

# **THE CHILDREN'S MERCY CHILDHOOD OBESITY REDUCTION PROJECT**

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Simoes EJ, Jackson-Thompson J, Schmaltz CL, Bouras A, Rahmani E, Burger P  
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This publication was prepared by:

The HMI Consulting Group  
Department of Health Management and Informatics  
School of Medicine  
707 CS&E Building  
University of Missouri  
Columbia, Missouri 65212  
Phone: (573) 882-6179  
Fax: (573) 882-6158  
Website: <http://hmi.umh.edu>

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## Executive Summary

**Purpose:** Children's Mercy Hospital and Clinics (hereinafter referred to as "Children's Mercy") contracted with the health care consulting group of the Department of Health Management and Informatics, University of Missouri School of Medicine to:

- 1) Compile a childhood obesity profile and report for six counties in the Kansas City area (Johnson and Wyandotte in the state of Kansas; and Cass, Clay, Jackson, and Platte in the state of Missouri), and
- 2) Provide recommendations to create an on-line profile and establish a comprehensive set of indicator measures.

Consultants' aim was to identify and measure indicators to track progress in childhood obesity prevention strategies that were readily available on the web. This strategy complemented Children's Mercy's Community Health Needs Assessment to assess the status of childhood obesity and its determinants in a six-county Kansas City area while reducing costs often associated with generating additional public health assessments, such as: 1) design, testing, implementation, analysis or reporting of a new survey; and 2) design, testing, implementation, analysis or reporting of other monitoring and surveillance systems based on vital records, hospital-based data, U.S. Census data and other sources of health-related information.

**Background:** Obesity is the condition of excess body fat to the extent that health is impaired. Health experts commonly employ a height-to-weight ratio (kg/m<sup>2</sup>) called body mass index (BMI) to identify overweight and obese adults. The World Health Organization (WHO) classifies adults with a BMI greater than or equal to 25 as "overweight" while adults with a BMI greater than or equal to 30 are classified as "obese" (WHO, 2000). While a single, standardized method for classifying overweight and obese children has proven elusive, health experts have commonly employed sex- and age-specific percentile rankings of BMI to make these determinations. More specifically, children with a BMI between the 85th and 94th percentile for their age and sex are considered "overweight" while children with a BMI at or above the 95th percentile for their age and sex are classified as "obese" (Barlow & Expert Committee, 2007).

**Methods:** The methodology deployed to search, identify and analyze priority indicators for childhood obesity prevention was designed in six stages (Appendix A).

- First, consultants used prior experience and an updated literature review to develop a causal pathway for obesity, obesity related outcomes and possible strategies to prevent or mitigate childhood obesity (Appendices B and C). Consultants adopted as causal pathway the Egger, Swinburn and Rossner (2003) Obesity Determinants and Solution Pathways.
- Second, consultants used this causal pathway to search and identify potential priority indicators. The search strategy involved creation of a search list for potential indicators and identification of websites that contained queryable information about indicators (Appendices D and E).

- Third, consultants designed an analytical plan to query identified websites and estimate indicator measures (Appendix F).
- Fourth, consultants guided data query and generation of indicator measures to identify technical characteristics of the indicator and queries related to its utility for progress monitoring of preventive actions (Appendix G).
- Fifth, consultants convened a workshop for coalition participants to discuss utility of indicators and prioritize preferred indicators for monitoring purposes (Appendix H).
- Finally, consultants used a web-based survey to ascertain preferences regarding indicators from coalition members who did not participate in the workshop and workshop participants who had not fully discussed indicators (Appendix I).

**Recommendations:** The consultants recommend that Children's Mercy adopt 14 indicators identified by both expert consultant and survey respondents as priority to track annual progress on childhood obesity prevention initiatives. The indicators are feasible to use, inexpensive to measure and have demonstrated utility.

Domain 1.a: *Socioeconomic Status and Demographic Factors of Mothers*

1.a.7. Educational attainment of pregnant women (less than high school, high school, some college, college graduate)

1.a.9. Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children

Domain 1.b: *Socioeconomic Status and Demographic Factors of Children*

1.b.1. Prevalence of children in poverty by age

Domain 2: *Environmental Factors*

2.1. Percent of population with a low accessibility to healthy food among the children, low-income and total populations

2.9. Prevalence of children living with a parent who is overweight/obese

2.10. Prevalence of children living with a parent who is inactive during leisure time

Domain 3.a: *Overweight/Obesity and Related Behaviors of Adults Ages 18 and Older and Mothers*

3.a.1. Prevalence of overweight/obesity among adults 18 and older

3.a.2. Prevalence of obesity among adults

Domain 3.b: Overweight/Obesity and Related Behaviors of Children

3.b.1. Prevalence of neonates with high birth weight (> 4,499g)

Domain 4.a: Overweight/Obesity-related Disease or Health Condition of Adults Ages 18 and Older and Mothers

- 4.a.1. Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes
- 4.a.2. Prevalence of adults 18 or older who were told by health professional that they have diabetes
- 4.a.3. Rate of hospitalization due to diabetes

Domain 4.b. Overweight/Obesity-related Disease or Health Condition of Children

- 4.b.1. Prevalence of children by age (0—17, 5+) whose parent(s) was/were told by a health professional that their child has type-2 diabetes
- 4.b.2. Rate of hospitalization due to diabetes among children

Alternatively, Children's Mercy should consider adding to this list of 14 indicators a set of six out of the 16 additional indicators identified by the expert consultant. These six additional indicators measure different domains of the children's obesity causal pathway from the 14 matched indicators. The six additional indicators recommended are:

- 1.a.13. Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years
- 2.12. Percent of parents who describe their child as "very overweight"
- 3.a.3. Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy
- 3.b.10. Prevalence of children aged 5 - 17 with a BMI between the 85th and 95th percentiles
- 4.a.4. Rate of deaths attributed to diabetes
- 4.b.3. Rate of deaths attributed to diabetes among children.

Consultants also recommend that Children's Mercy and its partners adopt a participatory approach for continuing to build a robust collaborative initiative to design and sustain strategies to prevent and mitigate childhood obesity in the six-county area of Kansas City (Johnson *et al.*, 2009).

## List of Acronyms

ACS	=	American Community Survey
BMI	=	Body Mass Index
BRFSS	=	Behavioral Risk Factor Surveillance System
CHNA	=	Community Health Needs Assessment
CDC	=	Centers for Disease Control and Prevention
DM	=	Diabetes Mellitus
KIC	=	Kansas Information for Communities
KS	=	Kansas
MICA	=	Missouri Information for Community Assessment
MO	=	Missouri
NCHS	=	National Center for Health Statistics
NSLP	=	National School Lunch Program
PE	=	Physical Education
PedNSS	=	Pediatric Nutrition Surveillance System
PRAMS	=	Pregnancy Risk Assessment Monitoring System
SEER	=	Surveillance, Epidemiology and End Results
SES	=	Socioeconomic Status
SMART	=	Selected Metropolitan/Micropolitan Area Risk Trends
SNAP	=	Supplemental Nutrition Assistance Program
TANF	=	Temporary Assistance for Needy Families
USDA	=	United States Department of Agriculture
WellSAT	=	Wellness School Assessment Tool
WIC	=	Special Supplemental Nutrition Program for Women, Infants, and Children

## I. Introduction

In March 2010, the United States (U.S.) Congress passed legislation designed to overhaul the country's health care system and extend health insurance to millions of uninsured Americans. The Patient Protection & Affordable Care Act (HHS, 2010) includes several approaches to improve the quality of health care through collaboration between primary health care and public health. One critical approach toward this goal is the requirement for not-for profit hospitals to engage in Community Health Assessment (CHA) in order to retain their tax-exempt status. In the law, there is also language which requires CHAs to be comprehensive in scope and to include collaboration with public health and other government agencies, non-governmental organizations and the private sector. The Accountable Care Organization (ACO) initiatives promoted by the Centers for Medicare and Medicaid Services (CMS) and strengthened by ACA have created unique opportunities for health care organizations to provide quality care beyond their traditional panel of patients, including preventive and outreach programs that address priority needs in the communities they serve.

Children's Mercy Hospital and Clinics (hereinafter referred to as —Children's Mercy") contracted with the health care consulting group of the Department of Health Management and Informatics, University of Missouri School of Medicine to:

- 1) Compile a childhood obesity profile and report for six counties in the Kansas City area (Johnson and Wyandotte in the state of Kansas (KS); and Cass, Clay, Jackson, and Platte in the state of Missouri (MO)); and
- 2) Provide recommendations to create an on-line profile and establish a comprehensive set of indicator measures.

Consultants' aim was to identify and measure indicators to track progress in childhood obesity prevention strategies that were readily available on the web. This strategy complemented Children's Mercy's Community Health Needs Assessment (CHNA) to assess the status of childhood obesity and its determinants in a six-county Kansas City area while reducing costs often associated with generating additional public health

assessments, such as: 1) design, testing, implementation, analysis or reporting of a new survey; and 2) design, testing, implementation, analysis or reporting of other monitoring and surveillance systems based on vital records, hospital-based data, U.S. Census data and other sources of health-related information.

## II. Background: Childhood Obesity in the World, the United States, Missouri, Kansas and the Kansas City Metropolitan Area

Obesity is the condition of excess body fat to the extent that health is impaired. Health experts commonly employ a height-to-weight ratio ( $\text{kg}/\text{m}^2$ ) called body mass index (BMI) to identify overweight and obese adults. The World Health Organization (WHO) classifies adults with a BMI greater than or equal to 25 as “overweight” while adults with a BMI greater than or equal to 30 are classified as “obese” (WHO, 2000). While a single, standardized method for classifying overweight and obese children has proven elusive, health experts have commonly employed sex- and age-specific percentile rankings of BMI to make these determinations. More specifically, children with a BMI between the 85<sup>th</sup> and 94<sup>th</sup> percentile for their age and sex are considered “overweight” while children with a BMI at or above the 95<sup>th</sup> percentile for their age and sex are classified as “obese” (Barlow & Expert Committee, 2007).

Obesity is now recognized as a worldwide phenomenon affecting both rich and poor countries alike (WHO, 2000). The disease has reached epidemic proportions over the course of the last quarter of the 20<sup>th</sup> century. Globally, the increase in the incidence and prevalence of obese adults has been paralleled by similar increases in children and adolescents. By some estimates, as many as 43 million children are overweight or obese and an additional 92 million are at risk of becoming overweight (de Onis *et al.*, 2010). Over the 20-year period from 1990 to 2010, it is estimated that the worldwide prevalence of overweight and obese children increased from 4.2 to 6.7 percent and is expected to reach 9.1 percent or approximately 60 million children globally by the year 2020 (de Onis *et al.*, 2010).

In the U.S., the prevalence of overweight and obese children has steadily increased since the 1960s. Today, approximately one-third of U.S. children and adolescents are classified as either overweight or obese (Wang & Beydoun, 2007); this represents a tripling of prevalence since 1980 (Xanthakos & Inge, 2007). In 2010, approximately 16.9 percent of American children and adolescents reportedly met classification criteria for obesity (Ogden *et al.*, 2012). One study estimates that four percent of children and adolescents in the U.S. now have a BMI for age at or above the 99<sup>th</sup> percentile, and nearly all of these children (94%) have excess adiposity (Xanthakos & Inge, 2007). If these study projections were generalized to the total population of U.S. children and adolescents, an estimated two million children would be affected by this extreme form of obesity (Xanthakos & Inge, 2007).

While national-level statistics provide critical insight into understanding broad trends, regional and state variations have been documented. According to one study, in 2007 over 46 percent of Midwestern children between 10 and 17 years of age were classified as either overweight or obese (Singh, Siahpush & Kogan, 2010). This figure represents a 4.3 percent increase in prevalence of overweight and a 9.4 percent increase in prevalence of obesity between 2003 and 2007 (Singh, Siahpush & Kogan, 2010).

In the heart of the Midwest, the state of Missouri has not been immune to the obesity epidemic. In 2012, Missouri ranked 39<sup>th</sup> of all states in obesity rankings (United Health Foundation, 2012). According to the Missouri Department of Health and Senior Services (DHSS), in 2012 the overall prevalence of adult overweight in the Show-Me State was approximately 34.3 percent while an additional 30.2 percent were obese (DHSS, 2011). According to the City of Kansas City, MO Health Department, Missouri ranks in the second lowest quintile for childhood obesity nationwide (KCMO, 2010). The rate at which these conditions have grown in recent years is very concerning. Overweight among Missouri high school students has fluctuated somewhat but has generally trended upward, from 13.3 percent in 1999 to 14.4 percent in 2009 (CDC, 2013). Meanwhile, obesity among high school students also follows this upward trend, from 8.9 percent in 1999 to 14.2 percent in 2009 (CDC, 2013). As of 2008, over 30 percent of



Missouri children between the ages of two and five years who were enrolled in federally-funded health programs were either overweight or obese (Wojcicki & Heyman, 2010).

In 2011, a report from the Trust for America's Health, *—F as in Fat: How Obesity Threatens America's Future,*” noted that the adult obesity rate for Kansas had reached 29 percent. Kansas ranked fourth among all 50 states and the District of Columbia for the fastest obesity growth rate in the past 15 years. For the period 1993-1995, Kansas had an average combined obesity and overweight rate of 47.6 percent. Five years later (1998-2000), it was 56.6 percent. By the period 2008-2010, the average combined rate was 64.9 percent (Levi *et al.*, 2011). In the latest report from the Trust for America's Health released in August 2013, adult obesity in Kansas had reached 29.9 percent (+/- 1.2%) by 2012 and the combined obesity and overweight rate was 65.6 percent (+/- 1.2%) (Levi *et al.*, 2013).

As in other parts of the states of Kansas and Missouri, obesity rates for adults and children in Kansas City, MO continue to rise. Based on *Behavioral Risk Factor Surveillance System* (BRFSS) surveys, 29.7 percent of adult Kansas City residents were obese in 2010 (BRFSS, 2010). According to the Kansas City University of Medicine and Biosciences *Score 1 for Health* initiative, a 2007 sample found that the percentage of children in the Kansas City area who were overweight or obese increased with age, from 34 percent of 5-year-olds up to 47 percent of 11-year-olds (Campbell & Sterling, 2009). Kansas City metropolitan area obesity rates among children ages 2-5 and 6-11 has been reported to be 11 percent, while rates for children ages 12-19 was reported to be 15 percent (Blue KC Childhood Obesity Report, 2012).

### **III. Framework for Discovery and Analysis of Childhood Obesity Prevention Indicators**

#### **A. Principles**

The consulting framework was based on the deliverables of the contract and the need for Children's Mercy to effectively utilize the CHA as a means to strengthen an initiative for preventing and mitigating childhood obesity in the six-county area of Kansas City.

For this reason, it was critical that consultants used this complementary work to catalyze necessary development of the “right” coalition and partnership for this obesity prevention initiative.

The consulting framework was developed to facilitate establishing networks that lead to cooperation, coordination and coalition building before ultimately reaching full collaboration (Frey *et al.*, 2006). The framework was also guided by the principles of the community participatory process that foments active participation of key stakeholders in a public health coalition (Johnson *et al.*, 2009). Consultants developed this framework with direct and timely involvement of Children’s Mercy community coordinator and limited but qualitative engagement of members of a community advisory group already forming in Kansas City.

## **B. Methods**

The methodology deployed to search, identify and analyze priority indicators for childhood obesity prevention was designed in six stages (Appendix A).

- First, consultants used prior experience and an updated literature review to develop a causal pathway for obesity; obesity related outcomes and possible strategies to prevent or mitigate childhood obesity (Appendices B and C). Consultants adopted as causal pathway the Egger, Swinburn and Rossner (2003) Obesity Determinants and Solution Pathways.
- Second, consultants used this causal pathway to search and identify potential priority indicators. The search strategy involved creation of a search list for potential indicators and identification of websites that contained queryable information about indicators (Appendices D and E).
- Third, consultants designed an analytical plan to query identified websites and estimate indicator measures (Appendix F).
- Fourth, consultants guided data query and generation of indicator measures to identify technical characteristics of the indicator and queries related to its utility for progress monitoring of preventive actions (Appendix G).

- Fifth, consultants convened a workshop for coalition participants to discuss utility of indicators and prioritize preferred indicators for monitoring purposes (Appendix H).
- Finally, consultants used a web-based survey to ascertain preferences regarding indicators from coalition members who did not participate in the workshop and workshop participants who had not fully discussed indicators (Appendix I).

## **IV. Findings**

### **A. Identifiable and Searchable Childhood Obesity Indicators**

Consultants identified 66 childhood obesity indicators, searchable on the Internet. The majority of indicators were queryable in the websites through tools and applications. All 66 indicators were analyzed and are presented in Appendix J.

### **B. Indicator Survey Results**

Survey questionnaires were sent to 70 subjects, representing six distinct but related organizations/groups that are collaborating in a childhood obesity prevention strategy in Kansas City: City/county agencies, state/federal agencies, nonprofit organizations, academia, health providers/insurers and the leading organization, Children's Mercy. While the overall response rate was low (20 out of 70 for a 28.6% response rate), all six groups were represented by at least two respondents, with a maximum of seven for one group (see Tables 1 and 2, p. 26).

The consultant expert identified 30 indicators that could potentially be used to monitor progress in childhood obesity prevention strategies for the six-county area of Kansas City (MO and KS). Survey respondents identified 18 such priority indicators.

Disagreement between survey respondents and consultant expert concerning 12 indicators was mostly due to consultant expert's identification of inability of an indicator to provide a measure which was estimable by: a) county-level; b) levels of important sociodemographic factors; or c) time (e.g., annual trend). Also, in a few additional cases

there was disagreement regarding the sensitivity of some indicators to reflect impact on overweight/obesity-related factors while others were redundant because most of the relationship with overweight/obesity-related factors had already been captured through another indicator. Finally, another factor considered by consultant expert and overlooked by survey respondents was the level of difficulty to collate, tabulate and estimate the measure of an indicator.

For 15 of the indicators, survey respondents and the expert consultant agreed on their priority as measures to monitor childhood obesity prevention efforts. The 15 indicators both survey respondents and expert consultant agreed as priority for monitoring childhood obesity initiatives are:

- 1.a.7. Educational attainment of pregnant women (less than high school, high school, some college, college graduate)
- 1.a.9. Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children
- 1.b.1. Prevalence of children in poverty by age
- 2.1. Percent of population with a low accessibility to healthy food among the children, low-income, and total populations
- 2.9. Prevalence of children living with a parent who is overweight/obese
- 2.10. Prevalence of children living with a parent who is inactive during leisure time
- 3.a.1. Prevalence of overweight/obesity among adults 18 and older
- 3.a.2. Prevalence of obesity among adults
- 3.b.1. Prevalence of neonates with high birth weight (> 4,499 grams)
- 3.b.5. Prevalence of low-income children (age 2-4) with a Body Mass Index (BMI)-for-age indicating overweight/obesity
- 4.a.1. Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes
- 4.a.2. Prevalence of adults 18 or older who were told by health professional that they have diabetes
- 4.a.3. Rate of hospitalization due to diabetes

- 4.b.1. Prevalence of children by age (0-17, 5+) whose parent(s) was/were told by a health professional that their child has type 2 diabetes
- 4.b.2. Rate of hospitalization due to diabetes among children

The expert consultant identified an additional 15 indicators as priority for tracking progress of childhood obesity prevention initiatives:

- 1.a.11. Demographics of pregnant women
- 1.a.13. Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years
- 2.12. Percent of parents who describe their child as "very overweight"
- 3.a.3. Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy
- 3.b.4. Prevalence of low-income neonates with high birth weight (> 4,499 grams)
- 3.b.9. Prevalence of children aged 5-17 with a BMI  $\geq$  95<sup>th</sup> percentile
- 3.b.10. Prevalence of children aged 5-17 with a BMI between the 85<sup>th</sup> and 95<sup>th</sup> percentiles
- 4.a.4. Rate of deaths attributed to diabetes
- 4.a.6. Rate of hospitalization due to heart disease
- 4.a.7. Rate of deaths attributed to heart disease
- 4.a.9. Rate of hospitalization due to essential hypertension
- 4.a.10. Rate of deaths attributed to essential hypertension
- 4.b.3. Rate of deaths attributed to diabetes among children
- 4.b.5. Rate of hospitalization due to essential hypertension among children
- 4.b.6. Rate of deaths attributed to essential hypertension among children

A summary of findings by survey table is provided below.

Table 3.a (p. 27) shows survey response frequency by level of priority rank, average and median rank values of socioeconomic indicators for tracking childhood obesity prevention among mothers. Survey respondents identified four priority indicators: 1)

Prevalence of mothers without health care coverage; 2) Percent of pregnant women who are on Medicaid; 3) Educational attainment of pregnant women (less than high school, high school, some college, college graduate); and 4) Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children. Expert consultant ranked four priority indicators but only agreed with respondents' ranking on two indicators: 1) Educational attainment of pregnant women (less than high school, high school, some college, college graduate); and 2) Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children. Expert ranked the two other indicators considered high by respondents as lowest but identified two additional priority indicators: 3) Demographics of pregnant women; and 4) Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years.

Table 3.b (p. 28) shows survey response frequency by level of priority rank, average and median rank values of socioeconomic indicators for tracking childhood obesity prevention among children. Survey respondents and the expert both identified one priority indicator: Prevalence of children in poverty by age.

Table 4 (p. 29) shows survey response frequency by level of priority rank, average and median rank values of environmental factors for tracking childhood obesity prevention. Survey respondents and the expert identified three priority indicators: 1) Percent of population with a low accessibility to healthy food among the children, low-income and total populations; 2) Prevalence of children living with a parent who is overweight/obese; and 3) Prevalence of children living with a parent who is inactive during leisure time. In addition, the expert identified a fourth priority indicator: Percent of parents who describe their child as ~~o~~very overweight."

Table 5.a (p. 30) shows survey response frequency by level of priority rank, average and median rank values of overweight/obesity and related behaviors indicator for tracking childhood obesity prevention among adults aged 18 or older and mothers.

Survey respondents and the expert both consider 1) Prevalence of overweight/obesity among adults 18 and older; and 2) Prevalence of obesity among adults as priority factors to monitor childhood obesity. In addition, the expert ranked a third indicator: Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy.

Table 5.b (p. 31) shows survey response frequency by level of priority rank, average and median rank values of overweight/obesity and related behaviors indicator for tracking childhood obesity prevention among Children. Survey respondents and the expert ranked —Prevalence of neonates with high birth weight (greater than 4,499 grams)” as a priority indicator to monitor childhood obesity. However, survey respondents considered —Prevalence of low-income children between age 2 and 4 with a Body Mass Index (BMI)-for-age indicating overweight/obesity” and —Prevalence of low-income children with weight for height and gender BMI greater than 95<sup>th</sup> percentile” as priority indicators, whereas the expert ranked —Prevalence of low-income neonates with high birth weight,” “Prevalence of children aged between five and seven with a BMI  $\geq$  95<sup>th</sup> percentile,” and —Prevalence of children aged 5-17 with a BMI between the 85<sup>th</sup> and 95<sup>th</sup> percentiles” as priority factors to monitor childhood obesity.

Table 6.a (p. 32) shows survey response frequency by level of priority rank, average and median rank values of overweight/obesity-related disease or health condition indicator for tracking childhood obesity prevention among adults aged 18 or older and mothers. The survey respondents and the experts both ranked 1) Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes, 2) Prevalence of adults 18 or older who were told by health professional that they have diabetes, and 3) Rate of hospitalization due to diabetes as priority factors. In addition, the expert identified four other indicators that were ranked as lowest by the survey respondents as high priority: 1) Rate of hospitalization due to heart disease; 2) Rate of deaths attributed to heart disease; 3) Rate of hospitalization due to essential hypertension; and 4) Rate of deaths attributed to essential hypertension.

Table 6.b (p. 33) shows survey response frequency by level of priority rank, average and median rank values of overweight/obesity-related disease or health condition indicator for tracking childhood obesity prevention among children. The survey respondents and the expert consider 1) Prevalence of children age 17 and younger and between five and 17 whose parent(s) was/were told by a health professional that their child has type-2 diabetes, and 2) Rate of hospitalization due to diabetes among children as priority indicators to monitor childhood obesity. At the same time, the expert identified two more indicators as priority indicators to monitor childhood obesity: 1) Rate of deaths attributed to diabetes among children, and 2) Rate of hospitalization due to essential hypertension among children.

### **C. Baseline Information for Selected Indicators**

The following 30 indicators, listed by specific domain, were ranked in the top third as a priority to monitor childhood obesity by the expert consultant. Following subsections briefly describe the selected indicators and interpret their baseline values.

Measurements of all selected indicators are available starting on page 34. Highlights of notable advantages and disadvantages of the selected indicators are presented in Appendix K.

#### **1.a. Socioeconomic Status and Demographic Factors of mothers**

##### **1.a.7. Educational attainment of pregnant women (less than high school, high school, some college, college graduate)**

This indicator measures the percentage of live births, fetal deaths, and induced abortions from women for various levels of educational attainment according to state birth certificate data. Education level is a proxy for many economic factors and health outcomes and, in particular, lower education levels are associated with higher rates of being overweight or obese. The data (Figure 1, p. 34) show that Johnson – a relatively affluent county – has the lowest percentage of pregnant women with only a high school education or less than a high school education.



#### 1.a.9. Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children

This indicator is a surrogate for the percentage of single mothers in poverty; more precisely, it measures the percentage of households in poverty whose informant for the U.S. Census Bureau's American Community Survey (ACS) indicated that the householder is female, with no husband present, and her own children are in the household. The data show that throughout the area of interest, households headed by a single mother have fairly high rates of poverty (Figure 2, p. 34). Even in the most affluent county – Johnson County, KS – about one in five households headed by a single mother is in poverty.

#### 1.a.11. Sociodemographics of pregnant women

This indicator measures the percentage of live births to women of various racial/ethnic groups according to state birth certificate data. Figures 3.a (p. 35) and 3.b (p. 35) show racial distribution of pregnant women. Figure 3.c (p. 36) shows that the percent of pregnant women who are black generally decreases as education level increases. Among unmarried pregnant women, the proportion of black women varies substantially by geographic area (Figure 3.d, p. 36). Over time, the percentage of pregnant women who are black is generally decreasing in Wyandotte County, KS; increasing in three Missouri counties (Cass, Clay, and Platte) and one Kansas county (Johnson); and remaining fairly steady in Jackson County, MO and the state of Missouri as a whole (Figure 3.e, p. 37). This indicator, based on state birth certificate data, was added based on the collaborative discussion with coalition members in Kansas City as an alternative to a SMART (Selected Metropolitan/ Micropolitan Area Risk Trends) BRFSS-based indicator.

#### 1.a.13. Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years

This indicator is a surrogate for the percentage of single mothers on Food Stamps/SNAP; more precisely, it measures the percentage of households on Food

Stamps/SNAP whose informant for the U.S. Census Bureau's American Community Survey (ACS) indicated that the householder is female, with no husband present, and her own children are in the household. The data show that throughout the area of interest, households headed by a single mother have fairly high rates Food Stamps/SNAP usage and have a similar pattern as for indicator 1.a.9 (Figure 4, p. 37). Even in the most affluent county -- Johnson County, KS -- about one in five households headed by a single mother receives Food Stamps.

### **1.b. Socioeconomic Status and Demographic Factors of Children**

#### **1.b.1. Prevalence of children in poverty by age**

This indicator measures the percentage of children who live in a household whose informant for the U.S. Census Bureau's ACS survey indicated that the household is in poverty. Figure 5 (p. 38) shows that throughout the area of interest, the rate of children in poverty varies extremely by geographical location. In the most affluent county -- Johnson County, KS -- less than 10 percent of children are in poverty whereas over 30 percent are in poverty in the poorest county -- Wyandotte County, KS. During the collaborative discussion with coalition members in Kansas City, this was identified as a major risk factor and as a recommended indicator.

## **2. Environmental Factors**

### **2.1. Percent of population with low accessibility to food among the child, low-income and total populations**

This indicator measures the percentage of people living in a food desert, defined by the U.S. Departments of Agriculture, Treasury and Health & Human Services as a census tract (urban or rural) with a substantial share of residents who live in low-income areas with low levels of access to a grocery store or healthy, affordable food retail outlet (USDA, 2013). Because the area of interest is urbanized, the one-mile cut-off (rather than the 10-mile cutoff for non-metropolitan census tracts) was used in the classification of whether a supermarket or large grocery store was nearby. Due to the lack of nearby supermarkets, people in food deserts have a higher difficulty of obtaining healthy foods relative to unhealthy items typically found in convenience stores and fast-food

restaurants. Figure 6 (p. 39) has the proportion of the total population and of children living in a food desert, as well as the proportion of the population living in low-income census tracts who live in a food desert. During the collaborative discussion with coalition members, it was remarked that this is not a specific or sensitive measure.

### 2.9. Prevalence of children living with a parent who is overweight/obese

This indicator measures the population-weighted percentage of randomly selected children in the household of an adult who responded that s(he) was the parent of the child and had a BMI of at least 25 when interviewed for the BRFSS. Figure 7 (p. 39) shows the percent of children who are living with a parent (including biologic, step-, or adoptive) who has a BMI indicating overweight/obesity (BMI  $\geq$  25).

### 2.10. Prevalence of children living with a parent who is inactive during leisure time

This indicator measures the population-weighted percentage of randomly-selected children in the household of an adult who responded that s(he) was the parent of the child and did not participate in any physical activities or exercises during the past month (other than as part of her/his regular job) when interviewed for the BRFSS. Figure 8 (p. 40) shows the percent of children who are living with a parent (including biologic, step-, or adoptive) who did not engage in any leisure time physical activity in the past 30 days. The percentage is notably higher among Hispanics than other racial/ethnic groups.

### 2.12. Percent of parents who describe their child as “very overweight”

This indicator measures the percentage of parents who were interviewed for the Community Health Needs Assessment (CHNA) survey and responded that they describe their child as “very overweight.”

## 3.a. *Overweight/Obesity and Related Behaviors of Adults Ages 18 and Older and Mothers*

### 3.a.1. Prevalence of overweight/obesity among adults 18 and older

This indicator measures the population-weighted percentage of adults whose responses for her/his height and weight indicated a BMI of at least 25 when interviewed for the

BRFSS. Overweight/obesity is one of the most serious health problems in America and obesity is a leading preventable contributor to deaths. Here, “overweight” is defined as a BMI of at least 25 but less than 30 and “obese” as at least 30. [Note that when comparing to other sources, “overweight” is sometimes defined as including obesity which is denoted in this report as “overweight/obesity”.] The data (Figure 9, p. 41) show that consistently throughout the area of interest (where data are available), approximately two-thirds of adults are overweight/obese; this is similar to the statewide rates for Kansas and Missouri and to the U.S. as a whole. During the collaborative discussion with coalition members, it was remarked that this measure should be tracked.

### 3.a.2. Prevalence of obesity among adults

This indicator measures the population-weighted percentage of adults whose responses for their height and weight indicated a BMI of at least 30 when interviewed for the BRFSS. Figure 10 (p. 41) shows the percent of obesity (BMI  $\geq$  30) among adults. The rate is fairly similar in each of the counties and is quite high -- over a quarter of adults. During the collaborative discussion with coalition members in Kansas City, this was identified as a good measure, one that should be tracked.

### 3.a.3. Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy

This indicator is a surrogate for the prevalence of pre-pregnancy overweight/obesity (BMI of at least 25) among low-income postpartum women; more precisely, it measures the percentage of live births to women who were overweight/obese prior to pregnancy and had received WIC services during pregnancy. Figures 11.a (p. 42) and 11.b (p. 42) show the percent of low-income (defined as receiving WIC services) postpartum women who were overweight/obese for Missouri and Kansas counties, respectively. The data are graphed separately for Kansas and Missouri due to differing definitions used by the data sources. During the collaborative discussion with coalition members in Kansas City, this was identified as a good measure to track.

#### 3.a.4. Prevalence of low-income postpartum women who were obese prior to pregnancy

This indicator is a surrogate for the prevalence of pre-pregnancy obesity (BMI  $\geq$  30) among low-income pregnant women; more precisely, it measures the percentage of live births to women who were obese prior to pregnancy and had received WIC services during pregnancy. Figure 12 (p. 43) shows the percent of low-income (defined as receiving WIC services) postpartum women who were obese prior to pregnancy for the Missouri counties of interest. The data are graphed separately for Kansas and Missouri due to differing definitions used by the data sources.

#### 3.a.7. Prevalence of adults with no leisure-time exercise or physical activity during the past 30 days

This indicator measures the population-weighted percentage of adults who responded that they did not participate in any physical activities or exercises during the past month (other than as part of their regular job) when interviewed for the BRFSS. The data (see Figure 13, p. 43) show that in the Kansas City metropolitan area, nearly a quarter of adults have a sedentary lifestyle, with no major changes since 2002. Johnson and Wyandotte counties -- the most affluent and poorest counties, respectively, in the area of interest -- have the lowest and highest rates respectively and are significantly different for 2002 through 2010. During the collaborative discussion with coalition members, it was remarked that this would be a good measure to track.

### **3.b. *Overweight/Obesity and Related Behaviors of Children***

#### 3.b.1. Prevalence of neonates with high birth weight (> 4,499 grams)

This indicator measures the percentage of live births with a high birth weight according to state birth certificate data. The percent of neonates born with a high birth weight (defined as weighing more than 4.499 Kilograms) varies quite dramatically by counties as seen in Figure 14.a (p. 44). In Missouri, the rate of high birth weight is higher among white than black neonates (Figure 14.b, p. 44) but the rate is slowly decreasing over time (Figure 14.c, p. 45). This indicator is also shown by educational attainment (Figure 14.d, p. 45).

### 3.b.4. Prevalence of low-income neonates with high birth weight

This indicator is a surrogate for the prevalence of high birth weight among low-income infants; more precisely, it measures the percentage of infants (up to age 1) who had a birth weight of at least four Kilograms and had received WIC services. Among low-income (defined as being in the WIC program) neonates, **Figure 15.a (p. 46)** shows no major differences are found between white and black neonates, unlike within the general population (indicator 3.b.1). Much like with the general population, the rates have a general downward trend (**Figure 15.c, p. 47**). This indicator is also shown by educational attainment (**Figure 15.b, p. 46**).

### 3.b.5. Prevalence of low-income children (age 2 - 4) with a Body Mass Index (BMI)-for-age indicating overweight/obesity

This indicator is a surrogate for the prevalence of overweight/obesity among low-income children; more precisely, it measures the percentage of children (aged 2 - 4) with a BMI-for-age at or above the 85<sup>th</sup> percentile and who had received WIC services. Here, —overweight” among children is defined as a BMI-for-age at or above the 85<sup>th</sup> percentile but less than the 95<sup>th</sup> and —obese” as at or above the 95<sup>th</sup> percentile. (Note that when comparing to other sources, —overweight” is sometimes defined as including obesity, which is denoted in this report as —overweight/obesity.”) The data show that the percent of children on WIC who are overweight is fairly consistent across the area of interest -- approximately 12-15 percent. The rates for obesity vary more dramatically, from 12 percent in Johnson County, KS to slightly over 20 percent in Platte County, MO (see **Figure 16, p. 47**). During the collaborative discussion with coalition members, it was remarked that this is a strong indicator that would be a good measure to track, though it was noted that it does not cover the entire population.

### 3.b.7. Prevalence of low-income children with weight for height and gender (BMI) $\geq$ 95<sup>th</sup> percentile

This indicator is a surrogate for the prevalence of obesity among low-income children; more precisely, it measures the percentage of children (aged 1 - 4) with a BMI for age

and gender at or above the 95<sup>th</sup> percentile and who had received WIC services. The prevalence of obese low-income children in all Missouri counties is above 15 percent, with Clay County being the highest at 20 percent in 2008 (Figure 17.a, p. 48). Obesity is more common among children who are white compared to children who are black in the same year (2008, Figure 17.b, 48). The prevalence of obesity is highest among children of mothers with an 8<sup>th</sup> grade education or less and the prevalence decreases as the mother's educational level increases, resulting in the lowest prevalence of obesity among children of college-educated women in all of the Missouri counties except in Platte County (Figure 17.c, p. 49). In Platte County, the prevalence of obesity is near 40 percent among children of mothers with an 8<sup>th</sup> grade education or less -- the highest prevalence among all counties and educational categories. The prevalence decreases for 9<sup>th</sup> to 11<sup>th</sup> grade, but it rises again for 13 -15 years of education as well as for high school education until it sharply drops at the college level. The trend from 2000 to 2008 shows a slight and statistically insignificant increase in the prevalence of obesity in all counties (see Figure 17.d, p. 49).

### 3.b.8. Prevalence of low-income children with weight for height and gender (BMI) between the 85<sup>th</sup> and 95<sup>th</sup> percentile

This indicator is a surrogate for the prevalence of overweight among low-income children; more precisely, it measures the percentage of children, aged 1 to 4, with a BMI for age and gender at or above the 85<sup>th</sup> percentile but below the 95<sup>th</sup> percentile and who had received WIC services. The prevalence of overweight low-income children in all Missouri counties is above 15 percent, with Clay being the highest at 22.5 percent in 2008 (Figure 18.a). The trend from 2000 to 2008 shows rather steady/stable prevalence of overweight WIC children in all Missouri counties during these years (Figure 18.b).

### 3.b.9. Prevalence of children aged 5 - 17 with a BMI $\geq$ 95th percentile

This indicator measures the percentage of children aged 5–17 with a BMI at or above the 95<sup>th</sup> percentile, based on CHNA survey data. Here, —overweight” among children is defined as a BMI-for-age at or above the 85<sup>th</sup> percentile but less than the 95<sup>th</sup> percentile and —obese” as at or above the 95<sup>th</sup> percentile. (Note that when comparing to other

sources, —~~er~~weight” is sometimes defined as including obesity, which is denoted in this report as —~~er~~weight/obesity” (Figures or tables are not available).

### 3.b.10. Prevalence of children aged 5-17 with a BMI between the 85<sup>th</sup> and 95<sup>th</sup> percentiles

This indicator measures the percentage of children aged 5 - 17 with a BMI at or above the 85<sup>th</sup> percentile but less than the 95<sup>th</sup> percentile, based on CHNA survey data. Here, —~~er~~weight” among children is defined as a BMI-for-age at or above the 85<sup>th</sup> percentile but less than the 95<sup>th</sup> percentile and —~~ese~~” as at or above the 95<sup>th</sup> percentile. (Note that when comparing to other sources, —~~er~~weight” is sometimes defined as including obesity, which is denoted in this report as —~~er~~weight/obesity” (Figures or tables are not available).

## **4.a. *Overweight/Obesity-related Disease or Health Condition of Adults Ages 18 and Older and Mothers***

### 4.a.1. Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes

This indicator measures the population-weighted percentage of pregnant adult women interviewed for the BRFSS who responded that they have been told by a doctor that they have diabetes (except when it was only while pregnant). The rate for this indicator is highest in Wyandotte County, KS, with more than six percent having been told they have diabetes, and lowest in Jackson County, MO and Johnson County, KS, with no measurable percent having been told they have diabetes, over the years 2007–2010 (Figure 19, p. 51).

### 4.a.2. Prevalence of adults 18 or older who were told by health professional that they have diabetes, excluding gestational diabetes

This indicator measures the population-weighted percentage of adults interviewed for the BRFSS who responded that they have been told by a doctor that they have diabetes (except females when it was only while pregnant). The rate for this indicator is highest in Wyandotte County, KS, where it is about 12.5 percent, and lowest in Jackson County,



MO and Johnson County, KS with nearly 7 percent told they have diabetes in 2010. The prevalence for the state of Missouri is 9 percent and for Kansas it is 8 percent in the same year (Figure 20, p. 51).

#### 4.a.3. Rate of hospitalization due to diabetes

This indicator measures the diabetes hospitalization rate, based on records of discharges from non-federal and non-state acute care general and specialty hospitals whose facilities are open to the general public and the discharge record had a principle diagnosis of diabetes. The prevalence of hospitalized patients because of "diabetes without complications" is less than one percent in all counties while the prevalence of hospitalized patients because of "diabetes with complications" is highest in Wyandotte County, KS with 29 persons per 10,000 and lowest in Jackson County, MO and Johnson County, KS with nearly 7 percent in 2010. The prevalence for the state of Missouri is 9 percent and for Kansas it is 8 percent in the same year (Figure 21, p. 52).

#### 4.a.4. Rate of deaths attributed to diabetes

This indicator measures the diabetes death rate, based on death certificates that state that the underlying cause of death was diabetes. Figure 22 (p. 52) shows the death rate due to diabetes by county; the rate is relatively high in Wyandotte County, KS and lowest in Johnson County, KS. (Note: These data have type 1 and 2 diabetes grouped together).

### **4.b. *Overweight/Obesity-related Disease or Health Condition of Children***

#### 4.b.1. Prevalence of children by age (0 - 17, 5+) whose parent(s) was/were told by a health professional that their child has type 2 diabetes

This indicator measures the percentage of children whose parents were interviewed for the CHNA survey and responded that they have been told by a health professional that their child has type 2 diabetes. Data for this indicator were gathered in the Community Health Needs Assessment conducted by Children's Mercy for Clay, Jackson, Johnson and Wyandotte counties; figures and tables are not available at this time.

#### 4.b.2. Rate of hospitalization due to diabetes among children

This indicator measures the diabetes hospitalization rate among children, based on records of discharges from non-federal and non-state acute care general and specialty hospitals whose facilities are open to the general public and the discharge record states that the patient was under the age of 15 and had a principle diagnosis of diabetes. The graph for this indicator (Figure 27, p. 55) shows that the rate of hospitalization due to diabetes among children slowly but significantly increases for Missouri as a whole from 1994 to 2011. Jackson County, MO also witnessed a significant increase during this period. However, the rates are relatively small with 4 - 6 persons per 10,000 hospitalized due to diabetes. The trend for Platte County, MO has spikes in 2002 and 2008, with 8 - 10 persons per 10,000 hospitalized due to diabetes.

#### 4.b.3. Rate of deaths attributed to diabetes among children

This indicator measures the diabetes death rate among children, based on death certificates that state that decedent was under the age of 15 and the underlying cause of death was diabetes. The death rate among children due to diabetes is shown in Figure 28 (p. 55); as expected, the rate is extremely low and for most counties the rate is either estimated as zero or has been suppressed for confidentiality reasons due to the small number of cases.

#### 4.b.5. Rate of hospitalization due to essential hypertension among children

This indicator measures the essential (primary) hypertension hospitalization rate among children, based on records of discharges from non-federal and non-state acute care general and specialty hospitals whose facilities are open to the general public and the discharge record states that the patient was under the age of 15 and had a principle diagnosis of essential hypertension. The hospitalization rate among children due to essential hypertension is shown in Figure 29 (p. 56); as expected, the rate is extremely low (< 3.5 per 100,000 children).

#### 4.b.6. Rate of deaths attributed to essential hypertension among children

This indicator measures the essential (primary) hypertension death rate among children, based on death certificates that state that decedent was under the age of 15 and the underlying cause of death was essential hypertension. The death rate among children due to essential hypertension is shown in Figure 30 (p. 56); as expected, the rate is extremely low. For all counties in the area of interest, the rate is either estimated as zero or has been suppressed for confidentiality reasons due to there being so few cases.

## V. Recommendations

The consultants recommend that Children's Mercy adopt —~~at~~ "a minimum" the selected 14 indicators identified by both expert consultant and survey respondents as priority to track annual progress on childhood obesity prevention initiatives. These include:

- 1.a.7. Educational attainment of pregnant women (less than high school, high school, some college, college graduate)
- 1.a.9. Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children
- 1.b.1. Prevalence of children in poverty by age
- 2.1. Percent of population with a low accessibility to healthy food among the children, low-income and total populations
- 2.9. Prevalence of children living with a parent who is overweight/obese
- 2.10. Prevalence of children living with a parent who is inactive during leisure time
- 3.a.1. Prevalence of overweight/obesity among adults 18 and older
- 3.a.2. Prevalence of obesity among adults
- 3.b.1. Prevalence of neonates with high birth weight (> 4,499g)
- 4.a.1. Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes
- 4.a.2. Prevalence of adults 18 or older who were told by health professional that they have diabetes
- 4.a.3. Rate of hospitalization due to diabetes

- 4.b.1. Prevalence of children by age (0—17, 5+) whose parent(s) was/were told by a health professional that their child has type-2 diabetes
- 4.b.2. Rate of hospitalization due to diabetes among children

Alternatively, Children's Mercy should consider adding to this list of 14 indicators a set of six out of the 16 additional indicators identified by the expert consultant. These six additional indicators measure different domains of the children's obesity causal pathway from the 14 matched indicators. The six additional indicators recommended are:

- 1.a.13. Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years
- 2.12. Percent of parents who describe their child as "very overweight"
- 3.a.3. Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy
- 3.b.10. Prevalence of children aged 5 - 17 with a BMI between the 85<sup>th</sup> and 95<sup>th</sup> percentiles
- 4.a.4. Rate of deaths attributed to diabetes
- 4.b.3. Rate of deaths attributed to diabetes among children.

All 20 indicator measures are known to indicate direction, velocity and magnitude of change in agents, vectors and environmental factors as well as host-related behaviors directly impacting on children's overweight/obesity occurrence or its principal determinants in a community. In addition, these indicators are feasible to use, inexpensive to measure and have demonstrated utility. For example, measures of these 20 selected indicators including cross-tabulations with socioeconomic and cultural determinants of obesity and estimation of their change over time are readily available for web-based queries through easy-to-use applications and tools.

Consultants also recommend that Children's Mercy and its partners adopt a participatory approach for continuing to build a robust collaborative initiative to design and sustain strategies to prevent and mitigate childhood obesity in the six-county area

of Kansas City (Johnson *et al.*, 2009). It is also important to use results of this consulting work for building this childhood obesity prevention collaborative (Frey *et al.*, 2006). For this reason, we recommend that Children's Mercy use this report to increment activities that will move partnership from —Networking” to —Cooperation, Coordination and Coalition” which will lead to full Collaboration. Activities should include some or all of the following: provide information to each other, formal communication, shared information, frequent communications, share ideas, share resources, frequent and prioritized communication, all members have a vote in decision making, frequent communication is characterized by mutual trust and consensus is reached in decisions.

Along these guiding principles and more specifically focused on the report findings and recommendations, consultants recommend Children's Mercy:

- 1) Convene a second workshop to present the findings and recommendations of this consultation to all partners with an interest in building a strong coalition to tackle childhood obesity prevention in the six-county area of Kansas City; and
- 2) Create an interactive website to upload findings of this report and its annual update, allowing users to exchange experiences with use of indicators for monitoring strategies and strategy implementation; the website can serve as a forum to share policy and environmental change ideas and propose alternatives.

In addition, based on the baseline assessment of 20 indicators, consultants recommend that Children's Mercy consider bringing to the attention of the emerging coalition the possible childhood obesity preventive strategies that focus on the Egger-Swinburn-Rossner (2003) triad. The triad consists of: host (biology, behavior, attitudes, physiological adjustments of children, mothers, parents); agents/vectors (energy density, food portion size, machines we use every day); and environments (physical, economic, policy, sociocultural). Using this causal pathway triad, a combination of strategies can be patterned on evidence-based interventions for health care settings, school settings, community-based initiatives, high-risk groups, behavior modification or multipronged approaches (Appendix L).

For example, an intervention could be developed for school settings and directed at children, role models and mentors (i.e., teachers); changes of environments directly impacting children (i.e., cafeteria, new and renewed physical spaces for physical education (PE) class; and policies (i.e., number of hours per week of PE class, participation of parents in extra-curricular activities).

One such strategy, CATCH (Coordinated Approach to Child Health) developed by the University of Texas at Houston, has been evaluated extensively for efficacy, effectiveness and dissemination power and deemed —Recommended” by the Guide to Preventive Community Health Services (2013) and Keener *et al.* (2009). Other possible strategies to consider utilize the power of health care providers and their services to influence behavior, a role Children’s Mercy is already exercising but may need to fine tune with current evidence-based literature. A comprehensive discussion of evidence-based health care based programs combined with community-based activities is also available in recent peer reviewed publications by Dietz *et al.* (2007) and Homer & Simpson (2007). The programs may include partnerships such as in community- and school-based initiatives, providing clinical decision support tools, creating web-based self-management tools, developing anti-obesity tool kits to providers and covering obesity-related physician visits for beneficiaries. One example of this strategy is the Maine Youth Overweight Collaborative (MYOC). In 2004, the Maine Health Prevention Research Center established the Maine Youth Overweight Collaborative (MYOC) in partnership with the Maine Chapter of the American Academy of Pediatrics. They developed an approach to addressing overweight in children via physicians’ offices. Their intervention to improve care of overweight children and their families relies on improving providers’ knowledge, attitudes, and practices. This intervention has been deemed promising by Dietz *et al.* (2007).

## **VI. Acknowledgments**

We would like to thank workshop participants, survey respondents, Children’s Mercy (particularly Deborah Markenson) and project staff (Appendix M) for their contributions to this report.

## VII. Tables

Table 1: Types of organizations represented by survey participants and respondents (Comprehensive)

Type of Organization	Survey Participants		Survey Respondents	
	Number	%	Number	%
Nonprofit/Foundation/Coalition	18 <sup>a</sup>	26%	3 <sup>b</sup>	15%
State/Federal Agency	6 <sup>c</sup>	9%	2 <sup>d</sup>	10%
Children's Mercy/Primary Care	10	14%	4	20%
City/County	20 <sup>e</sup>	29%	7 <sup>f</sup>	35%
Academic	7	10%	2	10%
Health Plan/Insurance/Health IT	9	13%	2	10%
<b>Total participants/respondents</b>	<b>70</b>	<b>101%<sup>g</sup></b>	<b>20</b>	<b>100%</b>

<sup>a</sup> Number of participants by organization type: Nonprofit (7), Foundation (10), Coalition (1)

<sup>b</sup> Number of respondents by organization type: Nonprofit (2), Foundation (1), Coalition (0)

<sup>c</sup> Number of participants by organization type: State (5), Federal Agency (1)

<sup>d</sup> Number of respondents by organization type: State (2), Federal Agency (0)

<sup>e</sup> Number of participants by organization type: City (9), County (11)

<sup>f</sup> Number of respondents by organization type: City (2), County (5)

<sup>g</sup> Percentage exceeds 100 due to rounding


Table 2: Types of organizations represented by survey participants and respondents (Grouped)

Type of Organization	Survey Participants		Survey Respondents		Response Rate by Type
	Number	%	Number	%	%
Nonprofit/Coalition/Foundation	18	26%	3	15%	17%
CMH/Primary Care	10	14%	4	20%	40%
City/County Local	20	29%	7	35%	35%
Others*	22	31%	6	30%	27%
<b>Total of coalition members</b>	<b>70</b>	<b>100%</b>	<b>20</b>	<b>100%</b>	<b>29%</b>

\* -Others" includes State/Federal Agency, Academic and Health Plan/Insurance/Health IT

Table 3.a: Survey respondents' and expert priority rankings\* for socioeconomic indicators for tracking childhood obesity prevention among mothers.

Domains = Socioeconomic determinants	Survey Respondents'...		Number of Respondents Selecting Ranks...			Expert Ranking
	Average Rank	Median Rank	1-4	5-9	10-14	
1.a.1. Prevalence of mothers without health care coverage	5.5	4	11	7	2	7
1.a.2. Percent of pregnant women who are unmarried	9.1	10	2	6	11	6
1.a.3. Percent of pregnant women who smoked during pregnancy	7.3	8	5	8	6	7
1.a.4. Percent of pregnant women who are on The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)	6.1	5	4	15	0	7
1.a.5. Percent of pregnant women who are on Medicaid	5.9	6	8	7	4	7
1.a.6. Percent of pregnant women who are on Food Stamps	7.2	7	3	10	6	7
1.a.7. Educational attainment of pregnant women (less than high school, high school, some college, college graduate)	4.0	3	12	7	1	1
1.a.8. Percent of households with a female householder, no husband present, and the householder's own minor children among all households	7.1	9	7	5	7	5
1.a.9. Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children	4.9	2	12	3	5	4
1.a.10. Percent of mothers by race/ethnicity	8.7	9	4	7	9	7
1.a.11. Sociodemographics of pregnant women	9.6	12	3	5	11	2
1.a.12. Percent of pregnant women in WIC who get Supplementary Nutrition Assistance Program (SNAP)	8.5	8	3	7	9	7
1.a.13. Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years	7.4	7	6	7	6	3
1.a.14. Percent of unmarried parents in household	13.1	14	0	1	18	7

 Top rank indicator to monitor progress in childhood obesity prevention strategies

\* Respondents were asked to rank indicators from highest to lowest priority. Due to some incomplete responses, the count of responses may not be equal for all indicators.



Table 3.b: Survey respondents' and expert priority rankings\* for socioeconomic indicators for tracking childhood obesity prevention among children


Domains = Socioeconomic determinants	Survey Respondents'...		Number of Respondents Selecting Ranks...		Expert Ranking
	Average Rank	Median Rank	1	2	
1.b.1. Prevalence of children in poverty by age	1.1	1	17	2	1
1.b.2. Prevalence of children enrolled in Temporary Assistance for Needy Families (TANF)	1.9	2	2	17	2

  Top rank indicator to monitor progress in childhood obesity prevention strategies

\* Respondents were asked to rank indicators from highest to lowest priority. Due to some incomplete responses, the count of responses may not be equal for all indicators.

Table 4: Survey respondents' and expert priority rankings\* for environmental factors for tracking childhood obesity prevention


Domain = Environmental determinants	Survey Respondents'...		Number of Respondents Selecting Ranks...			Expert Ranking
	Average Rank	Median Rank	1-4	5-8	9-12	
2.1. Percent of population with a low accessibility to healthy food among the children, low-income, and total populations	2.9	2	16	3	0	1
2.2. Percent of school personnel stating that their school has policies on moderate and vigorous physical activity during physical education (PE)	5.5	5	6	13	0	8
2.3. School districts' WellSAT scores for regulating food sold for fundraising at all times (not only during the school day)	7.9	8	1	9	9	8
2.4. School districts' WellSAT scores for providing nutrition curriculum for each grade level	7.2	7	3	10	6	8
2.5. School districts' WellSAT scores for encouraging staff to be role models for healthy behaviors	8.1	8	3	7	9	8
2.6. School districts' WellSAT scores for specifying how district will engage families to provide information and/or solicit input to meet district wellness goals	8.9	9	1	6	12	8
2.7. Prevalence of adults in neighborhoods with sidewalks (perception from survey-based questions)	7.2	7	4	7	8	8
2.8. Prevalence of adults in neighborhoods with roads/streets with shoulders or marked lanes for bicycling	9.1	10	0	7	12	8
2.9. Prevalence of children living with a parent who is overweight/obese	2.3	1	17	1	1	3
2.10. Prevalence of children living with a parent who is inactive during leisure time	5.4	4	12	2	5	4
2.11. Prevalence of adults who strongly agree or agree that it is easy to purchase healthy foods in their neighborhood (perception from survey-based questions)	6.2	5	8	4	7	8
2.12. Percent of parents who describe their child as "very overweight"	7.2	6	5	7	7	2

 Top rank indicator to monitor progress in childhood obesity prevention strategies

\* Respondents were asked to rank indicators from highest to lowest priority. Due to some incomplete responses, the count of responses may not be equal for all indicators.

Table 5.a: Survey respondents' and expert priority rankings\* for overweight/obesity and related behaviors indicators for tracking childhood obesity prevention among adults aged 18 or older and mothers


Domains= overweight/obesity and related behaviors determinants	Survey Respondents'...		Number of Respondents Selecting Ranks...			Expert Ranking
	Average Rank	Median Rank	1-2	3-5	6-7	
3.a.1. Prevalence of overweight/obesity among adults 18 and older	2.1	1	13	4	2	2
3.a.2. Prevalence of obesity among adults	3.7	3	8	7	4	3
3.a.3. Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy	3.6	4	4	13	2	1
3.a.4. Prevalence of low-income postpartum women who were obese prior to pregnancy	4.0	5	6	10	3	5
3.a.5. Prevalence of no health care coverage among pregnant women	5.6	6	0	7	12	5
3.a.6. Prevalence of no health care coverage among adults	5.5	6	1	6	12	5
3.a.7. Prevalence of adults with no leisure-time exercise or physical activity during the past 30 days	3.4	3	6	10	3	5

 Top rank indicator to monitor progress in childhood obesity prevention strategies

\* Respondents were asked to rank indicators from highest to lowest priority. Due to some incomplete responses, the count of responses may not be equal for all indicators.

Table 5.b: Survey respondents' and expert priority rankings\* for overweight/obesity and related behaviors indicators for tracking childhood obesity prevention among children


Domains = overweight/obesity and related behaviors determinants	Survey Respondents'...		Number of Respondents Selecting Ranks...			Expert Ranking
	Average Rank	Median Rank	1-4	5-8	9-12	
3.b.1. Prevalence of neonates with high birth weight (> 4,499g)	5.6	6	8	6	5	1
3.b.2. Prevalence of neonates with low/very low birth weight (< 2,500g)	7.5	9	5	3	11	9
3.b.3. Prevalence of low-income neonates with low/very low birth weight (< 2,500g)	8.3	10	4	4	11	9
3.b.4. Prevalence of low-income neonates with high birth weight	6.6	7	6	6	7	2
3.b.5. Prevalence of low-income children (age 2-4) with a Body Mass Index (BMI)-for-age indicating overweight/obesity	3.7	4	13	6	0	9
3.b.6. Prevalence of children by age whose parent(s) was/were told by a health professional or someone in the child's school that their child is overweight	6.7	6	6	7	6	9
3.b.7. Prevalence of low-income children with weight for height and gender (BMI) ≥ 95th percentile	4.6	4	12	5	2	10
3.b.8. Prevalence of low-income children with weight for height and gender (BMI) between the 85th and 95th percentile	5.3	5	7	8	4	9
3.b.9. Prevalence of children aged 5-17 with a BMI ≥ 95th percentile	6.6	7	6	7	6	3
3.b.10. Prevalence of children aged 5-17 with a BMI between the 85th and 95th percentiles	8.0	8	2	9	8	4
3.b.11. Prevalence of children aged 5-17 with a BMI ≥ 85th percentile	8.8	9	2	5	12	5
3.b.12. Prevalence of children who were physically activity one hour/day in past week	6.2	6	5	10	4	6

 Top rank indicator to monitor progress in childhood obesity prevention strategies

\* Respondents were asked to rank indicators from highest to lowest priority. Due to some incomplete responses, the count of responses may not be equal for all indicators.

Table 6.a: Survey respondents' and expert priority rankings\* for overweight/obesity-related disease or health condition indicators for tracking childhood obesity prevention among adults aged 18 or older and mothers


Domains= overweight/obesity-related disease or health condition determinants	Survey Respondents'...		Number of Respondents Selecting Ranks...			Expert Ranking
	Average Rank	Median Rank	1-4	5-8	9-11	
4.a.1. Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes	3.5	2	14	3	2	3
4.a.2. Prevalence of adults 18 or older who were told by health professional that they have diabetes, excluding gestational diabetes	3.4	2	14	4	1	3
4.a.3. Rate of hospitalization due to diabetes	3.8	3	14	3	2	1
4.a.4. Rate of deaths attributed to diabetes	6.1	7	9	4	6	1
4.a.5. Rate of emergency room visits attributed to diabetes	5.3	5	7	8	4	5
4.a.6. Rate of hospitalization due to heart disease	5.3	6	5	14	0	2
4.a.7. Rate of deaths attributed to heart disease	6.4	7	4	11	4	2
4.a.8. Rate of emergency room visits attributed to heart disease	7.0	7	3	13	3	5
4.a.9. Rate of hospitalization due to essential hypertension	7.8	8	1	9	9	2
4.a.10. Rate of deaths attributed to essential hypertension	9.1	10	2	2	15	2
4.a.11. Rate of emergency room visits due to essential hypertension	8.3	10	3	5	11	5

 Top rank indicator to monitor progress in childhood obesity prevention strategies

\* Respondents were asked to rank indicators from highest to lowest priority. Due to some incomplete responses, the count of responses may not be equal for all indicators.

Table.6.b: Survey respondents' and expert priority rankings\* for overweight/obesity-related disease or health condition indicators for tracking childhood obesity prevention among children

Domains= overweight/obesity-related disease or health condition determinants	Survey Respondents'		Number of Respondents Selecting Ranks...			Expert Ranking
	Average Rank	Median Rank	1-4	5-8	9-11	
4.b.1. Prevalence of children by age (0—17, 5+) whose parent(s) was/were told by a health professional that their child has type-2 diabetes	1.8	1	16	2	1	1
4.b.2. Rate of hospitalization due to diabetes among children	2.5	2	17	1	1	2
4.b.3. Rate of deaths attributed to diabetes among children	5.1	5	6	9	4	2
4.b.4. Rate of emergency room visits due to diabetes among children	3.7	4	9	8	2	5
4.b.5. Rate of hospitalization due to essential hypertension among children	4.5	5	6	10	3	2
4.b.6. Rate of deaths attributed to essential hypertension among children	6.8	7	0	7	12	2
4.b.7. Rate of emergency room visits due to essential hypertension among children	5.6	5	3	8	8	5
4.b.8. Rate of hospitalization due to "Other bone disease and musculoskeletal deformities," including Blount's disease	7.0	8	0	8	11	5
4.b.9. Rate of hospitalization due to "Other diagnostic procedures (interview; evaluation; consultation)," including sleep study procedures and "Residual codes; unclassified," including Sleep Apnea	7.9	9	0	4	15	5

 Top rank indicator to monitor progress in childhood obesity prevention strategies

\* Respondents were asked to rank indicators from highest to lowest priority. Due to some incomplete responses, the count of responses may not be equal for all indicators.

## VIII. Figures

### Socioeconomic determinants for mothers

Figure 1: Educational attainment of pregnant women, by Educational attainment (1.a.7)

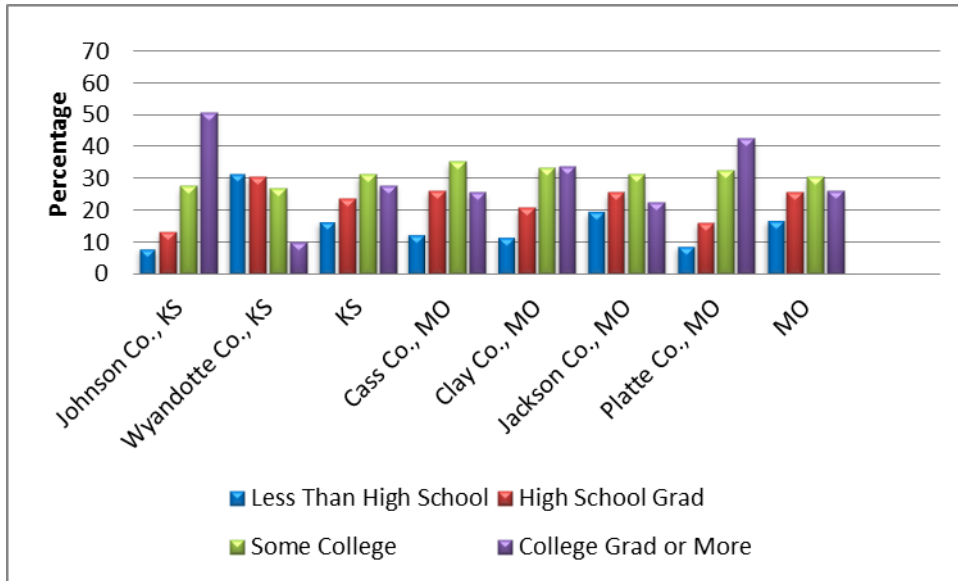


Figure 2: Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children (1.a.9)

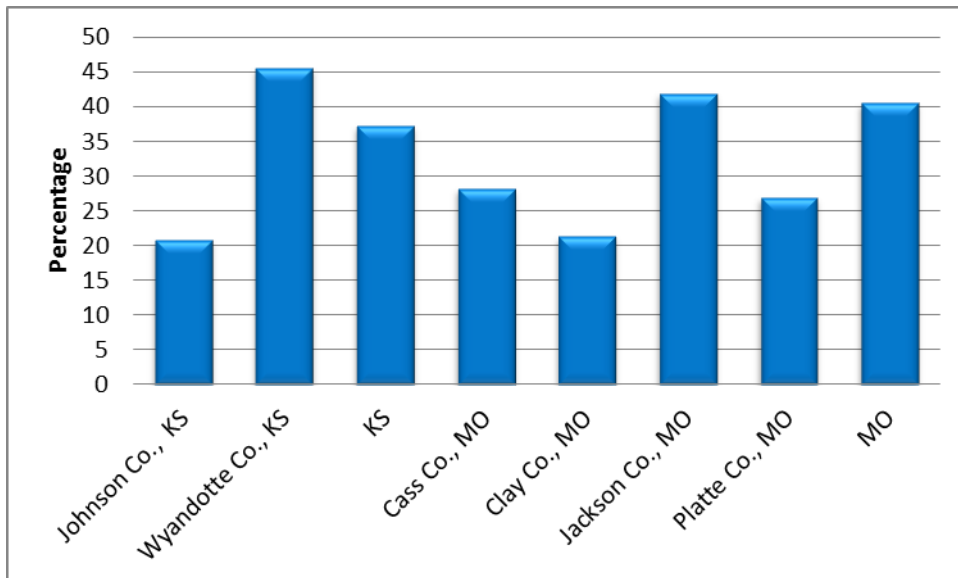


Figure 3.a: Sociodemographics of pregnant women, by race (1.a.11)

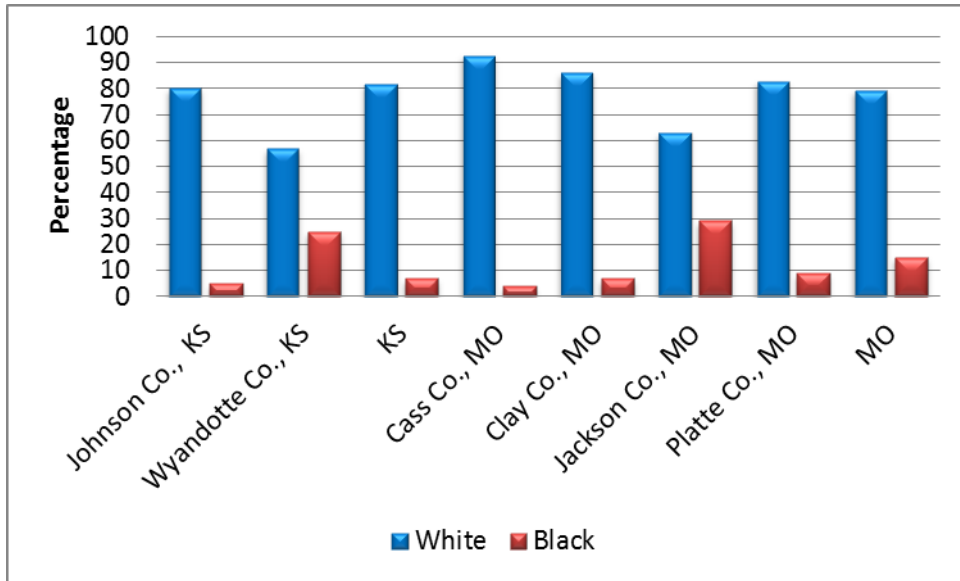


Figure 3.b: Sociodemographics of pregnant women, by county (1.a.11)

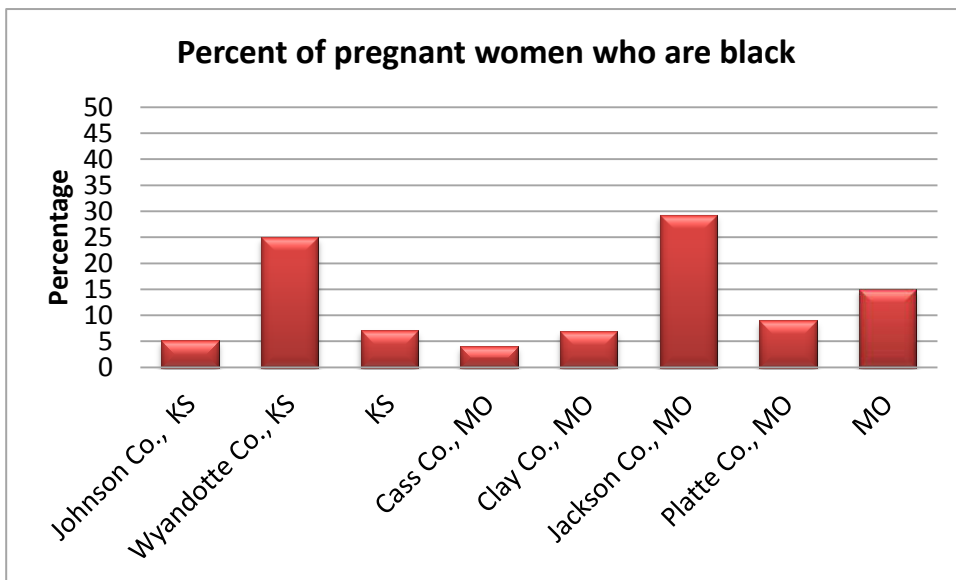




Figure 3.c: Sociodemographics of pregnant women, by educational attainment (1.a.11)

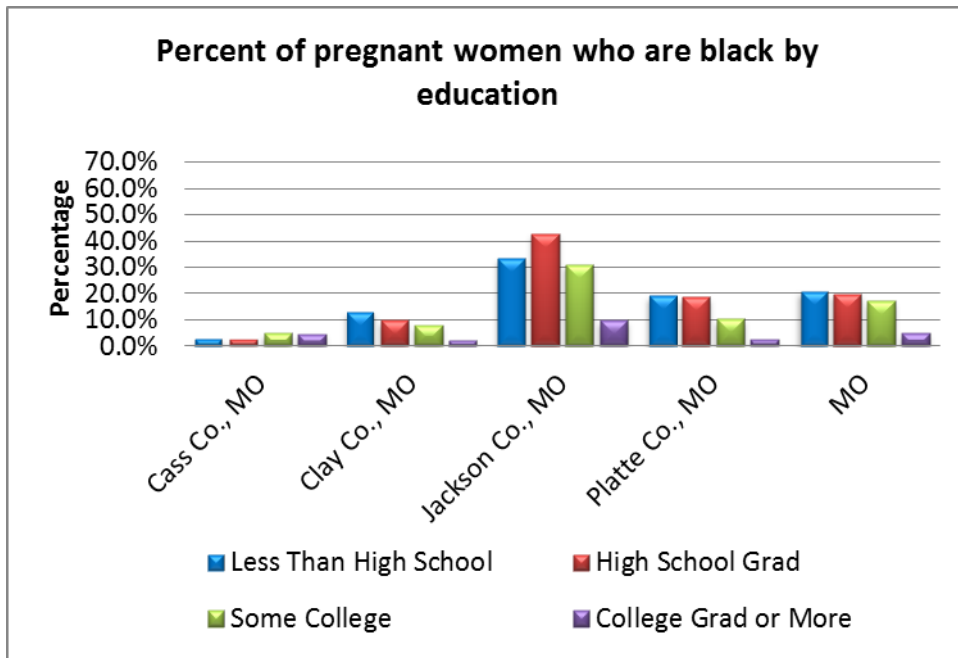


Figure 3.d: Sociodemographics of pregnant women, by marital status (1.a.11)

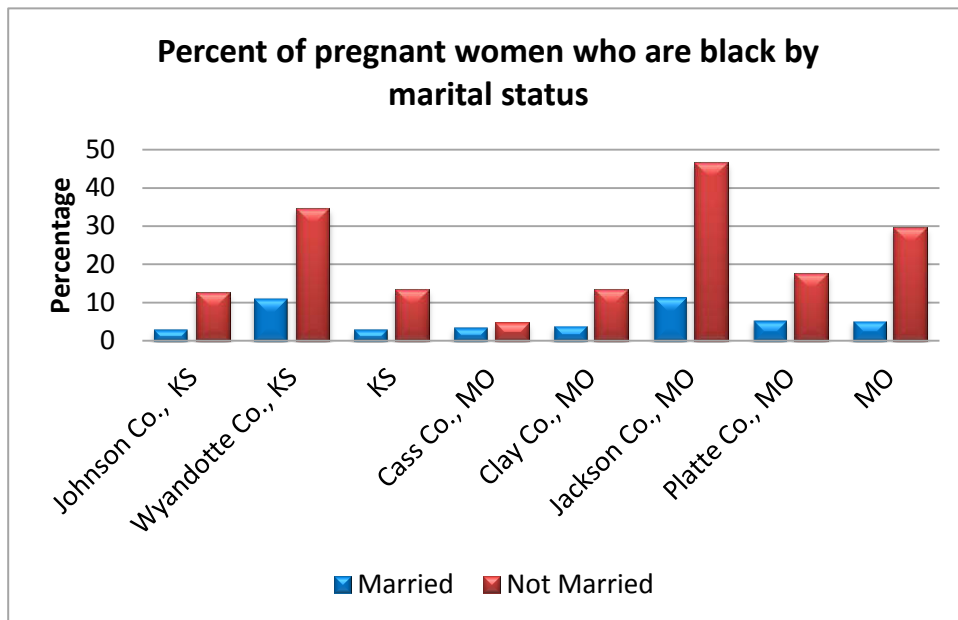


Figure 3.e: Sociodemographics of pregnant women, by year (1.a.11)

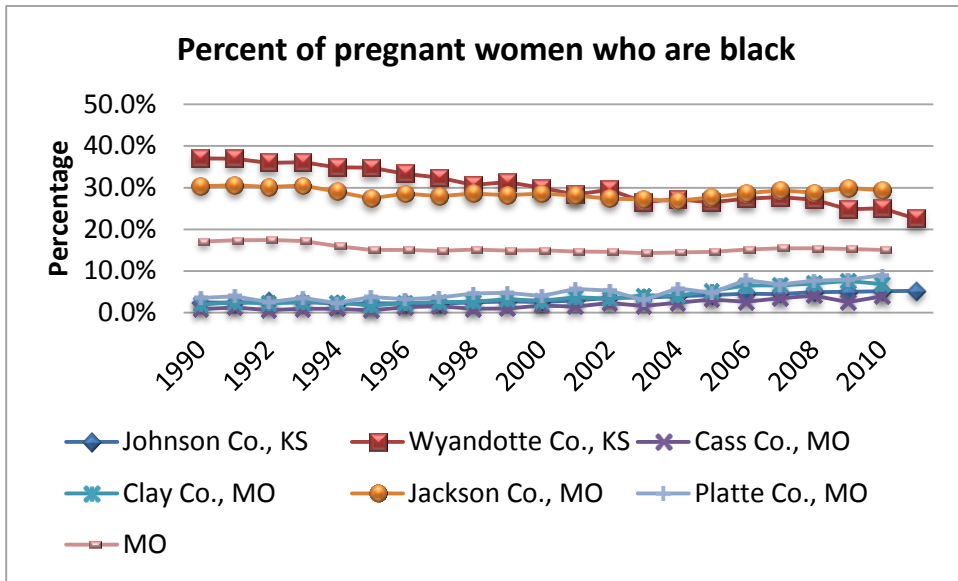
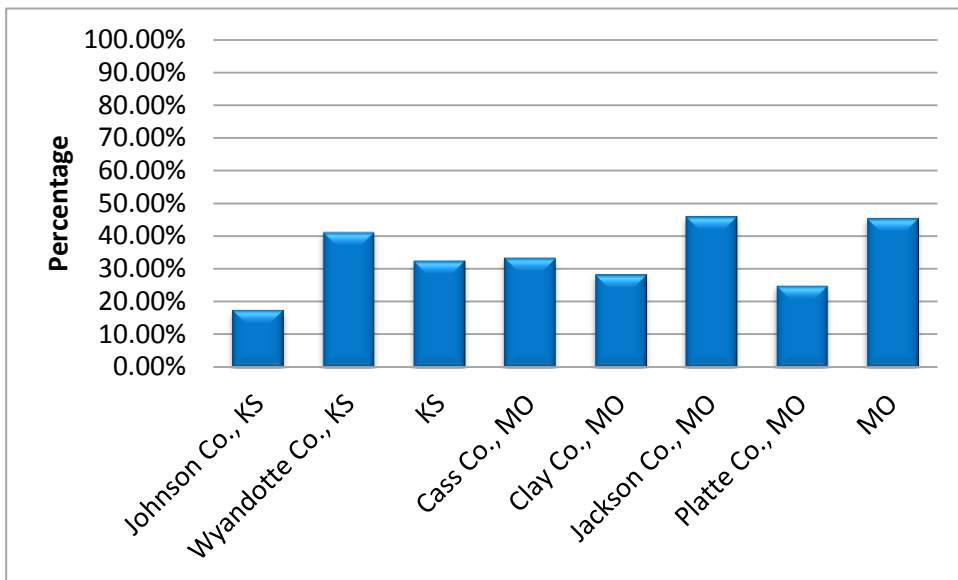
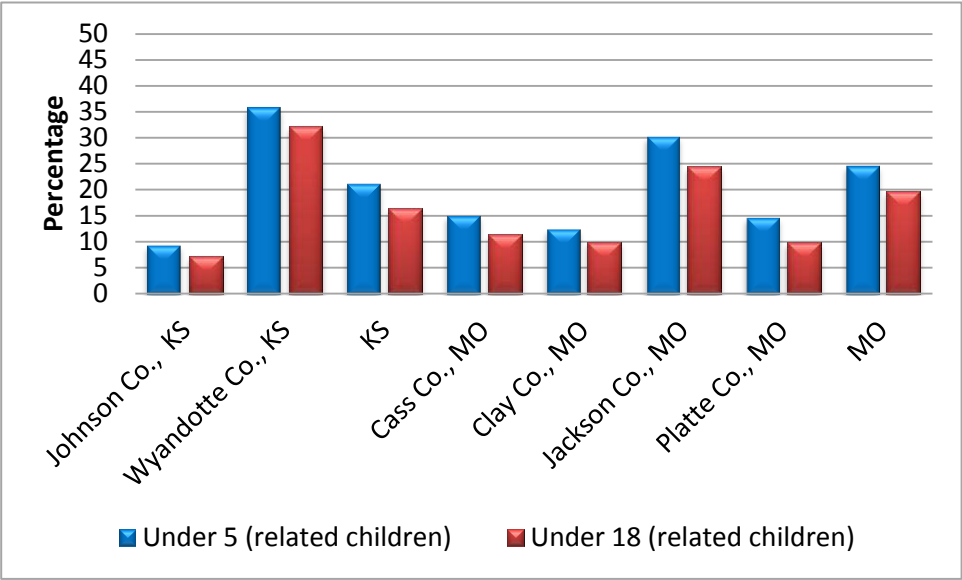


Figure 4: Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years (1.a.13)



# Socioeconomic determinants for children

Figure 5: Prevalence of children in poverty, by age (1.b.1)



## Environmental determinants

Figure 6: Percent of population with a low accessibility to food among the child, low-income, and total populations (2.1)

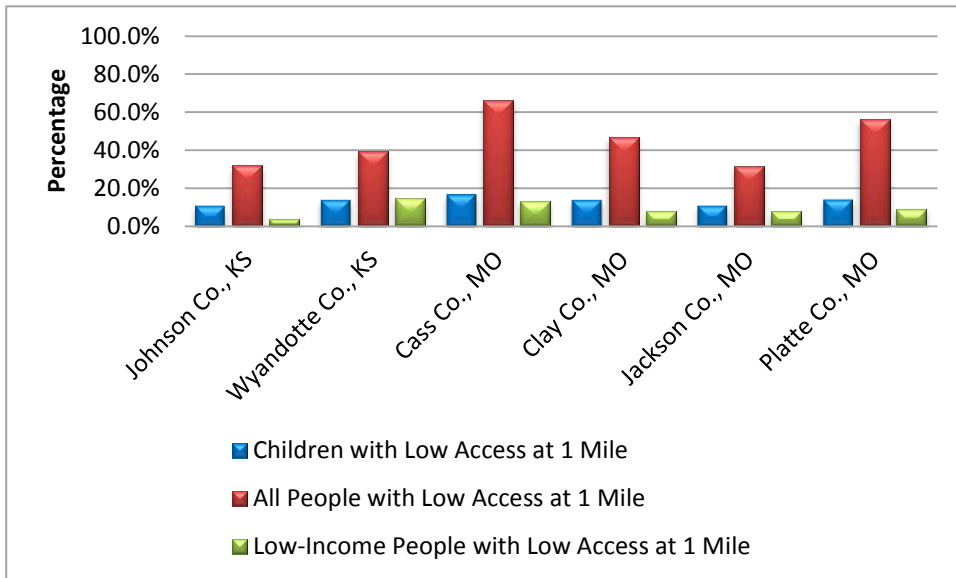


Figure 7: Prevalence of children living with a parent who is overweight/obese (2.9)

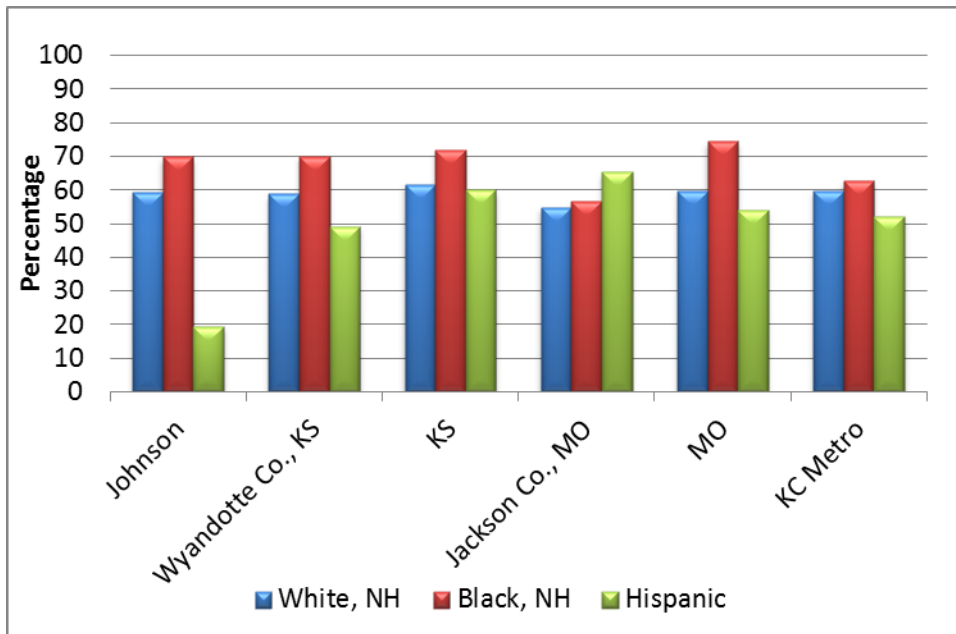
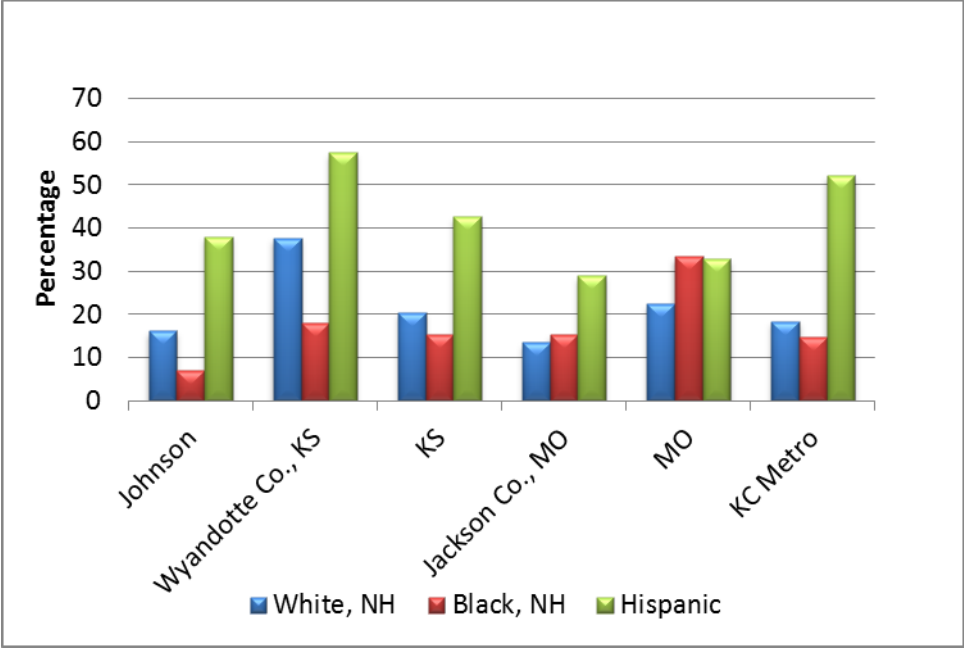


