Missouri Cancer Registry, 2006-2008.

Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2007-2009

Table 13: Cancer Staging Indicators, St. Louis County, 2006-2008

Indicator	Mid	North	South	West	St. Louis County	Missouri
% Stage Female Breast, Local	50	47	50	51	49	49
% Stage Female Breast, Distant	4.2	5.0	3.4	3.5	4.0	4.5
% Stage Cervix Uteri Female, Local	*	50	44	54	36	42
% Stage Cervix Uteri Female, Distant	*	*	*	*	14	14
% Stage Colorectal, Local	38	29	39	36	34	37
% Stage Colorectal, Distant	11	21	17	19	19	19
% Stage Lung and Bronchus Male, Local	20	17	21	20	19	16
% Stage Lung and Bronchus Male, Distant	59	50	49	52	52	52
% Stage Lung and Bronchus Female, Local	23	22	17	25	22	19
% Stage Lung and Bronchus Female, Distant	48	52	48	45	49	48
% Stage Prostate, Local	79	79	84	82	81	80
% Stage Prostate, Distant	4.1	4.4	4.4	1.7	3.4	3.7

Source: Missouri Cancer Registry, 2006-2008.

Table 14: Cancer Screening Indicators

Indicator	Mid	North	South	West	St. Louis County	Missouri
% Reported Mammogram past year (40+)	62	57	58	64	60	58
% Reported Pap Smear past 2 years	63	63	61	61	62	66
% Reported Blood Stool Test Past Year (Age 50+)	11	12	10	9.8	10	9.1
% Reported Having Sigmoid/Colonoscopy Past 5 Yrs (Age 50+)	57	56	60	65	60	51
% Reported Prostate Exam (PSA test) past 2 yrs (males Age 50+)	73	74	80	74	75	67
% Reported Digital Rectal Exam past 2 years (males Age 50+)	62	58	69	73	66	57

Source: CCPH/St. Louis County Household Survey, 2011

US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)

REPRODUCTIVE HEALTH

FINDINGS: Overall, reproductive health status among women in St. Louis County is favorable. However, two sub-county regions—Mid and North—display patterns of poor access to high quality care resulting in poorer birth and birth related health outcomes. Efforts are needed to determine if there is adequate access to preventive and prenatal services in these regions.

- Birth outcomes for St. Louis County are generally similar to those for the U.S., and several exceed HP2020 targets for the nation.
- Rates of high-risk pregnancies in St. Louis County are elevated compared to those of the state due to high rates in Mid and North County.
- A high percentage of pregnant women (14%) residing in North County receive inadequate prenatal care compared to the state rate (11%).
- Teen birth rates (females age 10-17) are high in Mid (6.5) and North (10.0) County compared to the county (5.3); the rate for North County is also higher than the state (8.3).
- The rates of babies born with low birth weight (11%) and born prematurely (17%) are elevated in North County compared to the statewide rates.
- Overall infant mortality rate for St. Louis County (8.0 per 1,000 live births) is slightly higher than the state rate (7.4), the U.S. rate (6.7) and the HP2020 target rate (5.6)
- Mid and North County have higher infant mortality rates (9.0 and 11.6, respectively) than the state (7.4).
- C-section rates are high throughout the county and the state—but are in line with the U.S. rate.

See appendix 10 for Data Sources

Teen Birth Rates - number of babies born to females age 10-17 (rate per 1,000 females): Teen birth rates are a key indicator of the reproductive health of a community because adolescents who become pregnant are less likely to obtain adequate prenatal care, are more likely to have adverse pregnancy outcomes, and are more likely to raise their children in poverty. Overall, St. Louis County has a lower teen birth rate (5.3 births per 1,000 females aged 10-17) compared to the state (8.3) and the U.S. (8.9); however, North County has a significantly higher rate (10).

High Risk Hospital Admissions: High-risk pregnancy hospital admissions are hospitalizations of women with pregnancy-related health issues. They are measured using admissions for DRGs (DRG: 778-782). Overall rates are higher in St. Louis County compared to the statewide rates, but this is due to high rates in Mid and North County. Both South and West County had rates far below the state rate.

Prenatal Care: A measure of the adequacy of prenatal care is the Kessner Index*. The Kessner Index is based on the number of prenatal care visits that a woman receives in relation to the

* The Kessner Index is used here because the data needed to compute the measure is available from the birth record data. There are other measures that one could use but they require additional data not available to us.

duration of her pregnancy and the age of the fetus at the time of the first visit. It classifies prenatal care as being adequate, intermediate, or inadequate (see Appendix 8 for a complete explanation of the Kessner Index).

Almost 90% of women in St. Louis County receive adequate prenatal care (as measured by the Kessner Index). This result does not vary much among sub-county regions except for North County in which only 82% of women receive adequate care and 13.6% receive inadequate care.

Low Birth Weight, Prematurity and Infant Mortality: The Healthy People 2020 objective for the percent of low birth weight babies (less than 2500 grams) born is 7.8%, representing a 5.0% improvement from the 2007 U.S. Baseline of 8.2%. St. Louis County has a relatively high percentage of babies born with low birth weight (9.1%) compared to the U.S; however, this rate of low birth weight babies is due in part to the rate in North County (11%). The percentage of babies born prematurely (less than 37 weeks) is similar in the county (14%) compared to the state (13%), and the U.S. (13%). However, the county rate is driven in part by the rate in North County (17%).

Overall infant mortality rate for St. Louis County (8.0 deaths per 1,000 live births) is higher than the U.S. rates (6.7) and the HP2020 target of 5.6 Mid and North County have much higher infant mortality rates than the state (9.0 and 12, respectively); these rates are above the U.S. rate as well. These findings for Mid and North County appear to be driven by a high post-neonatal mortality rate (deaths to infants 28 through 364 days of age) in these regions, suggesting a higher proportion of post birth medical issues in this population. The infant mortality rates are based on very few deaths, so caution is advised in interpretation of the findings.

Overall reproductive health among women in St. Louis County was generally favorable. However, the patterns in the regions exhibiting higher teen birth rates accompanied by elevated high risk hospital admissions, poorer birth outcomes and low rates of adequate prenatal care warrant further exploration.

Table 15: Measures of Reproductive Health, St. Louis County, 2007-2009

Indicator	Mid	North	South	West	St. Louis County	Missouri
Teen Birth Rate (10-17yrs) Per 1,000 Females	6.5	10	2.0	1.3	5.3	8.3
High Risk Pregnancy, Hospital Admission Rate (10-44 year old females)	629	980	349	240	539	461
C-Section Rate per 100 births	34	34	36	37	35	32
% Adequate Prenatal Care (of live births)	87	82	93	94	88	84
% Inadequate Prenatal Care (of live births)	9.3	14	3.9	3.7	8.5	11
% Low Birthweight (<2500 grams)	9.3	11	7.0	7.0	9.1	8.0
% Prematurity (< 37 weeks)	14	17	12	12	14	13
Infant Mortality Rate (deaths to infants from birth through 364 days of age) per 1,000 live births	9.0	12	4.3	3.7	8.0	8.2

All Rates are per 100,000 population unless otherwise stated

Source: Missouri Department of Health and Senior Services, Bureau of Health Informatics, Vital Records, 2007-2009

Missouri Department of Health and Senior Services, Bureau of Health Informatics, Patient Abstract System, 2008-200

MENTAL HEALTH

Findings: Mental health (MH) problems, treatment admissions, and outcomes (i.e. suicide mortality) rates vary somewhat across St. Louis County. Mental health related admissions are not always positively correlated with risk factors and prevalence rates, suggesting that factors such as the availability of services, stigma, etc., may influence the receipt of treatment. High emergency department (ED) utilization for certain MH-related conditions may indicate access barriers to inpatient, ambulatory, and/or crisis services.

- St. Louis County exhibits patterns of risk for mental health problems, principally in North County and Mid County.
- North and Mid County reported the highest percentage of respondents who had poor mental health for at least 11 of the past 30 days, as well as the highest percentage that reported that they had a need for mental health treatment at some point in the past year but did not get it.
- ED and inpatient hospital admissions data for certain mental health conditions show significant discrepancies between study regions in terms of utilization; this suggests undiagnosed or untreated mental health conditions in Mid and North County.
- Bipolar Disorder of persons 65+ living in West County is the highest reported for this cohort across all regions in the county.
- Suicide rates are not exceptionally high compared with Missouri rates and did not vary significantly among the four study regions; however, among males living in North County, suicide rates are high.

See appendix 10 for Data Sources

Mental Health Burden

Mental health, according to the World Health Organization (WHO), is “a state of well-being in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community.”²⁵ Mental disorders are common in the U.S., with more than one in four (26%) adults suffering from a diagnosable mental disorder in a given year.²⁶ Although the burden of illness is concentrated among 1 in 17 (5.8%) adult Americans who suffer from a serious mental illness, one should not ignore the fact that mental disorders are widespread in the general population. Forty-five percent of those with a diagnosed mental disorder suffer from two or more disorders; co-occurring mental health and substance abuse disorders are common among this population. According to the National Institute of Mental Health (NIMH), mental disorders are among the leading causes of disability in the U.S. Mental disorders are as common as, if not more common than, cancer, diabetes, and heart disease, and are frequently associated with

²⁵ Nordqvist, C. (2009, June 18). *What is Mental Health? What is Mental Disorder?* Medical News Today. Available: <http://www.medicalnewstoday.com/articles/154543.php>. [2011, January 9].

²⁶ National Institute of Mental Health. (N.D.). *The Numbers Count: Mental Disorders in America*. Available: <http://www.nimh.nih.gov/health/publications/the-numbers-count-mental-disorders-in-america/index.shtml>. [2011, January 9].

poorer physical health and higher medical utilization.^{27,28} The annual indirect costs of mental illness are estimated to be more than \$79 billion, a large part of which reflects lost productivity. Although it is clear that treatment works, it has been estimated that close to two-thirds of those with a diagnosable mental disorder do not seek treatment. The reasons for this include stigma, lack of awareness of available treatment options, lack of access to services, and the affordability of care.

In the United States, depression and other mental health disorders are major causes of illness and death. They are also associated with increased levels of disability, reduced quality of life, and lower levels of social functioning. Based on the results of the 2009 National Survey on Drug Use and Health, the Substance Abuse and Mental Health Services Administration (SAMHSA) reported that 19% of adults (18 and older) had a mental disorder (excluding developmental and substance abuse disorders) in the past year, of sufficient duration to meet diagnostic criteria specified within the DSM-IV.²⁹ The Centers for Disease Control and Prevention (CDC) found that in 2006, 15% of people had been told by a health care provider that they had depression at some time in their lives.³⁰ Using data from the 2006 and 2008 optional depression modules, the CDC found that 9.0% of the population had a current diagnosis of depression.³¹ Using data from the National Survey of Children's Health, Altarac and Saroha found that the lifetime prevalence of learning disability among U.S. children (under age 18) is 9.7%.³²

Twelve percent (12%) of Missouri adults and 8.1% of St. Louis County adults reported poor mental health for 11 or more of the past 30 days. The percentage of adults who reported poor mental health was highest in Mid (9.1%) and North County (10%). Additionally, Mid (7.4%) and North (7.1%) County had slightly higher percentages of survey respondents who reported a need for mental health treatment at some point in the past 12 months but did not get it, compared with the county (5.9%) and the state (6.8%). For those who had reported a need for mental health services but did not get it, the majority (55%) said it was because they could not afford it, followed by those who responded that they did not think it would help their condition (28%).

The percentages of St. Louis County adults who reported that they had been diagnosed with depression at some point in their lives were highest in Mid (19%) and South County (18%), although the percentages in the other two study regions are not much lower (North: 15%; West: 14%). The overall county percentage was 17% (see Chart 12). Self-reported diagnosed depression is especially high among female adults in the county (22%), compared with male adults (11%).

²⁷ National Alliance on Mental Illness. (N.D.) *Mental Illness: FACTS AND NUMBERS*. Available: http://www.nami.org/Template.cfm?Section=About_Mental_Illness&Template=/ContentManagement/ContentDisplay.cfm&ContentID=53155. [2011, January 9].

²⁸ ASHA International. (N.D.) *Startling Statistics About Mental Illness*. Available: <http://www.myasha.org/node/12>. [2011, January 9].

²⁹ Substance Abuse and Mental Health Services Administration. (2010). *Results from the 2009 National Survey on Drug Use and Health: Mental Health Findings* (Office of Applied Studies, NSDUH Series H-39, HHS Publication No. SMA 10-4609). Rockville, MD.

³⁰ Centers for Disease Control and Prevention. (N.D.) *Anxiety and Depression*. Available: <http://www.cdc.gov/features/dsBRFSSDepressionAnxiety/>. [January 11, 2011].

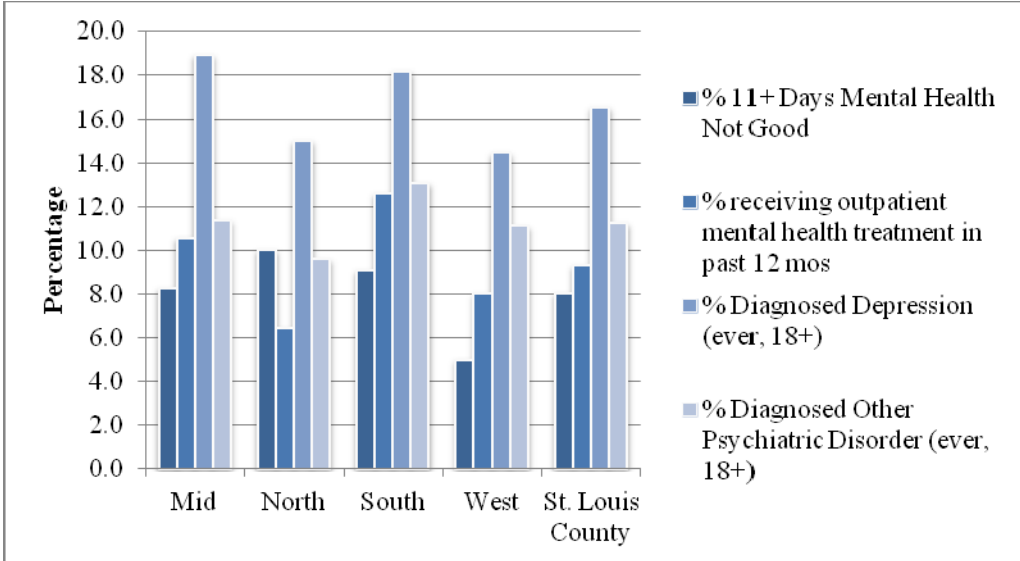
³¹ Centers for Disease Control and Prevention. (2010, October 1). *Current Depression Among Adults: United States, 2006 and 2008*. Available: <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5938a2.htm>. [January 11, 2011].

³² Altarac, M. and Saroha, E. (2007, February). *Lifetime Prevalence of Learning Disability Among US Children*. *Pediatrics* 119(1), pp. s77-84.

Approximately 11% of adults in St. Louis County report that they have been diagnosed with a psychiatric condition other than depression. Again, prevalence of diagnosis is fairly consistent across the four study regions, ranging from a high of 13% in South County, to a low of 10% in North County.

In terms of specific demographics, respondents who reported being diagnosed with depression or other psychiatric conditions are reasonably consistent across age groups - except for those older than 65, whose rates of diagnosed depression (13%) and other psychiatric conditions (4.6%) are lower relative to other age groups. Black survey respondents were also slightly more likely to report 11+ days of poor mental health status (10%) than White respondents (7.4%), although they have lower rates of diagnosed depression (14% vs. 17%) and other psychiatric disorders (7.7% vs. 12%) compared with their White peers. This discrepancy may, in part, be due to a lack of accessibility to mental health services among Black residents of St. Louis County, as a greater percentage reported needing mental health services but not getting it (10%) compared with White residents (4.9%) (see below).

Chart 12: Prevalence of Mental Health Conditions in Adults (Self-Reported), St. Louis County, 2011



Source: CCPH/St. Louis County Household Survey, 2011

Mental Health Treatment

The U.S. mental health service system consists of a continuum of settings and treatments ranging from primary prevention programs in schools, to office-based treatment, emergency crisis services, and acute inpatient settings. Hospital admission and ED visit data illustrate only a fraction of where people get care and how they use services.

According to data from the Household Survey, approximately 10% of St. Louis County residents say they have utilized outpatient mental health treatment at some point in the past year. Self-reported outpatient mental health treatment in the past year was highest in Mid County, where 11% of adults received services, and South County, where 13% received services. As previously stated, Black residents were less likely to have utilized services, compared with White residents. Seniors (aged 65+) were also less likely to have had outpatient mental health treatment in the past 12 months (3.5%)

- *Psychoses* account for the highest rate of mental health-related hospital admissions in St. Louis County (796 per 100,000 population) and in the state (721) (see Chart 12). Psychoses hospital admission rates are significantly higher in North County (1,248) and slightly higher in Mid County (916) compared with the other two study regions. In St. Louis County, the countywide hospital admission rate is highest among the 18-44 year old age group (1,206). Drug-related psychoses likewise accounted for a higher hospital admission rate (48) of West County residents 65+ years than of residents in other regions in the county.
- *Bipolar disorder* accounts for the second highest rate of mental health related hospital and ED admissions in the state and St. Louis County. The county hospital admissions rate (324 per 100,000 population) and ED visit rates (77) are slightly elevated compared to the state rates (302 and 65, respectively). Again, the higher county hospital admission rates and ED rates appear to be driven primarily by elevated rates in North County (hospital admissions: 485; ED rate: 122), and to a lesser extent, Mid County (hospital admissions: 353; ED rate: 97).

The under-17 hospitalization rates for bipolar disorder for Mid (472 per 100,000 population) and North (582) County are especially high compared to the state rate of 359. Rates for those aged 18-64 are also high for these two study regions (Mid: 385; North: 538) compared with the statewide rates (324). Significantly, among those aged 65+, only West County has a hospitalization rate that is especially high, with 155 (Missouri rate: 97).

- *Major depression* hospital admission rates and ED rates for the county (246 per 100,000 population and 68, respectively) approximate the state rates (244 and 73, respectively). Once again, however, both hospital and ED visit rates are slightly higher in Mid County (267 and 81, respectively) and much higher in North County (336 and 112, respectively) relative to rates of the other two study regions, the county, and Missouri.

The rates for hospital admissions for major depressive disorder are especially high in these two study regions among youths under the age of 17 (212 per 100,000 population in Mid County and 173 in North Region) compared with the state hospitalization rate (148). In North County, hospitalizations are also high among the 18-64 year-old population (397 vs. Missouri rate of 295). Those aged 65 and over in North County (298) are also elevated; however, all four-study regions have hospitalization rates well over the state hospitalization rate of 177, including South (215) and West (255) County.

- *Schizophrenia and related disorders* are another frequent mental-health related cause for hospitalization and/or ED admission. The hospital and ED admissions rates in St. Louis County (191 per 100,000 population and 54, respectively) are both comparable to the state rates of hospitalization and ED (150 and 55, respectively). As with the aforementioned mental disorders, however, the burden of this disorder is pronounced in several regions of St. Louis County, particularly in North County. The rate of hospital admissions in Mid County (257) is about 75% higher than in the state, and the rate in North County (363) is more than 2.5 times higher than in the state. This pattern is maintained in ED rates for both study regions (83 in Mid County; 105 in North County.)

Again, much of this is driven by high hospitalizations among adults aged 18-64 in both Mid and North County (340 per 100,000 population and 513 respectively, vs. 219 statewide) and to a lesser extent, those aged 65+ in those areas (72 and 148, respectively vs. 69 statewide).

- *Anxiety disorders* account for the highest mental-health related ED visit rates in St. Louis County (583 per 100,000), although they are much lower than state rates (808). Locally, the highest hospitalization and ED rates occurred in North Region (324 and 851, respectively), the only study region in St. Louis County with higher hospitalization and ED rates than the state.

Although all age demographics in North County suffer from higher hospitalization rates than the state and the other study regions, the differences are particularly stark for youths under 17. The under-17 rate in North County, 431 per 100,000 population, is 125% more than the state rate (193), about 20% more than the closest study region rate (Mid County, with 356), and almost 4.5 times the lowest hospitalization rate in the county (West County, with 79).

High hospitalization and ED admission rates for all major mental health conditions in North County seem to reinforce the aforementioned perception of undiagnosed and/or untreated mental health burden in this part of the county.

Mental Health Outcomes – Suicide Mortality

Suicide is a significant and preventable public health problem. Suicide was the tenth leading cause of death in the United States in 2007, with an overall suicide death rate of 11 per 100,000 population.³³ Almost four times as many men die from suicide than women. Suicide was the

³³ National Institutes of Mental Health (N.D.) *Suicide in the US: Statistics and Prevention*. Available: <http://www.nimh.nih.gov/health/publications/suicide-in-the-us-statistics-and-prevention/index.shtml>. [January 11, 2011].

seventh leading cause of death for males and the fifteenth leading cause of death for females. Firearms, suffocation, and poison are the most common methods of suicide, with firearms the most commonly used method among men, and poison the most commonly used method among women. Suicide rates are highest among people aged 65 and older, at 14, and among young adults (20-24) at 12.

Rates of suicide are fairly consistent across the county, ranging from 9.3 deaths per 100,000 population in Mid County, to 13 in North County; all regions have rates lower than the state rate of 14 (see Chart 12). Male residents of St. Louis County and Missouri are much more likely to commit suicide (18 and 22, respectively) than their female counterparts (4.9 and 5.6, respectively). Most areas of St. Louis County have suicide rates well-below the state average for both males and females, with one notable exception: North County males have a very high suicide rate of 23.

Table 16: Selected Mental Indicators, St. Louis County

Indicator	Mid	North	South	West	St. Louis County	Missouri
Psychoses Hospital Admission Rate	916	1248	666	429	796	721
Ages 0-17	775	854	395	258	496	530
Ages 18-44	1183	1750	1128	673	1206	952
Ages 45-64	886	1214	643	334	737	747
Ages 65+	479	673	400	550	523	390
Senility and Organic Mental Disorders, Hospital Admission Rate	10	14	12	8.2	11	16
Ages 65+	47	83	68	57	64	98
Major Depressive Disorder, Hospital Admission Rate	267	336	238	160	246	244
Ages 0-17	212	173	129	78	131	148
Ages 18-64	290	397	299	180	290	295
Ages 65+	215	298	215	255	245	177
Bipolar Disorder, Hospital Admission Rate	353	485	294	187	324	302
Ages 0-17	472	582	241	167	319	359
Ages 18-64	385	538	375	203	373	324
Ages 65+	121	118	99	155	122	97
Schizophrenia, Hospital Admission Rate	257	363	113	62	191	150
Ages 18-64	340	513	180	87	278	219
Ages 65+	72	148	46	58	81	69
Anxiety, Hospital Admission Rate	214	324	195	115	208	231
Ages 0-17	356	431	138	79	209	193
Ages 18-44	249	407	356	198	305	326
Ages 45-64	162	236	155	89	156	200
Ages 65+	117	152	94	85	112	101
Senility and Organic Mental Disorders, ED Rate	18	24	11	10	16	18
Major Depressive Disorder, ED Rate	81	112	38	45	68	73
Bipolar Disorder, ED Rate	97	122	56	43	77	65
Schizophrenia, ED Rate	83	105	24	15	54	55
Anxiety Disorder, ED Rate	673	851	511	348	583	808

All Rates are per 100,000 population unless otherwise stated

Source: Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2008-2009

SUBSTANCE USE

FINDINGS: Problem alcohol use and alcohol-related health service varies in certain portions of St. Louis County. Several regions experience elevated hospital admission rates. ED discharge data show regional utilization variations in the burden of alcohol and drug-related conditions.

- The prevalence of chronic drinking is low compared to the state prevalence, with highest chronic drinking in Mid County.
- Binge drinking is slightly elevated in Mid and South County, especially among adults aged 18-64, and among seniors in North and West County.
- Substance abuse hospital admissions rates are slightly lower than the state rates; however certain demographics – e.g. seniors in West County – have elevated hospital admissions rates.
- Hospital admission and ED rates for alcohol-related psychoses and acute alcohol-related mental disorders vary among study regions, with slightly high rates of ED admissions in Mid and North County and elevated hospital admissions rates in West County for acute alcohol-related mental disorders.
- Alcohol-related mortality rates are low compared with statewide rates.

See appendix 10 for Data Sources

Substance abuse is a significant public health issue. Based on data collected by the 2009 National Survey on Drug Use and Health, 8.7% of Americans age 12 or older reported current (i.e., within the past month) use of illicit drugs.³⁴ Marijuana is the most commonly used drug by 77% of current illicit drug users, and the only drug used by 58% of them. Almost 3.0% of Americans reported the nonmedical use of prescription-type psychotherapeutics (this includes the nonmedical use of pain relievers, tranquilizers, stimulants, or sedatives) within the past 30 days.

Prevalence of problem drinking

Problem drinking among St. Louis County adults is examined by measuring the prevalence of chronic heavy drinking and CDC-defined binge drinking among adults in each study region (see Appendix 8 List of Definitions). The prevalence of chronic drinking among St. Louis County residents is low: only 0.9% of St. Louis County survey respondents reported chronic heavy drinking in the past month, compared to 4.8% of Missourians. All study regions also have low chronic drinking rates, ranging from a low of 0.5% in North County to a high of 1.9% in Mid County. Among adults aged 18-64, the chronic drinking rate is highest in Mid County (1.7%), which is much lower than the state rate of 5.3%. Among seniors (aged 65+), West County has a high rate of chronic drinking of 3.2%, slightly higher than the state rate of 2.6%.

The prevalence of binge drinking in St. Louis County is lowest among adults in North County (9.1%) and highest in Mid and South County (both 16%). Surprisingly, certain age demographics are more likely to report binge drinking in each region. Mid and South County have the highest percentages of adults aged 18-64 who are more likely to report binge drinking

34 Substance Abuse and Mental Health Services Administration. (2010). Results from the 2009 National Survey on Drug Use and Health: Volume I. Summary of National Findings. (Office of Applied Studies, NSDUH Series H-38A, HHS Publication no. SMA 1—4586Findings). Rockville, MD.

(19% and 20% respectively) of the four study regions; meanwhile, North and West County have the highest rates of binge drinking among seniors (65+), with 5.7% and 6.4%, respectively. Among men and women, Mid and West County have the highest rates of women reporting binge drinking (11% and 10%, respectively), while Mid and South County have the highest rates of male binge drinking (22% and 24%, respectively). North County has very low rates of binge drinking, especially among female residents (3.7%) and among those aged 18-64 (9.8%).

Illicit Drug-use

Residents were asked about the ease with which they might be able to procure a variety of illicit drugs, including marijuana, illegally-derived prescription pain relievers, cocaine/crack, and/or heroin. A majority of respondents feel that it would be fairly easy to very easy (65%) to acquire marijuana, while a minority feel similarly about procuring prescription pain killers (48%), cocaine/crack (37%), and/or heroin (30%). Responses varied only slightly by gender – females feel slightly more confident about their ability to procure all queried forms of illegal drugs than males. Age demographics also vary slightly; seniors (65+) are much more confident in their ability to procure crack / cocaine (46%) and/or heroin (39%) than their younger cohorts, especially those aged 18-34 (cocaine: 30%; heroin: 29%). There are some slight differences between Black and White respondents: Black residents feel more confident about their ability to procure crack/cocaine (43%) than White residents (35%), while White respondents are more likely to be confident about their ability to procure prescription drugs (49%) than Black respondents (44%).

Residents of North County are also more confident in their ability to acquire marijuana (72%), cocaine/crack (44%), and heroin (34%) than residents of the other study regions; South County residents are slightly more confident than North and West County residents in their ability to procure illicit prescription drugs (52%).

Substance Abuse Hospital Admissions and ED Visits

For this needs assessment, a number of indicators were identified related to the management of substance abuse problems, including:

- Hospital admission rates for substance abuse, acute alcohol-related mental disorders, alcohol-related psychoses, acute drug-related mental disorders, and drug-related psychoses by age groups (i.e., 18-64, and 65 and above); and
- Emergency department admissions for acute alcohol-related mental disorders, alcohol-related psychoses, acute drug-related mental disorders, and drug-related psychoses by age groups (i.e., 18-64, and 65 and above).

Examining the data for the management of substance abuse problems within the context of the prevalence patterns for the counties highlights unusual patterns of service use. There are no consistent patterns linking prevalence rates to hospital admission and ED rates (see Table 18).

Although the substance abuse hospital admission rate in St. Louis County (134 per 100,000 population) is slightly lower than the state rate (155), it is comparatively high in North County (162). The lowest substance abuse hospital admissions rate is in West County, with 115. Contrarily, West County has very high rates of hospital admissions for substance abuse among

seniors, with 101– the state rate is 74. For all adults aged 18-64, the highest hospital admissions rates are in North County (182), which is below the state rate (230); the lowest rates for this age demographic are in West County (118).

When looking at hospital and ED admissions for acute alcohol-related mental disorders and alcohol-related psychoses, there is no clear trend in how alcohol-related hospital admission rates (acute alcohol-related mental disorders, alcohol-related psychoses) in St. Louis County compare to state rates for these conditions. The acute alcohol-related mental disorder ED rate is highest in Mid County (57 per 100,000 population) and North County (64) and is much higher than the state rate (29), while the highest alcohol-related psychoses ED rate in South County (11) is on par with the state rate (15) (see Table 18). The hospital admissions rates for acute alcohol-related mental disorders among the four study regions are all higher than the state rate of 21. They range from a high of 36 in West County to a low of 22 in South County. Comparatively, the hospital admissions rate for alcohol-related psychoses generally approximate the state rate of 51 – only North County is slightly higher, with 62.

Among specific age demographics, no hospital admissions rate stands out as being excessively higher than or lower than the state rates. The admissions rate for acute alcohol-related mental disorders is slightly higher than the state rate (32 per 100,000 population) in West County (41) among those aged 18-64; all other study regions have similar rates to the state. Admissions rate for alcohol-related psychoses is low in West County (47) among 18-64 year-olds and very low among those 65+ in South County (7.4) compared with the statewide rates (77 for 18-64 year-olds; 20 for 65+); again, all other regions are approximate to the state rates.

For drug-related psychoses and acute drug-related mental disorders in St. Louis County, ED rates are lower than state rates (acute drug-related mental disorders: 221 per 100,000 population; drug-related psychoses: 8.0) in all study regions except North County (which has a drug-related psychoses admission rate of 10). The hospital admissions rates for drug-related psychoses and acute drug-related mental disorders are slightly higher in North County (44 and 26, respectively) than it is statewide (27 and 24, respectively). All other study regions have rates lower than or approximate to the state rates for both drug-related hospital admissions.

Mortality

The alcohol-related mortality rate in St. Louis County (4.0 deaths per 100,000 population) is slightly lower than the state rate (6.0). Again, the study areas all fall within range of each other, with a low of 2.4 in South County, to a high of 4.7 in North County. The alcohol-related mortality rate of females in West County exceeded that of other regions (8.3), although it fell below the state rate (8.9). Similarly, mortality rates associated with alcohol liver disease are all reasonably equal, with a high in North County of 3.9 and a low of 1.4 in South County; the state mortality rate is 3.1.

St. Louis County Community Health Needs Assessment

Table 17: Selected Substance Abuse Indicators, St. Louis County

Indicator	Mid	North	South	West	St. Louis County	Missouri
% Chronic Heavy Drinking - Past Month	1.9	0.5	0.7	0.6	0.9	4.8
Ages 18-64	1.7	0.3	0.6	0.1	0.6	5.3
Ages 65+	2.6	1.3	1.0	3.2	2.0	2.6
% Binge Drinking - Past Month	16	9.1	16	11	13	NA
Ages 18-64	19	9.8	20	12	15	NA
Ages 65+	1.5	5.7	2.5	6.4	4.0	NA
Females	11	3.7	8.1	10	8.1	NA
Males	22	15	24	12	18	NA
Substance Abuse, Hospital Admission Rate	134	162	124	115	134	155
Ages 18-64	148	182	146	118	148	230
Ages 65+	74	73	48	101	73	74
Acute Alcohol-Related Mental Disorders, Hospital Admission Rate	30	29	22	36	30	21
Ages 18-64	34	34	28	41	34	32
Ages 65+	13	11	3.7	12	10	7.0
Alcohol-Related Psychoses, Hospital Admission Rate	51	62	58	46	54	51
Ages 18-64	59	71	72	47	62	77
Ages 65+	16	22	7.4	39	21	20
Acute Drug-Related Mental Disorders, Hospital Admission Rate	21	26	14	18	20	24
Ages 18-64	24	31	17	21	23	36
Ages 65+	5.9	2.7	4.9	1.5	3.8	4.0
Drug-Related Psychoses, Hospital Admission Rate	32	44	30	15	30	27
Ages 18-64	30	46	29	8.9	28	35
Ages 65+	38	38	32	48	39	33
Acute Alcohol-Related Mental Disorders, ED Rate	45	54	11	9.1	28.4	29
Alcohol-Related Psychoses, ED Rate	10	9.0	11	7.0	9.1	15
Acute Drug-Related Mental Disorders, ED Rate	174	155	146	94	139	221
Drug-Related Psychoses, ED Rate	6.9	10	4.9	2.8	6.1	8.0

All Rates are per 100,000 population unless otherwise stated

Source: CCPH/St. Louis County Household Survey, 2011

US Behavioral Risk Factor Surveillance System, 2009 (Missouri State)

Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2008-2009

YOUTH HEALTH

FINDINGS: Youth health status in St. Louis County is generally similar to that of the state. There are large differences in sub-county regions for several health indicators including teen pregnancy and use of inpatient and ED hospital care.

- Among St. Louis County youth, the prevalence of overweight/obesity is highest in North and West County, while the prevalence of asthma is highest in Mid County.
- Teen birth rates are much higher in North County (10.0).
- Mid and North County have very high ED visit rates and hospital admission rates for asthma.
- Youth in Mid and North County have high hospital admission rates for mental health disorders.

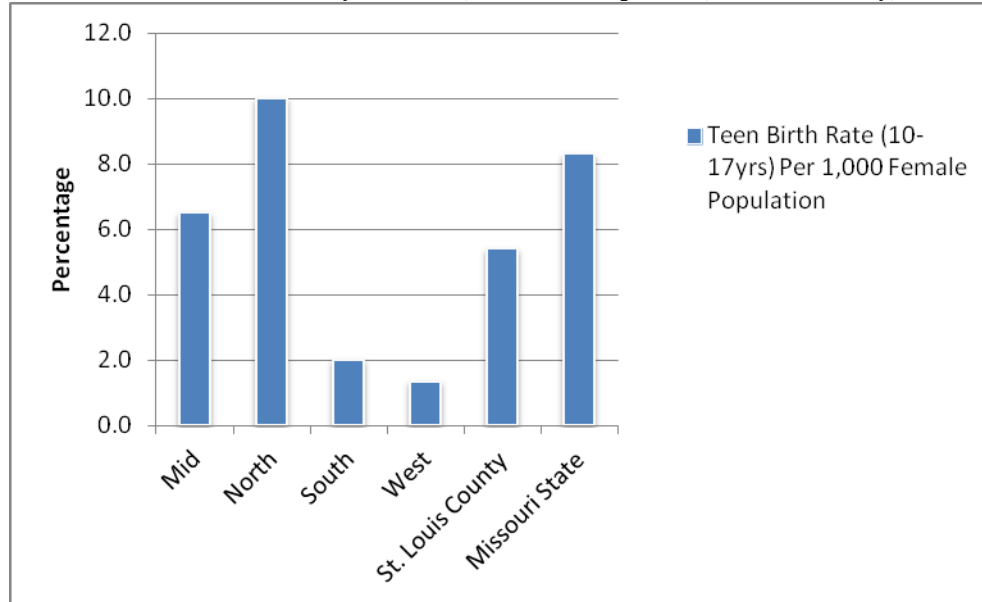
See appendix 10 for Data Sources

Prevalence of Health Conditions and Unhealthy Behaviors among Youth

In this section of the report, we discuss the prevalence of a variety of health conditions among youth aged 0-17 in St. Louis County. These conditions range from asthma to mental illness and illegal drug use.

- **Asthma:** Asthma is a prevalent chronic illness of the lungs and results in activity and functional limitations and increased health care utilization. Asthma prevalence among St. Louis County youth is 13% compared to the state prevalence of 15%. The percent of parents reporting that a child has been diagnosed with asthma ranged from 12% in North County to 15% in Mid County.
- **Obesity:** Approximately 3.6% of St. Louis County children and youth ages 0-17 are obese or overweight. North and West County have the highest prevalence of obesity/overweight among children and youth (4.5% and 4.4% respectively). The prevalence of obesity/overweight in other study regions are 1.7% in Mid County and 2.8% in South County. Parents report this data, and no comparable state data is available.
- **Physical Activity:** St. Louis County youth are less likely than state youth to engage in at least 60 minutes of physical activity on 5 of the last 7 days (45% vs. 52%.) Data by region is not available.

Chart 13: Teen Birth Rate (10-17 years) Per 1,000 Female Population, St. Louis County, 2007-2009



Source: Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2007-2009

- **Reproductive Health:** The teen birth rate (births to females age 10-17) for St. Louis County (5.3 per 1,000 female population) is lower than the state rate (8.3), although the rates in Mid County (6.5) and North County (10) are above the state and county rate. The high rate of teen pregnancy in North County requires follow up study.
- **Tobacco Use:** Data from the Youth Risk Behavior Surveillance Study indicate that 12% of high school youth are current smokers, which is lower than the state rate of 19%. Fewer St Louis County youth are smokeless tobacco users (5.3%) compared to state youth (9.3 %.). Data by region is not available.
- **Developmental Delays or Learning Disabilities:** Parents in St. Louis County report that 11% of children have developmental delays or learning disabilities. There is no comparable state data. Differences are seen among the regions with 7.2% in North County, 10% in West County and 14% in both Mid and South County.

Hospital Admissions/ED Visits

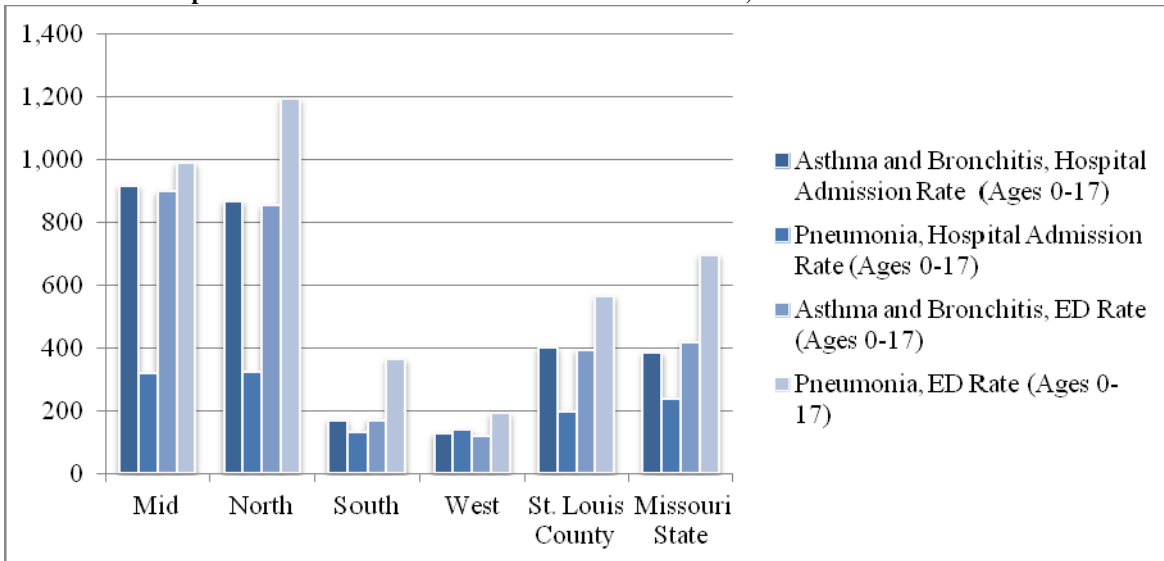
Hospital admissions and visits to the ED for non-urgent conditions that could be managed by primary care providers affect cost and quality of care and are missed opportunities for providing preventive and essential health care.³⁵

- Asthma:** Generally, asthma can be effectively managed on an outpatient basis. However, asthma and bronchitis-related hospital admission rates among youth are markedly higher in some regions. In St. Louis County, hospital admission rates (402 per 100,000 population) are somewhat greater than state rate (385). Mid and North County rates (919 and 869 respectively) are well above state and county rates. South and West County rates are well below state and county rates (171 and 127 respectively).

A similar pattern is seen with youth ED visit rates for asthma and bronchitis-related conditions. The county rate is slightly below the state rate (395 vs. 420 per 100,000 population respectively), but both Mid and North County have markedly higher rates (901 and 855, respectively.)

- Pneumonia:** The youth hospitalization rate for pneumonia in St. Louis County (199 per 100,000 population) is below the state rate (240), with much higher youth hospitalization rates in Mid County (321) and North County (323). The ED visit rate for pneumonia by youth in St. Louis County (566) is well below the state rate (698). Again, North County has the highest ED visit rate among the study regions (1,196), double the state rate. Mid County is also higher at 990. Both South and West County (365 and 192 respectively) are well below the state and county rates.

Chart 14: ED/Hospital Visit Rates for Selected Youth Health Conditions, 2008-2009



All Rates are per 100,000 population unless otherwise stated
 Source: Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2008-2009

³⁵ Phelps, Taylor, et al. Factors Associated With Emergency Department Utilization for Non-urgent Pediatric Problems, Archives of Family Medicine, Vol. 9, No. 10, November 2000., <http://archfami.ama-assn.org/cgi/content/full/9/10/1086>

- Mental Disorders/Substance Abuse:** Mental disorders with possible onset in childhood include anxiety disorders, attention deficit and disruptive behavior disorders, autism and other pervasive developmental disorders, eating disorders, mood disorders, schizophrenia, and tic disorders.³⁶

Psychosis is the most frequent diagnosis among youth for mental health-related hospital admissions in St. Louis County as well as in the state. The youth hospital admission rate in St. Louis County (496 per 100,000 population) is slightly below the state rate (530). However, youth in North County exhibit a rate (854) that is much higher than in the county or state. Mid County also has a rate higher than the county or state rates (775). These two regions also exhibit a higher rate of bipolar hospital admissions (472 in Mid County and 582 in North County) than their St. Louis County (319) and state peers (359).

Major depressive disorder hospital admission rates show a similar pattern. St. Louis County rate (131 per 100,000 population) is below the state rate (148). However, the regions show wide variation with the highest rate in Mid County (212) followed by North County (173) then South County (129) and West County (78).

Table 18: Youth Health Indicators

	Mid	North	South	West	St. Louis County	Missouri
ACSC, ED Rate - Overall PQI (Ages 0-17)	5,285	6,808	1,349	679	2,813	2,211
ACSC, Hospital Admission Rate - Overall PQI (Ages 0-17)	1,394	1,469	426	329	743	484
Asthma and Bronchitis, Hospital Admission Rate (Ages 0-17)	919	869	171	127	402	385
Pneumonia, Hospital Admission Rate (Ages 0-17)	321	323	131	138	199	240
Psychoses Hospital Admission Rate (Ages 0-17)	775	854	395	258	496	530
Major Depressive Disorder, Hospital Admission Rate (Ages 0-17)	212	173	129	78	131	148
Bipolar Disorder, Hospital Admission Rate (Ages 0-17)	472	582	241	167	319	359
Asthma and Bronchitis, ED Rate (Ages 0-17)	901	855	171	120	395	420
Pneumonia, ED Rate (Ages 0-17)	990	1,196	365	192	566	698

All Rates are per 100,000 population unless otherwise stated

Source: Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2008-2009

³⁶ U.S. Government Printing Office, *Mental Health: A Report of the Surgeon General, Chapter 3: Children and Mental Health, 1999.* <http://www.surgeongeneral.gov/library/mentalhealth/chapter3/sec6.html>

ORAL HEALTH

Nationally, research has found that Americans suffer from lack of access to dental care, especially among underserved and vulnerable populations. A recent IOM Report on oral health in America reports that, while access to dental care has been improving over the past decade, disparities in oral health have widened.³⁷ Ethnic/racial minorities are much more likely to suffer from dental caries, a chronic condition that is largely preventable, than do their White counterparts.³⁸ Socioeconomic status, as measured by poverty status, is also highly correlated with good oral health;³⁹ across all age groups, lower-income individuals are more likely to have had dental caries and are more than twice as likely to have had *untreated* dental caries.⁴⁰ Research has also illustrated the importance of maintaining good oral health. Currently, research has established links between oral health and respiratory disease,⁴¹ cardiovascular disease,⁴² and diabetes;⁴³ there is also evidence that non-treatment of dental caries is associated with inappropriate use of the emergency department.⁴⁴

St. Louis County residents reported positive rates of dental visits relative to state rates; 15% of county residents reported having NOT visited a dentist within the past two years, compared with 26% of Missouri residents. Within the county, North County has the highest proportion of residents who have not been to the dentist in the past year with 22%, followed by Mid County with 15%.

For those in St. Louis County who have not been to a dentist within the past year, cost is cited as the primary reason for a lack of a visit. When asked if there was a time when dental care was needed in the past year, 19% of county residents responded affirmatively. Most respondents who needed care but did not receive it come from Mid and North County, and 26% of respondents in those regions reported that cost was a barrier to receiving needed care.

³⁷ (IOM) Institute of Medicine and (NRC) National Research Council. 2011. *Improving access to oral health care for vulnerable and underserved populations*. Washington, DC: The National Academies Press.

³⁸ HHS. 2000b. *Oral health in America: A report of the surgeon general*. Rockville, MD: National Institute of Dental and Craniofacial Research.

³⁹ Vargas, C., J. Crall, and D. Schneider. 1998. Sociodemographic distribution of pediatric dental caries: NHANES III, 1988-1994. *Journal of the American Dental Association* 129(9):1229.

⁴⁰ Dye, B. A., S. Tan, V. Smith, B. G. Lewis, L. K. Barker, G. Thornton-Evans, P. I. Eke, E. D. Beltran-Aguilar, A. M. Horowitz, and L. Chien-Hsun. 2007. Trends in oral health status: United States, 1988-1994 and 1999-2004. Hyattsville, MD: National Center for Health Statistics

⁴¹ Scannapieco, F. A., and A. W. Ho. 2001. Potential associations between chronic respiratory disease and periodontal disease: Analysis of National Health and Nutrition Examination Survey III. *Journal of Periodontology* 72(1):50-56.

⁴² Blaizot, A., J. N. Vergnes, S. Nuwwareh, J. Amar, and M. Sixou. 2009. Periodontal diseases and cardiovascular events: Meta-analysis of observational studies. *International Dental Journal* 59(4):197-209.

⁴³ Chávarry, N., M. V. Vettore, C. Sansone, and A. Sheiham. 2009. The relationship between diabetes mellitus and destructive periodontal disease: A meta-analysis. *Oral Health & Preventive Dentistry* 7(2):107-127.

⁴⁴ Cohen, L. A., A. J. Bonito, C. Eicheldinger, R. J. Manski, M. D. Macek, R. R. Edwards, and N. Khanna. 2011. Comparison of patient visits to emergency departments, physician offices, and dental offices for dental problems and injuries. *Journal of Public Health Dentistry* 71(1):13-22.

UNINTENTIONAL INJURY

FINDINGS: Unintentional injury rates are favorable in the study area. There are some exceptions among males in Mid and North County.

- Seatbelt use among adults is favorable in most of the four study regions within St. Louis County, ranging from 84% in Mid County to 91% in West County. Countywide males show a lower use of seatbelts (81%) than females (91%).
- Rates of injury-related mortality from all accidents and from motor-vehicle accidents are the least favorable in North County.

See appendix 10 for Data Sources

Unintentional injuries (accidents) can be a significant cause of hospital admissions as well as deaths in a community. They are the leading cause of death among individuals under the age of 35. Motor vehicle crashes account for approximately half of all unintentional injury deaths; falls, poisonings, suffocations and drownings account for a substantial portion of the remainder. Injury mortality is particularly common among the most vulnerable sectors of a community – its children and elderly. Injuries cause more than two-fifths of all deaths to children between the ages of one and four. Four times as many deaths occur due to birth defects, which is the second leading cause of death for this age group. Injuries also cause nearly four out of five deaths to 15-24 year olds. In addition, while the proportion of injury-related deaths decreases after the age of 44, the rate of mortality from injuries is actually higher among older persons than among younger persons. Indeed, the second highest rate of motor vehicle-related deaths occurs among adults age 75+. ⁴⁵

Seatbelt use has been demonstrated to be an effective means of motor-vehicle related-injury prevention. Nationally, each percentage-point increase in safety belt use represents 2.8 million people, 250 more lives saved and 6,400 serious injuries prevented annually.⁴⁶ In 2011, 87% of adults in St. Louis County reported wearing their seat belts when driving an automobile, lower than the Healthy People 2010 goal of 92%. Females in St. Louis County are more likely than males to always wear a seat belt (91% vs. 81%, respectively). Among the four study regions, West County has the highest rate of adults who always wear a seat belt (91%), followed by North and South County (both 85%), and Mid County (84%).

The total accident mortality rate among males and females is highest in North County. The male accident mortality rate (43 per 100,000 population) in this area is 22% higher than the county rate (35) and 7.5% higher than the state rate (40). Likewise, the female accident mortality rate exceeds both the county and state rates by 17% and 8.0%, respectively. The rates in South and West County, for male and female, are well below those of the county and state. The accident mortality rate for males in Mid County exceeds the St. Louis County rate but remains 10% below the state rate.

While the motor vehicle mortality rate is highest in North County, it still remains well below the state rate. Motor vehicle mortality rate among males in North County exceeds the county rate by 41% but is still 25% lower than the state rate. The data shows the same finding for females. The highest rate among

⁴⁵ U.S. Department of Health and Human Services. *Healthy People 2010: Understanding and Improving Health*. 2nd ed. Washington, DC: U.S. Government Printing Office, November 2000.

⁴⁶ National Highway Traffic Safety Administration, FY2003 Performance Plan, 2002, www.nhtsa.dot.gov

the four study regions is in North County, but again the rate is lower than the state rate (see Table 20). Overall, the motor vehicle mortality rates in St. Louis County are well below the state rate.

Table 19: Selected Accident and Injury Indicators, St. Louis County

Indicator	Mid	North	South	West	St. Louis County	Missouri
% Always Use Seatbelts	84	85	85	91	87	76
Total Accidents, Mortality Rate	28	34	26	26	29	32
Male	36	43	30	30	35	40
Female	21	27	22	22	23	25
Motor Vehicle Accidents, Mortality Rate	6.9	12	7.6	5.3	8.2	16
Male	11	17	12	6.7	12	23
Female	3.1	7.0	3.8	3.9	4.6	10

All Rates are per 100,000 population unless otherwise stated

Source: CCPH/St. Louis County Household Survey, 2011

Source: Missouri Department of Health and Senior Services, Bureau of Health Informatics, 2007-2009

INFECTIOUS DISEASE

Findings: Incidence of infectious and sexually transmitted diseases (STDs) is generally low in St. Louis County, but rates vary considerably by study region. Vaccination rates for influenza are also generally good, but again, rates vary slightly by study region.

- Mid and North County have considerably higher rates of STDs than other study regions of the county.
- St. Louis County's rate of influenza vaccinations is better than the state and national percentages overall, and by all age and gender demographics, including the study regions with the lowest rates (Mid and North County).
- There are notable differences in influenza vaccination rates by race.

See appendix 10 for Data Sources

Hepatitis C

Hepatitis C is a contagious liver disease that results from infection with the Hepatitis C virus (HCV). It is most commonly spread when blood from a person infected with the Hepatitis C virus enters the body of someone who is not infected. Today, most people become infected with Hepatitis C by sharing needles or other equipment to inject drugs. Before widespread screening of the blood supply began in 1992, Hepatitis C was also commonly spread through blood transfusions and organ transplants.

An estimated 3.2 million people in the United States have chronic Hepatitis C. Most are unaware of their infection. Each year, about 17,000 Americans become infected with Hepatitis C. Chronic Hepatitis C is a serious disease that can result in long-term health problems, including liver damage, liver failure, and liver cancer. Approximately 12,000 people die every year from Hepatitis C-related liver disease⁴⁷. There is currently no vaccine to prevent Hepatitis C. HCV infection was added to the list of nationally notifiable conditions in January 2003. Missouri has a chronic Hepatitis C case reported rate of 82 persons per 100,000 population. This rate is slightly lower in St. Louis County than the state (56).

HIV and Sexually Transmitted Diseases

HIV is the human immunodeficiency virus. It is the virus that can lead to acquired immune deficiency syndrome, or AIDS. AIDS is the late stage of HIV infection, when a person's immune system is severely damaged and has difficulty fighting diseases and certain cancers. Before the development of certain medications, people with HIV could progress to AIDS in just a few years. Currently, people can live much longer - even decades - with HIV before they develop AIDS. This is because of combinations of medications that were introduced in the mid 1990s.⁴⁸

The hospital admissions rate for HIV-positive diagnoses for 2008-2009 in St. Louis County is 11 per 100,000 population. Hospital admissions rate for HIV-infections is far and away the highest in North County, with 27; the next closest is in Mid County, with a rate of 13. Many whose HIV infection has progressed to AIDS are now treated on an ongoing basis, and mortality rates are extremely low. Illustrative of this trend are low mortality rates associated with HIV-infection despite high incidence rates, such as in Mid and North County (4 deaths per 100,000 population).

⁴⁷ CDC Hepatitis C General Fact sheet, 2008

⁴⁸ USDHHS, CDC, <http://www.cdc.gov/hiv/default.htm> accessed January 4, 2011

Missouri tracks two other sexually transmitted diseases, gonorrhea and chlamydia, with incidence rates in St. Louis County of 150 and 501 cases per 100,000 population respectively. The rate of new cases of gonorrhea has continued to fall nationally in recent years, to a 2009 national rate of 111 cases -- the lowest rate since the CDC started tracking the disease in 1941.⁴⁹ Chart 15 illustrates that, as with HIV and AIDS, Mid and North County have markedly higher incidence rates of these diseases compared to South and West County.

Influenza

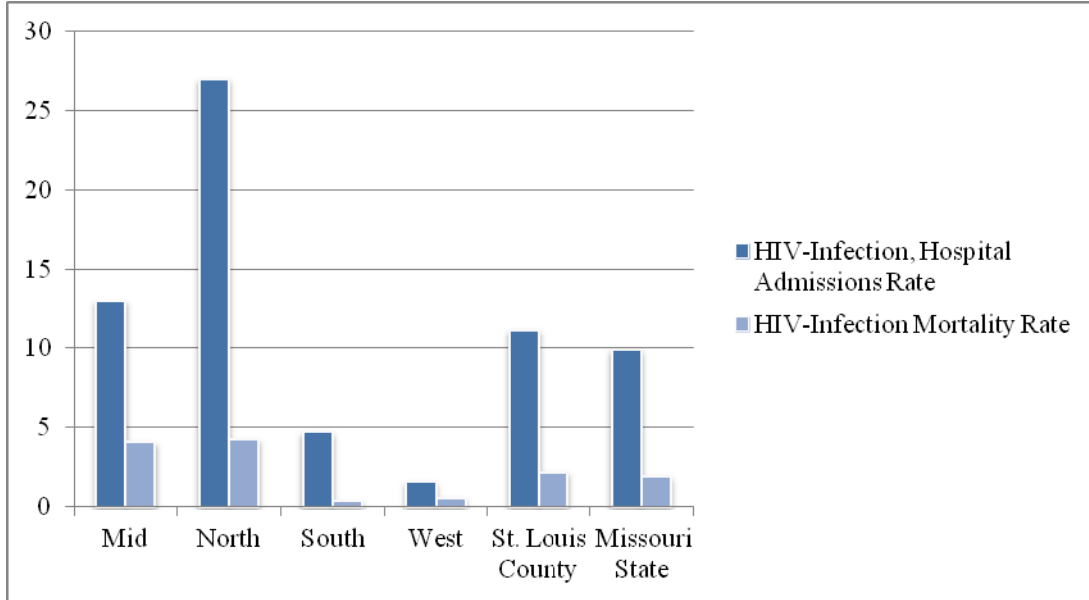
Influenza (flu) can be a serious disease, particularly for groups who are at higher risk, including older people, young children, people with chronic lung disease, diabetes, heart disease, and some other chronic conditions. Urging these at-risk groups to get their flu vaccine is the best way for communities to prepare for the coming flu season. Health care workers are also a priority for the vaccine. As supplies allow, the at risk population is encouraged to get vaccinated. In the household survey, 48% of all respondents had received the vaccine in the past year. This is slightly better than the national estimate of 41% for the 2009-2010 flu season.⁵⁰ Some variation in coverage is observed, with the lowest rates (45%) in North County, and the highest rate in West County (53%).

There are notable differences by race, however. Only 33% of Black residents reported having a flu shot in the past year, compared with 52% of White residents.

⁴⁹ USA Today Nov. 23, 2010 “Gonorrhea rate at lowest level since 1941”

⁵⁰ USDHHS, CDC online at http://www.cdc.gov/flu/professionals/vaccination/coverage_0910estimates.htm

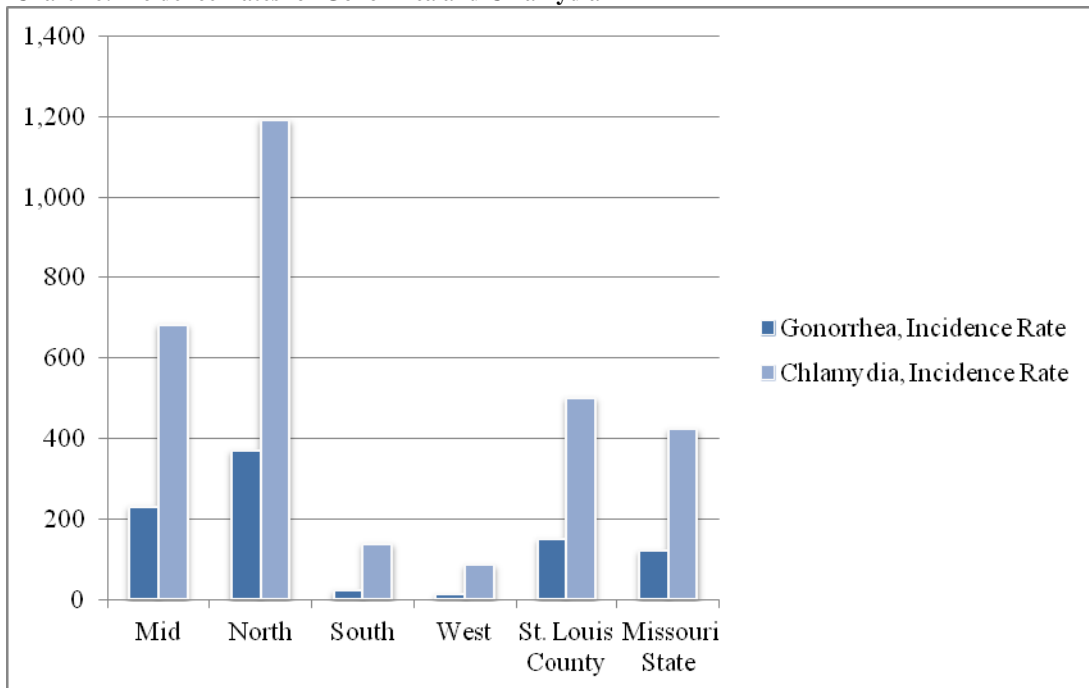
Chart 15: Hospital Admissions and Mortality Rates for HIV-Infection, St. Louis County



All Rates are per 100,000 population unless otherwise stated

Source: Missouri Department of Health and Senior Services, Bureau of Health Informatics, Vital Records, 2007-2009
 Missouri Department of Health and Senior Services, Bureau of Health Informatics, Patient Abstract System, 2008-2009

Chart 16: Incidence Rates for Gonorrhea and Chlamydia



All Rates are per 100,000 population unless otherwise stated

Source: Missouri Department of Health and Senior Services, Section of Disease Control and Environmental Epidemiology, 2007-2009

COMMUNITY EMERGENCY PREPAREDNESS

FINDINGS: The level of resident emergency preparations and behavior intentions in the event of a large-scale community emergency vary among the regions of St. Louis County and among sub-groups of its population. Therefore, education efforts and emergency instruction dissemination should reflect these differences.

- In St. Louis County, 58% of households have a family emergency plan containing emergency information and contact numbers.
- Seventy one percent (71%) of residents also have a three-day supply of non-perishable food, water, medications, batteries and other essential items.
- In the event of an emergency, the majority of St. Louis County residents (42%) anticipate that they would seek information from authorities through radio, followed by television and internet.

See appendix 10 for Data Sources

St. Louis County's public health system must be able to respond to a wide range of incidents, including natural disasters, bioterrorism, and the threat of communicable diseases (e.g., pandemic flu). The public has a critical role in emergency preparedness, yet little regional data of public readiness exists to inform planning.

Preparedness

Recent disasters highlight the need for individual responsibility, local coordination, and continuity plans to ensure the ability of individuals and communities to respond to and recover from major events. One of the lessons learned from recent large, catastrophic events is that they may take a major toll on basic services, and their consequences can have lasting effects to people and property.

Preparedness consists of measures that enable individuals, households, organizations, and communities to respond effectively and recover more quickly when disasters strike and include ensuring that the resources necessary for responding effectively in the event of a disaster are in place and can be effectively utilized. In the event of a disaster, needed relief efforts may not be immediately available, and individuals may need to be self-sufficient for a period of time. Therefore, it is important that individuals take steps to prepare for the event of emergencies and large-scale disasters and have tools and plans in place in the event of a disaster. Household preparation for disasters includes creating and reviewing a household emergency and communication plan, preparing an emergency supply kit, and becoming informed about the different types of emergencies that could occur and their appropriate responses.⁵¹

⁵¹ Ready Campaign, U.S. Department of Homeland Security, Washington, DC 20528. <http://www.ready.gov>

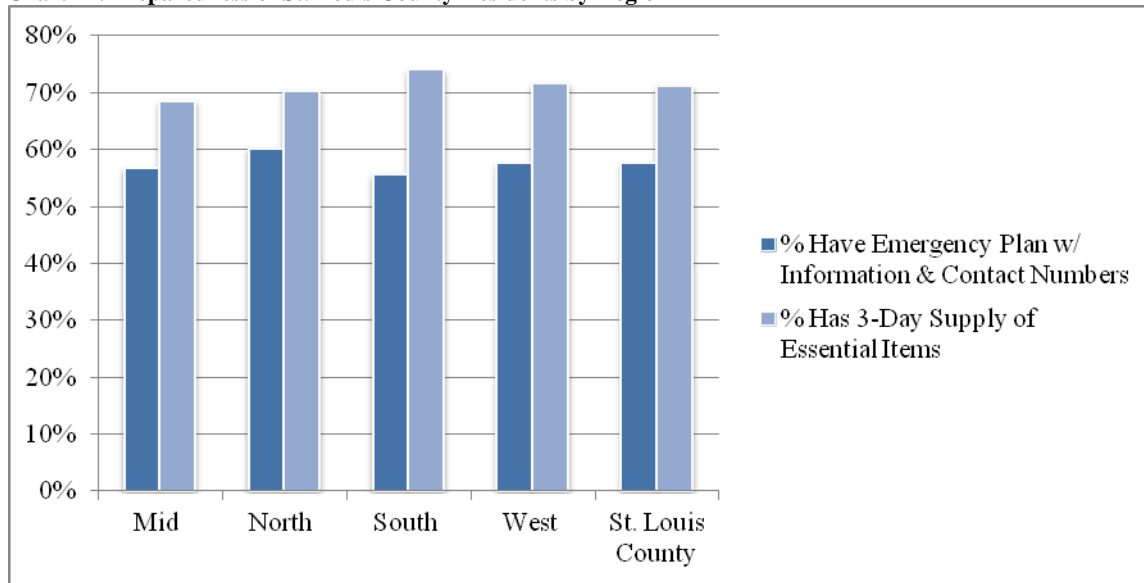
With respect to household preparedness, survey respondents were asked several questions. The results are presented here.

- Does your household have a family emergency plan with emergency information and contact numbers?** In St. Louis County, 58% of households have a family emergency plan containing emergency information and contact numbers, while 49% do not have a plan or do not know if their household has a plan. The percentage of households with an emergency plan is similar throughout the St. Louis County study regions, ranging from 56% in South County to 60% in North County.

Younger-headed households reported that they were slightly less likely to have made an emergency plan. While 56% of adults 18-34 years reported that their household had a plan, 65% of adults age 65 and older reported such a plan.

- Does your household have a three-day supply of non-perishable food, water, medications, batteries and other essential items for all those in the household?** In St. Louis County, 71% of households reported they have assembled a disaster supply kit containing at least a three-day supply of water, food, equipment and medications, while 29% have not assembled supplies to sustain their families or were not sure if their household had done so. The percentage of households with a supply kit is similar throughout the four study regions, ranging from 69% in Mid County to 74% in South County.

Chart 17: Preparedness of St. Louis County Residents by Region



Source: CCPH/St. Louis County Household Survey, 2011

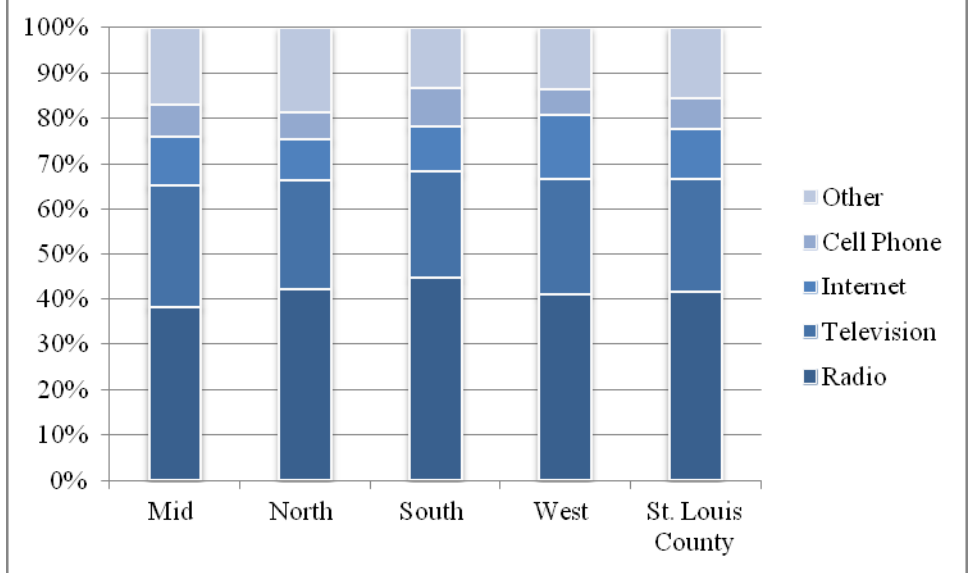
Awareness and Sources of Emergency Information and Services

Along with individual households, the community will play an important role in conveying information and providing services during disaster situations. With respect to awareness and sources of information in the community, survey respondents were asked what their main method would be of getting information from authorities in a large-scale disaster or emergency.

Approximately 42% said they would rely on radio and 25% would rely on TV for emergency information (see Chart 18). Seven percent (7%) would rely on their cell phones, 2.0% would rely on the police, fire department, or city hall, and 3% would rely on neighbors. Eleven percent (11%) said they would rely on the internet, and less than 1% would rely on print media. All four regions were fairly consistent in their responses, varying only slightly by a few percentage points.