Figure 8: Prevalence of children living with a parent who is inactive during leisure-time (2.10)



**Overweight/obesity and related behaviors determinants for adults aged 18 or older and mothers**

Figure 9: Prevalence of overweight/obesity among adults 18 and older (3.a.1)

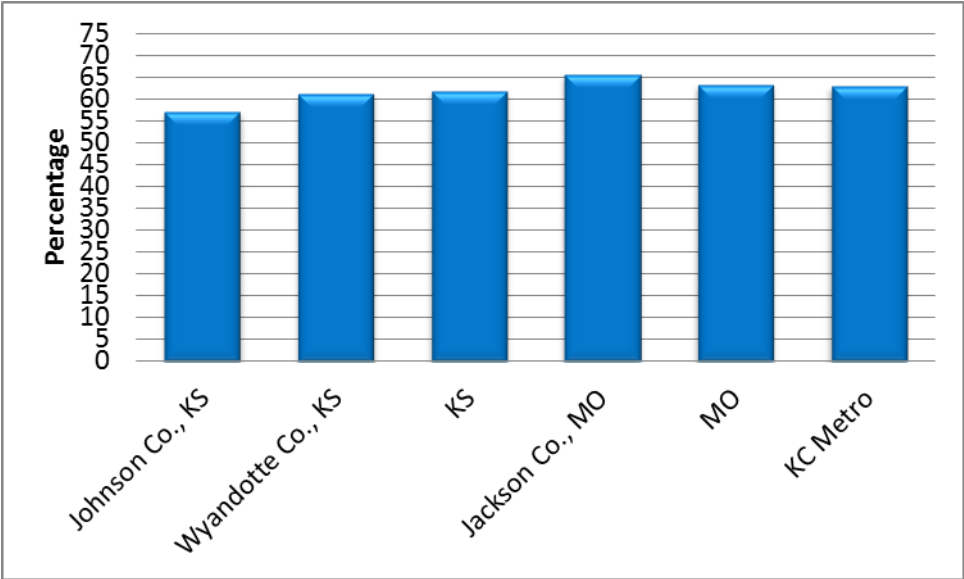


Figure 10: Prevalence of obesity among adults (3.a.2)

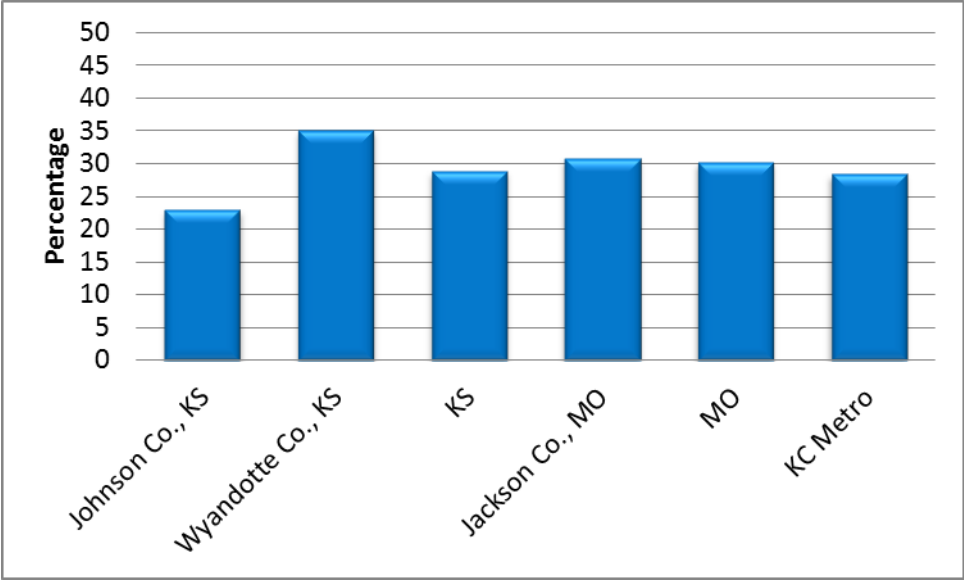


Figure 11.a: Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy (Missouri) (3.a.3)

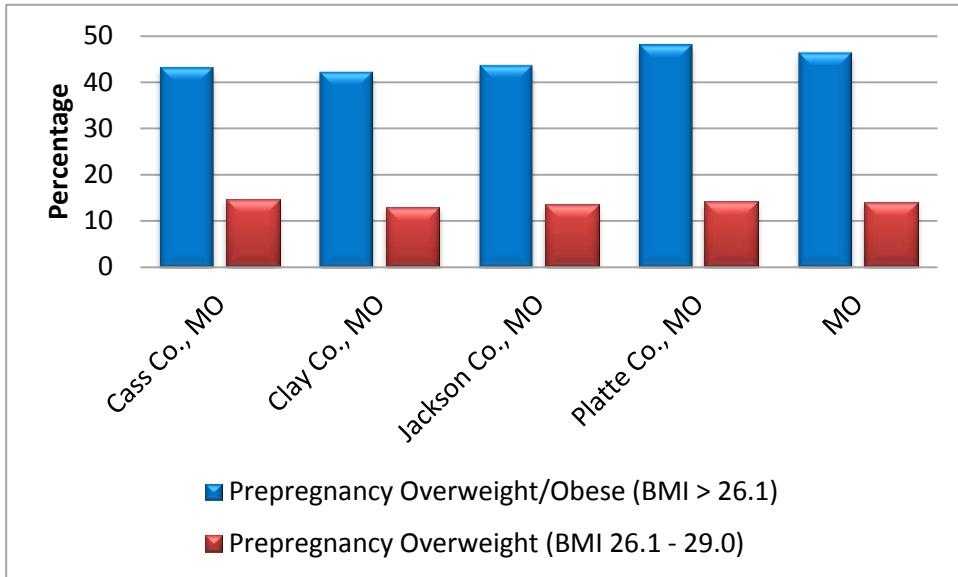


Figure 11.b: Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy (Kansas) (3.a.3)

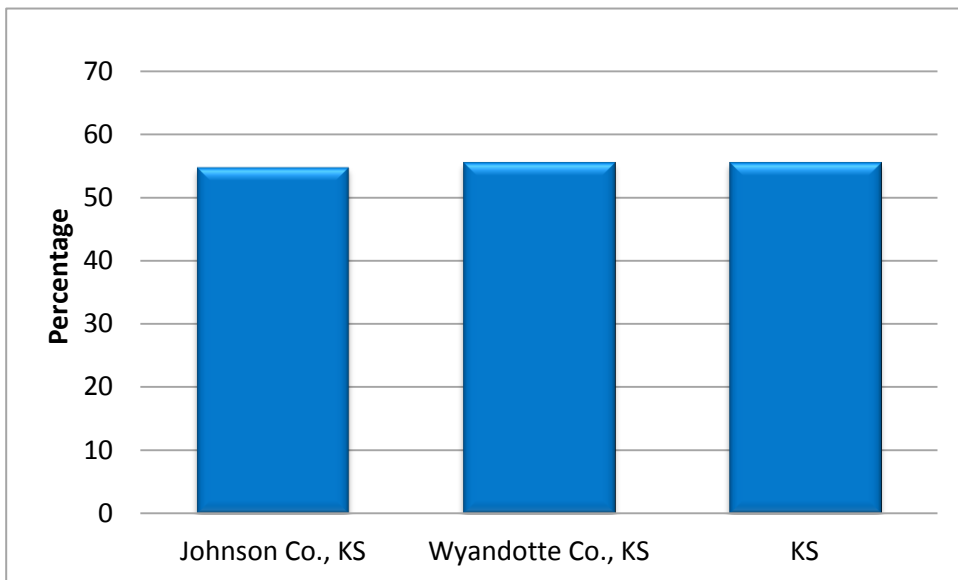


Figure 12: Prevalence of low-income postpartum women who were obese prior to pregnancy (3.a.4)

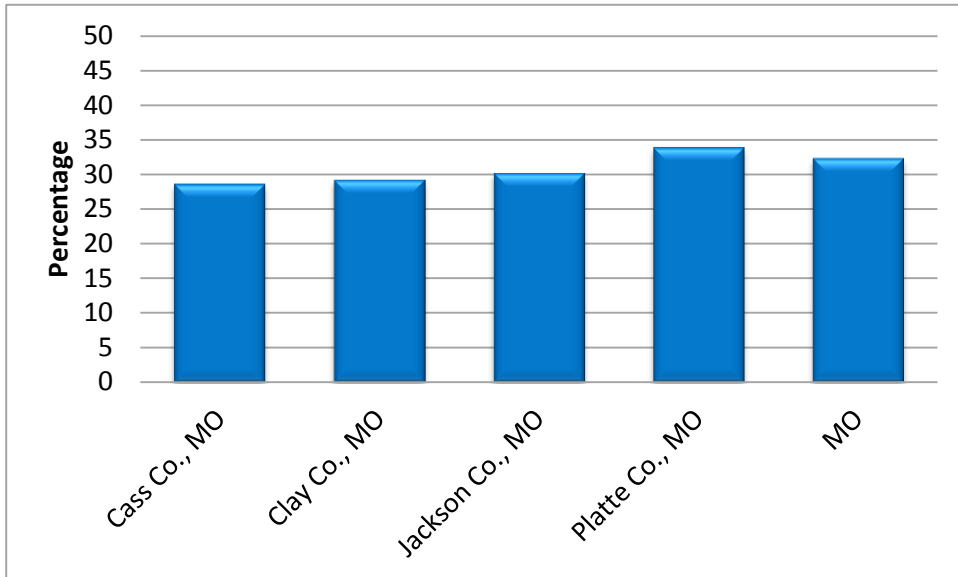
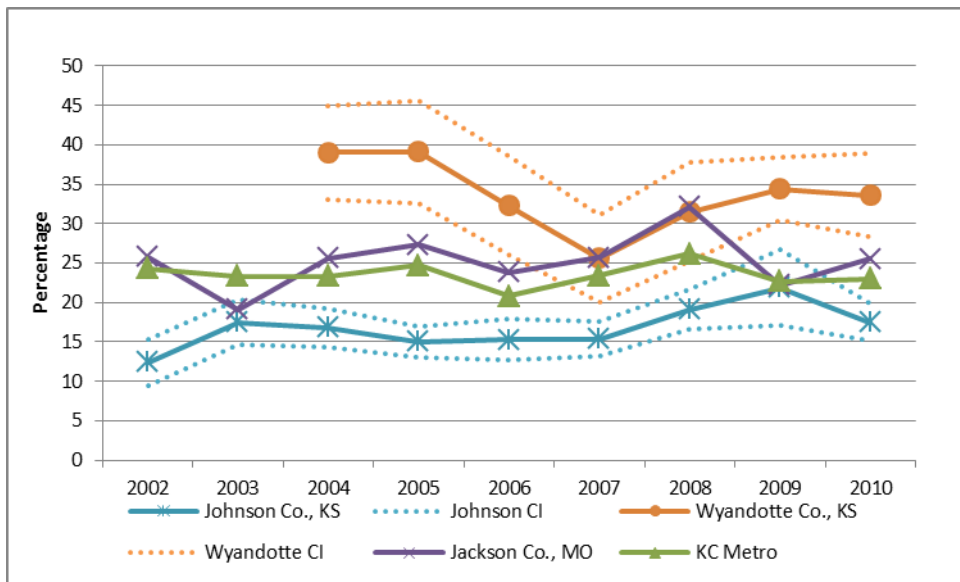


Figure 13: Prevalence of adults with no leisure time exercise or physical activity in the past 30 days (3.a.7)





## Overweight/obesity and related behavioral determinants for children

Figure 14.a: Prevalence of neonates with high birth weight (> 4,499g) (3.b.1)

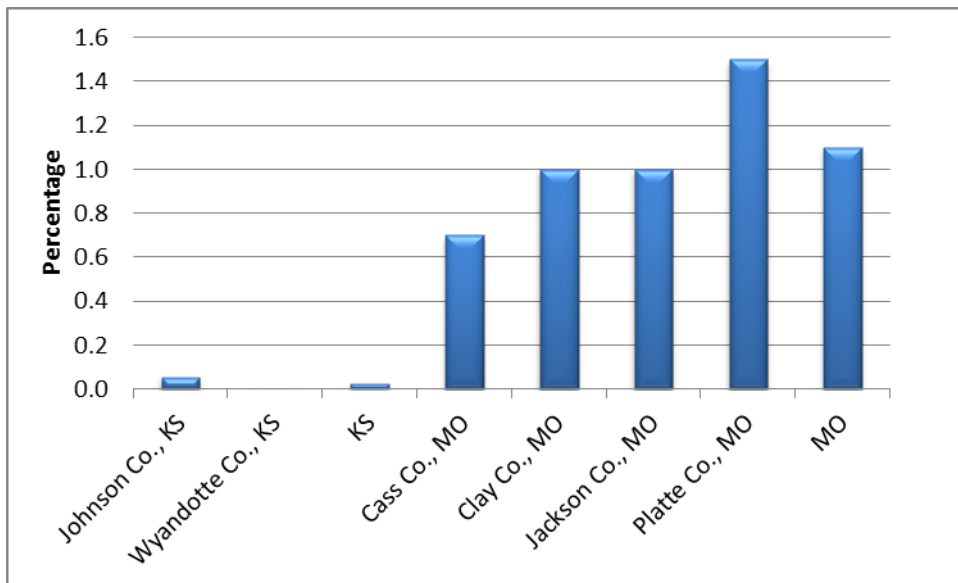


Figure 14.b: Prevalence of neonates with high birth weight (> 4,499g), by race (3.b.1)

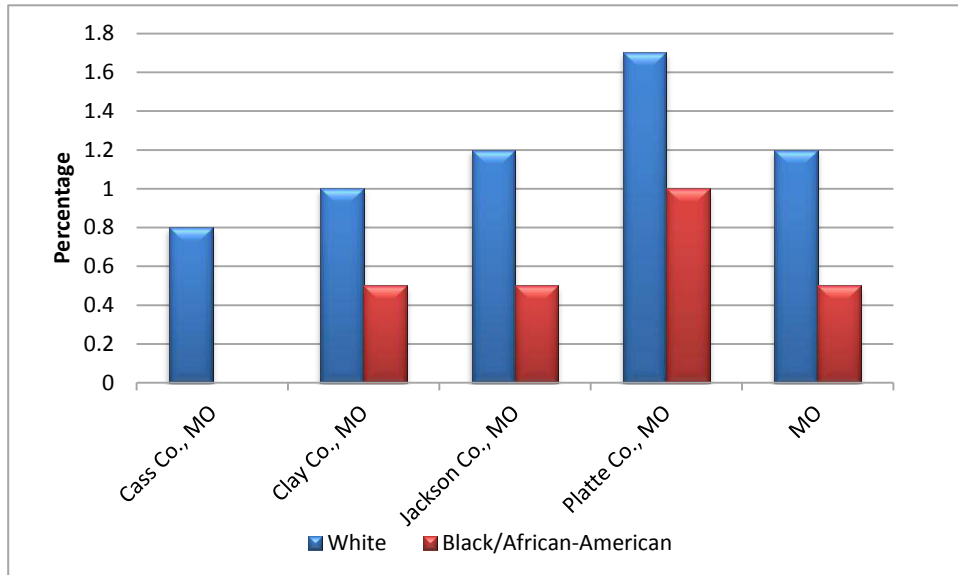


Figure 14.c: Prevalence of neonates with high birth weight (> 4,499g), by educational attainment (3.b.1)

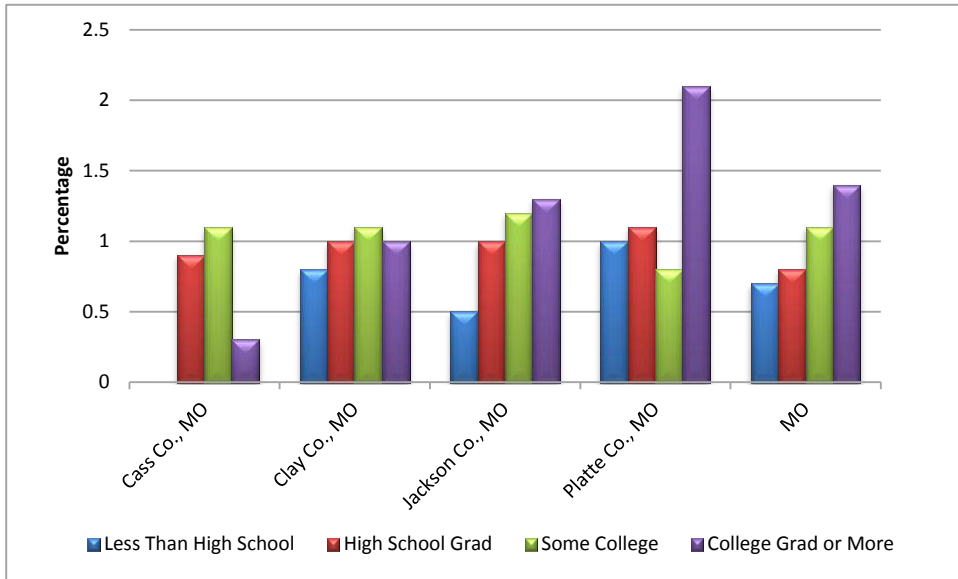


Figure 14.d: Prevalence of neonates with high birth weight (> 4,499g), by year (3.b.1)

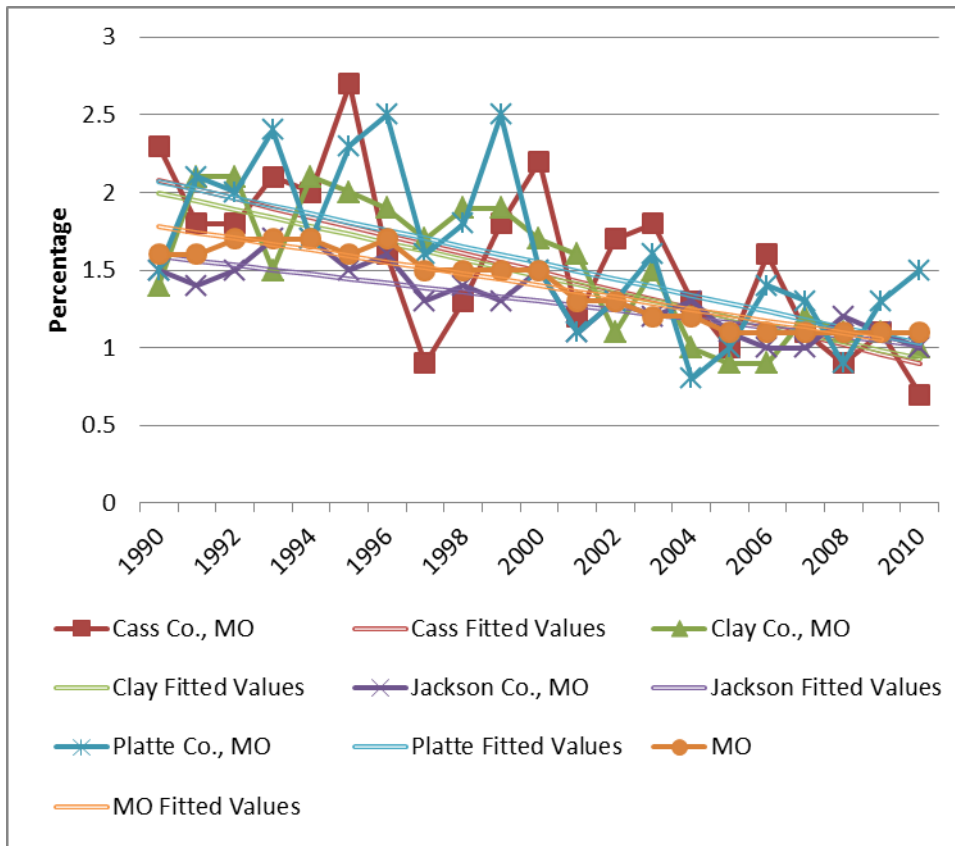


Figure 15.a: Prevalence of low-income neonates with high birth weight, by race (3.b.4)

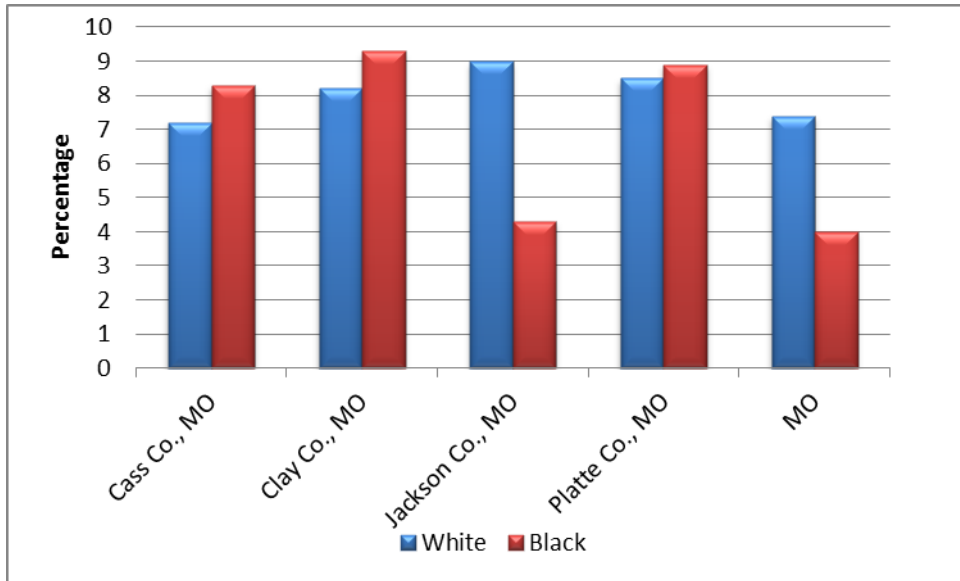


Figure 15.b: Prevalence of low-income neonates with high birth weight, by educational attainment (3.b.4)

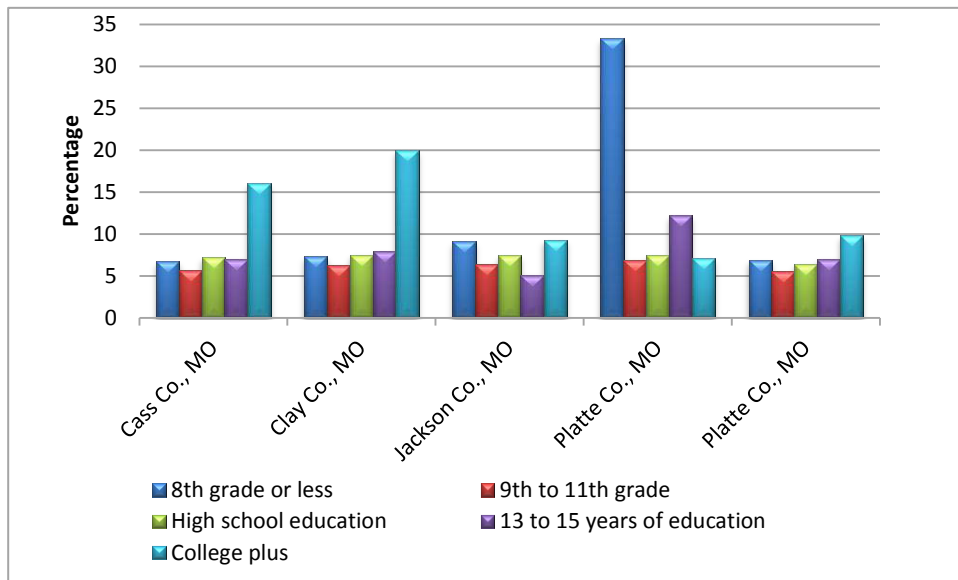


Figure 15.c: Prevalence of low-income neonates with high birth weight, by year (3.b.4)

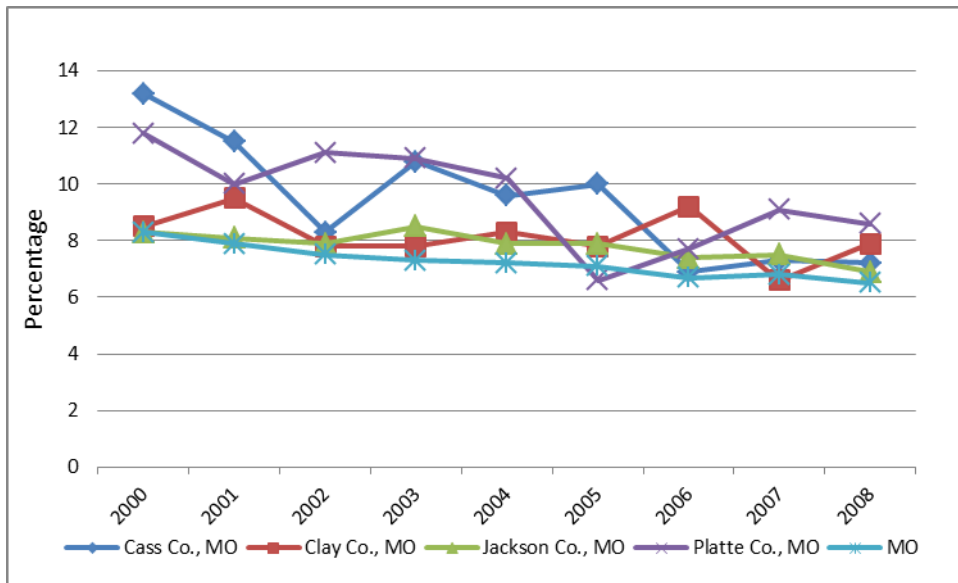


Figure 16: Prevalence of low-income children (age 2—4) with a Body Mass Index (BMI)-for-age indicating overweight/obesity (3.b.5)

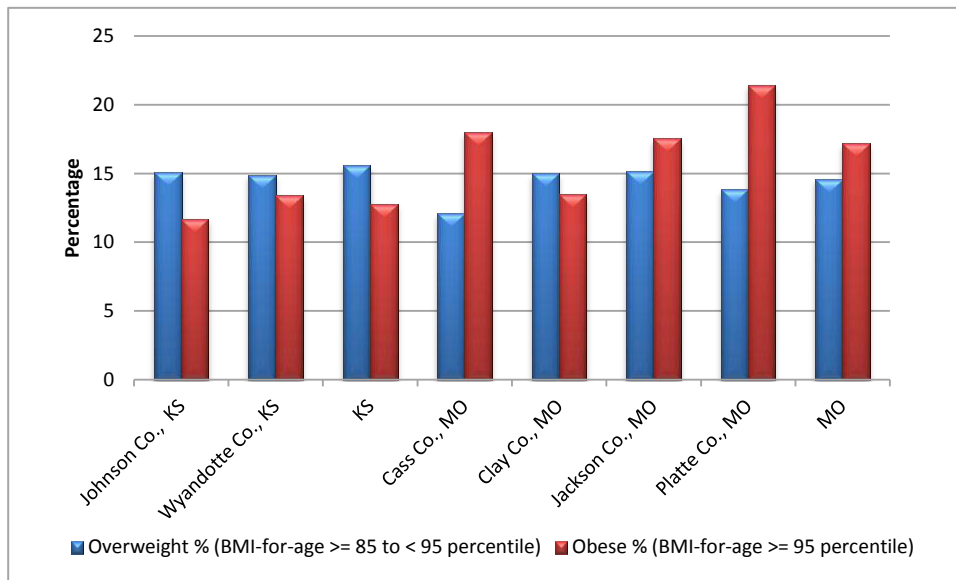


Figure 17.a: Prevalence of low-income children with weight for height and gender (BMI) –over ( $\geq$  95th percentile) (3.b.7)

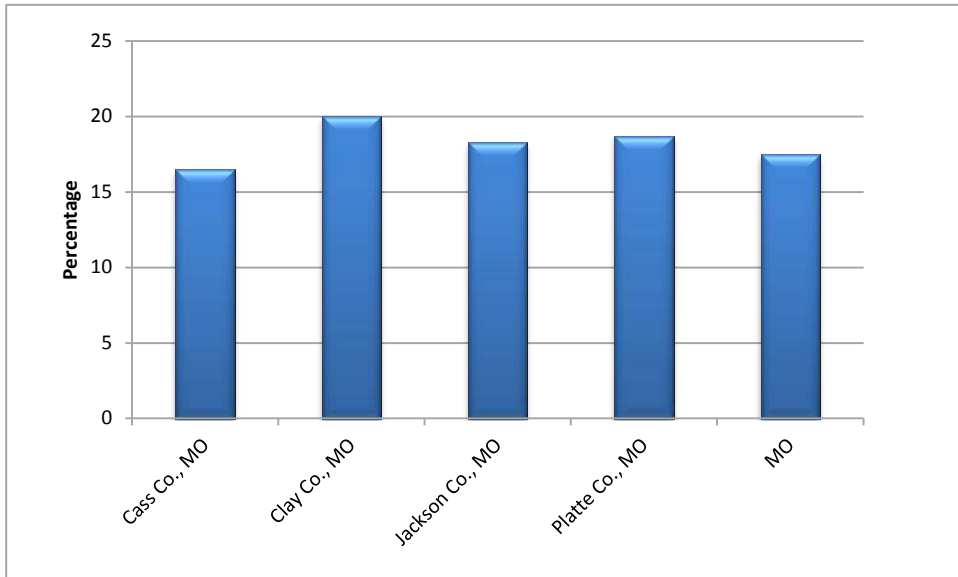


Figure 17.b: Prevalence of low-income children with weight for height and gender (BMI) – over ( $\geq$  95th percentile), by race (3.b.7)

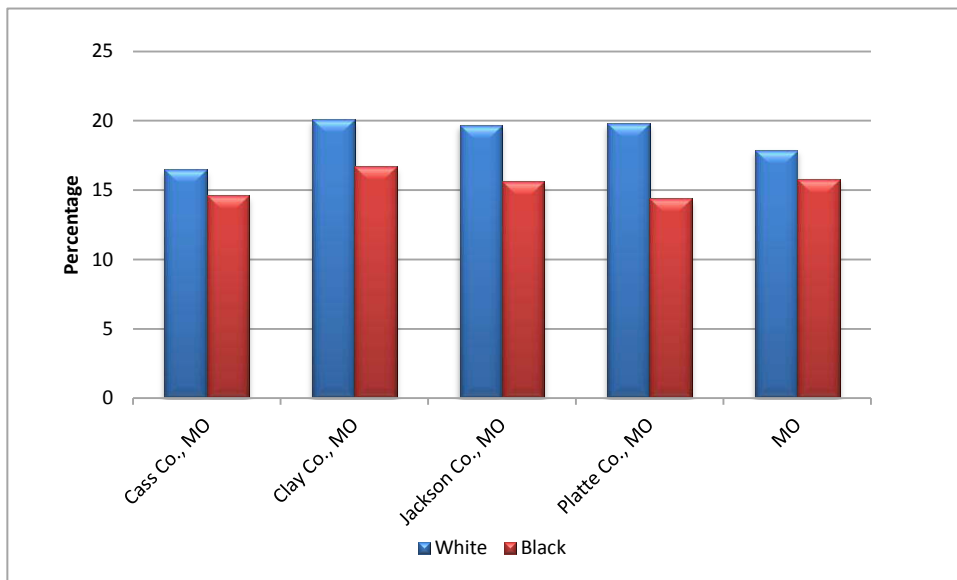


Figure 17.c: Prevalence of low-income children with weight for height and gender (BMI)  $\geq$  95th percentile, by educational attainment (3.b.7)

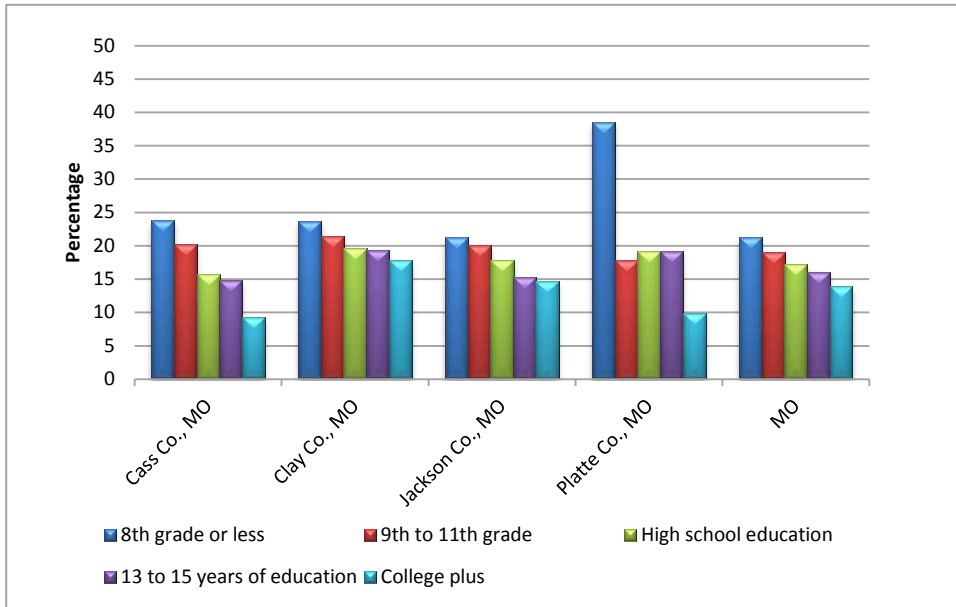


Figure 17.d: Prevalence of low-income children with weight for height and gender (BMI)  $\geq$  95th percentile, by year (3.b.7)

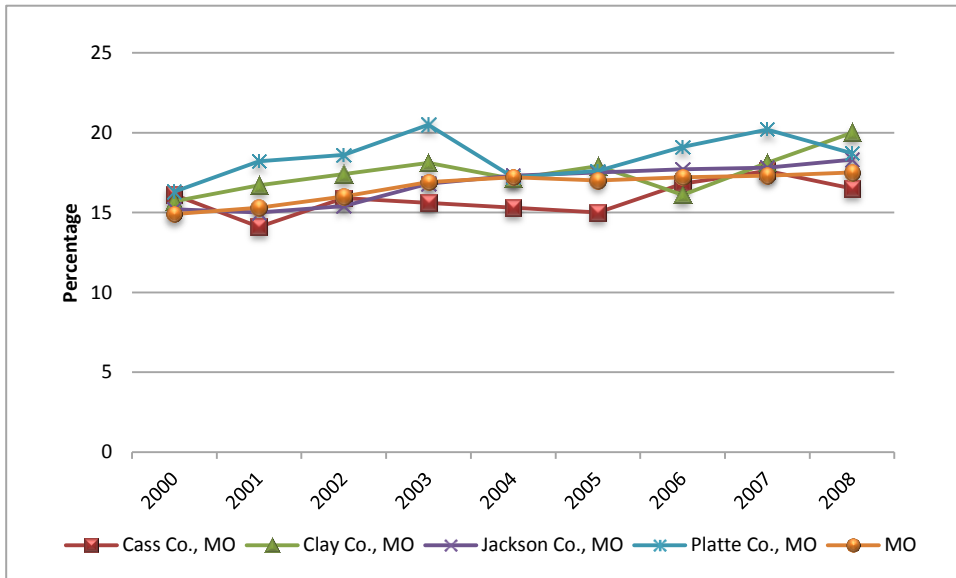


Figure 18.a: Prevalence of low-income children with weight for height and gender (BMI) between the 85th and 95th percentiles (3.b.8)

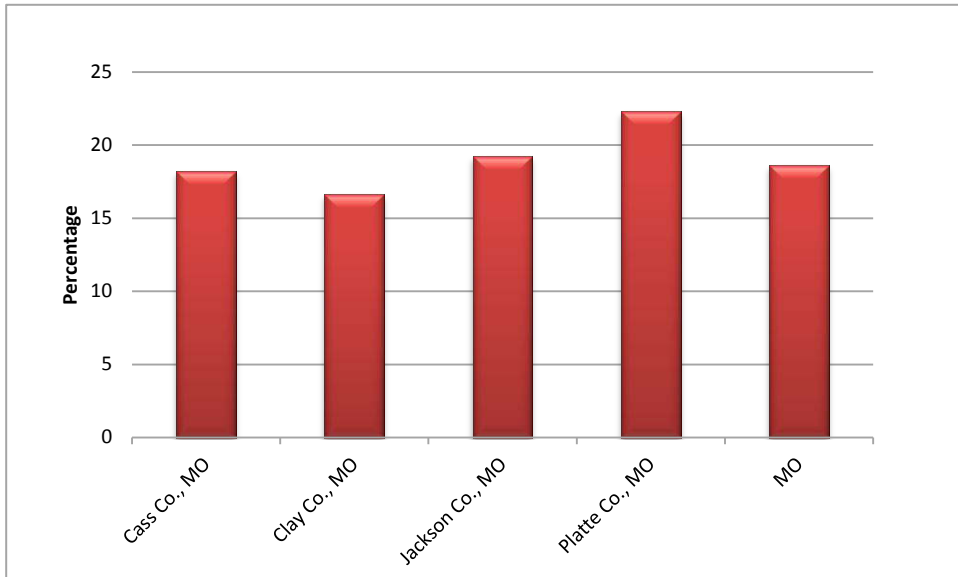
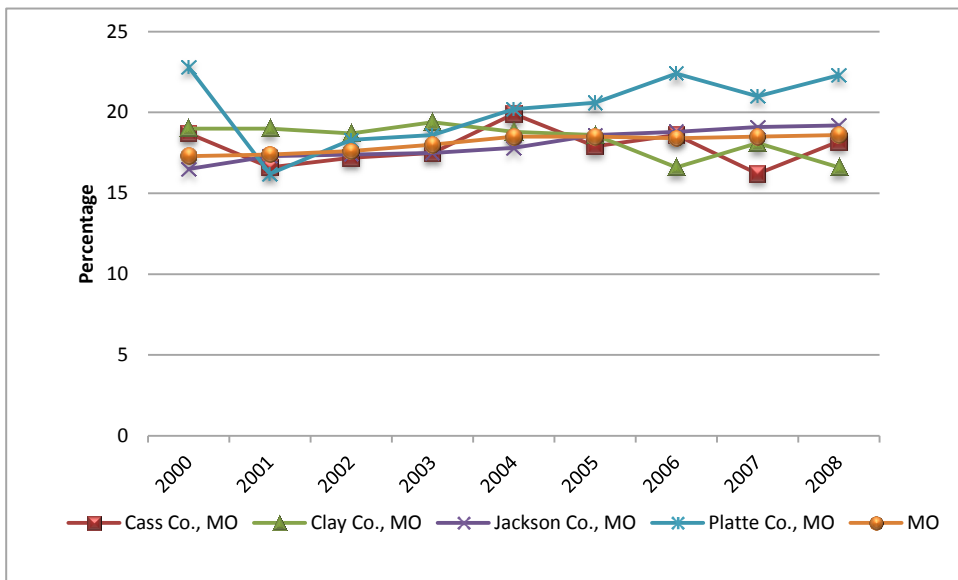


Figure 18.b: Prevalence of low-income children with weight for height and gender (BMI) 85th to 95th percentile, by year (3.b.8)



## Overweight/obesity related disease or health condition determinants for adults aged 18 or older and mothers

Figure 19: Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes (4.a.1)

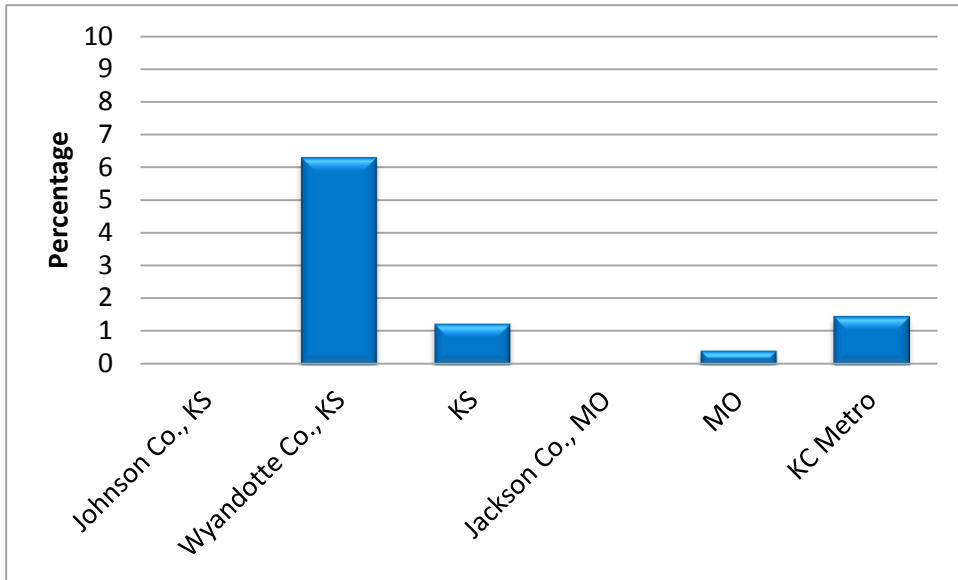


Figure 20: Prevalence of adults 18 and older who were told by a health professional that they have diabetes (4.a.2)

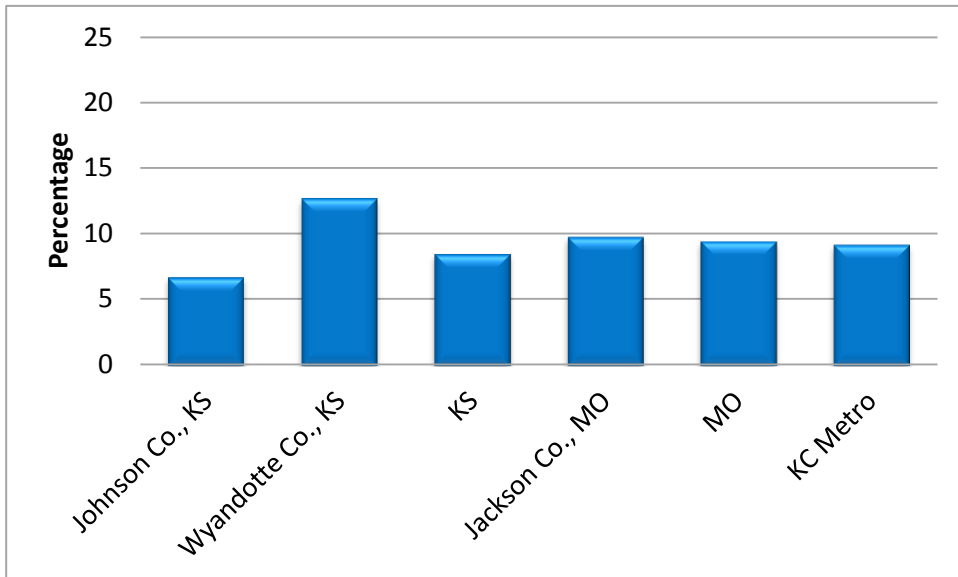




Figure 21: Rate of hospitalization due to diabetes (4.a.3)

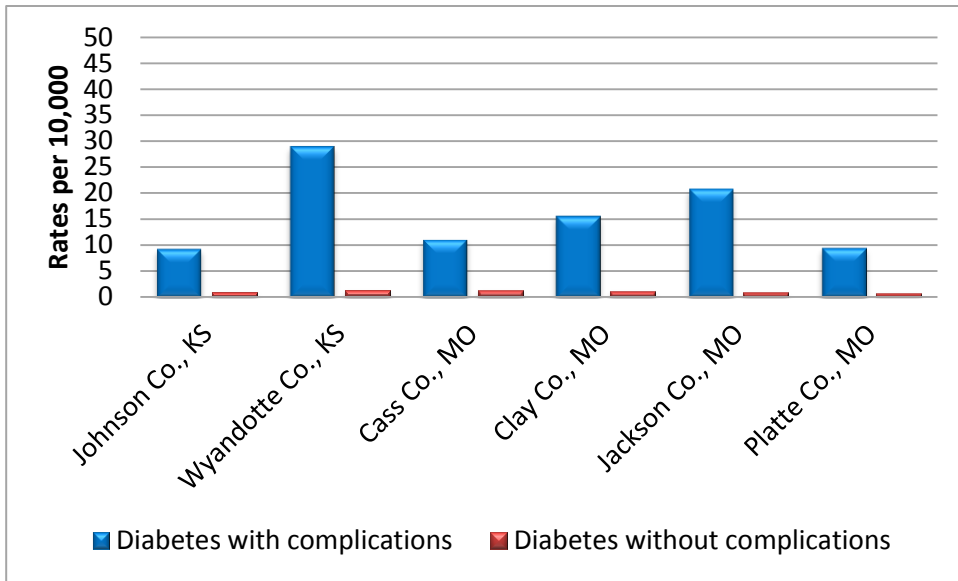


Figure 22: Rate of deaths attributed to diabetes (4.a.4)

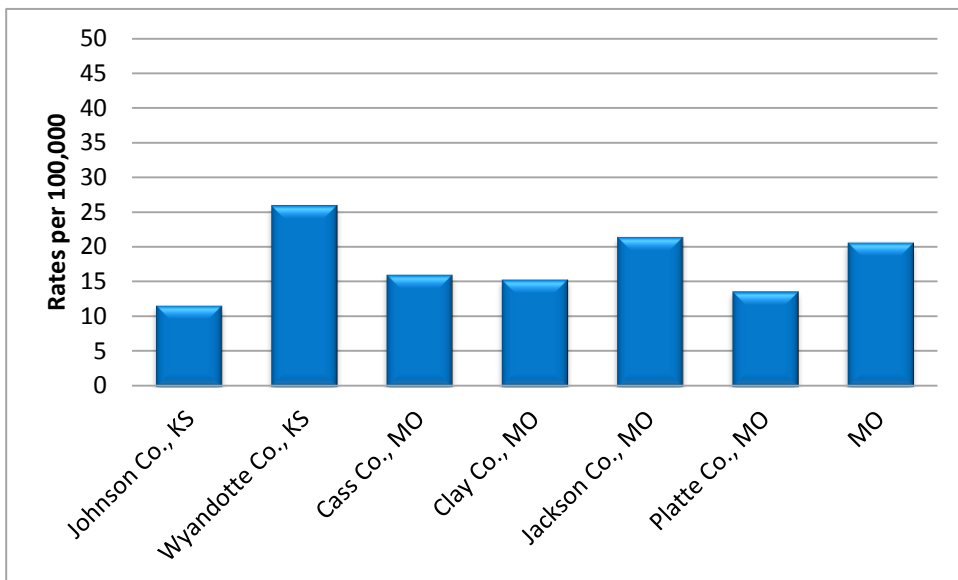


Figure 23: Rate of hospitalization due to heart disease (4.a.6)

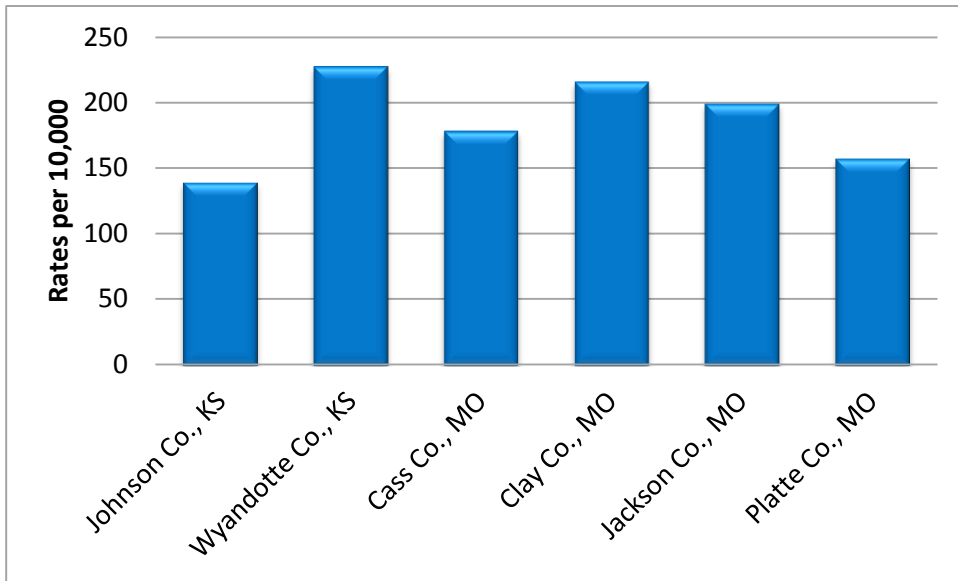


Figure 24: Rate of deaths attributed to heart disease (4.a.7)

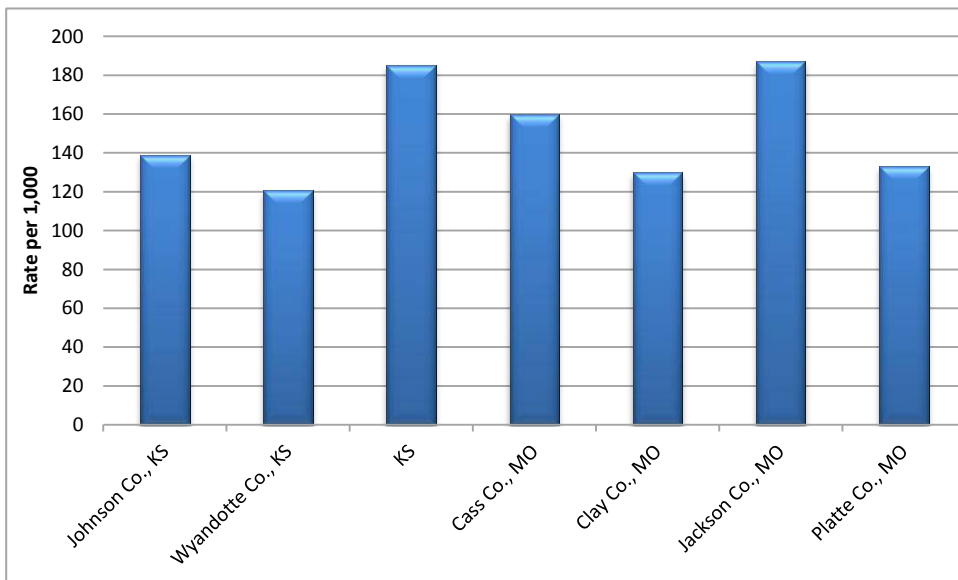


Figure 25: Rate of hospitalization due to essential hypertension (4.a.9)

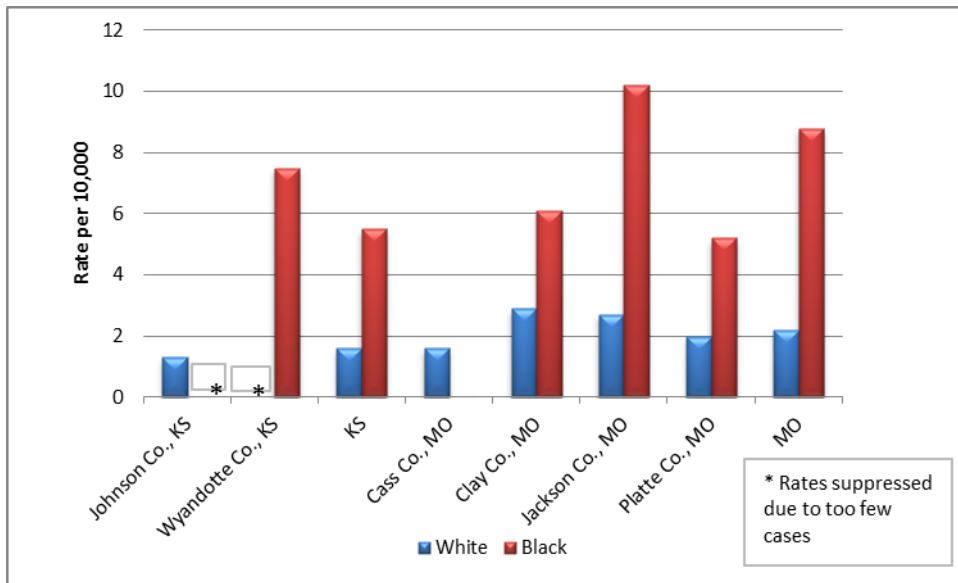
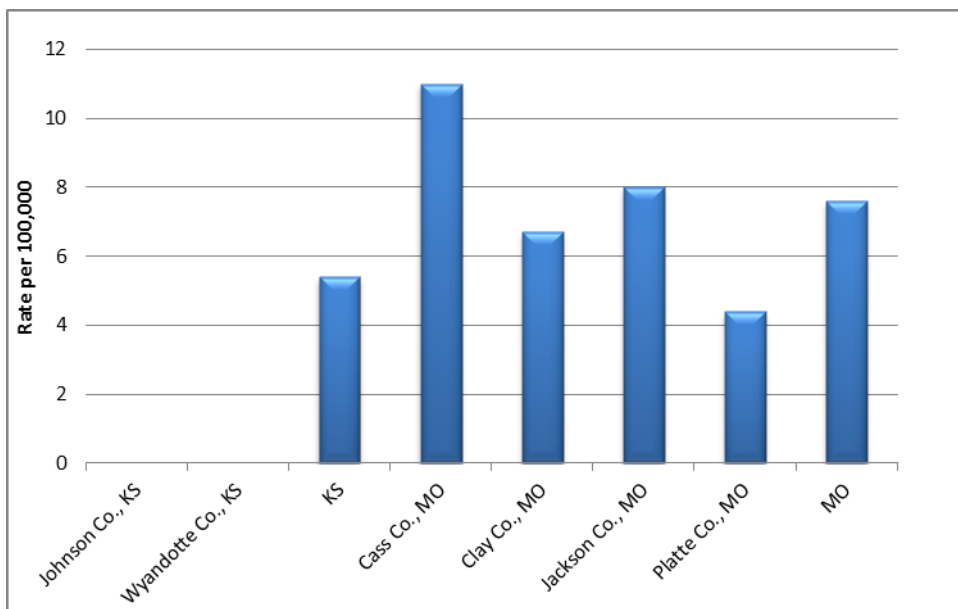


Figure 26: Rate of deaths attributed to essential hypertension (4.a.10)



## Overweight/obesity related disease or health condition determinants for children

Figure 27: Rate of hospitalization due to diabetes among children (4.b.2)

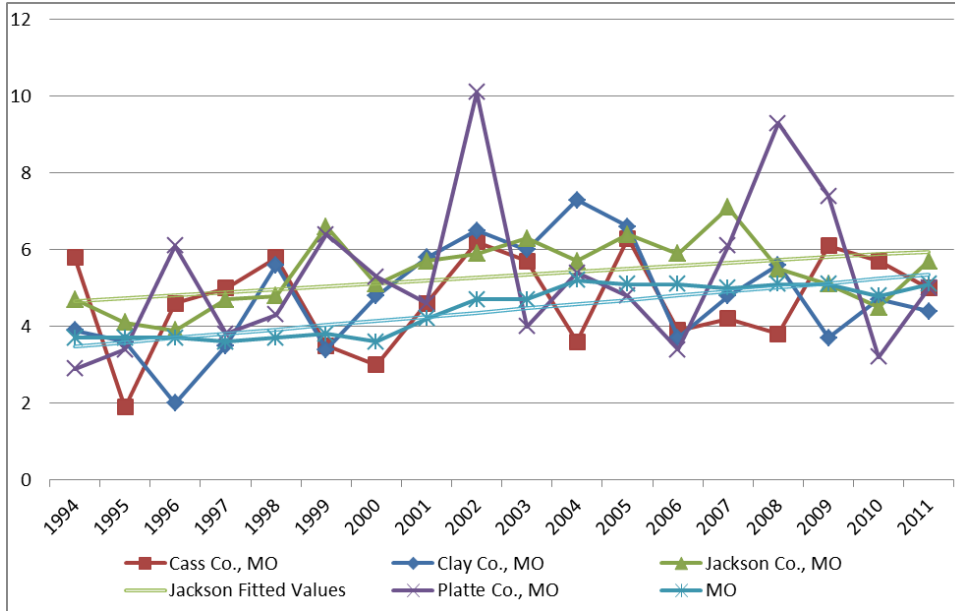


Figure 28: Rate of deaths attributed to diabetes among children (4.b.3)

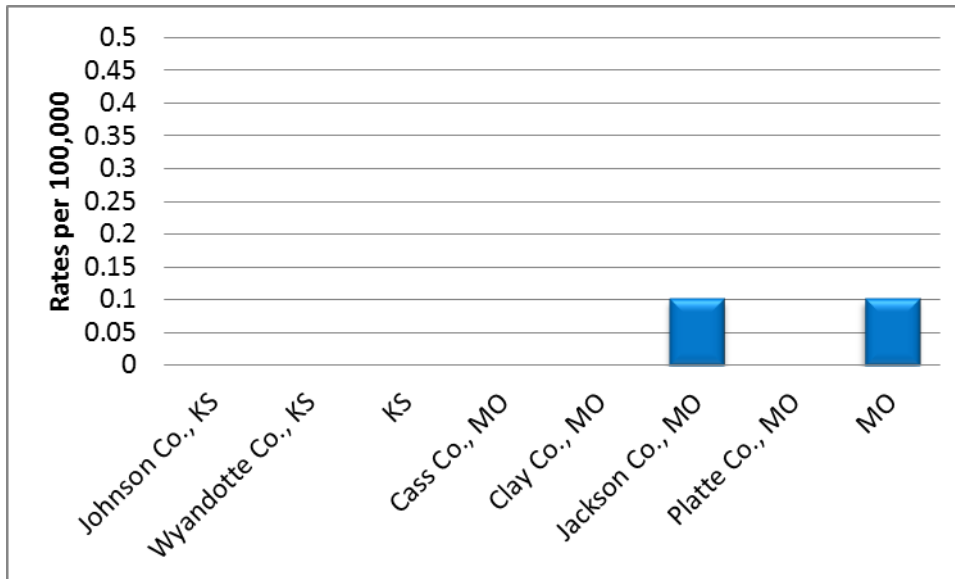


Figure 29: Rate of hospitalization due to essential hypertension among children (4.b.5)

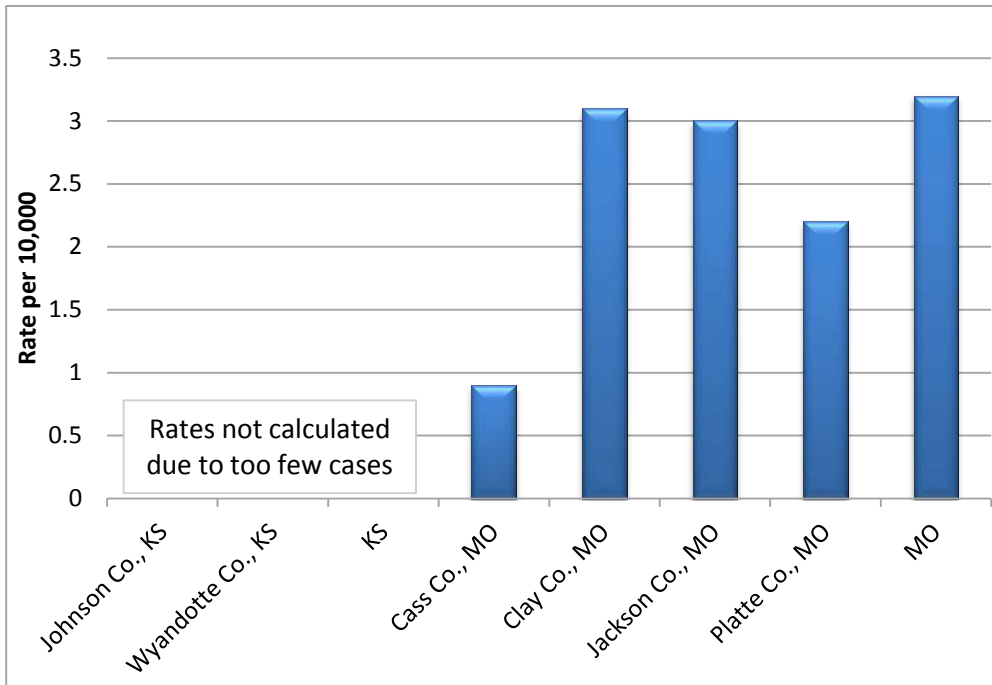
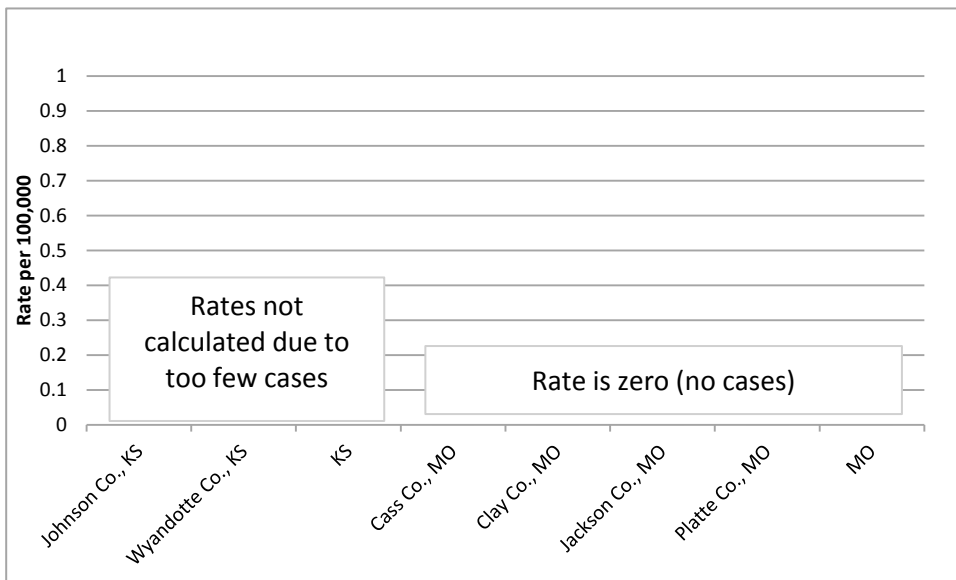


Figure 30: Rate of deaths attributed to essential hypertension among children (4.b.6)



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## Appendix A:

# Study Methods and Analysis

### Searching, Identifying and Analyzing Useful Indicators

This section describes the six-stage methodology used to identify indicators in order to monitor progress of childhood obesity prevention strategies and to establish baseline measurements of these indicators for future program development.

In order to build a search strategy to identify useful indicators of childhood obesity prevention, a causal pathway of obesity (Appendix B) was developed based on consultant knowledge and experience as well as on an updated literature review.

#### 1. Literature Review

The updated literature review extracted scientific work published in English in peer-reviewed journals in health, public health or medicine (Appendix C). Review focused on: 1) causes of childhood obesity; 2) magnitude of childhood obesity in the U.S., Missouri, Kansas and a six-county area in metropolitan Kansas City (MO and KS); and 3) strategies to prevent and reduce childhood obesity, as well as to mitigate its effects. To avoid biased *post hoc* decisions, inclusion criteria and analytic methods were specified in the review protocol prior to conducting the review. The following electronic databases were searched: MEDLINE (PubMed), EMBASE and Web of Science. The initial search string was developed in MEDLINE, combining population (children, mothers, teenagers, adults), determinants of obesity (socioeconomic, demographic, environmental, behavioral), effectiveness and impact studies (observational designs or studies, surveys, animal studies or trials) and outcome (overweight, obesity, high body mass index, perceived overweight) and related terms. The search string was further refined for use in the different databases.

#### 2. Search List of Potential Indicators

From the causal pathway and literature review, a comprehensive list of potential key indicators was developed and an intake form designed to help search for applications, tools and systems

that allowed for complete or partial queries of these indicators (Appendix D). The intake form listed 12 critical information items about indicators that made it feasible to initiate assessment, analyses and interpretation of the indicators:

- 1 – Target Population Group
- 2 – Name of Program or Initiative (organization)
- 3 – Outcome Indicator
- 4 – Surveillance Variable/Data Item or Survey Question
- 5 – Was the Variable/Question or Indicator Validated? (Y/N) - Describe – Provide reference
- 6 – Target Population of Surveillance or Survey
- 7 – Is Surveillance Population-based? (Y/N) - Describe
- 8 – If survey, is Survey a Random Sample? (Y/N) - Describe
- 9 – Is Data Available? (Y/N) - Provide Organization Name
- 10 – Surveillance or Survey Year/Time Period
- 11 – Is Analysis of Surveillance or Survey Available as query or report (Y/N)? - Format
- 12 – Other Annotations

The 12-item intake form was filled in with information on 66 indicators of childhood obesity prevention.

### **3. Indicators Analysis Plan**

Once potential indicators and their sources were identified, consultants queried applications, tools and systems to extract indicator measures. The consultant used the causal pathway for childhood obesity and epidemiological principles to segment generation of 66 indicators in seven domains:

- SES and Demographics for Mothers (1.1.) and Children (1.2)
- Environmental Factors (2)
- Overweight/Obesity and Related Factors for Children (3.1) and Mothers/Adults (3.2)
- Overweight/Obesity-related Disease or Health Condition for Mothers/Adults (4.1) and Children (4.2)

These seven domains and their associated indicators are outlined in the Analytical Plan (Appendix E). Consultants generated prevalence measures for all 66 indicators in the seven domains, cross-tabulations of indicator measures by socio-economic factors and locality and plots of indicator prevalence measures over time.

#### **4. Rationale for Identifying and Assessing Technical Characteristics of Childhood Obesity Indicators**

The ideal surveillance indicator measure in public health should indicate *who* gets the health outcome as well as *where* and *when* a health outcome occurs. It should also indicate the rate of change and if related disparities are changing as a function of preventive public health activities. For this reason, a health indicator should be sensitive to changes in host(s), agent(s), vector(s) and environment(s) causally related to the health outcome(s). Finally, an indicator measure should be feasible to estimate and relatively low in cost to justify investments in developing and maintaining health surveillance efforts. For these reasons, consultants sought to identify the following characteristics for each proposed indicator measure:

- Measure available by county (for all counties, some counties or not available at county level)
- Measure available is cross tabulation between county and other socioeconomic factor(s)
- Yearly trend of measure available (for some or all years and some or all counties)
- Queries of measure available; if so, number of queries required for estimation (one or more than one)
- Recalculation of data needed for estimation
- Source of data

Then, consultant guided extraction and analysis of indicators to identify technical characteristics of both indicators and queries. This facilitated interpretation and decisions about the utility of a potential indicator for monitoring progress towards childhood obesity prevention and reduction in the six counties of interest in the Kansas City (MO and KS) area (Appendix F).

#### **5. Workshop to Prioritize Indicators**

Next, following principles of participatory process, consultant and contractor convened a half-day workshop with the participation of collaborators in the Children's Mercy Childhood Obesity Prevention initiative to present findings and obtain their feedback on the utility of indicators for monitoring progress of the prevention initiative. Consultants recorded a chart-oriented discussion of each presented indicator and then fed this back to participants (Appendix G).

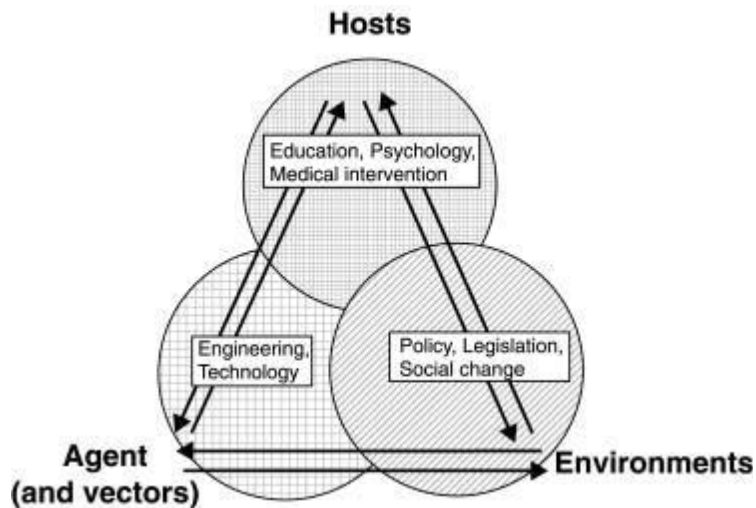
## 6. Survey to Prioritize Indicators

Finally, because of the practical impossibility of discussing pros and cons of all indicators in the workshop, consultants designed a web-based survey to obtain additional feedback from workshop collaborators and others who had not participated (Appendix H). In the survey, respondents were asked to rank indicators in order of importance/priority for the purpose of monitoring progress of a childhood preventive strategy in the six-county area of interest (KS: Johnson and Wyandotte counties; MO: Cass, Clay, Johnson and Platte counties).

The order of survey questions followed the analytical plan and workshop presentation. We attached baseline measures presented in the workshop, technical characteristics of indicators and the chart with a summary of discussion in the workshop to the survey to inform and facilitate the prioritization process by respondents. One consultant on the consulting team responded to the survey questionnaire with his ranking of priority indicators; his responses served as a 'golden standard' for comparing responses from workshop and survey participants. The expectation is that there should be much overlap between expert consultant and other respondents regarding priority ranking of indicators, with minimum compromise for discordant indicators.

We computed the average and median of survey respondents' priority ranking of each childhood obesity prevention indicator by domain and target age group. The average rank is the sum rank of responses for a specific indicator divided by the total number of responses for that specific indicator. The median rank is the rank for which half of the respondents perceive an indicator as higher priority and the other half perceive it as lower priority. Rank values across all domains/sections/indicators ranged from 1 (highest priority) to 14 (lowest priority). We created frequency response intervals for each domain/target population segment. For example, because there were 14 indicators for mothers/pregnant women in the socioeconomic domain, we computed the frequency of responses within each of three priority-ranking intervals: 1-4 (highest), 5-9 (intermediate) and 10-14 (lowest), for a set of a maximum of 14 indicators. Similar groupings were used for all other domains.

## APPENDIX B: CAUSAL PATHWAY FOR OBESITY AND ITS SOLUTION



**Figure 1**

The epidemiological triad and approaches to interventions in relation to obesity<sup>1</sup>

Where:

**Hosts**

(biology, behavior, attitudes, physiological adjustments)

**Vectors**

(energy density, portion size, machines)

**Environments**

(physical, economic, policy, sociocultural)

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<sup>1</sup> Egger G, Swinburn B and Rossner S. Dusting off the epidemiological triad: could it work with obesity? *Obes Rev.* 2003;4:115-119

## Appendix C:

# Obesity and Associated Risk Factors and Outcomes

## I. Introduction

Obesity is the condition of excess body fat to the extent that health is impaired. Overweight and, subsequently, obesity occur when the body suffers from energy imbalance with caloric intake being higher than expenditure. Egger, Swinburn and Rossner (2003) advanced the concept that a triad of host, agent/vectors and environment similar to that used for the epidemiology of infectious disease should be utilized to better understand the root cause of the energy imbalances and its solution. The host is the target population of normal, overweight/obese, overweight/obese with disordered eating patterns and cognitions and overweight/obese with comorbidities. The agent is the chronic positive energy imbalance, and vectors are related to both sides of the energy balance equation: energy dense foods (i.e., high fat or carbohydrate content) and large portion sizes on the one hand; on the other hand, the technological effect on our energy expenditure (i.e., elevators, cars, television watching). The environment is divided into two scales (micro and macro) and four types (social, physical, economic and political) with wide impact on a variety of factors from food production and access to food labeling and built-in environment.

## II. Obesity-associated Risk Factors

Broadly, the adoption of an increasingly "Western lifestyle" marked by a sedentary existence and a preference for inexpensive, processed food has been cited as key drivers of the epidemic (Deckelbaum & Williams, 2001). Obesity-associated risk factors are numerous and their interactions complex. The scientific literature is replete with evidence detailing the genetic, environmental, metabolic and lifestyle correlates of obesity (Navalpotro et al., 2012). One study estimates that a child's risk for being obese or overweight is 20 percent to 60 percent higher in neighborhoods with the least favorable social conditions, including unsafe surroundings, subsidized housing and poor access to sidewalks and parks (Singh, Siahpush & Kogan, 2010). Another study found that minorities, low-income males and male youth were more likely to be overweight (Delva, Johnson & O'Malley, 2007). This study also found a positive association between number of hours spent watching television and risk for overweight (Delva, Johnson & O'Malley, 2007).

While the causes of childhood and adolescent obesity are similar to those in adults, an increasing body of literature has focused on the impact of overweight mothers on the fetus during intrauterine growth and the first year of life (Deckelbaum & Williams, 2001; Parker et al., 2012). In one study, the risk of having an overweight child at age seven was 48 percent greater among women who gained weight beyond Institute of Medicine (IOM) recommendations compared to women within the IOM's recommended range (Wojcicki & Heyman, 2012). The obesity rate among pregnant women in Missouri increased three-fold from 7.1 percent in 1983 to 13.8 percent in 1993 to 21.3 percent in 2003 (KCMO, 2008).

### **III. Obesity-associated Health Outcomes**

Similar to overweight and obese adults, children and adolescents suffering from this condition are at risk for a number of associated co-morbidities. These ailments include, but are not limited to, elevated blood pressure, asthma, dyslipidemia and type II diabetes – now the dominant form of diabetes in children and adolescents (Deckelbaum & Williams, 2001). To illustrate the associated effects of the obesity epidemic, researchers estimate that the lifetime risk of developing diabetes for Americans born in 2000 is 32.8 percent for males and 38.5 percent for females (Narayan et al., 2003). Deckelbaum and Williams (2001) have found obesity in childhood and adolescence as a key predictor for obesity in adulthood. Childhood and adolescent obesity has also been shown to negatively impact heart health. Excessive weight during childhood creates a “cumulative burden on cardiovascular health” which follows the individual into adulthood (Raghuveer, 2010).

The risks of developing obesity-associated physical ailments have received much attention in the medical community given their biological pathology. However, the negative social and psychological implications of the condition are often overlooked (Huang et al., 2013). Obesity among children and adolescents has been shown to be closely associated with “... negative self-esteem, withdrawal from peer interaction, depression, anxiety, and the feeling of chronic rejection” (Deckelbaum & Williams, 2001; Ge et al., 2001; Strauss et al., 2003). Given the social stigmatization of this group, overweight and obese youth often experience social interactions differently when compared to their peers of healthy weight; such interactions have been shown to be associated with an overall lower level of life satisfaction (Forste & Moore, 2008). Obese and overweight teens rate themselves as less attractive, experience less social acceptance and

report increased experiences of being bullied than their peers of healthy weight (Forste & Moore, 2008; Falkner et al., 2001). Research has also shown self esteem specific to physical appearance to be inversely associated with body mass index (BMI) in adolescents and positively associated with depressive symptoms in pre-adolescent girls (French et al., 1996; Erickson et al., 2000). Of similar concern is the growing evidence in support of a relationship between academic performance and weight status (Forste & Moore, 2008; Falkner et al., 2001). Lower math and reading test scores have been found among overweight children when compared to non-overweight children in kindergarten (Datar, Sturm & Magnabosco, 2004). According to Dakar, Sturm & Magnabosco (2004), obesity appears to be a marker of poor academic performance rather than a causal factor. Unlike many other variables associated with poor academic performance, the visibility of this condition makes obesity a prime target for social stigmatization during the elementary school years.

In addition to the associated co-morbidities and adverse psychological correlates of overweight and obesity, excessive weight during childhood and adolescence has been shown to have a negative impact on premature mortality and physical morbidity during adult years (Reilly & Kelly, 2011). Put another way, "Obese adolescents have the same risk of premature death in adulthood as people who smoke more than 10 cigarettes a day, while those who are overweight have the same risk as less heavy smokers" (Neovius, Sundstrom & Rasmussen, 2009). If current trends hold, children born in the year 2000 will be part of the first generation since the Civil War to have a life expectancy shorter than that of their parents (Lieb, Snow and DeBoer, 2009).