White and Black residents do not differ significantly in their responses: more White residents stated that they would rely on radio (45%) than Black residents (31%), while more Black residents would rely on their phones and call 9-1-1 (14%) than White residents (5.9%). All other differences were minimal.

Chart 18: Likely Method of Obtaining Information during an Emergency, St. Louis County



Source: CCPH/St. Louis County Household Survey, 2011

VII. PERCEPTIONS OF THE MOST IMPORTANT HEALTH ISSUES

Stakeholder Interviews Findings and Recommendations

Methods

Input from community stakeholders was sought to determine what they perceived to be the most important health issues in the county, the causes and potential solutions to addressing health disparities, and the role the County Health Department could play in reducing those disparities.

The County Health Department provided a list of eight potential interviewees. Prior to making contact to schedule a meeting and provide interview questions, each person was contacted by the Health Department and informed of the project and reason for the interviews. Five of the eight were interviewed. Four interviews were conducted by phone, and one person chose to send his responses to the questions via email.

Those interviewed were:

- James Kimmey M.D., MPH /Missouri Foundation for Health
- Deborah Keil, PhD, PHCNS-BC /University of MO St. Louis
- Robert Fruend, Jr. *Chief Executive Officer*/St. Louis Regional Health Commission
- Mary Jo Condon, Director of Public Affairs, St. Louis Area Business Health Coalition
- Darcell Scharff PhD, Associate Professor, Associate Dean for Academic Affairs/St. Louis University School of Public Health

Major Health Issues

Chronic diseases (diabetes, heart disease and cancer) and the associated risk factors (obesity, tobacco use, lack of physical activity and poor nutrition) were seen as the primary health issues in the county. One person mentioned a growing concern with heroin use.

Health Disparities

The health disparities in the county are the result of a number of factors that are difficult to address and not often discussed or understood, according to those interviewed. Several felt that the barriers are “politics and policies,” and there has been a lack of an overall conversation with a broad group of people in the community to get at this problem. The disparities reflect long standing residential segregation, differences in education and income, environmental issues, and lack of access to health care (i.e. low Medicaid eligibility), healthy food, and other. Issues of discrimination/oppression and health literacy, as well as the social determinants of health, were also mentioned as barriers to reducing disparities.

Initiatives to Address Health Issues

A number of initiatives in the community were discussed as positive programs or collaborations to address health issues and access to health care. One person stated that she felt that her community was working very collaboratively together right now to address some of these issues.

Among the initiatives or organizations that were mentioned were the Maternal Child and Family Health Coalition, the Regional Health Commission, the Missouri Foundation for Health’s Health Literacy Initiative, Diabetes Network, Communities Putting Prevention to Work tobacco control grant, and the 24:1 Initiative. New business partnerships were considered promising in bringing that sector into the conversation about health and health disparities. These included a successful model cities project that closely connected a large employer with the community as well as the recent vote by the Business Health

Coalition to focus efforts on reducing obesity. The County Health Department's clinics that provide needed health care to underserved and uninsured groups were also cited as an important service.

Multi-sector community-wide efforts to address chronic disease risk factors or chronic disease management appear to be lacking, particularly those that address these issues at a larger policy level (e.g. tobacco tax.) In addition, securing ongoing funding for successful projects in order to sustain or spread them has been extremely difficult to achieve.

Addressing Health Disparities

A number of suggestions were made to begin to address health disparities. Missouri residents will benefit from the Affordable Care Act, as the state Medicaid program currently does not cover any non-custodial adults. Having better policies in place to impact health (e.g. tobacco tax) and reduce the social determinants of health (e.g. housing, education, poverty, etc.) would have a bigger impact than educational programs.

Most felt the need to bring multiple sectors to the table, to better inform the community about health disparities, and to find champions (the health department or political leader) to move forward policies and programs.

Recommendations for the St. Louis County Health Department from Stakeholder Interviews

1. Convene multi-sector stakeholders to collaborate around bigger picture (policy) solutions or multi-layer programmatic solutions.
2. Increase awareness by community members and policy makers about the health disparities seen in the county and the causes and potential solutions.
3. Make addressing health disparities a priority of the County Health Department.
4. Provide additional training to the public health workforce to better address health disparities.
5. Learn from other health departments (e.g. City of St. Louis Health Dept.) that have experience working on health disparities.

COMMUNITY PERCEPTIONS OF HEALTH & HEALTH SERVICE NEEDS

FINDINGS: St. Louis County residents perceive the cost of care, obesity, and access to health insurance as the three most significant health issues in their community.

- Most St. Louis County residents are not familiar with health care facilities offering affordable care in their communities.
- Most residents were able to name at least one function of the St. Louis County Department of Health.
- The cost of care and access to health insurance are widely regarded as the most significant health issues in St. Louis County.
- Many residents perceive a need for more health education in their communities, particularly concerning diet and exercise and wellness.
- Pediatric services, women’s health services (obstetrics, gynecological services), heart disease services (diagnostic services, heart surgery, cardiac rehab programs), and emergency services are generally perceived to be adequate throughout St. Louis County.

See appendix 10 for Data Sources

Knowledge of Community Resources

The 2011 Household Survey provided St. Louis County residents the opportunity for public engagement in defining the public health needs and priorities of their communities. In addition, it provided the opportunity to assess the community’s knowledge of local health resources. Residents were asked to name at least one function of their local public health department, and a large majority (90%) provided at least one answer. Of the residents knowledgeable about one or more function, 28% named the provision of health prevention programs and information as a core function of the local public health district/department. This and other frequently cited functions are listed in Table 21.

Table 20: St. Louis County Residents’ Perceptions of Local Public Health Dept. Functions, 2011

Function	%
Health prevention programs and information	28%
Dental clinics, health clinics	14%
Immunizations, flu shots	14%
Hospital	6.4%
Inspections, licensing—food service, hotels, motels, salons	4.5%
Provide community with public health alerts and emergencies	4.2%
Enforcement of public health code	3.1%
Other	15%

Source: CCPH/St. Louis County Household Survey, 2011

Residents were also asked if they could name a place in their communities that offered affordable medical care or sliding scale fees; 67% of residents could not. The respondents that were able to name a place that offered affordable medical care named St. Louis County Health Clinic most often (4.0%).

Community Health Issues

In the 2011 Household Survey, St. Louis County residents were provided with the opportunity to evaluate the public health needs and priorities of their communities and were asked to name the greatest health issue facing their communities. The overall perception of the residents throughout St. Louis County revealed that the most challenging community health problems are cost of care (32%), chronic conditions including obesity, hypertension, hypercholesterol, and/or diabetes (20%), and access to health insurance (17%) (see Table 22).

Table 21: St. Louis County Residents’ Perceptions of Most Challenging Community Health Problem, 2011

Community Health Problem	St. Louis County	Mid	North	South	West
Health care too expensive /Cannot pay for care	32%	28%	30%	28%	26%
Chronic Conditions (obesity, hypertension, hypercholesterol, diabetes)	20%	18%	21%	20%	23%
Lack of insurance	17%	18%	17%	16%	18%
Alcohol/Drug Abuse	3.0%	2.6%	4.2%	3.2%	2.1%
Elder Care	3.3%	3.1%	3.7%	3.0%	3.6%

Source: CCPH/St. Louis County Household Survey, 2011

In all of the regions, ‘Health care too expensive’ is perceived as the most challenging, followed by ‘chronic conditions’ in all but Mid County, which rates ‘lack of insurance’ and ‘chronic conditions’ equally. North, South, and West County all rank ‘lack of insurance’ third. An assortment of other issues (e.g. alcohol/drug abuse, elder care) garnered a small percentage of responses.

Women (32%) are much more likely to name ‘health care too expensive’ as a concern, compared to men (22%), while men (26%) are more likely to name chronic conditions than women (16%). Also of interest are the differences in response by age: younger adults (18-34) are much more likely to cite chronic conditions as a concern (26%), compared to concerns about cost of health care (18%) or lack of insurance (14%). In contrast, seniors (65+) are less concerned than other age demographics about chronic conditions (12%), than they are about cost of health care (25%).

Health Service Needs

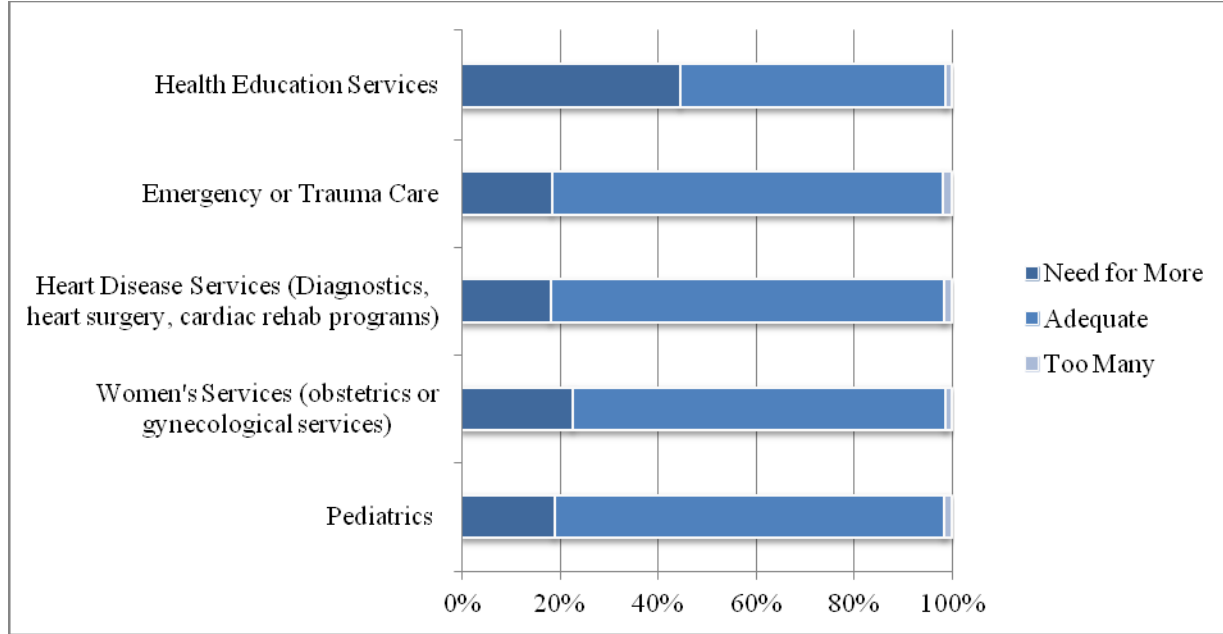
Residents were also asked in the 2011 Household Survey to assess the adequacy of a range of health services available in their communities. For a variety of health services, they were asked whether there were adequate services, whether there was a need for more services, or whether there were too many services.

The greatest need expressed is for health education services. Approximately 38% of residents cited a need for more health education services. In general, a larger percentage of younger adults expressed the need for more health education than adults age 65 years and older (55% of those ages 18-34 years vs. 48% of those 35-44, 41% of those 45-64, and 30% of those age 65 years and older). When asked to describe the kind of health education services needed in their communities, the most frequently cited health education need (of residents who identified a need for more health education services) was healthy lifestyle education programs (37%), followed by diet and exercise programs (27%), adolescent sex education (16%), diabetes management programs (13%) and women’s health programs (10%). Other identified health education needs include education services concerning sexually transmitted diseases (9.5%), heart disease screening / treatment (7.2%), and mental health programs (7.0%).

St. Louis County Community Health Needs Assessment

Other perceived health service needs are presented in Chart 19 (emergency/trauma care, heart disease services, women’s services, and pediatric services). These services are generally perceived to be adequate by at least 75% of residents. Residents of North County, however, tend to rank services in their community more poorly. Overall, 19% of St. Louis County residents think that additional pediatric services are needed, while 30% of residents of North County are more likely to identify a need for more pediatric services. In addition, while 18% of St. Louis County residents perceive a need for more emergency services, 33% of residents of North County perceive a need for such services. The same is true for women’s services (23% of St. Louis County residents vs. 34% of North County residents) and heart disease services (18% of St. Louis County residents vs. 32% of North County residents)

Chart 19: Perception of Health Service Needs by St. Louis County Residents, 2011



Source: CCPH/St. Louis County Household Survey, 2011

Table 22: Perception of “Need for More Services” by Study Region, St. Louis County, 2011

	St. Louis County	Mid	North	South	West
Health Education Services	45%	53%	53%	40%	33%
Emergency or Trauma Care	18%	20%	33%	13%	8.3%
Heart disease services	18%	24%	32%	11%	6.6%
Women's Services	23%	26%	34%	15%	15%
Pediatric Services	19%	25%	30%	14%	8.7%

Source: CCPH/St. Louis County Household Survey, 2011

VIII. FINDINGS FROM INTERVIEWS ON PRIORITY HEALTH ISSUES

The following section summarizes information obtained from stakeholders on the priority health issues identified from the assessment data presented above. Respondents were identified by the St. Louis County Health Department as knowledgeable about the specific health domains identified by the study as priority health issues. We were able to schedule and obtain interviews from most of those identified. A list of all those interviewed is included at the end of this section. While respondents were selected because of their presumed expertise on a particular priority issue, they invariably offered insights into additional priority issues.

ACCESS TO PRIMARY CARE SERVICES

Primary care is generally considered accessible throughout St. Louis County. Although primary care access in North County may be limited due to a lack of providers serving the uninsured and underinsured (including Medicaid enrollees). Most practitioners in St. Louis County accept Medicaid patients on paper, but in actuality the number willing to treat those patients is declining. This is a major barrier to access for many patients and partly explains the high rate of emergency department usage (especially by children) for North County. With no regular source of care, many patients wait for an emergency to occur rather than use the ER for primary care. Lack of access and service gaps have led to a high level of undiagnosed conditions and diagnosed conditions that are not being treated. There is also reluctance among some groups to use public health clinics.

The failure to use primary care services results, in addition to the high ER use, in a high level of hospital admissions for preventable conditions. There is also a high level of behavioral health problems in North County that are generally going unrecognized (and hence untreated) by community residents.

The high level of health problems among relatively young populations (especially in North County) can be largely attributed to the level of family disorganization, particularly among the county's minority and disadvantaged populations. "Broken homes" generate a wide range of risky behaviors and result in teen pregnancies, school dropouts, criminal/violent activities, and high rates of sexually transmitted diseases. Unhealthy lifestyles and the stress created by a chaotic and dangerous environment lead to obesity and the early onset of chronic disease.

Limited access to care is not the only issue faced by residents. Populations suffer from a lack of resources, a lack of knowledge about insurance and other resources that are available, and a lack of transportation and scheduling issues that prevent them from taking advantage of some of the services that exist. There is also a lack of use of preventive services due to low health literacy.

Given the high proportion of the population that considers itself "not well" in the area, there is recognition that problems do exist. The circumstances surrounding the lives of the affected populations in North County suggest less of a need for medical care—although that certainly is a growing problem—and more of a need for supportive services of a non-medical nature. To an extent, the observed health problems, both diagnosed and undiagnosed, are symptoms of other underlying problems that require support services, counseling and other "softer" resources.

PRIMARY CARE QUALITY AND EFFECTIVENESS

There is an apparent paradox with regard to the quality of primary care available in St. Louis County. As noted in the report, there is a more-than-adequate supply of primary care providers practicing within the county (although relatively fewer in North County). There appears to be an unusually high level of coordination and collaboration within the medical community in the county, and those who are able to obtain care are well treated. It was generally asserted that the quality of care is excellent in the county with access being considered the main issue. Issues were also raised with regard to the extent to which available resources match the needs of the target population and the degree of efficiency with which these services are rendered.

The challenges for a growing number of St. Louis County residents are: 1) getting access to providers; 2) having the resources to pay for high quality care; and 3) navigating the system once in it. A number of initiatives are reportedly in place to address the quality and settings of health services within St. Louis County, many with a community-based rather than clinical orientation. A number of organizations offer health fairs. Efforts aimed at the coordination of care across services and specialties are underway, including the St. Louis Integrated Health Network, a coalition of all safety net providers. Express Scripts is leveraging social networks in the community to increase the effectiveness of existing resources. There is also an increasing number of faith-based programs emphasizing the quality of care. A major medical records initiative is in place that would introduce efficiencies in the management of patients. There are efforts to address the lack of access for Medicaid and uninsured patients, and at least some area hospitals recognize these problems and are participating in these efforts. Ultimately, the need is for better coordination, better access, better financing, and a conscious effort to match services with the needs of the population.

CHRONIC DISEASE ISSUES AND BARRIERS TO CARE

Chronic disease levels in St. Louis County overall are about what would be expected, and there appear to be adequate resources to meet the needs of the population. Private providers and public health workers all recognize the need to address chronic disease issues. There is an increasing emphasis on community-based approaches.

The challenges are primarily on the demand side, and there are some segments of the population that do not take advantage of these resources. The populations most affected by chronic disease are the least able to take advantage of existing resources. A growing number of county residents appear to be falling through the cracks when it comes to chronic disease management. In many cases, chronic conditions are going undiagnosed, and many who are diagnosed are going untreated.

A high level of chronic disease has been identified among relatively young populations (especially in North County). In fact, the seeming contradiction between a young population and high incidence rates and hospitalization rates for certain chronic conditions are striking. The high level of asthma within North County is probably not surprising, but much of it is going untreated. Some attribute the surge in chronic conditions among young residents to the level of family disorganization, particularly within the county's minority and disadvantaged populations. Unhealthy lifestyles and the stress created by a chaotic and dangerous environment lead to obesity and the early onset of chronic disease.

Some structural factors were also noted with regard to chronic disease. Portions of the county have become "food deserts" in which residents lack access to healthy food choices. There are some areas characterized by antiquated or abandoned industry and there is significant lead contamination in some parts of the county.

Given the high proportion of the population in North County that reports that they are “not well,” there is recognition of the problems that exist and the need for care. However, entrenched social norms often mitigate against the use of certain services, and residents often fall back on emergency room services. The failure to obtain primary care services results, in addition to the high ER use, to a high level of admissions for preventable conditions. As is often the case, the treatment of chronic disease is episodic rather than continuous, resulting in more care downstream than upstream.

CANCER INCIDENCE LEVELS

Cancers of various types are aggressively diagnosed in St. Louis County and even within the populations characterized by disparities. The high level of diagnosed early stage cancer attests to the effectiveness of current screening and detection programs. The North County population has a history of higher rates of breast cancer and prostate cancer, although these rates are similar to what one would expect for a population with its characteristics. This population has characteristics similar to those for inner city St. Louis, driven by higher rates of obesity, lack of exercise, and smoking within some segments of the population. There are possibly some environmental issues within St. Louis County with legacy industries, but it is difficult to link pollutants from this source to any particular population. In any case, an almost insignificant amount of cancer is attributed to environment hazards today.

Screening is relatively easy to obtain, but getting treatment that is affordable and timely is more of a challenge. Because of existing programs, the detection of breast and cervical cancer is excellent even for the uninsured. Thus, while most cancers in St. Louis County are eventually found, later identification leads to more hospitalizations and higher mortality for the minority populations in St. Louis County. This problem is exacerbated by a lack of access to primary care that would channel patients into appropriate cancer care. There is access to care from federally qualified health centers and health department clinics within the county, but these services have only a tenuous connection with cancer care.

REPRODUCTIVE HEALTH ISSUES

Overall, women in St. Louis County have better access to resources (both public and private) for reproductive health than most communities. However, the growing Medicaid population has less access, and this is a factor in the unfavorable reproductive health indicators that are reported. Reproductive health issues cannot be separated from other women’s issues, including those that affect women before, during and after pregnancy. Within certain populations (especially in North County) there is significant child abuse and neglect, coupled with domestic violence. This is underscored by the high level of maternal depression often associated with child rearing.

Many of the neediest women are enrolled in Medicaid, and this limits their access to care, particularly in the north where there are fewer options. Private physicians accepting Medicaid (and the uninsured for that matter) are increasingly rare. Health department clinics represent an important resource that some feel has an opportunity for expanded service to this population. An on-going problem is the availability of Medicaid during pregnancy but no coverage in-between births. This leads to a lack of continuity of care.

Ultimately, limited access is not the biggest issue for reproductive health services (or any service for that matter). The most affected populations suffer from a lack of resources, a lack of knowledge about insurance and other resources that are available, a lack of transportation, and scheduling issues. Prenatal care is not a priority and, in fact, many women do not believe they are pregnant. The latter issue has

become more important over time since the problem pregnancies are occurring at younger and younger ages. Further, unrelated physical health problems (including sexually transmitted disease) along with (often undiagnosed) behavioral health conditions complicate reproductive issues. All of these factors combine to create pregnancies that are high risk due to multiple factors.

Preconception care also appears to be an issue in St. Louis County. A study by the Maternal and Child Health Coalition found that the populations most in need of preconception care (e.g., low-income minorities, Medicaid enrollees) were least likely to be aware of the need and least likely to take advantage of the services that are available. These high-risk populations have less access to sources of information on preconception care, and even those who manage to get into the system have limited access due to lack of insurance and transportation. Providers express concern that once the need for preconception care has been identified, patients are not able to get the on-going care they require.

A number of initiatives are underway in St. Louis County, particularly in North County, aimed at reproductive health issues. Planned Parenthood and other organizations have outreach programs and home visitation initiatives for new mothers. Despite the progressive and aggressive initiatives underway, the problems appear to be outpacing the solutions as the size of the affected population—particularly in North County—continues to grow. These deficiencies are particularly acute with the younger populations who are not receiving services at an early enough age.

MENTAL HEALTH AND SUBSTANCE ABUSE SERVICES

While St. Louis County appears to have more mental health resources available than most communities, clearly more effort is needed in addressing mental health and substance abuse needs within the county. There is a particular need among disadvantaged populations like those found in North County. While behavioral health problems may be widespread, many community residents are unlikely to recognize them. While there is a reported lower prevalence of mental disorders in North County, there is a higher level of hospital admissions for certain mental health problems. This suggests that many conditions are going undiagnosed or, if diagnosed, going untreated. (Note that the available statistics do not take into consideration the recent closing of a mental health facility serving North County.)

The apparent high level of mental illness and substance abuse in North County reflects family disorganization to a great extent. The instability faced by many residents understandably results in higher stress levels which, if untreated, evolve into psychiatric conditions. Further, the physical health problems that affect this population—especially high blood pressure, obesity, diabetes, etc.—and the lifestyles in which they engage reduces the immunity to behavioral health conditions and substance abuse. Lower educational levels in some parts of the community suggest less awareness of the nature of behavioral health problems. There has also been a surge in heroin use in the county that is not, however, limited to the area's disadvantaged populations.

There is thought to be a serious lack of preventive services and services for early stage behavioral health issues. There are no programs that take a proactive approach, particularly in the face of the risks with which residents in certain part of the community are faced. Not only is there a lack of early diagnosis, but when diagnoses are made service providers historically are more likely to apply a more serious psychiatric diagnosis to poor, less-educated patients.

Not only may there be limited (and decreasing) access to behavioral health and substance abuse services in the most affected portions of St. Louis County, the de facto process for the referral and management of behavioral health cases is inefficient and ineffective. Constantly changing policies regarding eligibility for care and unclear lines of referral create an unstable environment for service providers. A lack of

services for the uninsured and underinsured probably accounts for the lower observed prevalence of these conditions among certain populations. Mental health carve-outs by managed care providers have actually resulted in a lower level of service availability for the populations that need it the most. There is limited transportation to the points for access for these services, and the cultural stigma surrounding mental health issues limits the use of services that are available.

Health Professionals Interviewed on Priority Issues

Eric Armbrecht, Ph.D., Health Management and Policy, St. Louis University

Graham Colditz, M.D., Dr.P.H., Washington University and St. Louis University.

John Constantino, M.D., Department of Psychiatry, Washington University

Kendra Copanas , Chief Operating Officer, Maternal and Child Health Coalition

Belinda Heimritz, Missouri Department of Health and Senior Services

Bethany Johnson-Javois, St. Louis Integrated Health Network

Mary Kogut, Vice President, Patient Services, Planned Parenthood

Mindy Laughlin, Missouri Department of Health and Senior Services

Sam Pherigo, Missouri Department of Health and Senior Services

Romi Pierce, Healthcare Task Force, Beyond Housing

Michael Railey, M.D., Dean for Multicultural Affairs, St. Louis University

Ron Tompkins, Nurses for Newborns Foundation

Jim Topolski, Ph.D., Missouri Institute of Mental Health

Shumei Yun, M.D., Ph.D., Missouri Department of Health and Senior Services

IX. RECOMMENDATIONS

The following recommendations have been developed to address the priority health issues outlined in the previous section of this report. The recommendations are based on the quantitative and qualitative information analyzed for the assessment; they are also based on our several decades of experience studying and working with the health care delivery systems in the U.S. They are not meant to be exhaustive. The recommendations address the work of two distinct but related organizational audiences: 1) the St. Louis County Health Department and the programs and services it offers; and 2) the private health system that serves all or parts of St. Louis County. However, recommendations are not always presented with a specific organization or combination of organizations that might undertake their implementation. Communities could implement some recommendations; local health systems or providers could implement others; and still others would require the local public health district to implement them. For many, though, it will take a combination of one or more of these entities working together—usually some form of public and private partnership to successfully implement. As with any recommendations developed from a comprehensive study that spans several local delivery systems, these will need further discussion and refinement along with planning, resource identification, and leadership. In the process of moving from planning to implementation, the recommendations offered here may change. That is part of the planning process.

Recommendations-overall:

1. ***Increase awareness about the findings in the report and potential health disparities in St. Louis County, overall, and in each sub-county region.*** In this report, we present and compare differences in population-based indicators on health status, access to care, disease prevalence, care management, and health outcomes by geographic and demographic factors. The differences noted may be indicative of health disparities in the population due to inequities in the availability of or access to specific health services. Determining specific programs or policies to address identified health disparities requires a planning process—see below. However, it is also important to disseminate the information contained in the report in order to build consensus on the types of changes needed to improve the health of the population. Dissemination should focus on differences in indicators as well as the size of the population at-risk. This is important because St. Louis has a large population compared to most other counties in Missouri. Even small differences between indicators might represent a large population in St. Louis compared to other Missouri counties, regardless of proportional or rate differences.
2. ***Engage in an ongoing county-wide planning process to better identify and rationally address health service needs indicated by the information contained in this report.*** The St. Louis County CHNA contains a wealth of information on many aspects of population health. The report highlights some of these—especially potential disparities that could be addressed through changes in available health resources to at-risk populations. However, to plan and implement changes that are both needed and effective will require a rational planning process that includes both the public and the private sector with a defined interest in health improvement of the population.⁵²

⁵² One such planning process is CCPH's Rational Planning Model⁵² -- a framework for forging accountable community collaborations to build consensus on addressing community health needs. The model consists of two phases. Phase 1 is the Assessment Cycle (CIAP) that identifies critical health issues and service needs. Phase 2 is the Planning and Implementation Cycle for prioritizing, planning and implementing interventions that address these needs. The St. Louis County Community Health Needs assessment is currently in between Phases 1 and 2 of implementing community wide health services improvement. Phase 1 of the process identified critical health issues and potential service delivery gaps in St. Louis County through an analysis of the community health status profile compiled in this study. The next step of the process in this model is to identify key stakeholders who will make up the Planning and Implementation Committee responsible for overseeing the implementation phase of the project. This model is based on the Community Health Improvement Process (CHIP) found in *Improving Health in the Community: A Role for Performance Monitoring*; Institute of Medicine (1997).

Key tasks to accomplish in follow-up of the report include:

1. Gaining consensus on high-priority health issues and service needs in St. Louis County for follow-up;
2. Determining targeted initiatives and strategies for specific service delivery or health promotion and prevention improvements;
3. A process for ensuring accountability and sustainability of initiatives undertaken; and
4. A commitment to performing regular follow-up health assessments and health profile updates to determine the effectiveness of strategic initiatives as well as to identify new issues.

Recommendations-targeted:

3. *Improve access to high quality primary care especially in North County:* Access to and availability of high quality primary care, especially for the population with chronic health conditions, is inconsistent across St. Louis County. Based on the data presented, it is unclear whether this is due to an inadequate availability of providers in some areas, the lack of health insurance coverage, insufficient resources for patient opportunities in self-management, or some combination of these as well as other factors. It is recommended that the St. Louis County Health Department and the hospitals and health systems in the county work together to determine the types of actions needed to improve the access to primary care for those populations in need.

To improve access to care in the communities of St. Louis County LC, we offer the following suggestions:

- Increase awareness of safety net services for dental, primary care, behavioral health, and prescription drug coverage in the county.
- Develop/implement alternatives to ED use for patients needing immediate but non-emergent care (e.g. fast track/convenient care, walk-in centers, expanded hours at county health clinics).
- Develop/promote standards of care to guide PCP referral practices for an ED visit.
- Develop/implement a countywide education campaign on appropriate utilization of the ED.

4. *Reduce the prevalence of behavioral risk factors (smoking, obesity, and sedentary lifestyles) in populations across the county:* Reducing the prevalence of smoking and obesity and increasing activity levels should be a high priority for St. Louis County despite the relatively low prevalence of these conditions in the county compared to other Missouri and U.S. populations. This is evident for two reasons: 1) given the size of the county, there are large numbers of people living in St. Louis County at risk for heart disease, cancer, diabetes, respiratory diseases, and other health effects due to these risk factors; and 2) current levels of these risks are above levels established for the Healthy People 2020.

Initiatives to reduce obesity rates should address both children and adults and should focus to some extent on the underlying policy causes of the problem. Local resources are needed to enhance access to exercise, nutrition, and treatment modalities including stress management. Approaches should integrate the local public health infrastructure, community based resources, local providers, patients, and families.

Policies, programs, and services are more likely to be effective if they assist coach and generally make it easier for patients to engage in regular exercise, better nutrition or smoking cessation programs. The onus, though, is on health and community-based resources to work more closely to assist these individuals in behavior change. The public health system in the county should play a leadership and coordinating role in these efforts.

To address the system changes needed for reducing the prevalence of behavioral risk factors in St. Louis County, we have the following suggestions:

- Specific and focused collaboration between the health department and private organizations on local approaches to address smoking and obesity in the at-risk populations. For example, programs that could be expanded or sustained include current Communities Putting Prevention to Work (CPPW) initiatives and efforts by the business community to address obesity.
 - Collaboration between the health department and private health providers on ways to link patients with these risks with education, treatment and support.
 - Exploring the extent to which there are structured, employee wellness programs operating in each sub-county region. Programs should offer work-place smoking cessation programs and/or incentive packages for employees who quit and remain smoke free, and for those who wish to practice a healthy lifestyle (such as exercise training/subsidized gym membership and reduced health insurance premiums or co-pays).
 - Local or state policy initiatives such as those that require restaurants and other eating establishments (including hospital cafeterias) to list a standardized set of nutritional information on menus; designate desirable alternatives to high fat and high calorie meals; increase the tobacco tax; improve school nutrition and physical education requirements.
- 5. *Improve the quality of care in the region for persons with chronic medical conditions; in particular services for patients with cardiovascular disease and diabetes:*** Countywide prevalences of high blood pressure (31%), high cholesterol (27%), and diabetes (9.4%) are high as are rates of morbidity and mortality for select cardiovascular conditions. While largely driven by two sub-county regions, there is a need to determine where there are gaps in care coordination of people diagnosed with these and related medical conditions. Improving systems for patient self-management; building a system of patient-centered medical care; connecting patients and community resources; and designing programs to improve medication management and adherence may be needed. Policy initiatives at the state level may be needed in order to provide sufficient resources to assist practices and communities in achieving these changes. This may require a much higher level of private-public partnering as well as changes in how care is reimbursed by government and private insurers.⁵³

To address the system changes needed for improving chronic disease care in St. Louis County, we have the following suggestions:

- Develop/expand evidence-based quality improvement programs at primary care practice sites that include:
 - Creating Quality Improvement Teams

⁵³ A federal response to address the cost and quality issues in the US healthcare system is through the formation of accountable care organizations that are being promoted in the ACA. An Accountable Care Organization consists of “a healthcare provider or group of providers that accepts accountability for the total cost of care received by a population of patients.” Center For Healthcare Quality and Payment Reform (<http://www.chqpr.org>)

- Developing patient centered medical home systems of care, especially for persons with one or more chronic conditions⁵⁴
- Organizing patient self-management programs
- Establishing referral linkages and patient follow-up systems to public health and community providers
- Develop referral mechanisms for consults with specialty care providers, especially for low income uninsured and underinsured persons with multiple chronic medical conditions.

6. *Determine factors driving the high incidence of cancer in the county:* St. Louis County has comparatively high cancer incidence rates relative to the state, overall, and by sub-county. This also translates into more new cancer cases and a higher prevalence relative to other county populations. Female breast and male prostate cancer incidence rates are highest. While county residents with these cancers appear to have access to treatment for their condition, it is important to determine why rates are higher in the county. Behavioral risk factors such as smoking, poor nutrition, and obesity are likely contributors, as are heredity, income, and other social-demographic determinants. It may also be due in part to higher levels of screening in at risk populations that lead to the early detection of cases. The CHNA report is not designed to determine this, nor were we able to find any studies or reports that addressed this issue. An epidemiological study is recommended.

7. *Improve access to substance abuse and mental health services in the county:* Prevalence of mental health conditions among county adults range among sub-county regions and in certain sub-populations. There is variation within the county of ED utilization for a wide range of mental health issues, including depression, schizophrenia, and anxiety disorders. The data suggest potential disparities in access to mental health services within the county.

Substance abuse in general, and alcohol and illicit drug misuse in particular, require three levels of intervention – prevention, screening, and detection. All three require concerted, collaborative action involving the public health, education, health care, and criminal justice systems at the community level to have an impact. Program planning among these entities and interventions based on these planning efforts are recommended.

PCPs are an important component of the behavioral health system because they are well positioned to identify behavioral problems among their patients, manage their psychotropic medications, and make referrals to specialty services. However, primary care providers are often poorly integrated with other components of the behavioral health delivery systems. Several types of integration models have been tested in the U.S., and many hold promise to both improve care coordination and the health status of patients.

Hospitals and mental health providers can implement successful behavioral health care and primary health care integration models based on the specific needs, resources, and competitive environments within each hospital service area. These models could include the co-location of behavioral health and primary care services, consultation-liaison programs to support PCPs, and community mental health teams to support and coordinate services with primary care and community agencies.

⁵⁴ A primary care practice that provides patients with accessible continuous and coordinated care. In patient centered medical homes, patients develop relationships and work with their providers to maintain healthy lifestyles and coordinate preventive and ongoing health services. Ideally, families, health care professionals, community service providers, and other concerned people act as partners to identify and access all the medical and nonmedical services needed to help the patient with special needs achieve their maximum potential. Key Attributes of the Advanced Medical Home are: 1) Use of evidence based medicine and clinical decision support tools to guide decision making based on patient-specific factors; 2) Delivery of that care according to the Chronic Care Model 3) An integrated, coherent plan for ongoing medical care in partnership with patients and their families; 4) Enhanced and convenient access to care not only through face-to-face visits but also via telephone, email, and other modes of communication; 5) Measurement of key quality indicators to demonstrate continuous improvement; 6) Use of health information technology for quality improvement, patient safety and secure health information exchange; and, 7) Program feedback process to monitor overall performance of the practice.

Strategies to improve access to mental health and substance abuse services in St. Louis County might focus on the following:

- Improve access to behavioral health services for patients of primary care practices on location.
- Improve care coordination between mental health and health/medical care providers.
- Improve PCP skills in providing mental health services (diagnosis, use of medications, treatment alternatives).

8. *Improve programs to address the high rates of teen pregnancy in St. Louis County, in particular at the sub-county level:* There are large differences in teen pregnancy rates at the sub-county level. Follow-up is needed to identify programs and educational opportunities to address this issue.

- Continue/expand teen pregnancy prevention and programs in St. Louis County.
- Improve care to pregnant teens in sub-county regions with evidence based programs.
- Promote standardized teacher training and curriculum for sexuality education at schools in the region.

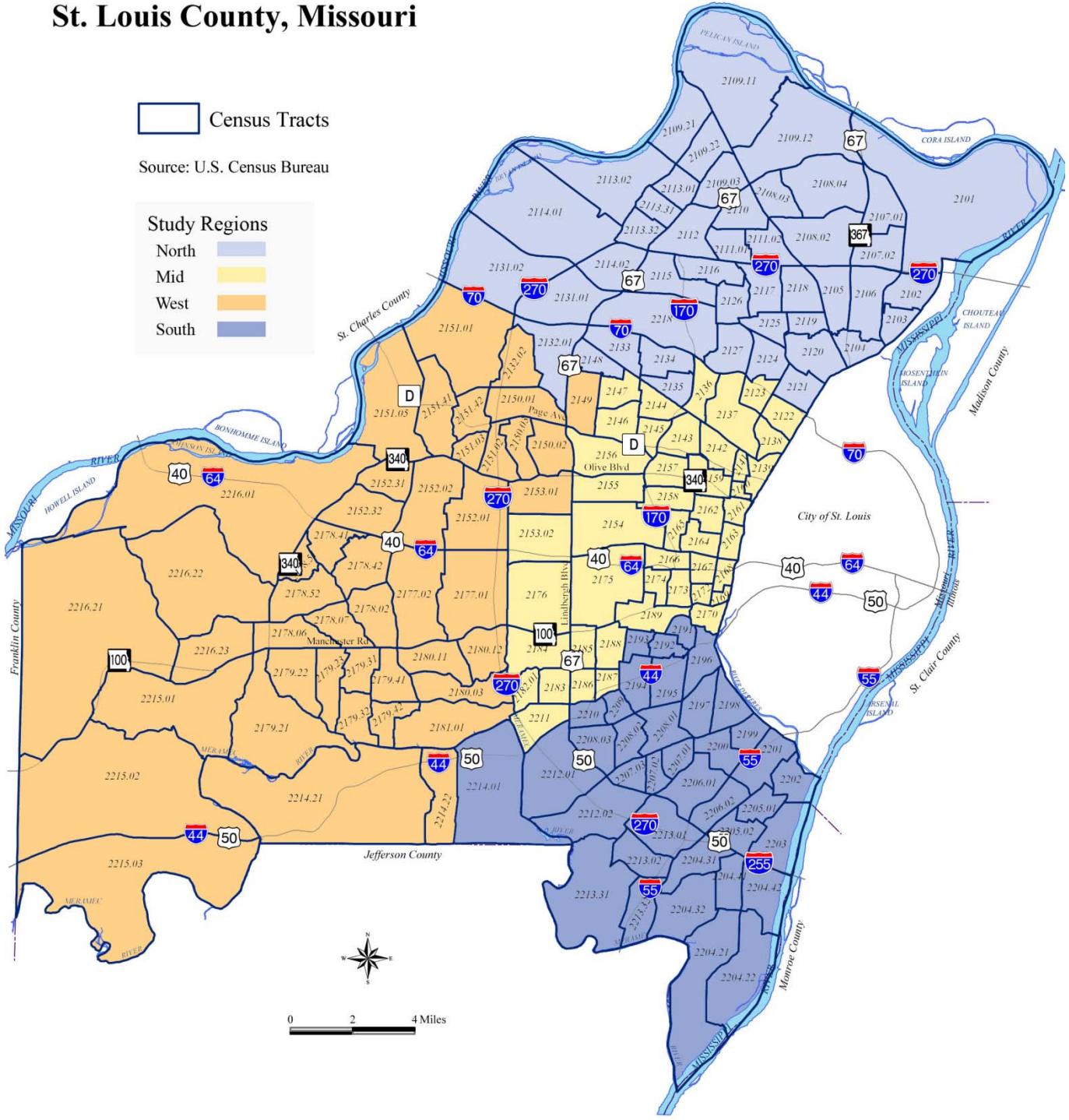
X. APPENDICES

APPENDIX 1: ST. LOUIS COUNTY DEPARTMENT OF HEALTH STEERING COMMITTEE MEMBERS

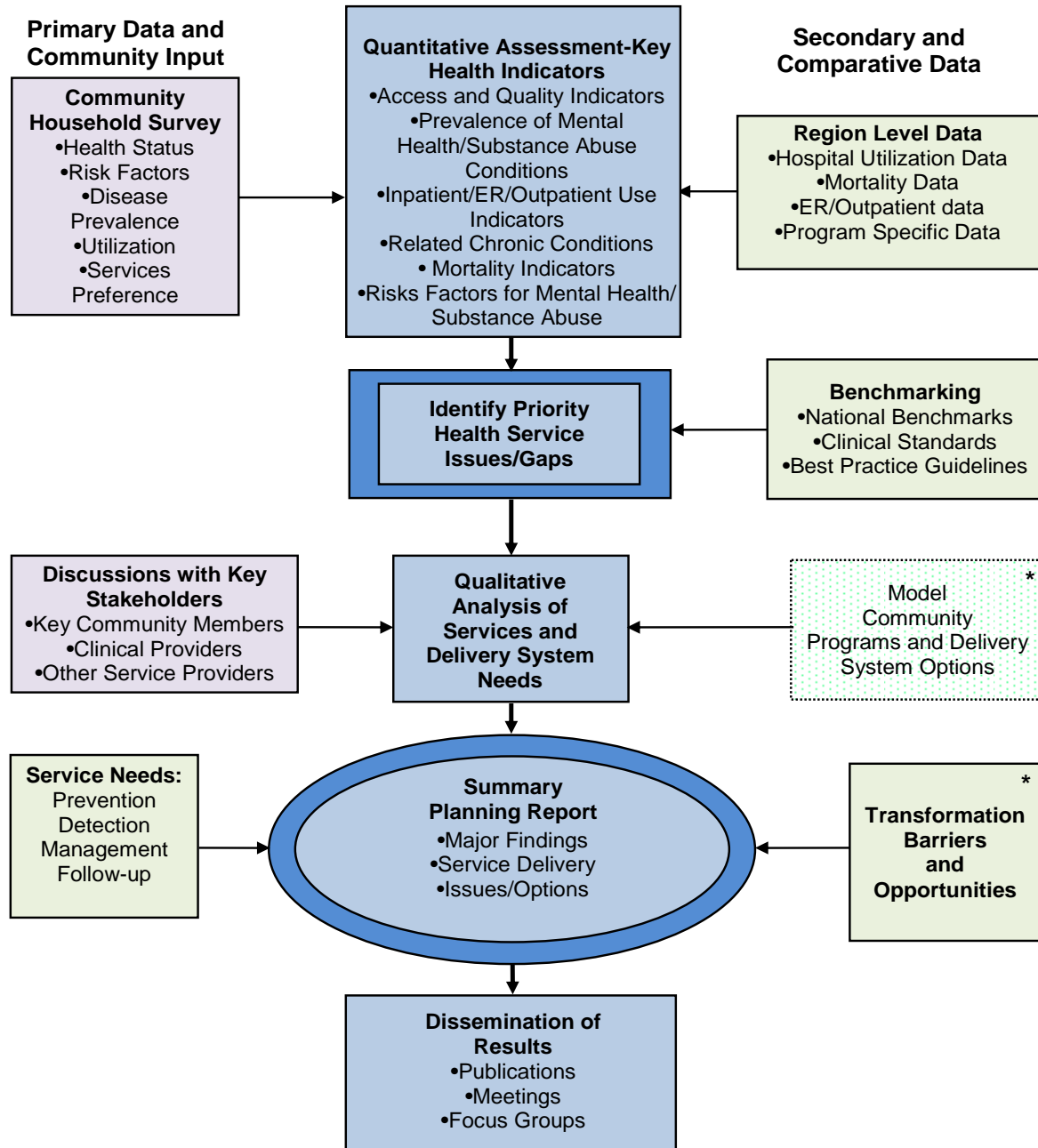
- Edward D. Mueth, Director, Executive Administration
- Laura Klaesner, MPH Continuous Quality Improvement Manager
- Karen Zeff, MS, Health Informatics Analyst
- Ann Hynes, MS, Manager Health Education
- Gena Traver, BS, CHES, Health Education Supervisor
- Jamie Opsal, MSG, Public Health Coordinator

APPENDIX 2: MAP OF STUDY AREA

Census Tracts
St. Louis County, Missouri



APPENDIX 3: COMMUNITY AND INSTITUTION ASSESSMENT PROCESS



*Optional

APPENDIX 4: HEALTH STATUS PROFILE

Indicator	Mid	North	South	West	St. Louis County	Missouri State
DEMOGRAPHICS						
Total Population	203,939	249,807	253,708	284,958	992,412	5,951,247
Annual Household Income	\$62,607	\$44,919	\$59,943	\$85,210	\$57,502	\$46,005
% of Labor Force Unemployed	10	13	6.4	6.2	9.1	9.5
% Population Not Attaining H.S. Diploma (Ages 25+)	9.1	15	10	5.2	9.6	14
% Population Under the Age of 18	14	21	28	29	23	24
% Population Between Ages 18-44	38	35	27	27	31	36
% Population Between Ages 45-64	32	29	29	33	31	27
% Population Ages 65 and Over	17	15	16	12	15	13
% Uninsured	14	14	6.8	3.7	9.3	14
% Uninsured Non-Elderly Adults (Ages 18-65)	17	16	8.8	4.5	11	15
FUNCTIONAL HEALTH STATUS						
% Health Fair to Poor	16	18	12	6.3	10	16
% 11+ Days Physical Health Not Good	13	10	8.2	6.4	9.4	12
% 11+ Days Mental Health Not Good	8.4	10	9.3	5.1	8.2	12
% 11+ Days Lost due to Poor Mental or Physical Health	10	7.6	6.2	4.5	7.1	8.4
% 3+ Chronic Conditions	7.5	6.4	5.0	3.6	5.6	5.5
Wellness Categories:						
% Well	35	36	38	46	39	35
% At Risk for Future Medical Problems	7.1	6.7	9.0	4.8	6.8	8.5
% Some Health Problems	37	37	40	37	38	38
% Not Well	21	20	14	12	17	18

20% or more below Statewide average


20% or more above Statewide average

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St. Louis County Community Health Needs Assessment

Indicator	Mid	North	South	West	St. Louis County	Missouri State
PRIMARY CARE:						
% Without Regular Source of Care	17	20	14	11	16	17
Males	24	26	17	10	19	22
Females	12	15.4	11	12	13	13
% Named Doctor's Office as Usual Source of Care	85	88	89	91	88	NA
% Not Having a Checkup Within the Past 2 Years	22	27	20	19	22	24
Males	28	32	22	24	26	29
Females	16	22	18	15	18	19
% Received Flu Shot (past 12 months)	47	45	50	53	49	41
Ages 45-64	50	48	49	58	51	43
Ages 65+	79	68	76	78	72	67
Males	47	41	44	50	46	38
Females	48	49	55	55	52	43
% Received Pneumococcal Shot ever (Ages 65+)	75	65	74	75	72	70
Males	67	58	67	67	67	68
Females	81	69	79	81	81	71
% No Access to Care due to Cost	13	11	8.9	4.9	9.2	14
ED Visits per 100,000 Population	32,444	50,963	19,725	13,604	28,444	37,481
Ages <18	68,342	75,119	19,271	12,446	35,319	41,882
Ages 18-44	35,208	63,266	26,925	16,750	36,781	45,218
Ages 45-64	19,165	30,428	13,419	8,853	17,329	26,475
Ages 65+	21,706	28,085	19,896	22,150	22,920	30,563
Hospitalizations per 100,000 Population	15,927	20,107	13,874	9,616	14,642	13,745
Ages <18	17,592	15,167	6,338	4,364	8,984	9,064
Ages 18-44	10,462	15,613	10,786	6,952	11,126	9,574
Ages 45-64	12,010	17,726	10,672	6,108	11,258	12,655
Ages 65+	34,553	42,570	38,109	37,515	38,270	35,563
ACS Conditions, Hospital Admission Rate	2,168	2,903	1,673	1,194	1,947	1,673
Ages 0-17	1,394	1,469	426	329	743	484
Ages 18-44	889	1,529	630	376	887	568
Ages 45-64	1,864	2,935	1,181	591	1,567	1,678
Ages 65+	6,323	8,157	6,513	6,704	6,930	6,774
ACS Conditions, ED Rate	2,841	5,149	1,485	918	2,523	3,243
Ages 0-17	5,285	6,808	1,349	679	2,813	2,211
Ages 18-44	2,869	5,885	1,682	987	2,998	3,662
Ages 45-64	1,960	3,711	1,074	613	1,754	2,887
Ages 65+	2,432	3,893	2,144	2,158	2,657	4,675

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St. Louis County Community Health Needs Assessment

Indicator		Mid	North	South	West	St. Louis County	Missouri State
CARDIOVASCULAR HEALTH:							
Risk Factors	% Current Smokers	18	17	14	12	15	22
	% Sedentary Lifestyle (measured by no physical activity)	21	29	19	20	22	27
	% Physical Activity (150+ minutes per week)	19	16	24	20	20	28
	% Overweight	31	35	39	39	36	35
	% Obesity	27	36	25	20	27	31
	% Overweight/Obesity Problem (Youth 0-17, parent report)	1.7	4.5	2.8	4.4	3.6	NA
Prevalence	% High Cholesterol	28	25	30	26	27	38
	% High Blood Pressure	27	38	30	28	31	31
	% Heart Disease	3.2	3.9	4.0	3.2	3.6	4.3
Management	% Having Cholesterol Checked Within the Past Year	70	77	75	79	75	56
	% Advised to Quit Smoking Within the Past Year	58	67	48	45	54	NA
	Congestive Heart Failure, Hospital Admissions	417	560	356	228	383	317
	Ages 45-64	279	568	148	56	248	249
	Ages 65+	1,815	2,354	1,931	1,725	1,963	1,787
	AMI, Hospital Admission Rate	112	153	103	86	113	101
	Ages 45-64	72	132	59	29	70	86
	Ages 65+	519	720	533	631	600	560
	Cerebrovascular Disease (Stroke), Hospital Admission Rate	208	247	186	116	186	263
	Ages 45-64	171	284	110	47	146	263
	Ages 65+	854	977	928	802	894	970
	CABG, Hospital Admission Rate	63	64	74	60	65	75
	Ages 45-64	82	94	105	76	89	125
	Ages 65+	210	228	258	281	245	291
	20% or more below Statewide average						
	20% or more above Statewide average						

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Indicator		Mid	North	South	West	St. Louis County	Missouri State
CARDIOVASCULAR HEALTH:							
Quality/Effectiveness	Heart Disease, Mortality Rate	238	321	260	188	258	239
	Ages 45-64	127	194	86	65	119	157
	Ages 65+	1,162	1,733	1,455	1,371	1,483	1,406
	AMI, Mortality Rate	68	101	78	52	76	145
	Ages 45-64	32	66	21	24	36	61
	Ages 65+	341	550	448	363	440	389
	Cerebrovascular Disease (Stroke), Mortality Rate	58	58	60	47	57	53
	Ages 45-64	22	32	13	10	19	22
	Ages 65+	299	319	350	363	341	340
	% Rehab following Heart Attack	32	40	36	61	40	41
	Male	37	30	55	57	46	47
	Female	27	46	27	71	36	31
	% Rehab following Stroke	31	40	43	18	33	32
	Male	38	60	56	26	40	29
	Female	27	35	40	12	29	35
	% Take Aspirin to Reduce Stroke (Ages 35+)	53	42	48	53	49	NA
	Male	54	42	48	50	49	NA
	Female	51	43	47	56	49	NA
	% Take Aspirin to Reduce Heart Attack (Ages 35+)	77	74	79	82	78	NA
	Male	79	72	80	86	80	NA
Female	75	75	79	79	77	NA	

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Indicator		Mid	North	South	West	St. Louis County	Missouri State
RESPIRATORY HEALTH:							
	% Current Smokers	18	17	14	12	15	22
	Male	23	18	14	12	16	23
	Female	15	17	14	13	15	22
	% Former Smokers	30	21	29	29	27	25
Prevalence	% Current Asthma	11	12	5.3	6.6	8.4	9.2
	% COPD	3.0	3.2	2.7	0.7	2.4	NA
	Lung and Bronchus Cancer, Males, Incidence Rate	73	113	83	68	84	95
	Lung and Bronchus Cancer, Females, Incidence Rate	78	92	76	70	79	75
Management	% Advised to Quit Smoking (Past 12 Months)	51	67	64	66	62	NA
	% Received Flu Shot (Past 12 Months)	47	45	50	53	49	41
	Ages 45-64	50	48	49	58	51	43
	Ages 65+	79	68	76	78	75	67
	Male	47	41	44	50	46	38
	Female	48	49	55	55	52	43
	% Received Pneumococcal Shot ever (Ages 65+)	75	65	74	75	72	68
	Male	67	58	67	67	67	66
	Female	81	69	79	81	81	70
	Bronchitis and Asthma, Hospital Admission Rate	247	358	108	88	194	171
	Ages 0-17	919	869	171	127	402	385
	Ages 18-44	144	275	77	52	144	84
	Ages 45-64	123	175	50	39	92	93
	Ages 65+	160	196	157	214	181	172
	COPD, Hospital Admission Rate	232	320	184	105	206	295
	Ages 45-64	290	421	184	55	224	409
	Ages 65+	774	1211	770	703	867	1274
	Adult Pneumonia, Hospital Admission Rate	334	363	346	273	327	400
	Ages 45-64	267	328	227	131	230	208
	Ages 65+	990	1002	1314	1435	1188	1586
	ED Asthma Visits per 100,000 population	1,092	2,080	407	259	927	1163
	Ages 0-17	3,859	4,987	716	373	1,932	1746
	Ages 18-44	978	2,018	474	320	1,000	1319
Ages 45-64	479	914	198	126	408	735	
Ages 65+	231	432	133	214	251	547	

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
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St. Louis County Community Health Needs Assessment

Indicator		Mid	North	South	West	St. Louis County	Missouri State
RESPIRATORY HEALTH:							
Quality/Effectiveness	Lung Cancer Mortality Rate	58	72	59	46	59	65
	Male	64	78	66	45	64	76
	Female	52	67	52	47	55	55
	COPD, Mortality Rate	31	41	40	31	37	51
	Ages 45-64	5.7	13	8.1	5.4	8.1	26
	Ages 65+	177	252	238	246	235	327
	Pneumonia/Influenza, Mortality Rate	19	22	27	23	24	23
	Ages 45-64	6.2	13	3.6	2.9	6.4	8.5
	Ages 65+	105	114	159	182	144	149
	Smoking-Related Cancers, Mortality Rate	51	69	68	58	62	67
	Males	63	93	88	66	78	87
	Females	41	49	49	49	48	47

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St. Louis County Community Health Needs Assessment

Indicator		Mid	North	South	West	St. Louis County	Missouri State
DIABETES:							
Risk Factors	% Sedentary Lifestyle (measured by no physical activity)	21	29	19	20	22	27
	% Overweight	31	35	39	39	36	35
	% Obesity	27	36	25	20	27	31
Prevalence	% Diagnosed Diabetes	11	12	9.0	6.0	9.4	8.7
	Ages 18-44	3.9	3.6	0.2	1.0	2.3	2.5
	Ages 45-64	12	16	10	6.8	11	12
	Ages 65+	24	25	22	15	22	19
Management	% Reported hemoglobin A1c measurement (at least once) in past year	91	97	92	88	93	94
	% Reported retinal eye exam in past year	41	66	63	67	59	69
	% Reported foot examination in past year	62	82	83	68	75	75
	% Reported influenza immunization in past year (Age 65+)	79	68	76	78	75	67
	Diabetes, Hospital Admission Rate	194	306	117	74	168	116
	Ages 45-64	229	384	132	66	193	135
	Ages 65+	388	612	305	290	398	211
	Short-term Complications, ED Visit Rate	6.9	20	3.5	1.6	7.7	13
	Long-term Complications, ED Visit Rate	69	120	38	23	61	78
	Uncontrolled Complications, ED Visit Rate	9.3	15	3.4	1.8	7.1	13
	Short-term Complications, Hospital Admission Rate	60	99	37	21	53	57
	Long-term Complications, Hospital Admission Rate	134	207	80	54	115	93
	Uncontrolled Complications, Hospital Admission Rate	25	44	10	6.7	21	18
Quality/Effectiveness	Diabetes, Mortality Rate	20	29	19	16	21	23
	Ages 45-64	14	26	14	6.8	15	22
	Ages 65+	92	131	88	111	108	121

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St. Louis County Community Health Needs Assessment

Indicator		Mid	North	South	West	St. Louis County	Missouri State
CANCER HEALTH							
Risk Factors	% Current Smokers	18	17	14	12	15	22
	% Sedentary Lifestyle	21	29	19	20	22	27
	% Former smokers	30	21	29	29	27	25
	% Overweight	31	35	39	39	36	35
	% Obesity	27	36	25	20	27	31
Disease Prevalence	% Diagnosed Cancer	9.1	5.9	7.8	7.7	7.6	NA
	All Cancers, Incidence Rate	557	602	527	541	556	502
	Female Breast Cancer, Incidence Rate	167	171	146	166	162	137
	Female Cervix Uteri, Incidence Rate	7.6	8.0	5.8	6.0	6.8	7.9
	Colorectal, Incidence Rate	58	65	57	47	56	54
	Males	55	73	56	48	58	57
	Females	60	57	57	46	55	51
	Lung and Bronchus Cancer, Incidence Rate	76	102	79	69	81	84
	Male Prostate, Incidence Rate	187	174	174	184	179	137
Management / Patient Care	% Reported Mammogram Past Year (Ages 40+)	62	57	58	64	60	58
	% Stage Female Breast, Local	50	47	50	51	49	49
	% Stage Female Breast, Distant	4.2	5.0	3.4	3.5	4.0	4.5
	% Reported Pap Smear Past 2 Years	63	63	61	61	62	66
	% Stage Cervix Uteri Female, Local	*	50	44	54	36	42
	% Stage Cervix Uteri Female, Distant	*	*	*	*	14	14
	% Reported Blood Stool Test Past Year (Ages 50+)	11	12	10	9.8	10	9.1
	% Reported Having Sigmoid/Colonoscopy Past 5 Years (Ages 50+)	57	56	60	65	60	51
	% Stage Colorectal, Local	38	29	39	36	34	37
	% Stage Colorectal, Distant	11	21	17	19	19	19
	% Stage Lung and Bronchus Male, Local	20	17	21	20	19	16
	% Stage Lung and Bronchus Male, Distant	59	50	49	52	52	52
	% Stage Lung and Bronchus Female, Local	23	22	17	25	22	19
	% Stage Lung and Bronchus Female, Distant	48	52	48	45	49	48
	% Reported Prostate Exam (PSA test) Past 2 Years (Males Ages 50+)	73	74	80	74	75	67
	% Reported Digital Rectal Exam Past 2 Years (Males Ages 50+)	62	58	69	73	66	57
% Stage Prostate, Local	79	79	84	82	81	80	
% Stage Prostate, Distant	4.1	4.4	4.4	1.7	3.4	3.7	

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
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St. Louis County Community Health Needs Assessment

Indicator		Mid	North	South	West	St. Louis County	Missouri State
CANCER HEALTH							
Quality/Effectiveness	All Cancers, Mortality Rate	212	236	205	174	210	209
	Female Breast Cancer, Mortality Rate	32	33	30	33	32	29
	Female Cervix Uteri, Mortality Rate	3.1	4.3	3.0	1.6	3.0	2.8
	Colorectal, Mortality Rate	21	22	18	17	20	20
	Lung, Mortality Rate	58	72	59	46	59	65
	Males	64	78	66	45	64	76
	Females	52	67	52	47	55	55
	Male Prostate, Mortality Rate	24	22	19	16	20	19

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St. Louis County Community Health Needs Assessment

Indicator		Mid	North	South	West	St. Louis County	Missouri State
MENTAL HEALTH							
Risk Factors	% 11+ Days Mental Health Not Good	8.3	10	9.1	5.0	8.1	12
	Ages 65+	5.9	6.7	3.6	2.9	4.8	6.0
	% Needed, but Did Not Receive, Mental Health Treatment (Past 12 Months)	7.4	7.1	3.9	5.1	5.9	6.8
Disease Prevalence	% Receiving Outpatient Mental Health Treatment (Past 12 Months)	11	6.5	13	8.0	9.3	NA
	% Diagnosed Depression ever	19	15	18	14	17	NA
	% Diagnosed Other Psychiatric Disorder ever	11	10	13	11	11	NA
	% Developmental Delay/Learning Disability (Ages 0-17)	14	7.2	14	10	11	NA
Management	Psychoses Hospital Admission Rate	916	1248	666	429	796	721
	Ages 0-17	775	854	395	258	496	530
	Ages 18-44	1183	1750	1128	673	1206	952
	Ages 45-64	886	1214	643	334	737	747
	Ages 65+	479	673	400	550	523	390
	Senility and Organic Mental Disorders, Hospital Admission Rate	10	14	12	8.2	11	16
	Ages 65+	47	83	68	57	64	98
	Major Depressive Disorder, Hospital Admission Rate	267	336	238	160	246	244
	Ages 0-17	212	173	129	78	131	148
	Ages 18-64	290	397	299	180	290	295
	Ages 65+	215	298	215	255	245	177
	Bipolar Disorder, Hospital Admission Rate	353	485	294	187	324	302
	Ages 0-17	472	582	241	167	319	359
	Ages 18-64	385	538	375	203	373	324
	Ages 65+	121	118	99	155	122	97
	Schizophrenia, Hospital Admission Rate	257	363	113	62	191	150
	Ages 18-64	340	513	180	87	278	219
	Ages 65+	72	148	46	58	81	69
	Anxiety, Hospital Admission Rate	214	324	195	115	208	231
	Ages 0-17	356	431	138	79	209	193
	Ages 18-44	249	407	356	198	305	326
	Ages 45-64	162	236	155	89	156	200
	Ages 65+	117	152	94	85	112	101
	Senility and Organic Mental Disorders, ED Rate	18	24	11	10	16	18
	Major Depressive Disorder, ED Rate	81	112	38	45	68	73
	Bipolar Disorder, ED Rate	97	122	56	43	77	65
	Schizophrenia, ED Rate	83	105	24	15	54	55
Anxiety Disorder, ED Rate	673	851	511	348	583	808	
Quality	Suicide, Mortality Rate	9.3	13	11	11	11	14
	Males	14	23	17	17	18	22
	Females	5.2	5.3	4.8	3.9	4.9	5.6

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St. Louis County Community Health Needs Assessment

Indicator		Mid	North	South	West	St. Louis County	Missouri State
SUBSTANCE ABUSE							
Prevalence	% Chronic Heavy Drinking - Past Month	1.9	0.5	0.7	0.6	0.9	4.8
	Ages 18-64	1.7	0.3	0.6	0.1	0.6	5.3
	Ages 65+	2.6	1.3	1.0	3.2	2.0	2.6
	% Binge Drinking - Past Month	16	9.1	16	11	13	NA
	Ages 18-64	19	9.8	20	12	15	NA
	Ages 65+	1.5	5.7	2.5	6.4	4.0	NA
	Males	22	15	24	12	18	NA
	Females	11	3.7	8.1	10	8.1	NA
Management	Substance Abuse, Hospital Admission Rate	134	162	124	115	134	155
	Ages 18-64	148	182	146	118	148	230
	Ages 65+	74	73	48	101	73	74
	Acute Alcohol-Related Mental Disorders, Hospital Admission Rate	30	29	22	36	30	21
	Ages 18-64	34	34	28	41	34	32
	Ages 65+	13	11	3.7	12	10	7.0
	Alcohol-Related Psychoses, Hospital Admission Rate	51	62	58	46	54	51
	Ages 18-64	59	71	72	47	62	77
	Ages 65+	16	22	7.4	39	21	20
	Acute Drug-Related Mental Disorders, Hospital Admission Rate	21	26	14	18	20	24
	Ages 18-64	24	31	17	21	23	36
	Ages 65+	5.9	2.7	4.9	1.5	3.8	4.0
	Drug-Related Psychoses, Hospital Admission Rate	32	44	30	15	30	27
	Ages 18-64	30	46	29	8.9	28	35
	Ages 65+	38	38	32	48	39	33
	Acute Alcohol-Related Mental Disorders, ED Rate	57	64	17	13	36	29
Alcohol-Related Psychoses, ED Rate	10	9.0	11	7.0	9.1	15	
Acute Drug-Related Mental Disorders, ED Rate	174	155	146	94	139	221	
Drug-Related Psychoses, ED Rate	6.9	10	4.9	2.8	6.1	8.0	
Quality / Effectiveness	Smoking-Related Cancers, Mortality Rate	51	69	68	58	62	67
	Males	63	93	88	66	78	88
	Females	41	49	49	49	48	47
	Alcohol-Related Mortality Rate	3.4	4.7	2.4	4.9	4.0	6.0
	Males	4.2	8.3	2.7	8.6	6.1	9.4
	Females	3.1	1.8	2.3	1.6	2.1	2.8
	Alcohol Liver Disease, Mortality Rate	3.1	3.9	1.4	1.6	2.5	3.1
	Motor Vehicle Accidents, Mortality Rate	6.9	12	7.6	5.3	8.2	16
	Males	11	17	12	6.7	12	23
Females	3.1	7.0	3.8	3.9	4.6	9.9	

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
Indicator		Mid	North	South	West	St. Louis County	Missouri State
UNINTENTIONAL INJURY							
Quality/ Effectiveness	Total Accidents, Mortality Rate	28	34	26	26	29	32
	Male	36	43	30	30	35	40
	Female	21	27	22	22	23	25
	Motor Vehicle Accidents, Mortality Rate	6.9	12	7.6	5.3	8.2	16
	Male	11	17	12	6.7	12	23
	Female	3.1	7.0	3.8	3.9	4.6	10
ORAL HEALTH							
Risk Factor	% Reporting No Dental Visit in Past 2 Years	16	22	12	11	15	26
INFECTIOUS DISEASE							
Risk Factors	Chronic Hepatitis C, Case Reported Rate	NA	NA	NA	NA	56	82
	Sexually Transmitted Disease Incidence Rate:						
	Gonorrhea	231	370	22	12	150	121
	Chlamydia	683	1,194	139	86	501	423
Management	HIV-Infection, Hospital Admissions Rate	13	27	4.7	1.6	11	10
Quality	HIV-Infection Mortality Rate	4.1	4.3	0.4	0.6	2.2	1.9
REPRODUCTIVE HEALTH							
	% Binge Drinking Females - Past Month	11	3.7	8.1	10	8.1	NA
	2 or more sex partners in past yr (Ages 18-34)	24	22	23	11	20	NA
	% used condom last time had sex (Ages 18-34)	34	31	30	39	33	NA
	Teen Birth Rate (10-17yrs) Per 1,000 Females	6.5	10	2.0	1.3	5.3	8.3
Management	High Risk Pregnancy, Hospital Admission Rate (Females Ages 10-44)	629	980	349	240	539	461
	C-Section Rate per 100 births	34	34	36	37	35	32
	% Adequate Prenatal Care (of Live Births)	87	82	93	94	88	84
	% Inadequate Prenatal Care (of Live Births)	9.3	14	3.9	3.7	8.5	11
	% Low Birthweight (<2500 grams)	9.3	11.4	7.0	7.0	9.1	8.0
	% Very Low Birthweight (<1500 grams)	2.0	2.7	1.2	1.3	1.9	1.5
	% Prematurity (< 37 weeks)	14	17	12	12	14	13
	Infant Mortality Rate (Deaths to Infants from Birth through 364 Days of Age) per 1,000 Live Births	9.0	12	4.3	3.7	8.0	7.4
	Neonatal Mortality Rate (Deaths to Infants under 28 Days) per 1,000 Live Births	5.8	7.9	3.5	2.8	5.7	4.7


20% or more below Statewide average
 20% or more above Statewide average

All rates are per 100,000, unless otherwise noted
 NA = Not Available in the Missouri BRFSS 2008-10

St. Louis County Community Health Needs Assessment

Indicator		Mid	North	South	West	St. Louis County	Missouri State
CHILD/YOUTH HEALTH							
	% Current Smokeless Tobacco User	NA	NA	NA	NA	5.3	9.3
	% Regular Physical Activity (at Least 60 Min on 5 of Last 7 Days)	NA	NA	NA	NA	45	52
	% Drank Sugar Sweetened Beverage in Past Week	NA	NA	NA	NA	20	32
	Teen Birth Rate (10-17yrs) Per 1,000 Female Population	6.5	10	2.0	1.3	5.3	8.3
Prevalence	% Ever Been Diagnosed with Asthma (Ages 0-17, parental report)	15	12	14	13	13	15
	% Overweight/Obesity Problem (Ages 0-17, parental report)	1.7	4.5	2.8	4.4	3.6	NA
	% With Developmental Delay or Learning Disability (Ages 0-17, parental report)	14	7.2	14	10	11	NA
Management	ACSC, ED Rate (Ages 0-17)	5,285	6,808	1,349	679	2,813	2,211
	ACSC, Hospital Admission Rate (Ages 0-17)	1,394	1,469	426	329	743	484
	Asthma and Bronchitis, Hospital Admission Rate (Ages 0-17)	919	869	171	127	402	385
	Pneumonia, Hospital Admission Rate (Ages 0-17)	321	323	131	138	199	240
	Psychoses Hospital Admission Rate (Ages 0-17)	775	854	395	258	496	530
	Major Depressive Disorder, Hospital Admission Rate (Ages 0-17)	212	173	129	78	131	148
	Bipolar Disorder, Hospital Admission Rate (Ages 0-17)	472	582	241	167	319	359
	Asthma and Bronchitis, ED Rate (Ages 0-17)	901	855	171	120	395	420
	Pneumonia, ED Rate (Ages 0-17)	990	1,196	365	192	566	698

 20% or more below Statewide average

 20% or more above Statewide average

All rates are per 100,000, unless otherwise noted

NA = Not Available in the Missouri BRFSS 2008-10

APPENDIX 5: SURVEY INSTRUMENT

**ST. LOUIS COUNTY DEPARTMENT OF HEALTH
COMMUNITY HEALTH ASSESSMENT**

HOUSEHOLD SURVEY

JANUARY 2011

Prepared by:

Center for Community & Public Health
University of New England
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St. Louis County Community Health Needs Assessment
**ST. LOUIS COUNTY DEPARTMENT OF HEALTH
 COMMUNITY HEALTH ASSESSMENT**

**HOUSEHOLD SURVEY
 SECTIONS**

A	ACCESS AND UTILIZATION
B	HEALTH STATUS
C	DISEASE PREVALENCE
D	CHRONIC DISEASE MANAGEMENT
E	YOUTH HEALTH
F	EXERCISE
G	DISABILITIES/LIMITATIONS
H	ROUTINE CARE/SCREENING/ PREVENTION
I	ENVIRONMENT / HEALTH PROMOTION
J	DENTAL CARE
K	MENTAL HEALTH
L	TOBACCO
	SEXUAL BEHAVIOR
M	ALCOHOL
N	HEALTH COVERAGE/ SAFETY NET
O	COMMUNITY HEALTH NEEDS
P	ACCESS TO DRUGS / SUBSTANCE ABUSE AND TREATMENT
Q	EMERGENCY PREPAREDNESS
Z	DEMOGRAPHICS

KEY: Source: C5 = CT BRFSS 2005; C6=CT BRFSS 2006; and item number

Use: HSP item / *= revised wording

INTRODUCTION /SCREENING

NOTE TO INTERVIEWER: *The introduction and information screens are meant to explain why the Respondent has been called, how they have been chosen, and why their participation is important. If they are interested in knowing who is paying for/sponsoring the study they should be informed that the St. Louis County Department of Health has contracted the Center for Community & Public Health at the University of New England to do the study to better understand the healthcare needs of the residents of their community.*

Once the respondent has been selected (the person over 18 in the household who has had the most recent birthday), it is important to assure them that all of the information they give is entirely confidential. We do not know their name or address and their responses will not be linked with their telephone number. They do not have to answer questions that make them uncomfortable, and it is better to complete the survey in a private place away from other household members.