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Appendix D:

Outcome Indicator Search

Outcome Indicator	Name of Agency/Org Program or Initiative	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>HEALTH OUTCOME</b>								
<b>TARGET POPULATION GROUP: ADULTS</b>								
Percent Obese/Overweight	CDC BRFSS	2011: _BMI5	Missourians & Kansans ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	1996-2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Obese/Overweight	CDC SMART-MMSA	2010: _BMI4	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Obese/Overweight	CDC SMART-County	2010: _BMI4	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Obese/Overweight	DHSS - MO County-level Study	Q 16.11 (height) & 16.10 (weight)	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - Public summary reports @ MMSA level, (Request from MO DHSS for county-level)	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area
Percent Told Have Diabetes	CDC BRFSS	2011: DIABETE3	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004-2010	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Told Have Diabetes	CDC SMART-MMSA	2010: DIABETE2	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Told Have Diabetes	CDC SMART-County	2010: DIABETE2	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Told Have Diabetes	DHSS - MO County-level Study	Q 5.4	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - Public summary reports @ MMSA level, (Request from MO DHSS for county-level)	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area

THE CHILDREN'S MERCY CHILDHOOD OBESITY PREVENTION PROJECT

APPENDIX D: OUTCOME INDICATOR SEARCH

Outcome Indicator	Name of Agency/Org Program or Initiative	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>TARGET POPULATION GROUP: ADULTS</b>								
Adults who have been told they have high blood pressure (and had it checked)	CDC BRFS	2011: BPHIGH4	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	KS & MO: every other year 1995–2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Adults who have been told they have high blood pressure (and had it checked)	CDC SMART-MMSA	2009: BPHIGH4	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2003,2005, 2007,2009	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Adults who have been told they have high blood pressure (and had it checked)	CDC SMART-County	2009: BPHIGH5	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2003,2005, 2007,2009	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Adults who have been told they have high blood pressure (and had it checked)	DHSS - MO County-level Study	Q 3.2	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - Public summary reports @ MMSA level, (Request from MO DHSS for county-level)	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area
Ever been diagnosed with a stroke	CDC BRFS	2011: CVDSTRK	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	KS & MO: every other year 1995–2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Ever been diagnosed with a stroke	CDC SMART-MMSA	2009: CVDSTRK	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2003,2005, 2007,2009	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Ever been diagnosed with a stroke	CDC SMART-County	2009: CVDSTRK	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2003,2005, 2007,2009	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Number of discharges: Diabetes	DHSS - PAS (MO Hosp. Discharge)	Rate of specified diagnosis	inpatient, outpatient, & ambulatory surgical centers for MO residents	Y – Census of all hospital discharges	Y - on MICA	1994-2010	Y – Tables on MICA	Covariates include: race/ethnicity, sex, age, payment source
Number of discharges: Heart Disease	DHSS - PAS (MO Hosp. Discharge)	Rate of specified diagnosis	inpatient, outpatient, & ambulatory surgical centers for MO residents	Y – Census of all hospital discharges	Y - on MICA	1994-2010	Y – Tables on MICA	Covariates include: race/ethnicity, sex, age, payment source
Number of discharges: Atherosclerosis	DHSS - PAS (MO Hosp. Discharge)	Rate of specified diagnosis	inpatient, outpatient, & ambulatory surgical centers for MO residents	Y – Census of all hospital discharges	Y - on MICA	1994-2010	Y – Tables on MICA	Covariates include: race/ethnicity, sex, age, payment source
Number of discharges: Essential Hypertension	DHSS - PAS (MO Hosp. Discharge)	Rate of specified diagnosis	inpatient, outpatient, & ambulatory surgical centers for MO residents	Y – Census of all hospital discharges	Y - on MICA	1994-2010	Y – Tables on MICA	Covariates include: race/ethnicity, sex, age, payment source

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APPENDIX D: OUTCOME INDICATOR SEARCH

Outcome Indicator	Name of Agency/Org Program or Initiative	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>TARGET POPULATION GROUP: ADULTS</b>								
Number of discharges: Cerebrovascular Disease	DHSS - PAS (MO Hosp. Discharge)	Rate of specified diagnosis	inpatient, outpatient, & ambulatory surgical centers for MO residents	Y – Census of all hospital discharges	Y - on MICA	1994-2010	Y – Tables on MICA	Covariates include: race/ethnicity, sex, age, payment source
Preventable Hospitalizations: Diabetes	DHSS - PAS (MO Hosp. Discharge)	Rate of specified diagnosis	inpatient, outpatient, & ambulatory surgical centers for MO residents	Y – Census of all hospital discharges	Y - on MICA	1994-2010	Y – Tables on MICA	Covariates include: race/ethnicity, sex, age, payment source
Preventable Hospitalizations: Hypertension	DHSS - PAS (MO Hosp. Discharge)	Rate of specified diagnosis	inpatient, outpatient, & ambulatory surgical centers for MO residents	Y – Census of all hospital discharges	Y - on MICA	1994-2010	Y – Tables on MICA	Covariates include: race/ethnicity, sex, age, payment source
Preventable Hospitalizations: Nutritional Deficiencies	DHSS - PAS (MO Hosp. Discharge)	Rate of specified diagnosis	inpatient, outpatient, & ambulatory surgical centers for MO residents	Y – Census of all hospital discharges	Y - on MICA	1994-2010	Y – Tables on MICA	Covariates include: race/ethnicity, sex, age, payment source
Preventable Hospitalizations: Congestive Heart Failure	DHSS - PAS (MO Hosp. Discharge)	Rate of specified diagnosis	inpatient, outpatient, & ambulatory surgical centers for MO residents	Y – Census of all hospital discharges	Y - on MICA	1994-2010	Y – Tables on MICA	Covariates include: race/ethnicity, sex, age, payment source
Preventable Hospitalizations: Cerebrovascular Disease	DHSS - PAS (MO Hosp. Discharge)	Rate of specified diagnosis	inpatient, outpatient, & ambulatory surgical centers for MO residents	Y – Census of all hospital discharges	Y - on MICA	1994-2010	Y – Tables on MICA	Covariates include: race/ethnicity, sex, age, payment source
Number of discharges: Diabetes	KDHE - KS Hosp. Discharge	Rate of specified diagnosis	KS residents	Y – Census of all hospital discharges	Y - on KIC	2003-2010 (1995+ without Hisp. Ethnicity data)	Y – Tables on KIC	Covariates include: race/ethnicity, sex, age, payment source
Number of discharges: Coronary atherosclerosis and other heart disease	KDHE - KS Hosp. Discharge	Rate of specified diagnosis	KS residents	Y – Census of all hospital discharges	Y - on KIC	2003-2010 (1995+ without Hisp. Ethnicity data)	Y – Tables on KIC	Covariates include: race/ethnicity, sex, age, payment source
Number of discharges: Essential Hypertension	KDHE - KS Hosp. Discharge	Rate of specified diagnosis	KS residents	Y – Census of all hospital discharges	Y - on KIC	2003-2010 (1995+ without Hisp. Ethnicity data)	Y – Tables on KIC	Covariates include: race/ethnicity, sex, age, payment source
Number of discharges: Acute cerebrovascular disease	KDHE - KS Hosp. Discharge	Rate of specified diagnosis	KS residents	Y – Census of all hospital discharges	Y - on KIC	2003-2010 (1995+ without Hisp. Ethnicity data)	Y – Tables on KIC	Covariates include: race/ethnicity, sex, age, payment source
	CHM Primary Care Discharge	Rate of specified diagnosis	Patients at CMH	N - CMH hospital discharges	N - request from CMH			

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Outcome Indicator	Name of Program or Initiative (org)	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>TARGET POPULATION GROUP: ADULTS</b>								
Diabetes Mellitus	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2010	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	By age, race (for 1990+: W, B, AI/AN, A/PI), Hispanic ethnicity
Diseases of Heart	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2011	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	By age, race (for 1990+: W, B, AI/AN, A/PI), Hispanic ethnicity
Hypertension without Heart Disease	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2012	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	By age, race (for 1990+: W, B, AI/AN, A/PI), Hispanic ethnicity
Atherosclerosis	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2013	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	By age, race (for 1990+: W, B, AI/AN, A/PI), Hispanic ethnicity
Aortic Aneurysm and Dissection	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2014	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	By age, race (for 1990+: W, B, AI/AN, A/PI), Hispanic ethnicity
Other Diseases of Arteries, Arterioles, Capillaries	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2015	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	By age, race (for 1990+: W, B, AI/AN, A/PI), Hispanic ethnicity

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<b>TARGET POPULATION GROUP: ADULTS</b>								
Cerebrovascular Disease	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2015	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	By age, race (for 1990+: W, B, AI/AN, A/PI), Hispanic ethnicity
<b>TARGET POPULATION GROUP: PREGNANT WOMEN</b>								
Percent Obese/Overweight	CDC BRFSS	PREGNANT & 2011: _BMI5	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	1996-2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Obese/Overweight	CDC SMART-MMSA	PREGNANT & 2010: _BMI4	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Obese/Overweight	CDC SMART-County	PREGNANT & 2010: _BMI4	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Obese/Overweight	DHSS - MO County-level Study	Q 6.21 (pregnancy) & Q 16.11 (height) & 16.10 (weight)	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - Public summary reports @ MMSA level, (Request from MO DHSS for county-level)	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area
Percent Told Have Diabetes	CDC BRFSS	PREGNANT & 2011: DIABETE3	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	1996-2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Told Have Diabetes	CDC SMART-MMSA	PREGNANT & 2010: DIABETE2	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Told Have Diabetes	CDC SMART-County	PREGNANT & 2010: DIABETE2	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Told Have Diabetes	DHSS - MO County-level Study	Q 6.21 (pregnancy) & Q 5.4 (diabetes)	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - Public summary reports @ MMSA level, (Request from MO DHSS for county-level)	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area



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<b>TARGET POPULATION GROUP: PREGNANT WOMEN</b>								
Adults who have been told they have high blood pressure (and had it checked)	CDC BRFSS	PREGNANT & 2011: BPHIGH4	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	1996-2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Adults who have been told they have high blood pressure (and had it checked)	CDC SMART-MMSA	PREGNANT & 2009: BPHIGH4	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Adults who have been told they have high blood pressure (and had it checked)	CDC SMART-County	PREGNANT & 2009: BPHIGH5	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Do you have any kind of healthcare coverage?	CDC BRFSS	2011: HLTHPLN1	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	KS & MO: every other year 1995–2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Do you have any kind of healthcare coverage?	CDC SMART-MMSA	2010: HLTHPLAN	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2003,2005, 2007,2009	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Do you have any kind of healthcare coverage?	CDC SMART-County	2010: HLTHPLAN	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2003,2005, 2007,2009	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent mother obese/overweight	DHSS - MO Birth Certificate	Mother overweight 20% or more, mother BMI 25-29.9, mother BMI 30+	Resident live births	Y – Census of all resident births	Y - MICA	1990-2009	Y – Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Birth weight	DHSS - MO Birth Certificate	very low (<1500g), low (<2500g), normal (2500-4499g), high (4499+g)	Resident live births	Y – Census of all resident births	Y - MICA	1990-2009	Y – Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Birth weight	DHSS - MO County-level Study	Q 6.21 (pregnancy) & Q 3.2	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - Public summary reports @ MMSA level, (Request from MO DHSS for county-level)	2011	Y – Tables on DHSS website	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Pre-pregnancy Weight for height	DHSS - MO WIC	BMI <19.8, BMI 26.1-29, BMI 29+	WIC participants	Y – Census of all WIC participants	Y - MICA	2000-2008	Y – Tables on DHSS website	One each for the row & column variables: year, age, race, eth, education, marital, county, Medicaid status



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<b>TARGET POPULATION GROUP: INFANTS (BIRTH – 2 YEARS OLD)</b>								
Birth weight	Pediatric Nutrition Surveillance System (Low-Income)			Y – Census of all WIC participants	Y – CDC & states	KS: 2008-2011, MO: 2000-2008	Y – Tables available	Low income
Birth weight	DHSS - MO WIC			Y – Census of all WIC participants	Y - MICA		Y – Tables on MICA	Infant WIC MICA has 0-1 year old, 1-2 years old are in the Child WIC MICA.
Birth weight for length	DHSS - MO WIC			Y – Census of all WIC participants	Y - MICA		Y – Tables on MICA	Infant WIC MICA has 0-1 year old, 1-2 years old are in the Child WIC MICA.
	CHM Primary Care Discharge	Rate of specified diagnosis	Patients at CMH	N - CMH hospital discharges	N - request from CMH			"Well-Child Check-Ups" data available for infants through 19 year-olds.
Obese/Overweight in parent's mind	CMH Community Health Needs Assessment	123. Would you describe this child's weight as:	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Overweight	CMH Community Health Needs Assessment	124. In the past 12 months, has a health professional or someone at your child's school told you that this child was overweight?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Told Diabetes	CMH Community Health Needs Assessment	73. Has a doctor or other health care provider ever told you that this child had Type 2 Diabetes?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC BRFSS	CHILDAGE & CASTHDX2	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
<b>TARGETED POPULATION GROUP: CHILDREN (2 - 5 YEARS OLD)</b>								
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC SMART-MMSA	CHILDAGE & CASTHDX2	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status

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<b>TARGETED POPULATION GROUP: CHILDREN (2 - 5 YEARS OLD)</b>								
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC SMART-County	CHLDAGE & CASTHDX2	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004-2010	Y - Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Birth Weight	DHSS - MO Fetal Death		Births to MO residents	Y - Census of all fetal deaths	Y - On Pregnancy MICA	1990-2010	Y - Tables on CDC website	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Birth Weight	DHSS - MO Birth Certificate			Y - Census of all resident births	Y - Data on MICA	1990-2009	Y - Tables on CDC website	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Length	DHSS - MO Birth Certificate			Y - Census of all resident births	Y - Data on MICA	1990-2009	Y - Tables on CDC website	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Birth weight	Pediatric Nutrition Surveillance System (Low-Income)			Y - Census of all WIC participants	Y - CDC & states	KS: 2008-2011, MO: 2000-2008	Y - Tables available	Low income
Birth weight	Pediatric Nutrition Surveillance System (Low-Income)			Y - Census of all WIC participants	Y - CDC & states	KS: 2008-2011, MO: 2000-2008	Y - Tables available	Low income
Weight for height	DHSS - MO WIC			Y - Census of all WIC participants	Y - MICA		Y - Tables on CDC website	One each for the row & column variables: year, age, race, eth, education, marital, county, Medicaid status
Weight for height and gender	DHSS - MO WIC			Y - Census of all WIC participants	Y - MICA	2000-2008	Y - Tables on CDC website	Child WIC: One each for the row & column variables: year, age, race, eth, education, county, Medicaid status
	CHM Primary Care Discharge	Rate of specified diagnosis	Patients at CMH	N - CMH hospital discharges	N - request from CMH			"Well-Child Check-Ups" data available for infants through 19 year-olds.

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<b>TARGETED POPULATION GROUP: CHILDREN (2 - 5 YEARS OLD)</b>								
Obese/Overweight in parent's mind	CMH Community Health Needs Assessment	123. Would you describe this child's weight as:	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Overweight	CMH Community Health Needs Assessment	124. In the past 12 months, has a health professional or someone at your child's school told you that this child was overweight?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Diabetes	CMH Community Health Needs Assessment	73. Has a doctor or other health care provider ever told you that this child had Type 2 Diabetes?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC BRFS	CHILDAGE & CASTHDX2	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC SMART-MMSA	CHILDAGE & CASTHDX2	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC SMART-County	CHILDAGE & CASTHDX2	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004–2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Diabetes Mellitus	NCHS Mortality	Rate of specified COD	All residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2010	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity

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<b>TARGETED POPULATION GROUP: CHILDEN (2 - 5 YEARS OLD)</b>								
Diseases of Heart	NCHS Mortality	Rate of specified COD	All residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2011	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Hypertension without Heart Disease	NCHS Mortality	Rate of specified COD	All residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2012	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Atherosclerosis	NCHS Mortality	Rate of specified COD	All residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2013	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Aortic Aneurysm and Dissection	NCHS Mortality	Rate of specified COD	All residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2014	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Other Diseases of Arteries, Arterioles, Capillaries	NCHS Mortality	Rate of specified COD	All residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2015	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity

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Outcome Indicator	Name of Agency/Org Program or Initiative (org)	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>TARGETED POPULATION GROUP: CHILDREN (2 - 5 YEARS OLD)</b>								
Cerebrovascular Disease	NCHS Mortality	Rate of specified COD	All residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2015	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
<b>TARGET POPULATION GROUP: CHILDREN (6 - 11 YEARS OLD)</b>								
Birth weight	Pediatric Nutrition Surveillance System (Low-Income)			Y – Census of all WIC participants	Y – CDC and states	KS: 2008-2011, MO: 2000-2008	Y – Tables available	Low income
Birth weight	Pediatric Nutrition Surveillance System (Low-Income)			Y – Census of all WIC participants	Y – CDC and states	KS: 2008-2011, MO: 2000-2008	Y – Tables available	Low income
Weight for height	DHSS - MO WIC			Y – Census of all WIC participants	Y – DHSS	2000–2008	Y – Tables on MICA	Child WIC: One each for the row & column variables: year, age, race, eth, education, county, Medicaid status
Weight for height and gender	DHSS - MO WIC			Y – Census of all WIC participants	Y - DHSS	2000–2008	Y – Tables on MICA	Child WIC: One each for the row & column variables: year, age, race, eth, education, county, Medicaid status
	CHM Primary Care Discharge	Rate of specified diagnosis	Patients at CMH	N - CMH hospital discharges	N - request from CMH			"Well-Child Check-Ups" data available for infants through 19 year-olds.
Obese/Overweight in parent's mind	CMH Community Health Needs Assessment	123. Would you describe this child's weight as:	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Overweight	CMH Community Health Needs Assessment	124. In the past 12 months, has a health professional or someone at your child's school told you that this child was overweight?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	

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<b>TARGET POPULATION GROUP: CHILDREN (6 - 11 YEARS OLD)</b>								
Diabetes	CMH Community Health Needs Assessment	73. Has a doctor or other health care provider ever told you that this child had Type 2 Diabetes?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC BRFSS	CHILDAGE & CASTHDX2	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y – CDC	2004–2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC SMART-MMSA	CHILDAGE & CASTHDX2	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC SMART-County	CHILDAGE & CASTHDX2	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004–2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Diabetes Mellitus	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2010	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Diseases of Heart	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2011	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Hypertension without Heart Disease	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2012	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity

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Outcome Indicator	Name of Agency/Org Program or Initiative	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>TARGET POPULATION GROUP: CHILDREN (6 - 11 YEARS OLD)</b>								
Atherosclerosis	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2013	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Aortic Aneurysm and Dissection	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2014	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Other Diseases of Arteries, Arterioles, Capillaries	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2015	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Cerebrovascular Disease	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2015	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
<b>TARGET POPULATION GROUP: CHILDREN (12 - 19 YEARS OLD)</b>								
Birth weight	Pediatric Nutrition Surveillance System (Low-Income)			Y – Census of all WIC participants	Y – CDC & states	KS: 2008-2011, MO: 2000-2008	Y – Tables available	Low income
Birth weight	Pediatric Nutrition Surveillance System (Low-Income)			Y – Census of all WIC participants	Y – CDC & states	KS: 2008-2011, MO: 2000-2008	Y – Tables available	Low income

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Outcome Indicator	Name of Agency/Org Program or Initiative	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>TARGET POPULATION GROUP: CHILDREN (12 - 19 YEARS OLD)</b>								
Weight for height	DHSS - MO WIC			Y – Census of all WIC participants	Y – DHSS	2000–2008	Y – Tables on MICA	Child WIC: One each for the row & column variables: year, age, race, eth, education, county, Medicaid status
Weight for height and gender	DHSS – MO WIC			Y – Census of all WIC participants	Y – DHSS	2000–2008	Y – Tables on MICA	Child WIC: One each for the row & column variables: year, age, race, eth, education, county, Medicaid status
	CHM Primary Care Discharge	Rate of specified diagnosis	Patients at CMH	N - CMH hospital discharges	N - request from CMH			"Well-Child Check-Ups" data available for infants through 19 year-olds.
Obese/Overweight in parent's mind	CMH Community Health Needs Assessment	123. Would you describe this child's weight as:	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Overweight	CMH Community Health Needs Assessment	124. In the past 12 months, has a health professional or someone at your child's school told you that this child was overweight?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Diabetes	CMH Community Health Needs Assessment	73. Has a doctor or other health care provider ever told you that this child had Type 2 Diabetes?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC BRFSS	CHILDAGE & CASTHDX2	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y – CDC	2004–2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC SMART-MMSA	CHILDAGE & CASTHDX2	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Has a doctor, nurse or other health professional EVER said that the child has asthma?	CDC SMART-County	CHILDAGE & CASTHDX2	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004–2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status



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<b>TARGET POPULATION GROUP: CHILDREN (12 - 19 YEARS OLD)</b>								
Obesity	CDC - YRBSS Middle School (national)			Y - Randomized telephone survey	Y - CDC	1995-2011	Y - Tables on CDC website	
Obesity	CDC - YRBSS High School (statewide)			Y - Randomized telephone survey	Y - CDC	KS: 2005, 2007, 2009, 2011; MO: every other year 1995-2009	Y - Tables on CDC website	
Perceived Weight Issues	CDC - YRBSS High School (statewide)			Y - Randomized telephone survey	Y - CDC	KS: 2005, 2007, 2009, 2011; MO: every other year 1995-2009	Y - Tables on CDC website	
Diabetes Mellitus	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y - Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2010	KS: 2005, 2007, 2009, 2011; MO: every other year 1995-2009	N - Not at county level	
Diseases of Heart	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y - Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2011	KS: 2005, 2007, 2009, 2011; MO: every other year 1995-2009	N - Not at county level	
Hypertension without Heart Disease	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y - Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2012	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N - Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Atherosclerosis	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y - Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2013	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N - Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Aortic Aneurysm and Dissection	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y - Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2014	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N - Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity

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<b>TARGET POPULATION GROUP: CHILDREN (12 - 19 YEARS OLD)</b>								
Other Diseases of Arteries, Arterioles, Capillaries	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2015	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity
Cerebrovascular Disease	NCHS Mortality	Rate of specified COD	All KS & MO residents	Y – Census of all deaths	Y - Via SEER is convenient (thru 2009), NCHS has thru 2015	County level in aggregated years (mostly groups of 3), statewide yearly. Age in 19 groups (mostly groups of 5).	N – Not at county level	Age groups: 0, 1-4, 5-9, 10-14, 15-19. By age, race (for 1990+: w,b,ai/an,a/pi), Hispanic ethnicity

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<b>HEALTH AND RISK INDICATORS</b>								
<b>TARGET POPULATION GROUP: ADULTS</b>								
Percent Consuming < 5 Fruit & Vegetables Per Day	CDC BRFSS	2009: _FV5SRV	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	MO & KS: 1996, 1998, 2000, 2002, 2003, 2005, 2007, 2009, 2010	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Consuming < 5 Fruit & Vegetables Per Day	CDC SMART-MMSA	2009: _FV5SRV	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2002, 2003, 2005, 2007, 2009, 2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Consuming < 5 Fruit & Vegetables Per Day	CDC SMART-County	2009: _FV5SRV	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2002, 2003, 2005, 2007, 2009, 2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Consuming < 5 Fruit & Vegetables Per Day	DHSS - MO County-level Study	2011: Q 15.2 - 15.5 2007: S16Q02 - S16Q06	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area
Percent No leisure time physical activity or exercise in past month	CDC BRFSS	2009: _RFNOPA	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	MO & KS: 1996, 1998, 2000, 2002, 2003, 2005, 2007, 2009, 2010, 2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent No leisure time physical activity or exercise in past month	CDC SMART-MMSA	2009: _RFNOPA	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2002, 2003, 2005, 2007, 2009, 2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent No leisure time physical activity or exercise in past month	CDC SMART-County	2009: _RFNOPA	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2002, 2003, 2005, 2007, 2009, 2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
During the past 30 days, other than your regular job, did you participate in any physical activities or exercise such as running, calisthenics, golf, gardening, or walking for exercise?	DHSS - MO County-level Study	Q 13.1	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Public summary reports @ MMSA level, Request from MO DHSS for county-level	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area

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<b>TARGET POPULATION GROUP: ADULTS</b>								
Do you use walking trails, parks, playgrounds or sports fields for physical activity?	DHSS - MO County-level Study	Q 14.1	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Public summary reports @ MMSA level, Request from MO DHSS for county-level	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area
Food Prices	Not pursued							
Smoking with Diabetes or Obesity/Overweight	CDC SMART			Y - Randomized telephone survey	Y - CDC		Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Do you have any kind of healthcare coverage?	CDC BRFS	2011: HLTHPLN1	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	KS & MO: every other year 1995–2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Do you have any kind of healthcare coverage?	CDC SMART-MMSA	2010: HLTHPLAN	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2003,2005, 2007,2009	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Do you have any kind of healthcare coverage?	CDC SMART-County	2010: HLTHPLAN	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2003,2005, 2007,2009	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Participated in 150 minutes or more of Aerobic Physical Activity per week	CDC SMART			Y - Randomized telephone survey	Y - CDC		Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Participated Muscle Strengthening exercises more than twice per week	CDC SMART			Y - Randomized telephone survey	Y - CDC		Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Participated in enough Aerobic and Muscle Strengthening exercises to meet guidelines	CDC SMART			Y - Randomized telephone survey	Y - CDC		Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Education	CDC SMART			Y - Randomized telephone survey	Y - CDC		Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status

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<b>TARGET POPULATION GROUP: ADULTS</b>								
Medicaid enrollment	KDHE	Number of participants in : all medical program expenditures through MMIS; Medicaid only; CHIP	KS residents. County-level 2010 & 2011 data available.	Y – Census of all Medicaid participants	Y - KS Dept. of Health & Environment ( <a href="http://www.kdheks.gov/hcf/medicaid_reports/default.htm">http://www.kdheks.gov/hcf/medicaid_reports/default.htm</a> )		Y – Tables on KDHE website	County-level data broken out by month only--no race, sex, age, etc.
Medicaid enrollment	MO DSS - HealthNet (MO Medicaid)	Number of participants in various categories (HealthNet for pregnant women, Women's health services, & others)	MO residents. 2003-2013 (about 2 month delay)	Y – Census of all Medicaid participants	Y - MICA	2002–2012, some 2013 data available	Y – Tables on MICA	Breakout by year, race (white, black, all), sex, age (<1, 1-4, 5-14, 15-17, 18-19, 20-24, 25-44, 45-64, 65+).
<b>TARGET POPULATION GROUP: PREGNANT WOMEN</b>								
Smoking	DHSS - MO WIC			Y – Census of all WIC participants	Y - MICA	2000–2008	Y – Tables on MICA	One each for the row & column variables: year, age, race, eth, education, marital, county, Medicaid status
Receiving Food Stamps	DHSS - MO WIC			Y – Census of all WIC participants	Y - MICA	2000–2008	Y – Tables on MICA	One each for the row & column variables: year, age, race, eth, education, marital, county, Medicaid status
Number of other Children	DHSS - MO WIC			Y – Census of all WIC participants	Y - MICA	2000–2008	Y – Tables on MICA	One each for the row & column variables: year, age, race, eth, education, marital, county, Medicaid status
Percent Mothers Single	CDC BRFSS			Y - Randomized telephone survey	Y - CDC	1996-2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Mothers Single	CDC SMART-MMSA			Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Mothers Single	CDC SMART-County			Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Percent Mothers Single	DHSS - MO County-level Study		Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	N - Request from MO DHSS	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area
Percent Mothers Single	DHSS - MO Birth Certificate			Y – Census of all resident births	Y - Birth MICA	1990-2009	Y – Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county

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<b>TARGET POPULATION GROUP: PREGNANT WOMEN</b>								
Percent Mothers Single	KDHE - KS Birth Certificate		Resident live births	Y – Census of all resident births	Y - Birth KIC	1990-2011	Y – Tables on KIC	One each for the row & column variables: year, age, race, education, marital, county
Maternal age	CDC BRFSS		Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	1996-2011	Y – Tables on CDC website	Cell phones included beginning in 2011. Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Maternal age	CDC SMART-MMSA		KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Maternal age	CDC SMART-County		2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2002-2010	Y – Tables on CDC website	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Maternal age	DHSS - MO County-level Study		Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Public summary reports @ MMSA level, Request from MO DHSS for county-level	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area
Maternal age	DHSS - MO Birth Certificate	Mother under age 20 (8 age groups available)	Resident live births	Y – Census of all resident births	Y - Birth MICA (record level data from MO DHSS)	1990-2009	Y – Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Mother smoked during pregnancy	DHSS - MO Birth Certificate	Y, Y & 1+ packers per day	Resident live births	Y – Census of all resident births	Y - Birth MICA (record level data from MO DHSS)	1990-2009	Y – Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Maternal age	KDHE - KS Birth Certificate	Mother under age 20 (7 age groups available)	Resident live births	Y – Census of all resident births	Y - Birth KIC	1990-2011	Y – Tables on KIC	One each for the row & column variables: year, age, race, education, marital, county
Mother smoked during pregnancy	KDHE - KS Birth Certificate	Y or N	Resident live births	Y – Census of all resident births	Y - Birth KIC	1990-2011	Y – Tables on KIC	One each for the row & column variables: year, age, race, education, marital, county
Smoking with Diabetes or Obesity/Overweight	CDC SMART		KC Metro area, County Level (in 2009): Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year)	Y - Randomized telephone survey	Y - CDC		N – Tables on CDC website do not provide sufficient detail	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status

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<b>TARGET POPULATION GROUP: PREGNANT WOMEN</b>								
(Adults aged 18-64 who) Have any kind of health care coverage	CDC SMART		KC Metro area, County Level (in 2009): Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year)	Y - Randomized telephone survey	Y - CDC		N – Tables on CDC website do not provide sufficient detail	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Participated in 150 minutes or more of Aerobic Physical Activity per week	CDC SMART		KC Metro area, County Level (in 2009): Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year)	Y - Randomized telephone survey	Y - CDC		N – Tables on CDC website do not provide sufficient detail	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Participated Muscle Strengthening exercises more than twice per week	CDC SMART		KC Metro area, County Level (in 2009): Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year)	Y - Randomized telephone survey	Y - CDC		N – Tables on CDC website do not provide sufficient detail	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Participated in enough Aerobic and Muscle Strengthening exercises to meet guidelines	CDC SMART		KC Metro area, County Level (in 2009): Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year)	Y - Randomized telephone survey	Y - CDC		N – Tables on CDC website do not provide sufficient detail	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
Education	CDC SMART		KC Metro area, County Level (in 2009): Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year)	Y - Randomized telephone survey	Y - CDC		N – Tables on CDC website do not provide sufficient detail	Covariates include: detailed race/ethnicity, sex, age, healthcare coverage, unable to see dr. due to cost, education, marital status
<b>TARGET POPULATION GROUP: INFANTS (BIRTH - 2 YEARS OLD)</b>								
Children In an Obese/Overweight Person's Household	CDC BRFSS	CHILDAGE & 2011: _BMI5	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children In an Obese/Overweight Person's Household	CDC SMART-MMSA	CHILDAGE & 2010: _BMI4	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this

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<b>TARGET POPULATION GROUP: INFANTS (BIRTH - 2 YEARS OLD)</b>								
Children In an Obese/Overweight Person's Household	CDC SMART-County	CHILDAGE & 2010: _BMI4	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004-2011	N - Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC BRFSS	CHILDAGE & 2009_FV5SRV	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004-2011	N - Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
<b>TARGET POPULATION GROUP: INFANTS (BIRTH - 2 YEARS OLD)</b>								
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC SMART-MMSA	CHILDAGE & 2009_FV5SRV	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004-2011	N - Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC SMART-County	CHILDAGE & 2009_FV5SRV	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004-2011	N - Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC BRFSS	CHILDAGE & 2009: _RFNOA	Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004-2011	N - Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC SMART-MMSA	CHILDAGE & 2009: _RFNOA	KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004-2011	N - Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC SMART-County	CHILDAGE & 2009: _RFNOA	2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004-2011	N - Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this



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<b>TARGET POPULATION GROUP: INFANTS (BIRTH - 2 YEARS OLD)</b>								
Diabetes Resources In Area for children	CMH Community Health Needs Assessment	74. In general, would you say the resources available for children with Type 2 Diabetes in this area are:	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N - Not at county level	
Mother Obese/Overweight	DHSS - MO Birth Certificate		Births to MO residents	Y - Census of all resident births	Y - MICA	1990-2009	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Mother weight gain (<15lbs, normal, 44+lbs)	KDHE - KS Birth Certificate	Resident live births	Births to KS residents	Y - Census of all resident births	Y - Birth KIC	1990-2011	Y - Tables on KIC	One each for the row & column variables: year, age, race, ethnicity, marital, county
On Medicaid	DHSS - MO Birth Certificate		Births to MO residents	Y - Census of all resident births	Y - MICA	1990-2009	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
On WIC	DHSS - MO Birth Certificate		Births to MO residents	Y - Census of all resident births	Y - MICA	1990-2009	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Mother on Food Stamps	DHSS - MO Birth Certificate		Births to MO residents	Y - Census of all resident births	Y - MICA	1990-2009	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Mother alcohol & cigarette use	DHSS - MO Birth Certificate		Births to MO residents	Y - Census of all resident births	Y - MICA	1990-2009	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Mother Obese/Overweight	DHSS - MO Fetal Death		Births to MO residents	Y - Census of all fetal deaths	Y - On Pregnancy MICA	1990-2010	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
On Medicaid	DHSS - MO Fetal Death		Births to MO residents	Y - Census of all fetal deaths	Y - On Pregnancy MICA	1990-2010	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county

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<b>TARGET POPULATION GROUP: INFANTS (BIRTH - 2 YEARS OLD)</b>								
On WIC	DHSS - MO Fetal Death		Births to MO residents	Y – Census of all fetal deaths	Y – On Pregnancy MICA	1990–2010	Y – Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Mother on Food Stamps	DHSS - MO Fetal Death		Births to MO residents	Y – Census of all fetal deaths	Y – On Pregnancy MICA	1990–2010	Y – Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
<b>TARGET POPULATION GROUP: CHILDREN (2 - 5 YEARS OLD)</b>								
Children In an Obese/Overweight Person's Household	CDC BRFSS		Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children In an Obese/Overweight Person's Household	CDC SMART-MMSA		KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children In an Obese/Overweight Person's Household	CDC SMART-County		2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC BRFSS		Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC SMART-MMSA		KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC SMART-County		2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC BRFSS		Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this

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<b>TARGET POPULATION GROUP: CHILDREN (2 - 5 YEARS OLD)</b>								
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC SMART-MMSA		KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC SMART-County		2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Vigorous physical activity	CMH Community Health Needs Assessment	119. On how many of the past 7 days did this child exercise or participate in VIGOROUS physical activity for at least 20 minutes that made (him/her) breathe hard, such as basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activities?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Moderate physical activity	CMH Community Health Needs Assessment	120. On how many of the past 7 days did this child participate in MODERATE physical activity for at least 30 minutes that did NOT make (him/her) breathe hard, such as fast walking, slow bicycling, skating, or pushing a lawn mower?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	

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<b>TARGET POPULATION GROUP: CHILDREN (6 - 11 YEARS OLD)</b>								
Children In an Obese/Overweight Person's Household	CDC BRFSS		Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children In an Obese/Overweight Person's Household	CDC SMART-MMSA		KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children In an Obese/Overweight Person's Household	CDC SMART-County		2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC BRFSS		Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC SMART-MMSA		KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC SMART-County		2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC BRFSS		Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this

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<b>TARGET POPULATION GROUP: CHILDREN (6 - 11 YEARS OLD)</b>								
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC SMART-MMSA		KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC SMART-County		2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Vigorous physical activity	CMH Community Health Needs Assessment	119. On how many of the past 7 days did this child exercise or participate in VIGOROUS physical activity for at least 20 minutes that made (him/her) breathe hard, such as basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activities?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Moderate physical activity	CMH Community Health Needs Assessment	120. On how many of the past 7 days did this child participate in MODERATE physical activity for at least 30 minutes that did NOT make (him/her) breathe hard, such as fast walking, slow bicycling, skating, or pushing a lawn mower?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	

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<b>TARGET POPULATION GROUP: CHILDREN (12 - 19 YEARS OLD)</b>								
Children In an Obese/Overweight Person's Household	CDC BRFSS		Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children In an Obese/Overweight Person's Household	CDC SMART-MMSA		KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC BRFSS		Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC SMART-MMSA		KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone that consumes < 5 Fruit & vegetables per day	CDC SMART-County		2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC BRFSS		Missourians & Kansans ≥18 & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC SMART-MMSA		KC Metro area, ≥18 years old & non-institutionalized	Y - Randomized telephone survey	Y - CDC	2004–2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this

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<b>TARGET POPULATION GROUP: CHILDREN (12 - 19 YEARS OLD)</b>								
Children in the household of someone with no leisure time physical activity or exercise in past month	CDC SMART-County		2009: Jackson MO, Johnson KS, Leavenworth KS, Wyandotte KS (varies by year, 2010 lacks Leavenworth. SMART covers 2002-2010)	Y - Randomized telephone survey	Y - CDC	2004-2011	N – Tables on CDC website do not provide sufficient detail	Check suitability of RCS for this
Vigorous physical activity	CMH Community Health Needs Assessment	119. On how many of the past 7 days did this child exercise or participate in VIGOROUS physical activity for at least 20 minutes that made (him/her) breathe hard, such as basketball, soccer, running, swimming laps, fast bicycling, fast dancing, or similar aerobic activities?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Moderate physical activity	CMH Community Health Needs Assessment	120. On how many of the past 7 days did this child participate in MODERATE physical activity for at least 30 minutes that did NOT make (him/her) breathe hard, such as fast walking, slow bicycling, skating, or pushing a lawn mower?	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
School's Participation in President's Fitness Tests/Challenges (example: National Physical Fitness Award)	Not pursued							
National School Lunch Act/Summer Food Service Participants	Not pursued							

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Outcome Indicator	Name of Agency/Org Program or Initiative	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>TARGET POPULATION GROUP: CHILDREN (12 - 19 YEARS OLD)</b>								
Perceived Weight Issues (Likert-like)	CDC - YRBSS Middle School (national)			Y - Randomized telephone survey	Y - CDC	1995-2011		
Trying to lose or gain Weight	CDC - YRBSS Middle School (national)			Y - Randomized telephone survey	Y - CDC	1995-2011		
What are you trying to do to lose weight (exercise, watch calories, starve)	CDC - YRBSS Middle School (national)			Y - Randomized telephone survey	Y - CDC	1995-2011		
Trying to lose or gain Weight	CDC - YRBSS High School (statewide)			Y - Randomized telephone survey	Y - CDC	KS: 2005, 2007, 2009, 2011. MO: 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009		
What are you trying to do to lose weight (exercise, watch calories, starve)	CDC - YRBSS High School (statewide)			Y - Randomized telephone survey	Y - CDC	KS: 2005, 2007, 2009, 2011. MO: 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009		
Ate fruit or drank 100% fruit juices two or more times per day	CDC - YRBSS High School (statewide)			Y - Randomized telephone survey	Y - CDC	KS: 2005, 2007, 2009, 2011. MO: 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009		
Drank a can bottle or glass of soda or pop at least one time per day	CDC - YRBSS High School (statewide)			Y - Randomized telephone survey	Y - CDC	KS: 2005, 2007, 2009, 2011. MO: 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009		
Did not eat for 24 hours or more to lose weight or to keep from gaining weight	CDC - YRBSS High School (statewide)			Y - Randomized telephone survey	Y - CDC	KS: 2005, 2007, 2009, 2011. MO: 1995, 1997, 1999, 2001, 2003, 2005, 2007, 2009		



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<b>TARGET POPULATION GROUP: CHILDREN (DIFFERENT AGE GROUPINGS)</b>								
Children eligible for Medicaid	MO DSS - HealthNet (MO Medicaid)	NON-CHIP Poverty Children CHIP Non-Premium Children ***MC+ CHIP co-pay CHIP Premium Children Newborns Other Children Eligibility Types: (Department of Mental Health, Division of Youth Services, Juvenile Court, MAF Children in Vendor Institution, Foster Care, Child Welfare Services, Presumptive Eligibility for Kids, Voluntary Placements, Title XIX HDN, DYS - General Revenue, Independent Foster Care Ages 18-21)		Y – Census of all Medicaid participants	Y - on MICA	2003–2012, some 2013 data available	Y – Tables on MICA	Age groupings: <1, 1-4, 5-14, 15-17, 18-19.

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Outcome Indicator	Name of Agency/Org Program or Initiative	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>POLICY AND ENVIRONMENTAL INDICATORS</b>								
<b>TARGET POPULATION GROUP: ADULTS</b>								
Neighborhood has any sidewalks	DHSS - MO County-level Study	Q 14.2	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Public summary reports @ MMSA level, Request from MO DHSS for county-level	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area
Roads and streets in neighborhood have shoulders or marked lanes for bicycling	DHSS - MO County-level Study	Q 14.3	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Public summary reports @ MMSA level, Request from MO DHSS for county-level	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area
It is easy to purchase healthy foods in my neighborhood such as whole grain foods, low fat options, and fruits and vegetables?	DHSS - MO County-level Study	Q 14.5	Missourians ≥18 & non-institutionalized	Y - Randomized telephone survey	Public summary reports @ MMSA level, Request from MO DHSS for county-level	2011	Y – Tables on DHSS website	Covariates race/ethnicity, education, and healthcare coverage only available for the KC metro area
Food Prices	Not pursued							
Percent Families Under 185% FPL (WIC eligible)	Not pursued							
TANF Participation	DHSS - MO MICA			Y – Census of TANF recipients	Y - DHSS	1998–2012, some 2013 data available	Y – Tables on MICA	
Percent in Poverty	Census Bureau		CPS only at state level. ACS plans to release sub-county data for 2011 & has data on counties with pop > 65K (all 5 of target counties)	Y – Census	Y - CPS ASEC & ACS (see <a href="http://www.census.gov/hhes/www/poverty/about/datasources/factsheet.html">http://www.census.gov/hhes/www/poverty/about/datasources/factsheet.html</a> )	2011	Y – Tables available on “American FactFinder” site	
Demo: % black	Census Bureau			Y – Census	Y - Via SEER is convenient (single race bridged [OMB77], thru 2011), otherwise Census Bureau	1990-2011	Y – Tables available on “American FactFinder” site	
Demo: % adults	Census Bureau			Y – Census	Y - Via SEER is convenient (single race bridged [OMB77], thru 2011), otherwise Census Bureau	1990-2011	Y – Tables available on “American FactFinder” site	

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Outcome Indicator	Name of Agency/Org Program or Initiative	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>TARGET POPULATION GROUP: INFANTS (BIRTH - 2 YEARS OLD)</b>								
Diabetes Resources In Area for children	CMH Community Health Needs Assessment	74. In general, would you say the resources available for children with Type 2 Diabetes in this area are:	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N - Not at county level	
Mother Obese/Overweight	DHSS - MO Birth Certificate		Births to MO residents	Y - Census of all resident births	Y - MICA	1990-2009	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
On Medicaid	DHSS - MO Birth Certificate		Births to MO residents	Y - Census of all resident births	Y - MICA	1990-2009	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
On WIC	DHSS - MO Birth Certificate		Births to MO residents	Y - Census of all resident births	Y - MICA	1990-2009	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Mother on Food Stamps	DHSS - MO Birth Certificate		Births to MO residents	Y - Census of all resident births	Y - MICA	1990-2009	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Mother alcohol & cigarette use	DHSS - MO Birth Certificate		Births to MO residents	Y - Census of all resident births	Y - MICA	1990-2009	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Mother Obese/Overweight	DHSS - MO Fetal Death		Births to MO residents	Y - Census of all fetal deaths	Y - On Pregnancy MICA	1990-2010	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
On Medicaid	DHSS - MO Fetal Death		Births to MO residents	Y - Census of all fetal deaths	Y - On Pregnancy MICA	1990-2010	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
On WIC	DHSS - MO Fetal Death		Births to MO residents	Y - Census of all fetal deaths	Y - On Pregnancy MICA	1990-2010	Y - Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county

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Outcome Indicator	Name of Agency/Org Program or Initiative	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>TARGET POPULATION GROUP: INFANTS (BIRTH - 2 YEARS OLD)</b>								
Mother on Food Stamps	DHSS - MO Fetal Death		Births to MO residents	Y – Census of all fetal deaths	Y – On Pregnancy MICA	1990–2010	Y – Tables on MICA	One each for the row & column variables: year, age, race, ethnicity, education, marital, Medicaid status, pregnant care, number born, sex, county
Demo: % black	Census Bureau			Y - Census	Y - Via SEER is convenient (single race bridged [OMB77], thru 2011), otherwise Census Bureau	1990-2011	Y – Tables available on “American FactFinder” site	
Demo: % infants	Census Bureau			Y – Census	Y - Via SEER is convenient (single race bridged [OMB77], thru 2011), otherwise Census Bureau	1990-2011	Y – Tables available on “American FactFinder” site	
<b>TARGET POPULATION GROUP: CHILDREN (2 - 5 YEARS OLD)</b>								
Diabetes Resources In Area for children	CMH Community Health Needs Assessment	74. In general, would you say the resources available for children with Type 2 Diabetes in this area are:	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
Diabetes Resources In Area for children	CMH Community Health Needs Assessment	74. In general, would you say the resources available for children with Type 2 Diabetes in this area are:	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH	2000-2012	N – Not at county level	
Demo: % black	Census Bureau		MO & KS residents	Y – Census	Y - Via SEER is convenient (single race bridged [OMB77], thru 2011), otherwise Census Bureau	1990-2011	Y – Tables available on “American FactFinder” site	
Demo: % infants	Census Bureau		MO & KS residents	Y – Census	Y - Via SEER is convenient (single race bridged [OMB77], thru 2011), otherwise Census Bureau	1990-2011	Y – Tables available on “American FactFinder” site	

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Outcome Indicator	Name of Agency/Org Program or Initiative	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>TARGET POPULATION GROUP: CHILDREN (2 - 5 YEARS OLD)</b>								
Elementary schools Provides nutrition curriculum for each grade level	School Wellness Survey	Number of school districts with written school wellness policies given a WellSAT score of 0 (Not mentioned) to "provides nutrition curriculum for each grade level"	KC Metro	Y – Randomized sample of schools	N – Request from CHM or UKMC		Y – Report available on website	WI School Wellness Report: 144 elementary schools
Elementary schools Uses Food as a Reward/Incentive	School Wellness Survey	Respondents who answered "Yes" to "In our school(s), Use food as rewards or incentives for students."	KC Metro	Y – Randomized sample of schools	N – Request from CHM or UKMC		Y – Report available on website	WI School Wellness Report: 144 elementary schools
Elementary schools with Moderate to Vigorous Activity At Least Half of PE	School Wellness Survey	Respondents who answered "Yes" to "In our school(s), we have policies to: Address moderate to vigorous physical activity at least half of the total time during PE class"	KC Metro	N – self-selected sample of school personnel	N – Request from CHM or UKMC		Y – Report available on website	WI School Wellness Report: 144 elementary schools
School's Participation in President's Fitness Tests/Challenges (example: National Physical Fitness Award)	Not pursued							
National School Lunch Act/Summer Food Service Participants	Not pursued							
Diabetes Resources In Area for children	CMH Community Health Needs Assessment	74. In general, would you say the resources available for children with Type 2 Diabetes in this area are:	Jackson MO, Johnson KS, Clay MO, Wyandotte KS. Survey of parents of children under 18 years-old.	Y - Randomized telephone survey	N - Request from CMH		N – Not at county level	
WI School Wellness Report indicators & childcare survey								WI School Wellness Report: 42 middle & 36 High schools

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Outcome Indicator	Name of Agency/Org Program or Initiative	Surveillance Variable/Data Item or Survey Question	Target Population of Surveillance or Survey	Is Surveillance a Population-based Survey or Based On Administrative Files? (Y/N) Describe	Is Data Available? (Y/N) Organization Name	Surveillance or Survey Year/Time Period	Is Analysis of Surveillance or Survey Available (Y/N)? Format	Other Annotations
<b>TARGET POPULATION GROUP: CHILDREN (2 - 5 YEARS OLD)</b>								
School's Participation in President's Fitness Tests/Challenges (example: National Physical Fitness Award)	Not pursued							
National School Lunch Act/Summer Food Service Participants	Not pursued							
<b>TARGET POPULATION GROUP: CHILDREN (different age groupings)</b>								
Children eligible for Medicaid	MO DSS - HealthNet (MO Medicaid)	NON-CHIP Poverty Children CHIP Non-Premium Children ***MC+ CHIP co-pay CHIP Premium Children Newborns Other Children Eligibility Types: (Department of Mental Health, Division of Youth Services, Juvenile Court, MAF Children in Vendor Institution, Foster Care, Child Welfare Services, Presumptive Eligibility for Kids, Voluntary Placements, Title XIX HDN, DYS - General Revenue, Independent Foster Care Ages 18-21)		Y – Census of all Medicaid participants	Y – MICA	2002–2012, some 2013 data available	Y – Tables on MICA	Age groupings: <1, 1-4, 5-14, 15-17, 18-19.
<b>GEOGRAPHIC AREA ATTRIBUTES</b>								
Food Deserts	USDA	Percentage of population with a low access to food	Total population	Y - Calculated from a combination of survey and administrative data	Y - USDA	2010		

## Appendix E:

### Web and Other Resources

#### I. Sources for Selected (and Non-selected) Indicators

Centers for Disease Control and Prevention (CDC). Annual Survey Data (updated 07/11/2013). *Behavioral Risk Factor Surveillance System (BRFSS)*

[http://www.cdc.gov/brfss/annual\\_data/annual\\_data.htm](http://www.cdc.gov/brfss/annual_data/annual_data.htm)

Used for selected indicators: 2.9, 2.10, 3.a.1, 3.a.2, 3.a.7 & 4.a.2

Used for non-selected indicators: 1.a.1, 1.a.10, 1.a.14, 3.a.5, 3.a.6 & 4.a.1

Centers for Disease Control and Prevention (CDC). SMART: BRFSS City and County Data and Documentation (updated 08/27/2013). *Behavioral Risk Factor Surveillance System (BRFSS)*

[http://www.cdc.gov/brfss/smart/smart\\_data.htm](http://www.cdc.gov/brfss/smart/smart_data.htm)

Used for selected indicators: 2.9, 2.10, 3.a.1, 3.a.2, 3.a.7 & 4.a.2

Used for non-selected indicators: 1.a.1, 1.a.10, 1.a.14, 3.a.5, 3.a.6 & 4.a.1

Children's Mercy Hospital and Clinics. *Community Health Needs Assessment*.

[http://www.childrensmercy.org/About\\_Us/About\\_Childrens\\_Mercy/Community\\_Health\\_Needs\\_Assessment/Community\\_Health\\_Needs\\_Assessment/](http://www.childrensmercy.org/About_Us/About_Childrens_Mercy/Community_Health_Needs_Assessment/Community_Health_Needs_Assessment/)

Used for selected indicators: 2.12, 3.b.9, 3.b.10 & 4.b.1

Used for non-selected indicators: 3.b.6, 3.b.11 & 3.b.12

Kansas Department of Health and Environment (KDHE). Birth Statistics Query (updated 08/31/2012). *Kansas Information for Communities* <http://kic.kdhe.state.ks.us/kic/Birth.html>

Used for selected indicators: 1.a.11 & 3.b.1

Used for non-selected indicators: 1.a.3 & 3.b.2

Kansas Department of Health and Environment (KDHE). Death Statistics Query (updated 08/31/2012). *Kansas Information for Communities* <http://kic.kdhe.state.ks.us/kic/death.html>

Used for selected indicators: 4.a.4, 4.b.3 & 4.b.6

Used for non-selected indicators: 4.a.7 & 4.a.10

Kansas Department of Health and Environment (KDHE). Hospital Discharge Statistics by Diagnosis (updated 08/31/2012). *Kansas Information for Communities*

<http://kic.kdhe.state.ks.us/kic/discharge.html>

Used for selected indicators: 4.a.3, 4.b.2 & 4.b.5

Used for non-selected indicators: 4.a.6, 4.a.9, 4.b.8 & 4.b.9

Kansas Department of Health and Environment (KDHE). Pediatric and Pregnancy Nutrition Surveillance. *Nutrition and WIC Services Section*

[http://www.kansaswic.org/kansas\\_WIC/pediatric\\_and\\_pregnancy\\_nutrition\\_surveillance.html](http://www.kansaswic.org/kansas_WIC/pediatric_and_pregnancy_nutrition_surveillance.html)

Pediatric Nutrition Surveillance used for selected indicator: 3.b.5

Pregnancy Nutrition Surveillance used for selected indicators: 3.a.3 & 3.b.4

Pregnancy Nutrition Surveillance used for non-selected indicator: 3.b.3

Kansas Department of Health and Environment (KDHE). Pregnancy Statistics Query (updated 08/31/2012). *Kansas Information for Communities* <http://kic.kdhe.state.ks.us/kic/preg.html>

Used for selected indicator: 1.a.7.

Used for non-selected indicators: 1.a.2 & 1.a.7

Missouri Department of Health and Senior Services (DHSS). Birth MICA (updated 05/02/2013). *Missouri Information for Community Assessment (MICA)*

<http://health.mo.gov/data/mica/BirthMICA/index.html>

Used for selected indicators: 1.a.11 & 3.b.1

Used for non-selected indicators: 1.a.3, 1.a.4, 1.a.5, 1.a.6, & 3.b.2

Missouri Department of Health and Senior Services (DHSS). Death MICA (updated 02/25/2013). *Missouri Information for Community Assessment (MICA)*

<http://health.mo.gov/data/mica/MICA/>

Used for selected indicators: 4.a.4, 4.b.3 & 4.b.6

Used for non-selected indicators: 4.a.7 & 4.a.10

Missouri Department of Health and Senior Services (DHSS). Hospital Discharge, Charges and Days of Care MICA (updated 04/30/2013). *Missouri Information for Community Assessment (MICA)*

[http://health.mo.gov/data/mica/D\\_C\\_DofCMICA/](http://health.mo.gov/data/mica/D_C_DofCMICA/)

Discharges used for selected indicators: 4.a.3, 4.b.2 & 4.b.5

Discharges used for non-selected indicators: 4.a.6, 4.a.9, 4.b.8 & 4.b.9

Missouri Department of Health and Senior Services (DHSS). Pregnancy MICA (updated 11/21/2012). *Missouri Information for Community Assessment (MICA)*

<http://health.mo.gov/data/mica/PregnancyMICA/>

Used for selected indicator: 1.a.7

Used for non-selected indicators: 1.a.2 & 1.a.7

Missouri Department of Health and Senior Services (DHSS). WIC (Women, Infants and Children) Child MICA (updated 05/03/2010). *Missouri Information for Community Assessment (MICA)* <http://health.mo.gov/data/mica/WICMICA/childindex.html>

Used for selected indicators: 3.b.5, 3.b.7 & 3.b.8

Missouri Department of Health and Senior Services (DHSS). WIC (Women, Infants and Children) Infant MICA (updated 05/06/2010). *Missouri Information for Community Assessment (MICA)* <http://health.mo.gov/data/mica/WICMICA/infantindex.html>

Used for selected indicator: 3.b.4

Used for non-selected indicator: 3.b.3

Missouri Department of Health and Senior Services (DHSS). WIC (Women, Infants and Children) Prenatal/Postpartum MICA (updated 03/22/2010). *Missouri Information for Community Assessment (MICA)* <http://health.mo.gov/data/mica/WICMICA/prenatalpostpartumindex.html>

Used for selected indicators: 3.a.3 & 3.a.4

United States (U.S.) Census Bureau. Receipt of food stamps/snap in the past 12 months by presence of children under 18 years by household type for households (table B22002). *2007-2011 American Community Survey*. <http://www.census.gov/acs/www/>

Used for selected indicator: 1.a.13



United States (U.S.) Census Bureau. Selected Economic Characteristics (table DP03). 2007-2011. *American Community Survey*. <http://www.census.gov/acs/www/>

Used for selected indicators: 1.a.9 & 1.b.1

United States Department of Agriculture (USDA) Economic Research Service. Food Access Research Atlas (data released February 2013). <http://www.ers.usda.gov/data-products/food-access-research-atlas.aspx>

Used for selected indicator: 2.1

## II. Additional Sources (Used only for Non-selected Indicators)

Kansas Department of Health and Environment (KDHE). Hospital Discharge Statistics by Procedure (updated 08/31/2012). *Kansas Information for Communities*

<http://kic.kdhe.state.ks.us/kic/procedure.html>

Used for non-selected indicator: 4.b.9.

Missouri Department of Health and Senior Services (DHSS). Emergency Room MICA (updated 04/30/2013). *Missouri Information for Community Assessment (MICA)*

<http://health.mo.gov/data/mica/EmergencyRoomMICA/>

Used for non-selected indicators: 4.a.5, 4.a.8, 4.a.11, 4.b.4 & 4.b.7

Missouri Department of Health and Senior Services (DHSS). Procedures MICA (updated 03/05/2013). *Missouri Information for Community Assessment (MICA)*

<http://health.mo.gov/data/mica/ProceduresMICA/>

Used for non-selected indicator: 4.b.9

Missouri Department of Health and Senior Services (DHSS). TANF (Temporary Assistance for Needy Families) MICA (updated 08/15/2013). *Missouri Information for Community Assessment (MICA)*

<http://health.mo.gov/data/mica/TANFMICA/>

Child TANF MICA used for non-selected indicator: 1.b.2

Missouri Department of Health and Senior Services. WIC (Women, Infants and Children) Prenatal MICA (updated 03/22/2010). *Missouri Information for Community Assessment (MICA)*

<http://health.mo.gov/data/mica/WICMICA/prenatalindex.html>

Used for non-selected indicator 1.a.12

United States (U.S.) Census Bureau. Selected Social Characteristics (table DP02). 2007-2011 *American Community Survey*

<http://www.census.gov/acs/www/>

Used for non-selected indicator: 1.a.8

Gibson, C., Bartolich, K., Staubach, S., Markenson, D. *Assessing School Wellness Policies and Identifying Priorities for Action in Greater Kansas City Area Schools*. (10/26/2012). School Wellness Policy Assessments. Available at:

[https://www.childrensmercy.org/About\\_Us/About\\_Childrens\\_Mercy/In\\_the\\_Community/Weighing\\_In/Resources/](https://www.childrensmercy.org/About_Us/About_Childrens_Mercy/In_the_Community/Weighing_In/Resources/)

Used for non-selected indicators: 2.2, 2.3, 2.4, 2.5 & 2.6

Missouri Department of Health and Senior Services (DHSS). *Missouri County-level Study (CLS)*  
<http://health.mo.gov/data/cls/index.php>

Used for non-selected indicators: 2.7, 2.8 & 2.11

### III. Example: Creating an Indicator from MICA and KIC

The following steps show how to obtain the data needed for the indicator “1.a.7. Educational attainment of pregnant women (less than high school, high school, some college, college graduate)”

#### A. Missouri (statewide and counties) Query

1. Go to the Pregnancy MICA (<http://health.mo.gov/data/mica/PregnancyMICA/>)
2. Click the “Pregnancies by County 1990-2010” link (final year will increase annually as MICA is updated with new data)
3. MICA Step One: For the row variable, choose “County/City\*”
4. MICA Step Two: For the column, variable choose “Years of Education”
5. MICA Step Three: Use the defaults to keep all ages, all races, all ethnicities, all years of education and all marital statuses
6. MICA Step Four: Make sure that the “Select year(s) of interest” section has the most recent year checked
7. MICA Step Five: In the drop-down box, select “State of Missouri” and the counties Cass, Clay, Jackson and Platte (Hold down the control button while clicking with the mouse to make multiple selections)
8. MICA Step Six: Choose “All Pregnancies” as the outcome variable
9. MICA Step Seven: Select “Frequencies and Percents by Row” as the output type
10. Click “Submit Query”
11. Right mouse click on the results and click “Select all” to highlight the entire output matrix
12. Copy and paste the matrix into an Excel file

## **B. Kansas (counties only) Query**

Note: *In the KIC system (as of mid-2013), county-level data has to be queried separately from the statewide data.*

1. Go to the Pregnancy KIC (<http://kic.kdhe.state.ks.us/kic/preg.html>)
2. Click the "table query" link
3. KIC Step One:
  - a. Select County as the row variable
  - b. Select Education as the column variable
4. KIC Step Two: Use the defaults to keep all ages, all education levels, all marital statuses and all races
5. KIC Step Three: Make sure that the year to use is the same as the year queried from MICA (as of mid-2013, KIC had one more year available than on MICA)
6. KIC Step Four: Select "By County" in the left-hand drop-down box and in the right-hand box select the counties Johnson and Wyandotte
7. KIC Step Five: Select "Frequencies and Percents By Row"
8. KIC Step Six: Select "All" for the pregnancy outcome
9. Click the "Submit Query" button
10. As with the MICA data above, select all the text in the output page, then copy and paste into the Excel file with the Missouri data

## **C. Kansas (statewide only) Query**

Note: *In the KIC system (as of mid-2013), county-level data has to be queried separately from the statewide data.*

Repeat the above steps 1 - 10, except modify step # 6 (KIC Step Four) by leaving the default values in the drop-down box ("By State" in the left-hand box and "State of Kansas" in the right-hand box)

**D. Building the Combined Table**

1. Within the Excel file with the Missouri and Kansas data, make a table with the following shell (coloring is for reference to indicate which query data to use):

	Less Than High School	High School Grad	Some College	College Grad or More
Johnson Co, KS				
Wyandotte Co, KS				
Kansas				
Cass Co, MO				
Clay Co, MO				
Jackson Co, MO				
Platte Co, MO				
Missouri				

2. For the Missouri counties (colored green in the above table), select the data from the first query in the “Percent of Total Row” columns for the four county rows.  
 Note: The MICA system lists the education levels as the number of year ranges (e.g., “01-11” rather than as “Less than High School”).
3. For Missouri statewide (colored purple in the above table), select the data from the first query in the “Percent of Total Row” columns for the “Missouri” row.  
 Note: There is a “Total for Selection” row which only contains data for the four counties combined separating the county rows from the statewide row.
4. For the Kansas counties (colored blue in the above table), select the data from the second query in the “Percent of total” columns for the two Kansas counties.
5. For Kansas statewide (colored orange in the above table), select the data from the third query in the “Percent of total” columns for the only row in the table “State of Kansas”.

## Appendix F:

# **ANALYTICAL PLAN FOR DESCRIPTION OF DETERMINANTS OF CHILDHOOD OBESITY IN SIX COUNTIES OF INTEREST IN METROPOLITAN KANSAS CITY (MISSOURI and KANSAS)**

## **Overview of Analytic Plan**

We will generate descriptive statistics for socioeconomic status (SES), health-related behaviors and environmental and policy factors known to be associated with childhood obesity for the most recent years data are available (e.g., 2009-2012). A detailed description of the indicators used for this analysis and their sources can be found in Appendix G.

Data sources consist of census, hospital discharge, birth and death records, welfare and policy databases and population-based surveys that include the Kansas City metropolitan area and the states of Missouri and Kansas. Counties of special interest are Johnson and Wyandotte counties in Kansas and Cass, Clay, Jackson and Platte counties in Missouri.

We will analyze and present descriptive statistics on sex, age, race, health-related behaviors and environmental-policy factors by their magnitude and trends and by location (*i.e.*, each of the six counties of interest in metropolitan Kansas City (MO and KS) and comparable population of metropolitan Kansas City). Indicators will be comprised of measures of the SES, health-related behaviors and environmental-policy factors for a given year or period of years. Trends of the indicators will be calculated if data for these measures is available for a period of time from which a reliable estimate of trend is possible. For a select number of indicators, we will generate bivariate analysis by SES of parents or household, whichever is available. Indicators about children will be calculated for the following age groups when possible: <1, 1-4, 5-9, 10-

12, and 13-17; depending on data availability and stability issues, some modifications and aggregations of these groups may be necessary.

For indicators, we will generate estimates of prevalence and average indicator value for meaningful geographical areas, SES factors or related health behavior. We will evaluate statistical significance of cross tabulations of selected health-related behaviors with each other and SES factors.

For the indicators collected over many years, we will generate trend analysis of prevalence estimates or average of the indicator for the period of time available and meaningful geographical area, SES factors or related health behavior. When appropriate, we will perform regression modeling of estimators on time using linear regression or time-series regression. We will evaluate the statistical significance of trends.

Whenever possible, we will generate descriptive measures in geographical maps to facilitate assimilation of findings and future discussion. We will use SAS<sup>®</sup> software to implement all statistical analysis.

More specifically, we will generate the following measures of magnitude for each of the six counties of interest when possible<sup>1</sup> and the comparative areas of metropolitan Kansas City. Depending on data availability for a reasonable number of years, we will generate trend analysis for selected indicators.

## **1. Socioeconomic Status and Demographic Factors**

### **1.a. Mothers:**

- 1.a.1) Prevalence of mothers without health care coverage
- 1.a.2) Percent of pregnant women who are unmarried
- 1.a.3) Percent of pregnant women who smoked during pregnancy
- 1.a.4) Percent of pregnant women who are on the Special Supplemental Nutrition Program for Women, Infants and Children (WIC)

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<sup>1</sup> Not all six of the counties (KS: Johnson & Wyandotte; MO: Cass, Clay, Jackson & Platte) are available for each of the data systems.

- 1.a.5) Percent of pregnant women who are on Medicaid
- 1.a.6) Percent of pregnant women who are on Food Stamps
- 1.a.7) Educational attainment of pregnant women (less than HS, HS, some college, college grad)
- 1.a.8) Percent of households with a female householder, no husband present and the householder's own minor children among all households
- 1.a.9) Percent of households in poverty among those that have a female householder, no husband present and the householder's own minor children
- 1.a.10) Percent of mothers by race/ethnicity
- 1.a.11) Demographics of pregnant women
- 1.a.12) Percent of Pregnant women WIC who get Supplementary Nutritional Assistance Program (SNAP)
- 1.a.13) Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years
- 1.a.14) Percent of parents who are unmarried

**1.b. Children:**

- 1.b.1) Prevalence of children in poverty by age
- 1.b.2) Prevalence of children enrolled in Temporary Assistance for Needy Families (TANF)

**2. Environmental Factors**

- 2.1) Percent of population with a low accessibility to food among the child, low-income and total populations
- 2.2) Prevalence of schools/school districts with written wellness policies on moderate and vigorous physical activity during PE
- 2.3) School districts' WellSAT scores for regulating food sold for fundraising at all times (not only during the school day)
- 2.4) School districts' WellSAT scores for providing nutrition curriculum for each grade level

- 2.5) School districts' WellSAT scores for encouraging staff to be role models for healthy behaviors
- 2.6) School districts' WellSAT scores for specifying how district will engage families to provide information and/or solicit input to meet district wellness goals
- 2.7) Prevalence of adults in neighborhoods with sidewalks (perception from survey-based questions)
- 2.8) Prevalence of adults in neighborhoods with roads/streets with shoulders or marked lanes for bicycling (perception from survey-based questions)
- 2.9) Prevalence of children living with a parent who is overweight/obese
- 2.10) Prevalence of children living with a parent who is inactive during leisure-time
- 2.11) Prevalence of adults who strongly agree or agree that it is easy to purchase healthy foods in their neighborhood (perception from survey-based questions)
- 2.12) Percent of parents who describe their child as "very overweight"

### **3. Overweight/Obesity and Related Factors**

#### **3.a. Adults ages 18 and older and Mothers:**

- 3.a.1) Prevalence of overweight/obesity among adults 18 and older
- 3.a.2) Prevalence of obesity among adults
- 3.a.3) Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy
- 3.a.4) Prevalence of low-income postpartum women who were obese prior to pregnancy
- 3.a.5) Prevalence of no health care coverage among pregnant women
- 3.a.6) Prevalence of no health care coverage among adults
- 3.a.7) Prevalence of adults with no leisure time exercise or physical activity in the past 30 days

#### **3.b. Children:**

- 3.b.1) Prevalence of neonates with high birth weight (> 4,499g)



- 3.b.2) Prevalence of neonates with low/very low birth weight (< 2,500g)
- 3.b.3) Prevalence of low-income neonates with low/very low birth weight (< 2,500g)
- 3.b.4) Prevalence of low-income neonates with high birth weight (> 4,499g)
- 3.b.5) Prevalence of low-income children (age 2-4) with a Body Mass Index (BMI)-for-age indicating overweight/obesity
- 3.b.6) Prevalence of children by age whose parent(s) was/were told by a health professional or someone in the child's school that their child is overweight
- 3.b.7) Prevalence of low-income children with weight for height and gender (BMI)  $\geq$  95th percentile)
- 3.b.8) Prevalence of low-income children with weight for height and gender (BMI) between the 85th and 95th percentiles
- 3.b.9) Prevalence of children aged 5-17 with a BMI  $\geq$  95th percentile
- 3.b.10) Prevalence of children aged 5-17 with a BMI between the 85th and 95th percentiles
- 3.b.11) Prevalence of children aged 5-17 with a BMI  $\geq$  85th percentile
- 3.b.12) Prevalence of children who were physically activity one hour/day in past week (age 2-17)

#### **4. Overweight/Obesity-related Disease or Health Condition**

##### **4.b. Adults ages 18 and older and Mothers:**

- 4.a.1) Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes
- 4.a.2) Prevalence of adults 18 and older who were told by a health professional that they have diabetes
- 4.a.3) Rate of hospitalization due to diabetes
- 4.a.4) Rate of deaths attributed to diabetes
- 4.a.5) Rate of emergency room visits due to diabetes
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- 4.a.7) Rate of deaths attributed to heart disease
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- 4.a.9) Rate of hospitalization due to essential hypertension
- 4.a.10) Rate of deaths attributed to essential hypertension
- 4.a.11) Rate of emergency room visits due to essential hypertension

**4.b. Children:**

- 4.b.1) Prevalence of children by age (0-17, 5+) whose parent(s) was/were told by a health professional that their child has type 2 diabetes
- 4.b.2) Rate of hospitalization due to diabetes among children
- 4.b.3) Rate of deaths attributed to diabetes among children
- 4.b.4) Rate of emergency room visits due to diabetes among children by age
- 4.b.5) Rate of hospitalization due to essential hypertension among children
- 4.b.6) Rate of deaths attributed to essential hypertension among children
- 4.b.7) Rate of emergency room visits due to essential hypertension among children
- 4.b.8) Rate of hospitalization due to "Other bone disease and musculoskeletal deformities," including Blount's disease
- 4.b.9) Rate of hospitalizations due to "Other diagnostic procedures (interview; evaluation; consultation)," including sleep study procedures and "Residual codes; unclassified" (including sleep apnea)

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## Rationale for Identifying Technical Characteristics of Childhood Obesity Indicators

The ideal surveillance indicator measure in public health should identify who gets a health outcome, and where and when that health outcome occurs. It should also indicate the rate of change and whether related disparities are changing as a function of preventive public health activities. For this reason, a health indicator should be sensitive to changes in host, agent, vectors and environments causally related to the health outcome(s). Finally, an indicator measure should be feasible to estimate and at relatively low cost to justify investments in developing and maintaining health surveillance efforts. For these reasons, consultants sought to identify the following minimum characteristics for each proposed indicator measure:

- Measure available by county
- Measure available is a cross tabulation between a county and one of many socioeconomic factor(s)
- Yearly trend of measure available (by year)
- Queries of measure and minimum number of queries required for estimation available
- Recalculation of data needed for estimation

## INDICATORS LIST

INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
<b>1. Socioeconomic Status S(SES) and Demographic Factors</b>									
<b>1.a. Mothers</b>									
1	<p>1.a.1. Prevalence of mothers without health care coverage</p> <p><u>Numerator:</u> Number of selected mothers under 65 who answered "Do not have health care coverage" to "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?"</p> <p><u>Denominator:</u> Females who answered "Parent (include biologic, step, or adoptive parent)" to "How are you related to the child?" (Asked about a randomly selected child in the household. Not asked if the variable "CHILDREN" is 0*, 88 [None], 99 [Refused], or BLANK [Not asked or missing] or if the variable "CHILDAGE" &gt; 215 months), non-institutionalized adults 18 and older but under 65</p>	✓ <sup>1</sup>	✓	✓ <sup>1</sup>	N/A <sup>2</sup>	N/A <sup>2</sup>	✓		BRFSS/SMART record-level data
2	<p>1.a.2. Percent of pregnant women who are unmarried</p> <p><u>Numerator:</u> Number of live births, fetal deaths, and induced abortions among women who are unmarried</p> <p><u>Denominator:</u> Number of live births, fetal deaths, and induced abortions</p>	✓	✓ <sup>3</sup>	<p>✓</p> <p>(MO: 1990–2010, KS: 1993–2011)</p>	<p>✓</p> <p>(MO county level)</p>	<p>✓<sup>4, 5</sup></p>	<p>✓</p> <p>(crosstabs &amp; trends)</p>	<p>✓</p> <p>(county level)</p>	Pregnancy MICA/ Pregnancy KIC

<sup>1</sup> Jackson and Johnson counties: available for 2002–2010, Wyandotte County: available for 2004–2010

<sup>2</sup> Queries not available on the Internet

<sup>3</sup> MO: available by race (W/B), Hispanic ethnicity, and education, KS: available by race (W/B/O) and education

<sup>4</sup> Multiple queries needed for KS county-level data and crosstabs and trends for both states

<sup>5</sup> State and county-level data separate on KIC.



The Children's Mercy Hospital Obesity Prevention Project  
**APPENDIX G: TECHNICAL CHARACTERISTICS OF THE INDICATORS**

INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
3	1.a.3. Percent of pregnant women who smoked during pregnancy  <u>Numerator:</u> Number of live births to women who smoked during pregnancy  <u>Denominator:</u> Number of live births	✓	✓ <sup>6</sup>	✓  (MO: 1990–2010, KS: 1990–2011)	✓  (MO county level)	✓  (KS) <sup>7</sup>		✓	Birth MICA/Birth KIC
4	1.a.4. Percent of pregnant women who are on The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)  <u>Numerator:</u> Number of live births to women whose prenatal service utilization included WIC  <u>Denominator:</u> Number of live births	✓  (MO only)	✓ <sup>8</sup>	✓  (MO only: 1990–2010)	✓  (MO only)			✓	Birth MICA
5	1.a.5. Percent of pregnant women who are on Medicaid  <u>Numerator:</u> Number of live births to women whose prenatal service utilization included Medicaid  <u>Denominator:</u> Number of live births	✓  (MO only)	✓ <sup>9</sup>	✓  (MO only: 1990–2010)	✓  (MO only)			✓	Birth MICA
6	1.a.6. Percent of pregnant women who are on Food Stamps  <u>Numerator:</u> Number of live births to women whose prenatal service utilization included Food Stamps (SNAP)  <u>Denominator:</u> Number of live births	✓  (MO only)	✓ <sup>8</sup>	✓  (MO only: 1990–2010)	✓  (MO only)			✓	Birth MICA

<sup>6</sup> MO: available by race (W/B), Hispanic ethnicity, education, marital status, and Medicaid status. KS: available by race and marital status

<sup>7</sup> State and county-level data separate on KIC, multiple queries needed for crosstabs and trends for both states

<sup>8</sup> MO only: available by Hispanic ethnicity, education, marital status, Medicaid status

<sup>9</sup> MO only: available by Hispanic ethnicity, education, marital status

The Children's Mercy Hospital Obesity Prevention Project  
**APPNEDIX G: TECHNICAL CHARACTERISTICS OF THE INDICATORS**

INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
7	<p>1.a.7. Educational attainment of pregnant women (less than HS, HS, some college, college grad)</p> <p><u>Numerator:</u> Number of live births, fetal deaths, and induced abortions among women who are at each educational level</p> <p><u>Denominator:</u> Number of live births, fetal deaths, and induced abortions</p>	✓	✓ <sup>10</sup>	<p>✓</p> <p>(MO: 1990–2010, KS: 1993–2011)</p>	✓ (MO)	✓ (KS) <sup>11</sup>		✓	Pregnancy MICA/ Pregnancy KIC
8	<p>1.a.8. Percent of households with a female householder, no husband present, and the householder's own minor children among all households</p> <p><u>Numerator:</u> Number of households that with a female householder, no husband present, and the householder's own minor children</p> <p><u>Denominator:</u> Number of households</p>	✓ <sup>12</sup>	✗	<p>✓</p> <p>(2007–2011)<sup>13</sup></p>	Pre-calculated			✓	ACS Social Characteristics
9	<p>1.a.9. Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children</p> <p><u>Numerator:</u> Number of households that have a female householder with no husband present and her own children are under 18 years old that are in poverty</p> <p><u>Denominator:</u> Number of households that have a female householder with no husband present and her own children under 18 years</p>	✓ <sup>12</sup>	✗	<p>✓</p> <p>(2007–2011)<sup>13</sup></p>	Pre-calculated			✓	ACS Economic Characteristics

<sup>10</sup> MO: available by race (W/B), Hispanic ethnicity, marital status, and Medicaid status. KS: available by race (W/B/O) and marital status

<sup>11</sup> State and county-level data separate on KIC.

<sup>12</sup> Census tract-level data available

<sup>13</sup> Annual data at the county level, but only 5-year aggregated data available at the Census tract level

The Children's Mercy Hospital Obesity Prevention Project  
**APPNEDIX G: TECHNICAL CHARACTERISTICS OF THE INDICATORS**

INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
10	<p>1.a.10. Percent of mothers by race/ethnicity</p> <p><u>Numerator:</u> Number of selected parents for each race/ethnicity</p> <p><u>Denominator:</u> People who answered "Parent (include biologic, step, or adoptive parent)" to "How are you related to the child?" (Asked about a randomly selected child in the household. Not asked if the variable "CHILDREN" is 0*, 88 [None], 99 [Refused], or BLANK [Not asked or missing] or if the variable "CHILDAGE" &gt; 215 months), non-institutionalized adults 18 and older</p>	✓ <sup>14</sup>	✓	✓ <sup>14</sup>	N/A <sup>15</sup>	N/A <sup>15</sup>	✓		BRFSS/ SMART record-level data
11	<p>1.a.11. Demographics of pregnant women</p> <p><u>Numerator:</u> Number of live births to women for each race/ethnic group</p> <p><u>Denominator:</u> Number of live births</p>	✓	✓ <sup>16</sup>	✓ (MO: 1990–2010, KS: 1990–2011 <sup>17</sup> )	✓ (MO)	✓ (KS) <sup>18</sup>		✓	Birth MICA / Birth KIC

<sup>14</sup> Jackson and Johnson counties: available for 2002–2010, Wyandotte County: available for 2004–2010

<sup>15</sup> Queries not available on the Internet

<sup>16</sup> MO: available by, education, marital status, Medicaid status. KS : available by marital status

<sup>17</sup> Birth KIC race data prior to 2005 is not comparable to 2005+ data

<sup>18</sup> State and county-level data separate on KIC.

The Children's Mercy Hospital Obesity Prevention Project  
**APPNEDIX G: TECHNICAL CHARACTERISTICS OF THE INDICATORS**

INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
12	<p>1.a.12. Percent of pregnant women in WIC who get Supplementary Nutrition Assistance Program (SNAP)</p> <p><u>Numerator</u>: Number of women whose estimated date of delivery are in the given year, received services through the prenatal WIC program, and received SNAP</p> <p><u>Denominator</u>: Number of women whose estimated date of delivery are in the given year and received services through the Prenatal WIC program.</p>	✓ (MO only)	✓ <sup>19</sup>	✓ (MO only 2000–2008)	✓			✓	Prenatal WIC MICA
13	<p>1.a.13. Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years</p> <p><u>Numerator</u>: Number of selected households that received Food Stamps/SNAP in the past 12 months</p> <p><u>Denominator</u>: Number of households that have a female householder with no husband present and children under 18 years</p>	✓ <sup>20</sup>	✗	✓ (2007–2011) <sup>21</sup>	Pre-calculated		✓ <sup>22</sup>		ACS Food Stamps/SNAP by Household Type

<sup>19</sup> MO only: available by age, race (W/B), Hispanic ethnicity, education, marital status

<sup>20</sup> Census tract-level data available

<sup>21</sup> Annual data at the county level, but only 5-year aggregated data available at the Census tract level

<sup>22</sup> Denominator and percentage must be calculated: ACS data contains the number of selected households on SNAP and the number not on SNAP

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					One	Multiple	Yes	No	
14	1.a.14. Percent of parents who are unmarried	✓ <sup>23</sup>	✓	✓ <sup>23</sup>	N/A <sup>24</sup>	N/A <sup>24</sup>	✓		BRFSS/SMART record-level data
	<p><u>Numerator</u>: Number of selected parents who gave their marital status as: "Divorced", "Separated", "Never Married", or "A member of an unmarried couple"</p> <p><u>Denominator</u>: People who answered "Parent (include biologic, step, or adoptive parent)" to "How are you related to the child?" (Asked about a randomly selected child in the household. Not asked if the variable "CHILDREN" is 0*, 88 [None], 99 [Refused], or BLANK [Not asked or missing] or if the variable "CHILDAGE" &gt; 215 months), non-institutionalized adults 18 and older</p>								
<b>1.b. Children</b>									
15	1.b.1. Prevalence of children in poverty by age	✓ <sup>25</sup>	✗ <sup>26</sup>	✓ (2007–2011) <sup>27</sup>	Pre-calculated			✓	ACS Economic Characteristics
	<p><u>Numerator</u>: Number of children in a household that is in poverty</p> <p><u>Denominator</u>: Number of children for which poverty status can be established</p>								

<sup>23</sup> Jackson and Johnson counties: available for 2002–2010, Wyandotte County: available for 2004–2010

<sup>24</sup> Queries not available on the Internet

<sup>25</sup> Census tract-level data available

<sup>26</sup> Age in two groups: <5 and 5-17

<sup>27</sup> Annual data at the county level, but only 5-year aggregated data available at the Census tract level

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					One	Multiple	Yes	No	
16	<p>1.b.2. Prevalence of children enrolled in Temporary Assistance for Needy Families (TANF)</p> <p><u>Numerator</u>: Number of children enrolled in TANF</p> <p><u>Denominator</u>: Number of children age 0-17</p>	✓ (MO only)	✓ (MO only) <sup>28</sup>	✓ (MO only, 1998–2013)		✓ <sup>29</sup>	✓ (Prevalence)		Child TANF MICA <sup>30</sup>
<b>2. Environmental Factors</b>									
17	<p>2.1. Percent of population with a low accessibility to food among the child, low-income, and total populations</p> <p><u>Numerator</u>: Number of individuals living more than 1 mile from the nearest supermarket, supercenter, or large grocery store</p> <p><u>Denominator</u>: Number of people</p> <p><u>Numerator</u>: Number of low-income individuals living more than 1 mile from the nearest supermarket, supercenter, or large grocery store. Low-income is defined as annual family income at or below 200 percent of the Federal poverty threshold for family size (based on 2006–2010 block-level ACS data)</p> <p><u>Denominator</u>: Number of people</p> <p><u>Numerator</u>: Number of children living at least 1 mile from the nearest supermarket, supercenter, or large grocery store</p> <p><u>Denominator</u>: Number of children age 0-17</p>	✓ <sup>31</sup>	✗	✗	Pre-calculated at Census tract level, must be aggregated for county		✓ (County level)	✓ (Census tract level)	USDA (Data released in 2006 & 2010; 2010 release used)

<sup>28</sup> Available by race (W/B/O) and age (<1, 1-4, 5-9, 10-14, 15+)

<sup>29</sup> Population not on TANF MICA and query is monthly only.