INTRODUCTION PAGE

This is _____ calling for the Center for Community & Public Health at the University of New England. We're doing a study of health needs in your area to assist in the planning of health care services in the future. Because we can't interview everyone in your community, we are randomly choosing a smaller group of people to speak on behalf of all residents. Your phone number has been chosen at random to be included in this study. [We are very interested in hearing what you think about health care. Your participation is important because you will be helping to represent your entire community. Let me assure you, we are not selling anything.]

First, have I reached you at your home telephone?

YES NO →IF NOT A RESIDENCE, THANK R; DO NOT INTERVIEW.

↓

Is this a residence in St. Louis County?

- 1 Yes
- 2 No
- 8 DK
- 9 REF

What town do you live in?

777=DK/NS

999=Refused

To start with, I need to know how many of the people living at this phone number are age 18 or above.

ENTER NUMBER OF INDIVIDUALS. ENTER 30 FOR 30 or MORE / 31 FOR DK OR 32 FOR REF

THIS QUESTION ALLOWS TO IDENTIFY A RANDOM ADULT IN YOUR HOUSEHOLD

- 0
- 1
- 2-30
- 31 DK
- 32 REF

Of these adults, may I please speak to the person (over the age of 18 in your household) who had the most recent birthday Would that be you or someone else there?

IF R, GO TO INTRO.

IF NOT R → Is that person available?

IF PERSON IS AVAILABLE, REINTRODUCE AND GO TO INTRO.

IF R NOT AVAILABLE, SUGGEST TARGET TIME: Could I reach (her/him) later this evening? Tomorrow at about this time? ETC. To make sure we are able to reach the right person, what is (her/his) first name? _____

MAKE NOTE FOR CALLBACK.

St. Louis County Community Health Needs Assessment

YOUR PARTICIPATION IS IMPORTANT

We are very interested in hearing what you think about health care. Your participation is important because you will be helping to represent your entire community.

We are doing a study of health needs in your area to assist in the planning of health care services in the future. Because we can't interview everyone in your community, we are randomly choosing a smaller group of people to speak on behalf of all residents. Your phone number has been chosen at random to be included in this study.

This study will take about 20-25 minutes to complete. I'm hoping you can help us.

I want to assure you that your name will never be associated with the data in any way, and that all your responses will be kept confidential. Let me assure you, we are not selling anything.

TO VERIFY THIS SURVEY: Call 800-293-1538 ext. 102 during business hours and ask for Dr. Brian Robertson. ENDHELP

Q:INTO

T: Thank you. I want to assure you that this survey is confidential. Your name will never be released, and the results of this study will be reported in combined form only.

READ AS NEEDED ONLY:

The survey is also voluntary. If at any time you would like to discontinue the survey or continue it at a more convenient time, or if there is any question you do not wish to answer, just let me know and we will skip this question. Also, my supervisor may listen to all or part of the interview to evaluate my performance if that is all right with you.

- 1 PROCEED WITH SURVEY
- 5 NOT A GOOD TIME, CALL BACK
- 9 REFUSED

Screening for Residents in the County

Q:TOWN

T:

To start with, which town do you live in?

We'll precode a list of towns

Q:ZIP

T:

What is your Zip Code?

IF Respondent does not provide a town located in the county and zip code is not exclusively in St. Louis County ASK:

Q:SLCOUNT

T:

For this survey we are interested in speaking with people that live in St.Louis County. Do you live in St. Louis County?

PROMPT: The City of St. Louis is NOT located in St. Louis County.

1 YES

2 NO (TERMINATE)

8 DK (TERMINATE)

9 REF (TERMINATE)

SOURCE USE

SECTION A: HEALTH SERVICES ACCESS AND UTILIZATION

- A1. Do you have one person you think of as your personal doctor or health care provider? IF NO, ASK: Is there more than one, or is there no person who you think of as your personal doctor or health care provider
- 1 Yes, only one (GO TO A3)
 - 2 More than one (GO TO A3)
 - 3 No
 - 8 DK
 - 9 REF
- A2. If you or someone in your family were ill and required medical care, where would you go? (DO NOT READ RESPONSES)
- 1 DOCTOR
 - 2 A CLINIC OR HEALTH CENTER
 - 3 HOSPITAL OUTPATIENT CLINIC
 - 4 HOSPITAL EMERGENCY ROOM
 - 5 WALK-IN/URGENT CARE CENTER
 - 6 CHIROPRACTOR
 - 7 CHRISTIAN SCIENCE PRACTITIONER
 - 8 OTHER
 - 9 DK
 - 10 REF
- A3. Is this place. (READ RESPONSES) PROMPT: What kind of place do you usually go?
- 1 A doctor's office or HMO
 - 2 A clinic or health center
 - 3 A hospital outpatient department
 - 4 A hospital emergency room
 - 5 A walk-in or urgent care center
 - 6 Chiropractor
 - 7 Christian Science Practitioner
 - 8 Some other kind of place
 - 9 DK
 - 10 REF
- A5. During the past 12 months, how many times have YOU visited a medical doctor?
- 0-96 ENTER # OF TIMES:
 - 97 97 OR MORE TIMES
 - 98 DK
 - 99 REF
- A6. During the past 12 months, have you been a patient in a hospital for an overnight stay?
- 1 YES
 - 2 NO
 - 8 DK
 - 9 REF
- A7. During the past 12 months, have you sought care at an emergency room?
- 1 YES
 - 2 NO
 - 8 DK
 - 9 REF

SECTION B: HEALTH STATUS

B1. In what year were you born? C5:13.1* CORE
19 00-89 ENTER YEAR
98 DK
99 REF

IF DK/REF to QB1

Q:B1a. In order to ask you appropriate health related questions, can you tell me which of the following age categories you belong? C5:13.1* CORE

(READ RESPONSES)

- 1 Less than 35
- 2 35 to 44
- 3 45 to 49
- 4 50 to 64
- 5 65 or older
- 8 DK
- 9 REF

B2. In general, would you say your health is... C5:1.1 CORE
(READ OPTIONS)

- 1 Excellent
- 2 Very good
- 3 Good
- 4 Fair
- 5 Poor
- 8 DK
- 9 REF

B3. Now thinking about your physical health, which includes physical illness and injury, for how many days during the past 30 days was your physical health not good? C5:2.1 CORE

- ___ 0-30 ENTER # OF DAYS:
88 DK
99 REF

B4. Now thinking about your mental health, which includes stress, depression, and problems with emotions, for how many days during the past 30 days was your mental health not good? C5:2.2 CORE

- ___ 0-30 ENTER # OF DAYS: **IF B3 AND B4 = 0, GO TO C1**
88 DK
99 REF

B5. During the past 30 days, for about how many days did poor physical or mental health keep you from doing your usual activities, such as self-care, work, or recreation? C5:2.3 CORE

- ___ 0-30 ENTER # OF DAYS:
88 DK
99 REF

SECTION C: DISEASE PREVALENCE

For each of the following conditions I'd like to know whether a doctor, nurse or other health professional ever told you that you had this condition.

Has a doctor, nurse, or other health professional ever told you that you have...

- C1. High blood pressure or Hypertension C5:6.1 CORE
 PROMPT: IF YES AND FEMALE ASK: WAS THIS ONLY DURING PREGNANCY?
 1 YES
 2 NO
 3 YES, BUT FEMALE TOLD ONLY DURING PREGNANCY
 4 TOLD BORDERLINE HIGH OR PRE-HYPERTENSIVE
 8 DK
 9 REF

- C2. High Cholesterol (Has a doctor, nurse, or other health professional ever told you that you have...) C5:7.3* CORE
 1 YES
 2 NO
 8 DK
 9 REF

- C3. Diabetes or high blood sugar C5:5.1* CORE
 PROMPT: IF YES AND FEMALE ASK: WAS THIS ONLY DURING PREGNANCY?
 1 YES
 2 NO
 3 YES, BUT FEMALE TOLD ONLY DURING PREGNANCY
 4 TOLD BORDERLINE DIABETES OR PRE-DIABETES
 8 DK
 9 REF

- C4. Heart Attack (Myocardial infarction) C5:8.1
 1 YES
 2 NO
 8 DK
 9 REF

- C5. Angina or coronary artery disease C5:8.2* CORE
 1 YES
 2 NO
 8 DK
 9 REF

- C6. A Stroke C5:8.3 CORE
 1 YES
 2 NO
 8 DK
 9 REF

- C7. Arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia C6:16.4 CORE
*INTERVIEWER NOTE: Arthritis diagnoses include: rheumatism, polymyalgia rheumatica * osteoarthritis (not osteoporosis) * tendonitis, bursitis, bunion, tennis elbow * carpal tunnel syndrome, tarsal tunnel syndrome * joint infection, Reiter's syndrome * ankylosing spondylitis; spondylosis * rotator cuff syndrome * connective tissue disease, scleroderma, polymyositis, Raynaud's syndrome * vasculitis (giant cell arteritis, Henoch-Schonlein purpura, Wegener's ranulomatosis, polyarteritis nodo*
 1 YES
 2 NO

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- 8 DK
9 REF
- C7A. Are you managing your arthritis with medication? (Asked if C7=YES)
1 YES
2 NO
8 DK
9 REF
- C8. Cancer
1 YES IF C8=YES, Ask C8a-C8f
2 NO
8 DK
9 REF
- C9. Chronic Obstructive Pulmonary Disease (Has a doctor, nurse, or other health professional ever told you that you have...) PROMPT: (COPD), including emphysema, or chronic bronchitis CORE
1 YES
2 NO
8 DK
9 REF
- C10. Asthma C5:9.2
1 YES → If C10=YES ask C10a-C10d
2 NO
8 DK
9 REF
- C10a. Do you still have asthma? C5:9.2 CORE
1 YES
2 NO
8 DK
9 REF
- C10b. During the past 12 months, have you had an episode of asthma or an asthma attack? C5:OM9.2
1 YES
2 NO
8 DK
9 REF
- C10c. During the past 12 months, how many times did you visit an emergency room or urgent care center because of your asthma? C5:om9.3
_____ 0-86 ENTER # OF ER VISITS:
87 MORE THAN 87 VISITS
88 DK
99 REF
- C10d. During the past 12 months, how many days were you unable to work or carry out your usual activities because of your asthma? C5:om9.6
_____ 0 - 86 ENTER # OF DAYS:
87 MORE THAN 87 DAYS
88 DK
99 REF
- C13. Osteoporosis is a condition where bones become brittle and break (fracture) more easily. It is *not* the same condition as osteoarthritis, a joint disease. Have you EVER been told by a doctor, nurse, or other health professional that you have osteoporosis? C5:16.1
1 YES

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2 NO
8 DK
9 REF

SECTION D: CHRONIC DISEASE MANAGEMENT

ASPIRIN THERAPY: D1_S. RESPONDENT AGE: IF 35 OR OLDER, WILL GO TO D1a IF 34 OR YOUNGER, WILL GO TO D2_S

D1a. Do you take aspirin daily or every other day? C5:OM5.3
 1 YES (Go to D1c1)
 2 NO
 8 DK
 9 REF

D1b. Do you have a health problem or condition that makes taking aspirin unsafe for you? C5:OM5.4
 IF YES, ASK: Is this a stomach condition?
 1 Yes, not stomach related (go to D2_s)
 2 Yes, stomach problems (go to D2_s) (code upset stomach as stomach problem)
 3 No (go to D2_s) (go to D2_s)
 8 DK (go to D2_s)
 9 REF (go to D2_s)

D1c2. Why do you take aspirin - To reduce the chance of a heart attack?
 1 YES
 2 NO
 8 DK
 9 REF

DIABTETES: D2_S. IF C3=YES (DIABETES) ASK D2a-D2g OTHERWISE SKIP TO D3_S

D2a. How old were you when you were told you have diabetes? C5OM1.1
 _____ 0-96 ENTER # AGE IN YEARS
 97 97 YEARS OR OLDER
 98 DK
 99 REF

D2b. Are you now taking insulin? C5OM1.2
 1 YES
 2 NO
 8 DK
 9 REF

D2c. Are you now taking diabetes pills? C5OM1.3
 1 YES
 2 NO
 8 DK
 9 REF

D2d. About how many times in the past 12 months have you seen a doctor, nurse, or other health professional for your diabetes? C5OM1.7
 0 - 96 ENTER NUMBER OF TIMES:
 97 97 OR MORE TIMES
 98 DK
 99 REF

D2e. A test for "A one C" measures the average level of blood sugar over the past three C5OM1.8 CORE

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months. About how many times in the past 12 months has a doctor, nurse, or other health professional checked you for "A one C"?

- 0-75 ENTER NUMBER OF TIMES:
- 76 76 OR MORE TIMES
- 77 DK
- 98 NEVER HEARD OF A HEMOGLOBIN "A ONE C" TEST
- 99 REF

D2f. About how many times in the past 12 months has a health professional checked your feet for any sores or irritations? (WILL SKIP THIS Q IF D2e=NO FEET) C5OM1.9 CORE

- 0-96 ENTER NUMBER OF TIMES:
- 97 97 OR MORE TIMES
- 98 DK
- 99 REF

D2g. When was the last time you had an eye exam in which the pupils were dilated? This would have made you temporarily sensitive to bright light. C5OM1.10 CORE

- 1 Within the past month (anytime less than 1 month ago)
- 2 Within the past year (1 to 12 months ago)
- 3 Within the past 2 years (1 to 2 years ago)
- 4 2 or more years ago
- 7 NEVER
- 8 DK
- 9 REF

D2h. Has a doctor ever told you that diabetes has affected your eyes or that you had retinopathy? C5OM1.11

- 1 YES
- 2 NO
- 8 DK
- 9 REF

D2i. Have you ever taken a course or class in how to manage your diabetes yourself? C5OM1.13

- 1 YES
- 2 NO
- 8 DK
- 9 REF

Hypertension D3_S. IF C1=YES (Hypertension) will ask D3a-D3i Otherwise skips to D4_S

D3a. About how long has it been since you last had your blood pressure taken by a doctor, nurse, or other health professional? (READ ONLY IF NECESSARY)

- 1 Within the 6 months (1 to 6 months ago)
- 2 Within the past year (6 to 12 months ago)
- 3 Within the past 2 years (1 to 2 years ago)
- 4 Within the past 5 years (2 to 5 years ago)
- 5 5 or more years ago
- 7 NEVER (Go to D4_S)
- 8 DK
- 9 REF

D3c. Cutting down on salt? (Are you ___ to help lower your high blood pressure) C5OM6.2

- 1 YES
- 2 NO
- 8 DK
- 9 REF

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D3d. Exercising? (Are you _____ to help lower your high blood pressure) C5OM6.3
1 YES
2 NO
8 DK
9 REF

D3e. Taking medication (Are you _____ to help lower your high blood pressure) C5:6.2*
1 YES
2 NO
8 DK
9 REF

D3f. Has a doctor or other health professional ever advised you to do any of the following to help lower or control your high blood pressure? Change your eating habits? C5OM6.5
1 YES
2 NO
8 DK
9 REF

D3g. Cut down on salt? (Dr ever advised you to _ to help lower your high blood pressure)? C5OM6.6
1 YES
2 NO
8 DK
9 REF

D3h. Exercise? (Dr ever advised you to _____ to help lower your high blood pressure)? C5OM6.8
1 YES
2 NO
8 DK
9 REF

D3i. Medication? (Dr ever advised you to _____ to help lower your high blood pressure)? C5OM6.9
1 YES
2 NO
8 DK
9 REF

COPD D4_S. IF =YES (COPD)will ask D4a-D3b Otherwise skips to D5_S

D4a. Have you ever received any kind of pulmonary rehabilitation? This is sometimes called "rehab."
1 YES
2 NO
8 DK
9 REF

D4b. Have you received a lung function test to measure airflow, also called spirometry, in the past 12 months?
1 YES
2 NO
8 DK
9 REF

Heart attack: Asked of those who answered YES to C4 (heart attack)

D5a. After you left the hospital following your heart attack did you go to any kind of outpatient rehabilitation? This is sometimes called "rehab." C5OM5.1

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- 1 Yes
- 2 No
- 3 Was not hospitalized for a heart attack
- 8 DK
- 9 REF

Stroke: Asked of those who answered YES to C6 (stroke)

D6a. After you left the hospital following your stroke, did you go to any kind of outpatient rehabilitation? This is sometimes called "rehab." C5OM5.2

- 1 Yes
- 2 No
- 3 Was not hospitalized for a stroke
- 8 DK
- 9 REF

Chronic Disease Management:

D7_S. FOR ONE OR MORE YES RESPONSES TO C1-C10 (CHRONIC DISEASES) SKIP TO E1 IF NONE.

D7a. Has your doctor or other health professional encouraged you to learn more about your condition (any of your conditions)?

- 1 YES
- 2 NO
- 8 DK
- 9 REF

PATIENT SELF-MANAGEMENT MODULE. IF C3 = YES (DIABETES) or C9 = YES (COPD) or Random Sample (50%) of C1 = YES (HYPERTENSION) ASK D8a-D8h, OTHERWISE GO TO E1

D8a. Having an illness often means doing different tasks and activities to manage your condition. How confident are you that you can do all the things necessary to manage your condition on a regular basis?

(READ RESPONSES)

- 1 Very confident
- 2 Somewhat confident
- 3 A little confident
- 4 Not at all confident
- 8 DK
- 9 REF

D8c. Help to make a treatment plan that you could do in your daily life? (Over the past 6 months, when receiving medical care for your condition did your health care team, including your regular doctor, nurse, or physician assistant...)

- 1 Almost never
- 2 Generally not
- 3 Sometimes
- 4 Most of the Time
- 5 Almost Always
- 8 DK
- 9 REF

D8f. Offer you understandable explanations of your medical condition? (Over the past 6 months, when receiving medical care for your condition did your health care team, including your regular doctor, nurse, or physician assistant...)

- 1 Almost never
- 2 Generally not
- 3 Sometimes
- 4 Most of the Time

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- 5 Almost Always
- 8 DK
- 9 REF

D8g. Give you a written list of things you should do to improve your health? (Over the past 6 months, when receiving medical care for your condition did your health care team, including your regular doctor, nurse, or physician assistant...)

- 1 Almost never
- 2 Generally not
- 3 Sometimes
- 4 Most of the Time
- 5 Almost Always
- 8 DK
- 9 REF

D8i. How often does your doctor or other provider help you solve problems in caring for this medical condition (your medical conditions)?

- 1 Always
- 2 Usually
- 3 Sometimes
- 4 Never
- 8 DK
- 9 REF

SECTION E. YOUTH HEALTH

E1a. Including yourself, how many people in your household are:

- 65 or older? (IF NONE, ENTER 0)
- 0 - 9 ENTER # OF PEOPLE 65 OR OLDER:
- 10 10 OR MORE PEOPLE
- 98 DK
- 99 REF

E1b. 45-64?

- 0 - 9 ENTER # OF PEOPLE UNDER 18:
- 10 10 OR MORE PEOPLE
- 98 DK
- 99 REF

E1c. 18-44 years old? 0 - 9 ENTER # OF PEOPLE 18-44:

- 10 10 OR MORE PEOPLE
- 98 DK
- 99 REF

E1d. Under 18 years old?

C5:13.6

- 0 - 9 ENTER # OF PEOPLE UNDER 18:
- 10 10 OR MORE PEOPLE
- 98 DK
- 99 REF

FOLLOWING SECTION ASKED IF CHILDREN LIVE IN HOUSEHOLD

How many children live in your household who are?

- E1c1. less than 5 years old? _____
- E1c2. 5 through 12 years old? _____
- E1c3. 13 through 17 years old? _____

E8a. During the past 12 months, was there any time when any the children living in your household didn't get the medical care they needed because of cost?

- 1 YES
- 2 NO
- 8 DK
- 9 REF

E8b. Was there a time in the past 12 months when any the children living in your household needed to see a dentist but could not because of cost?

- 1 YES
- 2 NO
- 8 DK
- 9 REF

E8c . How many of the children living in this household have any kind of health care coverage at this time?

(READ IF NECESSARY: You may know private health insurance, HMO, Medicaid, Title XIX, state children's health insurance program or by the names of the companies that provide coverage—BlueCare Family Plan, Community Health Network, First Choice, or HealthNet).

St. Louis County Community Health Needs Assessment

Now I am going to read you a list of health problems that children and adolescents often experience. I'd like to know whether a medical doctor has ever told you that anyone in your household under the age of 18 had each problem. Have any children in your household under the age of 18 ever been diagnosed with...

E2a. Have any children in your household under the age of 18 ever been diagnosed with...
Asthma

- 1 YES
- 2 NO
- 8 DK
- 9 REF

ASK IF E2a=YES

E2b1: Which child or children have ever been diagnosed with this condition

E4a. Have any children in your household under the age of 18 ever been diagnosed with a problem with overweight or obesity

- 1 YES
- 2 NO (SKIP)
- 8 DK (SKIP)
- 9 REF

E4b: Which child or children have ever been diagnosed with this condition

E5a. Have any children in your household under the age of 18 ever been diagnosed with a problem with An emotional/mental problem or behavior problem

- 1 YES
- 2 NO (SKIP)
- 8 DK (SKIP)
- 9 REF

E5b: Which child or children have ever been diagnosed with this condition

E6a. Have any children in your household under the age of 18 ever been diagnosed with a problem with A learning disability or attention disorder (such as attention deficit disorder)

- 1 YES
- 2 NO (SKIP)
- 8 DK (SKIP)
- 9 REF

E6b: Which child or children have ever been diagnosed with this condition

E7a. Have any of the children in your household under the age of 18 had their blood tested for lead poisoning?

- 1 YES
- 2 NO (SKIP)
- 8 DK (SKIP)
- 9 REF

E7b. Have any of the children in your household under the age of 18 ever had elevated blood lead levels?

- 1 YES
- 2 NO
- 8 DK
- 9 REF

E7c. Which children in your household under the age of 18 ever had elevated blood lead levels?

E9. **When your oldest child under the age of 18 rode a bicycle** during the past 12 months, how often did he or she wear a helmet?

- 1 Did not ride a bicycle during the past 12 months (skip to E11b)
- 2 Never wore a helmet
- 3 Rarely wore a helmet
- 4 Sometimes wore a helmet
- 5 Most of the time wore a helmet
- 6 Always wore a helmet (Skip to E11b)
- 8 DK
- 9 REF

E10. When do you allow this child to ride his/her bike without their helmet?

- In the Driveway ?
- In your Neighborhood?
- To the store?
- All the time
- Never

E11b. ASK IF ANY CHILD IN HH IS AGE 7 OR UNDER

How often does the youngest child (under the age of 8) sit in a car seat or booster seat when riding in a car?

- 1 Never
- 2 25% of the time
- 3 50% of the time
- 4 75% of the time
- 5 All the time
- 7 NA: Doesn't ride in car
- 8 DK
- 9 REF

(INT CHECK: ANY CHILDREN BETWEEN AGE 8 and 17)

E12a. ASK IF ANY CHILD IN HH IS AGED 8-16

How often does the youngest child over the age of use a seat belt when riding in a car?

- 1 Never
- 2 25% of the time
- 3 50% of the time
- 4 75% of the time
- 5 All the time
- 7 NA: Doesn't ride in car
- 8 DK
- 9 REF

SECTION F: EXERCISE

F1. Has a doctor or other health professional ever talked with you about physical activity or exercise?

- 1 YES
- 2 NO
- 8 DK
- 9 REF

F2. During the past month, did you participate in any physical activities such as running, C5:4.1 CORE

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calisthenics, golf, tennis, or walking for exercise?

- 1 YES
- 2 NO (Go to G1)
- 8 DK (Go to G1)
- 9 REF (Go to G1)

F3a. How many times per week or per month did you take part in this activity during the past month? CORE

- 1 ENTER # OF TIMES PER WEEK
- 2 ENTER # OF TIMES PER MONTH
- 8 DK (Go to G1)
- 9 REF (Go to G1)

F3b. How many times per week or per month do you take part in this activity? CORE

- 0-96 ENTER # OF TIMES PER WEEK/MONTH:
- 97 MORE THAN 97 TIMES
- 98 DK
- 99 REF

F4. And when you took part in this activity, for how many minutes did you usually keep at it? CORE

- (RECORD RESPONSE IN MINUTES)
- 0-996 ENTER # OF MINUTES:
- 998 DK
- 999 REF

SECTION G: DISABILITY

- G1. Are you limited in any way in any activities because a physical, mental, or emotional problem or impairment? C5:15.1* CORE
1 YES
2 NO
8 DK
9 REF
- G2. Do you now have any health problem that requires you to use special equipment, such as a cane, a wheelchair, a special bed or a special telephone? (Include occasional use or use in certain circumstances) C5:15.2 CORE
1 YES
2 NO
8 DK
9 REF
- G3. Do you, or does anyone in your household, need the help of other persons with personal care needs, such as eating, bathing, dressing, or getting around the house? CORE
1 YES
2 NO
8 DK
9 REF

SECTION H: SCREENING/ PREVENTION

- H1. INTERVIEWER: SEX BY OBSERVATION (DO NOT READ) C5:13.17
- 1 MALE
 - 2 FEMALE
 - 8 DK
- H2. About how long has it been since you last visited a doctor for a routine checkup or physical examination? PROMPT: A ROUTINE CHECKUP IS A GENERAL PHYSICAL EXAM, NOT AN EXAM FOR A SPECIFIC INJURY, ILLNESS OR CONDITION. C5:3.4 CORE
- (READ IF NECESSARY)
- 1 Within the past year (1 to 12 months ago)
 - 2 Within the past 2 years (1 to 2 years ago)
 - 3 Within the past 5 years (2 to 5 years ago)
 - 4 More than 5 years ago
 - 7 Never
 - 8 DK
 - 9 REF

- H3. Blood cholesterol is a fatty substance found in the blood. Have you ever had your blood cholesterol checked? C5:7.1
- 1 YES
 - 2 NO (Go to H4)
 - 8 DK (Go to H4)
 - 9 REF (Go to H4)

- H3a. About how long has it been since you last had your blood cholesterol checked? C5:7.2 CORE
- (READ ONLY IF NECESSARY)
- 1 Within the past year (1 to 12 months ago)
 - 2 Within the past 2 years (1 to 2 years ago)
 - 3 Within the past 5 years (2 to 5 years ago)
 - 4 More than 5 years ago
 - 8 DK
 - 9 REF

H6-H8 ASKED OF MALES ONLY

- H6. An exam to check for testicular cancer (How long has it been since you last had any of the following tests or examinations.)
- (READ ONLY IF NECESSARY)
- 1 Within the past year (1 to 12 months ago)
 - 2 Within the past 2 years (1 to 2 years ago)
 - 3 Within the past 5 years (2 to 5 years ago)
 - 4 More than 5 years ago
 - 7 NEVER
 - 8 DK
 - 9 REF

C6:19.4* CORE

- H7. A digital rectal exam PROMPT: This is an exam in which a doctor, nurse, or other health professional places a gloved finger into the rectum to feel the size, shape, and hardness of the prostate gland. (How long has it been since you last had the following test or examination.)
- (READ IF NECESSARY)
- 1 Within the past year

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- (1 to 12 months ago)
- 2 Within the past 2 years (1 to 2 years ago)
- 3 Within the past 5 years (2 to 5 years ago)
- 4 More than 5 years ago
- 7 NEVER
- 8 DK
- 9 REF

H8. A Prostate Specific Antigen test, also called a PSA test, to check your prostate gland (How long has it been since you last had the following test or examination.) C6:19.2* CORE

(READ IF NECESSARY)

- 1 Within the past year (1 to 12 months ago)
- 2 Within the past 2 years (1 to 2 years ago)
- 3 Within the past 5 years (2 to 5 years ago)
- 4 More than 5 years ago
- 7 NEVER
- 8 DK
- 9 REF

H9-H11a ASKED OF FEMALES ONLY

H9. A rectal exam to check for signs of abnormalities CORE

(READ ONLY IF NECESSARY)

- 1 Within the past year (1 to 12 months ago)
- 2 Within the past 2 years (1 to 2 years ago)
- 3 Within the past 5 years (2 to 5 years ago)
- 4 More than 5 years ago
- 7 NEVER
- 8 DK
- 9 REF

H10. ASK IF FEMALE AGED 40-79 C6:18.1

A mammogram is an x-ray of the breast to look for cancer. Have you ever had a mammogram?

- 1 YES
- 2 NO (Go to H10b)
- 8 DK (Go to H10b)
- 9 REF (Go to H10b)

H10a. How long has it been since you had your last mammogram?