<sup>30</sup> Population from SEER (NCHS's single race bridged modification of the Census Population Estimates Program)

<sup>31</sup> Census tract-level data available

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					One	Multiple	Yes	No	
18	<p>2.2. Percent of school personnel stating that their school has policies on moderate and vigorous physical activity during PE</p> <p><u>Numerator:</u> Respondents who answered “Yes” to “In our school(s), we have policies to: Address moderate to vigorous physical activity at least half of the total time during PE class”</p> <p><u>Denominator:</u> Responding school administrators and personnel</p>	<p>✗</p> <p>(only at combined 7-county area<sup>32</sup>)</p>	✗	✗	Pre-calculated			✓	School Wellness Report (One time Study)
19	<p>2.3. School districts’ WellSAT scores for regulating food sold for fundraising at all times (not only during the school day)</p> <p><u>Numerator:</u> Number of school districts with written school wellness policies given a WellSAT score of 0 (Not mentioned) to “regulates food sold for fundraising at all times (not only during the school day)”</p> <p><u>Denominator:</u> Number of school districts</p>	✗ <sup>33</sup>	✗	✗	Pre-calculated			✓	School Wellness Report (One time Study)
20	<p>2.4. School districts’ WellSAT scores for providing nutrition curriculum for each grade level</p> <p><u>Numerator:</u> Number of school districts with written school wellness policies given a WellSAT score of 0 (Not mentioned) to “provides nutrition curriculum for each grade level”</p> <p><u>Denominator:</u> Number of school districts</p>	✗ <sup>33</sup>	✗	✗	Pre-calculated			✓	School Wellness Report (One time Study)

<sup>32</sup> Lafayette County, MO is also included

<sup>33</sup> Seven-county area (six KC Metro counties of interest plus Lafayette County, MO) can only be subdivided by Missouri vs. Kansas counties

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					One	Multiple	Yes	No	
21	<p>2.5. School districts' WellSAT scores for encouraging staff to be role models for healthy behaviors</p> <p><u>Numerator:</u> Number of school districts with written school wellness policies given a WellSAT score of 0 (Not mentioned) to "encourages staff to be role models for healthy behaviors"</p> <p><u>Denominator:</u> Number of school districts</p>	x <sup>34</sup>	x	x	Pre-calculated			✓	School Wellness Report (One time Study)
22	<p>2.6. School districts' WellSAT scores for specifying how district will engage families to provide information and/or solicit input to meet district wellness goals</p> <p><u>Numerator:</u> Number of school districts with written school wellness policies given a WellSAT score of 0 (Not mentioned) to "specifies how district will engage families to provide information and/or solicit input to meet district wellness goals"</p> <p><u>Denominator:</u> Number of school districts</p>	x <sup>34</sup>	x	x	Pre-calculated			✓	School Wellness Report (One time Study)
23	<p>2.7. Prevalence of adults in neighborhoods with sidewalks (perception from survey-based questions)</p> <p><u>Numerator:</u> Number of people who answered "Yes" to "Does your neighborhood have any sidewalks?"</p> <p><u>Denominator:</u> Number of non-institutionalized Missouri adults 18 and older</p>	✓ (MO only)	x <sup>35</sup>	x	✓ (for MO)			✓	Missouri County-level Study <sup>36</sup>

<sup>34</sup> Seven-county area (six KC Metro counties of interest plus Lafayette County, MO) can only be subdivided by Missouri vs. Kansas counties

<sup>35</sup> Only available for Jackson County (race/ethnicity) and KC Metro (race/ethnicity, education, healthcare coverage)

<sup>36</sup> Study conducted in 2002–2003, 2007, and 2011



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					One	Multiple	Yes	No	
24	<p>2.8. Prevalence of adults in neighborhoods with roads/streets with shoulders or marked lanes for bicycling (perception from survey-based questions)</p> <p><u>Numerator</u>: Number of people who answered "Yes" to "Do roads and streets in your community have shoulders or marked lanes for bicycling?"</p> <p><u>Denominator</u>: Number of non-institutionalized Missouri adults 18 and older</p>	✓ (MO only)	✗ <sup>37</sup>	✗	✓ (for MO)			✓	Missouri County-level Study <sup>38</sup>
25	<p>2.9. Prevalence of children living with a parent who is overweight/obese</p> <p><u>Numerator</u>: Selected parents with a BMI of at least 25</p> <p><u>Denominator</u>: People who answered "Parent (include biologic, step, or adoptive parent)" to "How are you related to the child?" (Asked about a randomly selected child in the household. Not asked if the variable "CHILDREN" is 0*, 88 [None], 99 [Refused], or BLANK [Not asked or missing] or if the variable "CHILDAGE" &gt; 215 months), non-institutionalized adults 18 and older</p>	✓ <sup>39</sup>	✓	✓ <sup>39</sup>	N/A <sup>40</sup>	N/A <sup>40</sup>	✓		BRFSS/ SMART record-level data

<sup>37</sup> Only available for Jackson County (race/ethnicity) and KC Metro (race/ethnicity, education, healthcare coverage)

<sup>38</sup> Study conducted in 2002–2003, 2007, and 2011

<sup>39</sup> Jackson and Johnson counties: available for 2002–2010, Wyandotte County: available for 2004–2010)

<sup>40</sup> Queries not available on the Internet

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					One	Multiple	Yes	No	
26	<p>2.10. Prevalence of children living with a parent who is inactive during leisure-time</p> <p><u>Numerator:</u> Selected parents who answered "No" to "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"</p> <p><u>Denominator:</u> People who answered "Parent (include biologic, step, or adoptive parent)" to "How are you related to the child?" (Asked about a randomly selected child in the household. Not asked if the variable "CHILDREN" is 0*, 88 [None], 99 [Refused], or BLANK [Not asked or missing] or if the variable "CHILDAGE" &gt; 215 months), non-institutionalized adults 18 and older</p>	✓ <sup>41</sup>	✓	✓ <sup>41</sup>	N/A <sup>42</sup>	N/A <sup>42</sup>	✓		BRFSS/SMART record-level data
27	<p>2.11. Prevalence of adults who strongly agree or agree that it is easy to purchase healthy foods in their neighborhood (perception from survey-based questions)</p> <p><u>Numerator:</u> Number of people who answered "strongly agree" or "agree" to "To what degree would you agree with the statement, It is easy to purchase healthy foods in my neighborhood such as whole grain foods, low fat options, and fruits and vegetables."</p> <p><u>Denominator:</u> Number of non-institutionalized Missouri adults 18 and older</p>	✓ (MO only)	✗ <sup>43</sup>	✗	✓ (for MO)			✓	Missouri County-level Study <sup>44</sup>

<sup>41</sup> Jackson and Johnson counties: available for 2002–2010, Wyandotte County: available for 2004–2010

<sup>42</sup> Queries not available on the Internet

<sup>43</sup> Only available for Jackson County (race/ethnicity) and KC Metro (race/ethnicity, education, healthcare coverage)

<sup>44</sup> Study conducted in 2002–2003, 2007, and 2011

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					One	Multiple	Yes	No	
28	2.12. Percent of parents who describe their child as "very overweight"  <u>Numerator:</u> Parents who described the randomly selected child as "very overweight"  <u>Denominator:</u> Parents of children 5-17	✓ <sup>45</sup>	✓ <sup>46</sup>	✗					CHNA (through CMH, public summary available)
<b>3. Overweight/Obesity and Related Factors</b>									
<b>3.a. Adults ages 18 and older and mothers</b>									
29	3.a.1. Prevalence of overweight/obesity among adults 18 and older  <u>Numerator:</u> Number of people with a BMI of at least 25  <u>Denominator:</u> Number of non-institutionalized adults 18 and older for which BMI can be calculated	✓ <sup>47</sup>	✓	✓ <sup>47</sup>	N/A <sup>48</sup>	N/A <sup>48</sup>	✓		BRFSS/ SMART record-level data
30	3.a.2. Prevalence of obesity among adults  <u>Numerator:</u> Number of people with a BMI of at least 30  <u>Denominator:</u> Number of non-institutionalized adults 18 and older for which BMI can be calculated	✓ <sup>47</sup>	✓	✓ <sup>47</sup>	Pre-calculated /N/A <sup>48</sup>	N/A <sup>48</sup>	✓ (cross tabs)	✓ (trend s)	BRFSS/ SMART (summaries <sup>49</sup> & record-level data <sup>50</sup> )

<sup>45</sup> Available in Community Health Needs Assessment data (conducted by Children's Mercy Hospital System) for Clay, Jackson, Johnson, and Wyandotte counties

<sup>46</sup> Public summary available with perceived against actual obesity, but without county

<sup>47</sup> Jackson and Johnson counties: available for 2002–2010, Wyandotte County: available for 2004–2010

<sup>48</sup> Queries not available on the Internet

<sup>49</sup> For trends

<sup>50</sup> For cross-tables

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					One	Multiple	Yes	No	
31	<p>3.a.3. Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy</p> <p><u>Numerator (MO):</u> Number of live births to Missouri women who received services through the WIC Postpartum program, were enrolled in the WIC Prenatal program during pregnancy, and were overweight/obese prior to pregnancy</p> <p><u>Denominator (MO):</u> Number of live births to Missouri women who received services through the WIC Postpartum program and where enrolled in the WIC Prenatal program during pregnancy</p> <p><u>Numerator (KS):</u> Number of live births to Kansas women who received KS WIC services and were overweight/obese prior to pregnancy</p> <p><u>Denominator (KS):</u> Number of live births to Kansas women who received KS WIC services during pregnancy</p>	✓	✓ <sup>51</sup>	<p>✓</p> <p>(MO: 2000–2008, KS: 2008–2011)</p>	✓			✓	Prenatal/ Postpartum WIC MICA / PNSS for KS
32	<p>3.a.4. Prevalence of low-income postpartum women who were obese prior to pregnancy</p> <p><u>Numerator:</u> Number of live births to women who received services through the WIC Postpartum program, were enrolled in the WIC Prenatal program during pregnancy, and were obese prior to pregnancy</p> <p><u>Denominator:</u> Number of live births to women who received services through the WIC Postpartum program and were enrolled in the WIC Prenatal program during pregnancy</p>	<p>✓</p> <p>(MO only)</p>	<p>✓</p> <p>(MO only)<sup>51</sup></p>	<p>✓</p> <p>(MO only: 2000–2008)</p>	✓			✓	Prenatal/ Postpartum WIC MICA

<sup>51</sup> Available by age, race (W/B), Hispanic ethnicity, education, marital status

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					One	Multiple	Yes	No	
33	<p>3.a.5. Prevalence of no health care coverage among pregnant women</p> <p><u>Numerator:</u> Number of selected pregnant women under 65 who answered "Do not have health care coverage" to "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?"</p> <p><u>Denominator:</u> Women who answered "Yes" to "To your knowledge, are you now pregnant?" (Not asked if male or age greater than 44), non-institutionalized adults 18 and older but under 65</p>	✓ <sup>52</sup>	✓	✓ <sup>52</sup>	N/A <sup>53</sup>	N/A <sup>53</sup>	✓		BRFSS/ SMART record-level data
34	<p>3.a.6. Prevalence of no health care coverage among adults</p> <p><u>Numerator:</u> Number of people under 65 who answered "No" to "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?"</p> <p><u>Denominator:</u> Number of non-institutionalized adults 18 and older but under 65</p>	✓ <sup>52</sup>	✓	✓ <sup>52</sup>	N/A <sup>53</sup>	N/A <sup>53</sup>	✓		BRFSS/ SMART record-level data
35	<p>3.a.7. Prevalence of adults with no leisure time exercise or physical activity in the past 30 days</p> <p><u>Numerator:</u> Number of people who answered "No" to "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"</p> <p><u>Denominator:</u> Number of non-institutionalized adults 18 and older</p>	✓ <sup>52</sup>	✓	✓ <sup>52</sup>	Pre-calculated /N/A <sup>53</sup>	N/A <sup>53</sup>	✓ (cross tabs)	✓ (trend s)	BRFSS/ SMART (summaries for trends, record-level data for crosstabs)

<sup>52</sup> Jackson and Johnson counties: available for 2002–2010, Wyandotte County: available for 2004–2010

<sup>53</sup> Queries not available on the Internet

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					One	Multiple	Yes	No	
<b>3.b. Children</b>									
36	3.b.1. Prevalence of neonates with high birth weight (> 4,499g)  <u>Numerator:</u> Number of live births with high birth weight (> 4,499g) <u>Denominator:</u> Number of live births	✓	✓ <sup>54</sup>	✓ (MO: 1990–2010, KS: 1990–2011)	✓ (MO)	✓ <sup>55</sup>	✓ (KS) <sup>56</sup>	✓ (MO)	Birth MICA / Birth KIC
37	3.b.2. Prevalence of neonates with low/very low birth weight (< 2,500g)  <u>Numerator:</u> Number of live births with low/very low birth weight (<2,500g) <u>Denominator:</u> Number of live births	✓	✓ <sup>54</sup>	✓ (MO: 1990–2010, KS: 1990–2011)	✓ (MO)	✓ (KS) <sup>57</sup>		✓	Birth MICA / Birth KIC
38	3.b.3. Prevalence of low-income neonates with low/very low birth weight (< 2,500g)  <u>Numerator:</u> Infants (birth up to 1) who received services through the MO WIC Infant or KS WIC program and had a low birth weight (<2,500g) <u>Denominator:</u> Infants (birth up to 1) who received services through the WIC program	✓	✓ <sup>58</sup>	✓ (MO: 2000–2008, KS: 2008–2011)	✓ (for MO) Pre-calculated for KS			✓	PNSS for KS / Infant WIC MICA

<sup>54</sup> MO: available by race (W/B), Hispanic ethnicity, education, marital status, and Medicaid status. KS : available by race (W/B/O), Hispanic ethnicity, and marital status

<sup>55</sup> State and county-level data separate on KIC. KIC requires separate queries for the counts for all, normal and low birth weights

<sup>56</sup> KS data does not have high birth weight: numerator must be calculated from the number of normal and low birth weights

<sup>57</sup> State and county-level data separate on KIC.

<sup>58</sup> MO only: available by race (W/B), Hispanic ethnicity, and mother's education

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					One	Multiple	Yes	No	
39	<p>3.b.4. Prevalence of low-income neonates with high birth weight</p> <p><u>Numerator:</u> Infants (birth up to 1) who received services through the MO WIC Infant or KS WIC program and had a high birth weight(≥4,000 grams)</p> <p><u>Denominator:</u> Infants (birth up to 1) who received services through the WIC program</p>	✓	✓ <sup>59</sup>	✓ (MO: 2000–2008, KS: 2008–2011)	✓ (for MO) Pre-calculated for KS		✓ No	PNSS for KS / Infant WIC MICA	
40	<p>3.b.5. Prevalence of low-income children (age 2–4) with a Body Mass Index (BMI)-for-age indicating overweight/obesity</p> <p><u>Numerator:</u> Children age 2–4 who received services through the MO WIC Child or KS WIC program and had a BMI-for-age over the 85<sup>th</sup> percentile</p> <p><u>Denominator:</u> Children age 2–4 who received services through the WIC Child program</p>	✓	✓ <sup>59</sup>	✓ (MO: 2000–2008, KS: 2008–2011)	Pre-calculated for KS	✓ <sup>60</sup>	✓ <sup>61</sup>	PedNSS for KS / Child WIC MICA	
41	<p>3.b.6. Prevalence of children by age whose parent(s) was/were told by a health professional or someone in the child's school that their child is overweight</p> <p><u>Numerator:</u> Number of parents who were told by a health professional or someone in child's school that their child is overweight</p> <p><u>Denominator:</u> Number of parents</p>	✓ <sup>62</sup>	✓ <sup>63</sup>	✗				CHNA (through CMH, public summary available for ages 5-7)	

<sup>59</sup> MO only: available by race (W/B), Hispanic ethnicity, and mother's education

<sup>60</sup> For MO: Once for 1 year-olds and then for 1–4 year-olds

<sup>61</sup> For MO: numerator and denominator need to be calculated to make age range match that in the KS summaries

<sup>62</sup> Available in Community Health Needs Assessment data (conducted by Children's Mercy Hospital System) for Clay, Jackson, Johnson, and Wyandotte counties

<sup>63</sup> Public summary available for ages 5–7 with being told against actual obesity, but without county

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					One	Multiple	Yes	No	
42	<p>3.b.7. Prevalence of low-income children with weight for height and gender (BMI) <math>\geq</math> 95<sup>th</sup> percentile</p> <p><u>Numerator</u>: Children age 1–4 who received services through the WIC Child program and had a weight for height and gender (BMI) – over (greater than or equal to 95<sup>th</sup> percentile)</p> <p><u>Denominator</u>: Children age 1–4 who received services through the WIC Child program</p>	✓ (MO only)	✓ <sup>64</sup>	✓ (MO: 2000–2008)	✓ (for MO)		✓	Child WIC MICA	
43	<p>3.b.8. Prevalence of low-income children with weight for height and gender (BMI) between the 85th and 95th percentiles</p> <p><u>Numerator</u>: Children age 1–4 who received services through the WIC Child program and had a weight for height and gender (BMI) risk of overweight (85<sup>th</sup> to &lt;95<sup>th</sup> percentile)</p> <p><u>Denominator</u>: Children age 1–4 who received services through the WIC Child program</p>	✓ (MO only)	✓ <sup>34</sup>	✓ (MO: 2000–2008)	✓ (for MO)		✓	Child WIC MICA	
44	<p>3.b.9. Prevalence of children aged 5-17 with a BMI <math>\geq</math> 95th percentile</p> <p><u>Numerator</u>: Number of children with a BMI over the 95<sup>th</sup> percentile</p> <p><u>Denominator</u>: Number of children</p>	✓ <sup>65</sup>	✓ <sup>66</sup>	✗				CHNA (through CMH, public summary available)	

<sup>64</sup> MO only: available by race (W/B), Hispanic ethnicity, and mother's education

<sup>65</sup> Available in Community Health Needs Assessment data (conducted by Children's Mercy Hospital System) for Clay, Jackson, Johnson, and Wyandotte counties

<sup>66</sup> Public summary available with perceived against actual obesity, but without county



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INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
45	3.b.10. Prevalence of children aged 5-17 with a BMI between the 85th and 95th percentiles  <u>Numerator:</u> Number of children with a BMI between the 85 <sup>th</sup> and 95 <sup>th</sup> percentiles  <u>Denominator:</u> Number of children	✓ <sup>67</sup>	✓ <sup>68</sup>	✗					CHNA (through CMH, public summary available)
46	3.b.11. Prevalence of children aged 5-17 with a BMI ≥ 85th percentile  <u>Numerator:</u> Number of children with a BMI over the 85 <sup>th</sup> percentile  <u>Denominator:</u> Number of children	✓ <sup>67</sup>	✓ <sup>68</sup>	✗					CHNA (through CMH, public summary available)
47	3.b.12. Prevalence of children who were physically active one hour/day in past week (age 2-17)  <u>Numerator:</u> Number of children who were physically active one hour/day in past week (age 2-17)  <u>Denominator:</u> Number of children	✓ <sup>67</sup>	✓ <sup>68</sup>	✗					CHNA (through CMH, public summary available)

<sup>67</sup> Available in Community Health Needs Assessment data (conducted by Children's Mercy Hospital System) for Clay, Jackson, Johnson, and Wyandotte counties

<sup>68</sup> Public summary available with perceived against actual obesity, but without county

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INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
<b>4. Overweight/Obesity-related Disease or Health Condition</b>									
<b>4.a. Adults ages 18 and older and mothers</b>									
48	<p>4.a.1. Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes</p> <p><u>Numerator:</u> Number of pregnant women who answered "Yes" to "Have you ever been told by a doctor that you have diabetes" excluding females who answered "Yes" to "Was this only when you were pregnant?"</p> <p><u>Denominator:</u> Women who answered "Yes" to "To your knowledge, are you now pregnant?" (Not asked if male or age greater than 44), non-institutionalized adults 18 and older</p>	✓ <sup>69</sup>	✓	✓ <sup>69</sup>	N/A <sup>70</sup>	N/A <sup>70</sup>	✓		BRFSS/ SMART record-level data
49	<p>4.a.2. Prevalence of adults 18 and older who were told by a health professional that they have diabetes, excluding gestational diabetes</p> <p><u>Numerator:</u> Number of people who answered "Yes" to "Have you ever been told by a doctor that you have diabetes" excluding females who answered "Yes" to "Was this only when you were pregnant?"</p> <p><u>Denominator:</u> Number of non-institutionalized adults 18 and older</p>	✓ <sup>69</sup>	✓	✓ <sup>69</sup>	Pre-calculated /N/A <sup>70</sup>	N/A <sup>70</sup>	✓ (cross tabs)	✓ (trend s)	BRFSS/ SMART (summaries for trends, record-level data for crosstabs)

<sup>69</sup> Jackson and Johnson counties: available for 2002–2010, Wyandotte County: available for 2004–2010

<sup>70</sup> Queries not available on the Internet

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INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
50	4.a.3. Rate of hospitalization due to diabetes  <u>Numerator:</u> Hospital discharges <sup>71</sup> with a principal diagnosis <sup>72</sup> of diabetes  <u>Denominator:</u> Population size	✓	✓ <sup>73</sup>	✓  (MO: 1994–2011, KS:1995–2010 <sup>74</sup> )	✓  (MO)	✓ <sup>75</sup>			Discharge MICA / Discharge KIC
51	4.a.4. Rate of deaths attributed to diabetes  <u>Numerator:</u> Number of deaths with diabetes as the underlying cause of death  <u>Denominator:</u> Population size	✓	✓ <sup>76</sup>	✓  (MO: 1990–2011, KS: 1991–2011)	✓  (MO)	✓ <sup>75</sup>		✓	Death MICA / Death KIC
52	4.a.5. Rate of emergency room visits due to diabetes  <u>Numerator:</u> Number of emergency visits with a principal diagnosis <sup>72</sup> of diabetes  <u>Denominator:</u> Population size	✓  (MO only)	✓ <sup>77</sup>	✓  (MO only: 1994–2011)	✓  (MO only)			✓	ER MICA

<sup>71</sup> Hospital discharges of Missouri or Kansas residents from non-federal and non-state acute care general and specialty hospitals whose facilities are open to the general public

<sup>72</sup> First of 23 possible diagnoses coded on the discharge record

<sup>73</sup> Available by race, Hispanic ethnicity, and age (<1, 1-4, 5-14)

<sup>74</sup> KS discharge data only has Hispanic ethnicity going back to 2003

<sup>75</sup> State and county-level data separate on KIC

<sup>76</sup> MO: available by race (W/B) and Hispanic ethnicity. KS: available by race (W/B/O) and Hispanic ethnicity

<sup>77</sup> MO only: available by race (W/B) and Hispanic ethnicity

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INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
53	4.a.6. Rate of hospitalization due to heart disease  <u>Numerator:</u> Hospital discharges <sup>78</sup> with a principal diagnosis <sup>79</sup> of heart disease  <u>Denominator:</u> Population size	✓	✓ <sup>80</sup>	✓  (MO: 1994–2011, KS:1995–2010 <sup>81</sup> )	✓  (MO)	✓ <sup>82</sup>		✓	Discharge MICA / Discharge KIC
54	4.a.7. Rate of deaths attributed to heart disease  <u>Numerator:</u> Number of deaths with heart disease as the underlying cause of death  <u>Denominator:</u> Number of deaths	✓	✓ <sup>83</sup>	✓  (MO: 1990–2011, KS: 1991–2011)	✓  (MO)	✓ <sup>82</sup>		✓	Death MICA / Death KIC
55	4.a.8. Rate of emergency room visits due to heart disease  <u>Numerator:</u> Number of emergency visits with a principal diagnosis <sup>79</sup> of heart disease  <u>Denominator:</u> Population size	✓  (MO only)	✓ <sup>84</sup>	✓  (MO only: 1994–2011)	✓  (MO only)			✓	ER MICA

<sup>78</sup> Hospital discharges of Missouri or Kansas residents from non-federal and non-state acute care general and specialty hospitals whose facilities are open to the general public

<sup>79</sup> First of 23 possible diagnoses coded on the discharge record

<sup>80</sup> Available by race, Hispanic ethnicity, and age (<1, 1–4, 5–14)

<sup>81</sup> KS discharge data only has Hispanic ethnicity going back to 2003

<sup>82</sup> State and county-level data separate on KIC

<sup>83</sup> MO: available by race (W/B) and Hispanic ethnicity. KS: available by race (W/B/O), and Hispanic ethnicity

<sup>84</sup> MO only: available by race (W/B) and Hispanic ethnicity

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INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
56	4.a.9 Rate of hospitalization due to essential hypertension  <u>Numerator:</u> Hospital discharges <sup>85</sup> with a principal diagnosis <sup>86</sup> of essential hypertension  <u>Denominator:</u> Population size	✓	✓ <sup>87</sup>	✓  (MO: 1994–2011, KS:1995–2010 <sup>88</sup> )	✓  (MO)	✓ <sup>89</sup>		✓	Discharge MICA / Discharge KIC
57	4.a.10 Rate of deaths attributed to essential hypertension  <u>Numerator:</u> Number of deaths with essential hypertension as the underlying cause of death  <u>Denominator:</u> Number of deaths	✓	✓ <sup>90</sup>	✓  (MO: 1990–2011, KS: 1991–2011)	✓  (MO)	✓ <sup>89</sup>		✓	Death MICA / Death KIC
58	4.a.11 Rate of emergency room visits due to essential hypertension  <u>Numerator:</u> Number of emergency visits with a principal diagnosis <sup>86</sup> of essential hypertension  <u>Denominator:</u> Population size	✓  (MO only)	✓ <sup>91</sup>	✓  (MO only: 1994–2011)	✓  (MO only)			✓	ER MICA

<sup>85</sup> Hospital discharges of Missouri or Kansas residents from non-federal and non-state acute care general and specialty hospitals whose facilities are open to the general public

<sup>86</sup> First of 23 possible diagnoses coded on the discharge record

<sup>87</sup> Available by race, Hispanic ethnicity, and age (<1, 1–4, 5–14)

<sup>88</sup> KS discharge data only has Hispanic ethnicity going back to 2003

<sup>89</sup> State and county-level data separate on KIC

<sup>90</sup> MO: available by race (W/B) and Hispanic ethnicity. KS: available by race (W/B/O) and Hispanic ethnicity

<sup>91</sup> MO only: available by race (W/B) and Hispanic ethnicity

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INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
<b>4.b. Children</b>									
59	4.b.1. Prevalence of children by age (0–17, 5+) whose parent(s) was/were told by a health professional that their child has type-2 diabetes  <u>Numerator:</u> Number of parents who answered “Yes” to “Has a doctor or other health care provider ever told you that this child had Type 2 Diabetes?”  <u>Denominator:</u> Number of parents	✓ <sup>92</sup>	✓ <sup>93</sup>	✗					CHNA (through CMH, public summary available)
60	4.b.2. Rate of hospitalization due to diabetes among children  <u>Numerator:</u> Hospital discharges <sup>94</sup> of children under the age of 15 with a principal diagnosis <sup>95</sup> of diabetes  <u>Denominator:</u> Population size of children under the age of 15	✓	✓ <sup>96</sup>	✓  (MO: 1994– 2011, KS:1995– 2010 <sup>97</sup> )	✓ (MO)	✓ <sup>98</sup>		✓	Discharge MICA / Discharge KIC

<sup>92</sup> Available in Community Health Needs Assessment data (conducted by Children's Mercy Hospital System) for Clay, Jackson, Johnson, and Wyandotte counties

<sup>93</sup> Public summary available broken out by race/ethnicity, age, and income, but without county

<sup>94</sup> Hospital discharges of Missouri or Kansas residents from non-federal and non-state acute care general and specialty hospitals whose facilities are open to the general public

<sup>95</sup> First of 23 possible diagnoses coded on the discharge record

<sup>96</sup> Available by race, Hispanic ethnicity, and age (<1, 1-4, 5-14)

<sup>97</sup> KS discharge data only has Hispanic ethnicity going back to 2003

<sup>98</sup> State and county-level data separate on KIC

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INDEX	Indicator Name	Available by County	Available in Crosstabs by County & by Other Factors	Yearly Trend Data Available (years)	Queries Needed		Recalculation Needed		Source
					One	Multiple	Yes	No	
61	4.b.3. Rate of deaths attributed to diabetes among children  <u>Numerator:</u> Number of deaths among children with diabetes as the underlying cause of death  <u>Denominator:</u> Population size of children under the age of 15	✓	✓ <sup>99</sup>	✓  (MO: 1990–2011, KS: 1991–2011)	✓  (MO)	✓ <sup>100</sup>		✓	Death MICA / Death KIC
62	4.b.4. Rate of emergency room visits due to diabetes among children by age  <u>Numerator:</u> Number of emergency visits of children under the age of 15 with a principal diagnosis <sup>101</sup> of diabetes  <u>Denominator:</u> Population size of children under the age of 15	✓  (MO only)	✓ <sup>102</sup>	✓  (MO only: 1994–2011)	✓  (for most tables)	✓ <sup>103</sup>		✓	ER MICA
63	4.b.5. Rate of hospitalization due to essential hypertension among children  <u>Numerator:</u> Hospital discharges <sup>104</sup> of children under the age of 15 with a principal diagnosis <sup>101</sup> of essential hypertension  <u>Denominator:</u> Population size of children under the age of 15	✓	✓ <sup>105</sup>	✓  (MO: 1994–2011, KS: 1995–2010 <sup>106</sup> )	✓  (MO)	✓ <sup>100</sup>		✓	Discharge MICA / Discharge KIC

<sup>99</sup> MO: available by race (W/B) and Hispanic ethnicity. KS: available by race (W/B/O) and Hispanic ethnicity

<sup>100</sup> State and county-level data separate on KIC

<sup>101</sup> First of 23 possible diagnoses coded on the discharge record

<sup>102</sup> MO only: available by race (W/B), Hispanic ethnicity, and age (<1, 1-4, 5-9, 10-15)

<sup>103</sup> Yearly queries if doing trends and breaking out age finer than 1-15

<sup>104</sup> Hospital discharges of Missouri or Kansas residents from non-federal and non-state acute care general and specialty hospitals whose facilities are open to the general public

<sup>105</sup> Available by race, Hispanic ethnicity, and age (<1, 1-4, 5-14)

<sup>106</sup> KS discharge data only has Hispanic ethnicity going back to 2003

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					One	Multiple	Yes	No	
64	<p>4.b.6. Rate of deaths attributed to essential hypertension among children</p> <p><u>Numerator</u>: Number of deaths among children with essential hypertension as the underlying cause of death</p> <p><u>Denominator</u>: Population size of children under the age of 15</p>	✓	✓ <sup>107</sup>	✓ (MO: 1990–2011, KS: 1991–2011)	✓ (MO)	✓ <sup>108</sup>		✓	Death MICA / Death KIC
65	<p>4.b.7. Rate of emergency room visits due to essential hypertension among children</p> <p><u>Numerator</u>: Number of emergency visits of children under the age of 15 with a principal diagnosis<sup>109</sup> of essential hypertension</p> <p><u>Denominator</u>: Population size of children under the age of 15</p>	✓ (MO only)	✓ <sup>110</sup>	✓ (MO only: 1994–2011)	✓ (for most tables)	✓ <sup>111</sup>		✓	ER MICA

<sup>107</sup> MO: available by race (W/B) and Hispanic ethnicity. KS: available by race (W/B/O) and Hispanic ethnicity

<sup>108</sup> State and county-level data separate on KIC

<sup>109</sup> First of 23 possible diagnoses coded on the discharge record

<sup>110</sup> MO only: available by race (W/B), Hispanic ethnicity, and age (<1, 1-4, 5-9, 10-15)

<sup>111</sup> Yearly queries if doing trends and breaking out age finer than 1-15



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					One	Multiple	Yes	No	
66	<p>4.b.8. Rate of hospitalization due to "Other bone disease and musculoskeletal deformities," including Blount's disease<sup>112</sup></p> <p><u>Numerator</u>: Hospital discharges<sup>113</sup> of children under the age of 15 with a principal diagnosis<sup>114</sup> of "Other bone disease and musculoskeletal deformities"</p> <p><u>Denominator</u>: Population size of children under the age of 15</p>	✓	✓ <sup>115</sup>	✓ (MO: 1994– 2011, KS:1995– 2010 <sup>116</sup> )	✓ (MO)	✓ <sup>117</sup>		✓	Discharge MICA / Discharge KIC

<sup>112</sup> Note, the following ICD-9-CM codes are included in the category "Other bone disease and musculoskeletal deformities" and cannot be further broken-out:  
 7310 7311 7312 7313 7318 7320 7321 7322 7323 7324 7325 7326 7327 7328 7329 7330 7331 7332 7333 7334 7335 7336 7337 7338 7339 7340 7341 7342 7343 7344 7345 7349 7350 7351 7352 7353 7354 7355 7356 7357 7358 7359 7360 7361 7362 7363 7364 7365 7366 7367 7368 7369 7370 7371 7372 7373 7374 7375 7376 7377 7378 7379 7380 7381 7382 7383 7384 7385 7386 7387 7388 7389 7390 7391 7392 7393 7394 7395 7396 7397 7398 7399 7400 7401 7402 7403 7404 7405 7406 7407 7408 7409 7410 7411 7412 7413 7414 7415 7416 7417 7418 7419 7420 7421 7422 7423 7424 7425 7426 7427 7428 7429 7430 7431 7432 7433 7434 7435 7436 7437 7438 7439 7440 7441 7442 7443 7444 7445 7446 7447 7448 7449 7450 7451 7452 7453 7454 7455 7456 7457 7458 7459 7460 7461 7462 7463 7464 7465 7466 7467 7468 7469 7470 7471 7472 7473 7474 7475 7476 7477 7478 7479 7480 7481 7482 7483 7484 7485 7486 7487 7488 7489 7490 7491 7492 7493 7494 7495 7496 7497 7498 7499 7500 7501 7502 7503 7504 7505 7506 7507 7508 7509 7510 7511 7512 7513 7514 7515 7516 7517 7518 7519 7520 7521 7522 7523 7524 7525 7526 7527 7528 7529 7530 7531 7532 7533 7534 7535 7536 7537 7538 7539 7540 7541 7542 7543 7544 7545 7546 7547 7548 7549 7550 7551 7552 7553 7554 7555 7556 7557 7558 7559 7560 7561 7562 7563 7564 7565 7566 7567 7568 7569 7570 7571 7572 7573 7574 7575 7576 7577 7578 7579 7580 7581 7582 7583 7584 7585 7586 7587 7588 7589 7590 7591 7592 7593 7594 7595 7596 7597 7598 7599 7600 7601 7602 7603 7604 7605 7606 7607 7608 7609 7610 7611 7612 7613 7614 7615 7616 7617 7618 7619 7620 7621 7622 7623 7624 7625 7626 7627 7628 7629 7630 7631 7632 7633 7634 7635 7636 7637 7638 7639 7640 7641 7642 7643 7644 7645 7646 7647 7648 7649 7650 7651 7652 7653 7654 7655 7656 7657 7658 7659 7660 7661 7662 7663 7664 7665 7666 7667 7668 7669 7670 7671 7672 7673 7674 7675 7676 7677 7678 7679 7680 7681 7682 7683 7684 7685 7686 7687 7688 7689 7690 7691 7692 7693 7694 7695 7696 7697 7698 7699 7700 7701 7702 7703 7704 7705 7706 7707 7708 7709 7710 7711 7712 7713 7714 7715 7716 7717 7718 7719 7720 7721 7722 7723 7724 7725 7726 7727 7728 7729 7730 7731 7732 7733 7734 7735 7736 7737 7738 7739 7740 7741 7742 7743 7744 7745 7746 7747 7748 7749 7750 7751 7752 7753 7754 7755 7756 7757 7758 7759 7760 7761 7762 7763 7764 7765 7766 7767 7768 7769 7770 7771 7772 7773 7774 7775 7776 7777 7778 7779 7780 7781 7782 7783 7784 7785 7786 7787 7788 7789 7790 7791 7792 7793 7794 7795 7796 7797 7798 7799 7800 7801 7802 7803 7804 7805 7806 7807 7808 7809 7810 7811 7812 7813 7814 7815 7816 7817 7818 7819 7820 7821 7822 7823 7824 7825 7826 7827 7828 7829 7830 7831 7832 7833 7834 7835 7836 7837 7838 7839 7840 7841 7842 7843 7844 7845 7846 7847 7848 7849 7850 7851 7852 7853 7854 7855 7856 7857 7858 7859 7860 7861 7862 7863 7864 7865 7866 7867 7868 7869 7870 7871 7872 7873 7874 7875 7876 7877 7878 7879 7880 7881 7882 7883 7884 7885 7886 7887 7888 7889 7890 7891 7892 7893 7894 7895 7896 7897 7898 7899 7900 7901 7902 7903 7904 7905 7906 7907 7908 7909 7910 7911 7912 7913 7914 7915 7916 7917 7918 7919 7920 7921 7922 7923 7924 7925 7926 7927 7928 7929 7930 7931 7932 7933 7934 7935 7936 7937 7938 7939 7940 7941 7942 7943 7944 7945 7946 7947 7948 7949 7950 7951 7952 7953 7954 7955 7956 7957 7958 7959 7960 7961 7962 7963 7964 7965 7966 7967 7968 7969 7970 7971 7972 7973 7974 7975 7976 7977 7978 7979 7980 7981 7982 7983 7984 7985 7986 7987 7988 7989 7990 7991 7992 7993 7994 7995 7996 7997 7998 7999 8000

<sup>113</sup> Hospital discharges of Missouri or Kansas residents from non-federal and non-state acute care general and specialty hospitals whose facilities are open to the general public

<sup>114</sup> First of 23 possible diagnoses coded on the discharge record

<sup>115</sup> Available by race, Hispanic ethnicity, and age (<1, 1-4, 5-14)

<sup>116</sup> KS discharge data only has Hispanic ethnicity going back to 2003

<sup>117</sup> State and county-level data separate on KIC

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					One	Multiple	Yes	No	
67	<p>4.b.9. Rate of hospitalizations due to “Other diagnostic procedures (interview; evaluation; consultation),” including sleep study procedures<sup>118</sup> and “Residual codes; unclassified,” including sleep apnea<sup>119</sup></p> <p><u>Numerator</u>: Hospital discharges<sup>120</sup> of children under the age of 15 with a principal diagnosis<sup>121</sup> of “Residual codes; unclassified” plus hospital procedures categorized as “Other diagnostic procedures (interview; evaluation; consultation)”</p> <p><u>Denominator</u>: Population size of children under the age of 15</p>	✓	✓ <sup>122</sup>	<p>✓</p> <p>(MO: 1994–2011, KS:1995–2010<sup>123</sup>)</p>		<p>✓<sup>124</sup>,</p> <p>125</p>		<p>✓</p>	<p>Discharge MICA / Procedures MICA / Discharge KIC / Procedures KIC</p>

<sup>118</sup> Note, the following procedure codes from ICD-9-CM Volume 3 are included in the category “Other diagnostic procedures (interview; evaluation; consultation)” and cannot be further broken-out:

0058 0059 0067 0068 0069 8901 8902 8903 8904 8905 8906 8907 8908 8909 8910 8911 8912 8913 8915 8916 8917 8918 8919 8921 8922 8923 8924 8925 8926 8931 8932 8933 8934 8935 8936 8937 8938 8939 8945 8946 8947 8948 8949 8950 8953 8955 8956 8957 8958 8959 8961 8962 8963 8966 8967 8968 8969 897 898

<sup>119</sup> Note, the following ICD-9-CM codes are included in the category “Residual codes; unclassified” and cannot be further broken-out:

3020 32700 32701 32709 32710 32711 32712 32713 32714 32719 32720 32721 32722 32723 32724 32725 32726 32727 32729 32740 32741 32742 32743 32744 32749 32751 32759 3278 78002 7801 78050 78051 78052 78053 78054 78055 78056 78057 78058 78059 78064 78065 7809 78093 78094 78095 78096 78097 78099 7815 7816 7823 78261 78262 7828 7829 7830 7836 7842 7901 7906 7909 79091 79092 79093 79094 79095 79099 7929 7932 7939 79399 7949 7954 79581 79582 79589 7963 7964 7965 7966 7969 7980 7981 7982 7989 7992 79921 79922 79923 79924 79925 79929 7993 7998 79981 79982 79989 7999 V070 V072 V073 V0731 V0739 V0751 V0752 V0759 V078 V079 V131 V138 V1389 V139 V152 V1521 V1522 V1529 V153 V1581 V1584 V1585 V1586 V1587 V1589 V159 V160 V161 V162 V163 V164 V1640 V1641 V1642 V1643 V1649 V165 V1651 V1652 V1659 V166 V167 V168 V169 V170 V171 V172 V173 V174 V1741 V1749 V175 V176 V177 V178 V1781 V1789 V180 V181 V1811 V1819 V182 V183 V184 V185 V1851 V1859 V186 V1861 V1869 V187 V188 V189 V190 V191 V1911 V1919 V192 V193 V194 V195 V196 V197 V198 V210 V211 V212 V218 V219 V418 V419 V428 V4281 V4282 V4283 V4284 V4289 V429 V438 V4381 V4382 V4383 V4389 V447 V448 V449 V4571 V4572 V4573 V4574 V4575 V4576 V4577 V4578 V4579 V4583 V4584 V4586 V4587 V4588 V4589 V460 V463 V468 V469 V470 V471 V472 V479 V480 V488 V489 V498 V4981 V4982 V4983 V4984 V4986 V4987 V4989 V499 V500 V501 V503 V5041 V5042 V5049 V508 V509 V590 V5901 V5902 V5909 V591 V592 V593 V594 V595 V596 V5970 V5971 V5972 V5973 V5974 V598 V599 V615 V640 V6400 V6401 V6402 V6403 V6404 V6405 V6406 V6407 V6408 V6409 V641 V642 V643 V644 V6441 V6442 V6443 V690 V691 V692 V693 V694 V695 V698 V699 V8301 V8302 V8381 V8389 V8401 V8402 V8403 V8404 V8409 V848 V8481 V8489 V851 V8552 V860 V861 V8701 V8702 V8709 V8711 V8712 V8719 V872 V8731 V8732 V8739 V8741 V8742 V8743 V8744 V8745 V8746 V8749 V8801 V8802 V8803 V8811 V8812 V8901 V8902 V8903 V8904 V8905 V8909

<sup>120</sup> Hospital discharges of Missouri or Kansas residents from non-federal and non-state acute care general and specialty hospitals whose facilities are open to the general public

<sup>121</sup> First of 23 possible diagnoses coded on the discharge record

<sup>122</sup> Available by race, Hispanic ethnicity, and age (<1, 1-4, 5-14)

<sup>123</sup> KS discharge data only has Hispanic ethnicity going back to 2003

<sup>124</sup> State and county-level data separate on KIC

<sup>125</sup> Diagnoses and procedures are separate on MICA and KIC

## Appendix H:

# Collaborative Discussion Notes (May 30, 2013)

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**Acronyms**

**Highlights**

Index	Indicator	Pros and Cons	Comments
	<b>1. Socioeconomic Status and Demographic Factors</b>		
	<b>1.a. Mothers</b>		
1	<p>1.a.1. Prevalence of mothers without health care coverage</p> <p><i>Source: BRFSS/SMART</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of selected mothers under 65 who answered "Do not have health care coverage" to "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?"</i></p> <p><i>Definition of the denominator: Females who answered "Parent (include biologic, step, or adoptive parent)" to "How are you related to the child?" (Asked about a randomly selected child in the household. Not asked if the variable</i></p>	<ul style="list-style-type: none"> <li>- Pros &amp; cons for the original indicator on pregnant women:</li> <li>- Small sample size</li> <li>- Smart BRFSS may not be continued</li> </ul>	<ul style="list-style-type: none"> <li>• NOTE: the indicator in the presentation about pregnant women has been moved to 3.b.5</li> <li>• Comments for the original indicator on pregnant women:             <ul style="list-style-type: none"> <li>○ Explore getting this data from BC—can get rates by county/zip code, birth rate for entire population                 <ul style="list-style-type: none"> <li>▪ RESPONSE: health care coverage not available on MICA or KIC, Medicaid status has been added for Missouri</li> </ul> </li> </ul> </li> </ul> <p>Aggregate for multiple years to get sufficient sample size and rate data</p>

Index	Indicator	Pros and Cons	Comments
	<p><i>"CHILDREN" is 0*, 88 [None], 99 [Refused], or BLANK [Not asked or missing] or if the variable "CHILDAGE" &gt; 215 months), non-institutionalized adults 18 and older but under 65</i></p>		
2	<p>1.a.2. Percent of pregnant women who are unmarried</p> <p><i>Source: Pregnancy MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of live births, fetal deaths, and induced abortions from women who are unmarried</i></p> <p><i>Definition of the denominator: Number of live births, fetal deaths, and induced abortions</i></p>		<ul style="list-style-type: none"> <li>• Added due to comments during presentation</li> </ul>
3	<p>1.a.3. Percent of pregnant women who smoked during pregnancy</p> <p><i>Source: Birth MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions (Survey) or data entry</i></p>		<ul style="list-style-type: none"> <li>• Added due to comments during presentation</li> </ul>



Index	Indicator	Pros and Cons	Comments
	<p><i>(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of live births to women who smoked during pregnancy</i></p> <p><i>Definition of the denominator: Number of live births</i></p>		
4	<p>1.a.4. Percent of pregnant women who are on The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)</p> <p><i>Source: Birth MICA</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions (Survey) or data entry (collection form): reported data</i></p> <p><i>Definition of the numerator: Number of live births to women whose prenatal service utilization included WIC</i></p> <p><i>Definition of the denominator: Number of live births</i></p>		
5	<p>1.a.5. Percent of pregnant women who are on Medicaid</p> <p><i>Source: Birth MICA</i></p>		

Index	Indicator	Pros and Cons	Comments
	<p><i>Frequency of data collection: Annual</i></p> <p><i>Questions (Survey) or data entry (collection form): reported data</i></p> <p><i>Definition of the numerator: Number of live births to women whose prenatal service utilization included Medicaid</i></p> <p><i>Definition of the denominator: Number of live births</i></p>		
6	<p>1.a.6. Percent of pregnant women who are on Food Stamps</p> <p><i>Source: Birth MICA</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions (Survey) or data entry (collection form): reported data</i></p> <p><i>Definition of the numerator: Number of live births to women whose prenatal service utilization included Food Stamps (SNAP)</i></p> <p><i>Definition of the denominator: Number of live births</i></p>		

Index	Indicator	Pros and Cons	Comments
7	<p>1.a.7. Educational attainment of pregnant women (less than HS, HS, some college, college grad)</p> <p><i>Source: Pregnancy MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions (Survey) or data entry (collection form): reported data</i></p> <p><i>Definition of the numerator: Number of live births, fetal deaths, and induced abortions from women who are in each education class</i></p> <p><i>Definition of the denominator: Number of live births, fetal deaths, and induced abortions</i></p>		<ul style="list-style-type: none"> <li>• Added after the May 30<sup>th</sup> presentation</li> </ul>
8	<p>1.a.8. Percent of households with a female householder, no husband present, and the householder's own minor children among all households</p> <p><i>Source: ACS</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data</i></p>	<p>+ High association with poor health</p> <p>+ Useful indicator to help discern those issues that are outside the scope of public health/typical intervention strategies</p> <hr/> <p>- Can't look at trend line using ACS data set</p> <p>- <i>RESPONSE: Annual data 2007-</i></p>	<ul style="list-style-type: none"> <li>• Small numbers in some of county breakdowns</li> <li>• Use birth certificate (BC) data to get trend line</li> <li>• Recommended that also use educational level</li> <li>• Break it down by race, birth rate, birth rate by single parents, early parenting VS. late parenting</li> <li>• Access to public health is important</li> <li>• Tract-level data available</li> </ul>

Index	Indicator	Pros and Cons	Comments
	<p><i>entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of households that with a female householder, no husband present, and the householder's own minor children</i></p> <p><i>Definition of the Denominator: Number of households</i></p>	<p><i>2011 is available for these counties</i></p> <ul style="list-style-type: none"> <li>- No good intervention to address</li> </ul>	
9	<p>1.a.9. Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children</p> <p><i>Source: ACS</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of households that have a female householder with no husband present and her own children under 18 years that are in poverty</i></p> <p><i>Definition of the Denominator: Number of households that have a female householder with no husband present and her own children under 18 years</i></p>		<ul style="list-style-type: none"> <li>• Don't know which of series of social determinants is most sensitive to predict risks</li> <li>• Need to note denominator/numerator information to compare population size</li> <li>• In Question, is it Related children or own children?</li>   <li>• Tract-level data available</li> </ul>

Index	Indicator	Pros and Cons	Comments
10	<p>1.a.10. Percent of mothers by race/ethnicity</p> <p><i>Source: BRFSS/SMART</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of selected parents for each race/ethnicity</i></p> <p><i>Definition of the Denominator: People who answered "Parent (include biologic, step, or adoptive parent)" to "How are you related to the child?" (Asked about a randomly selected child in the household. Not asked if the variable "CHILDREN" is 0*, 88 [None], 99 [Refused], or BLANK [Not asked or missing] or if the variable "CHILDAGE" &gt; 215 months), non-institutionalized adults 18 and older</i></p>	<ul style="list-style-type: none"> <li>- BRFSS/SMART data for pregnant women may not be continued—too costly to do frequently</li> </ul>	<ul style="list-style-type: none"> <li>• BC would be best source for this data             <ul style="list-style-type: none"> <li>○ RESPONSE: source for demographics of pregnant women changed to Birth MICA &amp; KIC, BRFSS/SMART used for mothers</li> </ul> </li> <li>• Parking lot issue?</li> </ul>
11	<p>1.a.11. Demographics of pregnant women</p> <p><i>Source: Birth MICA &amp; KIC</i></p>		<ul style="list-style-type: none"> <li>• Added based on comments from presentation: BRFSS/SMART was the original source</li> </ul>

Index	Indicator	Pros and Cons	Comments
	<p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of live births to women for each race/ethnic group</i></p> <p><i>Definition of the denominator: Number of live births</i></p>		
12	<p>1.a.12. Percent of pregnant women in WIC who get Supplementary Nutrition Assistance Program (SNAP)</p> <p><i>Source: MO Prenatal WIC MICA</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form):reported data</i></p> <p><i>Definition of the numerator : Number of women whose estimated date of delivery are in the given year, received services through the prenatal WIC program, and received SNAP</i></p> <p><i>Definition of the denominator: Number of women whose estimated date of delivery are in the given year and received services through the Prenatal</i></p>	<p>+ Data available for both states</p> <p>- Politics and Administrative decisions lead to changes in eligibility requirements over time so does not allow for continuity in interpretation of trend lines with changing standards</p>	<ul style="list-style-type: none"> <li>• Would be helpful to review of those that are eligible, how many access SNAP.</li> </ul>

Index	Indicator	Pros and Cons	Comments
	<i>WIC program.</i>		
13	<p>1.a.13. Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years</p> <p><i>Source: ACS</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of selected households that receive Food Stamps/SNAP in the past 12 months</i></p> <p><i>Definition of the denominator: Number of households that have a female householder with no husband present and children under 18 years</i></p>		<ul style="list-style-type: none"> <li>• Source added after the presentation</li> <li>• Tract-level data available</li> </ul>
14	<p>1.a.14. Percent of parents who are unmarried</p> <p><i>Source: BRFSS/SMART</i></p>		<ul style="list-style-type: none"> <li>• Would be helpful to have the indicators grouped together with similar variables to help determine best ones to keep. Selection criteria: science, availability, sample size, how much of a lag/delay for getting data, how sensitive it is.</li> </ul>

Index	Indicator	Pros and Cons	Comments
	<p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of selected parents who gave their marital status as: "Divorced", "Separated", "Never Married", or "A member of an unmarried couple"</i></p> <p><i>Definition of the Denominator: People who answered "Parent (include biologic, step, or adoptive parent)" to "How are you related to the child?" (Asked about a randomly selected child in the household. Not asked if the variable "CHILDREN" is 0*, 88 [None], 99 [Refused], or BLANK [Not asked or missing] or if the variable "CHILDAGE" &gt; 215 months), non-institutionalized adults 18 and older</i></p>		
	<b>11.b. Children</b>		
15	<p>1.b.1. Prevalence of children in poverty by age</p> <p>Source: ACS</p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data</i></p>	<ul style="list-style-type: none"> <li>+ Long term availability</li> <li>+ Recommended indicator</li> <li>+ Able to aggregate and look at long term trend lines</li> <li>+ Major risk factor</li> </ul>	<ul style="list-style-type: none"> <li>• Tract-level data available</li> </ul>



Index	Indicator	Pros and Cons	Comments
	<p><i>entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of children in a household that is in poverty</i></p> <p><i>Definition of the Denominator: Number of children for which poverty status can be established</i></p>		
16	<p>1.b.2. Prevalence of children enrolled in Temporary Assistance for Needy Families (TANF)</p> <p><i>Source: MO Child TANF MICA</i></p> <p><i>Frequency of data collection: Monthly</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of children enrolled in TANF</i></p> <p><i>Definition of the Denominator: Number of children age 0-17</i></p>	<ul style="list-style-type: none"> <li>- One year only               <ul style="list-style-type: none"> <li>o RESPONSE: month from 1998</li> </ul> </li> <li>- Not available in both states</li> <li>- Do we also need information on moms in poverty</li> </ul>	<ul style="list-style-type: none"> <li>• TANF guidelines are different in both states</li> <li>• Income guidelines are different in both states</li> </ul>
	<p><b>2. Environmental Factors</b></p>		
17	<p>2.1. Percent of population with a low accessibility to food among the child, low-income, and total populations</p>	<ul style="list-style-type: none"> <li>- Limited insight in that doesn't factor in other variables such as available transportation that impacts access.               <ul style="list-style-type: none"> <li>o RESPONSE: dataset</li> </ul> </li> </ul>	

Index	Indicator	Pros and Cons	Comments
	<p><i>Source: USDA</i></p> <p><i>Frequency of data collection: sporadic (release in 2006 &amp; 2010)</i></p> <p><i>Questions(Survey) or data entry(collection form):synthesized from reported data &amp; survey results</i></p> <p><i>Definition of the numerator: Number of individuals living more than 1 mile from the nearest supermarket, supercenter, or large grocery store</i></p> <p><i>Definition of the denominator: Number of people</i></p> <p><i>Definition of the numerator: Number of low-income individuals living more than 1 mile from the nearest supermarket, supercenter, or large grocery store. Low-income is defined as annual family income at or below 200 percent of the Federal poverty threshold for family size (based on 2006–2010 block-level ACS data)</i></p> <p><i>Definition of the denominator: Number of people</i></p> <p><i>Definition of the numerator: Number of children living at least 1 mile from the nearest supermarket, supercenter, or large grocery store</i></p>	<p>contains indicators on low vehicle access, but not for children</p> <ul style="list-style-type: none"> <li>– Not specific and sensitive enough, 80% correct; 20% incorrect</li> </ul>	

Index	Indicator	Pros and Cons	Comments
	<i>Definition of the denominator: Number of children age 0-17</i>		
18	<p>2.2. Percent of school personnel stating that their school has policies on moderate and vigorous physical activity during physical education (PE) classes</p> <p><i>Source: School Wellness Report</i></p> <p><i>Frequency of data collection: One time study</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Respondents who answered "Yes" to "In our school(s), we have policies to: Address moderate to vigorous physical activity at least half of the total time during PE class"</i></p> <p><i>Definition of the Denominator: Responding school administrators and personnel</i></p>	<p>+ Logical Indicator</p> <p>+ Easier to change policy than behavior</p> <p>+ Policy change may drive behavior</p> <hr/> <p>- Not available on county basis</p> <p>- Difference between written policy and actual policy practice</p> <p>- Physical activity could be addressed in curriculum in addition to policy</p>	<ul style="list-style-type: none"> <li>• Need to review method of school wellness policy survey and how depicted in this set of indicators.</li> <li>• Maybe it is incorporated into curriculum policy</li> </ul>
19	2.3. School districts' WellSAT scores for regulating food sold for fundraising at all times (not only during the school day)		<ul style="list-style-type: none"> <li>• Look into school policies</li> </ul>

Index	Indicator	Pros and Cons	Comments
	<p><i>Source: School Wellness Report</i></p> <p><i>Frequency of data collection: One time study</i></p> <p><i>Questions(Survey) or data entry(collection form): Sampled wellness policies</i></p> <p><i>Definition of the numerator: Number of school districts with written school wellness policies given a WellSAT score of 0 (Not mentioned) to "regulates food sold for fundraising at all times (not only during the school day"</i></p> <p><i>Definition of the denominator: Number of school districts</i></p>		
20	<p>2.4. School districts' WellSAT scores for providing nutrition curriculum for each grade level</p> <p><i>Source: School Wellness Report</i></p> <p><i>Frequency of data collection: One time study</i></p> <p><i>Questions(Survey) or data entry(collection form): Sampled wellness policies</i></p> <p><i>Definition of the numerator: Number of school districts with written school</i></p>	<p>+ Technically feasible</p> <hr/> <p>- Missing data on large school district in Wyandotte County</p>	

Index	Indicator	Pros and Cons	Comments
	<p><i>wellness policies given a WellSAT score of 0 (Not mentioned) to "provides nutrition curriculum for each grade level"</i></p> <p><i>Definition of the denominator: Number of school districts</i></p>		
21	<p>2.5. School districts' WellSAT scores for encouraging staff to be role models for healthy behaviors</p> <p><i>Source: School Wellness Report</i></p> <p><i>Frequency of data collection: One time study</i></p> <p><i>Questions(Survey) or data entry(collection form): Sampled wellness policies</i></p> <p><i>Definition of the numerator: Number of school districts with written school wellness policies given a WellSAT score of 0 (Not mentioned) to "encourages staff to be role models for healthy behaviors"</i></p> <p><i>Definition of the denominator: Number of school districts</i></p>		

Index	Indicator	Pros and Cons	Comments
22	<p>2.6. School districts' WellSAT scores for specifying how district will engage families to provide information and/or solicit input to meet district wellness goals.</p> <p><i>Source: School Wellness Report</i></p> <p><i>Frequency of data collection: One time study</i></p> <p><i>Questions(Survey) or data entry(collection form): Sampled wellness policies</i></p> <p><i>Definition of the numerator: Number of school districts with written school wellness policies given a WellSAT score of 0 (Not mentioned) to "specifies how district will engage families to provide information and/or solicit input to meet district wellness goals."</i></p> <p><i>Definition of the denominator: Number of school districts</i></p>		
23	<p>2.7. Prevalence of adults in neighborhoods with sidewalks (perception from survey-based questions)</p>	<ul style="list-style-type: none"> <li>+ Strong indicator in some communities</li> <li>+ Relationship may be weak –limited study/validation</li> <li>+ Survey is perception of sidewalks in area, not physical inventory of sidewalks in area. Perception is reality from health promotion</li> </ul>	<ul style="list-style-type: none"> <li>• Distinguish between Rural and Urban</li> </ul>

Index	Indicator	Pros and Cons	Comments
	<p><i>Source: Missouri County-Level Survey</i></p> <p><i>Frequency of data collection: Periodic (surveys in 2002-2003, 2007, 2011)</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of people who answered "Yes" to "Does your neighborhood have any sidewalks?"</i></p> <p><i>Definition of the Denominator: Number of non-institutionalized Missourian adults 18 and older</i></p>	<p>perspective.</p> <ul style="list-style-type: none"> <li>- Weak indicator for obesity, but good for diabetes, heart disease, chronic diseases</li> <li>- Kansas Data is missing</li> <li>- Does not change fast...more long term</li> </ul>	
24	<p>2.8. Prevalence of adults in neighborhoods with roads/streets with shoulders or marked lanes for bicycling (perception from survey-based questions)</p> <p><i>Source: Missouri County-Level Survey</i></p> <p><i>Frequency of data collection: Periodic (surveys in 2002-2003, 2007, 2011)</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of people who answered "Yes" to "Do roads and streets in your community</i></p>	<ul style="list-style-type: none"> <li>- Perception survey, not geographical survey</li> <li>- KS is missing but might be able to get from SMART BRFS</li> <li>- Could be rapid change due to push from bikers.</li> <li>- This is biased because good cyclists know roads well.</li> </ul>	<ul style="list-style-type: none"> <li>• Same survey source as for sidewalks</li> </ul>

Index	Indicator	Pros and Cons	Comments
	<p><i>have shoulders or marked lanes for bicycling?"</i></p> <p><i>Definition of the Denominator: Number of non-institutionalized Missourian adults 18 and older</i></p>		
25	<p>2.9. Prevalence of children living with a parent who is overweight/obese</p> <p><i>Source: BRFSS/SMART</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Selected parents with a BMI of at least 25</i></p> <p><i>Definition of the Denominator: People who answered "Parent (include biologic, step, or adoptive parent)" to "How are you related to the child?" (Asked about a randomly selected child in the household Not asked if the variable "CHILDREN" is 0*, 88 [None], 99 [Refused], or BLANK [Not asked or missing] or if the variable "CHILDAGE" &gt; 215 months), non-institutionalized adults 18 and older</i></p>	<p>+ Important indicator</p> <p>+ Collected every year</p> <p>– New methodology introduced between 2010 and 2011 alters indicator trend line after 2010</p>	<ul style="list-style-type: none"> <li>• Need to follow-up regarding methodology.</li> <li>• Only a few questions in BRFSS</li> <li>• Is it a biological parent or someone else?</li> <li>• While question wasn't changed, methodology change impacts trend line interpretation</li> </ul>



Index	Indicator	Pros and Cons	Comments
26	<p>2.10. Prevalence of children living with a parent who is inactive during leisure-time</p> <p><i>Source: BRFSS/SMART</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Selected parents who answered "No" to "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"</i></p> <p><i>Definition of the Denominator: People who answered "Parent (include biologic, step, or adoptive parent)" to "How are you related to the child?" (Asked about a randomly selected child in the household. Not asked if the variable "CHILDREN" is 0*, 88 [None], 99 [Refused], or BLANK [Not asked or missing] or if the variable "CHILDAGE" &gt; 215 months), non-institutionalized adults 18 and older</i></p>	<ul style="list-style-type: none"> <li>+ Behavior highly correlated in clusters</li> <li>+ Every other year also look at fruit and vegetable behavior.</li> <li>+ Indicator for future habits</li>   <li>- Doesn't relate immediately</li> </ul>	<ul style="list-style-type: none"> <li>• Unsure about survey frequency</li> <li>• Parking lot?</li> </ul>

Index	Indicator	Pros and Cons	Comments
27	<p>2.11. Prevalence of adults who strongly agree or agree that it is easy to purchase healthy foods in their neighborhood (perception from survey-based questions)</p> <p><i>Source: Missouri County-Level Survey</i></p> <p><i>Frequency of data collection: Periodic (surveys in 2002-2003, 2007, 2011)</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of people who answered "strongly agree" or "agree" to "To what degree would you agree with the statement, It is easy to purchase healthy foods in my neighborhood such as whole grain foods, low fat options, and fruits and vegetables."</i></p> <p><i>Definition of the Denominator: Number of non-institutionalized Missourian adults 18 and older</i></p>		
28	<p>2.12. Percent of parents who describe their child as "very overweight"</p>		

Index	Indicator	Pros and Cons	Comments
	<p><i>Source: CHNA</i></p> <p><i>Frequency of data collection: Periodic time survey</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Parents who described the randomly selected child as "very overweight"</i></p> <p><i>Definition of the denominator: Parents of children 5-17</i></p>		
	<b>3. Overweight/Obesity and Related Factors</b>		
	<b>3.a. Adults ages 18 and older and mothers</b>		
29	<p>3.a.1. Prevalence of overweight/obesity among adults 18 and older</p> <p><i>Source: BRFSS/SMART</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of</i></p>	<p>+ Good measure should track</p>	

Index	Indicator	Pros and Cons	Comments
	<p><i>people with a BMI of at least 25</i></p> <p><i>Definition of the Denominator: Number of non-institutionalized adults 18 and older for which BMI can be calculated</i></p>		
30	<p>3.a.2. Prevalence of obesity among adults</p> <p><i>Source: SMART/BRFSS</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of people with a BMI of at least 30</i></p> <p><i>Definition of the Denominator: Number of non-institutionalized adults 18 and older for which BMI can be calculated</i></p>	<p>+ Good measure should track</p>	
31	<p>3.a.3. Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy</p> <p><i>Source: Prenatal/Postpartum WIC MICA for MO, PNSS for KS</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p>	<p>+ Available</p> <p>+ Low cost</p> <p>+ Good indicator</p>	<ul style="list-style-type: none"> <li>• Could get for all mothers off of BC</li> </ul>

Index	Indicator	Pros and Cons	Comments
	<p><i>Definition of the numerator for MO data:            Number of live births to Missourian women who received services through the WIC Postpartum program and was enrolled in the WIC Prenatal program during her pregnancy and was overweight/obese prior to pregnancy</i></p> <p><i>Definition of the Denominator for MO data: Number of live births to Missourian women who received services through the WIC Postpartum program and was enrolled in the WIC Prenatal program during her pregnancy</i></p> <p><i>Definition of the numerator for KS data:            Number of live births to Kansan women who received KS WIC services and was overweight/obese prior to pregnancy</i></p> <p><i>Definition of the denominator for KS data: Number of live births to Kansan women who received KS WIC services during her pregnancy</i></p>		
32	3.a.4. Prevalence of low-income postpartum women who were obese prior to pregnancy		

Index	Indicator	Pros and Cons	Comments
	<p><i>Source: Prenatal WIC MICA</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of live births to women who received services through the WIC Postpartum program and was enrolled in the WIC Prenatal program during her pregnancy who was obese prior to pregnancy</i></p> <p><i>Definition of the denominator: Number of live births to women who received services through the WIC Postpartum program and was enrolled in the WIC Prenatal program during her pregnancy</i></p>		
33	<p>3.a.5. Prevalence of no health care coverage among pregnant women</p> <p><i>Source: BRFSS/SMART</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of selected pregnant women under 65 who answered "Do not have health care coverage" to "Do you have any kind of</i></p>	<ul style="list-style-type: none"> <li>- Small sample size</li> <li>o Smart BRFSS may not be continued</li> </ul>	<ul style="list-style-type: none"> <li>• Explore getting this data from BC—can get rates by county/zip code, birth rate for entire population             <ul style="list-style-type: none"> <li>o RESPONSE: health care coverage not available on MICA or KIC, Medicaid status has been added for Missouri</li> <li>o Aggregate for multiple years to get sufficient sample size and rate data</li> </ul> </li> </ul>

Index	Indicator	Pros and Cons	Comments
	<p><i>health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?"</i></p> <p><i>Definition of the denominator: Women who answered "Yes" to "To your knowledge, are you now pregnant?" (Not asked if male or age greater than 44), non-institutionalized adults 18 and older but under 65</i></p>		
34	<p>3.a.6. Prevalence of no health care coverage among adults</p> <p><i>Source: BRFSS/SMART</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of people under 65 who answered "Do not have health care coverage" to "Do you have any kind of health care coverage, including health insurance, prepaid plans such as HMOs, or government plans such as Medicare?"</i></p> <p><i>Definition of the denominator: number of non-institutionalized adults 18 and</i></p>		

Index	Indicator	Pros and Cons	Comments
	<i>older but under 65</i>		
35	<p>3.a.7. Prevalence of adults with no leisure time exercise or physical activity in the past 30 days</p> <p><i>Source: BRFSS/SMART</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of people who answered "No" to "During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?"</i></p> <p><i>Definition of the denominator: Number of non-institutionalized adults 18 and older</i></p>	<ul style="list-style-type: none"> <li>- Easy to capture</li> <li>- Good indicator</li> </ul>	
	<b>3.b. Children</b>		



Index	Indicator	Pros and Cons	Comments
36	<p>3.b.1. Prevalence of neonates with high birth weight (&gt; 4499g)</p> <p><i>Source: Birth MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of live births with high birth weight (&gt; 4,499g)</i></p> <p><i>Definition of the Denominator: Number of live births</i></p>		
37	<p>3.b.2. Prevalence of neonates with low/very low birth weight (&lt; 2500g)</p> <p><i>Source: Birth MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of live births with low/very low birth weight (&lt;2,500g)</i></p> <p><i>Definition of the Denominator: Number</i></p>		

Index	Indicator	Pros and Cons	Comments
	<i>of live births</i>		
38	<p>3.b.3. Prevalence of low-income neonates with low/very low birth weight (&lt; 2500g)</p> <p><i>Source: PNSS for KS, Infant WIC MICA for MO</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Infants (birth up to 1) who received services through the MO WIC Infant or KS WIC program and had a low birth weight(&lt;2,500 grams)</i></p> <p><i>Definition of the Denominator: Infants (birth up to 1) who received services through the WIC program</i></p>		
39	<p>3.b.4. Prevalence of low-income neonates with high birth weight</p> <p><i>Source: PNSS for KS, Infant WIC MICA for MO</i></p>	<ul style="list-style-type: none"> <li>+ Very low birth weight shows correlation with abdominal weight in adults</li> <li>+ Available and reliable source</li> <li>+ Good indicator</li> <li>- Doesn't represent all low-income</li> </ul>	<ul style="list-style-type: none"> <li>• Could also get for whole population from BC</li> <li>• Could get from BC for total population</li> </ul>

Index	Indicator	Pros and Cons	Comments
	<p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Infants (birth up to 1) who received services through the MO WIC Infant or KS WIC program and had a high birth weight(&gt;=4,000 grams)</i></p> <p><i>Definition of the Denominator Infants (birth up to 1) who received services through the WIC program</i></p>	<p>populations</p> <ul style="list-style-type: none"> <li>- Maybe or Maybe not related to childhood Obesity</li> </ul>	
40	<p>3.b.5. Prevalence of low-income children (age 2—4) with a Body Mass Index (BMI)-for-age indicating overweight/obesity</p> <p><i>Source: PedNSS for KS, Child WIC MICA for MO</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Children age 2—4 who received services through the MO WIC Child or KS WIC program and had a BMI-for-age over the 85th percentile</i></p> <p><i>Definition of the Denominator: Children</i></p>	<ul style="list-style-type: none"> <li>+ Strong marker, sensitive indicator</li> <li>- Does not represent whole population</li> </ul>	<ul style="list-style-type: none"> <li>• While not reflected on slide, believe can get for all 6 counties.</li> </ul>

Index	Indicator	Pros and Cons	Comments
	<i>age 2—4 who received services through the WIC Child program</i>		
41	<p>3.b.6. Prevalence of children by age whose parent(s) was/were told by a health professional or someone in the child's school that their child is overweight</p> <p><i>Source: CHNA</i></p> <p><i>Frequency of data collection: Periodic</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of parents who were told by a health professional or someone in child's school that their child is overweight</i></p> <p><i>Definition of the Denominator: Number of parents</i></p>	<ul style="list-style-type: none"> <li>- Appears to be valuable indicator</li> </ul>	<ul style="list-style-type: none"> <li>• Would be good to conduct validity study of this question.</li> </ul>
42	<p>3.b.7. Prevalence of low-income children with weight for height and gender (BMI) – over (<math>\geq</math> 95th percentile)</p> <p><i>Source: Child WIC MICA</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data</i></p>		

Index	Indicator	Pros and Cons	Comments
	<p><i>entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Children age 1—4 who received services through the WIC Child program and had a weight for height and gender (BMI) – over (greater than or equal to 95th percentile)</i></p> <p><i>Definition of the denominator: Children age 1—4 who received services through the WIC Child program</i></p>		
43	<p>3.b.8. Prevalence of low-income children with weight for height and gender (BMI) between the 85th and 95th percentiles</p> <p><i>Source: Child WIC MICA</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Children age 1—4 who received services through the WIC Child program and had a weight for height and gender (BMI) risk of overweight (85th to &lt;95th percentile)</i></p> <p><i>Definition of the denominator: Children</i></p>		

Index	Indicator	Pros and Cons	Comments
	<i>age 1—4 who received services through the WIC Child program</i>		
44	<p>3.b.9. Prevalence of children aged 5-17 with a BMI <math>\geq</math> 95th percentile</p> <p><i>Source: CHNA</i></p> <p><i>Frequency of data collection: Periodic</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of children with a BMI over the 95th percentile</i></p> <p><i>Definition of the Denominator: Number of children</i></p>		
45	<p>3.b.10. Prevalence of children aged 5-17 with a BMI between the 85th and 95th percentiles</p> <p><i>Source: CHNA</i></p> <p><i>Frequency of data collection: Periodic</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of</i></p>		

Index	Indicator	Pros and Cons	Comments
	<p><i>children with a BMI between the 85<sup>th</sup> and 95th percentiles</i></p> <p><i>Definition of the Denominator: Number of children</i></p>		
46	<p>3.b.11. Prevalence of children aged 5-17 with a BMI <math>\geq</math> 85th percentile</p> <p><i>Source: CHNA</i></p> <p><i>Frequency of data collection: Periodic</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of children with a BMI over the 85th percentile</i></p> <p><i>Definition of the Denominator: Number of children</i></p>		
47	<p>3.b.12.Prevalenceof children who were physically activity one hour/day in past week (age 2-17)</p> <p><i>Source: CHNA</i></p> <p><i>Frequency of data collection: Periodic</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p>		

Index	Indicator	Pros and Cons	Comments
	<p><i>Definition of the numerator: Number of children who were physically activity one hour/day in past week (age 2-17 )</i></p> <p><i>Definition of the Denominator: Number of children</i></p>		
	<p><b>4. Overweight/Obesity-related Disease or Health Condition</b></p>		
	<p><b>4.a. Adults ages 18 and older and mothers</b></p>		
48	<p>4.a.1. Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes</p> <p><i>Source: BRFSS/SMART</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of pregnant women who answered "Yes" to "Have you ever been told by a doctor that you have diabetes" excluding females who answered "Yes" to "Was</i></p>		



Index	Indicator	Pros and Cons	Comments
	<p><i>this only when you were pregnant?"</i></p> <p><i>Definition of the denominator: Women who answered "Yes" to "To your knowledge, are you now pregnant?" (Not asked if male or age greater than 44), non-institutionalized adults 18 and older</i></p>		
49	<p>4.a.2. Prevalence of adults 18 and older who were told by a health professional that they have diabetes, excluding gestational diabetes</p> <p><i>Source: BRFSS/SMART</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): Survey</i></p> <p><i>Definition of the numerator: Number of people who answered "Yes" to "Have you ever been told by a doctor that you have diabetes" excluding females who answered "Yes" to "Was this only when you were pregnant?"</i></p> <p><i>Definition of the Denominator: Number of non-institutionalized adults 18 and older</i></p>		

Index	Indicator	Pros and Cons	Comments
50	<p>4.a.3. Rate of hospitalization due to diabetes</p> <p><i>Source: Discharge MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Hospital discharges with a principal diagnosis of diabetes</i></p> <p><i>Definition of the Denominator: Population size</i></p>		
51	<p>4.a.4. Rate of deaths attributed to diabetes</p> <p><i>Source: Death MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of deaths with diabetes as the underlying cause of death</i></p> <p><i>Definition of the Denominator:</i></p>		

Index	Indicator	Pros and Cons	Comments
	<i>Population size</i>		
52	<p>4.a.5. Rate of emergency room visits due to diabetes</p> <p><i>Source: ER MICA</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of emergency visits with a principal diagnosis of diabetes</i></p> <p><i>Definition of the Denominator: Population size</i></p>		
53	<p>4.a.6. Rate of hospitalization due to heart disease</p> <p><i>Source: Discharge MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p>		

Index	Indicator	Pros and Cons	Comments
	<p><i>Definition of the numerator: Hospital discharges with a principal diagnosis of heart disease</i></p> <p><i>Definition of the Denominator: Population size</i></p>		
54	<p>4.a.7. Rate of deaths attributed to heart disease</p> <p><i>Source: Death MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of deaths with heart disease as the underlying cause of death</i></p> <p><i>Definition of the Denominator: Population size</i></p>		
55	<p>4.a.8. Rate of emergency room visits due to heart disease</p> <p><i>Source: ER MICA</i></p> <p><i>Frequency of data collection: Annual</i></p>		

Index	Indicator	Pros and Cons	Comments
	<p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of emergency visits with a principal diagnosis of heart disease</i></p> <p><i>Definition of the Denominator: Population size</i></p>		
56	<p>4.a.9 Rate of hospitalization due to essential hypertension</p> <p><i>Source: Discharge MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Hospital discharges with a principal diagnosis of essential hypertension</i></p> <p><i>Definition of the Denominator: Population size</i></p>		
57	<p>4.a.10 Rate of deaths attributed to essential hypertension</p>		

Index	Indicator	Pros and Cons	Comments
	<p><i>Source: Death MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of deaths with essential hypertension as the underlying cause of death</i></p> <p><i>Definition of the Denominator: Population size</i></p>		
58	<p>4.a.11 Rate of emergency room visits due to essential hypertension</p> <p><i>Source: ER MICA</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of emergency visits with a principal diagnosis of essential hypertension</i></p> <p><i>Definition of the Denominator: Population size</i></p>		

Index	Indicator	Pros and Cons	Comments
	<b>4.b. Children</b>		
59	<p>4.b.1. Prevalence of children by age (0—17, 5+) whose parent(s) was/were told by a health professional that their child has type-2 diabetes</p> <p><i>Source: CHNA</i></p> <p><i>Frequency of data collection: Periodic</i></p> <p><i>Questions (Survey) or data entry (collection form): reported data</i></p> <p><i>Definition of the numerator: Number of parents who answered “Yes” to “Has a doctor or other health care provider ever told you that this child had Type 2 Diabetes?”</i></p> <p><i>Definition of the denominator: Number of parents</i></p>		
60	<p>4.b.2. Rate of hospitalization due to diabetes among children</p> <p><i>Source: Discharge MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p>		<ul style="list-style-type: none"> <li>– Can't distinguish Type I from Type II diabetes with this analysis</li> <li>– Could be sensitive, important indicator if could distinguish the two</li> </ul>

Index	Indicator	Pros and Cons	Comments
	<p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Hospital discharges of children under the age of 15 with a principal diagnosis of diabetes</i></p> <p><i>Definition of the Denominator: Population size of children under the age of 15</i></p>		
61	<p>4.b.3. Rate of deaths attributed to diabetes among children</p> <p><i>Source: Death MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of deaths among children with diabetes as the underlying cause of death</i></p> <p><i>Definition of the Denominator: Population size of children under the age of 15</i></p>	<p>+ Good indicator if can distinguish Type I from II and reflect this for Type II</p> <p>- Incidence and numbers too low to get true rate by county</p>	<p>- Can't distinguish Type I from Type II diabetes with this analysis</p> <p>- Reflect for region, not by county</p>
62	<p>4.b.4. Rate of emergency room visits due to diabetes among children by age</p>		



Index	Indicator	Pros and Cons	Comments
	<p><i>Source: ER MICA</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of emergency visits of children under the age of 15 with a principal diagnosis of diabetes</i></p> <p><i>Definition of the Denominator: Population size of children under the age of 15</i></p>		
63	<p>4.b.5. Rate of hospitalization due to essential hypertension among children</p> <p><i>Source: Discharge MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Hospital discharges of children under the age of 15 with a principal diagnosis of essential hypertension</i></p> <p><i>Definition of the Denominator: Population size of children under the age of 15</i></p>		

Index	Indicator	Pros and Cons	Comments
64	<p>4.b.6. Rate of deaths attributed to essential hypertension among children</p> <p><i>Source: Death MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of deaths among children with essential hypertension as the underlying cause of death</i></p> <p><i>Definition of the Denominator: Population size of children under the age of 15</i></p>		
65	<p>4.b.7. Rate of emergency room visits due to essential hypertension among children</p> <p><i>Source: ER MICA</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Number of emergency visits of children under the age of 15 with a principal diagnosis of</i></p>		

Index	Indicator	Pros and Cons	Comments
	<p><i>essential hypertension</i></p> <p><i>Definition of the Denominator: Population size of children under the age of 15</i></p>		
66	<p>4.b.8. Rate of hospitalization due to "Other bone disease and musculoskeletal deformities," including Blount's disease</p> <p><i>Source: Discharge MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Hospital discharges of children under the age of 15 with a principal diagnosis of "Other bone disease and musculoskeletal deformities"</i></p> <p><i>Definition of the Denominator: Population size of children under the age of 15</i></p>		<p>This category includes the following ICD-9-CM diagnosis codes and cannot be further broken-out:</p> <p>7310 7311 7312 7313 7318 7320 7321 7322 7323 7324 7325          7326 7327 7328 7329 73320 73321 73322 73329 7333 73340          73341 73342 73343 73344 73345 73349 7335 7336 7337          73381 73382 73390 73391 73392 73399 73730 73731 73732          7390 7391 7392 7393 7394 7395 7396 7397 7398 7399 V424          V486 V487 V494 V8821 V8822 V8829</p>
67	<p>4.b.9. Rate of hospitalizations due to "Other diagnostic procedures (interview; evaluation; consultation)," including sleep study procedures and "Residual</p>		<p>This category includes the following ICD-9-CM diagnosis codes and cannot be further broken-out:</p> <p>3020 32700 32701 32709 32710 32711 32712 32713 32714          32719 32720 32721 32722 32723 32724 32725 32726 32727</p>

Index	Indicator	Pros and Cons	Comments
	<p>codes; unclassified," including sleep apnea</p> <p><i>Source: Discharge MICA &amp; KIC and Procedures MICA &amp; KIC</i></p> <p><i>Frequency of data collection: Annual</i></p> <p><i>Questions(Survey) or data entry(collection form): reported data</i></p> <p><i>Definition of the numerator: Hospital discharges of children under the age of 15 with a principal diagnosis of "Residual codes; unclassified" plus hospital procedures categorized as "Other diagnostic procedures (interview; evaluation; consultation)"</i></p> <p><i>Definition of the Denominator: Population size of children under the age of 15</i></p>		<p>32729 32740 32741 32742 32743 32744 32749 32751 32759          3278 78002 7801 78050 78051 78052 78053 78054 78055          78056 78057 78058 78059 78064 78065 7809 78093 78094          78095 78096 78097 78099 7815 7816 7823 78261 78262 7828          7829 7830 7836 7842 7901 7906 7909 79091 79092 79093          79094 79095 79099 7929 7932 7939 79399 7949 7954 79581          79582 79589 7963 7964 7965 7966 7969 7980 7981 7982          7989 7992 79921 79922 79923 79924 79925 79929 7993 7998          79981 79982 79989 7999 V070 V072 V073 V0731 V0739          V0751 V0752 V0759 V078 V079 V131 V138 V1389 V139 V152          V1521 V1522 V1529 V153 V1581 V1584 V1585 V1586 V1587          V1589 V159 V160 V161 V162 V163 V164 V1640 V1641 V1642          V1643 V1649 V165 V1651 V1652 V1659 V166 V167 V168          V169 V170 V171 V172 V173 V174 V1741 V1749 V175 V176          V177 V178 V1781 V1789 V180 V181 V1811 V1819 V182 V183          V184 V185 V1851 V1859 V186 V1861 V1869 V187 V188 V189          V190 V191 V1911 V1919 V192 V193 V194 V195 V196 V197          V198 V210 V211 V212 V218 V219 V418 V419 V428 V4281          V4282 V4283 V4284 V4289 V429 V438 V4381 V4382 V4383          V4389 V447 V448 V449 V4571 V4572 V4573 V4574 V4575          V4576 V4577 V4578 V4579 V4583 V4584 V4586 V4587          V4588 V4589 V460 V463 V468 V469 V470 V471 V472 V479          V480 V488 V489 V498 V4981 V4982 V4983 V4984 V4986          V4987 V4989 V499 V500 V501 V503 V5041 V5042 V5049          V508 V509 V590 V5901 V5902 V5909 V591 V592 V593 V594          V595 V596 V5970 V5971 V5972 V5973 V5974 V598 V599          V615 V640 V6400 V6401 V6402 V6403 V6404 V6405 V6406          V6407 V6408 V6409 V641 V642 V643 V644 V6441 V6442          V6443 V690 V691 V692 V693 V694 V695 V698 V699 V8301          V8302 V8381 V8389 V8401 V8402 V8403 V8404 V8409 V848          V8481 V8489 V851 V8552 V860 V861 V8701 V8702 V8709          V8711 V8712 V8719 V872 V8731 V8732 V8739 V8741 V8742</p>

Index	Indicator	Pros and Cons	Comments
			<p>V8743 V8744 V8745 V8746 V8749 V8801 V8802 V8803            V8811 V8812 V8901 V8902 V8903 V8904 V8905 V8909</p> <p>And the following procedure codes which cannot be further broken-out:</p> <p>0058 0059 0067 0068 0069 8901 8902 8903 8904 8905 8906            8907 8908 8909 8910 8911 8912 8913 8915 8916 8917 8918            8919 8921 8922 8923 8924 8925 8926 8931 8932 8933 8934            8935 8936 8937 8938 8939 8945 8946 8947 8948 8949 8950            8953 8955 8956 8957 8958 8959 8961 8962 8963 8966 8967            8968 8969 897 898</p>

## Acronyms and Abbreviations:

ACS = American Community Survey  
(<http://www.census.gov/acs/www/>)

BRFSS = Behavioral Risk Factor Surveillance System  
(<http://www.cdc.gov/brfss/>)

KIC = Kansas Information for Communities  
(<http://kic.kdhe.state.ks.us/kic/index.html>)

MICA = Missouri Information for Community Assessment  
(<http://health.mo.gov/data/mica/MICA/>)

PedNSS = Pediatric Nutritional Surveillance System (KS:  
[http://www.kansaswic.org/kansas\\_WIC/pediatric\\_and\\_pregnancy\\_nutrition\\_surveillance.html](http://www.kansaswic.org/kansas_WIC/pediatric_and_pregnancy_nutrition_surveillance.html))

PNSS = Pregnancy Nutritional Surveillance System (KS:  
[http://www.kansaswic.org/kansas\\_WIC/pediatric\\_and\\_pregnancy\\_nutrition\\_surveillance.html](http://www.kansaswic.org/kansas_WIC/pediatric_and_pregnancy_nutrition_surveillance.html))

SMART = Selected Metropolitan/Micropolitan Area Risk Trends  
(<http://www.cdc.gov/brfss/smart/>)

SNAP = Supplementary Nutrition Assistance Program  
(<http://www.fns.usda.gov/snap/>)

TANF = Temporary Assistance for Needy Families  
(<http://www.acf.hhs.gov/programs/ofa/programs/tanf>)

WIC = The Special Supplemental Nutrition Program for Women, Infants, and Children  
(<http://www.fns.usda.gov/wic/>)

**Note:** A more complete list of acronyms is located on **page ??** of the main report.

## General Highlights:

- Work was done by the University of Missouri School of Medicine, Department of Health Management and Informatics. Presenter: Eduardo J. Simoes, MD, MSc, DLSHTM, MPH; team members: Jeannette Jackson-Thompson, MSPH, PhD, Chester Schmaltz, PhD, Esmaeel Rahmani, MD, MSHI, Phillip Berber, MHA, Adam Bouras, MHA, MSHI, MSc.
- This is an updated version of the list in original discussion notes, which has additional notes and indicators added by the members of the team.

## Appendix I:

### On-line Survey

Conducted by a research team from the University of Missouri-Columbia

For

#### The Children's Mercy Hospital Obesity Prevention Coalition Project

As mentioned in the invitation you received, the survey consists of seven sections. Each section contains from two to 14 indicators — 67 indicators in all. Additional information about the indicators can be obtained by clicking on the following links, now or at any point during the survey.

- [Selected graphs of indicators \(Appendix J\)](#)
- [Characteristics of indicators \(Appendix G\)](#)
- [Collaborative discussions \(Appendix H\)](#)

You will be asked to rank each indicator in a section, with '1' being the most important indicator, '2' being the next most important indicator and so forth until you have ranked all indicators in that section. At the end of each section, you will have an opportunity to make comments about indicators in that section. At the end of the survey, a comment box is included for comments about the indicators, the survey or the project.

A button labeled "Next" at the bottom of each page allows you to move to the next page.