C6:18.2 CORE

(DON'T READ RESPONSES)

- 1 Within the past year (1 to 12 months ago)
- 2 Within the past 2 years (1 to 2 years ago)
- 3 Within the past 5 years (2 to 5 years ago)
- 4 More than 5 years ago
- 7 NEVER
- 8 DK
- 9 REF

H10b. A clinical breast exam is when a doctor, nurse, or other health professional feels the breasts for lumps. Have you ever had a clinical breast exam? C6:18.5

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- 1 Yes
2 No [Go to H11]
8 Don't know / Not sure [Go to H11]
9 REF [Go to H11]
- H10c. How long has it been since your last breast exam? C6:18.5 CORE
- 1 Within the past year (anytime less than 12 months ago)
2 Within the past 2 years (1 year but less than 2 years ago)
3 Within the past 3 years (2 years but less than 3 years ago)
4 Within the past 5 years (3 years but less than 5 years ago)
5 5 or more years ago
Do not read:
8 Don't know / Not sure
9 Refuse
- H11. A Pap smear is a test for cancer of the cervix. Have you ever had a Pap smear?
- 1 YES
2 NO (Go to H12)
8 DK (Go to H12)
9 REF (Go to H12)
- H11a. How long has it been since you had your last Pap smear? C6:18.6 CORE
- (DO NOT READ RESPONSES)
- 1 Within the past year (1 to 12 months ago)
2 Within the past 2 years (1 to 2 years ago)
3 Within the past 3 years (2 to 3 years ago)
4 Within the past 5 years (3 to 5 years ago)
5 5 or more years ago
8 DK
9 REF
- H12-H13a ASKED IF RESPONDENT AGE IS 50 OR OLDER**
- H12. A blood stool test is a test that may use a special kit at home to determine whether the stool contains blood. Have you ever had this test using a home kit? C6:20.1
- 1 YES
2 NO (Go to H13)
8 DK (Go to H13)
9 REF (Go to H13)
- H12a. When did you have your last blood stool test using a home kit? C6:20.2 CORE
- (READ IF NECESSARY)
- 1 Within the past year (1 to 12 months ago)
2 Within the past 2 years (1 to 2 years ago)
3 Within the past 5 years (2 to 5 years ago)
4 More than 5 years ago
8 DK
9 REF
- H13. Sigmoidoscopy and colonoscopy are exams in which a tube is inserted in the rectum to view the colon for signs of cancer or other health problems. Have you ever either of these? C6:20.3
- 1 YES
2 NO (Go to H14)
8 DK (Go to H14)
9 REF (Go to H14)
- H13a. How long has it been since you had your last sigmoidoscopy or colonoscopy? C6:20.4 CORE
- (READ IF NECESSARY)
- 1 Within the past year (1 to 12 months ago)

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- 2 Within the past 2 years (1 to 2 years ago)
- 3 Within the past 5 years (2 to 5 years ago)
- 4 More than 5 years ago
- 8 DK
- 9 REF

H14. During the past 12 months, have you had a Flu shot? (ASKED OF ALL) CORE

- 1 YES C5:10.1
- 2 NO
- 8 DK
- 9 REF

H15. ASK IF AGED 65 AND OLDER C5:10.3 CORE

A pneumonia shot or pneumococcal vaccine is usually given only once or twice in a person's lifetime and is different from the flu shot. Have you ever had a pneumonia vaccination?

- 1 YES
- 2 NO (Go to H16)
- 8 DK (Go to H16)
- 9 REF (Go to H16)

H15a. During the past 12 months, have you had a pneumonia vaccination? CORE

- 1 YES
- 2 NO
- 8 DK
- 9 REF

H16. How tall are you with your shoes off? (RECORD IN FEET AND INCHES; E.G. 6'1"=601) C5:13.11 CORE

- 400-800 ENTER # OF FEET/INCHES:
- 998 DK
- 999 REF

H17. What is your weight with your shoes off? (ROUND FRACTIONS UP) C5:13.10 CORE

- 0 - 996 ENTER # OF POUNDS:
- 997 MORE THAN 997 POUNDS
- 998 DK
- 999 REF

H18. Within the past 12 months, has a doctor, nurse, or other health professional advised you to eat fewer high fat or high cholesterol foods?

- 1=Yes
- 2=No
- 7=DK/N
- 9=Refused

H19. In the past 12 months, has a doctor, nurse or other health professional given you advice about your weight?

- Probe for which:**
- 1 Yes, lose weight
 - 2 Yes, gain weight
 - 3 Yes, maintain current weight
 - 4 No
 - 7 Don't know / Not sure
 - 9 Refused

H20. How well do your health care providers (including your doctors, nurse practitioners, or specialists) communicate with each other about the care you may need?

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- 1 Very well,
- 2 Somewhat well,
- 3 A little well,
- 4 Not at all well.
- 5 Not applicable - only receive care from one person
- 7 Don't know / Not sure
- 9 Refused

SECTION I: ENVIRONMENT & HEALTH PROMOTION

- I1a. Things like dust, mold, smoke, and chemicals inside the home or office can cause poor indoor air quality. In the past 12 months have you had an illness or symptom that you think was caused by something in the air inside a home, office, or other building? Ct04
- 1 Yes
 - 2 No
 - 7 Don't know / not sure
 - 9 Refused
- I1b. Do you currently have mold in your home on an area greater than the size of a dollar bill? CT04
- 1 Yes
 - 2 No
 - 7 Don't know / Not sure
- I3. When was the last time you or someone else deliberately tested all of the smoke alarms in your home? If never, then probe if have smoke detector Mod 5:
res Fire
- 1=Within the past month
 - 2=Within the past 6 months
 - 3=Within the past year
 - 4=One or more years ago
 - 5=Never
 - 6=No smoke detectors in home
 - 8 DK
 - 9 REF
- I5. When you drive or ride in a car, how often do you wear seat belts? CT05
(READ RESPONSES)
- 1 Always
 - 2 Nearly always
 - 3 Sometimes
 - 4 Seldom
 - 5 Never
 - 7 NEVER DRIVE OR RIDE IN A CAR
 - 8 DK
 - 9 REF

SECTION J: DENTAL CARE

J1. Now I'd like to change the subject and ask about dental care. How long has it been since you last visited the dentist or dental clinic? Include all types of dentists, such as orthodontists, oral surgeons, and all other dental specialists, as well as hygienists.

(READ ONLY IF NECESSARY)

- 1 WITHIN THE PAST YEAR (1 to 12 MONTHS AGO) (GO TO J3)
- 2 WITHIN THE PAST 2 YEARS (1 TO 2 YRS AGO)
- 3 WITHIN THE PAST 5 YEARS (2 TO 5 YRS AGO)
- 4 5 OR MORE YEARS AGO

- 5 NEVER
- 8 DK (GO TO J3)
- 9 REF (GO TO J3)

J2. What is the main reason you have not visited a dentist in the last year? (READ IF NECESSARY)

- 10 FEAR, APPREHENSION, NERVOUSNESS, PAIN, DISLIKE GOING
- 11 COST
- 12 DO NOT HAVE/KNOW A DENTIST
- 13 CANNOT GET TO THE OFFICE/CLINIC (DISTANCE, TRANSPORTATION,NO APPOINTMENTS)
- 14 NO REASON TO GO (NO PROBLEMS, NO TEETH)
- 15 OTHER PRIORITIES
- 16 HAVE NOT THOUGHT OF IT
- 95 OTHER (SPECIFY)
- 98 DK
- 99 REF

J3. How long has it been since you had your teeth "cleaned" by a dentist or dental hygienist? CTS

- 1 WITHIN THE PAST YEAR (1 to 12 MONTHS AGO) (GO TO J3)
- 2 WITHIN THE PAST 2 YEARS (1 TO 2 YRS AGO)
- 3 WITHIN THE PAST 5 YEARS (2 TO 5 YRS AGO)
- 4 5 OR MORE YEARS AGO
- 5 NEVER
- 8 DK
- 9 REF

J4. During the past 12 months, was there a time when you needed dental care but could not get it because of the cost? CTS

- 1 YES
- 2 NO
- 8 DK
- 9 REF

SECTION K: MENTAL HEALTH

- K1. During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?
 - 1 YES
 - 2 NO
 - 8 DK
 - 9 REF

- K2. Over the last 2 weeks, how many days have you felt down, depressed or hopeless? C6:OM14.2
 - 0-14 ENTER NUMBER OF DAYS:
 - 88 DK
 - 99 REF

- K3. Has a doctor or other healthcare provider EVER told you that you have any of the following conditions... C6:OM14.10*

Depression or depressive disorder. PROMPT: This includes depression, major depression, dysthymia, or minor depression CORE

 - 1 YES
 - 2 NO
 - 8 DK
 - 9 REF

- K4. A psychiatric condition other than Depression, such as Anxiety, Bipolar Disorder, Schizophrenia, Anxiety Disorder, or an Eating Disorder like Anorexia or Bulimia (Has a doctor or other healthcare provider EVER told you that you have any of the following conditions...)
C6:OM14 CORE
 - 1 YES
 - 2 NO
 - 8 DK
 - 9 REF

- K5. These next questions are about treatment and counseling for problems with emotions, nerves or mental health. Please do not include treatment for alcohol or drug use.
 During the past 12 months, did you receive any outpatient treatment or counseling for any problem you were having with your emotions, nerves, or mental health?
 - 1 YES
 - 2 NO (GO TO K9)
 - 8 DK (GO TO K9)
 - 9 REF (GO TO K9)

- K6. During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but didn't get it?
 - 1 YES
 - 2 NO (GO TO L1)
 - 8 DK (GO TO L1)
 - 9 REF (GO TO L1)

- K7. Was this because you couldn't afford mental health treatment or counseling, or was there some other reason you didn't get the care you needed? (DON'T READ RESPONSES; PROBE FOR PRIMARY REASON)
 - 1 COULDN'T AFFORD IT
 - 2 DIDN'T KNOW WHERE TO GO
 - 3 TOOK TOO MUCH TIME
 - 4 EMBARRASSED OR FEARFUL OTHERS WOULD FIND OUT

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- 5 TOO FAR TO TRAVEL/TAKES TOO LONG TO GET THERE
- 6 DIDN'T THINK IT WOULD HELP
- 7 OTHER (SPECIFY)
- 8 DK
- 9 REF

SECTION L: TOBACCO

- L1. Now, I would like to ask you about your use of tobacco products. Have you smoked at least 100 cigarettes in your entire life? C5:11.1 CORE
- 1 YES
 - 2 NO (GO TO M1)
 - 8 DK (GO TO M1)
 - 9 REF (GO TO M1)
- L2. Do you now smoke cigarettes everyday, some days or not at all? C5:11.2 CORE
- 1 Everyday (GO TO L3)
 - 2 Somedays (GO TO L4)
 - 3 Not at all (GO TO L5)
 - 8 DK (GO TO L6)
 - 9 REF (GO TO M1)
- L3. On the average, about how many cigarettes a day do you now smoke?
- 0 - 100 ENTER NUMBER OF CIGARETTES
 - 101 MORE THAN 100 CIGARETTES (GO TO L6)
 - 888 DK (GO TO L6)
 - 999 REF (GO TO L6)
- L4. On the average, when you smoked during the past 30 days, about how many cigarettes did you smoke a day?
- 0 - 100 ENTER NUMBER OF CIGARETTES
 - 101 MORE THAN 100 CIGARETTES (GO TO L6)
 - 888 DK (GO TO L6)
 - 999 REF (GO TO L6)
- L5. About how long has it been since you last smoked cigarettes regularly, that is, daily? C5:OM21.1
(READ ONLY IF NECESSARY)
- 1 Within the past year (0 to 12 months ago)
 - 2 Within the past 5 years (1 to 5 years ago) (Go to L8)
 - 3 Within the past 15 years (5 to 15 years ago) (Go to L8)
 - 4 15 or more years ago (Go to L8)
 - 5 Never smoked regularly (Go to L8)
 - 8 DK (Go to L8)
 - 9 REF (Go to L8)
- L6. In the past 12 months, has a doctor, nurse, or other health professional advised you to quit smoking? C5:OM21.3* CORE
- 1 YES
 - 2 NO
 - 8 DK
 - 9 REF
- L7. During the past 12 months, have you stopped smoking for one day or longer because you were trying to quit smoking? C5:11.3
- 1 YES
 - 2 NO
 - 8 DK
 - 9 REF

SEXUAL BEHAVIOR QUESTIONS

ASK OF THOSE 18-43

Q:L20

T:

These next few questions are about your personal behavior, and I want to remind you that your answers are confidential. During the past 12 months, with how many people have you had sexual intercourse?

0 NONE

1 – 96 ENTER NUMBER

98 DK

99 REF

ASK OF THOSE 18-43

Q:L21

T:

Was a condom used the last time you had sexual intercourse?

1 YES

2 NO

8 DK

9 REF

SECTION M: ALCOHOL

- M1. During the past month, have you had at least one drink of any alcoholic beverage such as beer, wine, wine coolers, or liquor? C5:12.1 CORE
1 YES
2 NO (GO TO M6)
8 DK (GO TO M6)
9 REF (GO TO M6)
- M2. During the past month, how many days per week OR per month did you drink any alcoholic beverages, on the average? C5:12.2 CORE
1 ENTER # OF TIMES PER WEEK
2 ENTER # OF TIMES PER MONTH
8 DK (GO TO M6)
9 REF (GO TO M6)
- M3. On the days when you drank, about how many drinks did you have on the average? INTS: A C5:12.3 CORE
drink is 1 can/bottle of beer, 1 glass of wine, 1 bottle/can of wine cooler, or 1 shot of liquor
0 - 96 ENTER # OF DRINKS:
97 MORE THAN 97 DRINKS
98 DK
99 REF
- M4. Considering all types of alcoholic beverages, how many times during the past month did you have 5 or more drinks on any occasion? C5:12.4 CORE
0 - 96 ENTER # OF TIMES:
97 MORE THAN 97 TIMES
98 DK
99 REF

SECTION N: HEALTH CARE COVERAGE /SAFETY NET

N1. Do you currently have health insurance that would cover at least part of the bill if you had to stay in the hospital overnight? PROMPT: include any kind of coverage, including health insurance, prepaid plans (HMOs), government plans such as Medicare. C5:3.1*

- 1 YES
- 2 NO (GO TO N4)
- 3 YES, BUT DK ABOUT HOSPITAL STAY
- 7 NO COVERAGE AT ALL (GO TO N4)
- 8 DK (GO TO N5)
- 9 REF (GO TO N5)

N2. What is that coverage? Is it... (PROBE TO CLARIFY HEALTH COVERAGE)

- 1 Medicaid
- 2 Medicare
- 3 Champus or any other government program
- 4 Insurance that you get through an employer
- 5 Insurance that you buy on your own
- 7 OTHER (SPECIFY)
- 8 DK
- 9 REF

N3. During the past 12 months, was there any time that you did not have any health insurance or coverage?

- 1 YES
- 2 NO (GO TO N5)
- 8 DK (GO TO N5)
- 9 REF (GO TO N5)

N4. What is the main reason you are/were without health care coverage?
(DO NOT READ RESPONSES; PROBE FOR MAIN REASON)

- 10 Lost job or changed employers
- 11 Spouse or parent lost job or changed employers
- 12 Became divorced or separated
- 13 Spouse or parent died
- 14 Became ineligible because of age or because left school
- 15 Employer doesn't offer or stopped offering coverage
- 16 Cut back to part time or became temporary employee
- 17 Benefits from employer or former employer ran out
- 18 Couldn't afford to pay the premiums
- 19 Insurance company refused coverage
- 20 Lost Medicaid or Medical Assistance eligibility
- 95 Other (SPECIFY)
- 98 DK
- 99 REF

N5. During the past 12 months, was there any time that anyone in your household did not have any health insurance or coverage (not including respondent)?

Skip to N5 if only one person in household.

- 1 YES
- 2 NO
- 8 DK
- 9 REF

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N7. During the past 12 months, was there any time when you didn't get the medical care you needed?

- 1 Yes
- 2 No (go to N9)
- 8 DK
- 9 REF

N6a. Was there a time during the last 12 months when you needed to see a doctor, but could not because of the cost? C5:3.3

- 1 Yes
- 2 NO
- 8 DK
- 9 REF

N6b. During the past 12 months, was there any time when you needed prescription medicines, but didn't get them because you couldn't afford it?

- 1 Yes
- 2 No (go to N9)
- 8 DK
- 9 REF

N9. During the past 12 months, (have you/has anyone in your household) had any problems paying medical bills?

- 1 Yes
- 2 No
- 8 DK
- 9 REF

N10. Can you name a place in your community that offers affordable medical care or a sliding fee scale for people without health insurance?

- 1 Yes → N10a. SPECIFY _____
- 2 No
- 8 DK
- 9 REF

SECTION O: COMMUNITY

O1. These next questions are about health concerns and health care services in your community. What do you think is the biggest health problem facing your community? (DON'T READ RESPONSES)

- 10 ABILITY TO PAY FOR CARE
- 11 ALCOHOL/DRUG ABUSE
- 12 CANCER
- 13 ELDERLY CARE
- 14 HEALTH CARE TOO EXPENSIVE
- 15 LACK OF HEALTH INSURANCE
- 16 LACK OF TRANSPORTATION TO CARE
- 17 POOR ORAL HEALTH
- 18 PRESCRIPTION MEDICATION TOO EXPENSIVE
- 19 TEEN PREGNANCY
- 20 TRAVEL TIMES TO SERVICES ARE TOO LONG
- 21 VIOLENCE
- 95 OTHER (SPECIFY)
- 97 NONE
- 98 DK
- 99 REF

O2. Now I'm going to read a list of health care services and health care providers. For each service or provider, please tell me if you think there is a need for more services in your area, whether there are an adequate number, or there are too many.

O2a. Pediatrics services (Health services for infants/children)PROMPT: (DO YOU THINK THERE IS A NEED FOR MORE OF THIS SERVICE IN YOUR AREA, THERE ARE AN ADEQUATE NUMBER OF SERVICES IN YOUR AREA, OR THERE ARE TOO MANY)

- 1 Need for more
- 2 Adequate
- 3 Too many
- 8 DK
- 9 REF

O2b. Women's services, such as obstetrics/gynecological services

- 1 Need for more
- 2 Adequate
- 3 Too many
- 8 DK
- 9 REF

O2c. Heart disease services including diagnostic services, heart surgery and cardiac rehabilitation programs

- 1 Need for more
- 2 Adequate
- 3 Too many
- 8 DK
- 9 REF

O2d. Emergency/Trauma Care

- 1 Need for more
- 2 Adequate
- 3 Too many
- 8 DK
- 9 REF

O2e. Health education services

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- 1 Need for more
- 2 Adequate (GO TO P1a)
- 3 Too many (GO TO P1a)
- 8 DK (GO TO P1a)
- 9 REF (GO TO P1a)

O3. What kinds of health education services would you like to see provided in your area?
(SELECT ALL THAT APPLY)

- 10 ADOLESCENT / TEEN SEX EDUCATION
- 11 ALZHEIMER'S DISEASE
- 12 ASTHMA
- 13 CANCER SCREENING AND/OR TREATMENT
- 14 CHILD ABUSE / FAMILY VIOLENCE
- 15 DIABETES
- 16 DIET AND/OR EXERCISE
- 17 DRUG/ALCOHOL ABUSE
- 18 ELDERLY CARE
- 19 HEART DISEASE SCREENING AND TREATMENT
- 20 HIV / AIDS
- 21 INJURY PREVENTION
- 22 MENTAL HEALTH
- 23 SEXUALLY TRANSMITTED DISEASES
- 24 SMOKING CESSATION AND/OR PREVENTION
- 25 STRESS MANAGEMENT
- 95 OTHER (SPECIFY)
- 97 NONE
- 98 DK
- 99 REF

O4. Now I'd like to ask you a general question about your community. Please think about your local health department or district. From what you know, what kind of services or programs does it provide in your community? (DO NOT READ-CHECK ALL THAT APPLY)

- 1 Reviewing, approving and inspecting septic systems
- 2 Sampling of bathing water
- 3 Inspections of day care facilities
- 4 Inspections and licensing for food service establishments, hotels, motels, bed and breakfasts, and salons (hair)
- 5 Licensing for public swimming pools and pool operators
- 6 Health prevention programs and information
- 7 Enforcement of childhood lead poisoning prevention regulation
- 8 Enforcement of public health code
- 9 Opening/closing of shellfish beds
- 10 Review of plans for new wells
- 11 Provide community with public health alerts and emergencies
- 12 OTHER: (SPECIFY)

SECTION P: DRUGS

The next set of questions ask your opinion about whether it's difficult or easy to get drugs, and the extent to which drugs are available in your neighborhood.

P1a. How difficult or easy would it be for you to get some MARIJUANA if you wanted some. Do you think it would probably be impossible, very difficult, fairly difficulty, fairly easy, or very easy to get. IF UNSURE, ASK: We are only looking for your general impressions. Would you say...

- 1 Probably Impossible
- 2 Very Difficult
- 3 Fairly Difficult
- 4 Fairly Easy
- 5 Very Easy
- 8 DK
- 9 REF

P1d. Prescription pain relievers that are not prescribed for you

- 1 Probably Impossible
- 2 Very Difficult
- 3 Fairly Difficult
- 4 Fairly Easy
- 5 Very Easy
- 8 DK
- 9 REF

P1f. Cocaine, or crack

- 1 Probably Impossible
- 2 Very Difficult
- 3 Fairly Difficult
- 4 Fairly Easy
- 5 Very Easy
- 8 DK
- 9 REF

P1g. Heroin.

- 1 Probably Impossible
- 2 Very Difficult
- 3 Fairly Difficult
- 4 Fairly Easy
- 5 Very Easy
- 8 DK
- 9 REF

P2. During the past 12 months, have you received treatment or counseling for your use of alcohol or any drug, not counting cigarettes?

- 1 YES
- 2 NO (GO TO Q1)
- 8 DK (GO TO Q1)
- 9 REF (GO TO Q1)

SECTION Q: EMERGENCY PREPAREDNESS

The next series of questions asks about large-scale disasters or emergencies. By large-scale disaster or emergency we mean any event that leaves you isolated in your home or displaces you from your home for at least 3 days. This might include natural disasters such as hurricanes, tornados, floods, and ice storms, or man-made disasters such as explosions, terrorist events, or blackouts or might include a public health emergency with threats of infectious disease such as pandemic flu.

Q2. Do you have a family emergency plan with emergency information and contact numbers?

- 1 Yes
- 2 No
- 8 DK
- 9 REF

Q3. In the event of an emergency or quarantine, do you have on hand a three day supply of non-perishable food, water, medications, batteries and other essential items for everyone who lives there?

- 1 Yes
- 2 No
- 8 DK
- 9 REF

Q4. What would be your main method of getting information from authorities in a large-scale disaster or emergency? Read only if necessary:

CT06:M17

- 1 Television
- 2 Radio
- 3 Internet
- 4 Print media
- 5 Neighbors

Do not read:

- 6 Other
- 7 Don't know/Not sure
- 9 Refused

SECTION Z: DEMOGRAPHICS

- Z1. These last few questions are for classification purposes only. What is the highest grade or year of school you completed? (READ ONLY IF NECESSARY)
- 1 Never attended school or only attended kindergarten
 - 2 Grades 1 through 8 (Elementary)
 - 3 Grades 9 through 11 (Some high school)
 - 4 Grade 12 or GED (High school graduate)
 - 5 College 1 year to 3 years (Some college or technical school)
 - 6 College 4 years or more (College graduate)
 - 7 Graduate/Professional Degree (MA,MS,PhD,JD,MD ETC)
 - 8 DK
 - 9 REF
- Z2. Are you now... (PLEASE READ)
- 1 Married
 - 2 Divorced
 - 3 Widowed
 - 4 Separated
 - 5 Never been married or
 - 6 Part of an unmarried couple living in the same household
 - 8 DK
 - 9 REF
- Z3. Are you currently:
- 10 Employed for wages
 - 11 Self-employed
 - 12 Out of work for more than 1 year
 - 13 Out of work for less than 1 year
 - 14 Homemaker
 - 15 Student
 - 16 Retired, or
 - 17 Unable to work
 - 95 Other
 - 98 DK
 - 99 REF

CATI WILL ROUTE THROUGH INCOME QUESTIONS APPROPRIATELY

Q:INC02

T:

During the entire year of 2010, what was the total income for THIS FAMILY before taxes, including money from jobs, investments, social security, retirement income, child support, unemployment payments, public assistance, and so on.

PROBE FOR MILD RESISTANCE: Answers to questions on earnings are important because they help explain whether people can afford the health care they need. Also, the information you provide will be kept confidential and will only be used in summary reports.

PROBE FOR DK OR HESITATION: If you do not know exactly, your best estimate would be fine.

VERIFY IF <\$5,000 OR >\$500,000 CODE 999999 IF RESPONSE IS \$1 MILLION OR MORE.

St. Louis County Community Health Needs Assessment

- 0 NONE
- 10 \$10 OR LESS
- 11 TO 999,998 ENTER DOLLAR AMOUNT
- 999,999 \$1 MILLION OR MORE

- 8 DK
- 9 REF

ONLY ASK THOSE WHO DON'T KNOW OR REFUSED THE PREVIOUS QUESTION

It is important to understand incomes so we can better understand insurance coverage and concerns about insurance. Which of the following income ranges is closest to the family's 2009 total income from all sources?

INTERVIEWER: PROBE: Your best estimate would be fine

- 10 Under \$10,000
- 12 \$10,000 to less than \$20,000
- 13 \$20,000 to less than \$25,000
- 14 \$25,000 to less than \$30,000
- 15 \$30,000 to less than \$35,000
- 16 \$35,000 to less than \$40,000
- 17 \$40,000 to less than \$50,000
- 18 \$50,000 to less than \$60,000
- 19 \$60,000 to less than \$80,000
- 20 \$80,000 to less than \$100,000
- 21 Over \$100,000

- 98 DK
- 99 REF

Z5. Are you Hispanic or Latino?

- 1 Yes
- 2 No
- 8 DK
- 9 REF

Z6. Which one or more of the following would you say is your race? (READ RESPONSES; CHECK ALL)

- 1 White
- 2 Black or African American
- 3 Asian
- 4 Native Hawaiian or Other Pacific Islander
- 5 American Indian or Alaska Native, or
- 6 Other (SPECIFY)
- 8 DK
- 9 REF

Z7. ASKED IF MULTIPLE RESPONSES TO Q6

Which one of these groups would you say best represents your race? (READ RESPONSES AND SELECT ONE)

St. Louis County Community Health Needs Assessment

- 1 White
- 2 Black or African American
- 3 Asian
- 4 Native Hawaiian or Other Pacific Islander
- 5 American Indian or Alaska Native, or
- 6 Other (SPECIFY)
- 8 DK
- 9 REF

Z10. Do you have more than one telephone number in you household? Do not include cell phones or numbers that are only used by a computer or fax machine.

- 1 YES
- 2 NO (GO TO Q12)
- 8 DK (GO TO Q12)
- 9 REF (GO TO Q12)

Z11. How many of these are residential numbers?

- 1-5 ENTER TOTAL TELEPHONE NUMBERS
- 6 6 or more
- 8 DK
- 9 REF

Z12. How many adult members of your household currently use a cell phone for any purpose?

- 0-5 ENTER NUMBER OF ADULTS
- 7 7 OR MORE ADULTS
- 8 DK
- 9 REF

Z13. Was there anytime in the last 12 months that you did not have a working telephone for one week or longer? Please think about only phones in your house and not any cell phones you or others may have.

- 1 YES
- 2 NO
- 8 DK
- 9 REF

Z14. For how many months of the past 12 months did you not have a working telephone for 1 week or longer?

- 0 LESS THAN ONE MONTH
- 1 - 12 ENTER NUMBER OF MONTHS
- 98 DK
- 99 REF

Additional Demographics

Nationality

Q:BORN1

T:

Were you born in the United States?

1 Yes

2 No

8 DK

9 REF

ASK IF NO TO BORN1

Q:BORN2

T:

In what country were you born?

1 SPECIFY

8 DK

9 REF

Employment Questions

Type of Employment

ASK OF EMPLOYED

Q:EMP05a

T:

What kind of work do you do?

[For example, are you a registered nurse, a logger, an accountant...

If you have more than one job, please answer the question for the job that you spend the most hours doing.]

1 SPECIFY

8 DON'T KNOW/NOT SURE

9 REFUSED

ASK OF EMPLOYED

Q:EMP05b

T:

What are your most important activities or duties at work?

[For example, a nurse's most important duties may be patient care.]

1 SPECIFY

8 DON'T KNOW/NOT SURE

9 REFUSED

Classification of Employer

ASK OF EMPLOYED

Q:EMP06 (Q75)

T:

On this job, are/is FILL NAME employed by a private company or business, a government agency, in active military duty, self-employed, working in a family business or farm, or something else?

INTERVIEWER: CODE NOT-FOR-PROFIT/FOUNDATION AS PRIVATE COMPANY.
IF EMPLOYED BY A SCHOOL COLLEGE OR UNIVERSITY, CLARIFY WHETHER THIS IS A STATE OR PRIVATE COLLEGE OR UNIVERSITY OR A PRIVATE OR PUBLIC SCHOOL

- 10 PRIVATE COMPANY
- 11 GOVERNMENT AGENCY
- 12 MILITARY DUTY
- 13 SELF-EMPLOYED
- 14 FAMILY-BUSINESS OR FARM (NOT SELF-EMPLOYED)
- 15 PUBLIC EDUCATIONAL INSTITUTION, SCHOOL, COLLEGE
- 16 PRIVATE EDUCATIONAL INSTITUTION, SCHOOL, COLLEGE
- 95 OTHER (SPECIFY)

- 98 DK
- 99 REF

ASK OF THOSE EMPLOYED BY A PRIVATE COMPANY

Q:EMP07

T:

Is this company a manufacturing company, a retail company, a company that provides services, or something else?

1 MANUFACTURING

2 RETAIL

3 SERVICE

4 CONSTRUCTION

5 FARMING/AGRICULTURE

7 SOMETHING ELSE (SPECIFY)

8 DK

9 REF

Q:EMP07a

T:

What kind of services or products does this company provide?

1 SPECIFY (SPECIFY)

8 DK

9 REF

APPENDIX 6: SURVEY METHODS TECHNICAL



**St. Louis County Department of Health
Community Health Needs Assessment Survey**

September 2011

Technical Documentation

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Market Decisions

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Survey Questionnaire is Provided in a Separate Document

I. Sampling Methodology

Target Population

The target population for the St. Louis County Community Health Needs Assessment Survey consisted of all persons in families living in St. Louis County, excluding those persons residing in households where no adult age 18 or over was present. Persons residing in group homes with nine or more persons, group quarters such as dormitories, military barracks, and institutions, and those with no fixed household address (i.e., the homeless or residents of institutional group quarters such as jails or hospitals) were also excluded from this survey⁵⁵. In addition, the sample excluded non-permanent residences and vacation residences (qualified households were considered those in which someone resided at least six months of the year). Since the sampling approach relied on the use of an RDD telephone sample and a cell phone sample, the sample population only included those households (and residents therein) with working telephones.

Sample Definition

The stated goal of the sampling approach was to obtain county level population information on a range of health and healthcare issues. The sampling process consisted of a stratified sampling methodology that divided the county into four separate regions.

- Mid County
- North County
- South County
- West County

The goal of the sampling methodology was to complete approximately the same number of surveys within each of the four regions. The four regions were defined based on communities within the regions and their associated zip codes. The list of communities was provided by the St. Louis County Department of Health. Unincorporated areas of the county were assigned to a region based on proximity. The goal of the sampling strategy was to gather data from a minimum of 2,100 county households with a minimum of 525 in each of the four regions of the county.

⁵⁵ The initial screening coded as ineligible such group quarters. In this survey, group quarters' telephone numbers were considered those where a number of unrelated people living in more than one "unit" relied on the same telephone. An example of a unit in this case might be a fraternity house where all those residing in the house use the same phone.

Development of RDD Telephone Samples for this Research and Sample Generation

The sampling relied on RDD samples as the sampling strategy. Any RDD sample is designed to insure equal and known probability of selection (within each of the sampling stages). Market Decisions, LLC currently uses in-house software for generation of residential samples. The software is provided by Marketing Systems Group. The GENESYS sampling software is the first and only commercially available in-house sampling system with fully configured RDD design and generation capabilities. GENESYS supports RDD telephone sampling for any geographic area down to the census tract level. This includes state, county, metropolitan statistical area (MSA), ZIP Code, time zone, etc. The GENESYS system also contains telephone exchange-level estimates for over 48 demographic variables (e.g., age and income distributions) that can be used in conjunction with geographic definitions to produce truly unique geo-demographic sampling capabilities. The standard GENESYS RDD methodology produces a strict single stage, epsem sample of residential telephone numbers. In other words, a GENESYS RDD sample ensures an equal and known probability of selection for every residential telephone number in the sample frame.

Sample Generation

The sample files for the four regions were generated in-house using GENESYS sampling software. Each of the samples was generated in proportion to the distribution of “population” of exchanges and telephone numbers throughout each sampling stratum. Thus, a higher percentage of sample telephone numbers were generated in those areas with higher residential populations. The sample thus reflected the distribution of the population throughout each of the four regions in the county.

In all, a total of 39,155 random telephone numbers were generated.

Sample Entry/Replicates

It is counter-productive to enter the entire potential sample at once. It is not possible to contact every potential respondent within the first few days of the study, given the large sample size. In addition, if efforts prove more efficient than anticipated, it may result in the need for less sample than originally thought. Entering all sample at the beginning would then adversely affect response rates as numbers would not be resolved. Market Decisions entered sample as a set of replicates throughout the data collection process. The entry of each replicate was timed so that numbers in prior replicates had been sufficiently resolved and that later replicates were entered in order to provide adequate time to meet callback requirements.

In all, the sample was entered in 8 replicates throughout the data collection period. That is, the original file that was generated for each stratum was divided into replicates. A sample replicate was entered and calls made to these cases. As numbers were resolved, an additional sample replicate was then entered. Spacing between entries of the replicates was generally four days. This allowed adequate callback attempts before new cases were entered. Call attempts were still made on all replicates of the sample throughout the data collection process based upon data collection protocols (that is, attempts weren't halted when a new replicate was entered).

Respondent Selection

Once a household was identified and determined to be eligible, the number of adults aged 18 and older was determined. If there was more than one adult within the household, the respondent was chosen at random from all adults. Only this randomly chosen adult was considered eligible to participate. That is, if this respondent refused or did not complete the survey for any other reason, they were not replaced with another member of the household.

Sample Representation

One important source of bias in telephone surveys is that households without telephones are artificially eliminated from selection as are those who experience an interruption in telephone service. Thus, a component of the population is not able to participate. In telephone surveys, Market Decisions typically relies on households that have experienced an interruption in telephone service to represent this component of the population and also to adjust for the probability of selecting a home that may experience telephone service interruption:

Market Decisions relied on two questions to measure service interruption:

1. Was there anytime in the last 12 months that you did not have a working telephone for one week or more?
2. IF YES: For how many months of the past 12 months did you not have a working telephone for one week or more?