**Indicators in one section must be ranked in order to proceed to the next page.** If you don't want to make any comments, just enter "N/A" or "None" in the box for comments and press the "Next" button. As a reminder, until you complete the survey, your responses are saved in your computer. If you start the survey and decide to finish it later, **we recommend that you use the same computer and the same browser to avoid response duplication.** The survey must be completed by **11:59 p.m., Thursday, August 8** in order for your responses to be included in the ranking analysis.

Your participation is voluntary and your responses will be kept confidential. Only members of the research team will have access to individual responses. All responses will be compiled and analyzed as a group.

For technical information and assistance on the survey and documentation, please contact

- Adam Bouras, Department of Health Management and Informatics, University of Missouri-Columbia,  
email: [bourasm@health.missouri.edu](mailto:bourasm@health.missouri.edu); phone: 573-884-9095.

## 1. Socioeconomic Status and Demographic Factors

This section contains 14 indicators related to the socioeconomic status (SES) and demographics of mothers. After reading the indicators, please rank them from '1' (most important) to '14' (least important). When you choose a rank for an indicator, it automatically moves to that rank on the list.

Some people have difficulty ranking all indicators. If that is the case, you may select the one(s) you think least important and rank it/them toward the bottom. **Be sure to rank all indicators before moving to the comment box.**

### 1.a. Socioeconomic status and demographic factors of mothers

[Selected graphs of indicators](#), [characteristics of indicators](#), and [collaborative discussions](#)

- 1.a.1. Prevalence of mothers without health care coverage
- 1.a.2. Percent of pregnant women who are unmarried
- 1.a.3. Percent of pregnant women who smoked during pregnancy
- 1.a.4. Percent of pregnant women who are on The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)
- 1.a.5. Percent of pregnant women who are on Medicaid
- 1.a.6. Percent of pregnant women who are on Food Stamps
- 1.a.7. Educational attainment of pregnant women (less than high school, high school, some college, college graduate)
- 1.a.8. Percent of households with a female householder, no husband present, and the householder's own minor children among all households
- 1.a.9. Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children
- 1.a.10. Percent of mothers by race/ethnicity
- 1.a.11. Demographics of pregnant women
- 1.a.12. Percent of pregnant mothers in WIC who get Supplementary Nutrition Assistance Program (SNAP)
- 1.a.13. Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years
- 1.a.14. Percent of unmarried parents in household



Please enter comments about any of the indicators you ranked in the above section on SES status and demographics of mothers. For example, you might want to explain why you ranked an indicator as the most important indicator or why you think your top two indicators are equally important.

*If you choose not to comment, enter "N/A" or "No comment".* **When you have finished, hit "Next" to move to Section 1.b.**

**Comment box**

## 1. Socioeconomic Status and Demographic Factors

This section contains only two indicators. Rank one indicator '1' (most important) and the other indicator '2' (least important). **Be sure that you rank both indicators before moving to the comment box.**

### 1.b. Socioeconomic status and demographic factors of children

[Selected graphs of indicators](#), [characteristics of indicators](#), and [collaborative discussions](#)

1.b.1. Prevalence of children in poverty by age

1.b.2. Prevalence of children enrolled in Temporary Assistance for Needy Families (TANF)

Please enter comments about either or both of the two indicators you ranked in the above section on SES status and demographics of children. If you choose not to comment, enter "N/A" or "No comment". **When you have finished, hit "Next" to move to Section 2.**

#### Comment box

## 2. Environmental Factors

This section contains twelve indicators related to environmental factors associated with childhood obesity. Please rank the indicators from '1' (most important) to '12' (least important).

If you have difficulty ranking all twelve indicators, select the one(s) you think least important and rank it/them at or near the bottom of the list. **Be sure to rank all indicators before moving to the comment box.**

### 2. Environmental factors

[Selected graphs of indicators](#), [characteristics of indicators](#), and [collaborative discussions](#)

- 2.1. Percent of population with a low accessibility to food among the child, low-income, and total populations
- 2.2. Percent of school personnel stating that their school has policies on moderate and vigorous physical activity during physical education (PE)
- 2.3. School districts' WellSAT scores for regulating food sold for fundraising at all times (not only during the school day)
- 2.4. School districts' WellSAT scores for providing nutrition curriculum for each grade level
- 2.5. School districts' WellSAT scores for encouraging staff to be role models for healthy behaviors
- 2.6. School districts' WellSAT scores for specifying how district will engage families to provide information and/or solicit input to meet district wellness goals
- 2.7. Prevalence of adults in neighborhoods with sidewalks (perception from survey-based questions)
- 2.8. Prevalence of adults in neighborhoods with roads/streets with shoulders or marked lanes for bicycling
- 2.9. Prevalence of children living with a parent who is overweight/obese
- 2.10. Prevalence of children living with a parent who is inactive during leisure time
- 2.11. Prevalence of adults who strongly agree or agree that it is easy to purchase healthy foods in their neighborhood (perception from survey-based questions)
- 2.12. Percent of parents who describe their child as "very overweight"

Please enter comments about any or all of the 12 indicators you ranked in the above section on environmental factors. If you choose not to comment, enter "N/A" or "No comment". **When you have finished, hit "Next" to move to Section 3.**

**Comment box**

### 3. Overweight/Obesity and Related Behaviors

This section contains seven indicators associated with overweight/obesity and related behaviors in adults aged 18 and older and mothers. Please rank the indicators from '1' (most important) to '7' (least important).

**Be sure that you rank all indicators before moving to the comment box.**

#### 3.a. Overweight/obesity and related behaviors of adults aged 18 or older and mothers

[Selected graphs of indicators](#), [characteristics of indicators](#), and [collaborative discussions](#)

- 3.a.1. Prevalence of overweight/obesity among adults 18 and older
- 3.a.2. Prevalence of obesity among adults
- 3.a.3. Prevalence of low-income pregnant mothers who were overweight/obese prior to pregnancy
- 3.a.4. Prevalence of low-income pregnant mothers who were obese prior to pregnancy
- 3.a.5. Prevalence of no health care coverage among pregnant mothers
- 3.a.6. Prevalence of no health care coverage among adults
- 3.a.7. Prevalence of adults with no leisure-time exercise or physical activity during the past 30 days

Please enter comments about any or all of the seven indicators you ranked in the above section on overweight/obesity and related behaviors in adults aged 18 or older and mothers. If you choose not to comment, enter "N/A" or "No comment". **When you have finished, hit "Next" to move to Section 3.b.**

#### Comment box

### 3. Overweight/Obesity and Related Behaviors

This section contains twelve indicators associated with overweight/obesity and related behaviors in children. Please rank the indicators from '1' (most important) to '12' (least important).

Again, if you have difficulty ranking all twelve indicators, select the one(s) you think least important and rank it/them at or near the bottom of the list. **Be sure that you rank all indicators before moving to the comment box.**

#### 3.b. Overweight/obesity and related behaviors of children

[Selected graphs of indicators](#), [characteristics of indicators](#), and [collaborative discussions](#)

- 3.b.1. Prevalence of neonates with high birth weight (> 4499g)
- 3.b.2. Prevalence of neonates with low/very low birth weight (< 2500g)
- 3.b.3. Prevalence of low-income neonates with low/very low birth weight (< 2500g)
- 3.b.4. Prevalence of low-income neonates with high birth weight
- 3.b.5. Prevalence of low-income children (age 2—4) with a Body Mass Index (BMI)-for-age indicating overweight/obesity
- 3.b.6. Prevalence of children by age whose parent(s) was/were told by a health professional or someone in the child's school that their child is overweight
- 3.b.7. Prevalence of low-income children with weight for height and gender (BMI)  $\geq$  95th percentile
- 3.b.8. Prevalence of low-income children with weight for height and gender (BMI) between the 85th and 95th percentile
- 3.b.9. Prevalence of children aged 5-17 with a BMI  $\geq$  95th percentile
- 3.b.10. Prevalence of children aged 5-17 with a BMI between the 85th and 95th percentiles
- 3.b.11. Prevalence of children aged 5-17 with a BMI  $\geq$  85th percentile
- 3.b.12. Prevalence of children who were physically activity one hour/day in past week

Please enter comments about any or all of the 12 indicators you ranked in the above section on overweight/obesity and related behaviors in children. If you choose not to comment, enter "N/A" or "*No comment*". **When you have finished, hit "Next" to move to Section 4.**

**Comment box**

## 4. Overweight/Obesity-related Disease or Health Condition

This section contains eleven indicators associated with overweight/obesity-related diseases or health conditions in adults aged 18 and older and mothers. Please rank the indicators from '1' (most important) to '11' (least important).

If you have difficulty ranking all eleven indicators, select the one(s) you think least important and rank it/them at or near the bottom of the list. **Be sure that you rank all indicators before moving to the comment box.**

### 4.a. Overweight/obesity-related disease or health condition of adults ages 18 or older and mothers

[Selected graphs of indicators](#), [characteristics of indicators](#), and [collaborative discussions](#)

- 4.a.1. Prevalence of pregnant mothers told by a health professional that they have diabetes, excluding gestational diabetes
- 4.a.2. Prevalence of adults 18 or older who were told by health professional that they have diabetes
- 4.a.3. Rate of hospitalization due to diabetes
- 4.a.4. Rate of deaths attributed to diabetes
- 4.a.5. Rate of emergency room visits attributed to diabetes
- 4.a.6. Rate of hospitalization due to heart disease
- 4.a.7. Rate of deaths attributed to heart disease
- 4.a.8. Rate of emergency room visits attributed to heart disease
- 4.a.9. Rate of hospitalization due to essential hypertension
- 4.a.10. Rate of deaths attributed to essential hypertension
- 4.a.11. Rate of emergency room visits due to essential hypertension



Please enter comments about any or all of the 11 indicators you ranked in the above section on overweight/obesity-related disease or health condition in adults aged 18 or older and mothers. If you choose not to comment, enter "N/A" or "No comment". **When you have finished, hit "Next" to move to Section 4.b.**

**Comment box**

## 4. Overweight/Obesity-related Disease or Health Condition

This section contains nine indicators associated with overweight/obesity-related diseases or health conditions in children. Please rank the indicators from '1' (most important) to '9' (least important). Be sure that you rank all indicators before moving to the comment box.

### 4.b. Overweight/obesity-related disease or health condition of children

[Selected graphs of indicators](#), [characteristics of indicators](#), and [collaborative discussions](#)

- 4.b.1. Prevalence of children by age (0—17, 5+) whose parent(s) was/were told by a health professional that their child has type-2 diabetes
- 4.b.2. Rate of hospitalization due to diabetes among children
- 4.b.3. Rate of deaths attributed to diabetes among children
- 4.b.4. Rate of emergency room visits due to diabetes among children
- 4.b.5. Rate of hospitalization due to essential hypertension among children
- 4.b.6. Rate of deaths attributed to essential hypertension among children
- 4.b.7. Rate of emergency room visits due to essential hypertension among children
- 4.b.8. Rate of hospitalization due to "Other bone disease and musculoskeletal deformities," including Blount's disease
- 4.b.9. Rate of hospitalization due to "Other diagnostic procedures (interview; evaluation; consultation)," including sleep study procedures and "Residual codes; unclassified," including Sleep Apnea

Please enter comments about any of the indicators you ranked in the above section on overweight/obesity-related disease or health condition of children. If you choose not to comment, enter "N/A" or "No comment". **When you have finished, hit "Next" to move to the Closing Statement.**

#### Comment box

If you have additional comments or questions about this project, the survey or the indicators, please feel free to write them here

**Additional comments**



**Thank you for your participation!**

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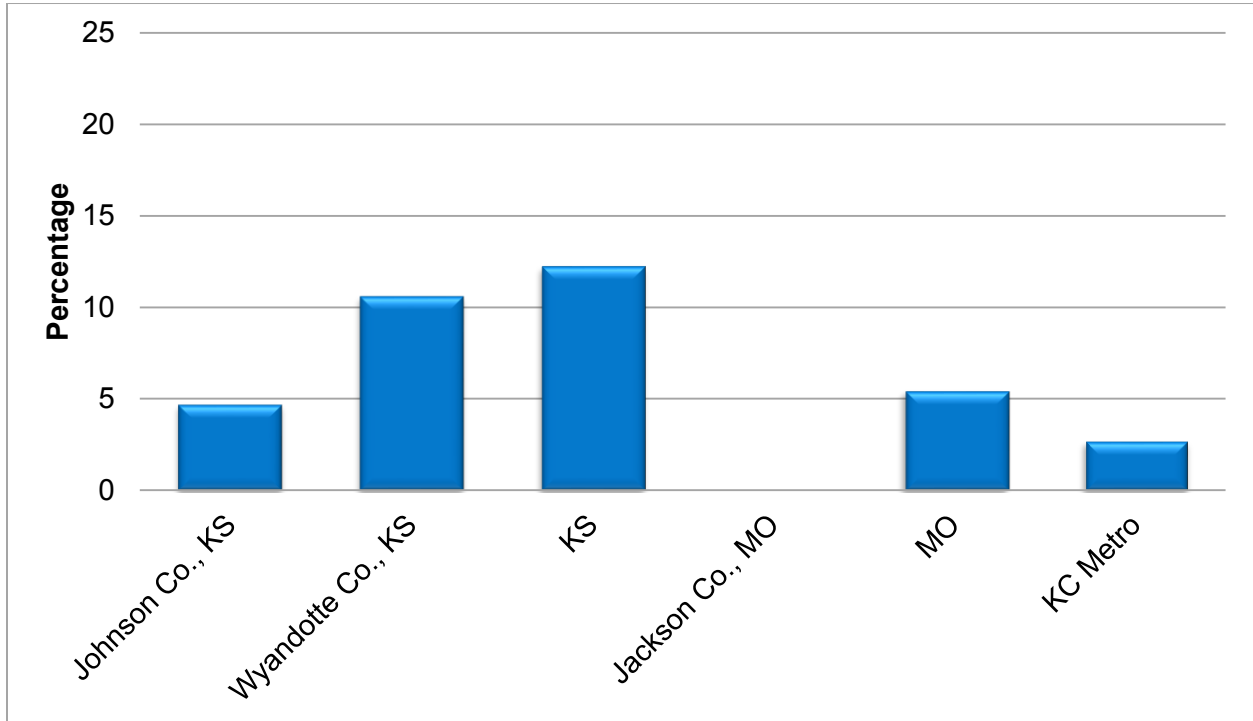
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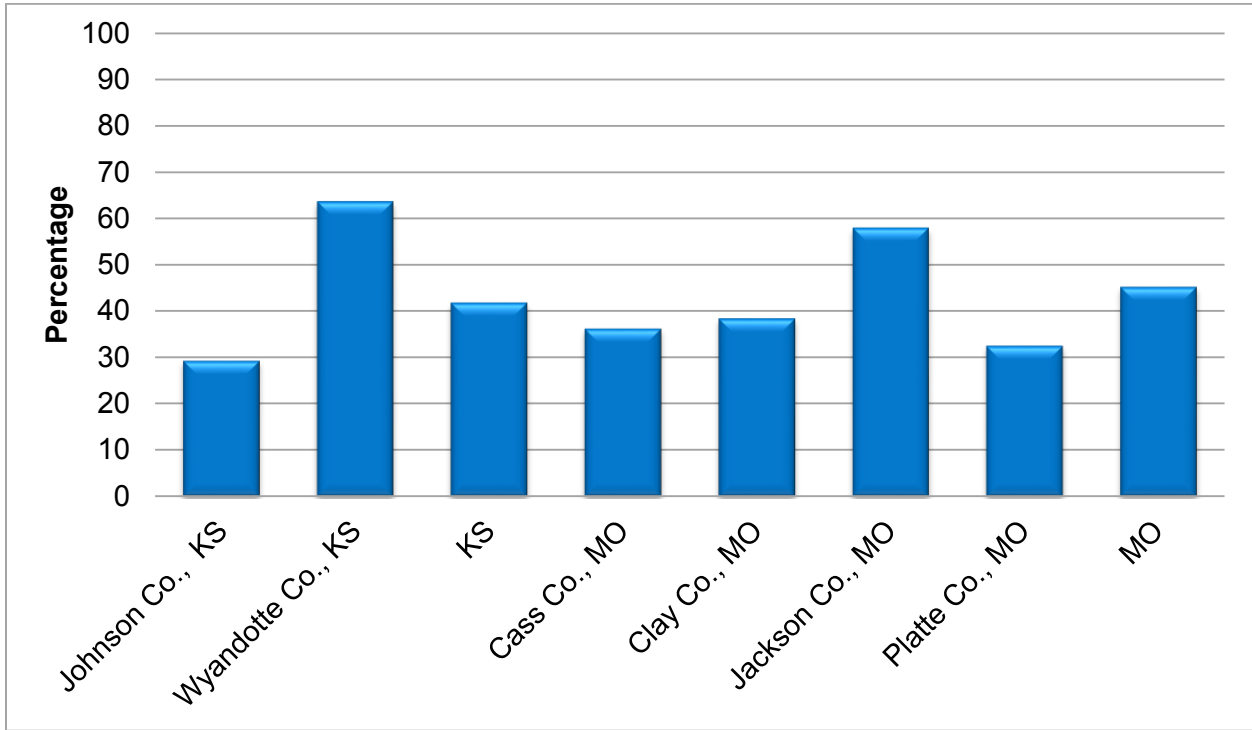
## 1) Socioeconomic Status and Demographic Factors

### a) Socioeconomic Status and Demographic Factors for Mothers

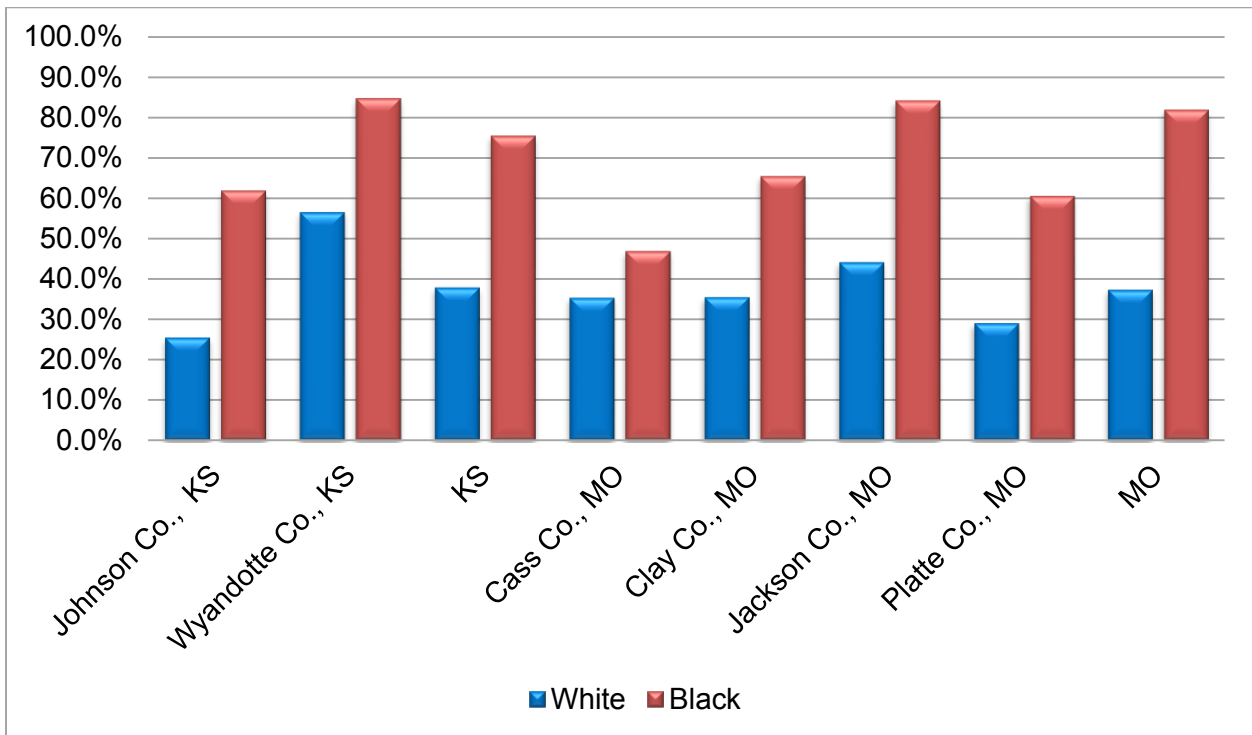
1.a.1. Prevalence of mothers without health care coverage



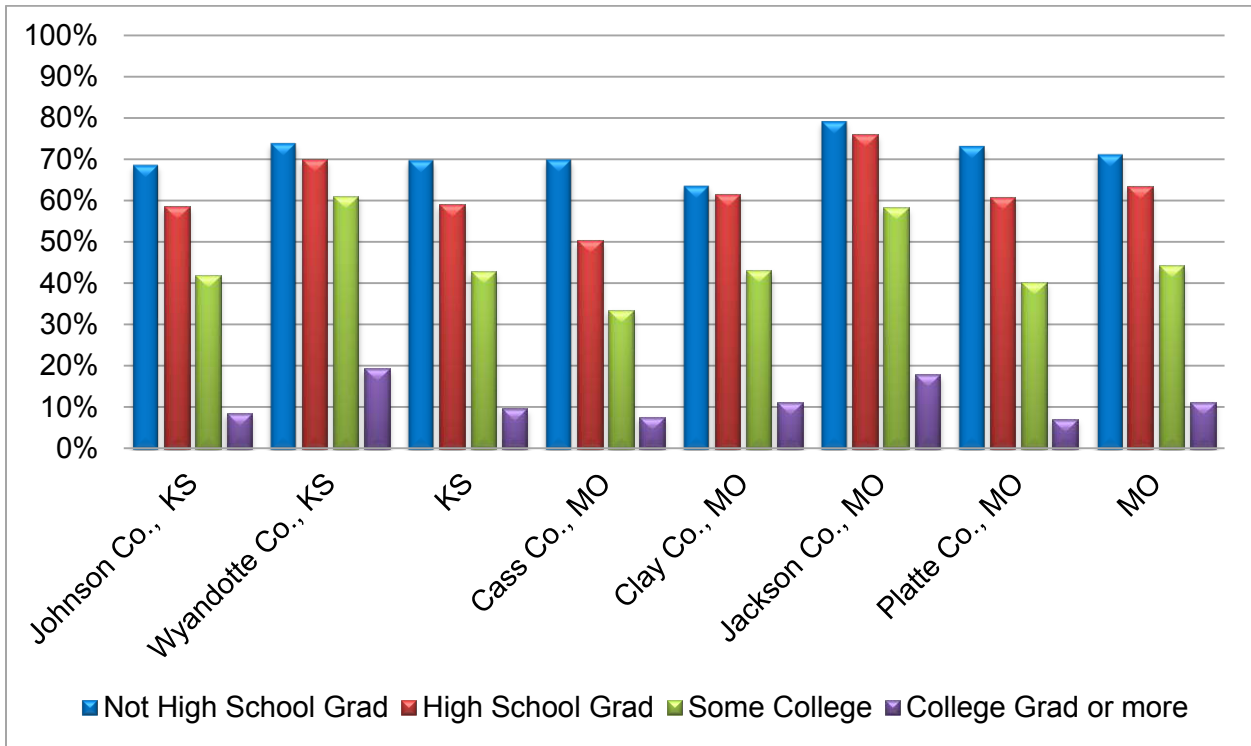
1.a.2. Percent of pregnant women who are unmarried



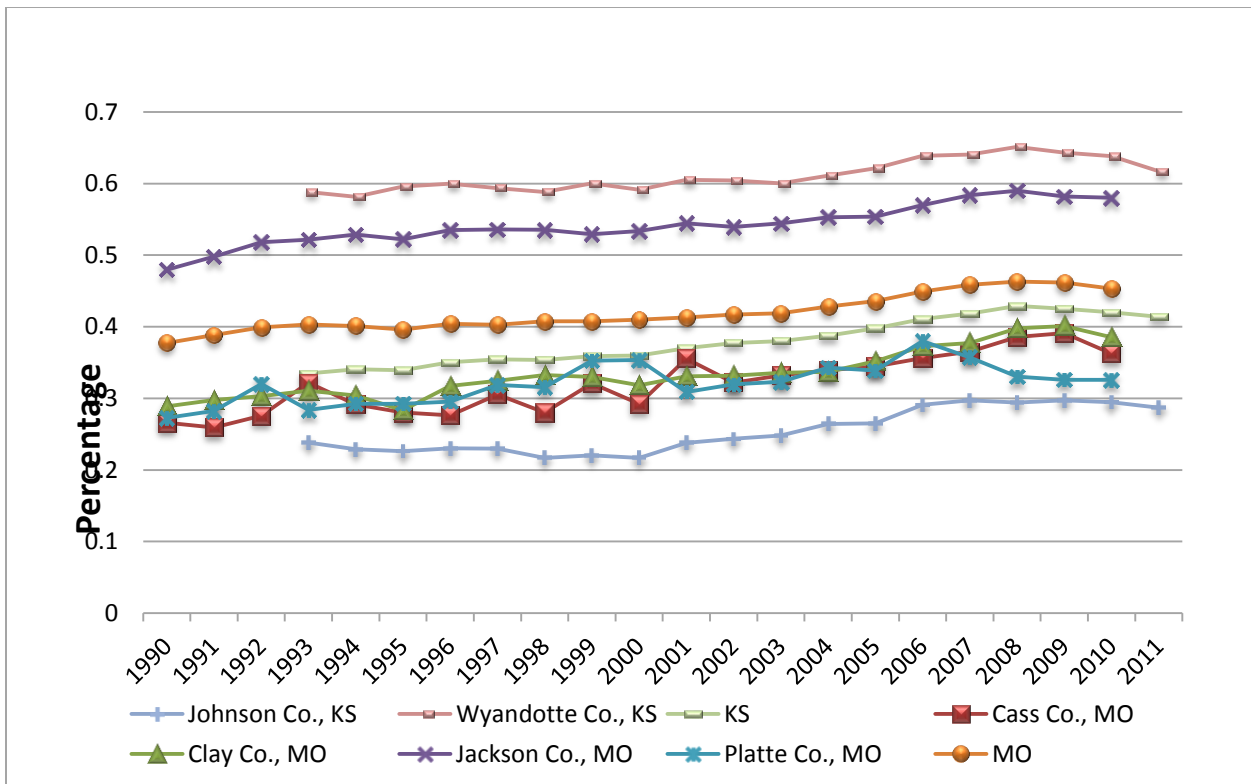
1.a.2. Percent of pregnant women who are unmarried (by race)



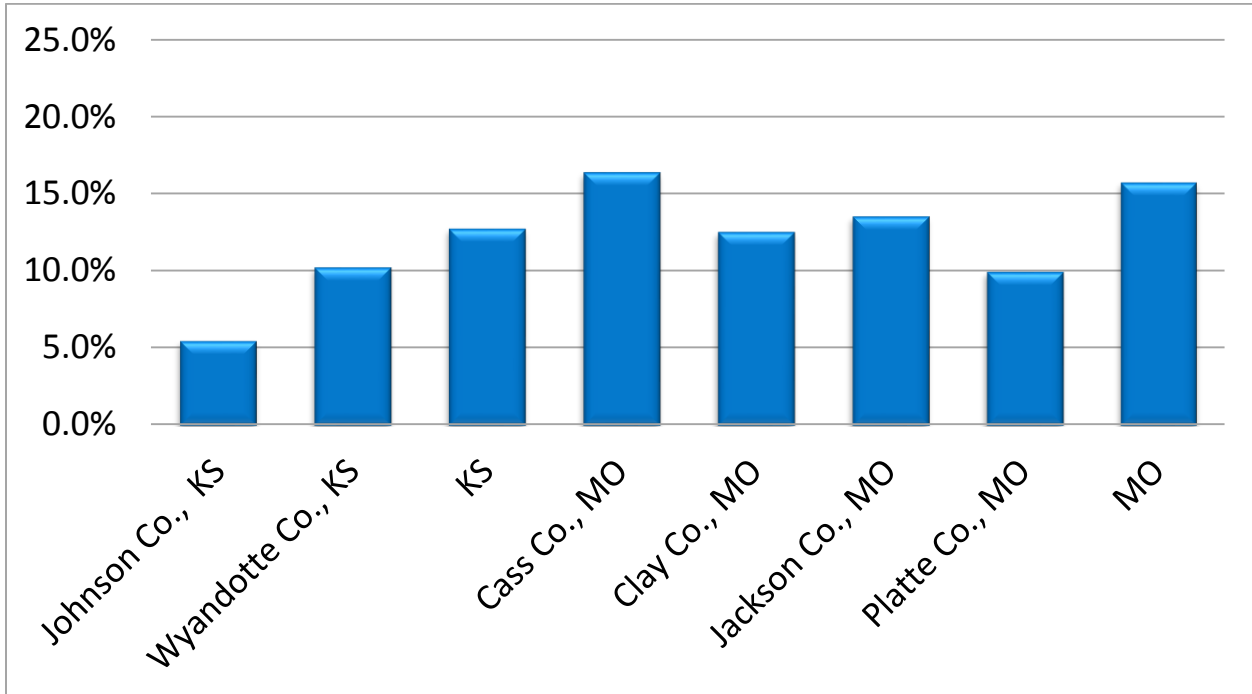
1.a.2. Percent of pregnant women who are unmarried (by educational attainment)



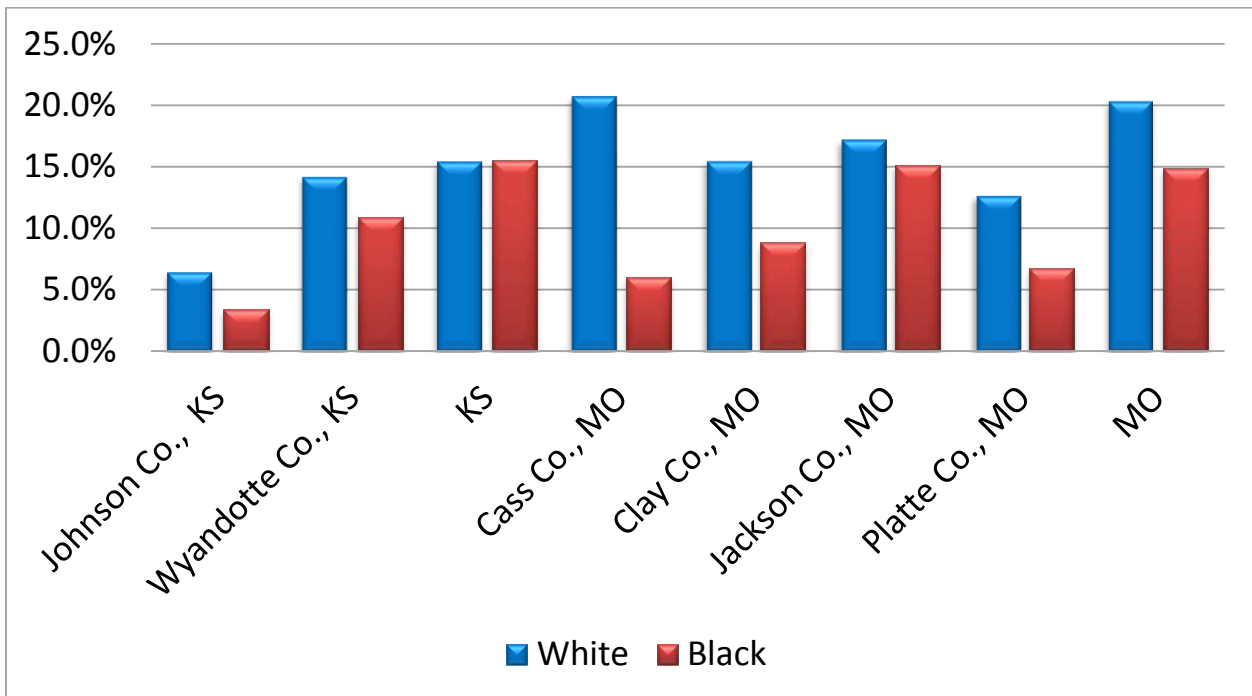
1.a.2. Percent of pregnant women who are unmarried (by year)



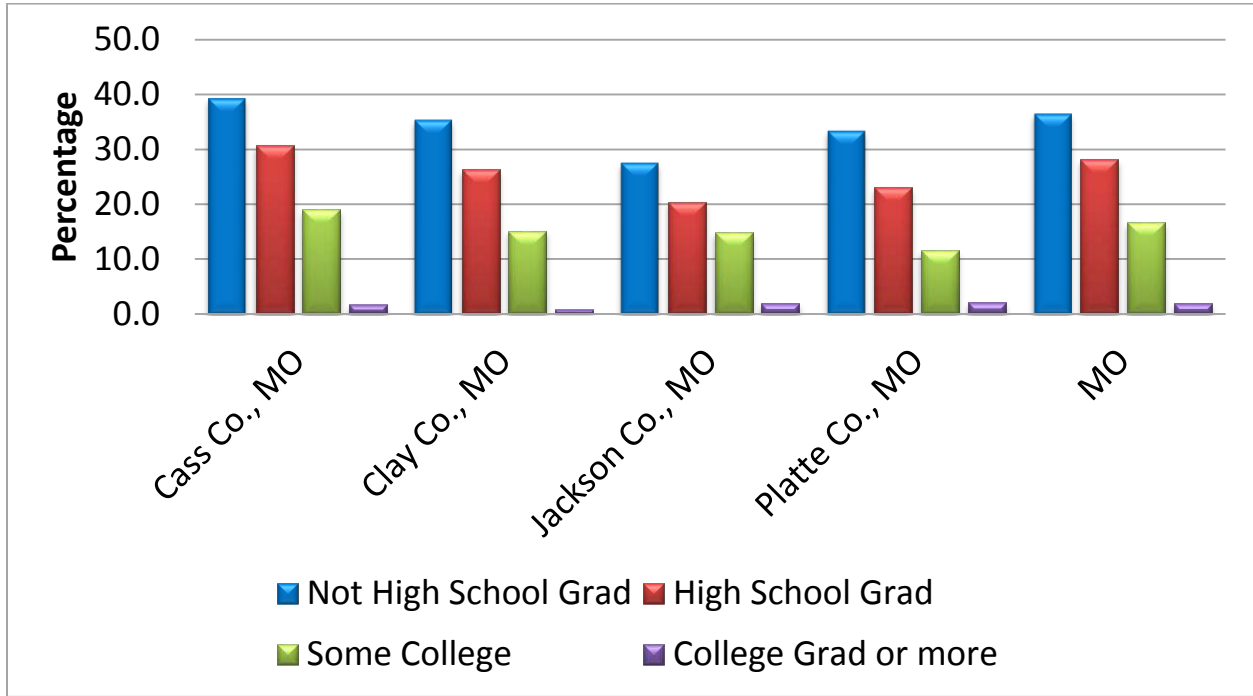
1.a.3. Percent of pregnant women who smoked during pregnancy



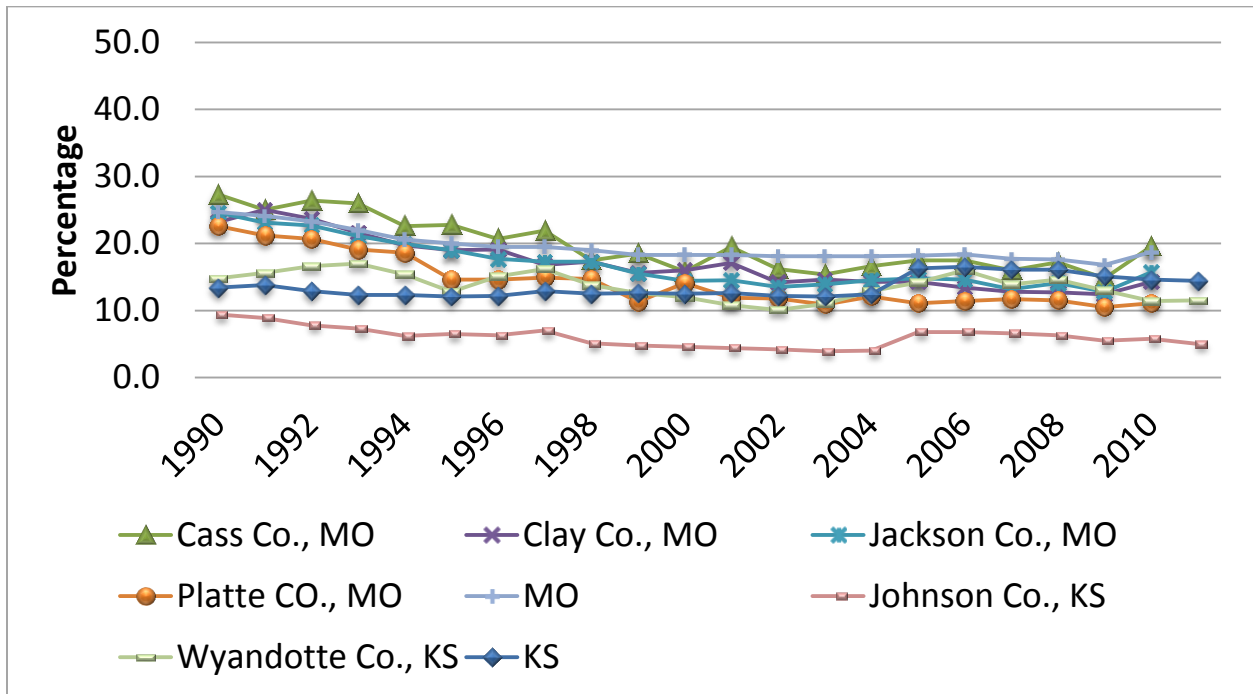
1.a.3. Percent of pregnant women who smoked during pregnancy (by race)



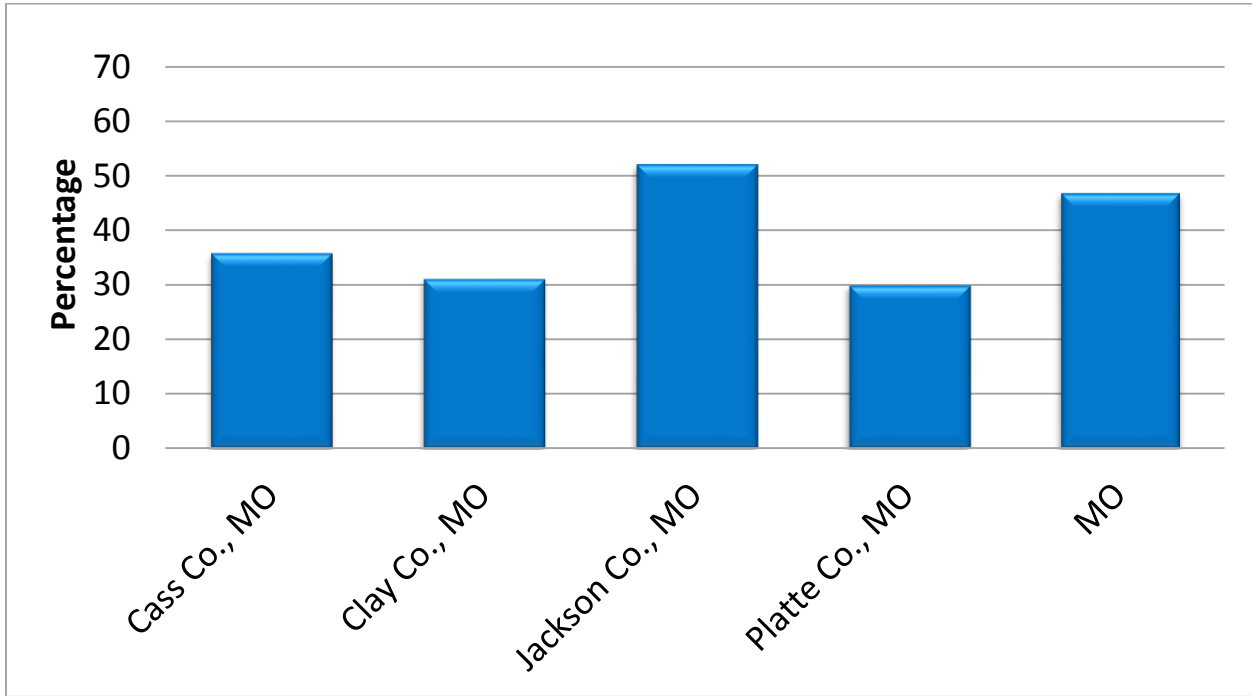
1.a.3. Percent of pregnant women who smoked during pregnancy (by educational attainment)



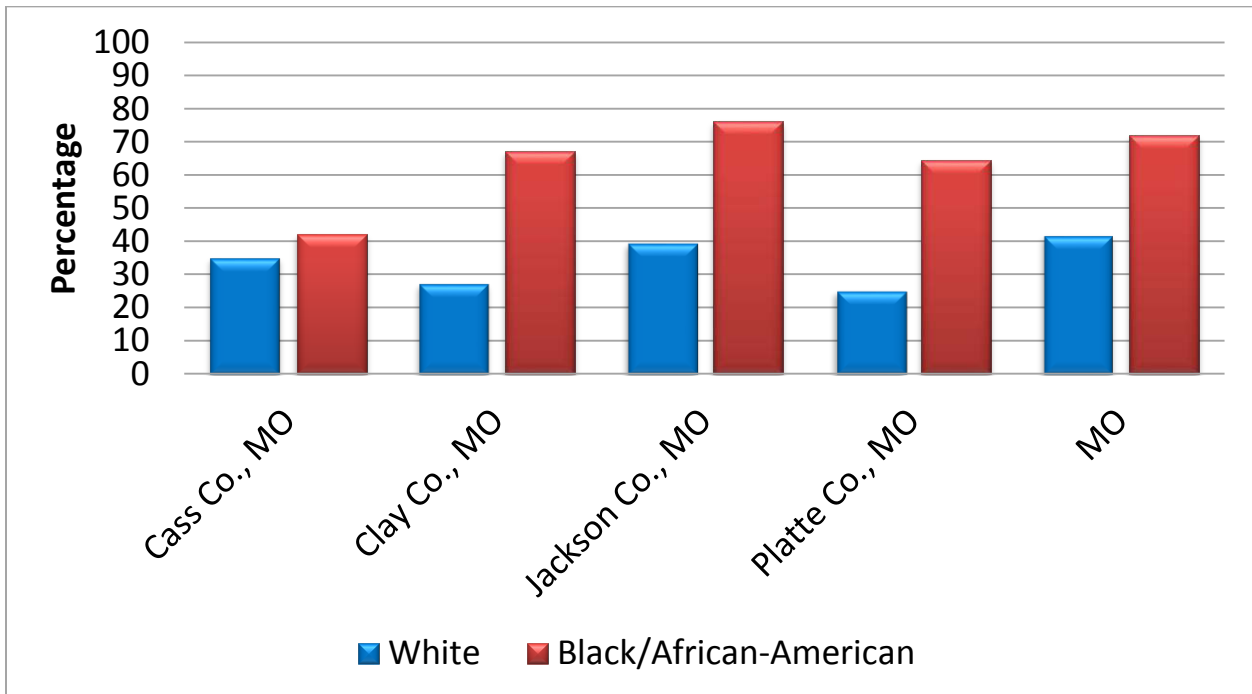
1.a.3. Percent of pregnant women who smoked during pregnancy (by year)



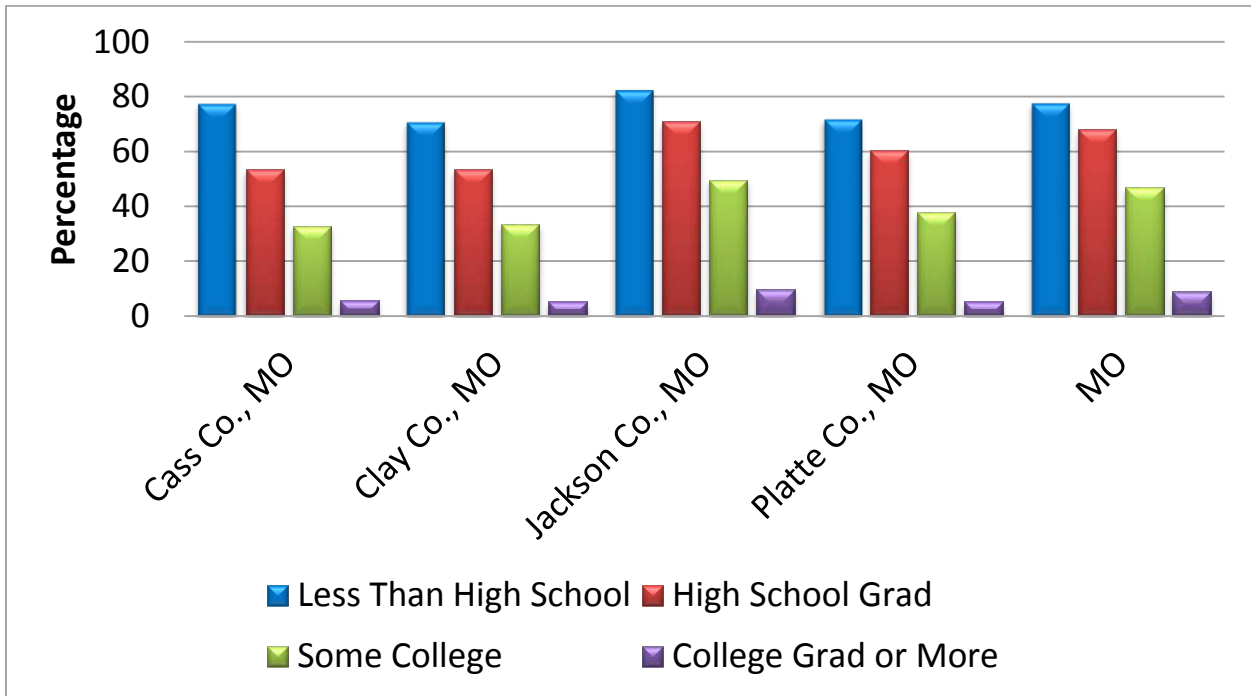
1.a.4. Percent of pregnant women who are on The Special Supplemental Nutrition Program for Women, Infants, and Children (WIC)



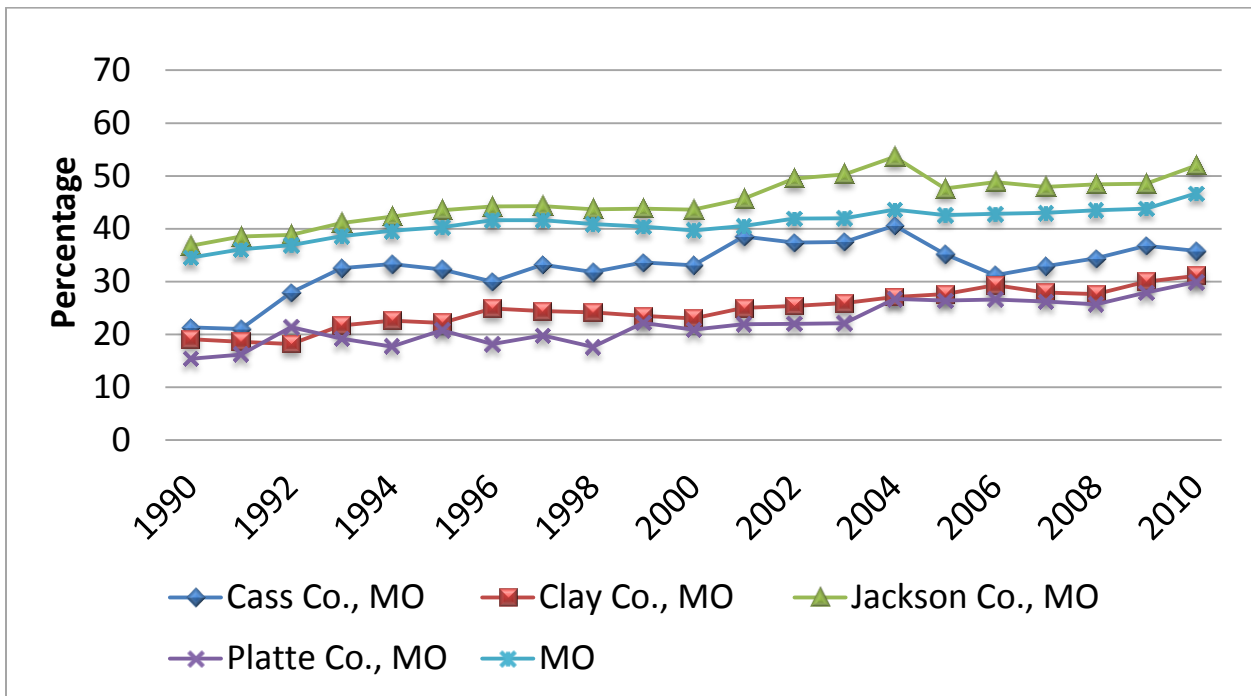
1.a.4. Percent of pregnant women who are on WIC (by race)



1.a.4. Percent of pregnant women who are on WIC (by educational attainment)

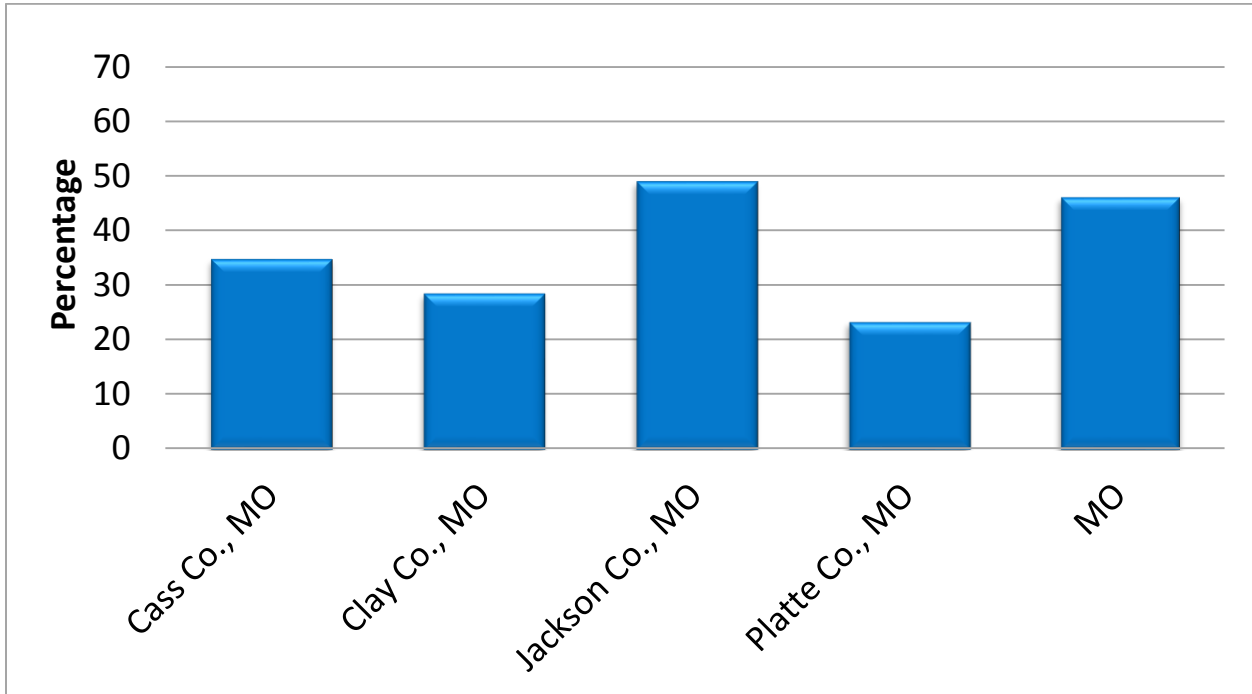


1.a.4. Percent of pregnant women who are on WIC (by year)

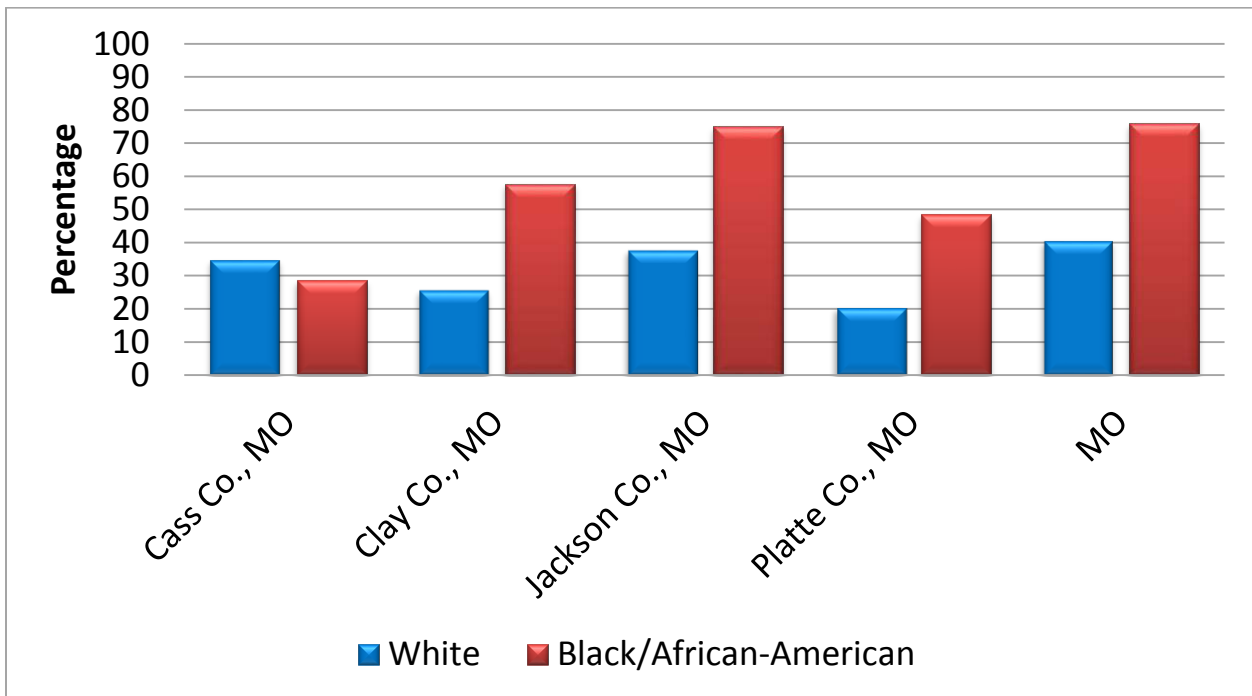




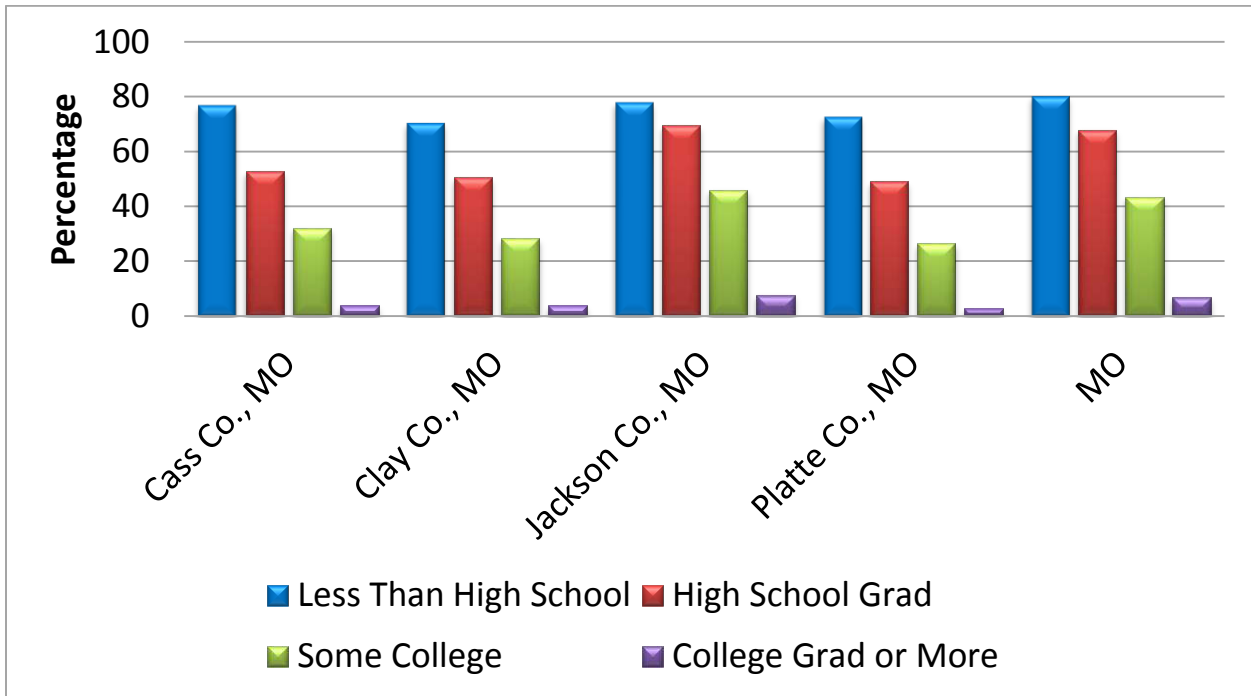
1.a.5. Percent of pregnant women who are on Medicaid



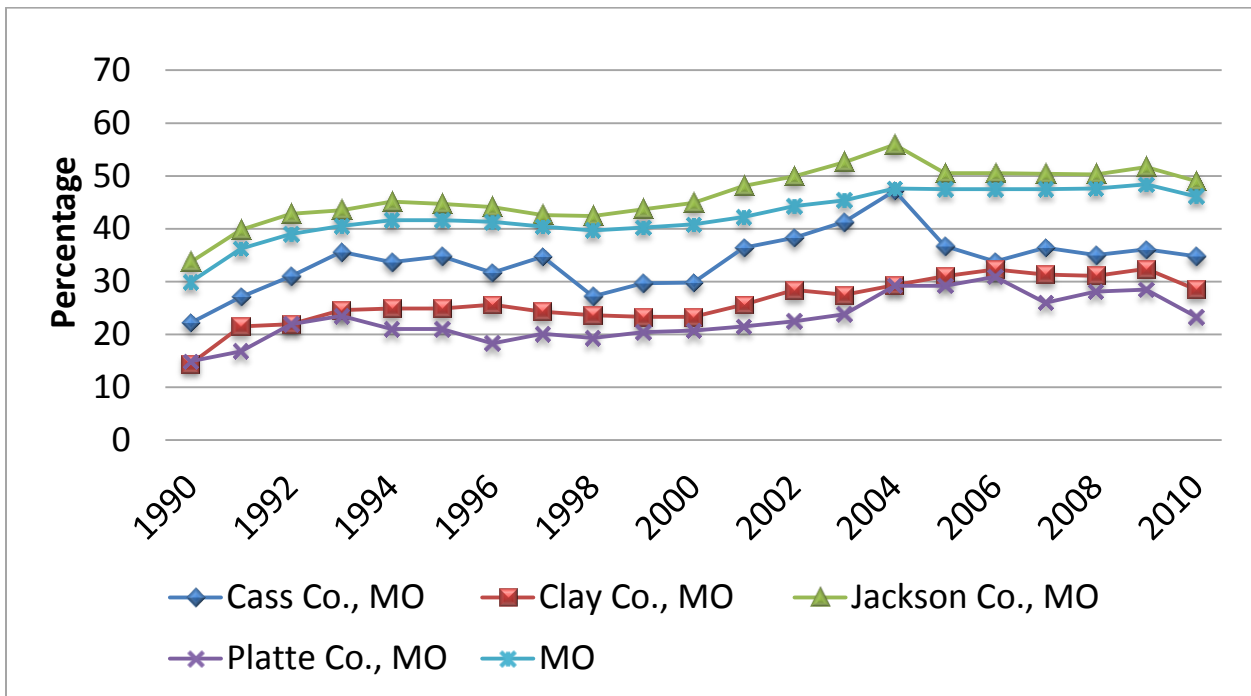
1.a.5. Percent of pregnant women who are on Medicaid (by race)



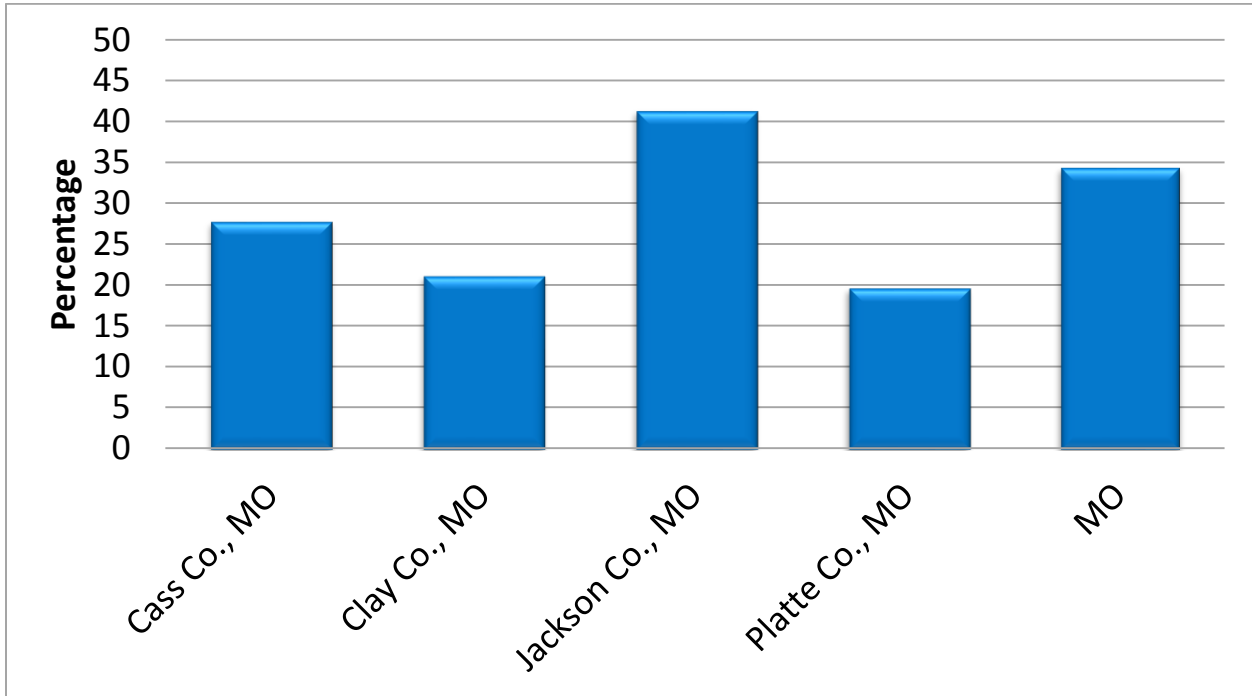
1.a.5. Percent of pregnant women who are on Medicaid (by educational attainment)



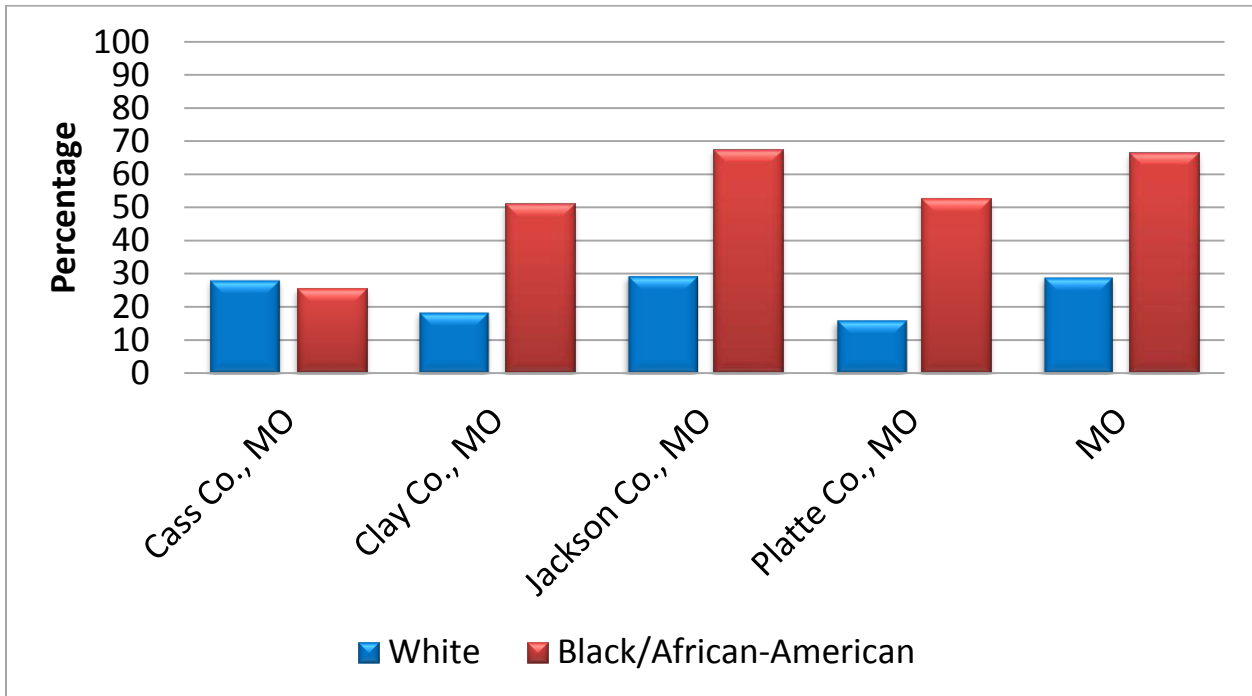
1.a.5. Percent of pregnant women who are on Medicaid (by year)



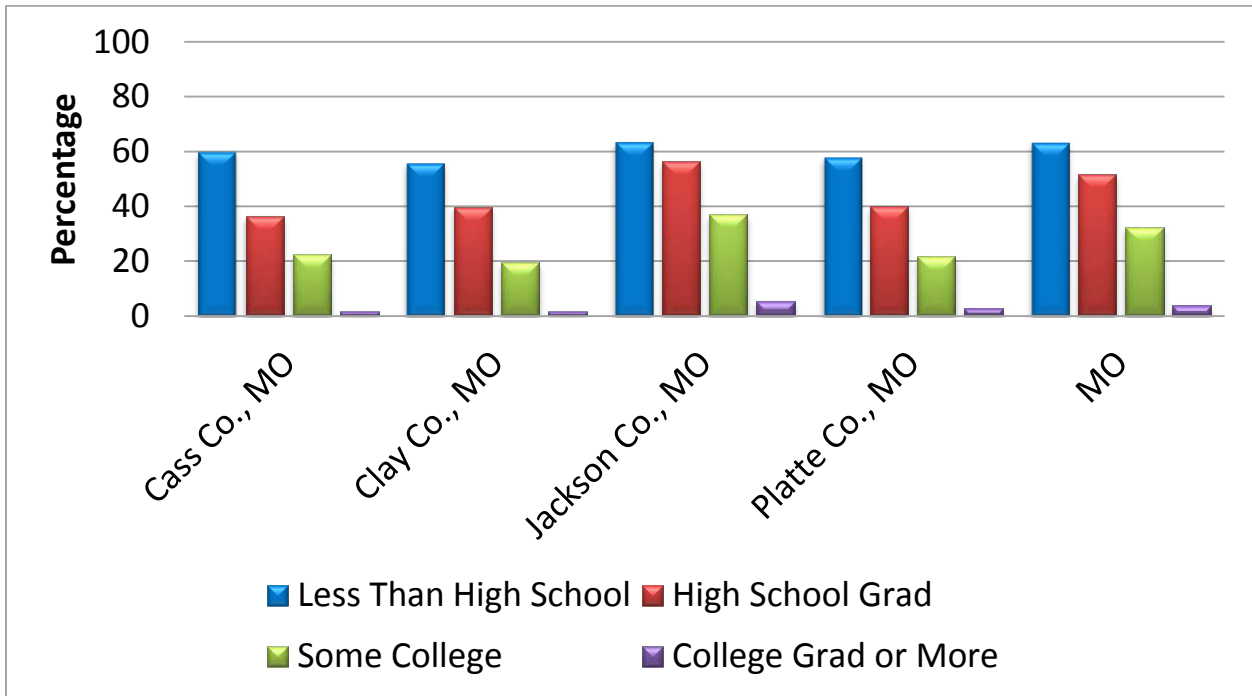
1.a.6. Percent of pregnant women who are on Food Stamps



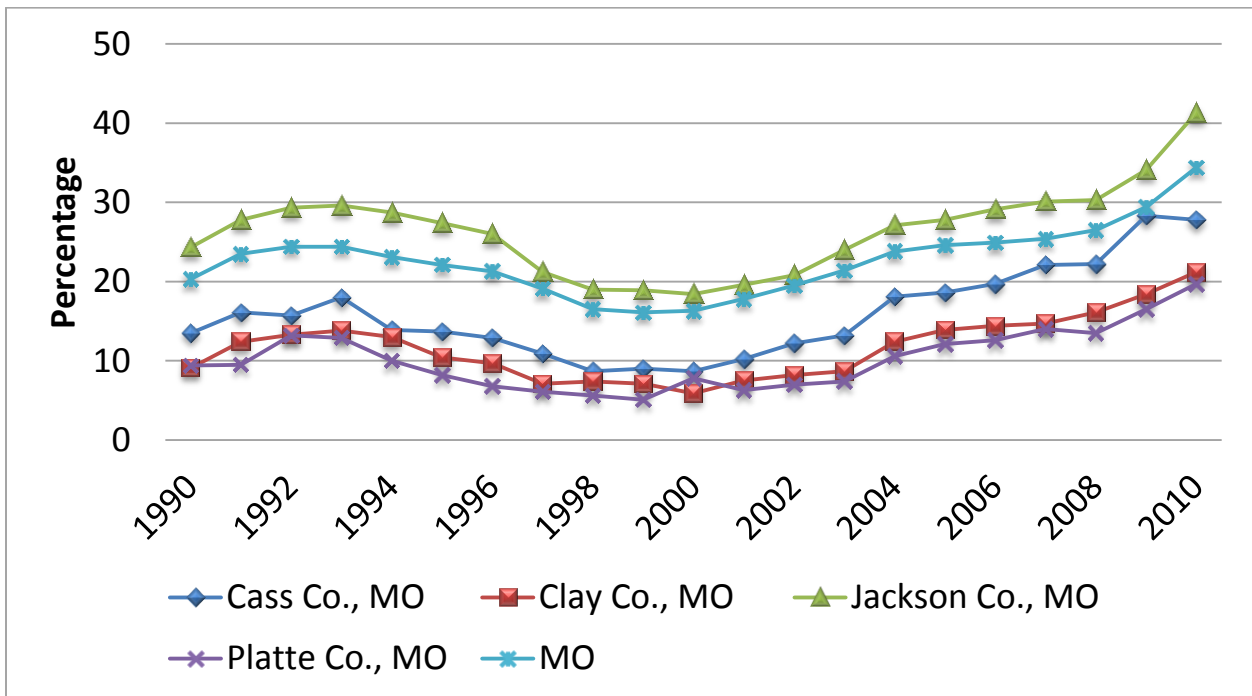
1.a.6. Percent of pregnant women who are on Food Stamps (by race)



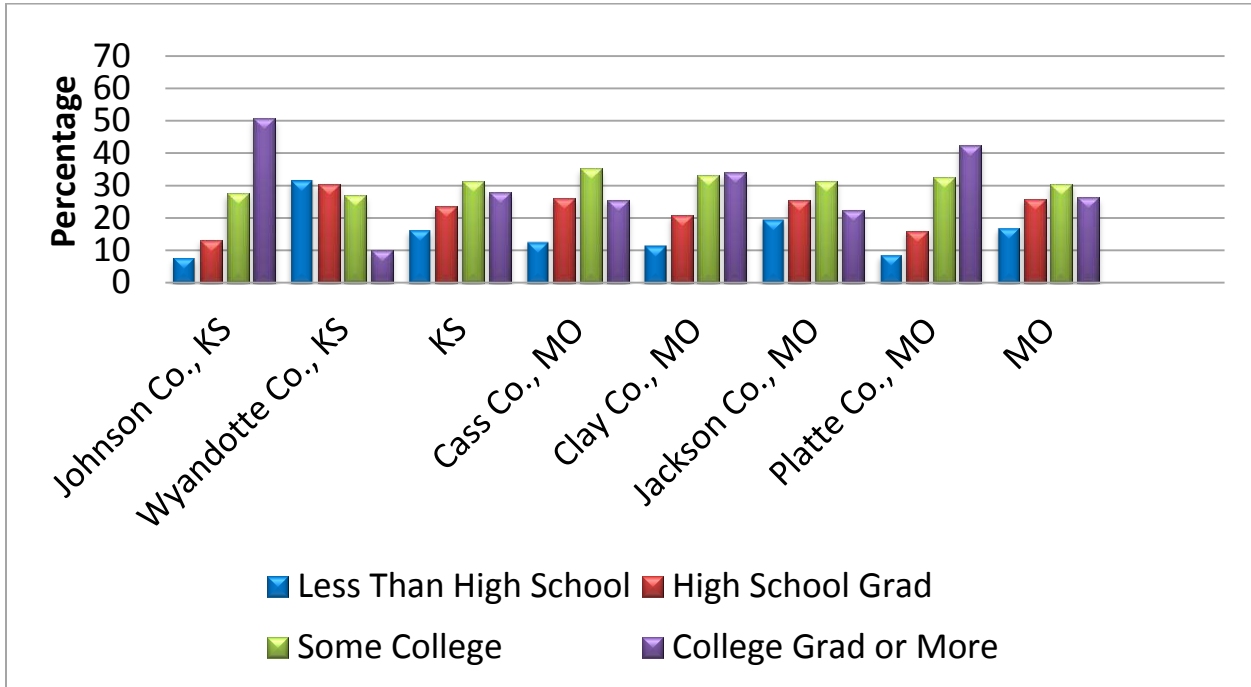
1.a.6. Percent of pregnant women who are on Food Stamps (by educational attainment)



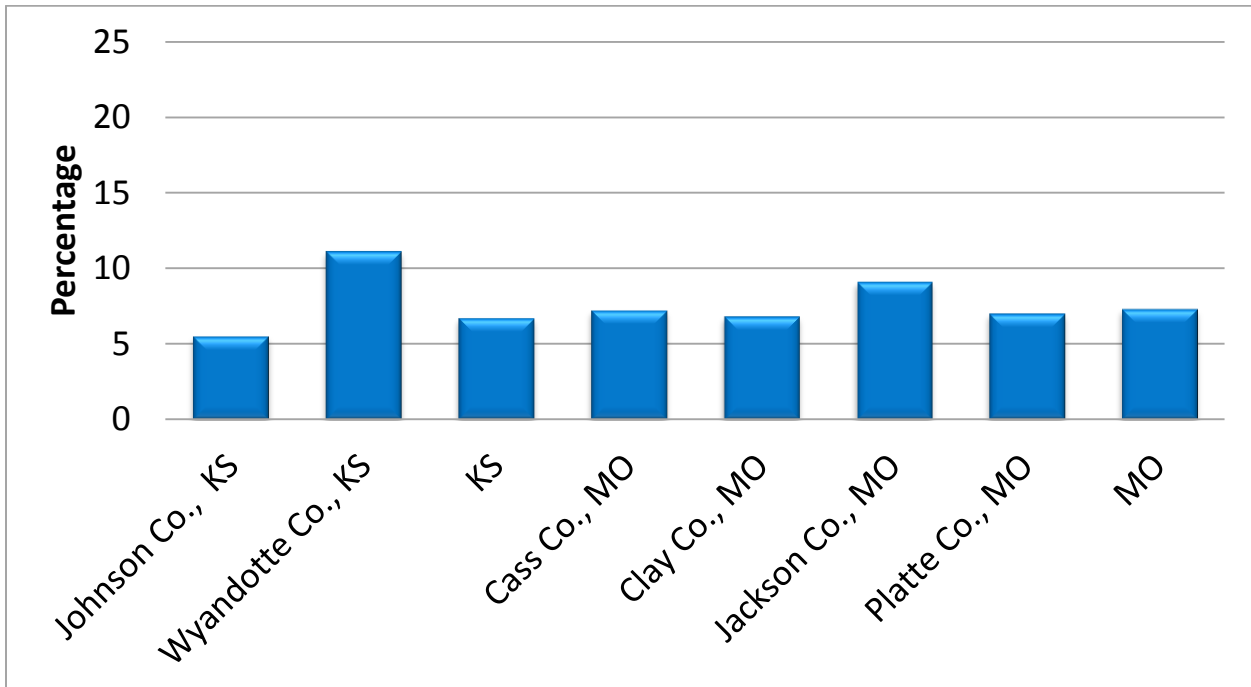
1.a.6. Percent of pregnant women who are on Food Stamps (by year)



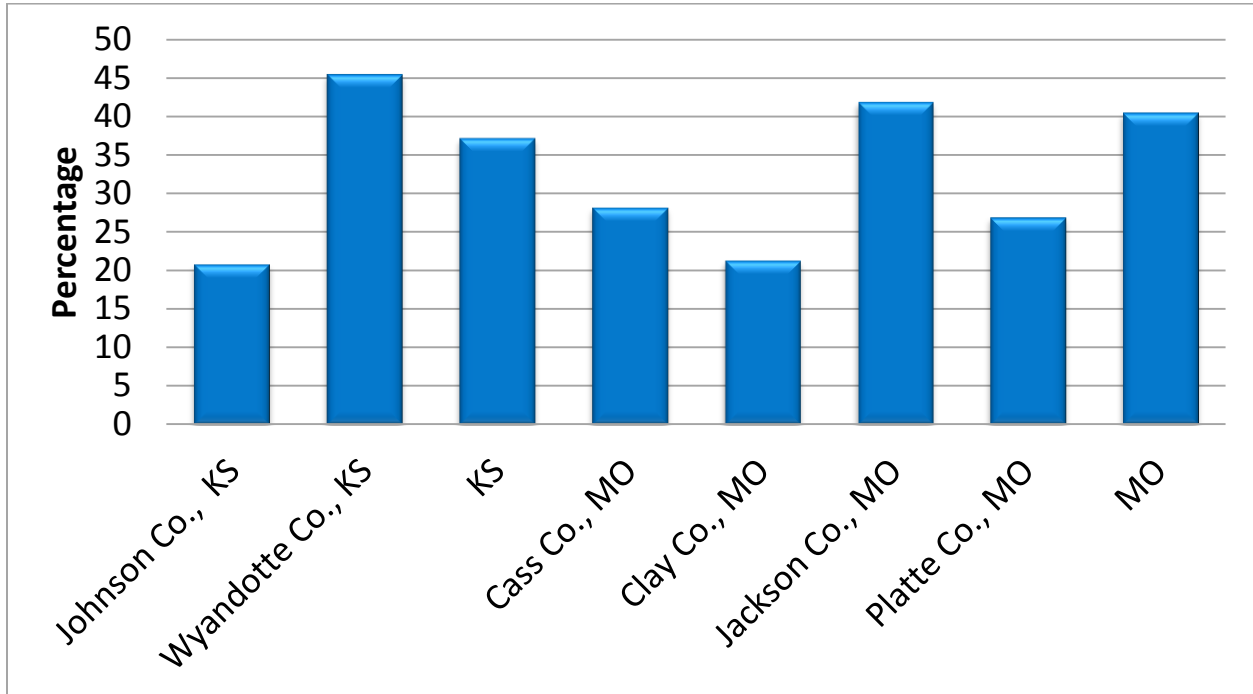
1.a.7. Educational attainment of pregnant women (less than HS, HS, some college, college grad)



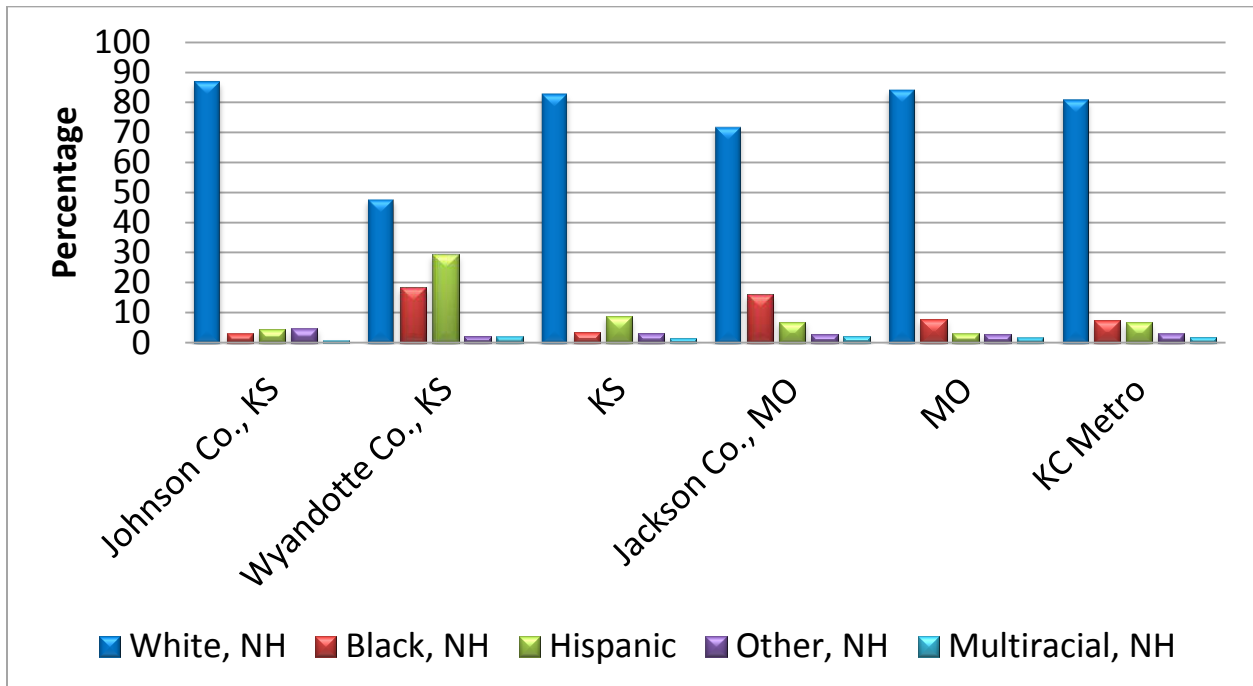
1.a.8. Percent of households with a female householder, no husband present, and the householder's own minor children among all households



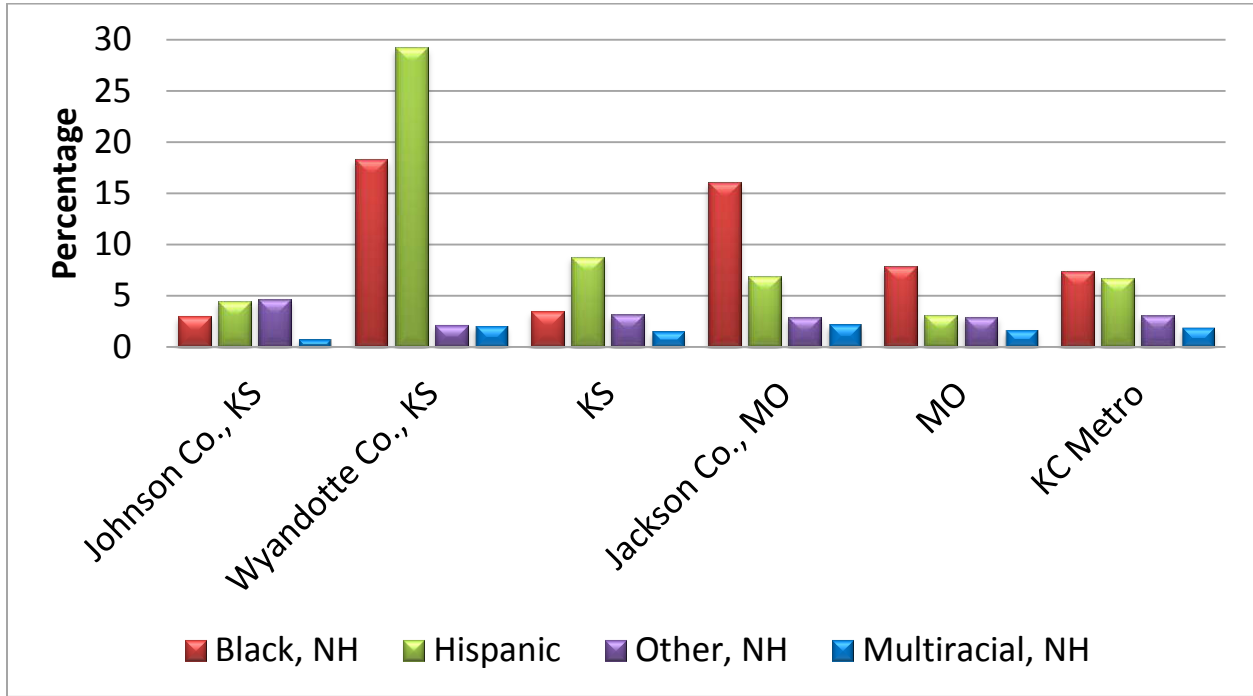
1.a.9. Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children



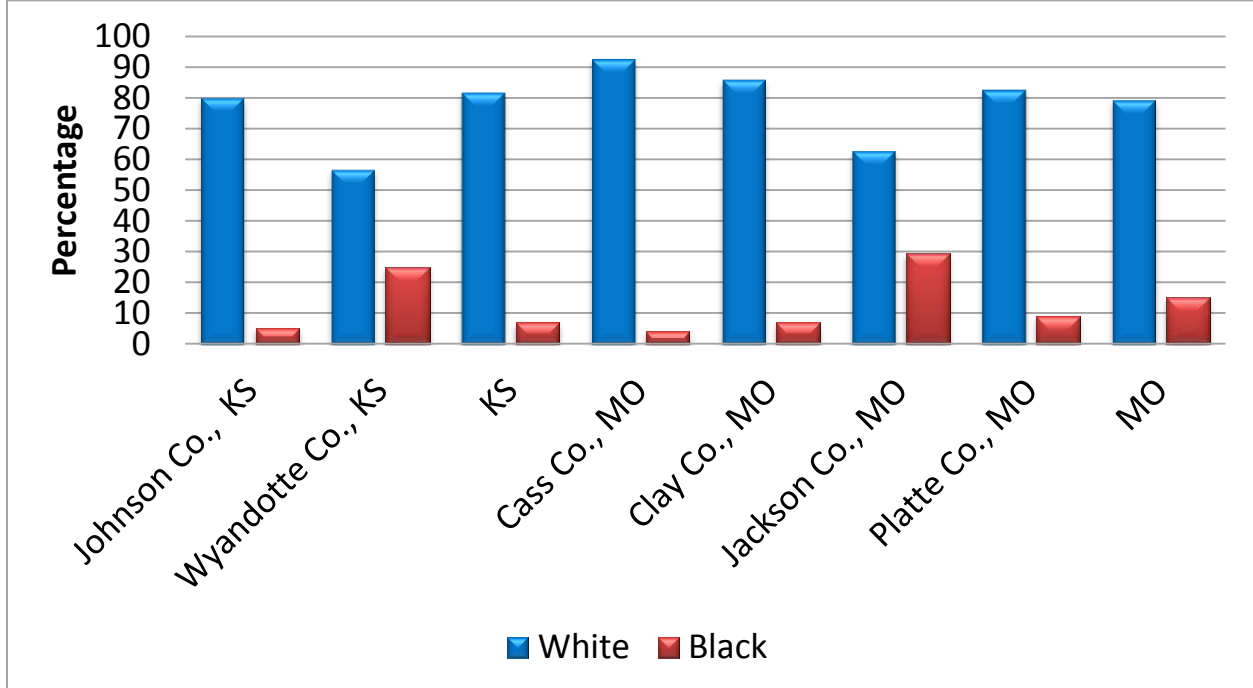
1.a.10. Percent of mothers by race/ethnicity (by ethnicity)



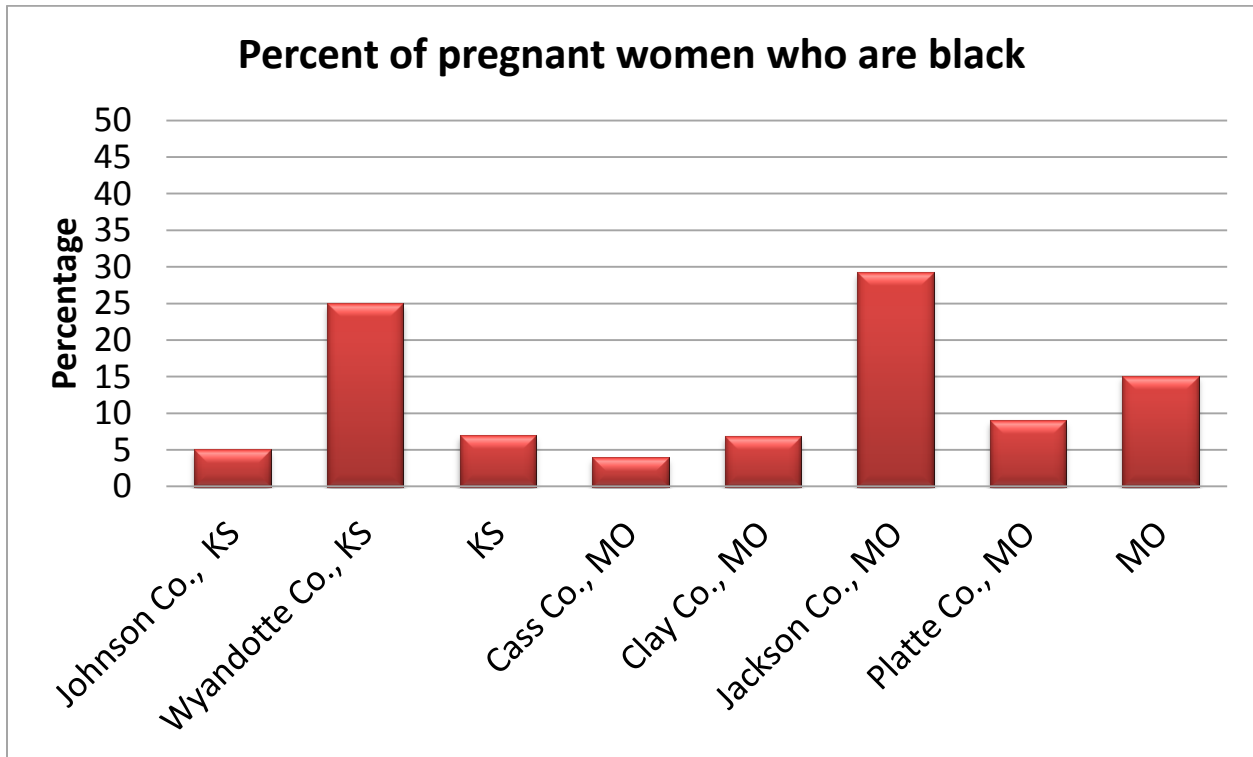
1.a.10. Percent of mothers by race/ethnicity, excluding Non-Hispanic Whites (by ethnicity)



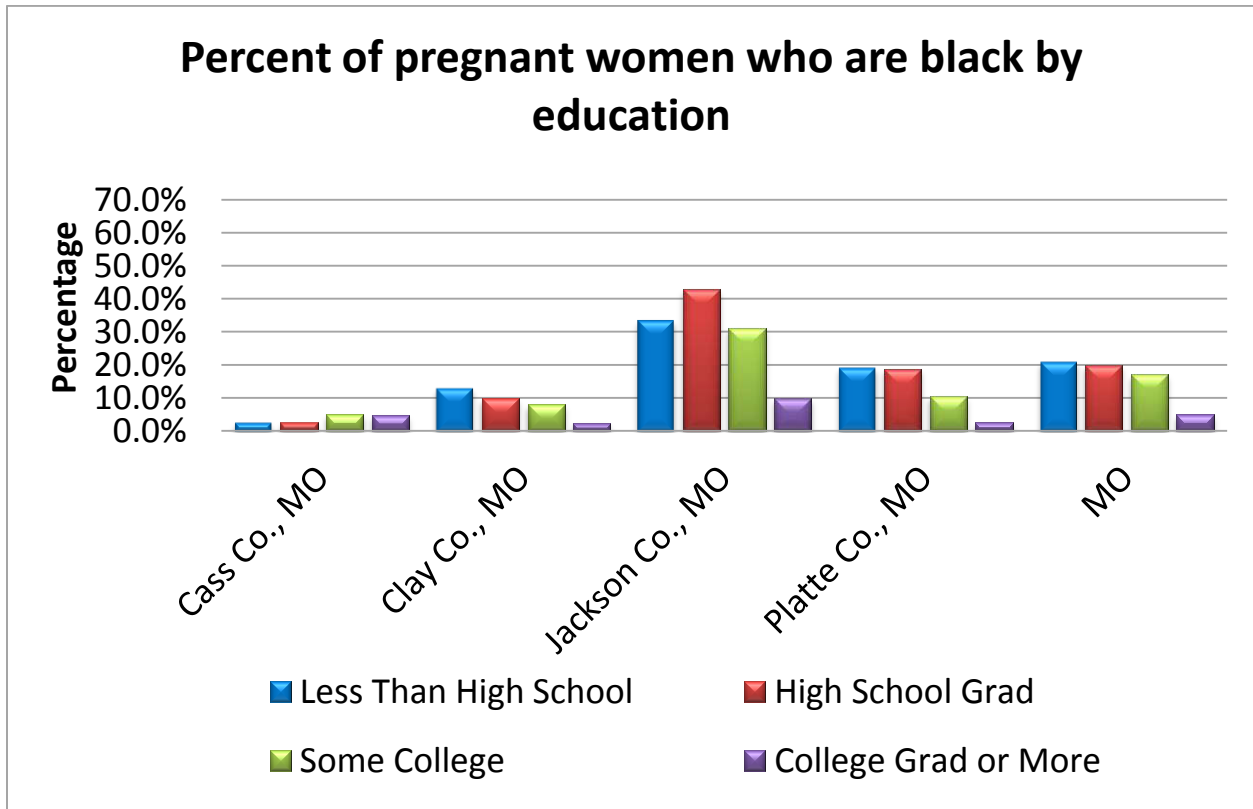
1.a.11. Demographics of pregnant women (by race)



1.a.11. Demographics of pregnant women (by county)

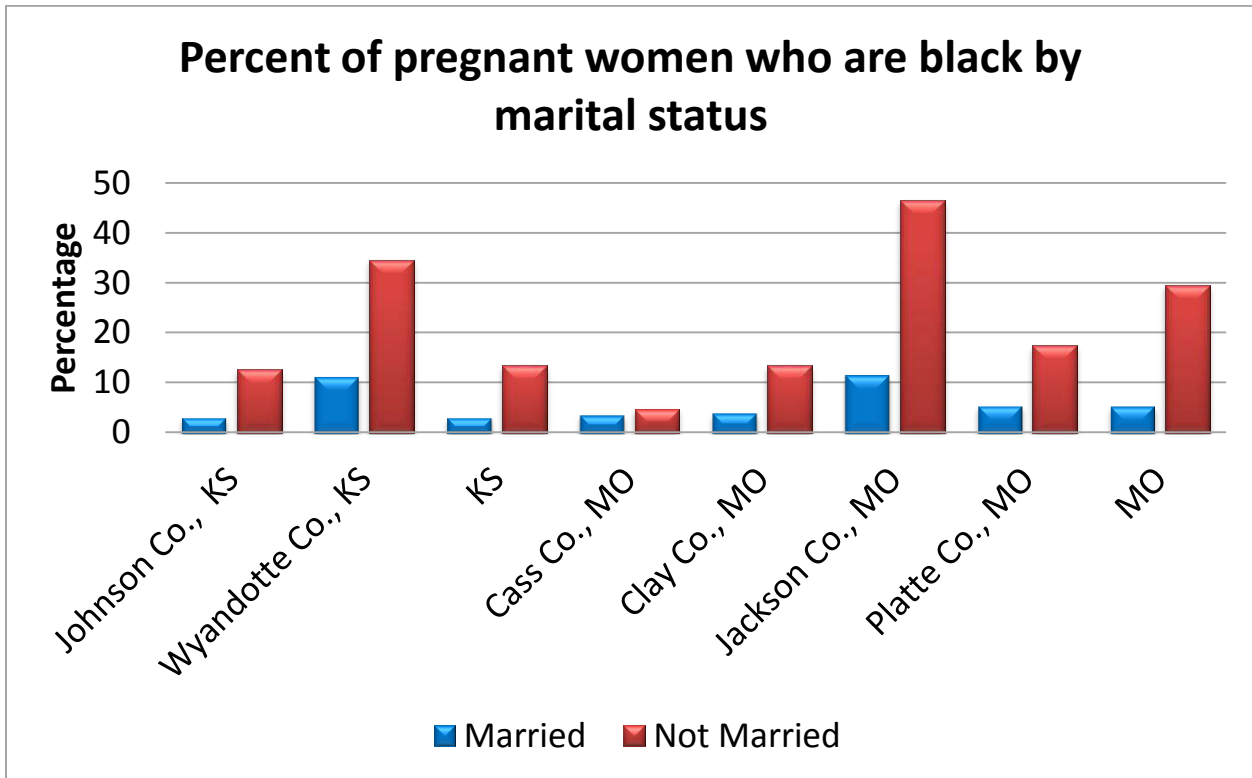


1.a.11. Demographics of pregnant women (by educational attainment)

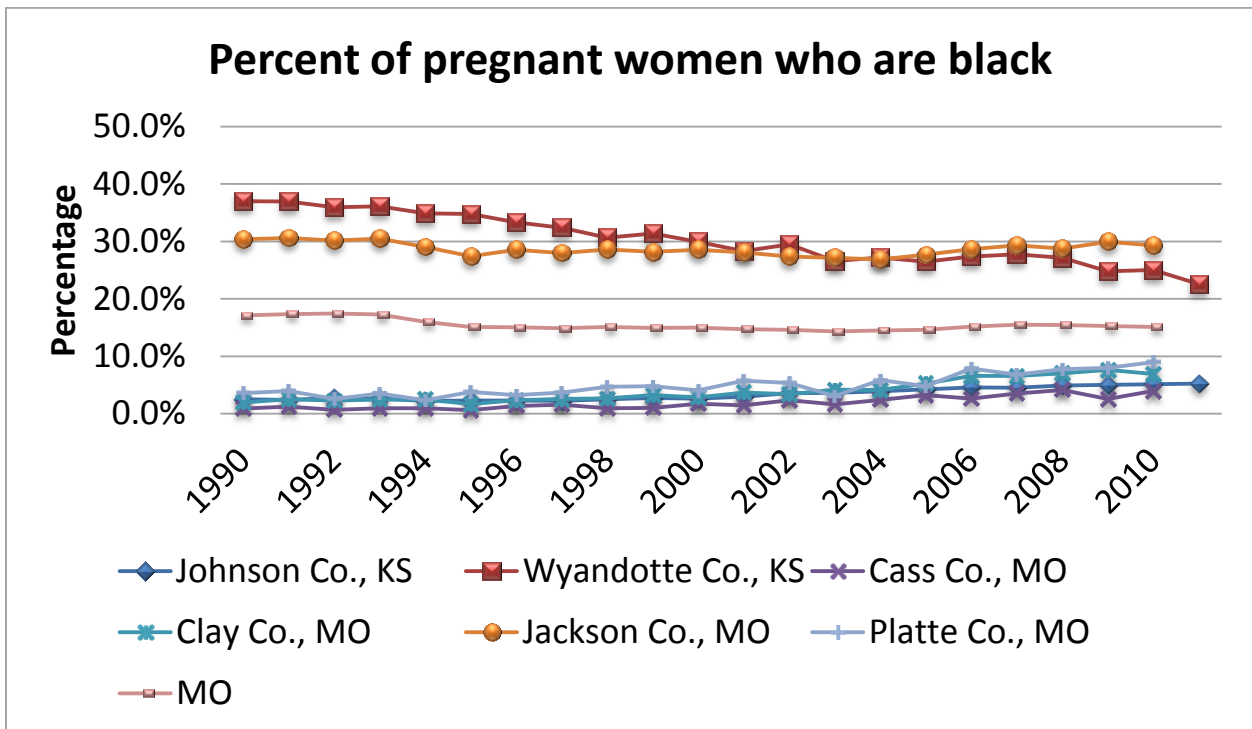




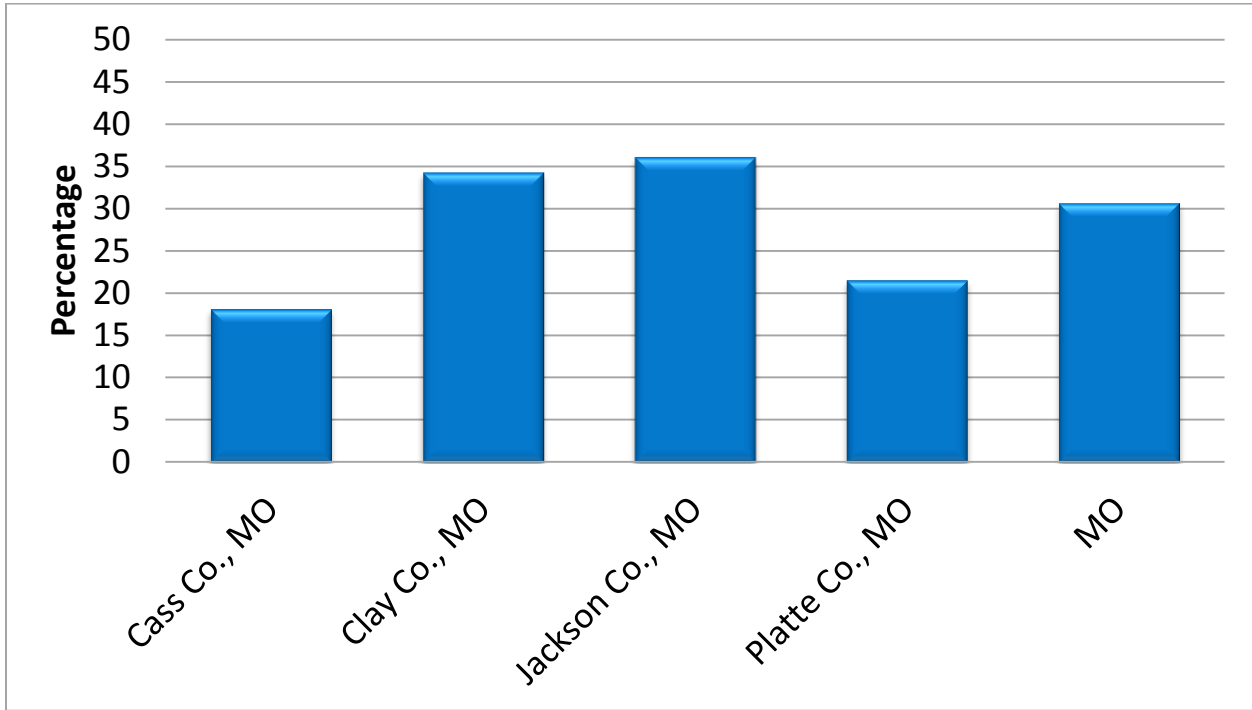
1.a.11. Demographics of pregnant women (by marital status)



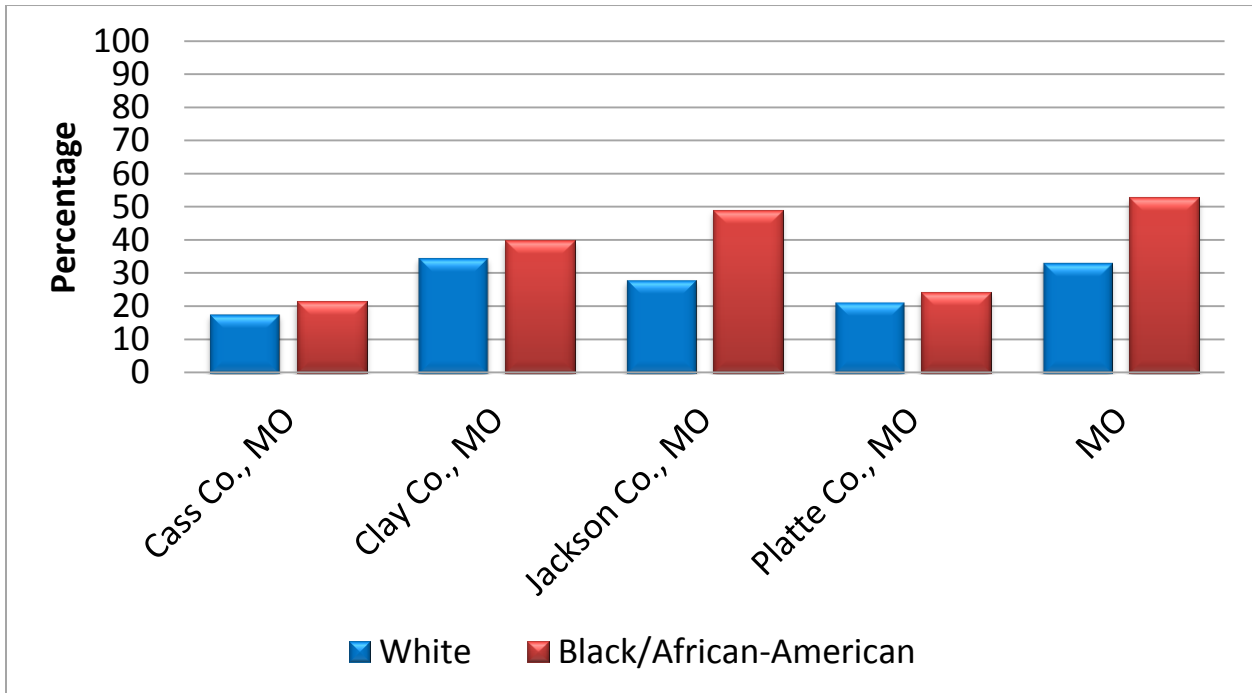
1.a.11. Demographics of pregnant women (by year)



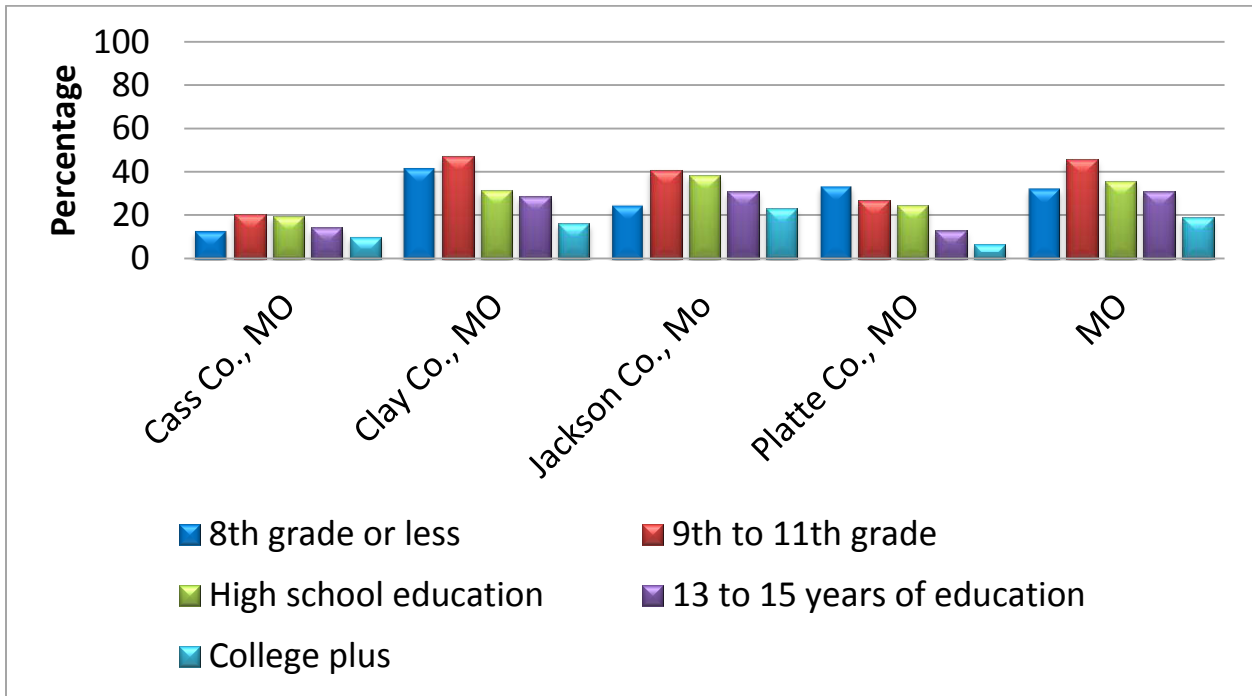
1.a.12. Percent of pregnant women in WIC who get Supplementary Nutrition Assistance Program (SNAP)



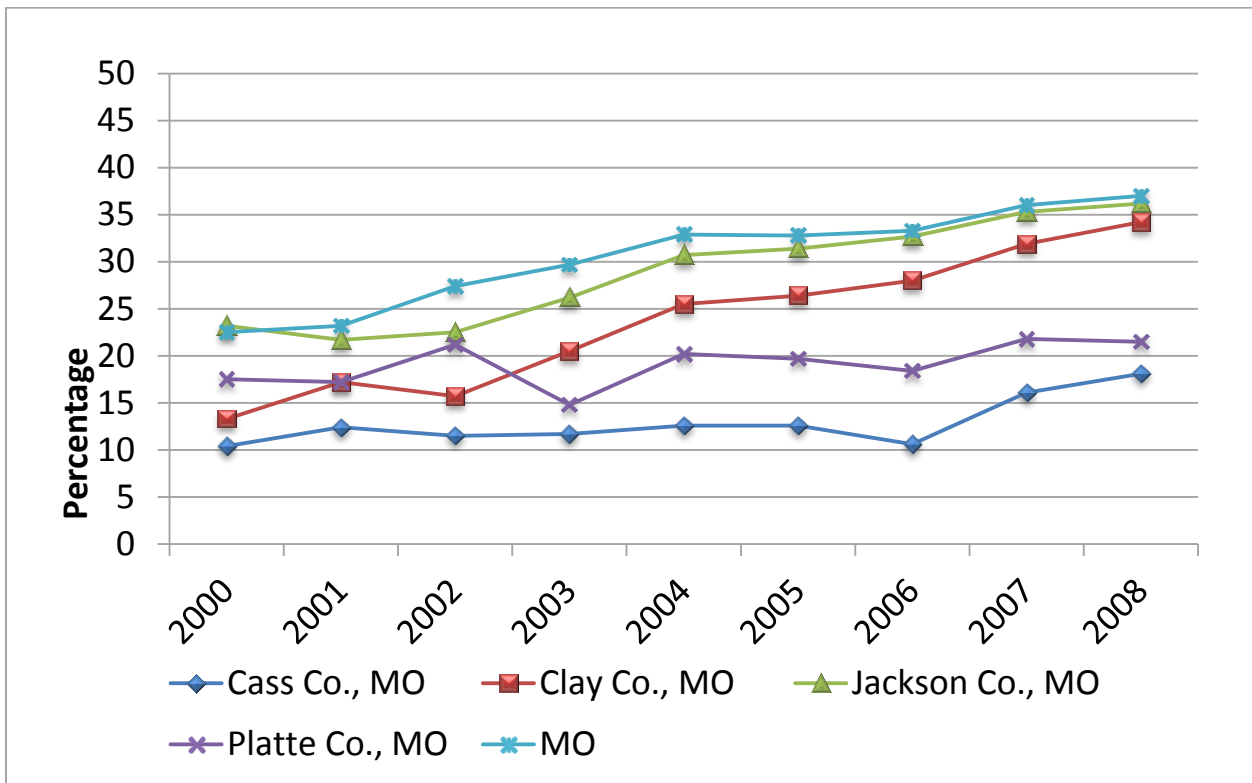
1.a.12. Percent of pregnant women in WIC who get SNAP (by race)



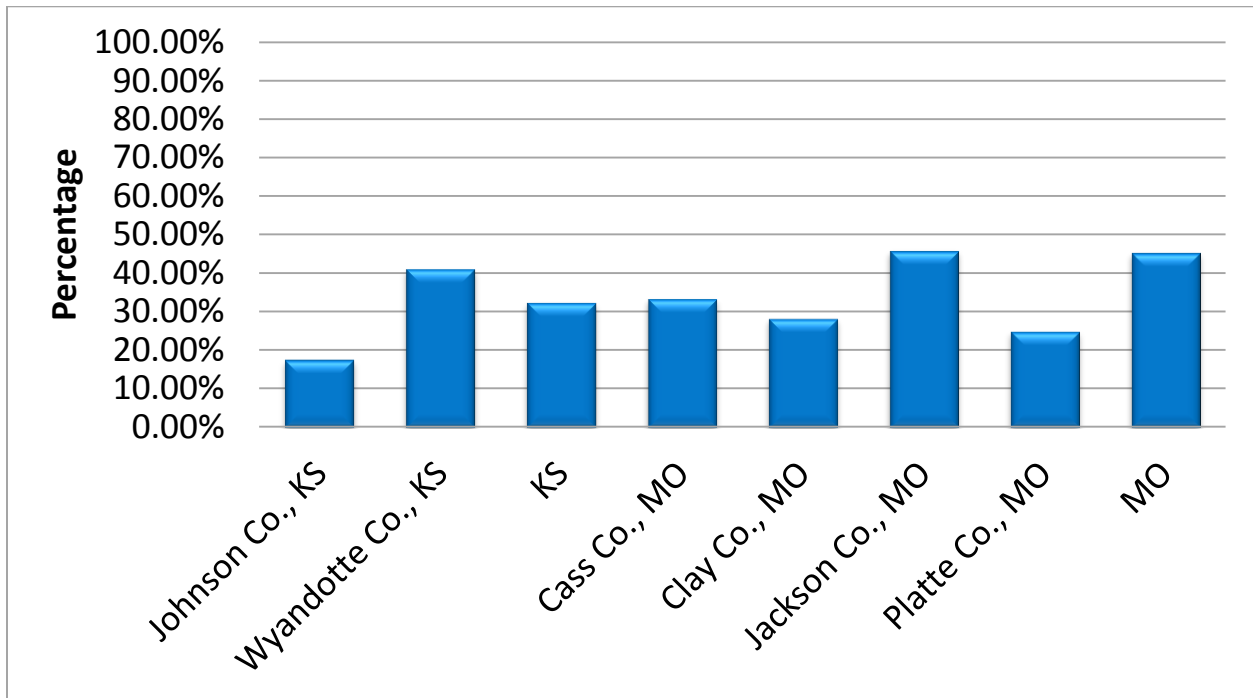
1.a.12. Percent of pregnant women in WIC who get SNAP (by education attainment)



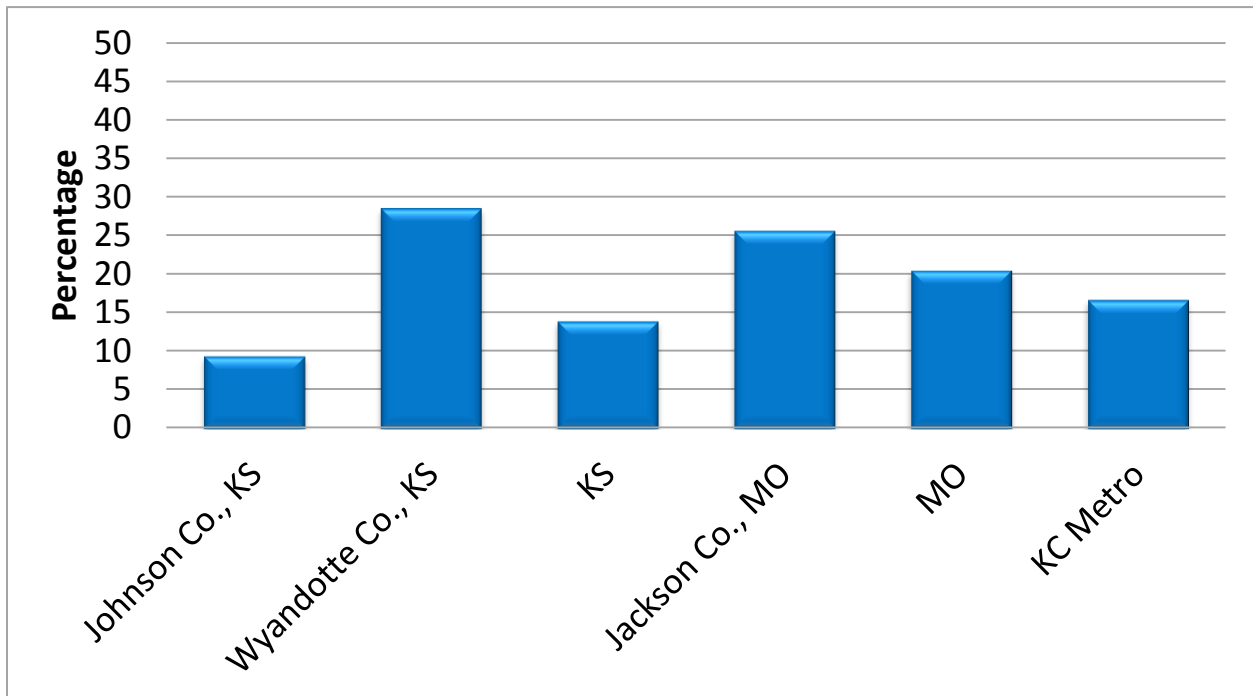
1.a.12. Percent of pregnant women in WIC who get SNAP (by year)



1.a.13. Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years

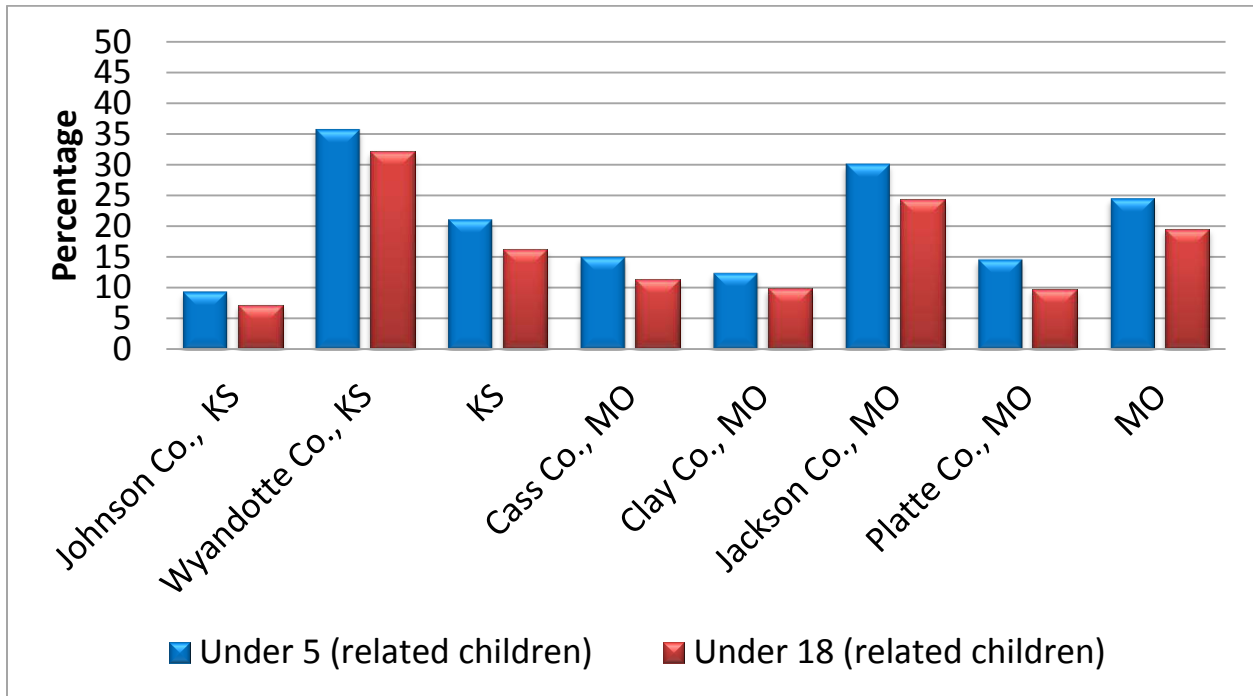


1.a.14. Percent of parents who are unmarried

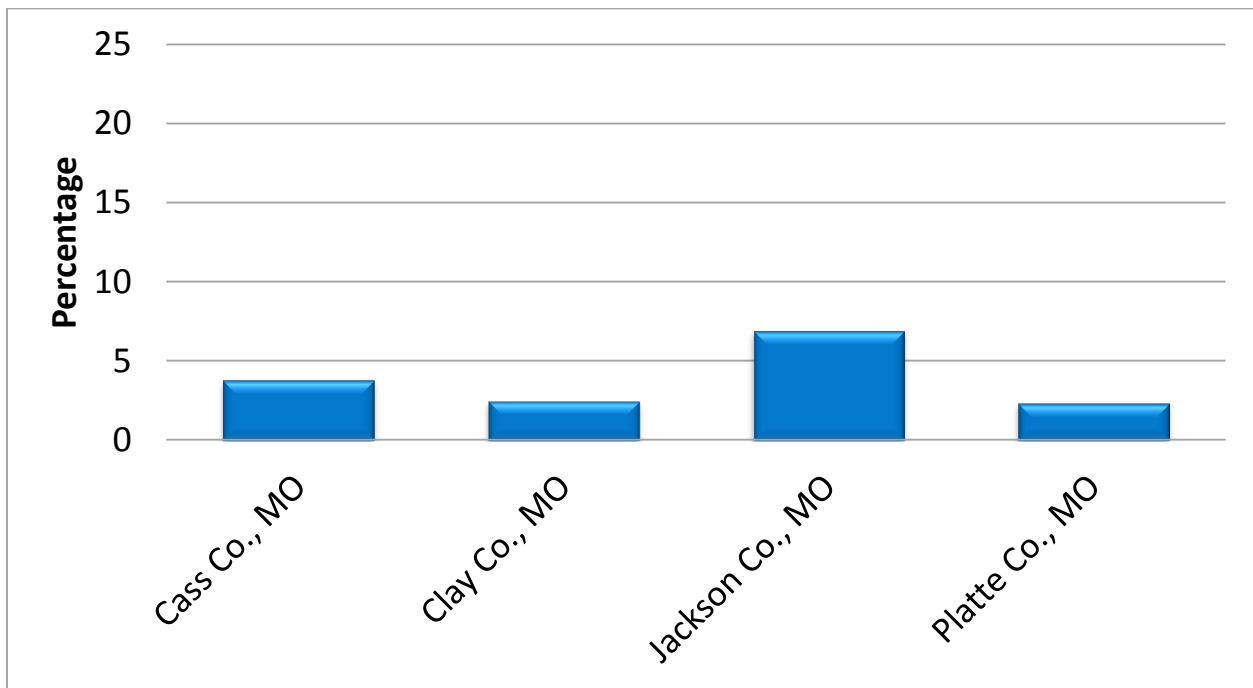


**b) Socioeconomic Status and Demographic Factors for Children**

1.b.1. Prevalence of children in poverty by age

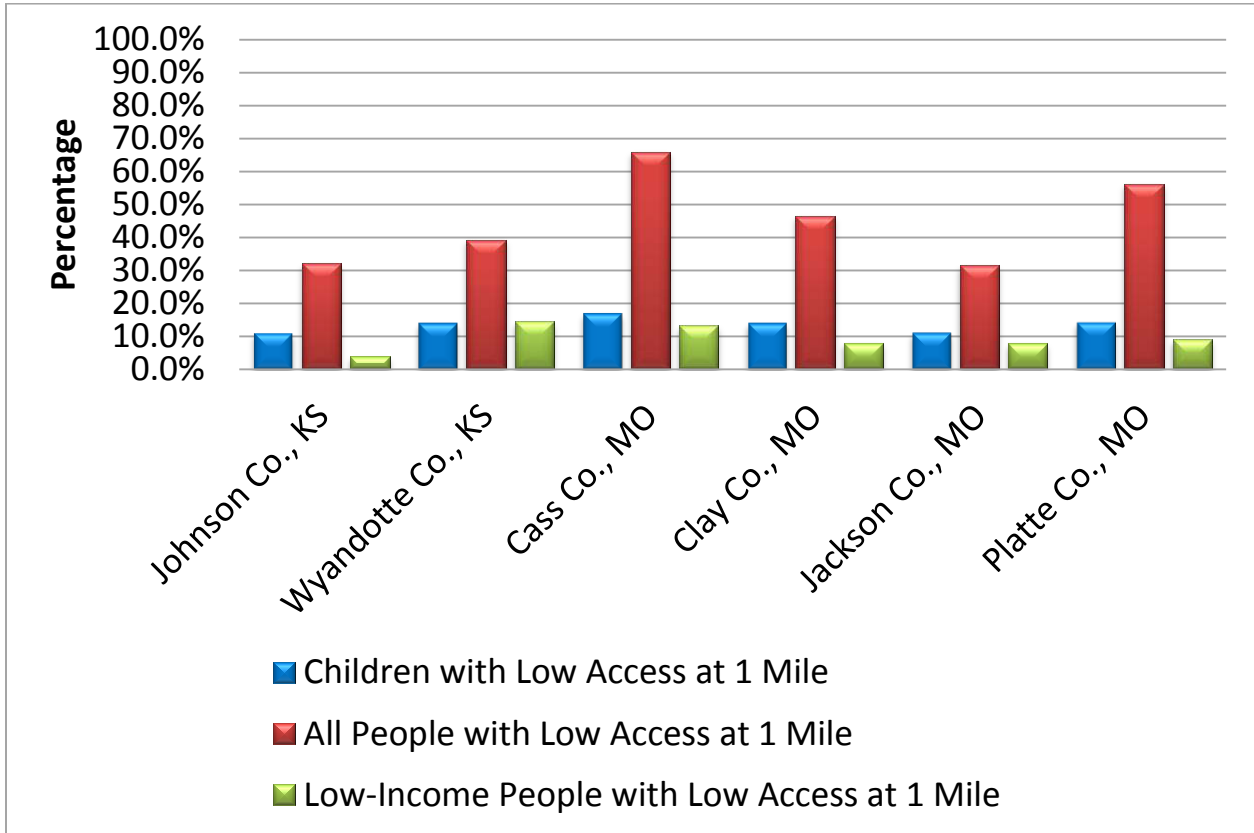


1.b.2. Prevalence of children enrolled in Temporary Assistance for Needy Families (TANF)

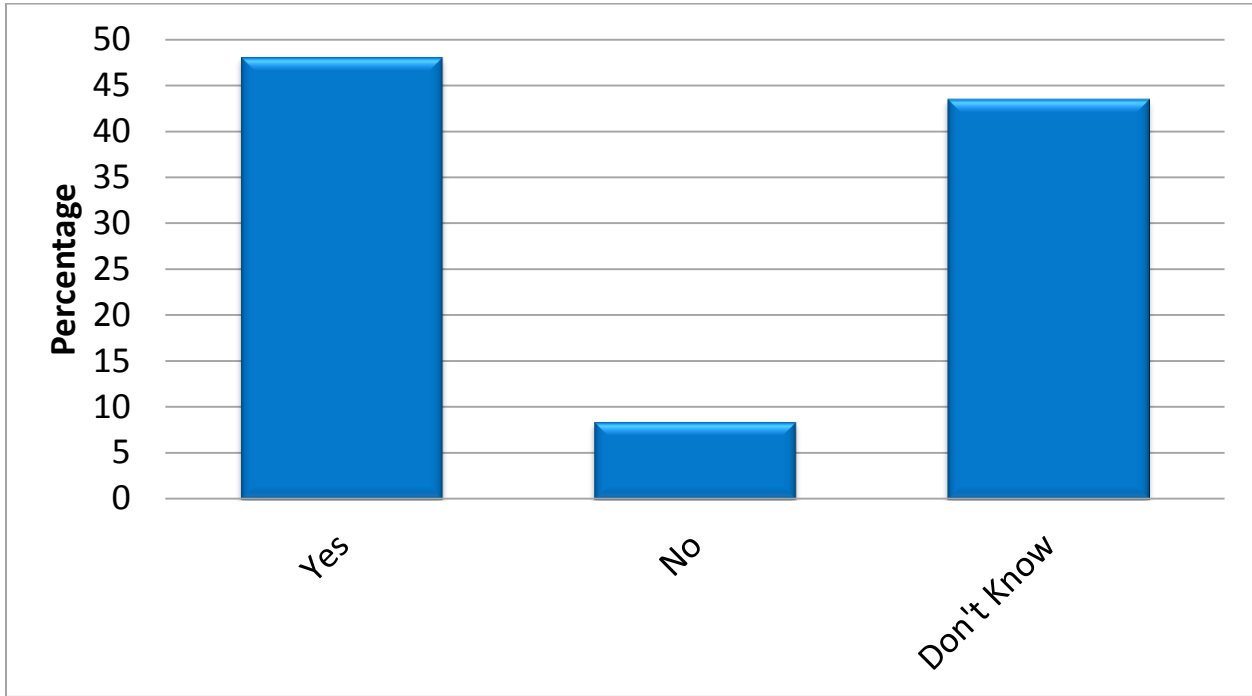


## 2) Environmental Factors

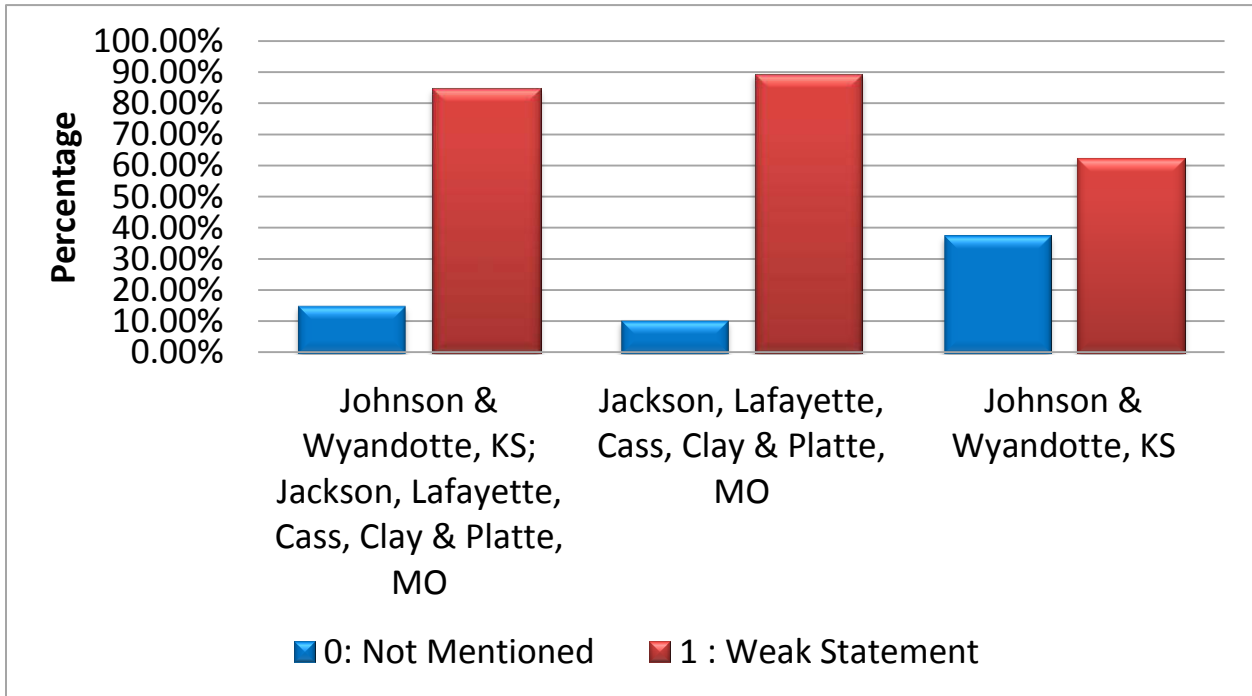
2.1. Percent of population with a low accessibility to food among the child, low-income, and total populations



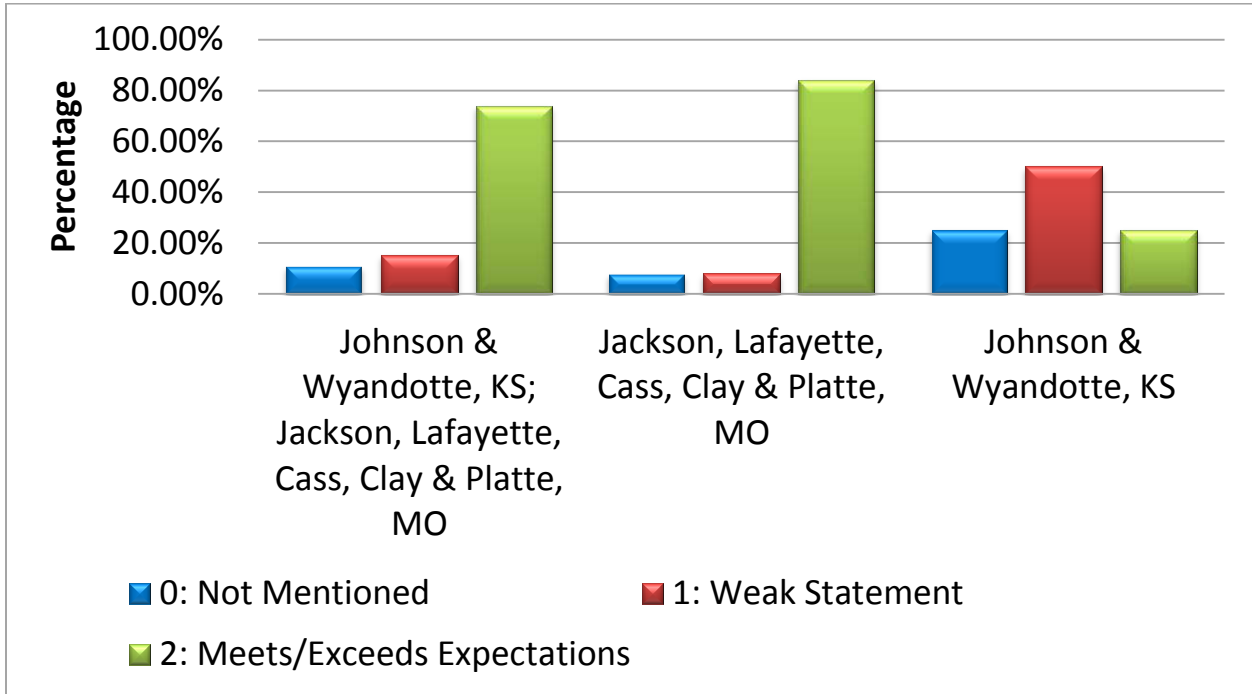
2.2. Percent of school personnel stating that their school has policies on moderate and vigorous physical activity during PE



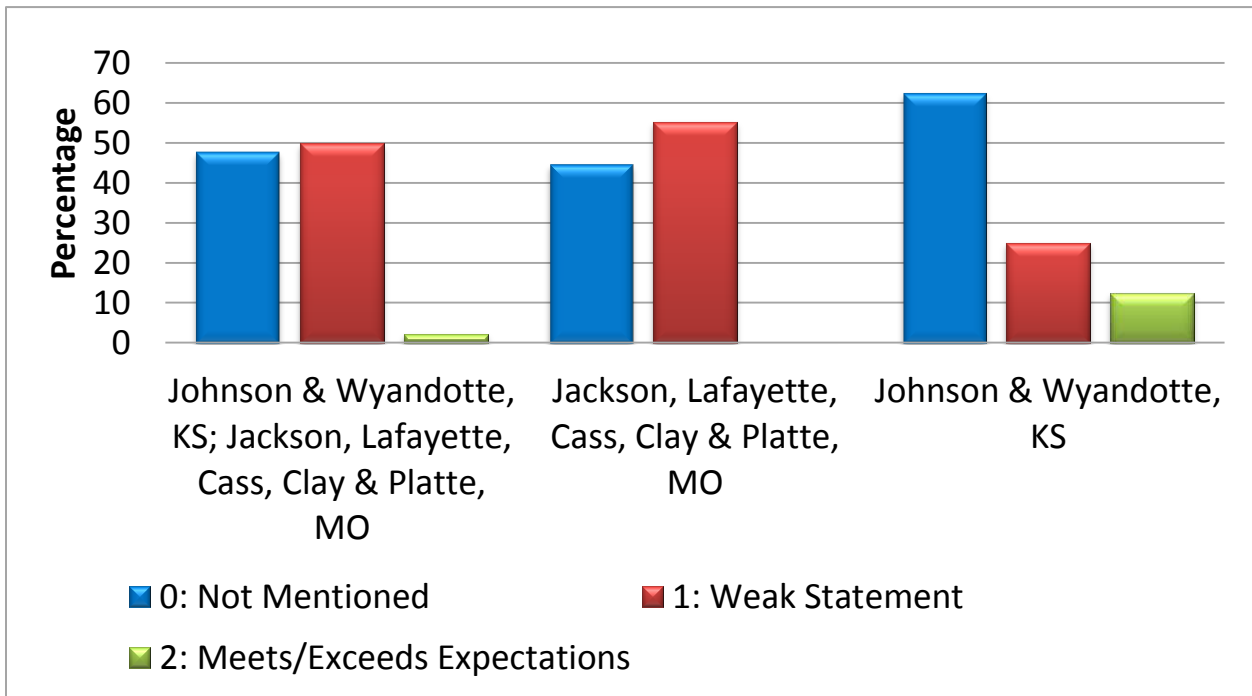
2.3. School districts' WellSAT scores for regulating food sold for fundraising at all times (not only during the school day)



2.4. School districts' WellSAT scores for providing nutrition curriculum for each grade level

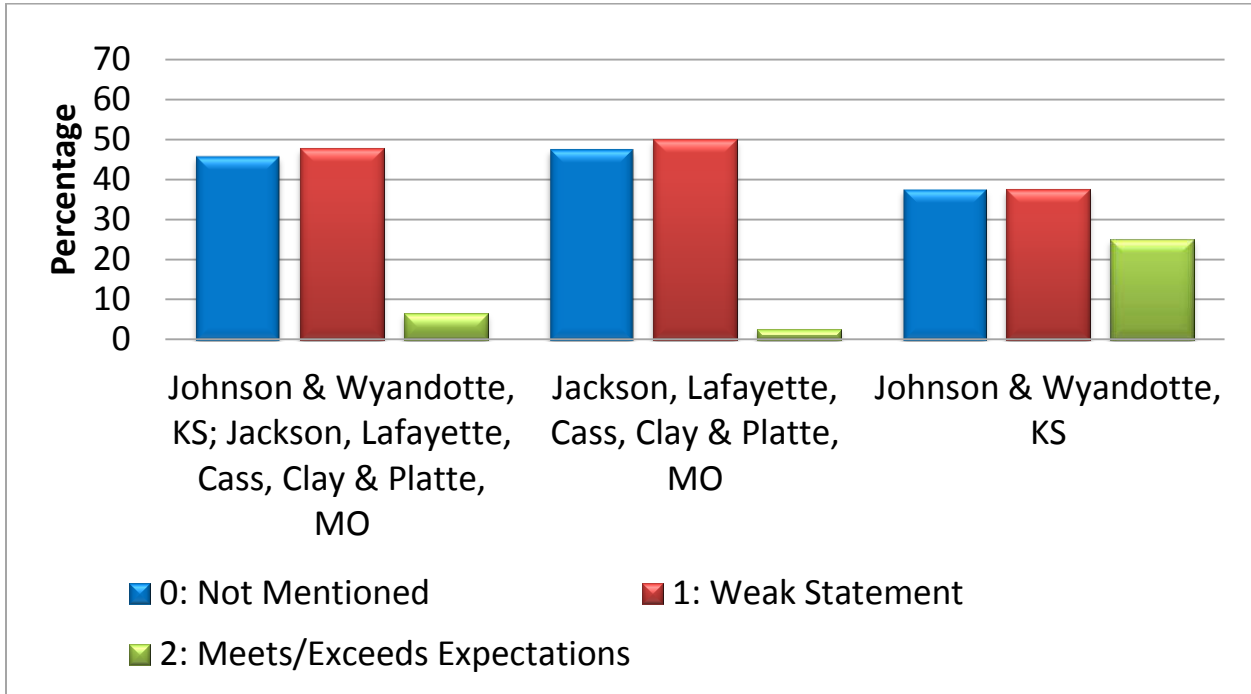


2.5. School districts' WellSAT scores for encouraging staff to be role models for healthy behaviors

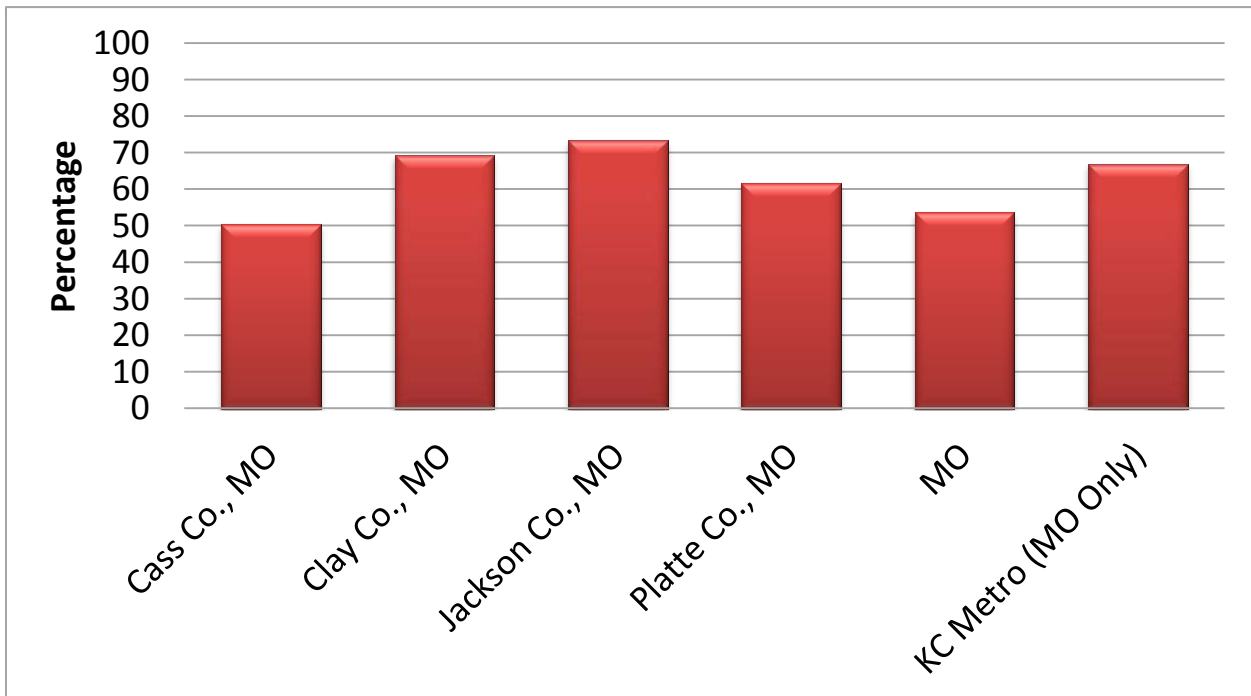




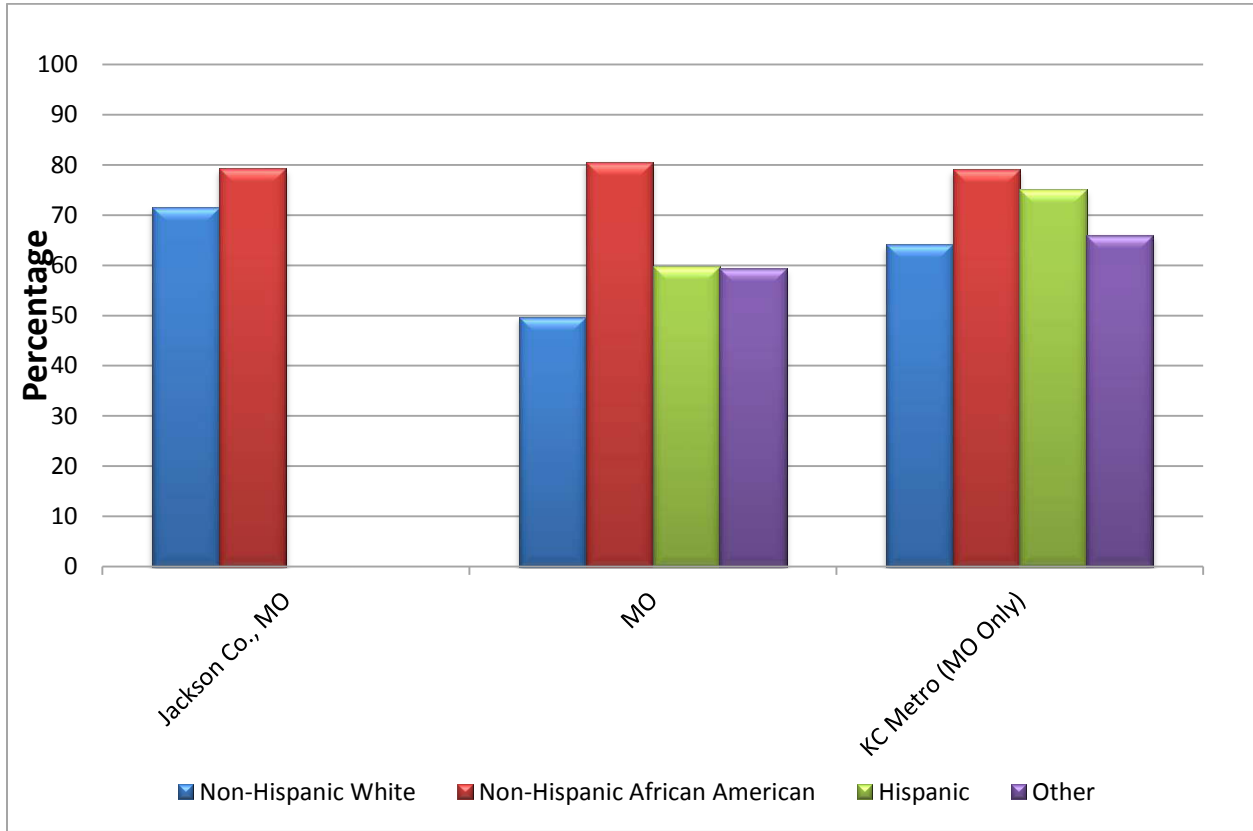
2.6. School districts' WellSAT scores for specifying how district will engage families to provide information and/or solicit input to meet district wellness goals



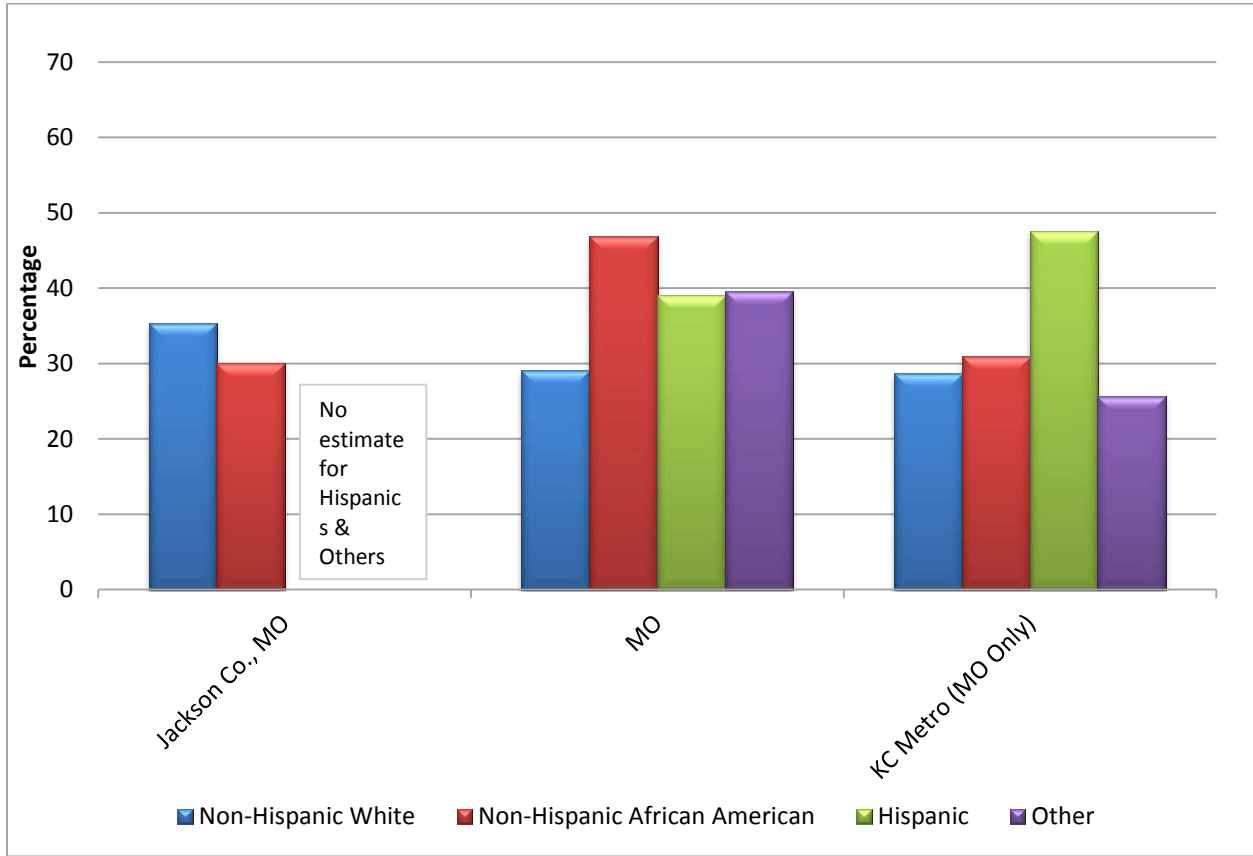
2.7. Prevalence of adults in neighborhoods with sidewalks (perception from survey-based questions)



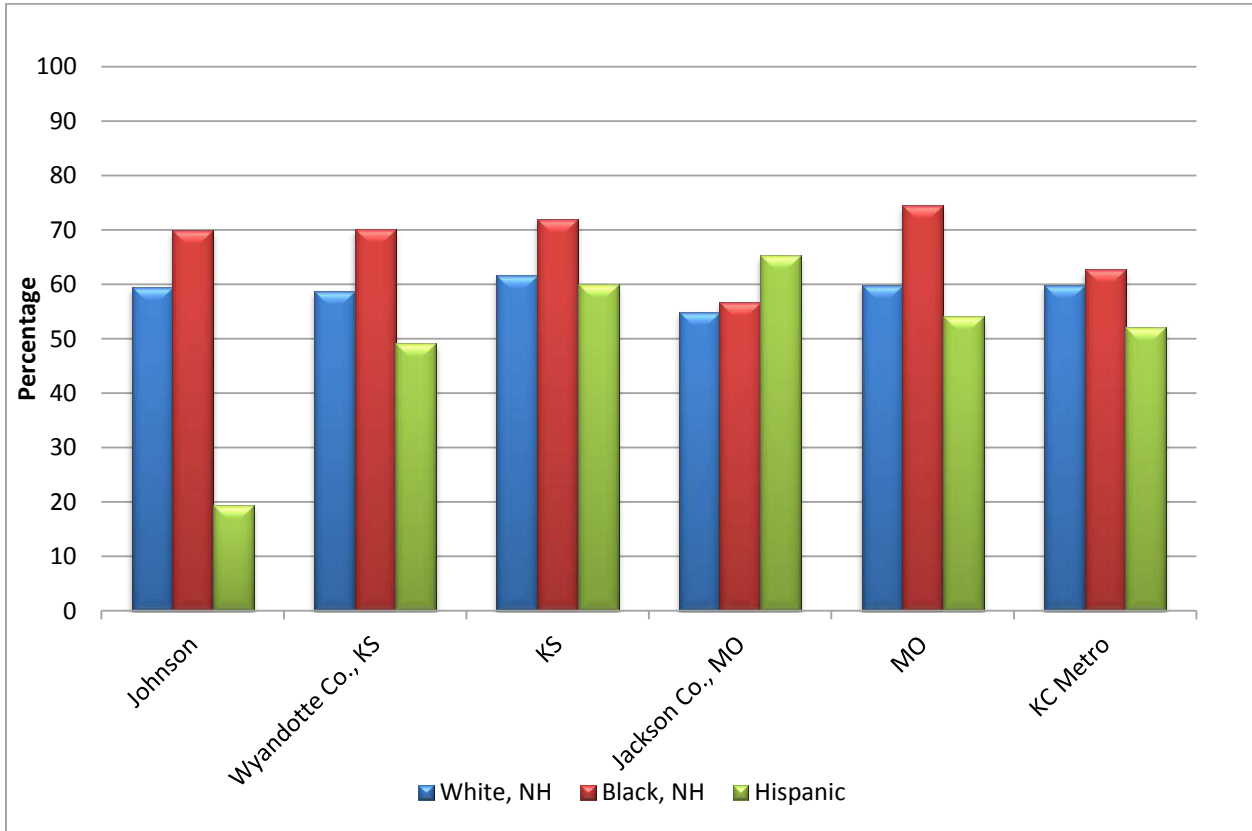
2.7. Prevalence of adults in neighborhoods with sidewalks (by ethnicity)



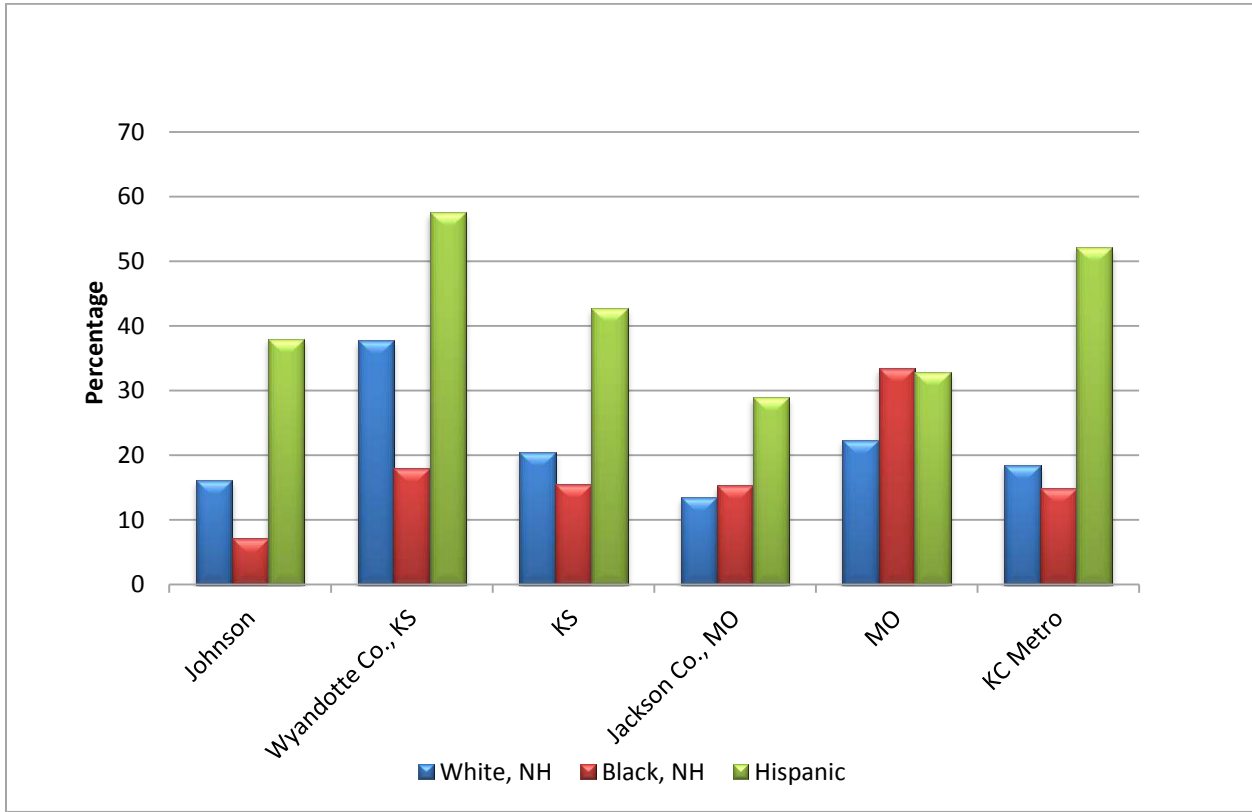
2.8. Prevalence of adults in neighborhoods with roads/streets with shoulders or marked lanes for bicycling (perception from survey-based questions)



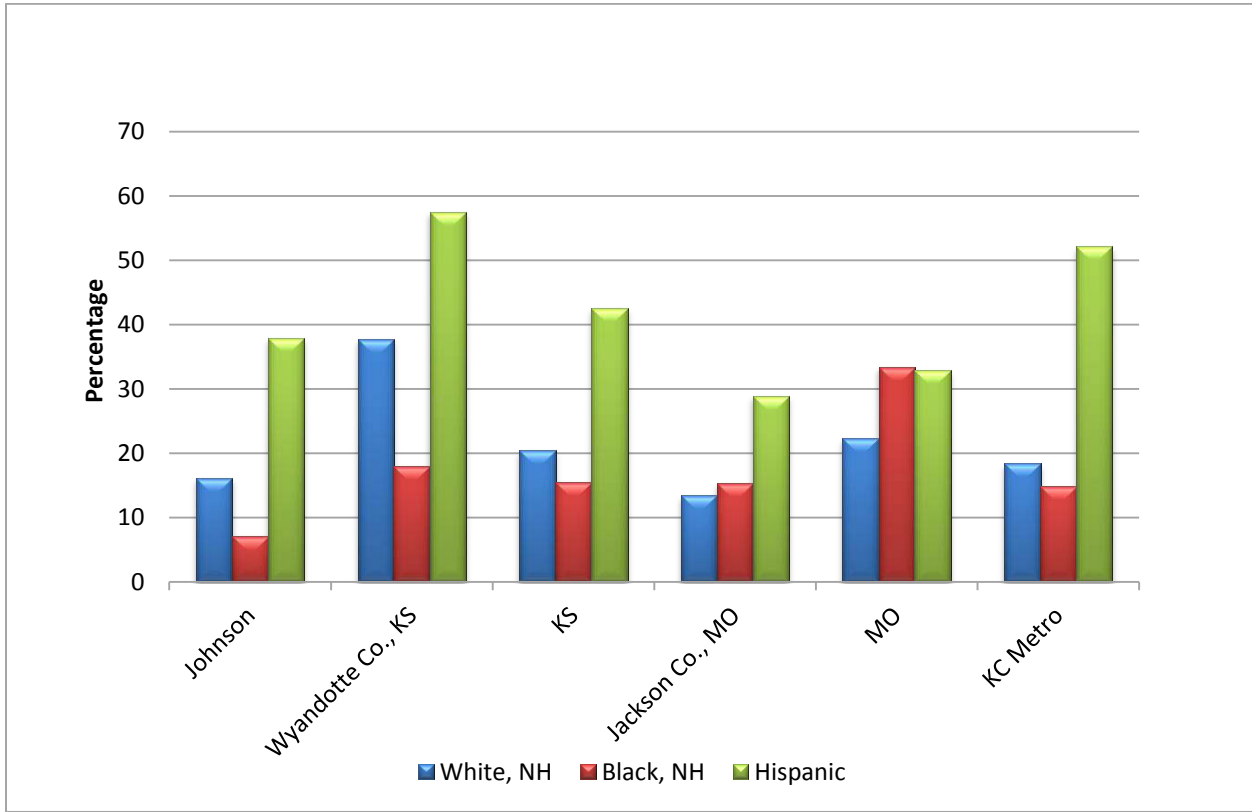
2.9. Prevalence of children living with a parent who is overweight/obese



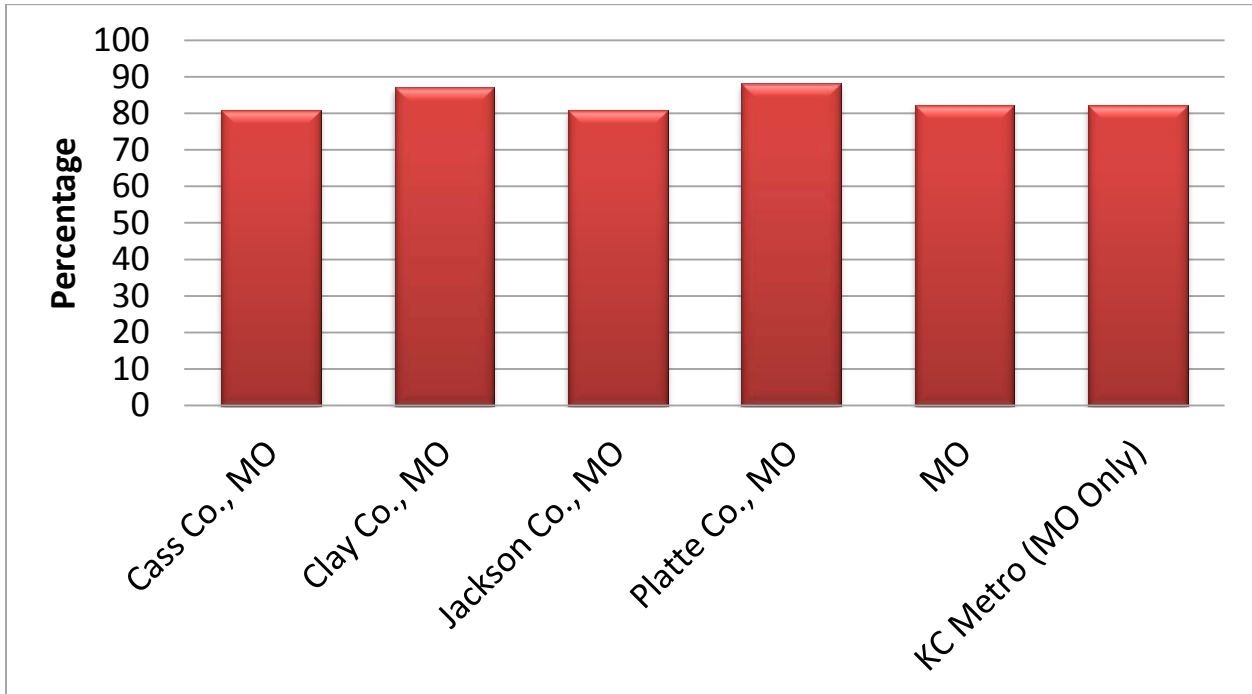
2.10. Prevalence of children living with a parent who is inactive during leisure-time



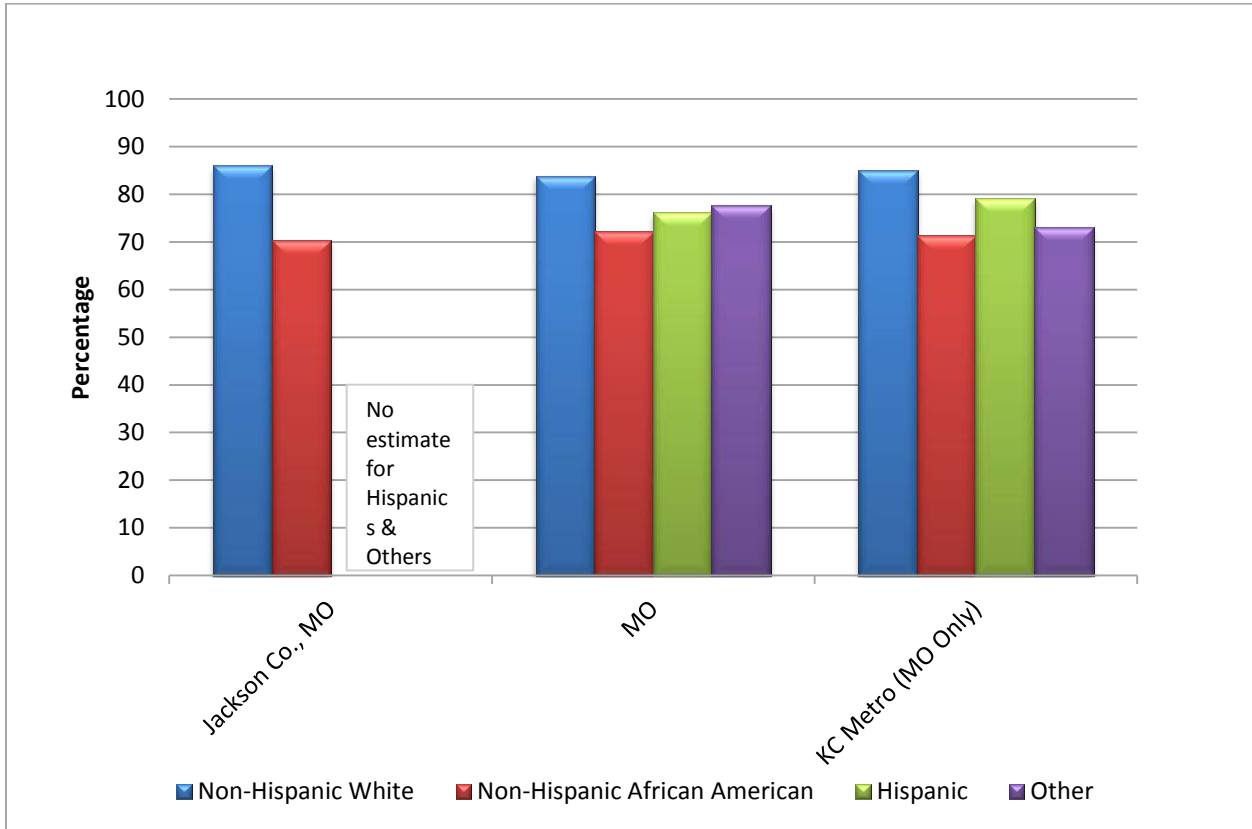
2.10. Prevalence of children living with a parent who is inactive during leisure-time