Households with an interruption in telephone service were then weighted to represent households without telephone service and to make appropriate weighting adjustments for households that experience service interruptions.

One other biasing factor is the fact that households may have more than one telephone. A household with more than one phone has a greater probability of selection (in proportion to the number of telephones in the household) than a household with only one telephone. To correct for this bias, we ask respondents a set of questions about the number of telephones in the household:

- The number of telephones in the household
- The number of telephones that are used exclusively for business
- Whether the contacted telephone is a business telephone exclusively

During the non-response weighting phase, data was weighted in proportion to the number of residential telephones in the household to balance out the greater probability of selection among those with more than one telephone.

II. Questionnaire Design

The survey questionnaire that was used during the course of the St. Louis County Community Health Needs Assessment Survey was developed in collaborative efforts the St. Louis County Department of Health and the University of New England Center for Community & Public Health (CCPH).

The initial steps in survey design focused on a review of elements contained in prior community health needs assessments conducted by CCPH. An initial draft of the survey instrument was submitted to the Department on January 7, 2011. Over the next two weeks, refinements to the survey were made in a series of meetings with all key constituents. After incorporating changes, a final pretest version of the survey was completed. This survey was tested and no modifications made. The final survey instrument was approved and programmed for data collection on January 20, 2011. The basic components of the 2011 survey gathered information from county residents in the following areas:

- Access and utilization
- Health status
- Disease prevalence
- Chronic disease management
- Youth health
- Exercise
- Disabilities/limitations
- Routine care/screening/ prevention
- Environment / health promotion
- Dental care
- Mental health
- Tobacco
- Sexual behavior
- Alcohol
- Health coverage/ safety net
- Community health needs
- Access to drugs / substance abuse and treatment
- Emergency preparedness
- Demographics

Eliciting Cooperation

Given the goal of achieving a high response rate for the St. Louis County Community Health Needs Assessment Survey, special attention was paid to survey elements designed to elicit cooperation. A number of design elements incorporated into the surveys helped maximize response rates. These elements included:

- Clear lead in and introductory statements that explained the nature of the research.
- Informing contacts who we are.
- Providing the name of the client.
- Persuader statements that explained why the research is important and why it is important for them personally to participate.
- A toll free telephone number and the name of the primary investigator (Dr. Robertson) so a potential respondent could verify that the research was legitimate or ask any questions about the research.
- A toll free telephone number and the name of the primary contact at CCPH so a potential respondent could verify that the research was legitimate or ask any questions about the research.
- A statement of implied consent that indicated the research is confidential and their name will in no way be associated with results; the results are reported in aggregate form only. The statement also indicated that the call may be monitored. Finally, it also indicated that if they do not wish to answer a question that is fine.
- Coded help screens that contained information about the research and selection process that interviewers provided to potential respondents.

III. Data Collection

The data collection phase of the St. Louis County Community Health Needs Assessment Survey was begun on January 20, 2011 and data collection was completed by March 20, 2011. A total of 2,149 respondents were interviewed during this period.

In order to insure data accuracy for this study, a rigorous data collection strategy was used in conducting this survey. This included the following:

- Rotation of call attempts across all seven days at different times of the day according to industry standards for acceptability and legality in telemarketing.
- A minimum of 20 call back attempts per telephone number at the screener level (before number was identified as a qualified residential number).
- 4 attempts to convert refusals (the exception were those households that made it clear they were not to be contacted again).
- A minimum of 10 callback attempts for “no answer” or answering machine only telephone non-contacts and for inappropriate contacts (contact only, etc), and scheduled callback appointments.
- A brief message with a toll free number was delivered to answering machine only attempts to encourage participation (messages were left on the first, third and seventh answering machine dispositions).

Per industry standards, interviews were only conducted during the hours from 9 AM to 9 PM and seven days a week local time. The only exceptions were specific, scheduled appointments outside this range.

Scheduling Callback Appointments

The CATI system used by Market Decisions during the course of this survey is designed to allow interviewers to set callback appointments for a specific date and time. It is also designed to allow a respondent who has begun the survey and cannot complete it to complete it at a later time. This is done so that the respondent can complete the survey at a time that is most convenient for him or her. The interviewer enters the date and time the respondent provides and the respondent is then contacted at that time. Approximately 26% of interviews that were completed were done so with respondents that had scheduled these specific appointments.

Survey Length

The St. Louis County Community Health Needs Assessment Survey required respondents to provide a great deal of information about themselves on a range of health topics. The goal was to obtain accurate information about all household members while limiting the time commitment required of the respondent.

On average, the 2,149 interviews required 21.6 minutes. One-half (50%) of the interviews were completed in 20 minutes or less. The shortest amount of time required was 10 minutes while the longest survey required 47 minutes.

IV. Survey Response Rates

The response, cooperation, and refusal rates to the St. Louis Community Health Needs Assessment Survey are presented in below for each of the sampling strata as well as for the survey overall. The rates reported are based on the standard formulas developed by the American Association for Public Opinion Research (AAPOR) and the Council of American Survey Research Organizations (CASRO). The AAPOR and CASRO rates differ because they rely on different formulas in calculating response rates. The CASRO rates are comparable to the formulas used in calculating response rates for the BRFSS.

Summary of Response, Cooperation, and Refusal Rates by Survey Component and Strata

	CASRO Response Rate	Response Rate (AAPOR RR3)	AAPOR Respondent Cooperation Rate (COOP3)	AAPOR Respondent Refusal Rate (REF3)
Total	57.9%	52.6%	88.1%	1.6%
Mid County	59.2%	53.6%	84.8%	1.8%
North County	53.4%	49.1%	87.9%	1.5%
South County	54.8%	49.0%	87.9%	2.0%
West County	62.3%	55.7%	91.9%	1.4%

V. Total Interviews

A total of 2,149 surveys were completed among residents. This included:

- 530 surveys in Mid County
- 543 surveys in North County
- 530 survey in South County
- 546 surveys in West County

VI. Data Imputation

Data Imputation

Given the nature of the survey data collected, it was decided that missing values would be imputed on certain key values, particularly weighting variables. Data imputation is a procedure that determines the likely value of a given variable based upon other known characteristics of the respondent. Imputation relies on answers to other questions to derive the most likely value for the missing value. Market Decisions used data imputation on several of the variables in this research. In those cases where a variable was imputed, the final data set contains a copy of the variable with imputed values, a copy of the original variable with missing values retained, and a flag variable which identifies which values were imputed and the method used. The research staff used three primary methods of data imputation:

Logical Imputation

This step involved an assessment of answers to other questions (within the case) to determine if it were possible to deduce the answer to a question with a missing value. In some cases, this was done by evaluating a question that was very similar in nature and content. In other cases, it involved assessing a number of related questions to derive the most likely value. The initial survey design anticipated this approach, somewhat. There were a number of consistency checks programmed throughout the survey on certain key variables. These consistency checks were used during the course of imputation to impute missing values to certain key variables.

Donor Substitution Imputation – Hot Deck Imputation

Hot deck imputation relies on the fact that individuals with similarities on a number of variables are likely to be similar on those variables with missing values. The process involves identifying an individual with similar values on other variables and substituting this person’s response for the missing value. In each of these cases, a number of variables were used to identify those respondents that were similar to a respondent with a missing value for a specific variable. The types of variables that were used to define characteristics that are “similar” varied depending on the nature of the variable to be imputed. These included key demographic characteristics and variables with a high correlation to the variable imputed. Once defined, the process of imputing the missing value relied on replacement. Base upon defined characteristics, the file was sorted in “serpentine” fashion (alternating ascending and descending sorts on variables). The value from the “nearest neighbor” was then used to replace that of the missing value.

Regression Based Imputation

For certain variables, such as income, the use of regression-based imputation was the most suitable method. This process relied on regression analysis to predict the value of the variable. The process relied on the use of analytical software that is designed to conduct missing values analysis. As with hot deck imputation, the number and type of variables used during regression analysis varied by the variable that was imputed but this also relied on key demographic variables and those correlated with the variable containing missing data.

The primary variables that were imputed were those used in weighting the survey data (gender, race and ethnicity). In addition, income was also imputed. This was important since missing values would cause problems with the post stratification weighting of the data. Those cases with missing values would not have appropriate adjustments made and this would lead to an increase in variance since their weights would differ from those cases with complete demographic data. The data imputation process “estimated” any missing values in those variables used in post stratification weighting to minimize their impact on data quality. The method of imputation used for these variables is outlined in Table 5.

Imputed Variables and Method of Imputation

Gender	Logical Imputation
Age	Logical Imputation
Ethnicity	Logical and Hot Deck Imputation
Race	Logical and Hot Deck Imputation
Income	Regression Based Imputation

VII. Data Weighting

The data has been weighted to adjust for non-response and also to match regional and county profiles based upon sex, age, race, and ethnic origin. Weighting also adjusted for households with multiple phone lines and interruptions in phone service. The weighting procedures involved primary phases: Non-response weighting adjustments and post stratification weighting adjustments. Weighting was handled sequentially by calculating initial probabilistic weights, applying non-response weighting adjustments, and then applying post stratification adjustments. The first two weighting steps (probabilistic and non-response) were handled independently for each of the independent sampling strata (the 4 region based RDD samples). Post-stratification weighting adjustments were applied across all cases once the final non-response adjusted weights were calculated for each case in the data set.

An initial sample weight was assigned to each record in the sample file. This base weight was equal to the inverse of the probability of selecting a number within each of the sampling strata.

Initial Classification of Case Records

The non-response weighting adjustments relied on weighting sample records based upon the eligibility status assigned to the telephone number. The eligibility status tracked the resolution of each sampled telephone number in terms of identification of eligible households and completing interviews with these households. The eligibility status of a sample record ranged from undetermined (no information had been obtained that would help determine if this was even a residence) through interview completion. The tables below summarize the status codes and how the eligibility status codes match up to case disposition codes.

Eligibility Classes Used in Non-response Weighting

Eligibility Class Code (ELIGRESP)	Eligibility Class Description
1	Completed Interview
3	Partially Completed Interview
4	Eligible Household, Non-interview
5	Working Residential Number – Ineligible
6	Working Residential Number – Undetermined Eligibility
7	Ineligible – Business, Institution/Non-working Number/Not a Cell Phone Only Residence (cell phone samples)
8	Undetermined

Final Disposition Codes and Eligibility Status

Final Disposition Code	Eligibility Class Code (ELIGRESP)
Complete	1
Partially Complete - Terminated Interview	3
Partially Complete (Unresolved Callback)	3
No One 18 or Older	5
Not a County Residence	5
Vacation Residence	5
Business	7
Disconnected Phone	7
Fast Busy	7
Fax/Modem	7
Group Quarters/Institution	7
No Ring	7
Number Not in Service	7
Pager	7
Telephone Number Changed	7
Temp Out of Service	7
Call Intercept	7
Answering Machine	VARIES
Busy	VARIES
Contact Only	VARIES
Hard Refusal	VARIES
Hang-up	VARIES
Infirm	VARIES
Language Barrier	VARIES
Not Available in Time Frame	VARIES
No Answer	VARIES
Scheduled Callback	VARIES
Soft Refusal	VARIES

In the initial sample file, all sample records were assigned an eligibility status code of 8. As additional information was gained about the case, the eligibility status was changed to reflect this information. It is important to note that eligibility status is determined by evaluating all call attempts to the telephone number and not simply the last attempt.

The eligibility status is determined by the call dispositions assigned to the sample record. A table of potential disposition codes for this research is presented above along with their assigned eligibility status. The eligibility status of 11 of these dispositions can vary depending on the overall call history. For example, the last disposition of a case may have been a hang-up (which would have an initial assigned eligibility status of 8), but if earlier calls had determined that this was a residential telephone number, its eligibility status would be 6. The sample file recorded both the disposition codes and eligibility status to allow assignment of these particular cases to their actual eligibility status.

Non-response weighting adjustments were then made at each determined level of eligibility (the eligibility status). For example, the first non-response weighting adjustment distributed the component of the probability of selection for the “undetermined” cases (cases where there was no information about the eligibility of the telephone number) among those cases with an eligibility status of one through seven. When completed, the non-response weighting adjustments allocated the probabilities of selection from all sample records into the final set of completed cases. The steps of the non-response weighting process are outlined below:

1. Working Residential Status Non-response Adjustment Factor

Following this step, all telephone numbers where residential status is unknown (ELIGRESP=8) will have adjusted weights of zero. Note that this adjustment assumes that the same proportion of residences that were identified in the known residential categories (ELIGRESP=1-7) occurs in the unknown residential category (ELIGRESP=8).

2. Eligible Residence Non-response Adjustment Factor

The second step in data collection was to identify whether or not the residence was eligible for an interview. A residence may be considered ineligible if:

- The residence is not located in St. Louis County
- The residence is a vacation home

The eligible residence non-response adjustment adjusts the sampling weights of records for which eligibility was determined to account for those sampled cases for which eligibility could not be determined.

Following this step, all residences with unknown eligibility (ELIGRESP=6) and all numbers for which residential status is unknown (ELIGRESP=8) will have adjusted weights of zero. Those with sample records that are business/non-working (ELIGRESP=7) will retain their step 2 weights. Note that this adjustment assumes that the same proportion of eligible residences that were identified in the eligible residence categories (ELIGRESP=1-5) occurs in the unknown residential category (ELIGRESP=6).

3. Weighting Adjustment for Households with Multiple Telephone Numbers

This adjustment converts the sample of telephone numbers to a sample of households. The adjustment factor accounts for the fact that households with more than one residential telephone number had a greater chance of selection than those that did not. Households with multiple phone numbers are given lower weights, since these households had multiple chances of being selected.

4. Weighting Adjustment for Telephone Interruption

This adjustment factor attempts to adjust for under-coverage due to an inability to capture households with no telephones in the sample. Households with substantial recent interruptions in telephone service receive higher weights because they are conjectured to represent a class of households with a lower chance of selection than households with no interruption. In addition, these households are assumed to resemble the chronic non-telephone households more closely than do households with no service interruptions.

5. Survey Initiation Non-response Adjustment Factor

This non-response adjustment factor accounts for non-response prior to the initial survey questions, that is, did the respondent begin the survey. This would account for cases where the household and a respondent were identified as eligible to participate but then did not begin the survey. This might include individuals that refused to participate, respondents that scheduled a callback but were then never reached, and so on. Thus, non-response at this stage indicates that a household is eligible to participate but did not answer any survey questions.

Following this stage, all records with ELIGRESP equal to 4, 6, or 8 have adjusted weights of zero, those with ELIGRESP = 5 retain their step 4 weight and those with ELIGRESP = 7 retain their step 2 weight.

6. Respondent Selection Adjustment Factor

For this study, a random adult was selected to participate in the study in cases where the survey was completed via a land-line telephone. Since the results of the study are generalized to the adult population, a weighting adjustment is required to account for the probability of selecting the respondent from among all adults in the household. This weighting adjustment factors in the size of the household in terms of the number of adults within the household. The weighting adjustment is simply multiplying the step 5 adjusted weight by the number of adults in the household for survey completing via land-line. The adjustment is equal to one for surveys completed via cell phone.

In order to avoid excessive differential in weighting, the weighting adjustment was limited to a maximum of 3 (i.e. 3 or more adults).

7. Questionnaire Completion Non-response Adjustment Factor

The last step in non-response adjusted weights is to adjust for non-response to the questionnaire. That is, did the respondent begin but not complete the entire survey.

Following this stage, all records with ELIGRESP equal to 3, 4, 6, or 8 have adjusted weights of zero, those with ELIGRESP = 5 retain their step 4 weight and those with ELIGRESP = 7 retain their step 2 weight.

Post Stratification Weighting

NOTE: Post stratification adjustments were made relying on 2009 population estimates as the basis for the actual population counts. After the final set of post stratification adjustments to the data, the data reflected the actual population of county residents based on age, gender, area, race, and ethnicity.

The purpose of post stratification weighting is to standardize the weights so they sum to the actual population within St. Louis County as well as summing to the population by area, age, gender, race, and ethnicity. Post stratification weighting adjustments were made by age and gender within each region. Post stratification weighting adjustments for ethnic origin and race were made at the county level.

Demographic data on population counts was developed from the 2009 population estimates from the US Census Bureau. The final weighting numbers were based on this estimate of the 2009 population in St. Louis County.

An initial review of survey and census data was conducted to determine the appropriate steps in the weighting process. The general guideline in post stratification weighting is that no cell should have fewer than 20 cases. The post-stratification process relied on three steps. This included weighting adjustments of:

- Age by gender by region
- Race by age (county)
- Ethnic origin by age (county)

Variables and Categories Used in Post-stratification Weighting

Region	Mid
	North
	South
	West
Age	18-34
	35-49
	50-64
	65+
Gender	Female
	Male
Ethnic Origin	Hispanic
	Non-Hispanic
Race (based on primary race)	White
	African American
	Other Race

The initial post stratification weighting applied to the data set was age within gender within region. This initial post stratification weight adjusted the survey data to match the population counts by age cohort and gender within each region. An adjustment factor was calculated within each region by age by gender cell:

$$\text{Adj(AS)} = \text{AS}(\text{region} - \text{census} - \text{actual}) / \text{AS}(\text{region} - \text{survey})$$

Where:

- Adj(AS) was the age cohort by gender weighting adjustment within each region
- AS (area – actual) was the actual population within a specific region by age cohort by gender cell
- AS (area – survey) was the weighted survey counts within a specific region by age cohort by gender cell (weighted by final family weight)

Adjustments were made to this initial weight to adjust for the actual number of residents by race and ethnic origin. Since the application of any weighting adjustment to the initial weight may cause the age/gender/region survey counts to vary, a process called raking was utilized. That is, once the ethnic origin and race weighting adjustments were applied, the survey counts of age by gender by region did not match the actual population counts. The raking process alternates making weighting adjustments by variables for which there are only marginal counts (for example weighting by age/gender/region and then by ethnicity) by making alternating adjustments. Thus, the initial person level weight was adjusted by ethnic origin and in a separate adjustment by race. Then, this new weight was adjusted by age/gender/region so it again matched the demographic profile of the county by these characteristics. This weight was then adjusted to match the ethnic origin counts for the county and then the counts by race for the county. The post stratification weighting process was repeated until the weighting adjustments

converged and the weighted counts matched the county demographic profile by age/gender/region, ethnic origin, and race.

Population Size Reflected in the Final Data Set

The weighted data set is designed to provide data that can be generalized to the population of St. Louis County as a whole and to allow statements to be made about the county, the regions, as well as for various sub-populations with a known standard error and confidence. The population size reflected in the final data set is the total population of St. Louis County, or 760,125 residents age 18 and older.

VIII. Precision

The table below provides a summary of the sampling errors for the county as a whole as well as the sampling error within each region.

Precision for the St. Louis County Community Health Needs Assessment Survey

Area	Precision (+/-)
County	2.1%
Mid	4.3%
North	4.2%
South	4.3%
West	4.2%

APPENDIX 7: SECONDARY DATA SOURCES

St. Louis County CHNA, 2011

DATA TYPE	SOURCE	DATA YEAR(s)	DATA Level Pulled	DATA Level Reported
Population Estimates	U.S. Census Bureau	2009	Zip Code	Total population
	American Community Survey	2005-2009	Zip Code	Population by Age Groups
Demographics (Income, Education)	American Community Survey	2005-2009	Zip Code	Total income (\$)
Births	Missouri Dept. of Health and Senior Services (DHSS)	2007- 2009	Census Tract	Birth rate per 1,000 births
	Bureau of Health Informatics			
Mortality	Missouri Dept. of Health and Senior Services (DHSS)	2007- 2009	Census Tract	Mortality rates per 100,000
	Bureau of Health Informatics			
Hospital Inpatient	Missouri Dept. of Health and Senior Services (DHSS)	2008-2009	Census Tract	Hospital admission rates per 100,000
	Bureau of Health Informatics			
Hospital Emergency	Missouri Dept. of Health and Senior Services (DHSS)	2008-2009	Census Tract	ED visits per 100,000
	Bureau of Health Informatics			
Cancer Incidence and Staging	Missouri Cancer Registry and Research Center	2006- 2008	Census Tract	Cancer rates per 100,000
Infectious Disease: Hepatitis C Chlamydia/Gonorrhea HIV/AIDS	Missouri Department of Health and Senior Services	2007- 2009	Zip Code	Infectious Disease incidence rates per 100,000
	Section for Disease Control and Environmental Epidemiology. Bureau of HIV, STD, and Hepatitis			
Missouri Behavioral Risk Factor Surveillance System (BRFSS)	Missouri Dept. of Health and Senior Services (DHSS) Section of Epidemiology for Public Health Practices. Office of Epidemiology	2008- 2009	Zip Code	% of population
National BRFSS	US CDC National Center for Chronic Disease Prevention & Health Promotion	2009- 2010	By State	% of population

Secondary Data Sources

DATA TYPE	SOURCE	DATA YEAR(s)	DATA Level Pulled	DATA Level Reported
Missouri Youth Risk Behavior Surveillance System (YRBSS)	St. Louis County Department of Health	2010	By State	% of population
Injury- Accidents/Safety	Missouri Dept. of Health and Senior Services (DHSS) Missouri Bureau of Health Informatics	2007- 2009	Census Tract	Accident rates per 100,000
Employment, Unemployment	Missouri Department of Economic Development (DED)	2008-2009	Zip Code	% of labor force
Health Personnel (Physicians by Specialty)	The Little Blue Book	2008	Zip Code	% of labor force
Health Personnel (Physicians, Nurses, Dentists)	Missouri Healing Arts Board	2010	Zip Code	% of labor force
St. Louis County - Department of Health, Community Health Assessment Household Survey	UNE/Market Decisions	2011	Zip Code	% of population

APPENDIX 8: DEFINITIONS OF INDICATORS

Population Estimates and Demographics

Population data for the State of Missouri, St. Louis County was accessed from the 2009 Census Estimates, and 2005-2009 American Community Survey (ACS) 5-Year Estimates. These estimates were also used to calculate rates (e.g. hospitalization rates) that included population based denominators. 2005-2009 American Community Survey (ACS) 5-Year Estimates were also used for income, and education indicators. Data for the uninsured indicators was obtained through the 2011 Household Survey conducted by Market Decisions. The Missouri Department of Economic Development provided the unemployment data.

- √ **Annual Household Income** = The reported annual household income is the average household income in that region. (Source: 2005-2009 American Community Survey (ACS) 5-Year Estimates).

Births and Mortality

The Missouri Dept. of Health and Senior Services (DHSS) provided the birth and mortality datasets for 2007, 2008 and 2009.

Selected Definitions

- √ **Infant Mortality** = Deaths to an infant less than 1 year old
- √ **Premature Delivery** = Delivery following a pregnancy of a gestational period less than 37 weeks.
- √ **Low Birth Weight** = Infant < 2,500 grams
- √ **Kessner Index** = The Kessner Index is a measure of the adequacy of prenatal care (PNC) being provided in a community. The Index is based upon the month PNC began, the number of visits, and the gestational age at birth.
- √ **High risk pregnancy** = DRG codes defining high risk pregnancy (see Appendix 9) were used to obtain the data from the Missouri DHSS Patient Abstract System.

The classification of prenatal care as adequate, intermediate or inadequate is derived from the Institute of Medicine's Three-Factor Prenatal Care Index. The classes of care are in accordance with recommendations for prenatal care set by the American College of Obstetricians and Gynecologists and the World Health Organization. This classification scheme accounts for length of gestation by requiring fewer prenatal visits for pregnancies with short gestation time. Records with missing information (i.e., last normal menstrual period, gestation weeks, number of visits, or month prenatal care began) are assigned to the inadequate prenatal care category.

The gestation weeks are calculated by subtracting the last menstrual date from the child's birth date. If the last menstrual date is missing from the birth record, the doctor's (or other medical professional's) estimate of gestation is used. The accuracy of the level of prenatal care is as reliable as the information provided by the mother and her caregiver.

The table below shows the Institute of Medicine’s Three-Factor Prenatal Care Index.

Prenatal Care	Gestation (Weeks)	Number of Prenatal Visits
ADEQUATE (Includes women who started their first prenatal visits within the first three months of pregnancy)	13 or less	1 or more or not stated
	14 – 17	2 or more
	18 – 21	3 or more
	22 – 25	4 or more
	26 – 29	5 or more
	30 – 31	6 or more
	32 – 33	7 or more
	34 – 35	8 or more
	36 or more	9 or more
	INADEQUATE (Includes women who started care within the third trimester)	14 – 21
22 – 29		1 or less or unstated
30 – 31		2 or less or unstated
32 – 33		3 or less or unstated
34 or more		4 or less or unstated
		Unstated
INTERMEDIATE	All combinations not stated above	

Formulae:

$$\text{Average Mortality Rate} = \frac{\text{Total Deaths}}{\text{Total Population}} \times 100,000$$

$$\text{Infant (or Neonatal) Mortality Rate} = \frac{\text{Infant Deaths (or Neonatal Deaths)}}{\text{Total Births}} \times 1,000$$

$$\text{Teen Birth Rate} = \frac{\text{Total Births (Age 10-17)}}{\text{Female Population (Age 10-17)}} \times 1,000$$

$$\% \text{ Prematurity} = \frac{\text{Total Births of <37 Weeks Gestation}}{\text{Total Births}} \times 100$$

Hospital Inpatient & Emergency Utilization

Datasets were obtained from the Missouri DHSS for inpatient and emergency room admissions. The full list of ICD-9 and DRG codes used in these analyses can be found in Appendix 9.

√ **ACS** = Ambulatory Care Sensitive

The hospital admission rate for ACS conditions is used as a measure of access to and need of primary medical care in a community. The metrics calculated in this report are based on methodology developed by the Agency for Health Resources and Quality (AHRQ)⁵⁶. ACS conditions are those that are less likely to result in hospitalization when treated on an outpatient basis with high quality primary medical care and good patient compliance. Therefore, higher rates of hospitalizations for ACS conditions may be an indication of poorer access to and/or quality of primary care in an area. The 13 conditions considered to be ambulatory care sensitive for adults are:

- Adult Asthma
- Angina without Procedure
- Bacterial Pneumonia
- Congestive Heart Failure (CHF)
- Chronic Obstructive Pulmonary Disease (COPD)
- Dehydration
- Diabetes Short-term Complications
- Diabetes Long-term Complications
- Hypertension
- Lower-extremity Amputation among Diabetics
- Perforated Appendix Admission Rate
- Urinary Tract Infection
- Uncontrolled Diabetes

√ **AMI** = Acute Myocardial Infarction, commonly referred to as a heart attack

√ **CABG** = Coronary Artery Bypass Graft

Formulae:

$$\text{Hospital Admission Rate} = \frac{\text{Admissions}}{\text{Population}} \times 100,000$$

$$\text{Emergency Department Visit Rate} = \frac{\text{Visits}}{\text{Population}} \times 100,000$$

Cancer Incidence and Staging

√ **Cancer Stages** = Refers to how much cancer has spread

√ **Local** = Cancer has not spread beyond its primary site

√ **Distant** = Cancer has spread beyond its primary site

√ **Incidence Rate** = the number of new cases of a particular disease or condition that develop in a population of individuals during a specified period of time

⁵⁶ SOURCE: http://www.qualityindicators.ahrq.gov/pqi_overview.htm (Note: three of the sixteen indicators not included because they are pediatric ACSC measures)

√ **Mortality to Incidence Ratio** = Mortality Rate / Incidence Rate

Formulae:

$$\text{Cancer Incidence Rate} = \frac{\text{Cancer Incidence}}{\text{Total Population}} \times 100,000$$

Infectious Disease:

√ **HIV/AIDS** = Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome

√ **Incidence Rate** = the number of new cases of a particular disease or condition that develop in a population of individuals during a specified period of time

√ **Chronic Hepatitis C, Number of Case Reports**= number of laboratory confirmed chronic hepatitis C positive reports received by State of Missouri, Department of Health and Senior Services. A hepatitis C positive report is defined as the presence of any positive serologic marker for hepatitis C infection. This is a passive surveillance system with several limitations including the fact that serologic markers for hepatitis C infection cannot distinguish between past and present infection, location of reporting provider is sometimes used as proxy for patient residence, and lack of resources limit the ability to follow up on reports with missing information. For more information on viral hepatitis reporting and surveillance see: IOM (Institute of Medicine). 2010. Hepatitis and Liver Cancer: A National Strategy for Prevention and Control of Hepatitis B and C. Washington, DC: The National Academies Press. Available at: www.nap.edu/catalog/12793.html

Missouri Behavioral Risk Factor Surveillance System (BRFSS)

Missouri's Behavioral Risk Factor Surveillance System (BRFSS) is a population based survey conducted throughout the year with robust sampling for State level estimates.

Missouri Youth Risk Behavior Surveillance System (YRBSS)

√ **Youth Overweight** = High school students (Grades 9-12) who reported to be slightly or very overweight

√ **Youth Current Smoker** = High school students (Grades 9-12) who have reported smoking at least once in the past 30 days

√ **Physical Activity** = High school students (Grades 9-12) who have reported to be physically active for a total of at least 60 minutes on 5 of last 7 days.

St. Louis County CHNA Household Survey

The sampling strategy, questionnaire design and response rates for the St. Louis County Household Survey is described in detail in the Methodology section of this report. All responses to this survey, as with most population based surveys including BRFSS, are considered self-reported in that there is not independent validation of reported diagnosis or health behavior information.

√ **Percentage 11+ Days Lost due to Poor Mental or Physical Health** = The % of respondents who indicated that within the past 30 days, they had at least 11 days where poor physical or mental health kept them from doing their usual activities, such as self-care, work, or recreation

√ **Chronic Heavy Drinking** = More than two drinks of alcohol every day (men) or more than one drink of alcohol every day (women) over the past 30 days.

√ **Binge Drinking** = Consumed five or more drinks of alcohol on one occasion in the past month

- √ **Body Mass Index (BMI)** = A key index for relating a person's body weight to their height. The body mass index (BMI) is a person's weight in pounds (lbs) multiplied by 703 divided by their height in inches (in) squared

Formulae:

$$\text{BMI} = \frac{(\text{Weight in Pounds} \times 703)}{(\text{Height in Inches})^2}$$

- √ **Adult Overweight** = Adults (18+) who have a body mass index (BMI) between 25 and 29.9
- √ **Adult Obesity** = Adults (18+) who have a BMI greater than 30.0
- √ **Adult Current Smoker** = Respondents (18+) who have smoked at least 100 cigarettes in lifetime, and reported currently smoking every day or some days.
- √ **Adult Former Smoker** = Respondents (18+) who have smoked 100 cigarettes in lifetime but currently do not smoke at all.
- √ **Percentage Advised to Quit Smoking in the Past Year** = Advised to quit by medical provider in past year, asked of adults (18+) current smokers
- √ **Heart Disease**= Any disorder that affects the heart. Among the many types of heart disease, see, for example: Angina; Coronary artery disease (CAD); Heart attack (myocardial infarction); Heart failure.
- √ **Physical Activity** =
 - No Physical Activity** = Survey respondents who reported no physical activity for exercise in the past month.
 - Vigorous Physical Activity** = Survey respondents who reported engaging in physical activity for exercise for 30 minutes or more at least 5 times a week in the past month.
- √ **Prevalence Rate** = the proportion of individuals in a population who have a particular disease or condition at a specific point in time
- √ **Street Drugs** = marijuana, cocaine, crack, heroin, or illicitly obtained prescription pain relievers
- √ **3+ Chronic Diseases** = The diseases included in this measure are high blood pressure or hypertension, high cholesterol, diabetes or high blood sugar, and current asthma
- √ **Wellness Categories** =
 - Well** = Survey respondents that had never been diagnosed with any of the following long-standing conditions (High blood pressure, Hypertension, High Cholesterol, Diabetes), that reported their health as excellent, very good, or good, had good functional health, and, if over 35 years old, did not smoke and were not obese based on their body mass index.
 - At Risk for Future Medical Problems** = Survey respondents never diagnosed with any of the following long-standing conditions (High blood pressure, Hypertension, High Cholesterol, Diabetes), but were 35 years of age or older and smoked cigarettes regularly or were obese based on their body mass index.

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Some Health Problems = Survey respondents who reported their health as fair or poor, had reduced functional health, or had been diagnosed with high blood pressure, hypertension, high cholesterol, diabetes.

Not Well = Survey respondents that have been diagnosed with three of the following long-standing conditions (High blood pressure, Hypertension, High Cholesterol, Diabetes), or had been diagnosed with at least one chronic disease and reported their health as either fair or poor or experienced significant functional health problems.