2.11. Prevalence of adults who strongly agree or agree that it is easy to purchase healthy foods in their neighborhood (perception from survey-based questions)



2.11. Percent of adults who strongly agree or agree that it is easy to purchase healthy foods in their neighborhood (perception from survey-based questions)

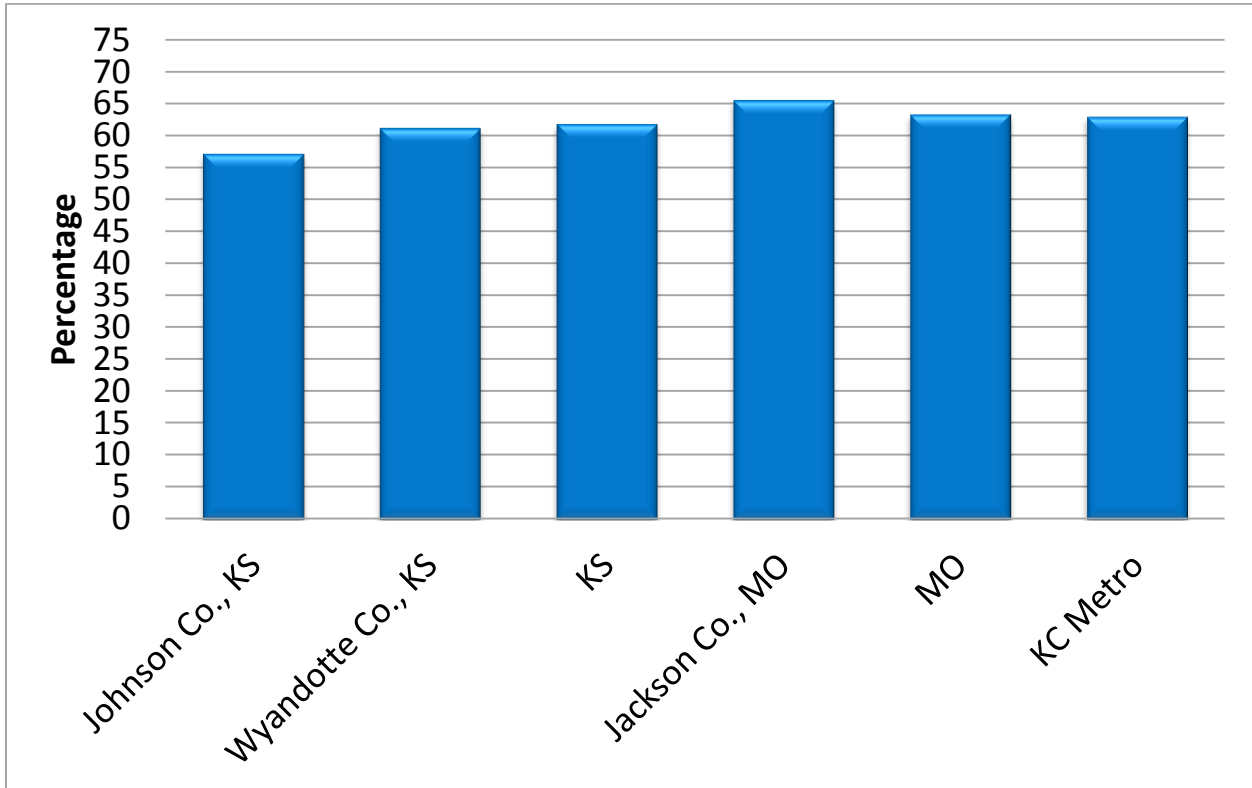


2.12. Percent of parents who describe their child as “very overweight”

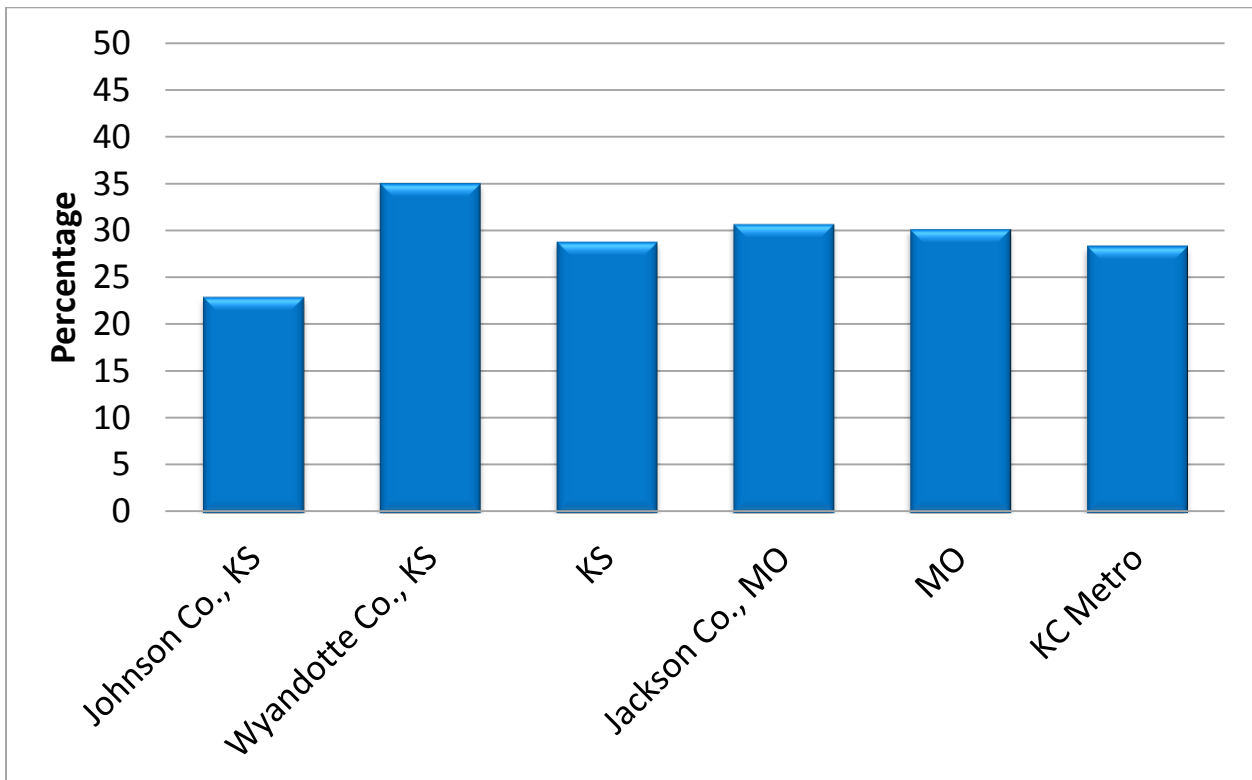
### 3) Overweight/Obesity and Related Behaviors

#### a) Overweight/Obesity and Related Behaviors for Adults Ages 18 and Older and Mothers

3.a.1. Prevalence of overweight/obesity among adults 18 and older

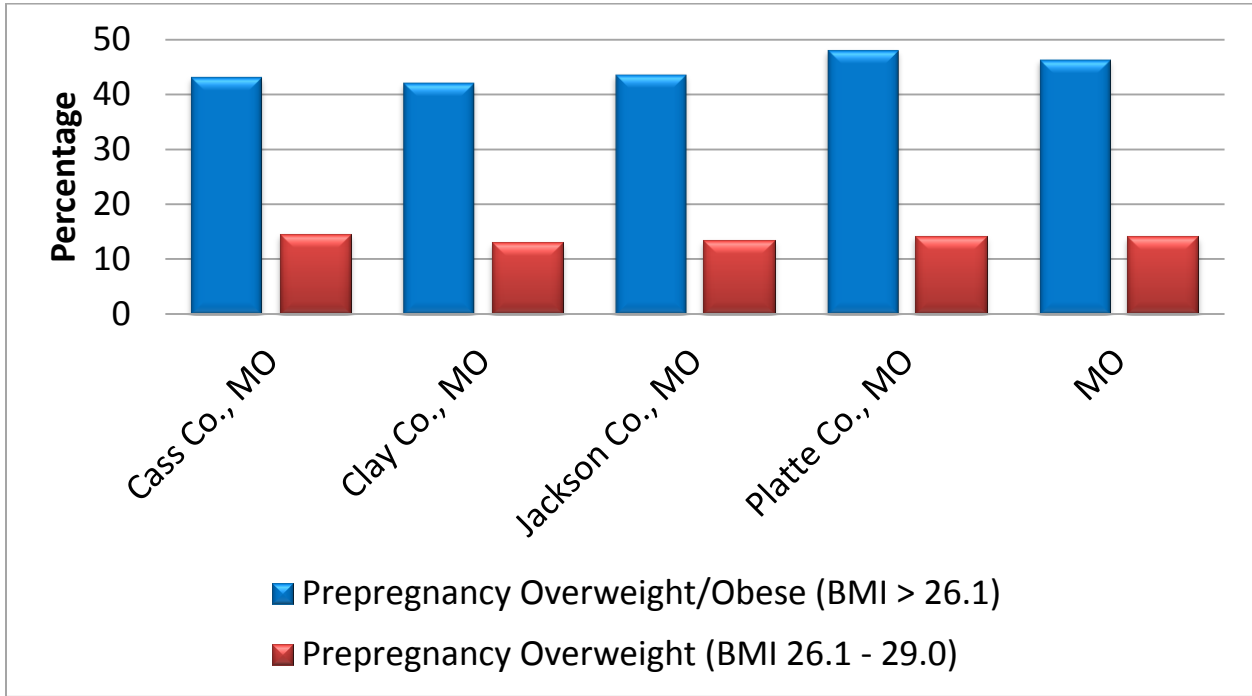


3.a.2. Prevalence of obesity among adults

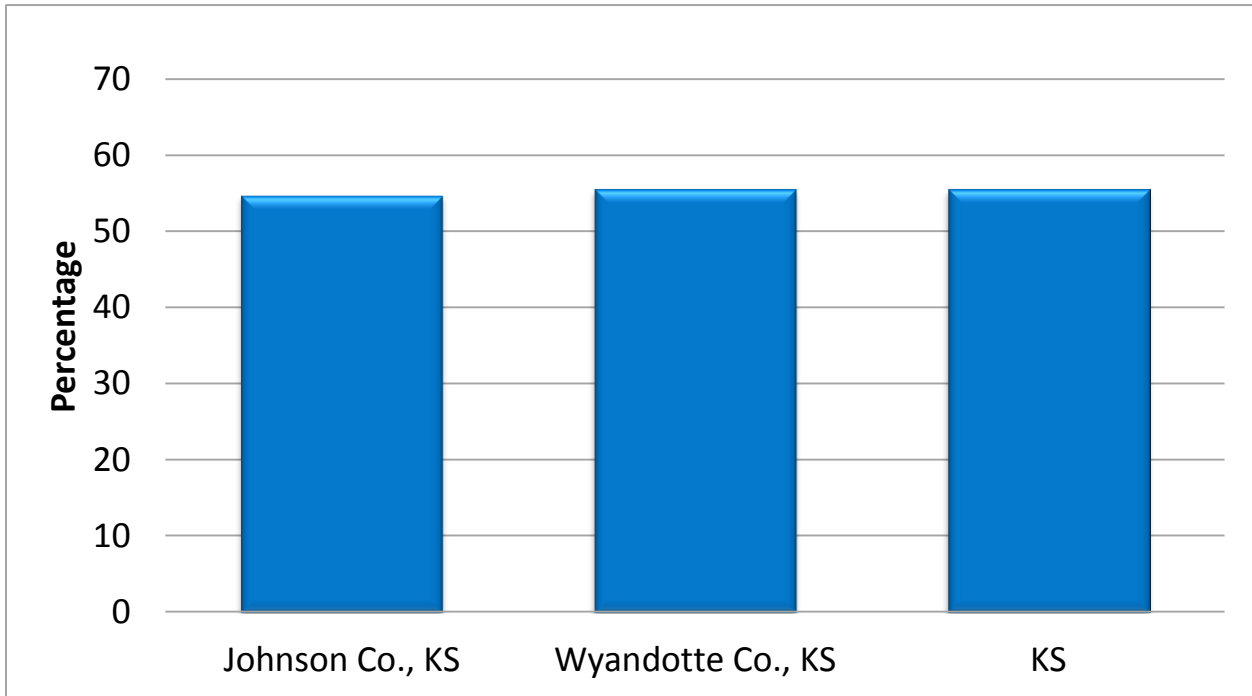




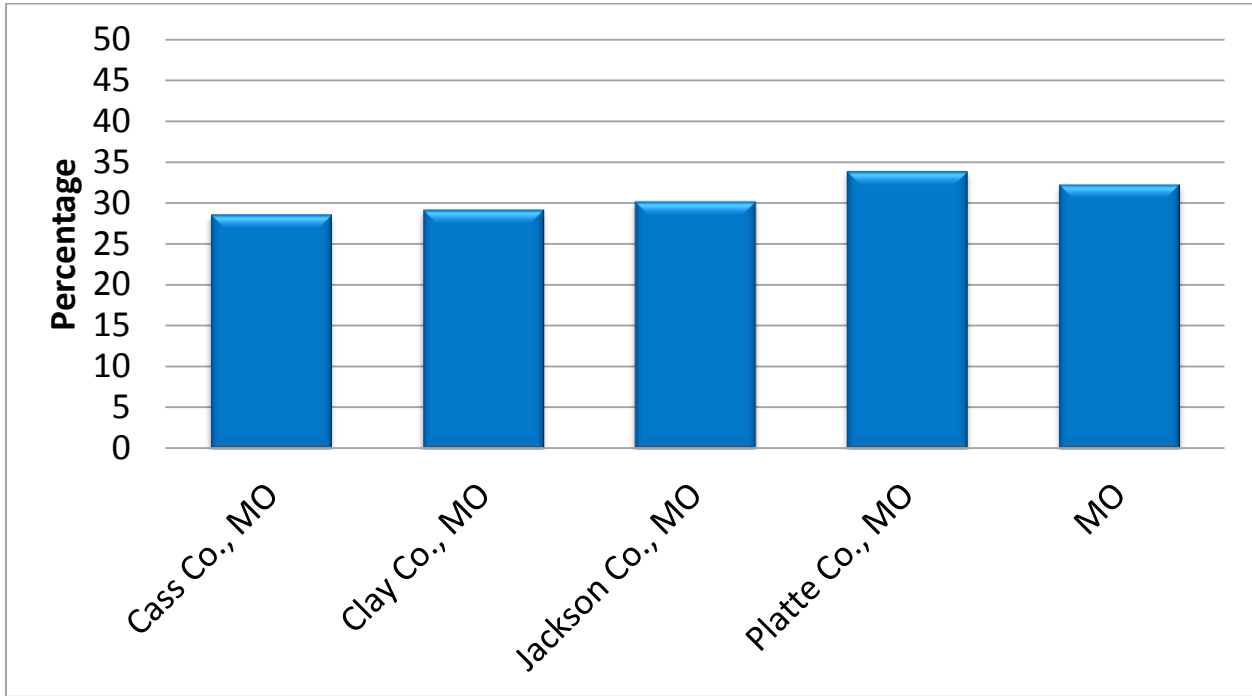
3.a.3. Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy (Missouri)



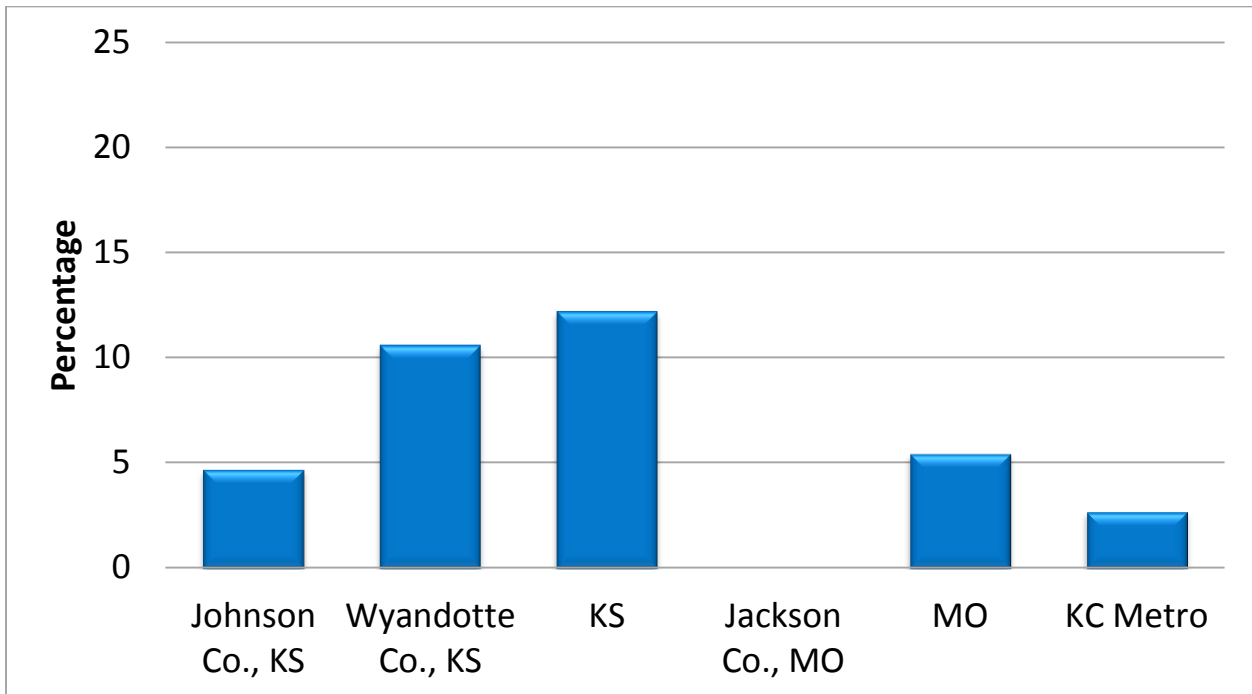
3.a.3. Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy (Kansas)



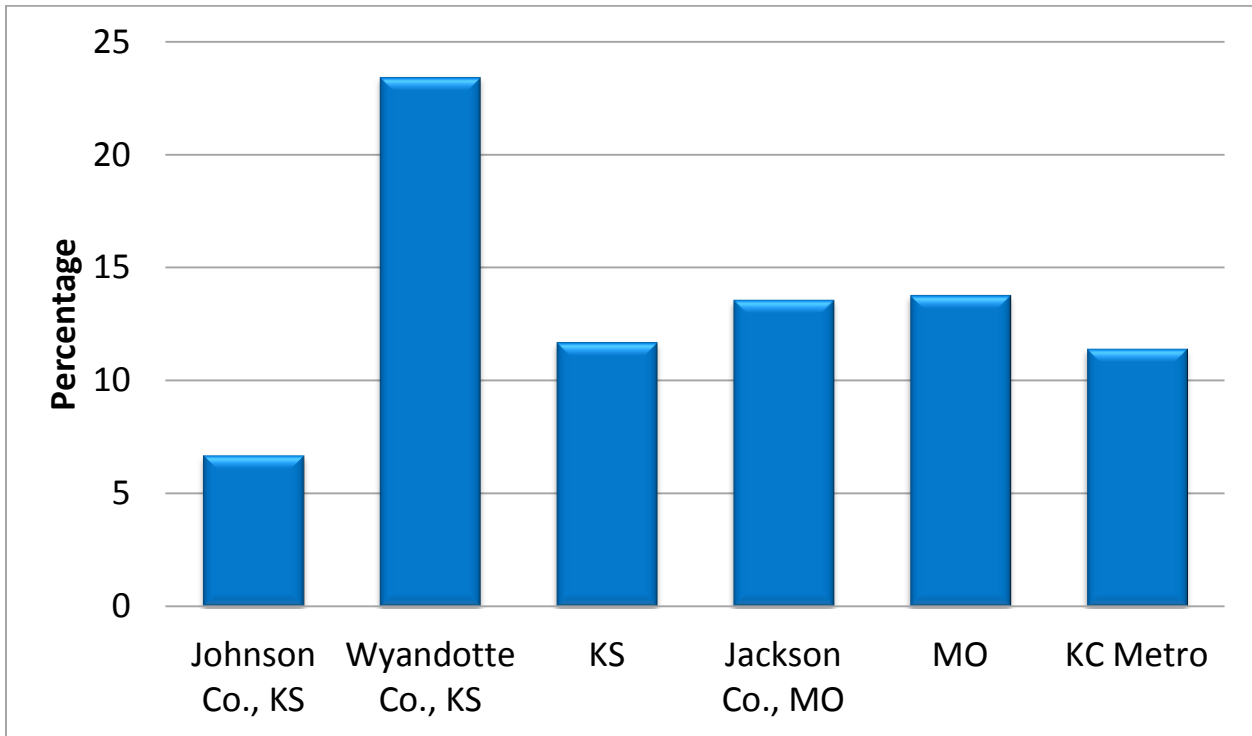
3.a.4. Prevalence of low-income postpartum women who were obese prior to pregnancy (Missouri)



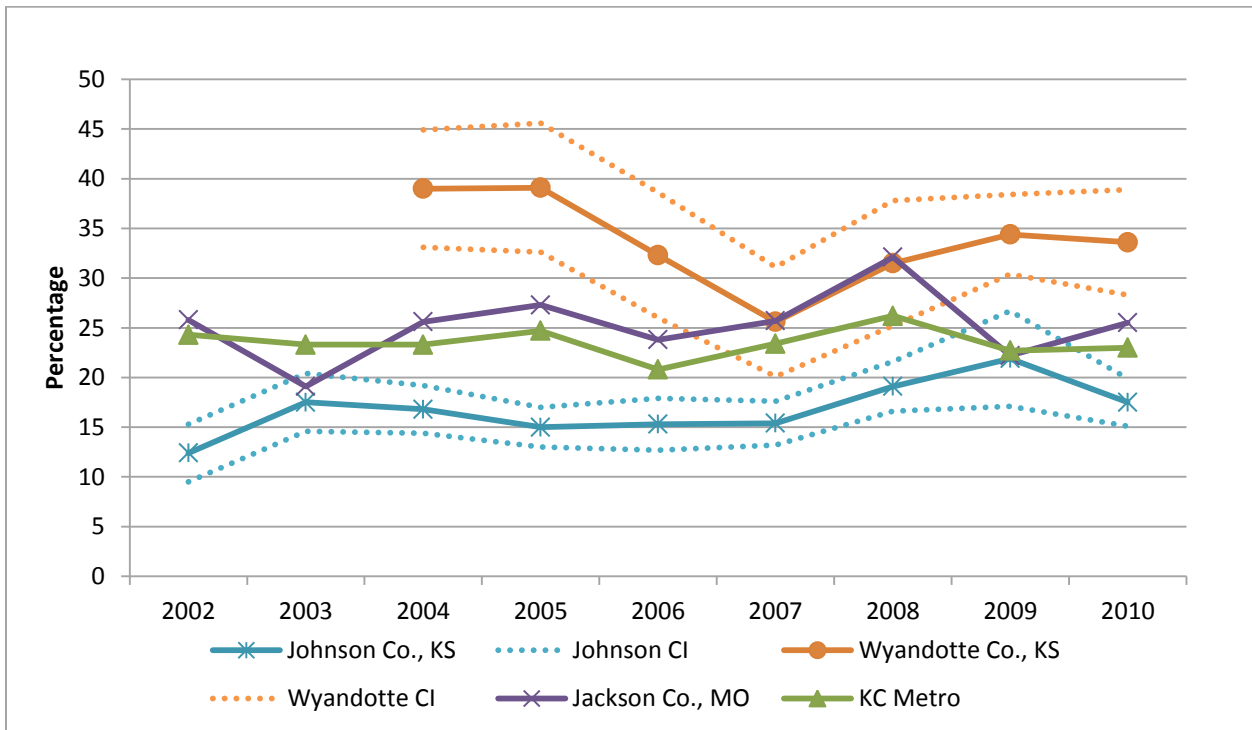
3.a.5. Prevalence of no health care coverage among pregnant women



3.a.6. Prevalence of no health care coverage among adults

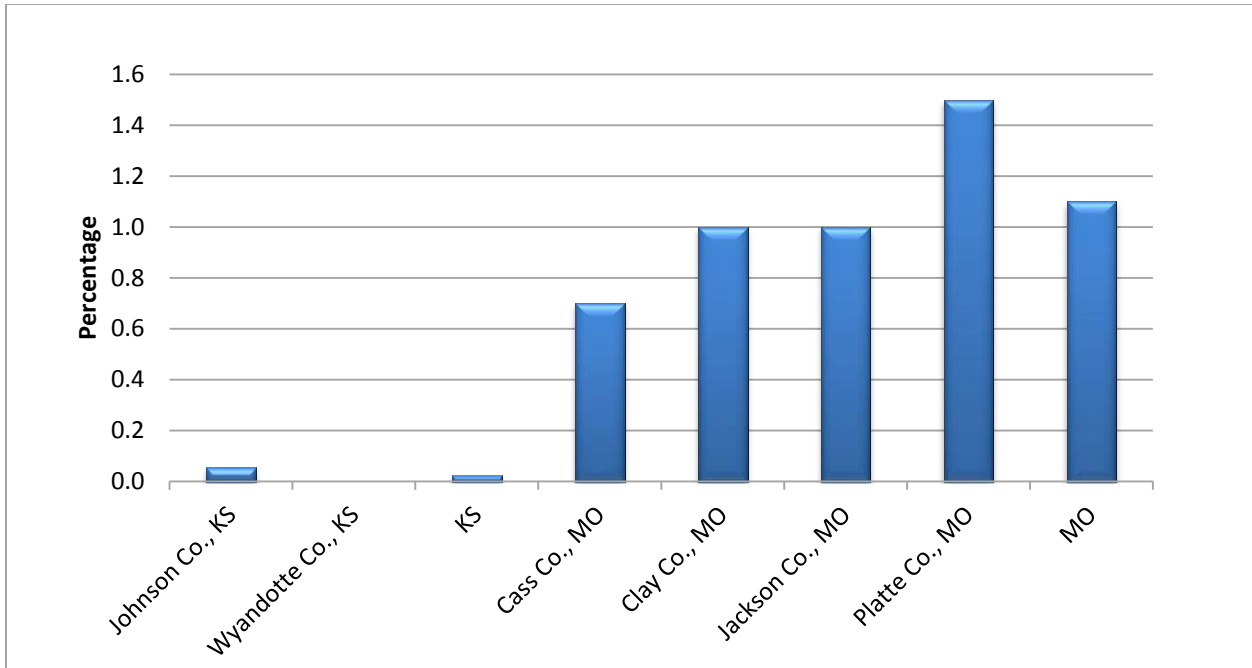


3.a.7. Prevalence of adults with no leisure time exercise or physical activity in the past 30 days

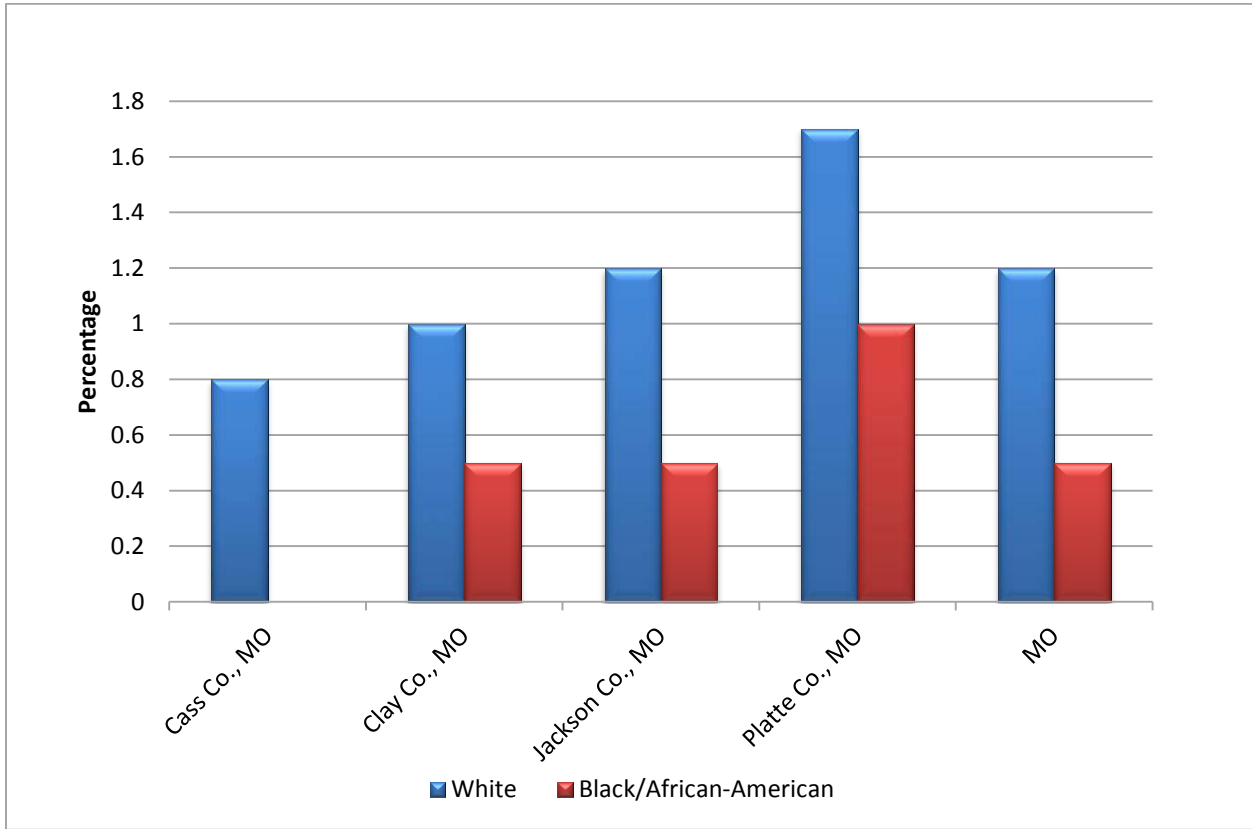


## b) Overweight/Obesity and Related Behaviors for Children

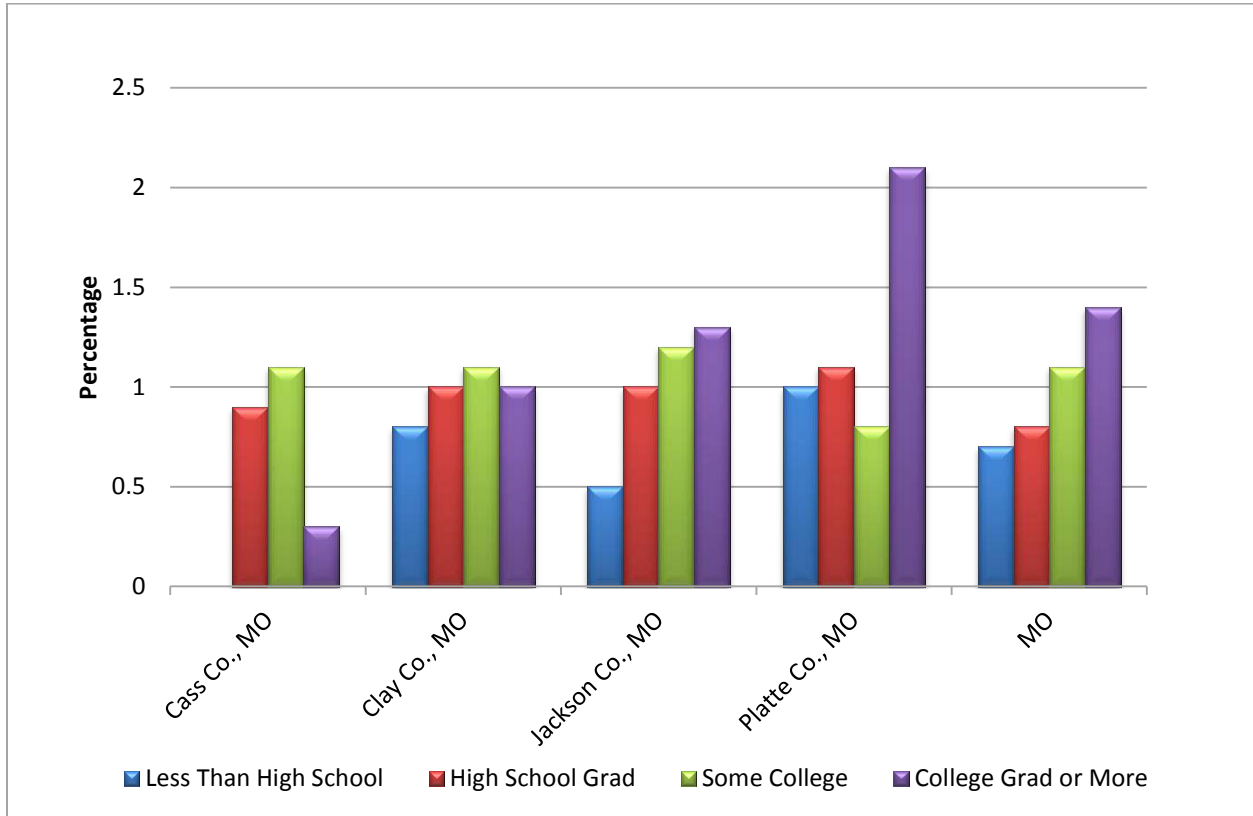
### 3.b.1. Prevalence of neonates with high birth weight (> 4499g)



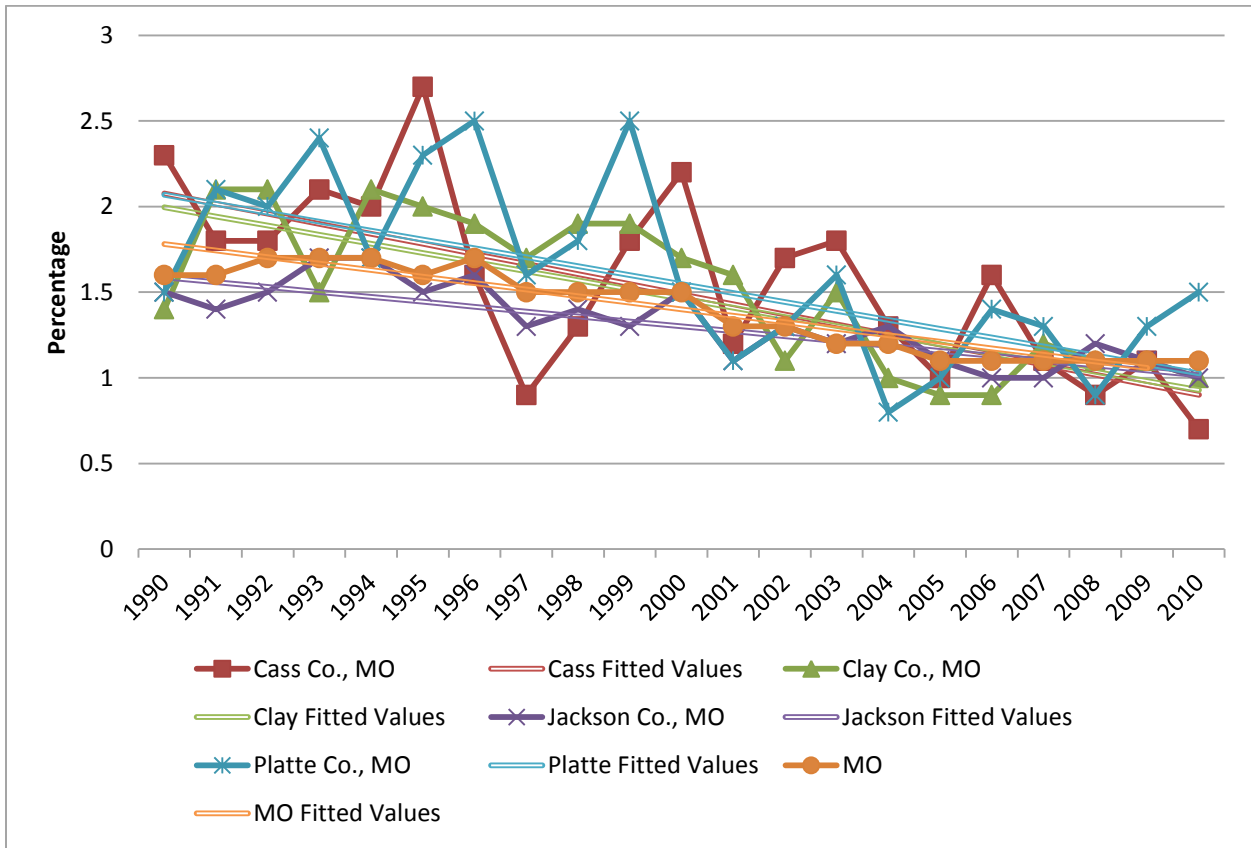
3.b.1. Prevalence of neonates with high birth weight (> 4499g) (by race)



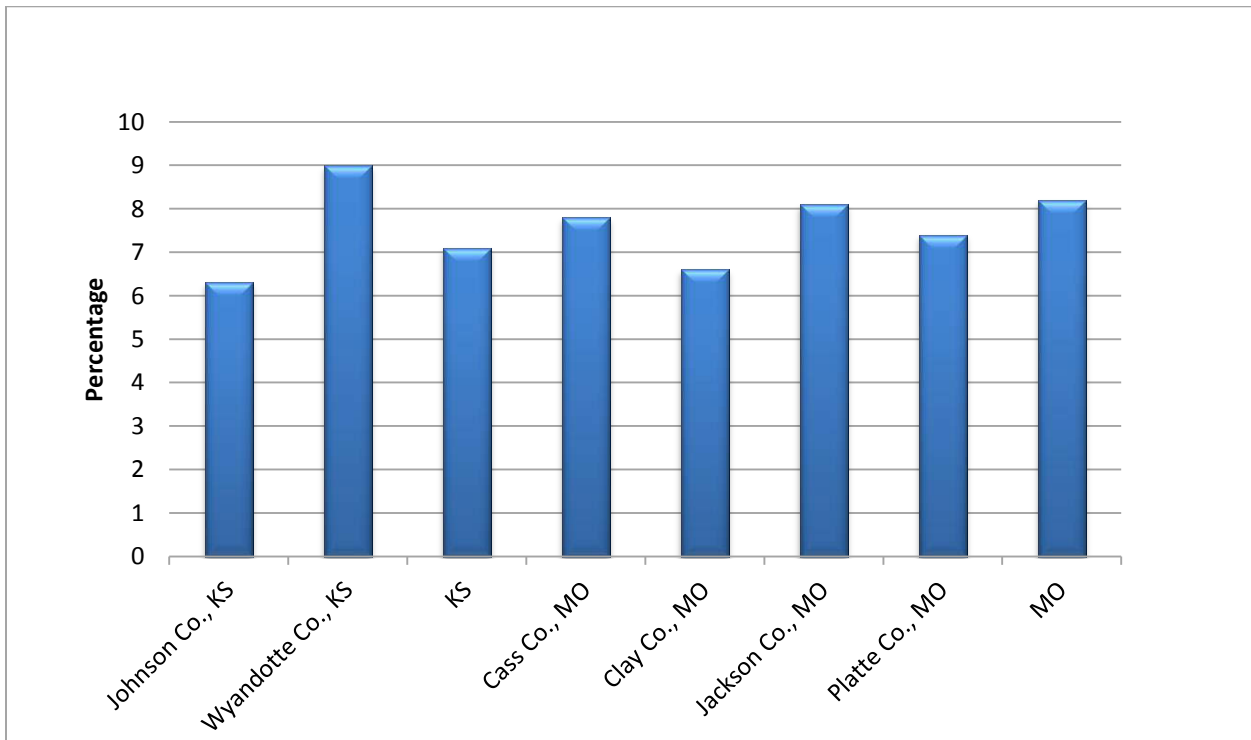
3.b.1. Prevalence of neonates with high birth weight (> 4499g) (by educational attainment)



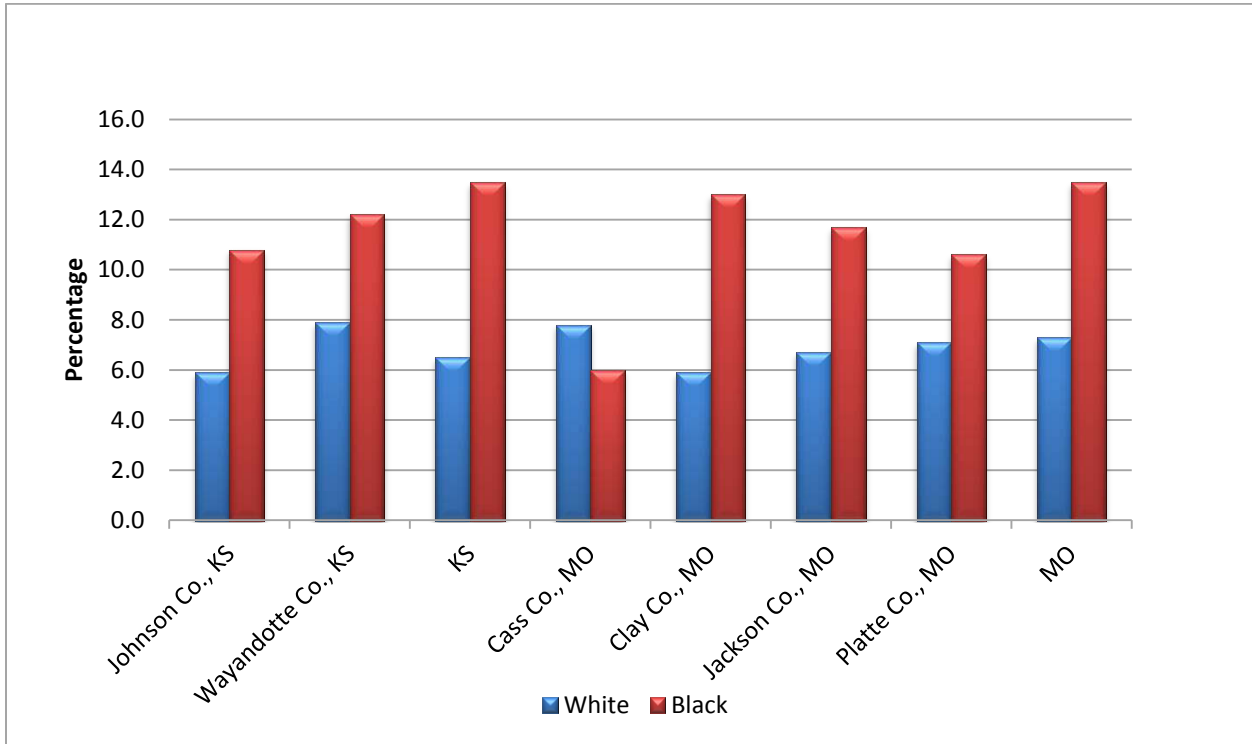
3.b.1. Prevalence of neonates with high birth weight (> 4499g) (by year)



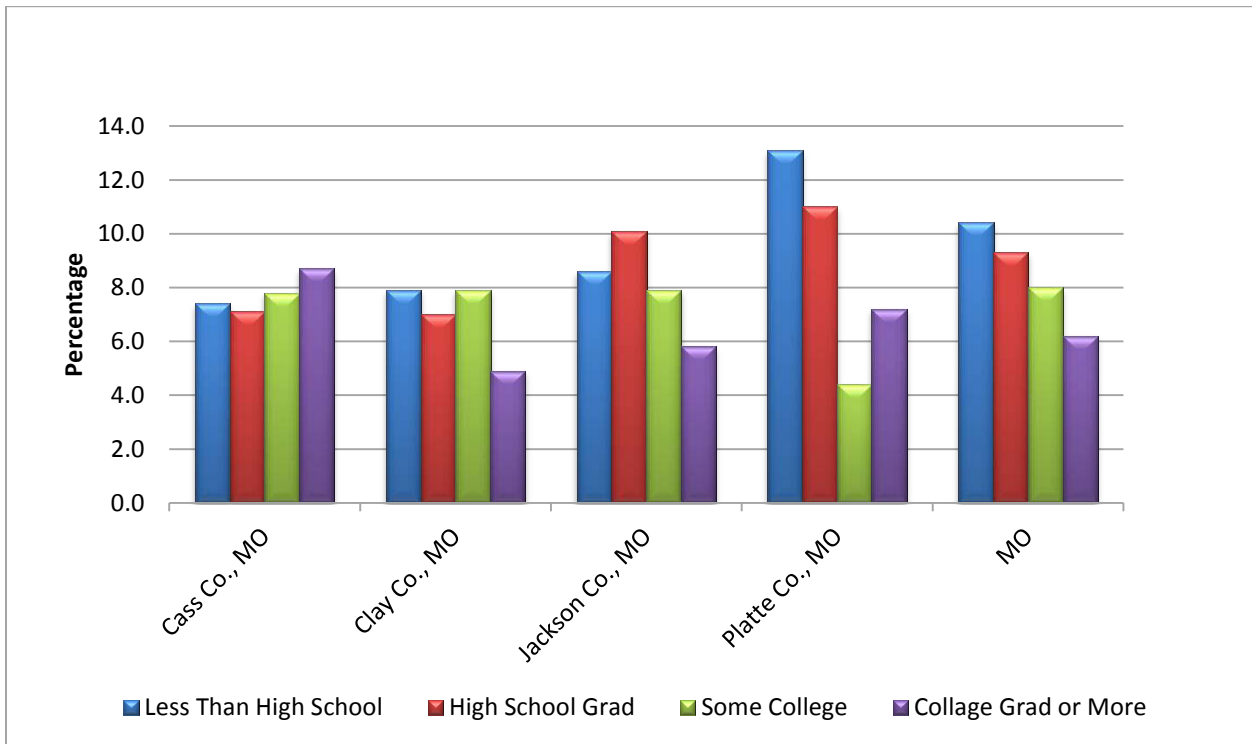
3.b.2. Prevalence of neonates with low/very low birth weight (< 2500g)



3.b.2. Prevalence of neonates with low/very low birth weight (< 2500g) (by race)

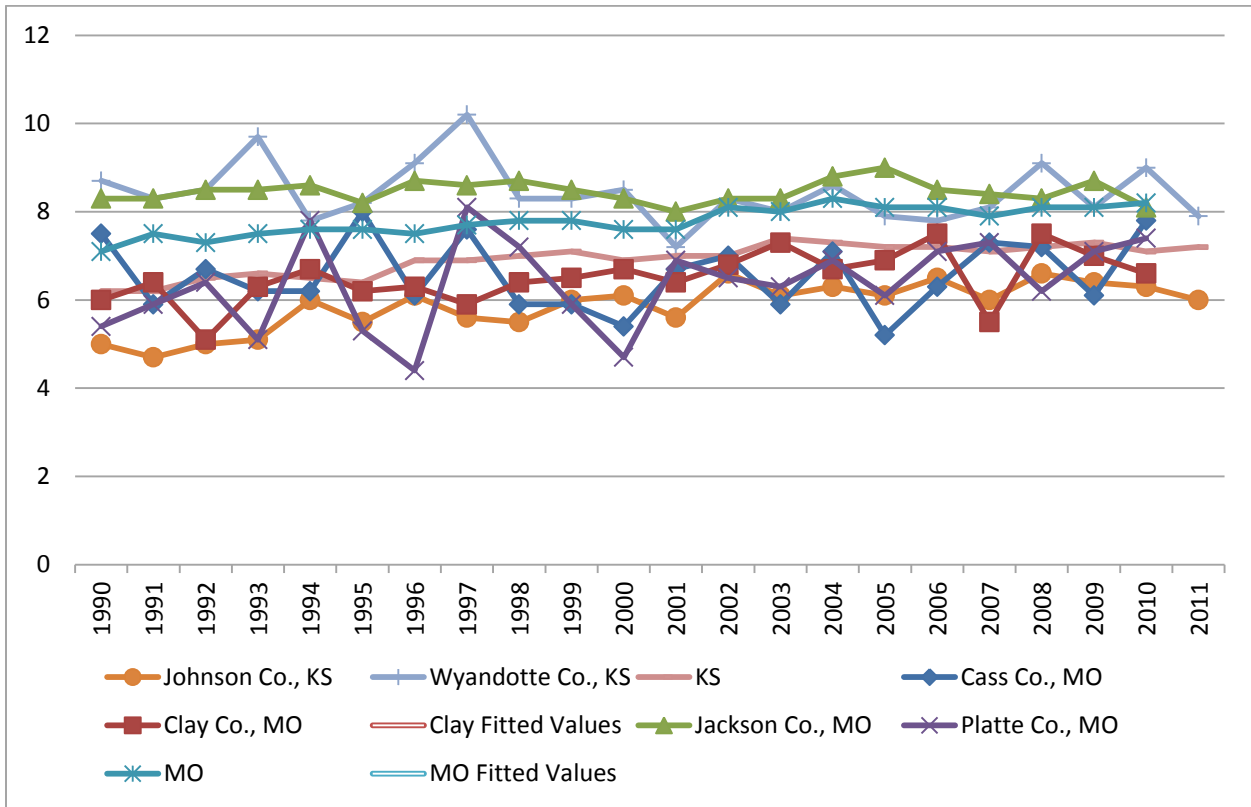


3.b.2. Prevalence of neonates with low/very low birth weight (< 2500g) (by educational attainment)

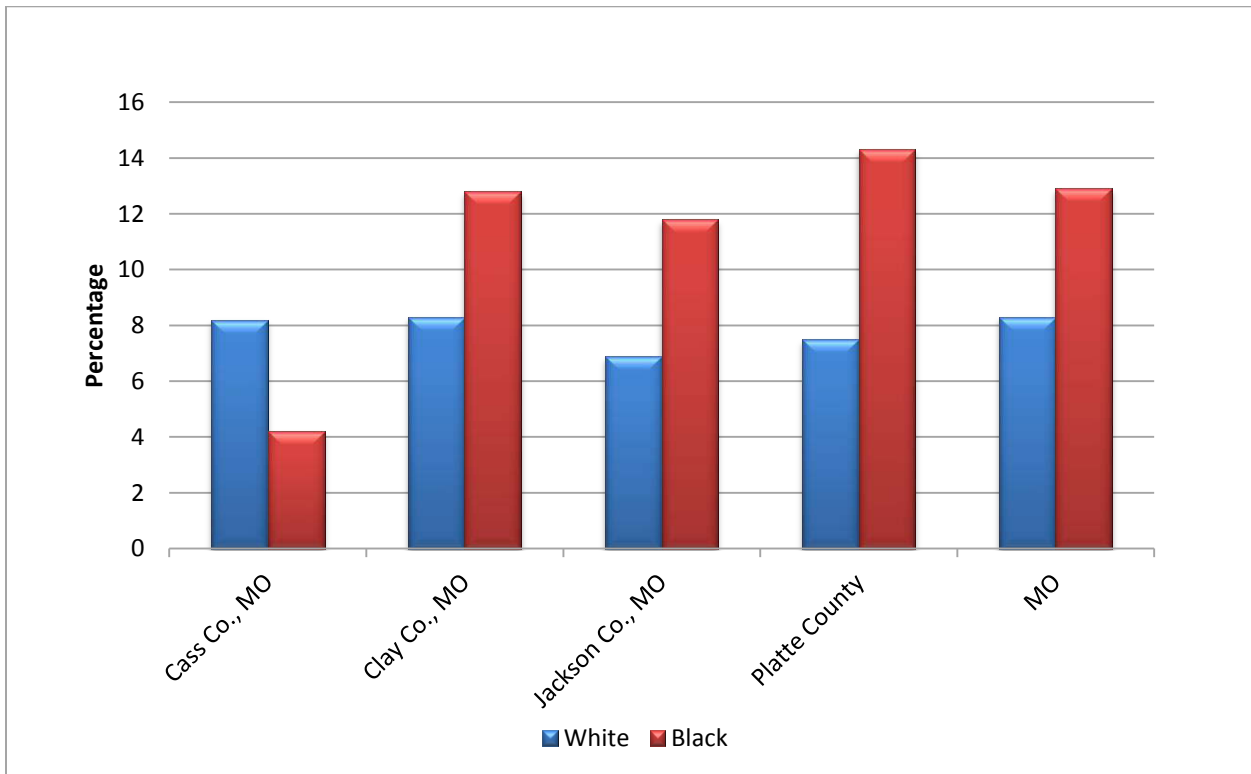




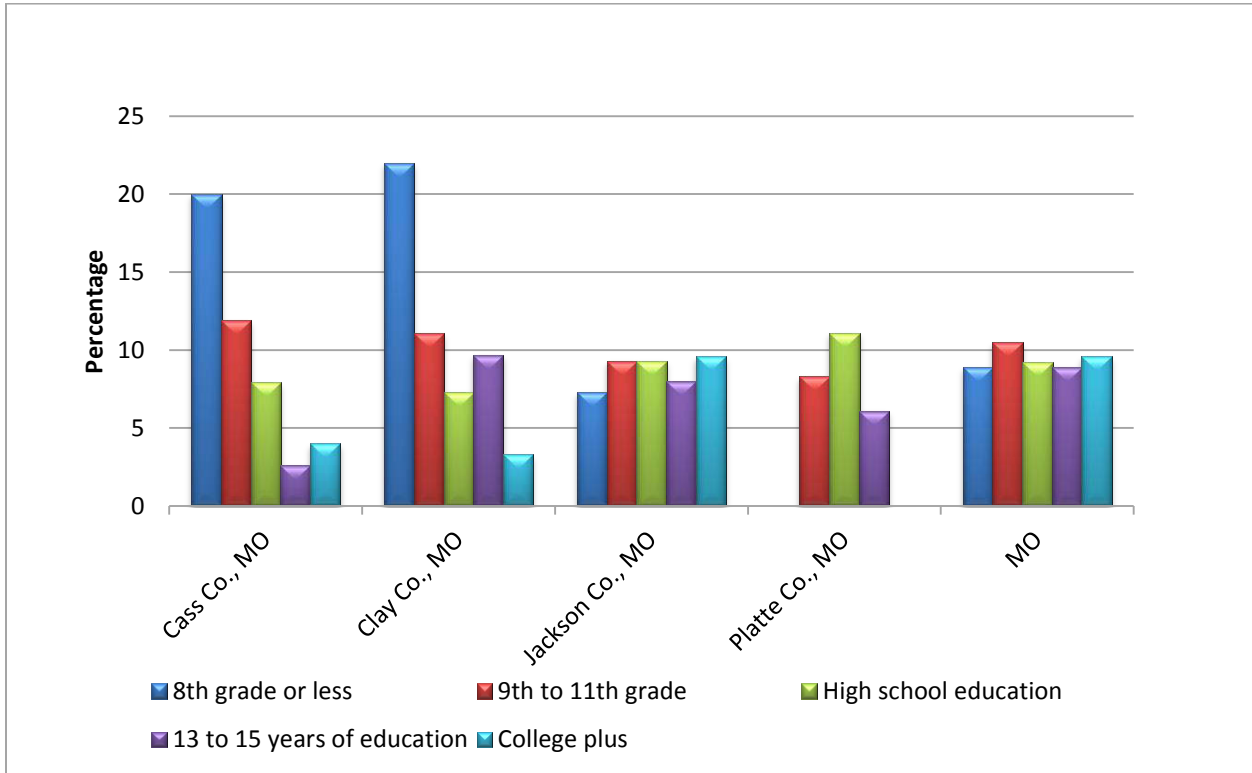
3.b.2. Prevalence of neonates with low/very low birth weight (< 2500g) (by year)



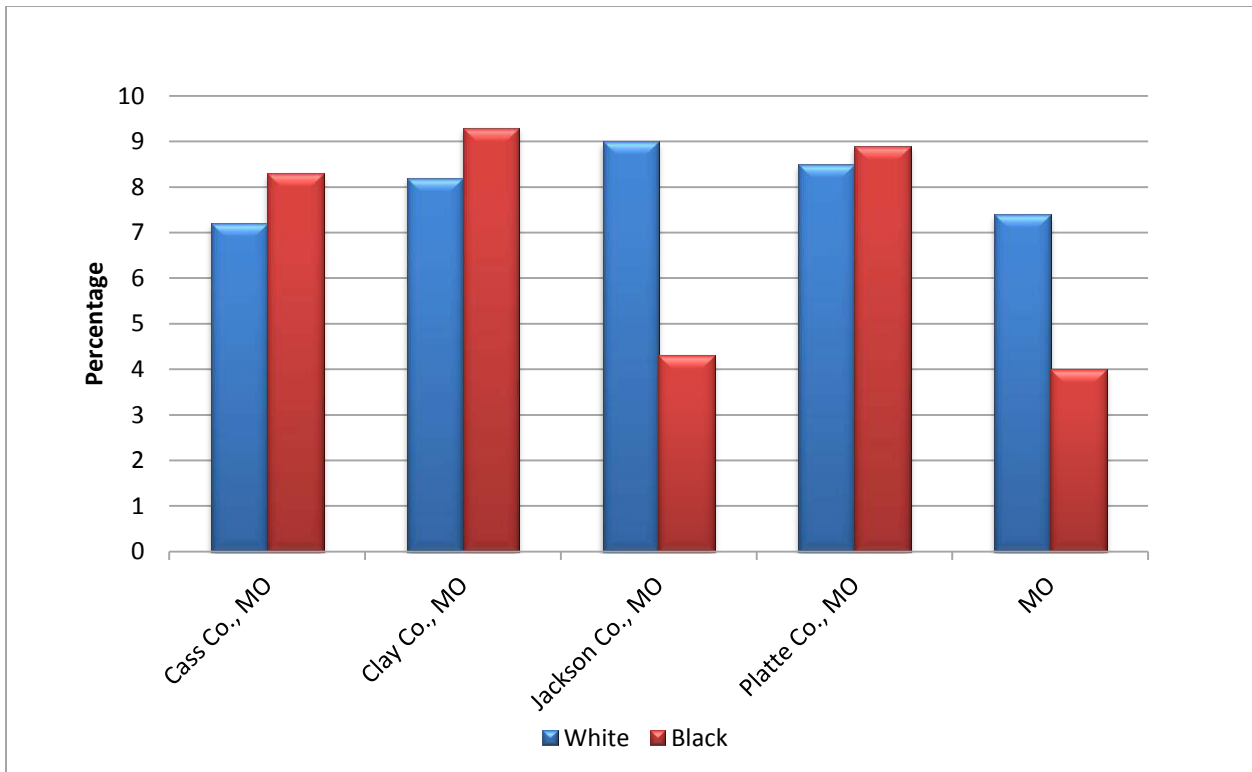
3.b.3. Prevalence of low-income neonates with low/very low birth weight (by race)



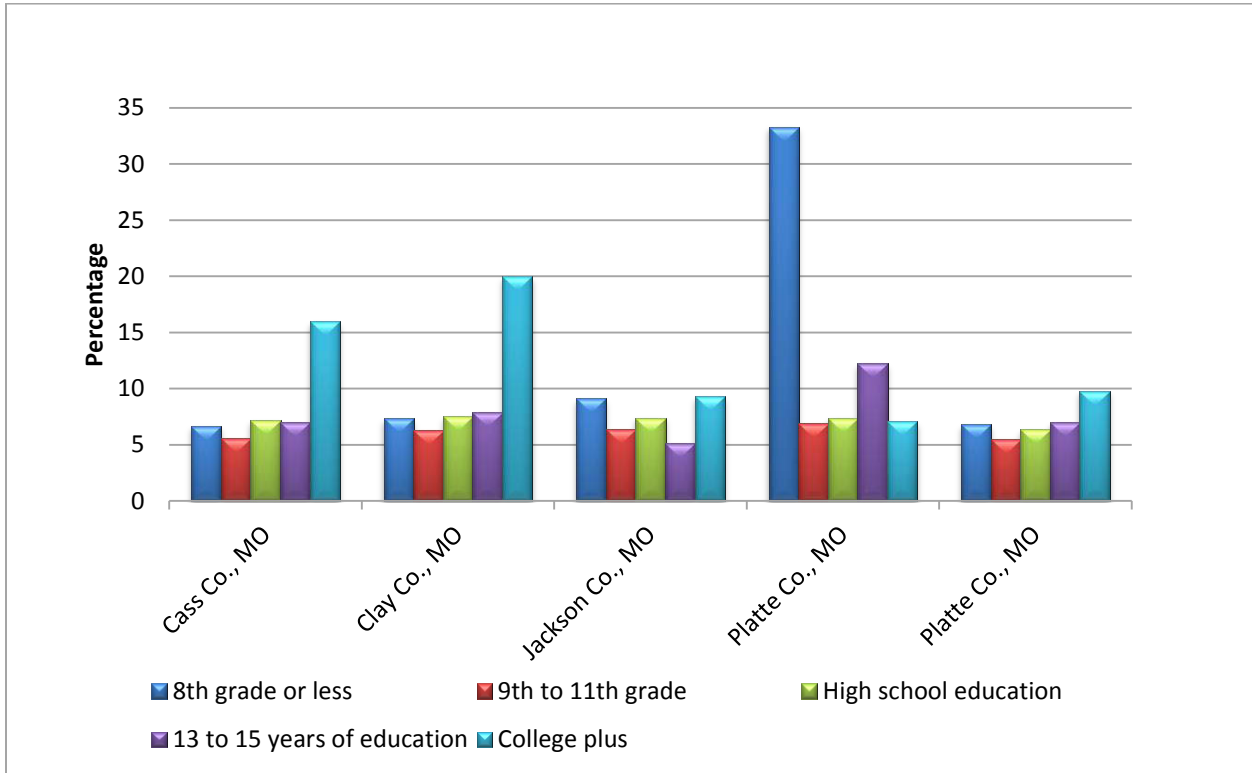
3.b.3. Prevalence of low-income neonates with low/very low birth weight (by educational attainment)



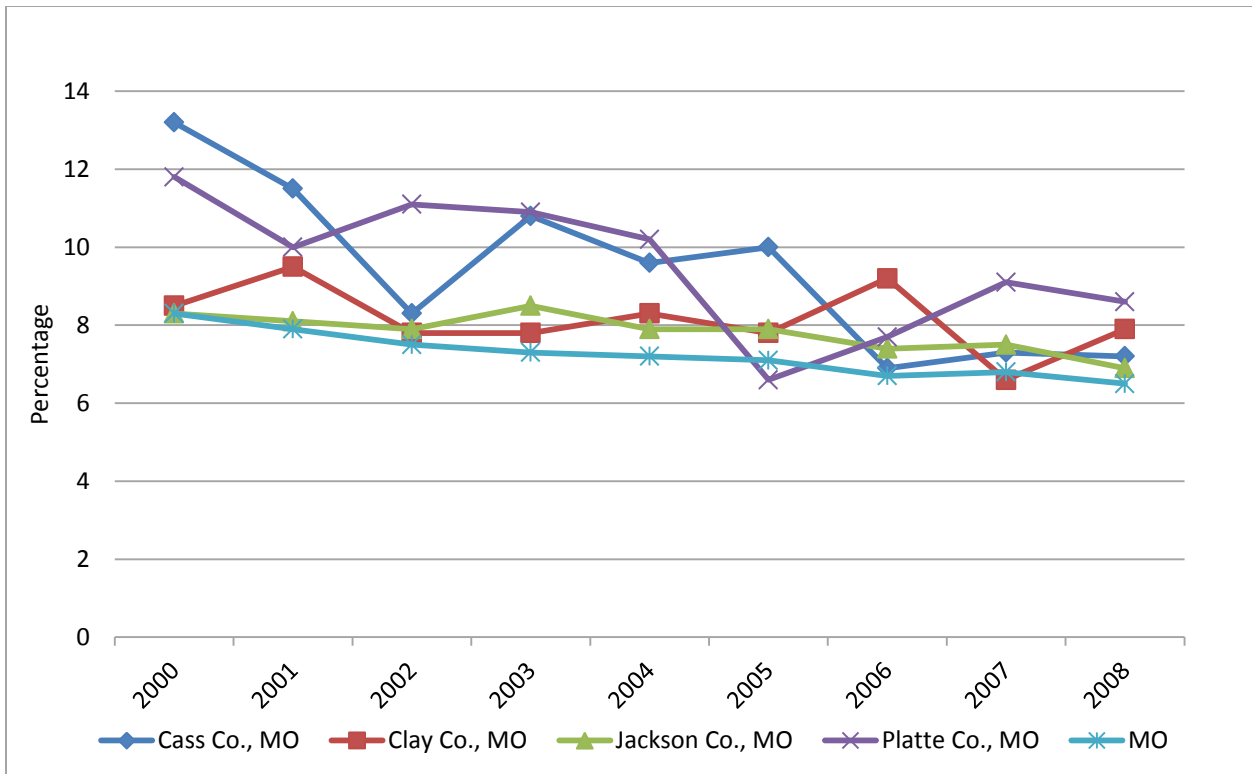
3.b.4. Prevalence of low-income neonates with high birth weight (by race)



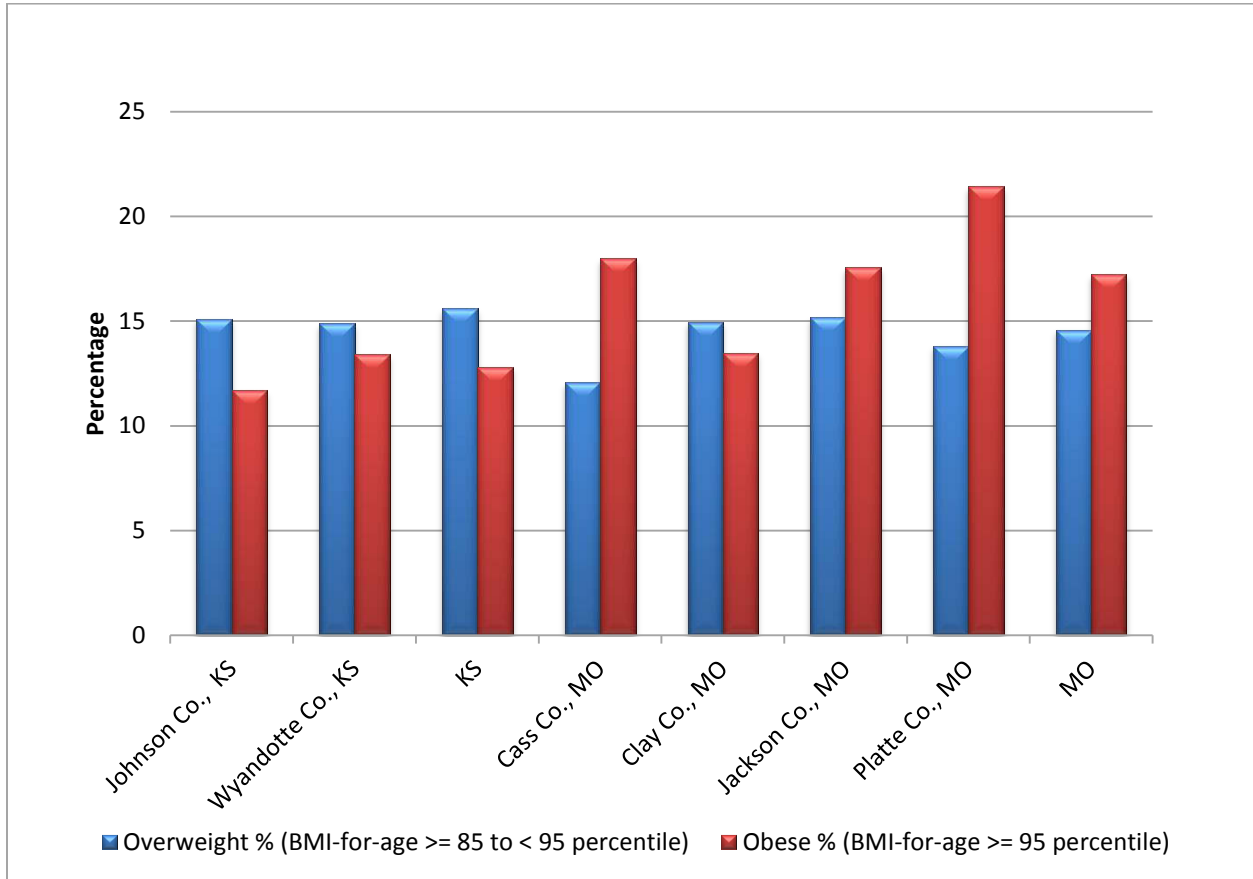
3.b.4. Prevalence of low-income neonates with high birth weight (by educational attainment)



3.b.4. Prevalence of low-income neonates with high birth weight (by year)

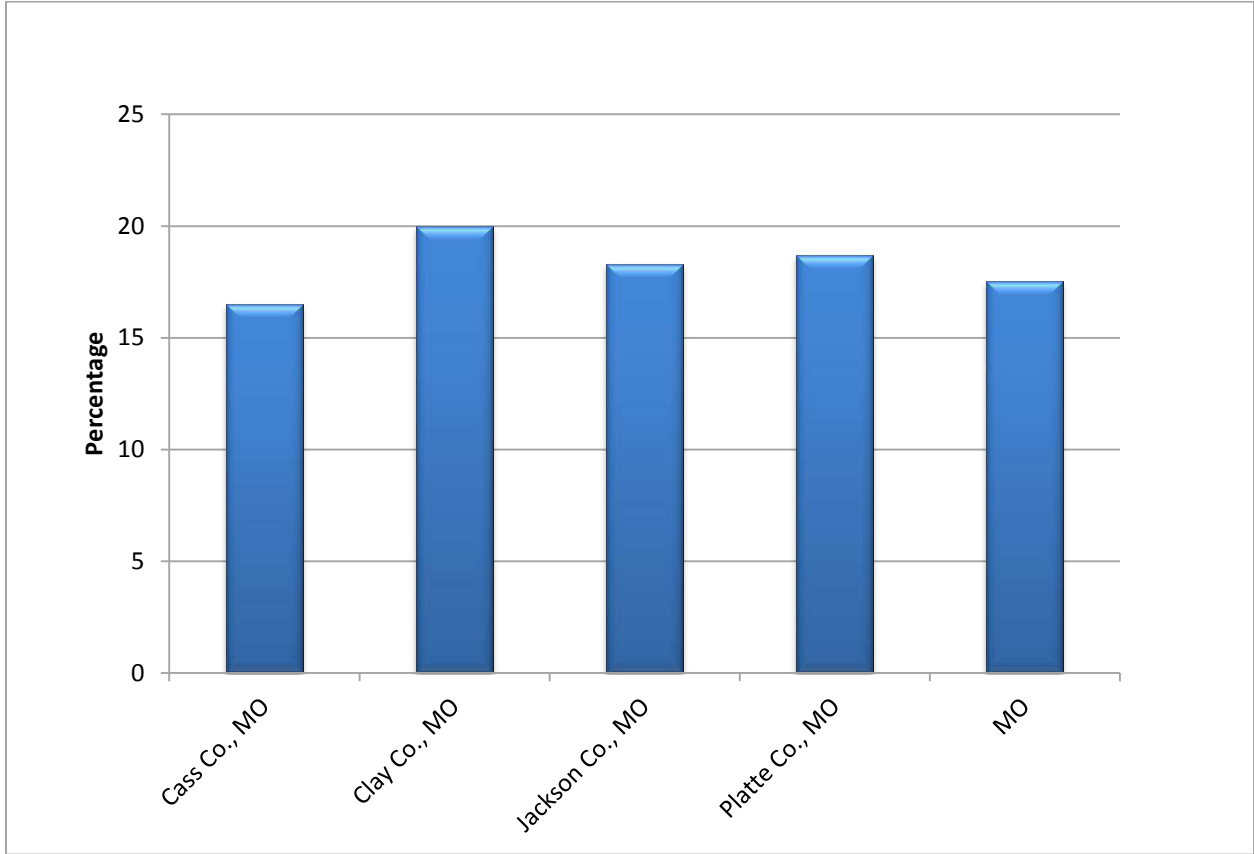


3.b.5. Prevalence of low-income children (age 2—4) with a Body Mass Index (BMI)-for-age indicating overweight/obesity

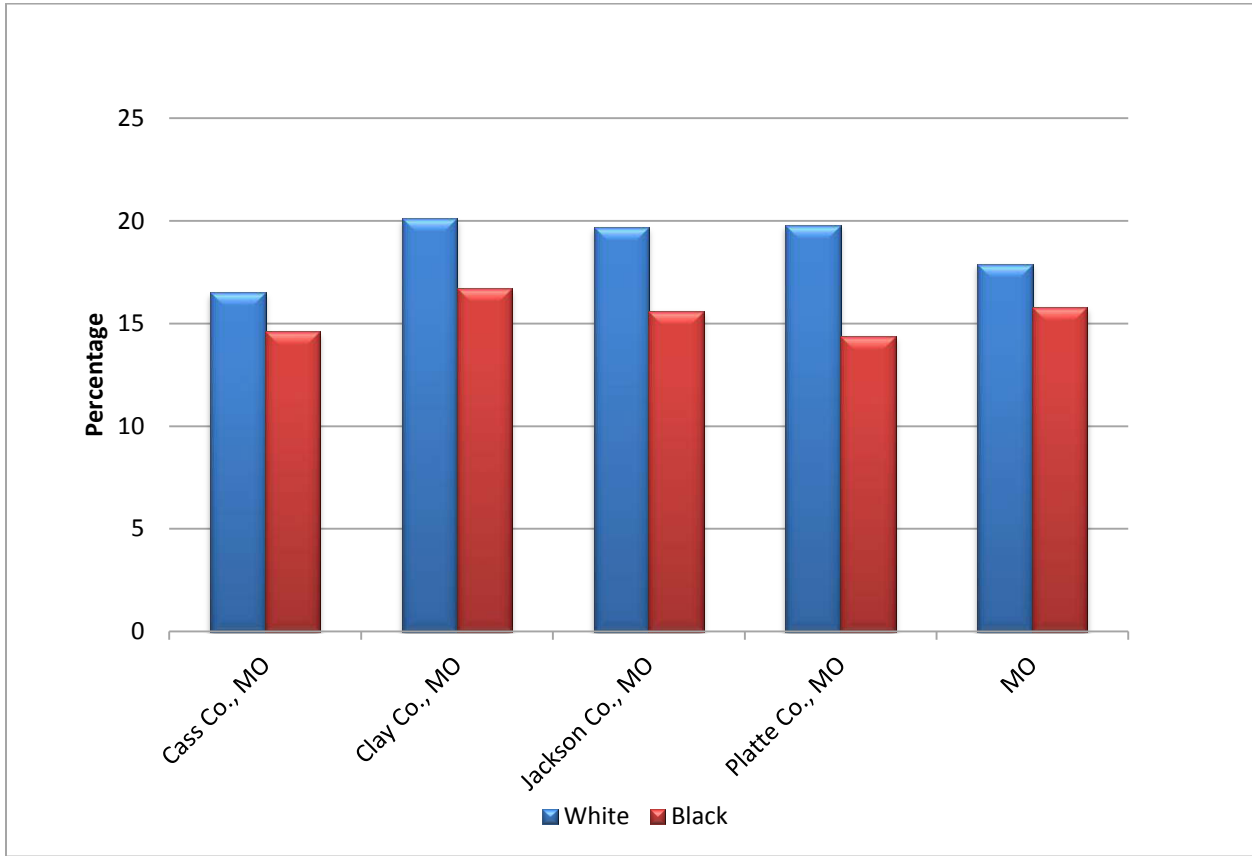


3.b.6. Prevalence of children by age whose parent(s) was/were told by a health professional or someone in the child's school that their child is overweight

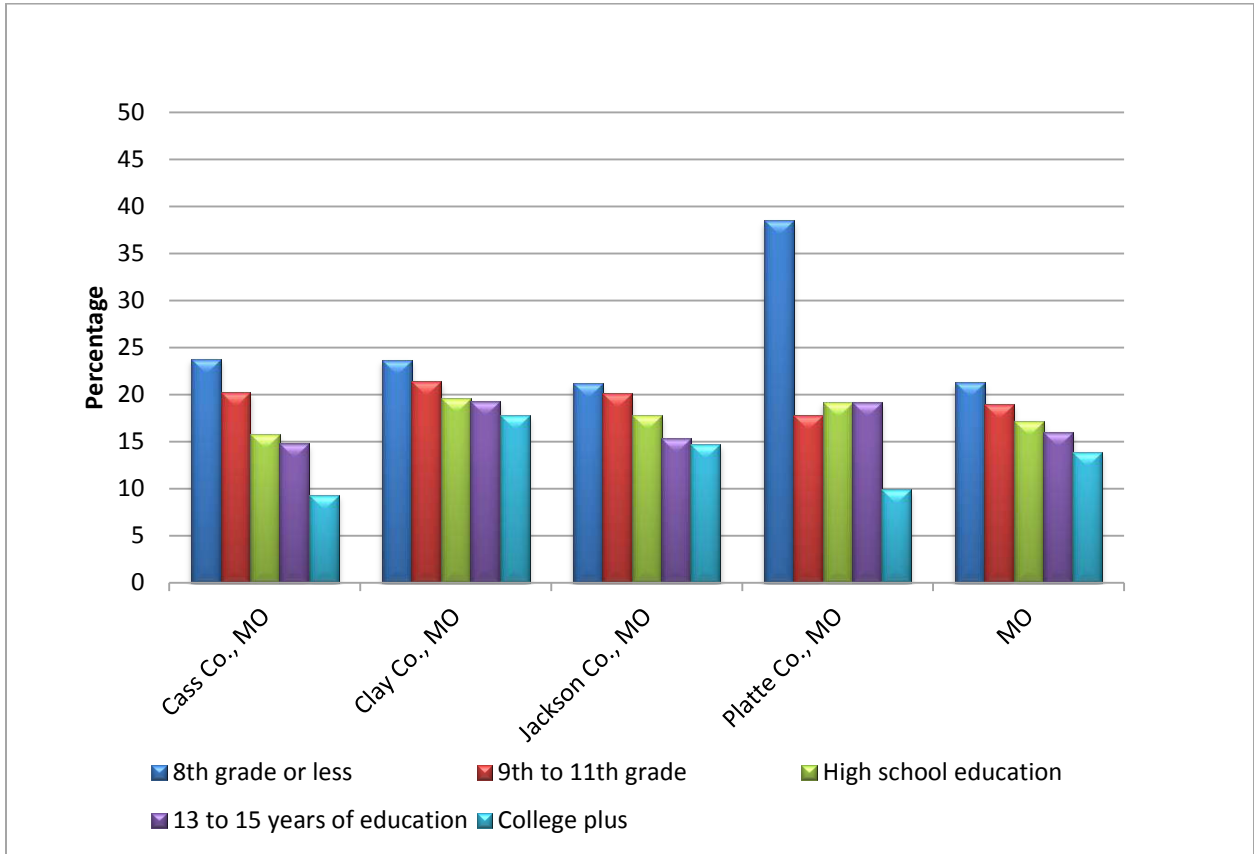
3.b.7. Prevalence of low-income children with weight for height and gender (BMI) – over (≥ 95th percentile)



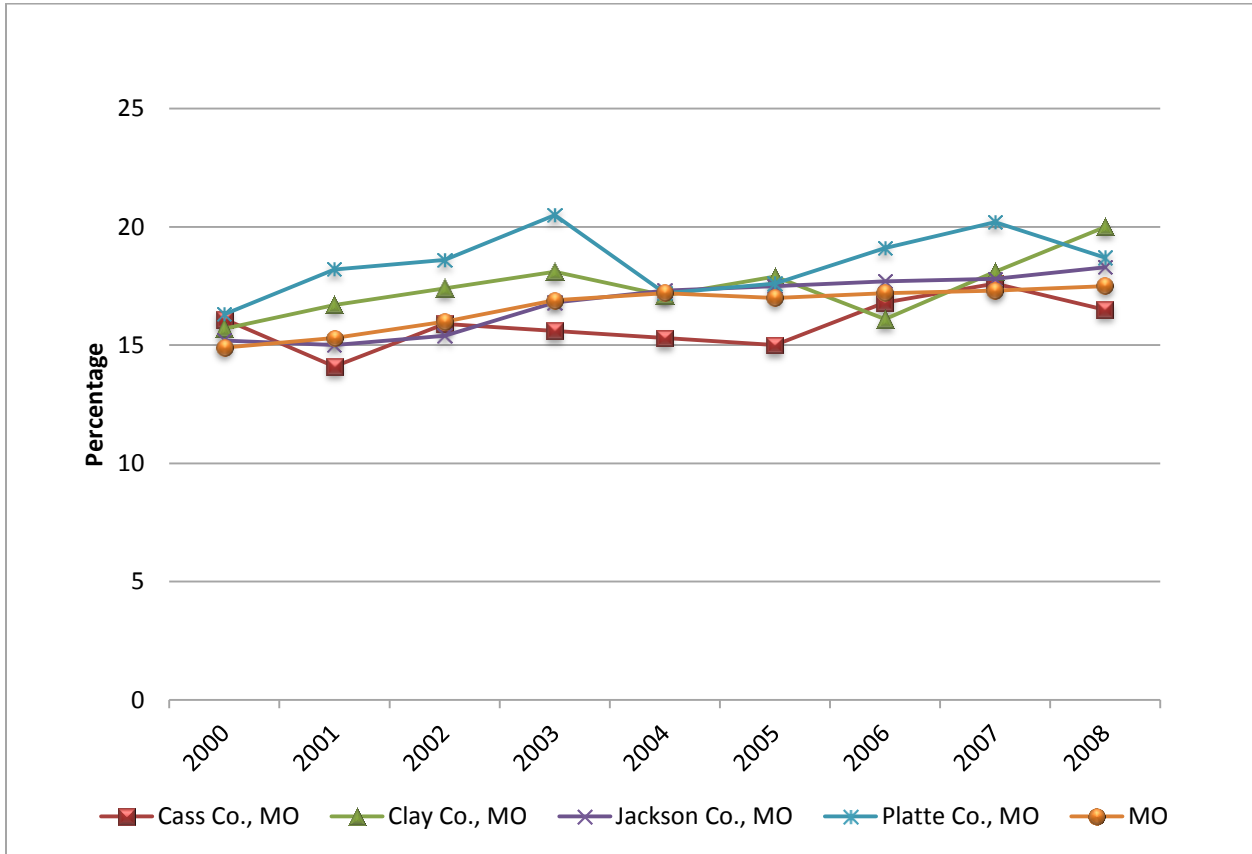
3.b.7. Prevalence of low-income children with weight for height and gender (BMI) – over (≥ 95th percentile) (by race)



3.b.7. Prevalence of low-income children with weight for height and gender (BMI) – over (≥ 95th percentile) (by educational attainment)