APPENDIX 9: SUMMARY OF HOSPITAL ADMISSION AND ED DATA REQUESTED

Hospital Inpatient Admission Data

Available Metric	Code System	Defining Code(s)
All Inpatient Discharges	NA	
MDC Substance Abuse Disorder	DRG-MDC	20
MDC HIV/AIDS	DRG-MDC	25
AllMedical	DRG	<u>Version 25</u> : 52-103,121-125,146-159,175-208,280-316,368-395,432-446,533-566,592-607,637-645,682-700,722-730,754-761,774-782,789-795,808-816,834-849,862-872,880-887,894-897,913-923,933-951,963-965,974-977.
AllSurgical OR	DRG	<u>Version 25</u> : 1-13, 20-42, 113-117, 129-139, 163-168, 215-264, 326-358, 405-425, 453-517, 573-585, 614-630, 652-675, 707-718, 734-750, 765-770, 799-804, 820-830, 853-858, 876, 901-909, 927-929, 939-941, 955-959, 969-970, 981-989.
AMI	DRG	280-285
CABG	DRG	231-236
CHF	DRG	291-293
Bronchitis/Asthma	DRG	202-203
Cerebrovascular/Stroke	DRG	64-66
COPD	DRG	190-192
Emphysema	DRG	204
Pneumonia	DRG	193-195
Diabetes	DRG	637-639
High Risk Pregnancy	DRG	778-782
Psychoses	DRG	885
Diabetes Short Term Complications	ICD-9	2501-2503, 25010-25013,25020-25023,25030-25033
Diabetes Long Term Complications	ICD-9	2504-2509, 25040-25043,25050-25053,25060-25063,25070-25073,25080-25083,25090-25093.
Acute Alcohol MDs	ICD-9	303,

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Available Metric	Code System	Defining Code(s)
		3030,3039,3050 30300-30303
Acute Drug MDs	ICD-9	304, 3040-3049,3051-3059, 30400-30403,30410-30413,30420-30423,30430-30433,30440-30443,30450- 30453,30460-30463,30470-30473,30480-30483,30490-30493,30500- 30503,30520-30523,30530-30533,30540-30543,30550-30553,30560- 30563,30570-30573,30580-30583,30590-30593.
Alcohol Psychoses	ICD-9	291, 2910-2919, 29181,29189
Anxiety	ICD-9	300-316
Bipolar	ICD-9	297, 2965-2973,2978-2979 29640-29646,29650-29656,29660-29666,29680-29682,29689,29690,29699.
Drug Related Psychoses	ICD-9	292, 2921-2922,2928-2929, 29211-29212,29281-29284,29289.
Major Depression	ICD-9	2962-2964,3004, 29620-29626,29630-29636.
Schizophrenia	ICD-9	295,2950-2959,2990-2991,2998-2999, 29500-29505,29510-29515,29520-29525,29530-29535,29540-29545,29550- 29555,29560-29565,29570-29575,29580-29585,29590-29595,29900- 29901,29910-29911,29980-29981,29990-29991.
Senile Organic MDs	ICD-9	290,310, 2900-2904,2908-2909,3100-3102,3108-3109, 29010-29013,29020-29021,29040-29043.
Head Brain Injury	ICD-9	800—801,803-804,850-854.
Wrist/Hand Fracture	ICD-9	814-817.

Hospital Emergency Department Data

Available Metric	Code System	Defining Code(s)
All ED Visits	NA	
Bronchitis Asthma	ICD-9	493,466, 4660-4661, 4930, 4939, 46611-46619, 49300-49302, 49310-49312, 49390-49392.
COPD	ICD-9	490-491, 492,494-496 4910-4912,4918-4919, 4920,4928,4932, 4940-4941, 4950-4959, 49120-49121, 49320-49322
Pneumonia	ICD-9	480-486, 4800-4803,4808-4809,4820-4823,4828-4831,4838,4841,4843,4845-4848, 48230-48232, 48239-48241,48249,48281-48284,48289.
Acute Alcohol MDs	ICD-9	303, 3030,3039,3050 30300-30303
Acute Drug MDs	ICD-9	304, 3040-3049,3051-3059, 30400-30403,30410-30413,30420-30423,30430-30433,30440-30443,30450-30453,30460- 30463,30470-30473,30480-30483,30490-30493,30500-30503,30520-30523,30530- 30533,30540-30543,30550-30553,30560-30563,30570-30573,30580-30583,30590-30593.
Alcohol Psychoses	ICD-9	291, 2910-2919, 29181,29189
Anxiety	ICD-9	300-316
Bipolar	ICD-9	297,

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Available Metric	Code System	Defining Code(s)
		2965-2973,2978-2979 29640-29646,29650-29656,29660-29666,29680-29682,29689,29690,29699.
Drug Related Psychoses	ICD-9	292, 2921-2922,2928-2929, 29211-29212,29281-29284,29289.
Major Depression	ICD-9	2962-2964,3004, 29620-29626,29630-29636.
Schizophrenia	ICD-9	295,2950-2959,2990-2991,2998-2999, 29500-29505,29510-29515,29520-29525,29530-29535,29540-29545,29550-29555,29560- 29565,29570-29575,29580-29585,29590-29595,29900-29901,29910-29911,29980- 29981,29990-29991.
Senile Organic MDs	ICD-9	290,310, 2900-2904,2908-2909,3100-3102,3108-3109, 29010-29013,29020-29021,29040-29043.

Ambulatory Care Sensitive Conditions (ACSC) IP/ ED Data

ACSC Hospital Admissions - Diabetes Short-Term Complications (PQI 1)	ICD - 9: 25010-25013, 25020-25023, 25030-25033.
ACSC ED Visits - Diabetes Short-Term Complications (PQI 1)	
ACSC Hospital Admissions - Perforated Appendix (PQI 2)	ICD - 9:5400-5401
ACSC ED Visits - Perforated Appendix (PQI 2)	
ACSC Hospital Admissions - Diabetes Long-term Complications (PQI 3)	ICD - 9: 25040-25043,25050-25053,25060-25063,25070-25073,25080-25083,25090-25093
ACSC ED Visits Diabetes Long-term Complications (PQI 3)	
ACSC Hospital Admissions - Chronic Obstructive Pulmonary Disease (COPD) (PQI 5)	ICD-9: 490,4660,4910-4911, 49120-49121, 4918-4920, 4928,494,4940-4941,496.
ACSC ED Visits - Chronic Obstructive Pulmonary Disease (COPD) (PQI 5)	
ACSC Hospital Admissions - Hypertension (PQI 7)	ICD-9-CM:4010, 4019, 40200,40210,40290,40300,40310,40390,40400,40410,40490
ACSC ED Visits- Hypertension (PQI 7)	
ACSC Hospital Admissions - Congestive Heart Failure (CHF) (PQI 8)	ICD-9: 39891,40201, 40211,40291,40401,40403,40411,40413,40491,40493, 4280,4281,42820-42823,42830-42833,42840-42843,4289.
ACSC ED Visits - Congestive Heart Failure (CHF) (PQI 8)	
ACSC Hospital Admissions - Low Birth Weight (PQI 9)	ICD-9: 76400-76408, 76410-76418, 76420-76428, 76490-76498, 76500-76508, 76510-76518
ACSC ED Visits- Low Birth Weight (PQI 9)	
ACSC Hospital Admissions - Dehydration (PQI 10)	ICD-9: 27650-27652, 2765
ACSC ED Visits- Dehydration (PQI 10)	
ACSC Hospital Admissions - Bacterial Pneumonia (PQI 11)	ICD-9: 481, 4822, 48230-48232, 48239, 4829-4831, 4838, 485-486

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ACSC ED Visits- Bacterial Pneumonia (PQI 11)	
ACSC Hospital Admissions - Urinary Tract Infection (PQI 12)	ICD-9: 59010,59011, 5902-5903,59080-59081,5909,5950,5959,5990
ACSC ED Visits- Urinary Tract Infection (PQI 12)	
ACSC Hospital Admissions - Angina without Procedure (PQI 13)	ICD-9: 4111,41181,41189,4130,4131,4139
ACSC ED Visits- Angina without Procedure (PQI 13)	
ACSC Hospital Admissions - Uncontrolled Diabetes (PQI 14)	ICD-9: 25002-25003
ACSC ED Visits Diabetes Uncontrolled Diabetes (PQI 14)	
ACSC Hospital Admissions - Adult Asthma (PQI 15)	ICD-9:49300-49302,49310-49312,49320-49322,49381,49382,49390-49392.
ACSC ED Visits- Adult Asthma (PQI 15)	
ACSC Hospital Admissions - Lower-extremity Amputation among patients with diabetes (PQI 16)	ICD-9: 8410-8419,8950-8951,8960-8963,8970-8977,25000-25003,25010-25013,25020-25023,25030-25033,25040-25043,25050-25053,25060-25063,25070-25073,25080-25083,25090-25093
ACSC ED Visits- Lower-extremity Amputation among patients with diabetes (PQI 16)	

APPENDIX 10: DETAILED DATA SOURCES

Indicator	Data Source	Analysis Years
DEMOGRAPHICS		
Total Population	US Census Estimates	2007-2009
Annual Household Income	US Census Estimates	2005-2009
% of Labor Force Unemployed	MO. Dept. of Economic Development	2009-2010
% Population Not Attaining H.S. Diploma (Ages 25+)	Household Survey / US Census Estimates	2011 /2005-2009
% Population on Medicaid	Household Survey / Kaiser Health Facts	2011 /2008-2009
% Population Under the Age of 18	US Census Estimates	2007-2009
% Population Between Ages 18-44	US Census Estimates	2007-2009
% Population Between Ages 45-64	US Census Estimates	2007-2009
% Population Ages 65 and Over	US Census Estimates	2007-2009
% Uninsured	Household Survey / BRFSS	2011 / 2009
% Uninsured Non-Elderly Adults (Ages 18-65)	Household Survey / BRFSS	2011 / 2009
FUNCTIONAL HEALTH STATUS		
% Health Fair to Poor	Household Survey / BRFSS	2011 / 2009
% 11+ Days Physical Health Not Good	Household Survey / BRFSS	2011 / 2009
% 11+ Days Mental Health Not Good	Household Survey / BRFSS	2011 / 2009
% 11+ Days Lost due to Poor Mental or Physical Health	Household Survey / BRFSS	2011 / 2009
% 3+ Chronic Conditions	Household Survey / BRFSS	2011 / 2009
Wellness Categories:		
% Well	Household Survey / BRFSS	2011 / 2009
% At Risk for Future Medical Problems	Household Survey / BRFSS	2011 / 2009
% Some Health Problems	Household Survey / BRFSS	2011 / 2009
% Not Well	Household Survey / BRFSS	2011 / 2009

PRIMARY CARE:		
% Without Regular Source of Care	Household Survey / BRFSS	2011 / 2009
Males	Household Survey / BRFSS	2011 / 2009
Females	Household Survey / BRFSS	2011 / 2009
% Named Doctor's Office as Usual Source of Care	Household Survey / BRFSS	2011 / 2009
% Not Having a Checkup Within the Past 2 Years	Household Survey / BRFSS	2011 / 2009
Males	Household Survey / BRFSS	2011 / 2009
Females	Household Survey / BRFSS	2011 / 2009
% Received Flu Shot (past 12 months)	Household Survey / BRFSS	2011 / 2009
Ages 45-64	Household Survey / BRFSS	2011 / 2009
Ages 65+	Household Survey / BRFSS	2011 / 2009
Males	Household Survey / BRFSS	2011 / 2009
Females	Household Survey / BRFSS	2011 / 2009
% Received Pneumococcal Shot ever (Ages 65+)	Household Survey / BRFSS	2011 / 2009
Males	Household Survey / BRFSS	2011 / 2009
Females	Household Survey / BRFSS	2011 / 2009
% No Access to Care due to Cost	Household Survey / BRFSS	2011 / 2009
ED Visits per 100,000 Population	MO PAS	2008-2009
Ages <18	MO PAS	2008-2009
Ages 18-44	MO PAS	2008-2009
Ages 45-64	MO PAS	2008-2009
Ages 65+	MO PAS	2008-2009
Hospitalizations per 100,000 Population	MO PAS	2008-2009
Ages <18	MO PAS	2008-2009
Ages 18-44	MO PAS	2008-2009
Ages 45-64	MO PAS	2008-2009
Ages 65+	MO PAS	2008-2009
ACS Conditions, Hospital Admission Rate	MO PAS	2008-2009
Ages 0-17 yrs	MO PAS	2008-2009
Ages 18-44 yrs	MO PAS	2008-2009
Ages 45-64 yrs	MO PAS	2008-2009
Ages 65+ yrs	MO PAS	2008-2009
ACS Conditions, ED Rate	MO PAS	2008-2009

PRIMARY CARE:			
	Ages 0-17 yrs	MO PAS	2008-2009
	Ages 18-44 yrs	MO PAS	2008-2009
	Ages 45-64 yrs	MO PAS	2008-2009
	Ages 65+ yrs	MO PAS	2008-2009

CARDIOVASCULAR HEALTH:			
Risk Factors	% Current Smokers	Household Survey / BRFSS	2011 / 2009
	% Sedentary Lifestyle (measured by no physical activity)	Household Survey / BRFSS	2011 / 2009
	% Physical Activity (150+ minutes per week)	Household Survey / BRFSS	2011 / 2009
	% Overweight	Household Survey / BRFSS	2011 / 2009
	% Obesity	Household Survey / BRFSS	2011 / 2009
	% Overweight/Obesity Problem (Youth 0-17, parent report)	Household Survey / BRFSS	2011 / 2009
Prevalence	% High Cholesterol	Household Survey / BRFSS	2011 / 2009
	% High Blood Pressure	Household Survey / BRFSS	2011 / 2009
	% Heart Disease	Household Survey / BRFSS	2011 / 2009
Management	% Having Cholesterol Checked Within the Past Year	Household Survey / BRFSS	2011 / 2009
	% Advised to Quit Smoking Within the Past Year	Household Survey / BRFSS	2011 / 2009
	Congestive Heart Failure, Hospital Admissions	MO PAS	2008-2009
	Ages 45-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	AMI, Hospital Admission Rate	MO PAS	2008-2009
	Ages 45-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Cerebrovascular Disease (Stroke), Hospital Admission Rate	MO PAS	2008-2009
	Ages 45-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	CABG, Hospital Admission Rate	MO PAS	2008-2009
	Ages 45-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009

CARDIOVASCULAR HEALTH CONTINUED:			
Quality/Effectiveness	Heart Disease, Mortality Rate	MO Vital Statistics	2007-2009
	Ages 45-64	MO Vital Statistics	2007-2009
	Ages 65+	MO Vital Statistics	2007-2009
	AMI, Mortality Rate	MO Vital Statistics	2007-2009
	Ages 45-64	MO Vital Statistics	2007-2009
	Ages 65+	MO Vital Statistics	2007-2009
	Cerebrovascular Disease (Stroke), Mortality Rate	MO Vital Statistics	2007-2009
	Ages 45-64	MO Vital Statistics	2007-2009
	Ages 65+	MO Vital Statistics	2007-2009
	% Rehab following Heart Attack	Household Survey / BRFSS	2011 / 2009
	Male	Household Survey / BRFSS	2011 / 2009
	Female	Household Survey / BRFSS	2011 / 2009
	% Rehab following Stroke	Household Survey / BRFSS	2011 / 2009
	Male	Household Survey / BRFSS	2011 / 2009
	Female	Household Survey / BRFSS	2011 / 2009
	% Take Aspirin to Reduce Stroke (Ages 35+)	Household Survey / BRFSS	2011 / 2009
	Male	Household Survey / BRFSS	2011 / 2009
	Female	Household Survey / BRFSS	2011 / 2009
	% Take Aspirin to Reduce Heart Attack (Ages 35+)	Household Survey / BRFSS	2011 / 2009
	Male	Household Survey / BRFSS	2011 / 2009
Female	Household Survey / BRFSS	2011 / 2009	

RESPIRATORY HEALTH:			
	% Current Smokers	Household Survey / BRFSS	2011 / 2009
	Male	Household Survey / BRFSS	2011 / 2009
	Female	Household Survey / BRFSS	2011 / 2009
	% Former Smokers	Household Survey / BRFSS	2011 / 2009
Prevalence	% Current Asthma	Household Survey / BRFSS	2011 / 2009
	% COPD	Household Survey / BRFSS	2011 / 2009
	Lung and Bronchus Cancer, Males, Incidence Rate	Cancer Registry	2006-2008
	Lung and Bronchus Cancer, Females, Incidence Rate	Cancer Registry	2006-2008
Management	% Advised to Quit Smoking Within the Past Year	Household Survey / BRFSS	2011 / 2009
	% Received Flu Shot (past 12 months)	Household Survey / BRFSS	2011 / 2009
	Ages 45-64	Household Survey / BRFSS	2011 / 2009
	Ages 65+	Household Survey / BRFSS	2011 / 2009
	Male	Household Survey / BRFSS	2011 / 2009
	Female	Household Survey / BRFSS	2011 / 2009
	% Received Pneumococcal Shot ever (Ages 65+)	Household Survey / BRFSS	2011 / 2009
	Male	Household Survey / BRFSS	2011 / 2009
	Female	Household Survey / BRFSS	2011 / 2009
	Bronchitis and Asthma, Hospital Admission Rate	MO PAS	2008-2009
	Ages 0-17	MO PAS	2008-2009
	Ages 18-44	MO PAS	2008-2009
	Ages 45-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	COPD, Hospital Admission Rate	MO PAS	2008-2009
	Ages 45-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Adult Pneumonia, Hospital Admission Rate	MO PAS	2008-2009
	Ages 45-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	ED Asthma Visits per 100,000 population	MO PAS	2008-2009
	Ages 0-17	MO PAS	2008-2009
	Ages 18-44	MO PAS	2008-2009
	Ages 45-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009

RESPIRATORY HEALTH CONTINUED:			
Quality/Effectiveness	Lung Cancer Mortality Rate	MO Vital Statistics	2007-2009
	Male	MO Vital Statistics	2007-2009
	Female	MO Vital Statistics	2007-2009
	COPD, Mortality Rate	MO Vital Statistics	2007-2009
	Ages 45-64	MO Vital Statistics	2007-2009
	Ages 65+	MO Vital Statistics	2007-2009
	Pneumonia/Influenza, Mortality Rate	MO Vital Statistics	2007-2009
	Ages 45-64	MO Vital Statistics	2007-2009
	Ages 65+	MO Vital Statistics	2007-2009
	Smoking-Related Cancers, Mortality Rate	MO Vital Statistics	2007-2009
	Males	MO Vital Statistics	2007-2009
	Females	MO Vital Statistics	2007-2009

DIABETES:			
Risk Factors	% Sedentary Lifestyle (measured by no physical activity)	Household Survey / BRFSS	2011 / 2009
	% Overweight	Household Survey / BRFSS	2011 / 2009
	% Obesity	Household Survey / BRFSS	2011 / 2009
Prevalence	% Diagnosed Diabetes	Household Survey / BRFSS	2011 / 2009
	Ages 18-44	Household Survey / BRFSS	2011 / 2009
	Ages 45-64	Household Survey / BRFSS	2011 / 2009
	Ages 65+	Household Survey / BRFSS	2011 / 2009
Management	% Reported hemoglobin A1c measurement (at least once) in past year	Household Survey / BRFSS	2011 / 2009
	% Reported retinal eye exam in past year	Household Survey / BRFSS	2011 / 2009
	% Reported foot examination in past year	Household Survey / BRFSS	2011 / 2009
	% Reported influenza immunization in past year (Age 65+)	Household Survey / BRFSS	2011 / 2009
	Diabetes, Hospital Admission Rate	MO PAS	2008-2009
	Ages 45-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Short-term Complications, ED Visit Rate	MO PAS	2008-2009
	Long-term Complications, ED Visit Rate	MO PAS	2008-2009
	Uncontrolled Complications, ED Visit Rate	MO PAS	2008-2009
	Short-term Complications, Hospital Admission Rate	MO PAS	2008-2009
	Long-term Complications, Hospital Admission Rate	MO PAS	2008-2009
Uncontrolled Complications, Hospital Admission Rate	MO PAS	2008-2009	
Quality/Effectiveness	Diabetes, Mortality Rate	MO Vital Statistics	2007-2009
	Ages 45-64	MO Vital Statistics	2007-2009
	Ages 65+	MO Vital Statistics	2007-2009

CANCER HEALTH :			
Risk Factors	% Current Smokers	Household Survey / BRFSS	2011 / 2009
	% Sedentary Lifestyle	Household Survey / BRFSS	2011 / 2009
	% Former smokers	Household Survey / BRFSS	2011 / 2009
	% Overweight	Household Survey / BRFSS	2011 / 2009
	% Obesity	Household Survey / BRFSS	2011 / 2009
Disease Prevalence	% Diagnosed Cancer	Household Survey / BRFSS	2011 / 2009
	All Cancers, Incidence Rate	Cancer Registry	2006-2008
	Female Breast Cancer, Incidence Rate	Cancer Registry	2006-2008
	Female Cervix Uteri, Incidence Rate	Cancer Registry	2006-2008
	Colorectal, Incidence Rate	Cancer Registry	2006-2008
	Males	Cancer Registry	2006-2008
	Females	Cancer Registry	2006-2008
	Lung and Bronchus Cancer, Incidence Rate	Cancer Registry	2006-2008
	Male Prostate, Incidence Rate	Cancer Registry	2006-2008
Management / Patient Care	% Reported Mammogram Past Year (Ages 40+)	Household Survey / BRFSS	2011 / 2009
	% Stage Female Breast, Local	Cancer Registry	2006-2008
	% Stage Female Breast, Distant	Cancer Registry	2006-2008
	% Reported Pap Smear Past 2 Years	Household Survey / BRFSS	2011 / 2009
	% Stage Cervix Uteri Female, Local	Cancer Registry	2006-2008
	% Stage Cervix Uteri Female, Distant	Cancer Registry	2006-2008
	% Reported Blood Stool Test Past Year (Ages 50+)	Household Survey / BRFSS	2011 / 2009
	% Reported Having Sigmoid/Colonoscopy Past 5 Years (Ages 50+)	Household Survey / BRFSS	2011 / 2009
	% Stage Colorectal, Local	Cancer Registry	2006-2008
	% Stage Colorectal, Distant	Cancer Registry	2006-2008
	% Stage Lung and Bronchus Male, Local	Cancer Registry	2006-2008
	% Stage Lung and Bronchus Male, Distant	Cancer Registry	2006-2008
% Stage Lung and Bronchus Female, Local	Cancer Registry	2006-2008	
% Stage Lung and Bronchus Female, Distant	Cancer Registry	2006-2008	

CANCER HEALTH :			
	% Reported Prostate Exam (PSA test) Past 2 Years (Males Ages 50+)	Household Survey / BRFSS	2011 / 2009
	% Reported Digital Rectal Exam Past 2 Years (Males Ages 50+)	Household Survey / BRFSS	2011 / 2009
	% Stage Prostate, Local	Cancer Registry	2006-2008
	% Stage Prostate, Distant	Cancer Registry	2006-2008
CANCER HEALTH CONTINUED:			
Quality/Effectiveness	All Cancers, Mortality Rate	MO Vital Statistics	2007-2009
	Female Breast Cancer, Mortality Rate	MO Vital Statistics	2007-2009
	Female Cervix Uteri, Mortality Rate	MO Vital Statistics	2007-2009
	Colorectal, Mortality Rate	MO Vital Statistics	2007-2009
	Lung, Mortality Rate	MO Vital Statistics	2007-2009
	Males	MO Vital Statistics	2007-2009
	Females	MO Vital Statistics	2007-2009
	Male Prostate, Mortality Rate	MO Vital Statistics	2007-2009

MENTAL HEALTH			
Risk Factors	% 11+ Days Mental Health Not Good	Household Survey / BRFSS	2011 / 2009
	Ages 65+	Household Survey / BRFSS	2011 / 2009
	% Needed, but Did Not Get, Mental Health Treatment in Past 12 Months	Household Survey / BRFSS	2011 / 2009
Disease Prevalence	% Receiving Outpatient Mental Health Treatment in Past 12 Months	Household Survey / BRFSS	2011 / 2009
	% Diagnosed Depression ever	Household Survey / BRFSS	2011 / 2009
	% Diagnosed Other Psychiatric Disorder ever	Household Survey / BRFSS	2011 / 2009
	% Developmental Delay/Learning Disability (Ages 0-17)	Household Survey / BRFSS	2011 / 2009
Management	Psychoses Hospital Admission Rate	MO PAS	2008-2009
	Ages 0-17	MO PAS	2008-2009
	Ages 18-44	MO PAS	2008-2009
	Ages 45-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Senility and Organic Mental Disorders, Hospital Admission Rate	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Major Depressive Disorder, Hospital Admission Rate	MO PAS	2008-2009
	Ages 0-17	MO PAS	2008-2009
	Ages 18-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Bipolar Disorder, Hospital Admission Rate	MO PAS	2008-2009
	Ages 0-17	MO PAS	2008-2009
	Ages 18-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Schizophrenia, Hospital Admission Rate	MO PAS	2008-2009
	Ages 18-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Anxiety, Hospital Admission Rate	MO PAS	2008-2009
	Ages 0-17	MO PAS	2008-2009
Ages 18-44	MO PAS	2008-2009	
Ages 45-64	MO PAS	2008-2009	
Ages 65+	MO PAS	2008-2009	

MENTAL HEALTH CONTINUED :			
	Senility and Organic Mental Disorders, ED Rate	MO PAS	2008-2009
	Major Depressive Disorder, ED Rate	MO PAS	2008-2009
	Bipolar Disorder, ED Rate	MO PAS	2008-2009
	Schizophrenia, ED Rate	MO PAS	2008-2009
	Anxiety Disorder, ED Rate	MO PAS	2008-2009
Quality	Suicide, Mortality Rate	MO Vital Statistics	2007-2009
	Males	MO Vital Statistics	2007-2009
	Females	MO Vital Statistics	2007-2009

SUBSTANCE ABUSE :			
Prevalence	% Chronic Heavy Drinking - Past Month	Household Survey / BRFSS	2011 / 2009
	Ages 18-64	Household Survey / BRFSS	2011 / 2009
	Ages 65+	Household Survey / BRFSS	2011 / 2009
	% Binge Drinking - Past Month	Household Survey / BRFSS	2011 / 2009
	Ages 18-64	Household Survey / BRFSS	2011 / 2009
	Ages 65+	Household Survey / BRFSS	2011 / 2009
	Females	Household Survey / BRFSS	2011 / 2009
	Males	Household Survey / BRFSS	2011 / 2009
Management	Substance Abuse, Hospital Admission Rate	MO PAS	2008-2009
	Ages 18-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Acute Alcohol-Related Mental Disorders, Hospital Admission Rate	MO PAS	2008-2009
	Ages 18-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Alcohol-Related Psychoses, Hospital Admission Rate	MO PAS	2008-2009
	Ages 18-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Acute Drug-Related Mental Disorders, Hospital Admission Rate	MO PAS	2008-2009
	Ages 18-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Drug-Related Psychoses, Hospital Admission Rate	MO PAS	2008-2009
	Ages 18-64	MO PAS	2008-2009
	Ages 65+	MO PAS	2008-2009
	Acute Alcohol-Related Mental Disorders, ED Rate	MO PAS	2008-2009
	Alcohol-Related Psychoses, ED Rate	MO PAS	2008-2009
	Acute Drug-Related Mental Disorders, ED Rate	MO PAS	2008-2009
Drug-Related Psychoses, ED Rate	MO PAS	2008-2009	

SUBSTANCE ABUSE CONTINUED:			
Quality / Effectiveness	Smoking-Related Cancers, Mortality Rate	MO Vital Statistics	2007-2009
	Males	MO Vital Statistics	2007-2009
	Females	MO Vital Statistics	2007-2009
	Alcohol-Related Mortality Rate	MO Vital Statistics	2007-2009
	Males	MO Vital Statistics	2007-2009
	Females	MO Vital Statistics	2007-2009
	Alcohol Liver Disease, Mortality Rate	MO Vital Statistics	2007-2009
	Motor Vehicle Accidents, Mortality Rate	MO Vital Statistics	2007-2009
	Males	MO Vital Statistics	2007-2009
Females	MO Vital Statistics	2007-2009	
UNINTENTIONAL INJURY			
Quality/ Effectiveness	Total Accidents, Mortality Rate	MO Vital Statistics	2007-2009
	Male	MO Vital Statistics	2007-2009
	Female	MO Vital Statistics	2007-2009
	Motor Vehicle Accidents, Mortality Rate	MO Vital Statistics	2007-2009
	Male	MO Vital Statistics	2007-2009
	Female	MO Vital Statistics	2007-2009
ORAL HEALTH			
Risk Factor	% Reporting No Dental Visit in Past 2 Years	Household Survey / BRFSS	2011 / 2009
INFECTIOUS DISEASE			
Risk Factors	Chronic Hepatitis C, Case Reported Rate	Infectious Disease	2008-2009
	Sexually Transmitted Disease Incidence Rate:		
	Gonorrhea	Infectious Disease	2008-2009
	Chlamydia	Infectious Disease	2008-2009
Management	HIV-Infection, Hospital Admissions Rate	PAS	2008-2009
Quality	HIV-Infection Mortality Rate	MO Vital Statistics	2007-2009

REPRODUCTIVE HEALTH			
	% Binge Drinking Females - Past Month	Household Survey / BRFSS	2011 / 2009
	2 or more sex partners in past yr (Ages 18-34)	Household Survey / BRFSS	2011 / 2009
	% used condom last time had sex (Ages 18-34)	Household Survey / BRFSS	2011 / 2009
	Teen Birth Rate (10-17yrs) Per 1,000 Females	MO Vital Statistics	2007-2009
Management	High Risk Pregnancy, Hospital Admission Rate (Females Ages 10-44)	MO PAS	2008-2009
	C-Section Rate per 100 births	MO Vital Statistics	2007-2009
	% Adequate Prenatal Care (of Live Births)	MO Vital Statistics	2007-2009
	% Inadequate Prenatal Care (of Live Births)	MO Vital Statistics	2007-2009
	% Low Birthweight (<2500 grams)	MO Vital Statistics	2007-2009
	% Very Low Birthweight (<1500 grams)	MO Vital Statistics	2007-2009
	% Prematurity (< 37 weeks)	MO Vital Statistics	2007-2009
	Infant Mortality Rate (Deaths to Infants from Birth through 364 Days of Age) per 1,000 Live Births	MO Vital Statistics	2007-2009
	Neonatal Mortality Rate (Deaths to Infants under 28 Days) per 1,000 Live Births	MO Vital Statistics	2007-2009

CHILD/YOUTH HEALTH			
	% Sad/Hopeless (Two Weeks in a Row, Stopped Usual Activities)	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% Seriously Considered Suicide	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% Current Smoker - Past Month (Grade 9-12)	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% Current Smokeless Tobacco User	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% Alcohol Use - Past Month (Grade 9-12)	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% Binge Drink (5+ Drinks in a Row) - Past Month (Grade 9-12)	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% Marijuana Use Past Month (Grade 9-12)	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% Sniffed Glue or Other Inhalant Past Month (Grade 9-12)	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% Regular Physical Activity (at Least 60 Min on 5 of Last 7 Days)	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% Consume Fruits and Vegetables 5 or More Times/Day	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% Drank Sugar Sweetened Beverage in Past Week	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	Teen Birth Rate (10-17yrs) Per 1,000 Female Population	MO Vital Statistics	2007-2009
Prevalence	% Ever Been Diagnosed with Asthma (Ages 0-17, parental report)	Household Survey / BRFSS	2011 / 2009
	% Overweight/Obesity Problem (Ages 0-17, parental report)	Household Survey / BRFSS	2011 / 2009
	% Overweight (Grade 9-12)	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% Obese (Grade 9-12)	MO CPPW YRBS/CDC MO YRBS	2010 / 2009
	% With Developmental Delay or Learning Disability (Ages 0-17, parental report)	Household Survey / BRFSS	2011 / 2009
Management	ACSC, ED Rate (Ages 0-17)	MO PAS	2008-2009
	ACSC, Hospital Admission Rate (Ages 0-17)	MO PAS	2008-2009
	Asthma and Bronchitis, Hospital Admission Rate (Ages 0-17)	MO PAS	2008-2009
	Pneumonia, Hospital Admission Rate (Ages 0-17)	MO PAS	2008-2009
	Psychoses Hospital Admission Rate (Ages 0-17)	MO PAS	2008-2009
	Major Depressive Disorder, Hospital Admission Rate (Ages 0-17)	MO PAS	2008-2009
	Bipolar Disorder, Hospital Admission Rate (Ages 0-17)	MO PAS	2008-2009
	Asthma and Bronchitis, ED Rate (Ages 0-17)	MO PAS	2008-2009
Pneumonia, ED Rate (Ages 0-17)	MO PAS	2008-2009	

Local Data Sources Consulted	
	Progress Toward Building a Healthier St. Louis, 2010 Access to Care Data Book, St. Louis Regional Health Commission
	Mapping a Course for a Healthier Community for Women, Children and their Families. Maternal Child and Family Health Coalition, St. Louis Missouri, 2010

NA = Not Available in the Missouri BRFSS 2008-10

APPENDIX 11: LIST OF ACRONYMS

AAPOR- American Association for Public Opinion Research
ACS- Ambulatory Care Sensitive
AHRQ- Agency for Healthcare Research and Quality
AIDS- Acquired Immune Deficiency Syndrome
AMI- Acute Myocardial Infraction
BMI- Body Mass Index
BRFSS-Behavioral Risk Factor Surveillance System
CAD- Coronary Artery Disease
CABG- Coronary Artery Bypass Graft
CASRO-Council of American Survey Research Organization
CCPH-Center for Community and Public Health
CDC- Centers for Disease Control and Prevention
CHF- Congestive Heart Failure
CHNA-Community Health Needs Assessment
CIAP-Community and Institutional Assessment Process
COPD- Chronic Obstructive Pulmonary Disease
CRD- Chronic Respiratory Disease
CVD- Cardiovascular Disease
DHSS-Department of Health and Senior Services
DOH- Department of Health
DRE- Digital Rectal Exam
DRG- Diagnosis-related group
DSM-IV- Diagnostic and Statistical Manual of Mental Disorders
ED-Emergency Department
HCV- Hepatitis C Virus
HP2020- Healthy People 2020
HRSA- Health Resources and Services Administration
ICD-9- International Classification of Disease
IOM- Institute of Medicine
IP-In Patient
MH-Mental Health
MOA- Missouri Office of Administration
NIMH- National Institute of Mental Health
PNC-Prenatal Care
PQI- Prevention Quality Indicator
PSA- Prostate Specific Antigen
SAMHSA- Substance Abuse and Mental Health Service Administration
STD- Sexually Transmitted Disease
WHO- World Health Organization
YRBSS- Youth Risk Behavior Surveillance System

St. Louis County Community Health Needs Assessment

Please submit errata in writing to the Saint Louis County Department of Health at 111 S. Meramec Ave, Saint Louis, MO, 63105 to the attention of Public Health Coordinator. Include the page, error, your name, title, and contact information.