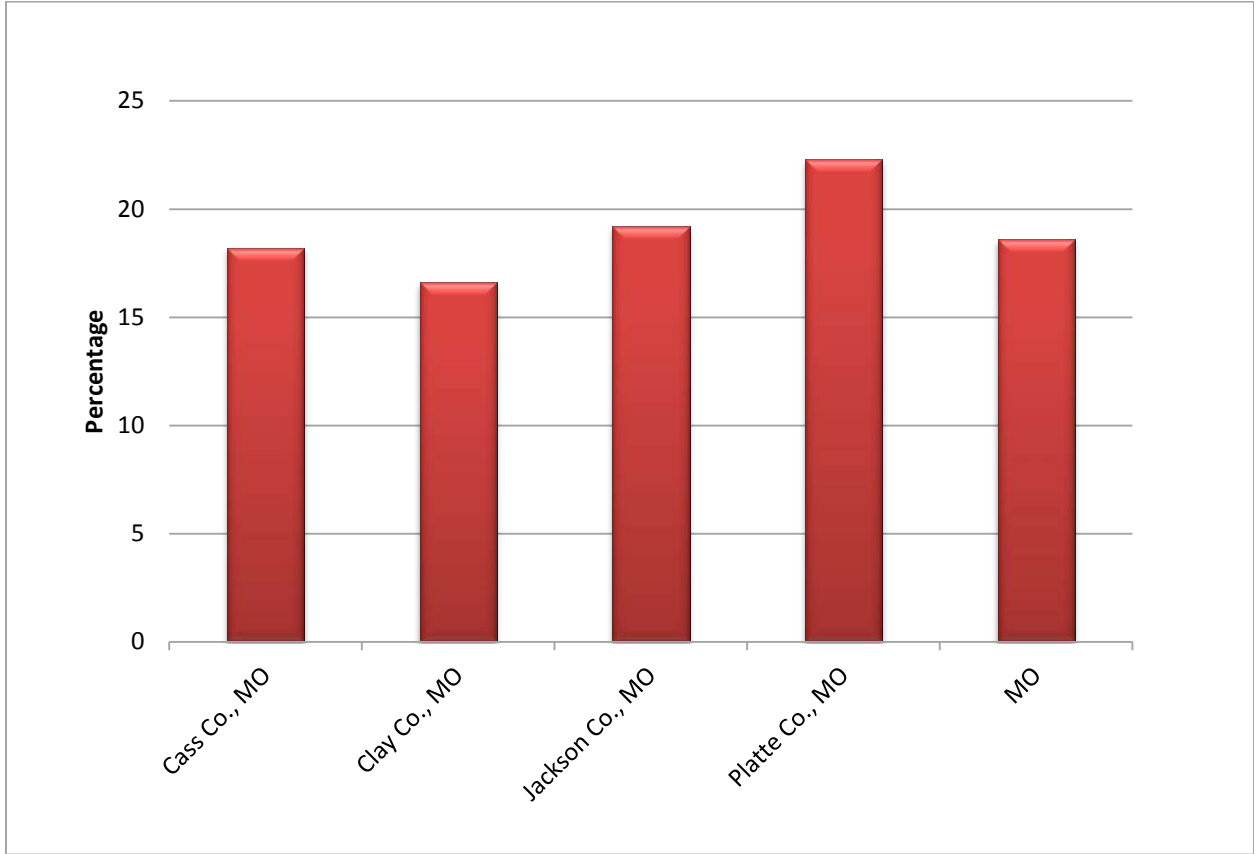


3.b.7. Prevalence of low-income children with weight for height and gender (BMI) – ( $\geq$  95th percentile) (by year)

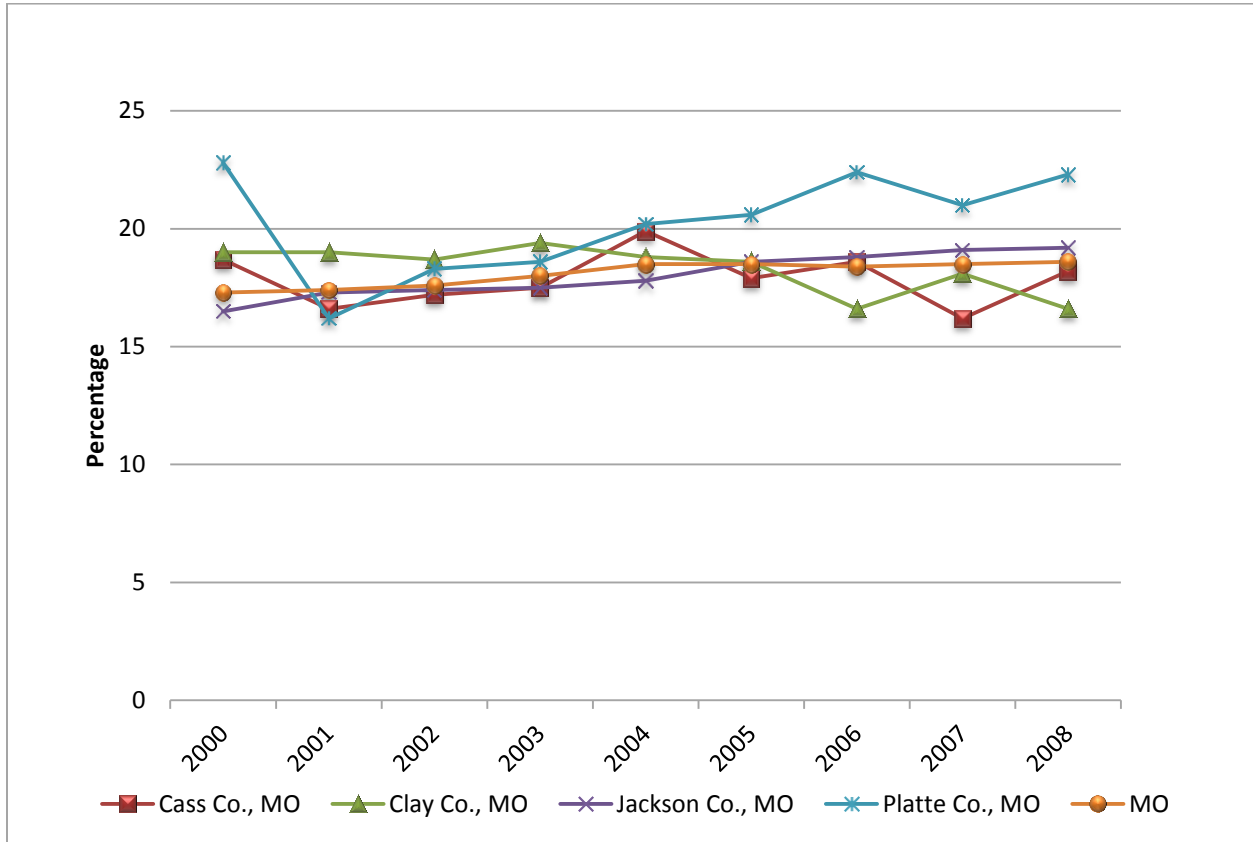




3.b.8. Prevalence of low-income children with weight for height and gender (BMI) between the 85th and 95th percentiles



3.b.8. Prevalence of low-income children with weight for height and gender (BMI) 85th to 95th percentile (by year)

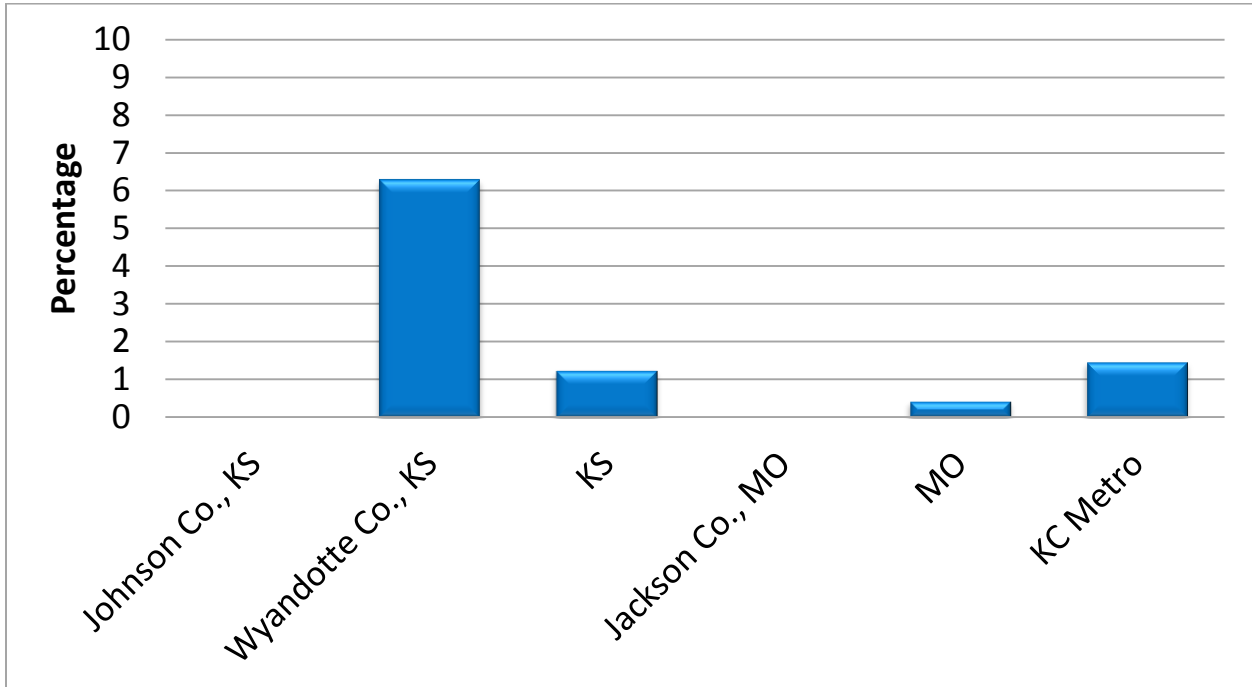


- 3.b.9. Prevalence of children aged 5-17 with a BMI  $\geq$  95th percentile
- 3.b.10. Prevalence of children aged 5-17 with a BMI between the 85th and 95th percentiles
- 3.b.11. Prevalence of children aged 5-17 with a BMI  $\geq$  85th percentile
- 3.b.12. Prevalence of children who were physically active one hour/day in past week (age 2-17)

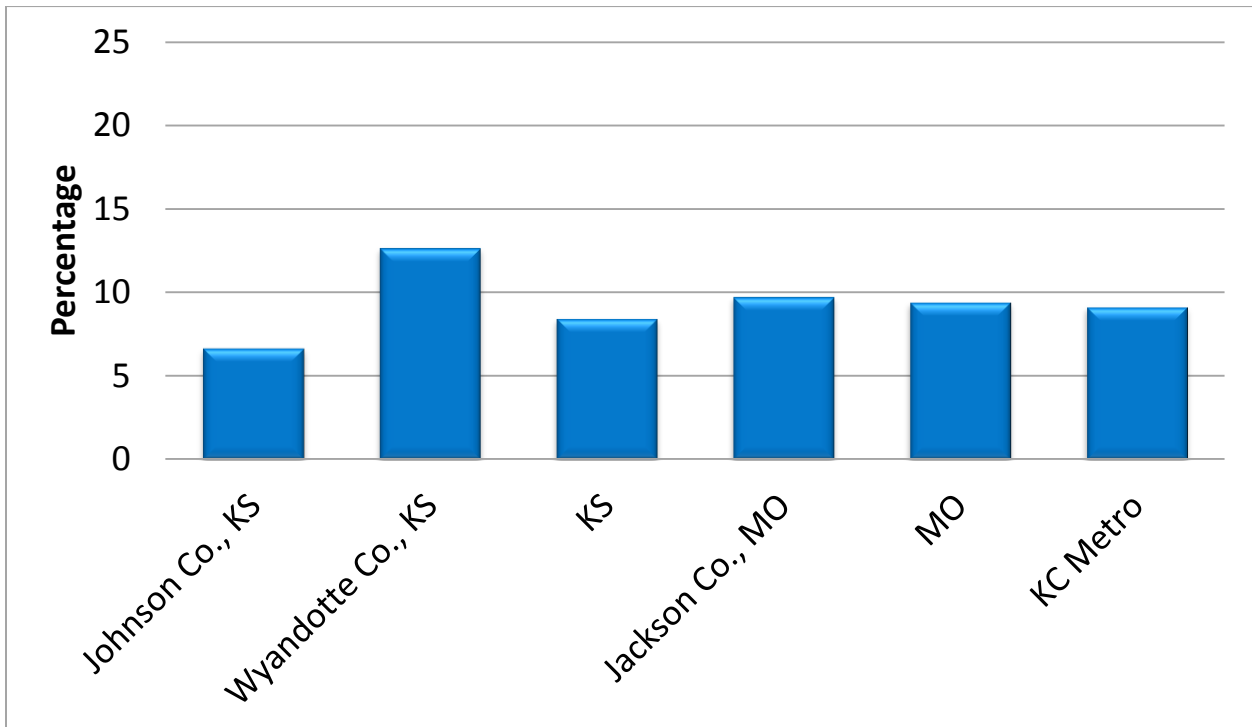
#### 4) Overweight/Obesity-related Disease or Health Condition

##### a) Overweight/Obesity-related Disease or Health Condition for Adults Ages 18 and Older and Mothers

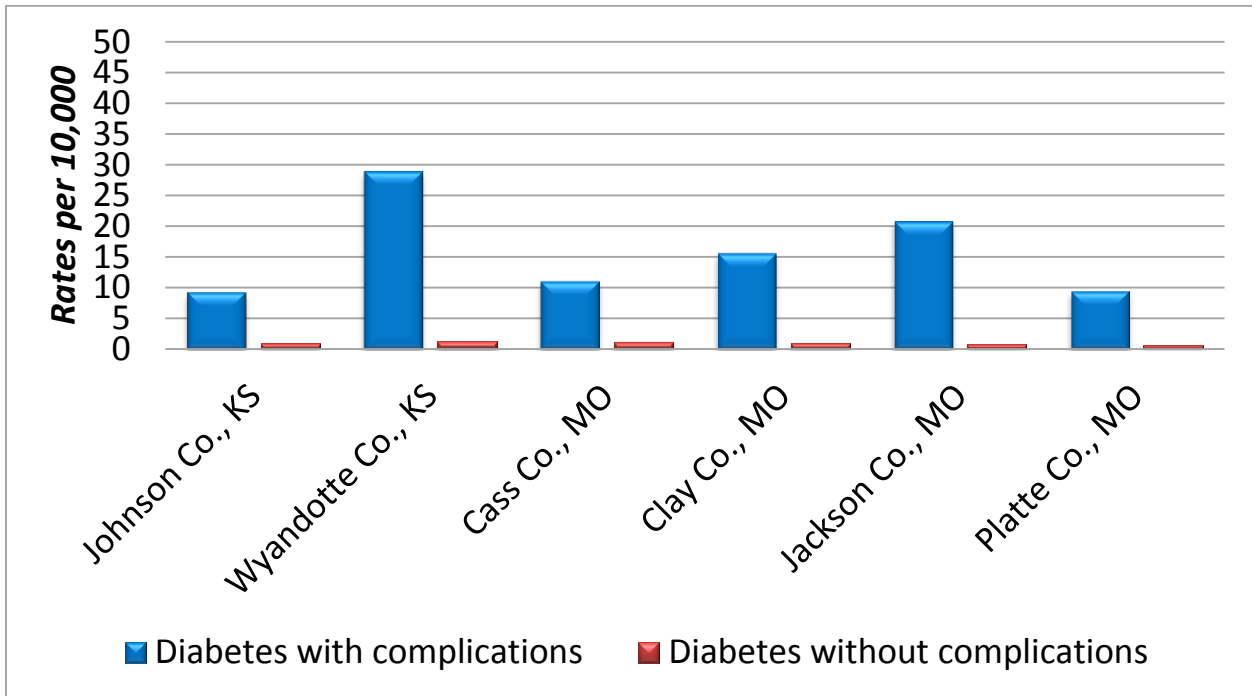
4.a.1. Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes



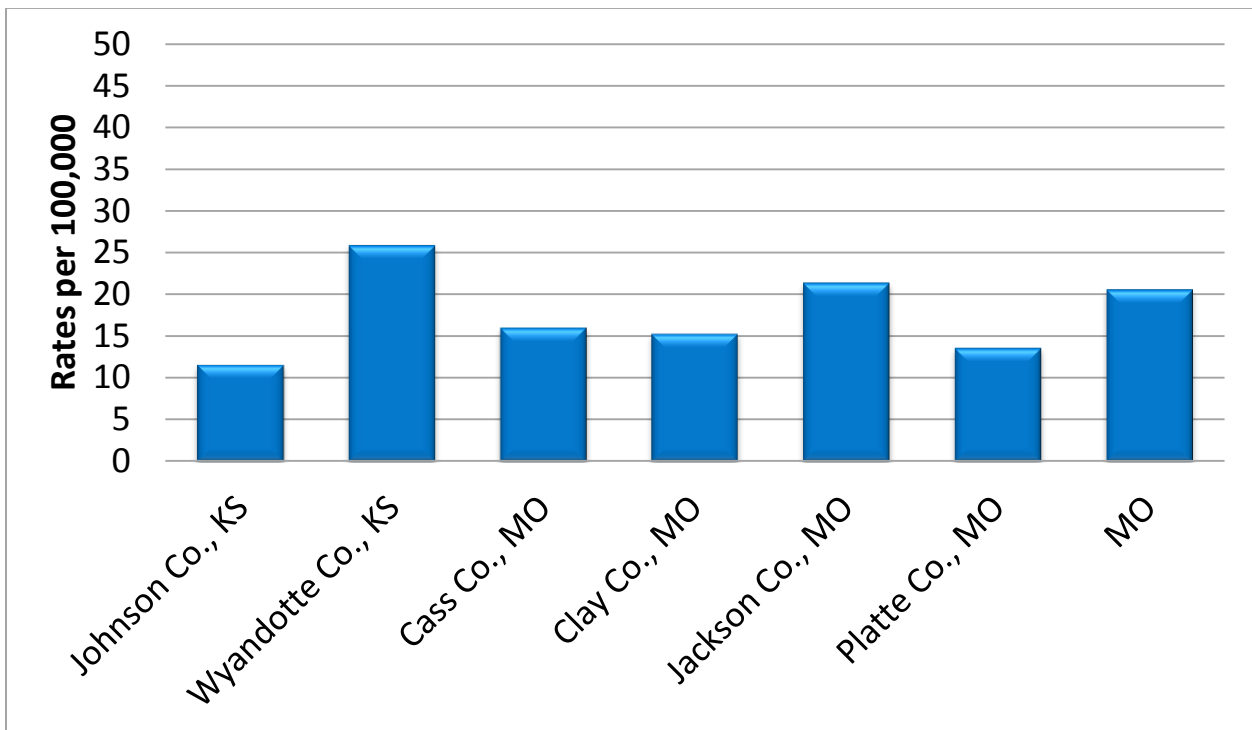
4.a.2. Prevalence of adults 18 and older who were told by a health professional that they have diabetes, excluding gestational diabetes



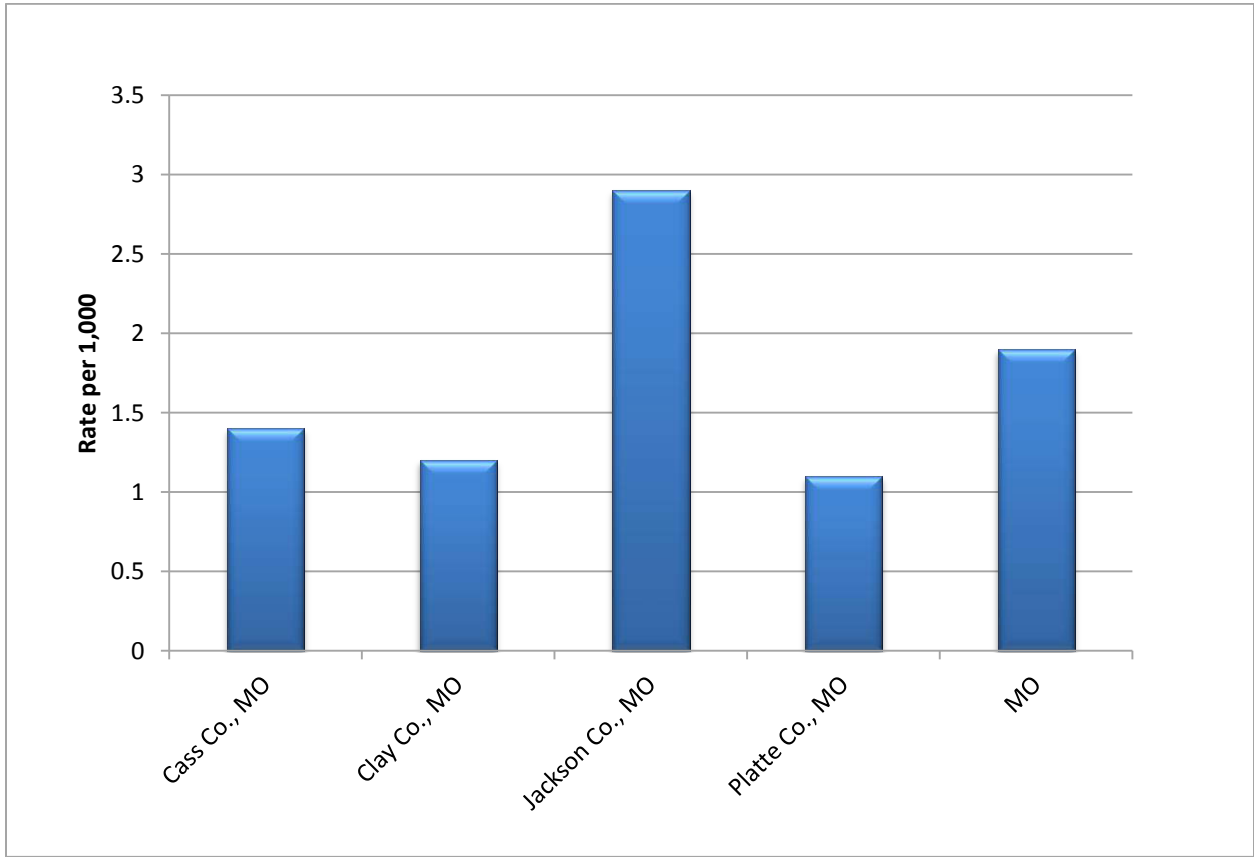
4.a.3. Rate of hospitalization due to diabetes



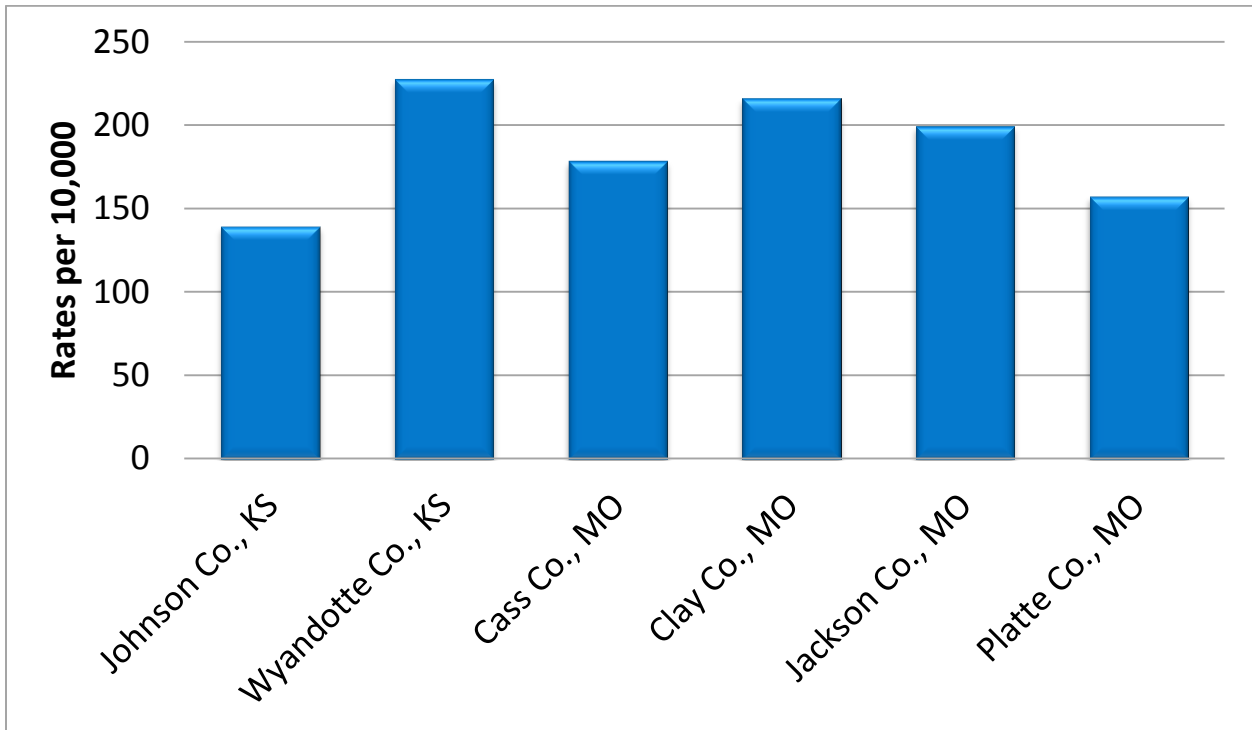
4.a.4. Rate of deaths attributed to diabetes



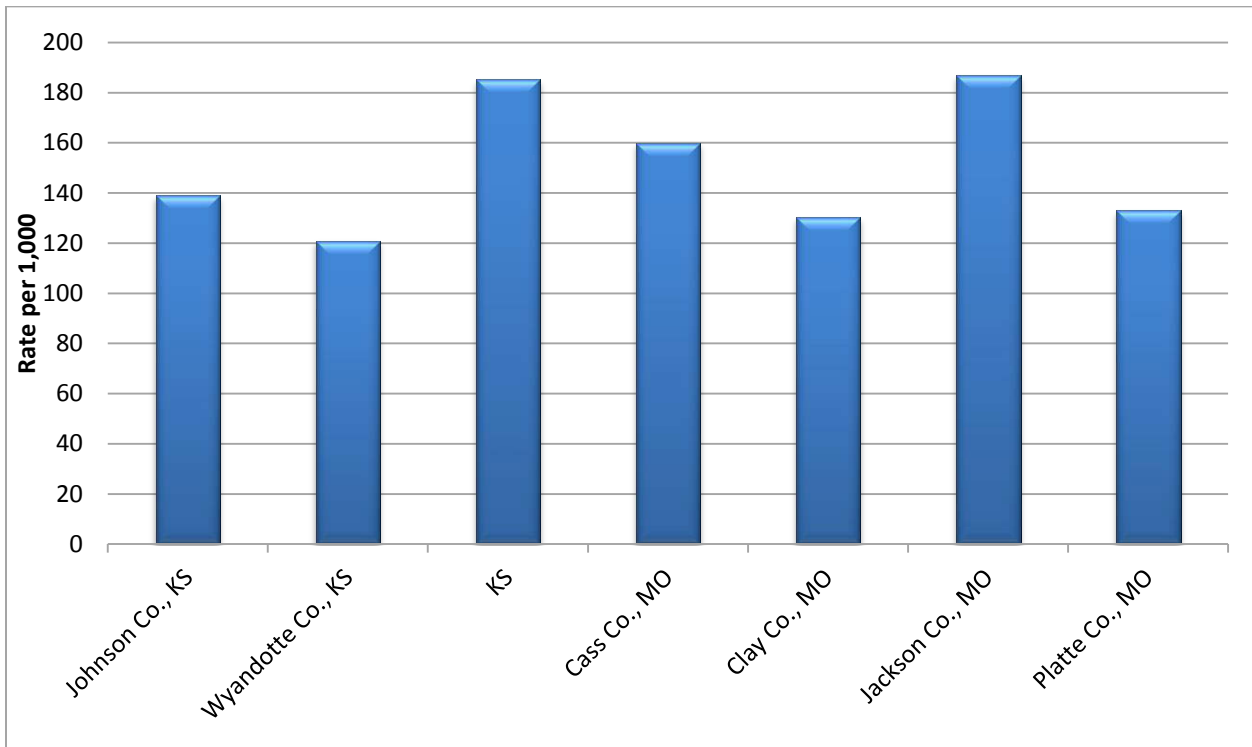
4.a.5. Rate of emergency room visits due to diabetes



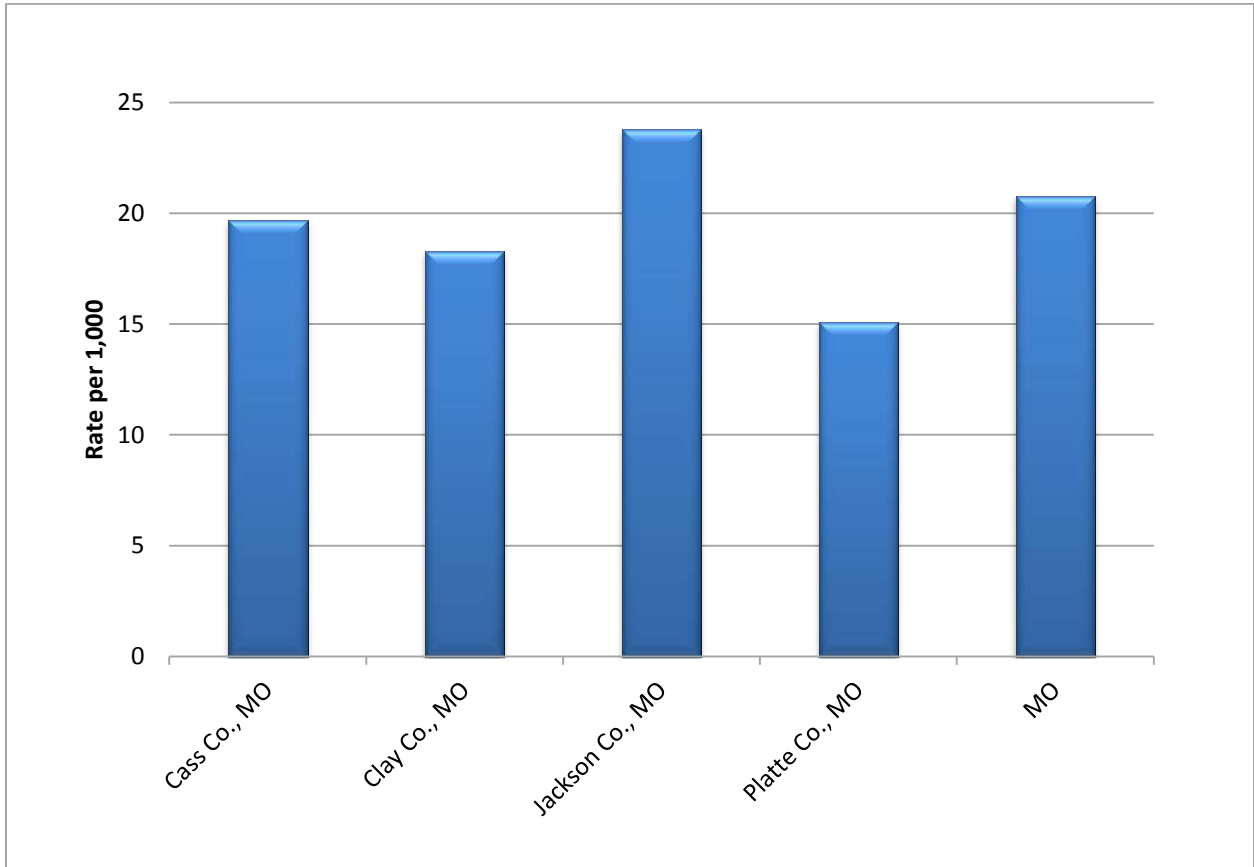
4.a.6. Rate of hospitalization due to heart disease



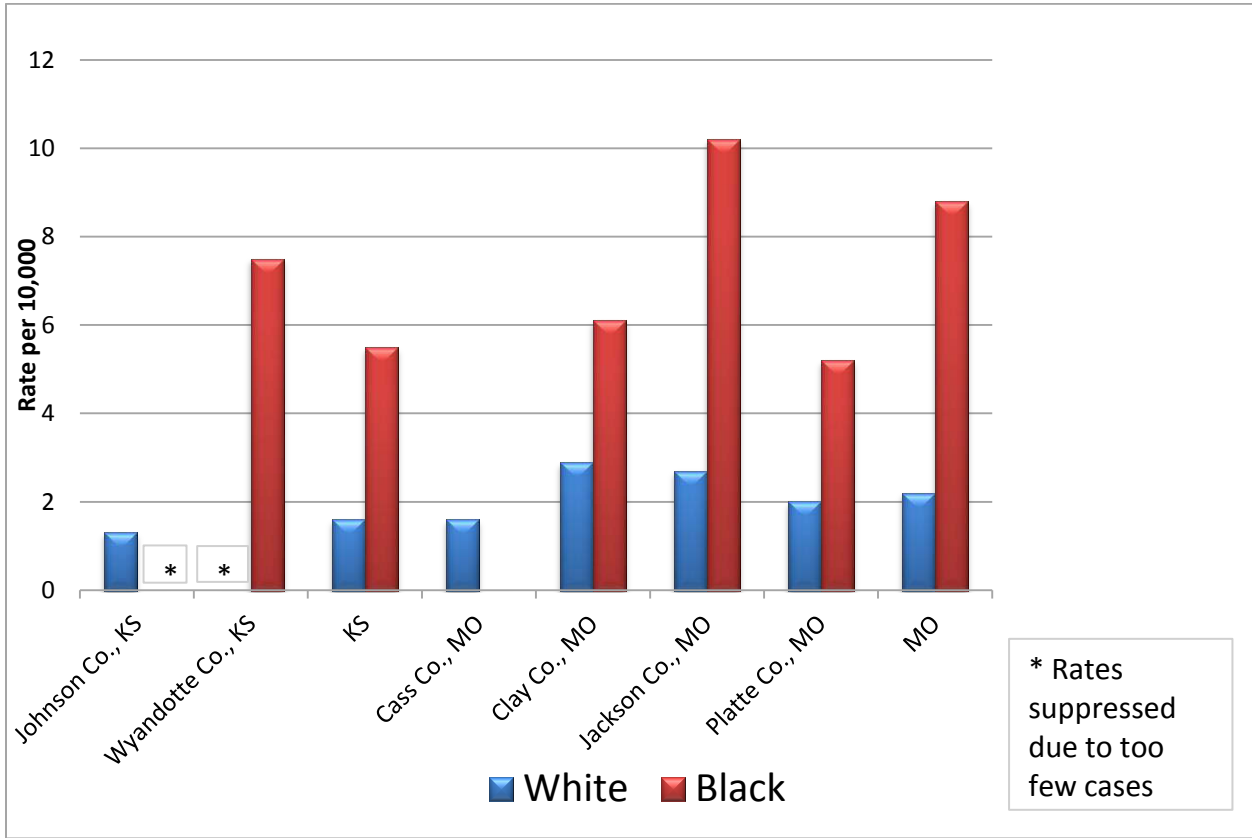
4.a.7. Rate of deaths attributed to heart disease



4.a.8. Rate of emergency room visits due to heart disease

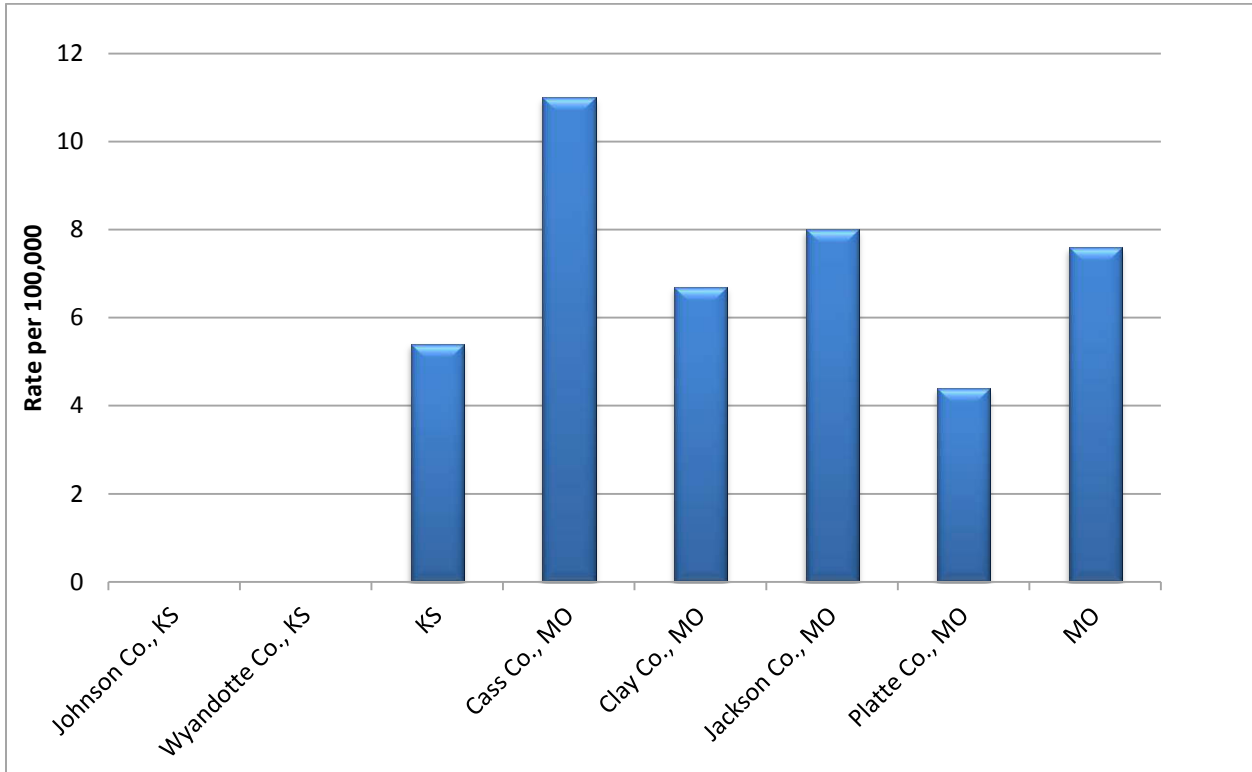


4.a.9. Rate of hospitalization due to essential hypertension

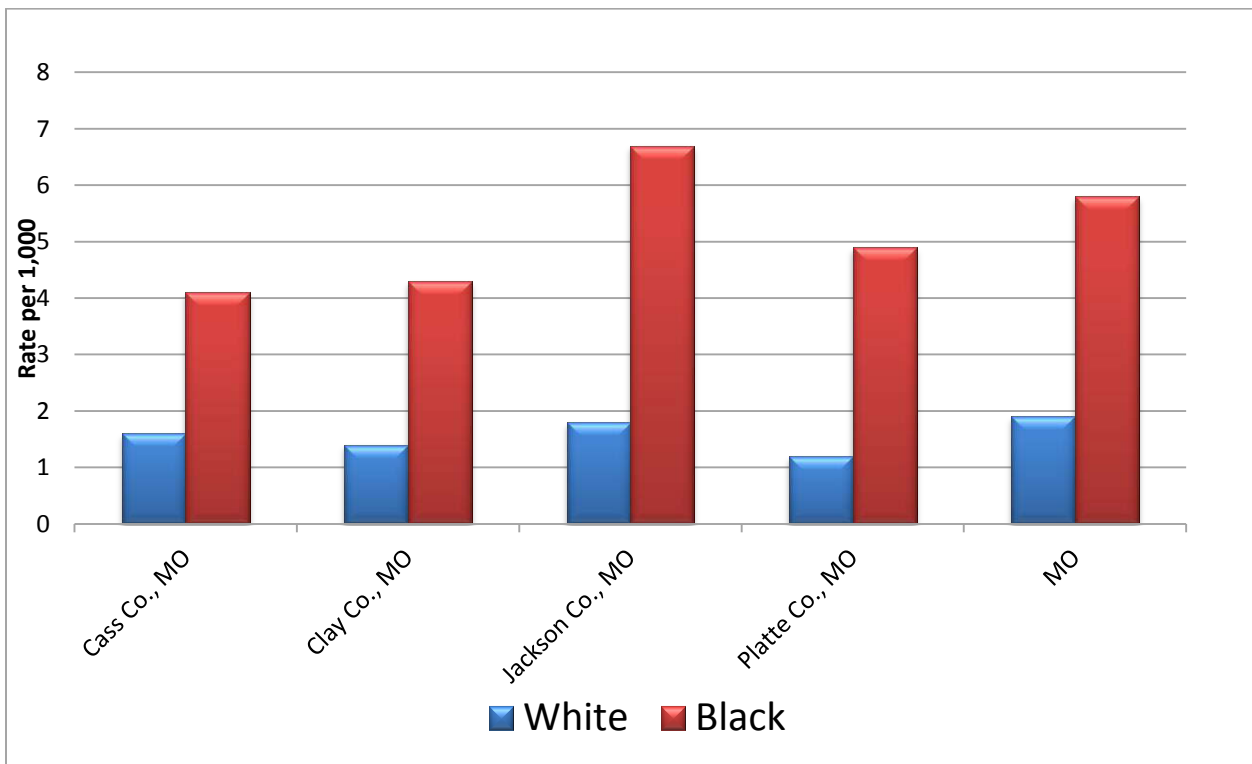




4.a.10. Rate of deaths attributed to essential hypertension



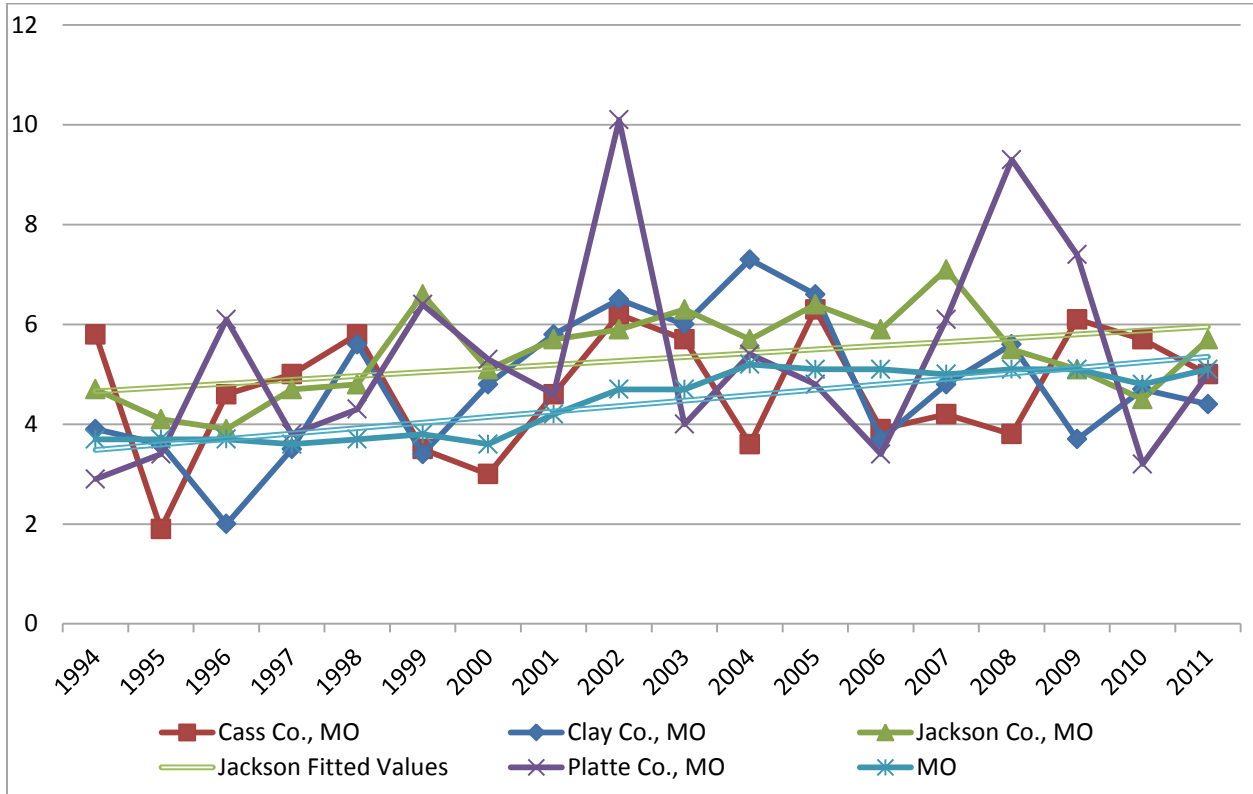
4.a.11. Rate of emergency room visits due to essential hypertension



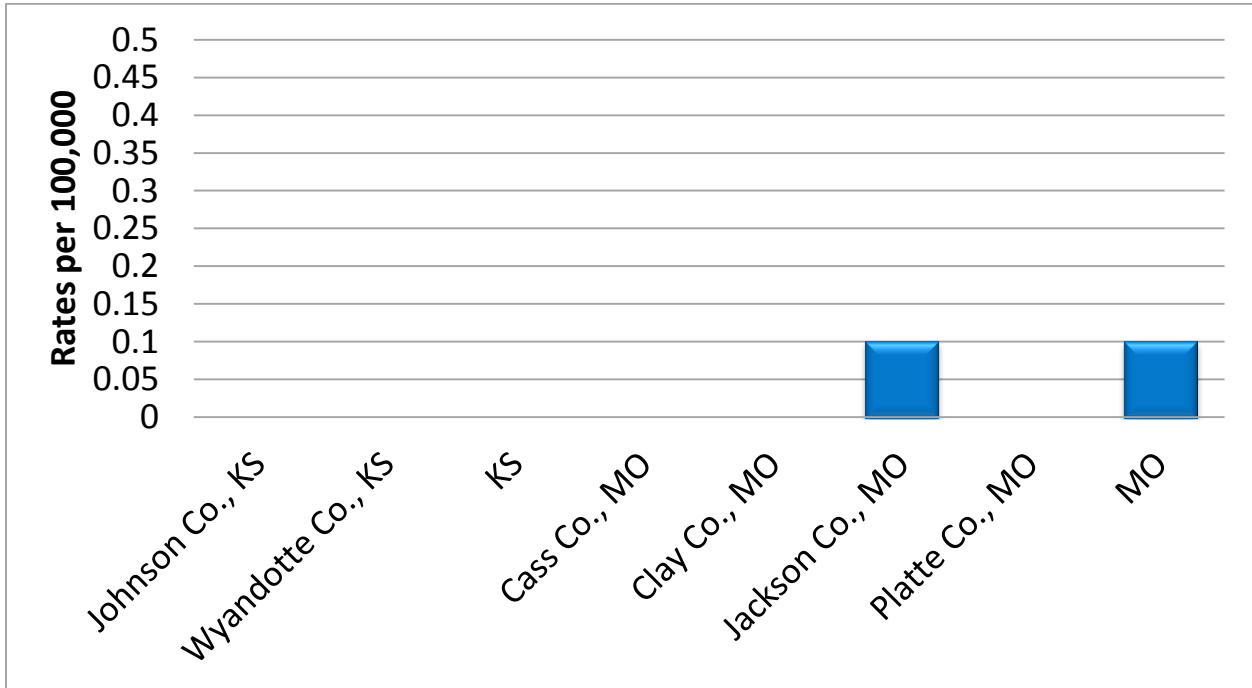
**b) Overweight/Obesity-related Disease or Health Condition for Children**

4.b.1. Prevalence of children by age (0—17, 5+) whose parent(s) was/were told by a health professional that their child has type-2 diabetes

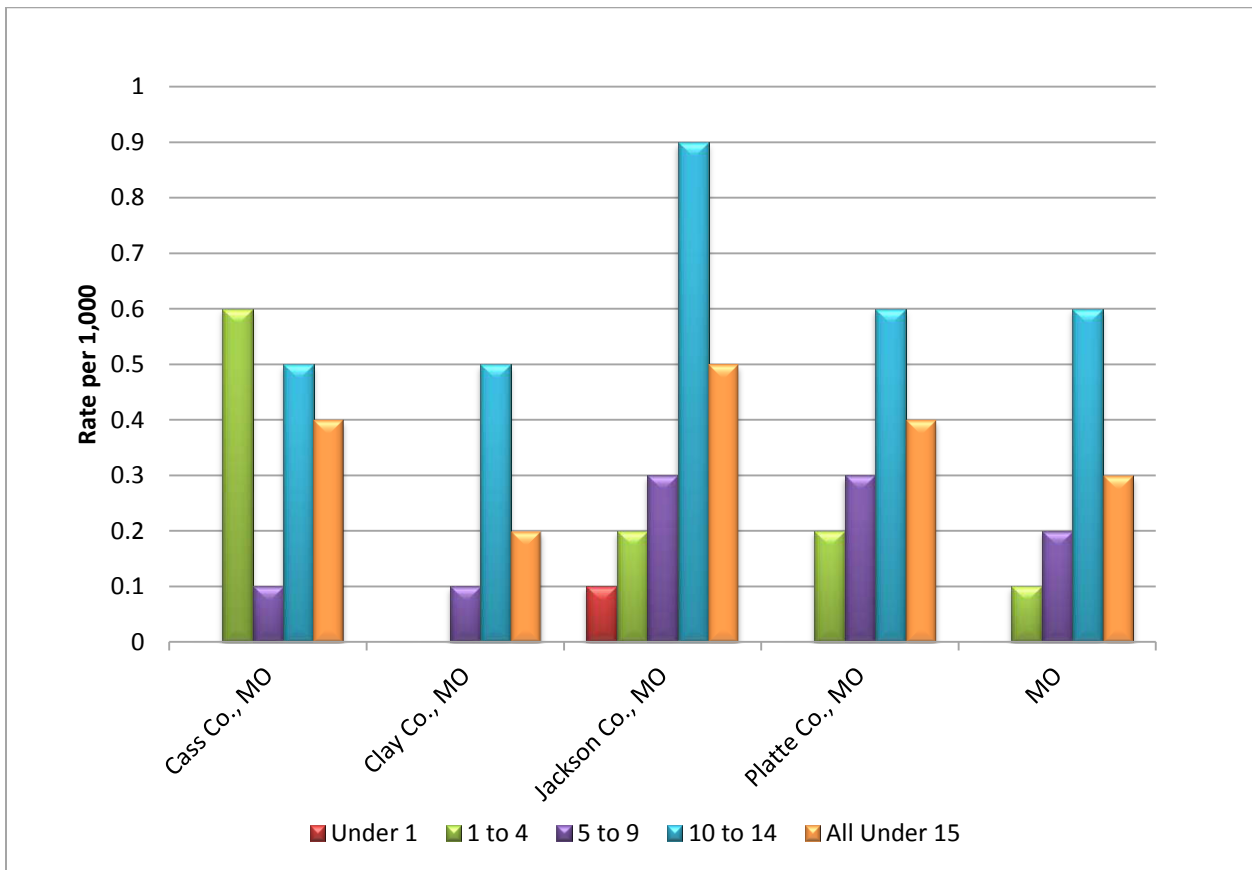
4.b.2. Rate of hospitalization due to diabetes among children



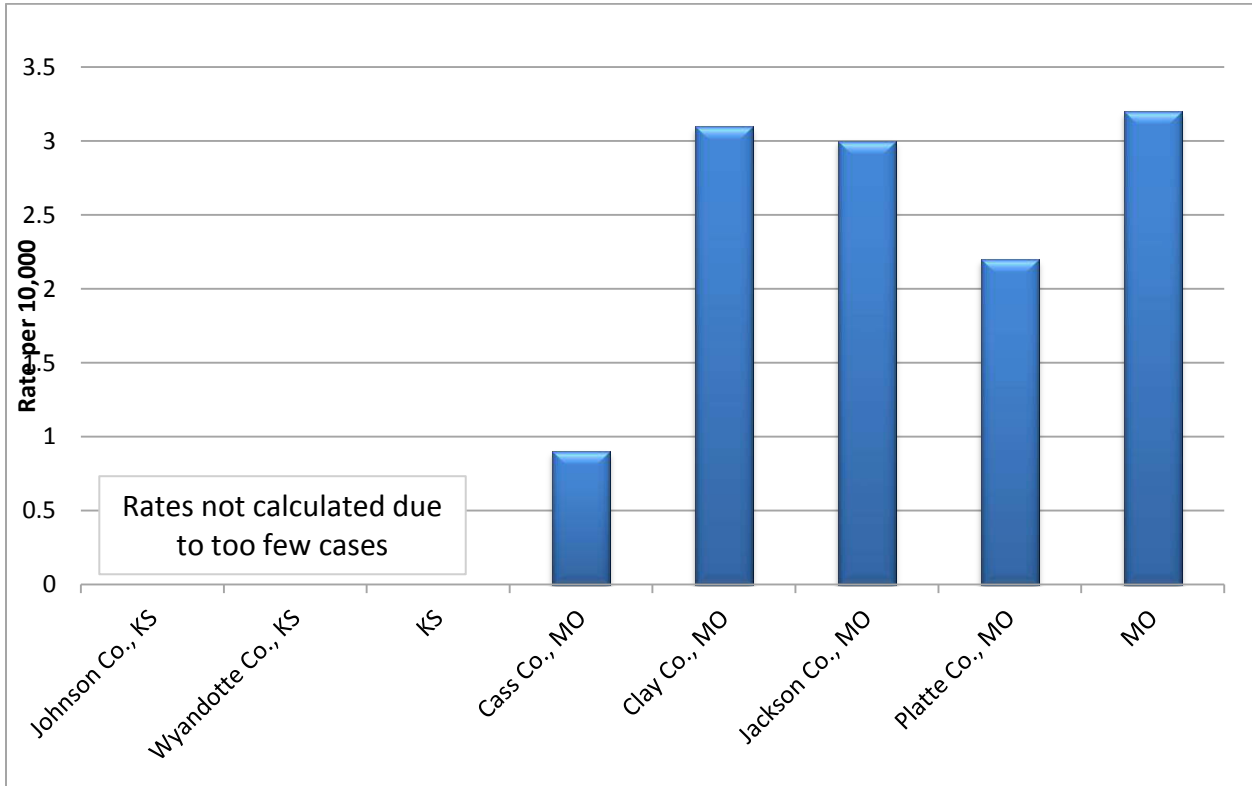
4.b.3. Rate of deaths attributed to diabetes among children



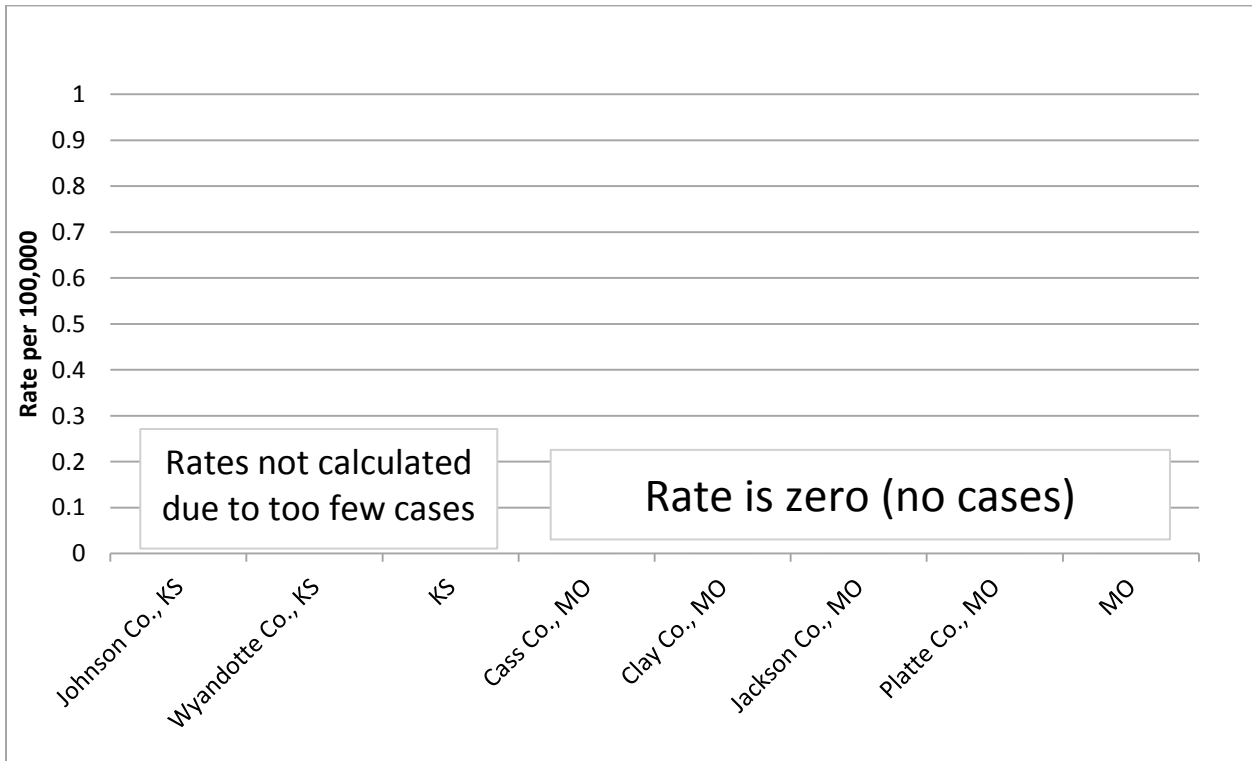
4.b.4. Rate of emergency room visits due to diabetes among children by age



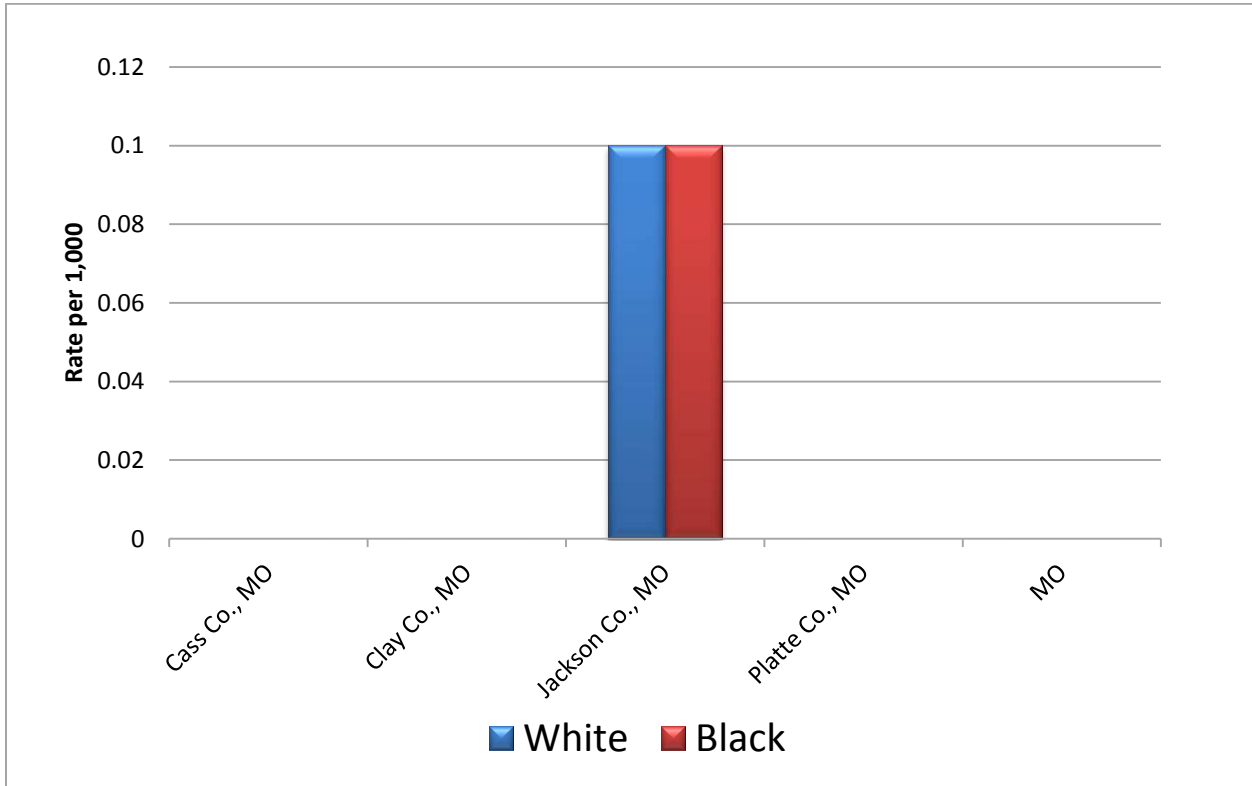
4.b.5. Rate of hospitalization due to essential hypertension among children



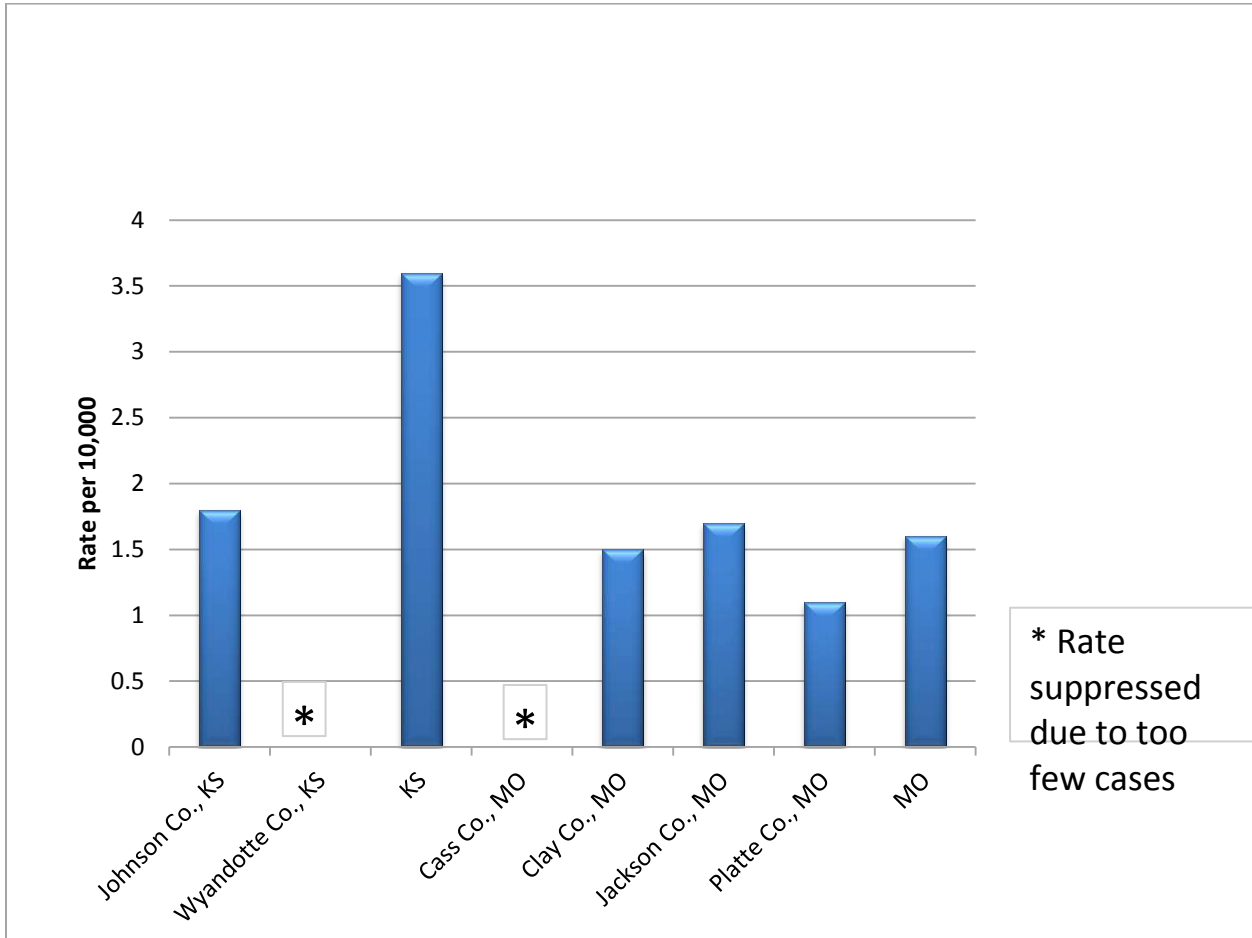
4.b.6. Rate of deaths attributed to essential hypertension among children



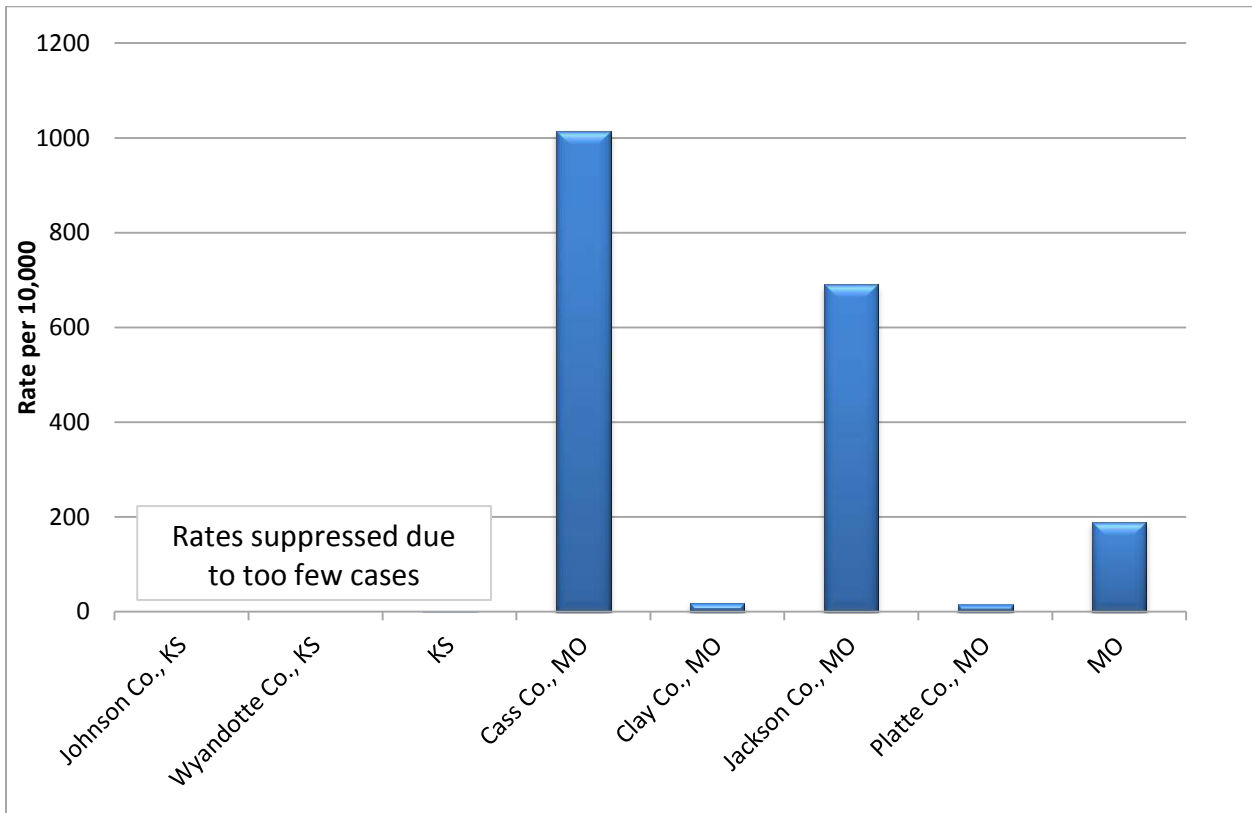
4.b.7. Rate of emergency room visits to essential hypertension among children



4.b.8. Rate of hospitalization due to "Other bone disease and musculoskeletal deformities," including Blount's disease



4.b.9. Rate of hospitalizations due to "Other diagnostic procedures (interview; evaluation; consultation)," including sleep study procedures and "Residual codes; unclassified," including sleep apnea



## Appendix K:

### Notable Advantages and Disadvantages of Selected Priority Factors

#### 1.a. Socioeconomic Status and Demographic Factors of Mothers

- 1.a.7. Educational attainment of pregnant women (less than high school, high school, some college, college graduate)

Advantages: Collected from state Vital Records birth certificate data; this indicator is a census of all pregnant women and is available at the county level by year.

- 1.a.9. Percent of households in poverty among those that have a female householder, no husband present, and the householder's own minor children

Advantages: Data available at the county level (annually from the American Community Survey (ACS)) and the Census tract level (but in multi-year aggregates).

Disadvantages: Not available as crosstabs by other factors.

- 1.a.11. Sociodemographics of pregnant women

Advantages: Collected from state Vital Records birth certificate data; this indicator is a census of all pregnant women and is available at the county level by year.

- 1.a.13. Percent of households that received Food Stamps/SNAP in the past 12 months among all households that have a female householder with no husband present and children under 18 years

Advantages: Data available at the county level (annually, from the ACS) and the Census tract level (but in multi-year aggregates).

Disadvantages: Not available as crosstabs by other factors.

#### 1.b. Socioeconomic Status and Demographic Factors of Children

- 1.b.1. Prevalence of children in poverty by age

Advantages: Data available at the county level (annually from the ACS) and the Census tract level (but in multi-year aggregates).

Disadvantages: Not available as crosstabs by other factors.



## 2. **Environmental Factors**

- 2.1. Percent of population with a low accessibility to food among the child, low-income, and total populations

Advantages: Data are available at the Census tract level (from the United States Department of Agriculture (USDA)).

Disadvantages: Not available as crosstabs by other factors and not available for trends (only two data releases from the USDA in 2006 and 2010). Somewhat labor intensive; only available at the Census tract level, so county-level rates must be calculated manually.

- 2.9. Prevalence of children living with a parent who is overweight/obese

Advantages: The underlying data used to create this indicator are collected annually through the BRFSS/SMART and are available publically at the county level for select counties

Disadvantages: Labor intensive; this indicator is created from the record-level BRFSS/SMART datasets, not available for all counties in the area of interest.

- 2.10. Prevalence of children living with a parent who is inactive during leisure time

Advantages: The underlying data used to create this indicator are collected annually through the BRFSS/SMART and are available publically at the county level for select counties

Disadvantages: Labor intensive; this indicator is created from the record-level BRFSS/SMART datasets, not available for all counties in the area of interest.

- 2.12. Percent of parents who describe their child as "very overweight"

Disadvantages: Data collected through the Community Health Needs Assessment (CHNA), which is not a regularly recurring survey.

### 3.a. **Overweight/Obesity and Related Behaviors of Adults Ages 18 and older and Mothers**

- 3.a.1. Prevalence of overweight/obesity among adults 18 and older

Advantages: The underlying data used to create this indicator are collected annually through the BRFSS/SMART and are available publically at the county level for select counties

Disadvantages: Labor intensive; this indicator is created from the record-level BRFSS/SMART datasets, not available for all counties in the area of interest.

- 3.a.2. Prevalence of obesity among adults

Advantages: The underlying data used to create this indicator are collected annually through the BRFSS/SMART and are available publically at the county level for select counties

Disadvantages: Labor intensive: this indicator is created from the record-level BRFSS/SMART datasets, not available for all counties in the area of interest.

3.a.3. Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy

Advantages: Collected from state administrative files; this indicator is a census of all pregnant women in the targeted programs (MO: Prenatal/Postpartum Women, Infants and Children (WIC) MICA; KS: Pregnancy Nutrition Surveillance System (PNSS)) and is available at the county level by year.

Disadvantages: The source for the Kansas data (PNSS) was discontinued by the CDC in 2012. Data for Kansas is pre-summaries into tables that do not breakout the data by factors such as education level or marital status. The data for Missouri and Kansas are shown on different graphs due to the data being incomparable; the source for the Missouri data defines overweight as a BMI of at least 26.1 whereas the source for the Kansas data uses the more typical definition of a BMI of at least 25. *Note:* The indicator does not cover the entire low-income population, just the segment enrolled in the target programs.

3.a.4. Prevalence of low-income postpartum women who were obese prior to pregnancy

Advantages: Collected from state administrative files; this indicator is a census of all pregnant women in the targeted program (Prenatal WIC MICA) and is available at the county level by year (for Missouri).

Disadvantages: These data are not available for Kansas. *Note:* The indicator does not cover the entire low-income population, just the segment enrolled in the target programs.

3.a.7. Prevalence of adults with no leisure-time exercise or physical activity during the past 30 days

Advantages: The underlying data used to create this indicator are collected annually through the BRFSS/SMART and are available publically at the county level for select counties.

Disadvantages: Crosstabs are labor intensive; this indicator is created from the record-level BRFSS/SMART datasets (but pre-calculated summaries are available for trends). These data are not available for all counties in the area of interest.

**3.b. Overweight/Obesity and Related Behaviors of Children**

3.b.1. Prevalence of neonates with high birth weight (> 4,499g)

Advantages: Collected from state Vital Records birth certificate data; this indicator is a census of all neonates and is available at the county level by year.

3.b.4. Prevalence of low-income neonates with high birth weight

Advantages: Collected from state administrative files; this indicator is a census of all neonates in the targeted programs (KS: PNSS; MO: Infant WIC MICA) and is available at the county level by year.

Disadvantages: Two different and slightly non-comparable datasets: Kansas data from CDC's PNSS and Missouri data from the Missouri WIC program. The source for the Kansas data (PNSS) was discontinued by the CDC in 2012. The PNSS system contains data from WIC as well as from the Early and Periodic Screening, Diagnosis and Treatment (EPSDT) Program and the Title V Maternal and Child Health Program (MCH), but the majority of the data are from the WIC program. Note: The indicator does not cover the entire low-income population, just the segment enrolled in the target programs.

3.b.5. Prevalence of low-income children (age 2-4) with a Body Mass Index (BMI)-for-age indicating overweight/obesity

Advantages: Data is available annually at the county level, and is a census of the target population (KS: PedNSS; MO: Child WIC MICA).

Disadvantages: The source for the Kansas data (Pediatric Nutrition Surveillance System [PedNSS]) was discontinued by the CDC in 2012. Does not cover the entire population (only children in WIC) and moreover, the indicator does not cover the entire low-income population: just the segment enrolled in the target programs.

3.b.7. Prevalence of low-income children with weight for height and gender (BMI)  $\geq$  95th percentile

Advantages: Collected from state administrative files; this indicator is a census of all neonates in the targeted program (Child WIC MICA) and is available at the county level by year. Note: *This is one of the important indicators for assessing the situation of obesity among children.*

Disadvantages: The data are only available for Missouri counties for the period of 2000-2008. Note: The indicator does not cover the entire low-income population, just the segment enrolled in the target programs.

3.b.8. Prevalence of low-income children with weight for height and gender (BMI) between the 85th and 95th percentile

Advantages: Collected from state administrative files; this indicator is a census of all neonates in the targeted programs and is available at the county level by year. Note: *This is one of the important indicators for assessing the situation of obesity among children.*

Disadvantages: The data are only available for Missouri counties for the period of 2000-2008. Note: The indicator does not cover the entire low-income population, just the segment enrolled in the target programs.

3.b.9. Prevalence of children aged 5-17 with a BMI  $\geq$  95th percentile

Disadvantages: Data collected through the CHNA, which is not a regularly recurring survey.

3.b.10. Prevalence of children aged 5-17 with a BMI between the 85th and 95th percentiles

Disadvantages: Data collected through the CHNA, which is not a regularly recurring survey.

**4.a. Overweight/Obesity-related Disease or Health Condition of Adults Ages 18 and Older and Mothers**

4.a.1. Prevalence of pregnant women told by a health professional that they have diabetes, excluding gestational diabetes

Advantages: The underlying data used to create this indicator are collected annually through the BRFSS/SMART and are available publically at the county level for select counties

Disadvantages: Labor intensive; this indicator is created from the record-level BRFSS/SMART datasets, not available for all counties in the area of interest.

4.a.2. Prevalence of adults 18 or older who were told by health professional that they have diabetes, excluding gestational diabetes

Advantages: The underlying data used to create this indicator are collected annually through the BRFSS/SMART and are available at the county level, with yearly trends, and it can be drilled down by other factors.

Disadvantages: Labor intensive; this indicator is created from the record-level BRFSS/SMART datasets, not available for all counties in the area of interest.

4.a.3. Rate of hospitalization due to diabetes

Advantages: The data are available at the county level, with yearly trends, and can be drilled down by other factors. Collected from state's hospital discharge data; this indicator is a census of all hospitalizations and is available at the county level by year.

Disadvantages: A major drawback for this indicator is that the data sources do not distinguish between type 1 and type 2 diabetes. As is well known, type 2 diabetes is mainly associated with obesity. The information about the type of diabetes is stored in the raw discharge data, which is not available publicly.

4.a.4. Rate of deaths attributed to diabetes

Advantages: The data are available at the county level, with yearly trends, and can be drilled down by other factors. Collected from state Vital Records death certificate data; this indicator is a census of all pregnant women and is available at the county level by year.

#### **4.b. Overweight/Obesity-related Disease or Health Condition of Children**

- 4.b.1. Prevalence of children by age (0-17, 5+) whose parent(s) was/were told by a health professional that their child has type 2 diabetes

Advantages: The information is directly targeting type 2 diabetes among children. Public summary is available broken out by race/ethnicity, age, income.

Disadvantages: Data collected through the CHNA, which is not a regularly recurring survey; no information is available at the county level.

- 4.b.2. Rate of hospitalization due to diabetes among children

Advantages: The data are available at the county level, with yearly trends, and can be drilled down by race, Hispanic ethnicity and age brackets. Collected from state's hospital discharge data; this indicator is a census of all hospitalizations and is available at the county level by year.

Disadvantages: A major drawback for this indicator is that the data sources do not distinguish between type 1 and type 2 diabetes. As is well known, type 2 diabetes is mainly associated with obesity. The information about the type of diabetes is stored in the raw discharge data, which is not available publicly.

- 4.b.3. Rate of deaths attributed to diabetes among children

Advantages: The data are available at the county level, with yearly trends, and can be drilled down by other factors. Collected from state Vital Records death certificate data; this indicator is a census of all pregnant women and is available at the county level by year.

- 4.b.5. Rate of hospitalization due to essential hypertension among children

Advantages: The data are available at the county level, with yearly trends, and can be drilled down by other factors. Collected from state's hospital discharge data, this indicator is a census of all hospitalizations and is available at the county level by year.

- 4.b.6. Rate of deaths attributed to essential hypertension among children

Advantages: The data are available at the county level, with yearly trends, and can be drilled down by other factors. Being collected from state Vital Records death certificate data; this indicator is a census of all pregnant women and is available at the county level by year.

## Appendix L:

# Obesity Prevention Strategies for Children

## I. Introduction

Effective policy and program interventions targeting childhood and adolescent obesity are critical in securing the health and wellness of generations to follow. Researchers agree that the development of interventions that target childhood and adolescent obesity is “a key factor in decreasing steadily rising health care costs” (Hodges *et al.*, 2013). The reduction of obesity prevalence in Kansas City would likely reduce private health care insurance premiums as well as publicly-funded program costs such as the health levy, Medicaid and Medicare (KCMO, 2010). However, if trends continue, national projections indicate that the total healthcare costs attributable to the obesity epidemic will double every 10 years, accounting for 16 percent to 18 percent of total U.S. health care spending by 2030 (KCMO, 2010). According to health researchers Lopez and Knudson (2012), “...the pediatric obesity epidemic...stands to cripple Western cultures, both literally and financially in terms of health care costs and exhaustion of finite medical resources.” Should current trends continue, the prevalence of obesity among children is projected to reach 30 percent by 2030 (Wang *et al.*, 2008).

Public health experts, health care providers, and policymakers have been charged with the challenge of halting these trends and reversing the epidemic through policy and program interventions to assure the health and wellness of the next generation.

## II. Policy and Environmental Interventions

In an effort to provide evidence-based guidance for anti-obesity interventions, the Centers for Disease Control and Prevention (CDC) has identified a number of policy-focused strategies in a publication entitled *Recommended Community Strategies and Measurements to Prevent Obesity in the United States* (Keener *et al.*, 2009). Various strategies are put forward aimed at promoting access to healthy foods and beverages, encouraging healthy food and beverage choices, promoting breastfeeding, encouraging physical activity, limiting sedentary activity among youth, creating communities supportive of physical activities and encouraging

communities to organize for change (Keener *et al.*, 2009, 2009). The Institute of Medicine (IOM) has also published a list of recommended strategies to combat childhood obesity in a report entitled *Local Government Actions to Prevent Childhood Obesity* (IOM, 2009). The IOM's publication includes strategies to improve access to healthy foods, reduce access to and consumption of calorie-dense foods, improve awareness about the importance of healthy eating and encourage physical activity (IOM, 2009).

The array of public policy and environmental interventions aimed at preventing the spread of the obesity epidemic in children and adolescents is broad in scope. Increasingly, attention has focused on the impact of environments on obesity. The term "obesogenicity" has been defined as "the sum of influences that the surroundings, opportunities, or conditions of life have on promoting obesity in individuals or populations" (Swinburn *et al.*, 1999). Obesity-related policies primarily focus on mitigating the risk factors associated with obesogenic environments. A mechanism to ensure access to environments that support healthy lifestyles, policy interventions are perhaps the most effective yet poorly understood method of mitigating the risk of obesity community-wide (Haire-Joshu *et al.*, 2010). Many researchers underscore the primacy of such interventions, citing cost-effectiveness and a high likelihood of success (Wang & Beydoun, 2007). However, in many instances governments have yielded the responsibility of preventing obesity to individuals, the private sector, and non-governmental organizations. This laissez-faire approach is problematic. As articulated by Swinburn *et al.* (2011) "...the obesity epidemic will not be reversed without government leadership, regulation, and investment in programs, monitoring, and research."

Given the close linkage of childhood and adolescent obesity to poor diet and physical inactivity, many policy interventions focus on these two areas. In a survey of obesity-related policies in the state of Missouri, Haire-Joshu *et al.* (2010) found that the presence of such policies was highest in school environments and lowest in community, government and child care environments. Evidence has shown a high prevalence of childhood obesity in low-income neighborhoods. Researchers suggest that policies promoting the availability of sports facilities may be an effective strategy to mediate such risk (Navalpotro *et al.*, 2012). Other policy strategies have focused on limiting the availability of unhealthy foods through bans or taxes. For example, one longitudinal trend study identified a decrease in overall soda consumption from childhood into adolescence, but a three-fold increase in the consumption of other sugar-sweetened beverages (e.g., sports and energy drinks) during the same period (Han & Powell, 2012). The researchers



of this study go on to suggest that any tax on sugar-sweetened beverages or related policy should have a broad base so as not to target soda specifically, rather to include all sugar-sweetened beverages. This increase may be linked to the increase in availability of soda in schools. Between 1985 and 1997, it is estimated that soda sales to American schools increased 1,100 percent, while milk sales to schools declined 30 percent during the same period (Lieb *et al.*, 2009). As preventive interventions increasingly focus on policy, environments and social change at the community-level, the engagement of community leaders and decision makers is critical and should be carefully considered when developing such interventions (Valko, 2011).

The importance of promoting healthy habits at a young age has been underscored by researchers and policymakers alike (Mikkelsen, 2011; Wang & Beydoun, 2007). Such policies attempt to increase physical activity or promote healthy eating habits with the dual purpose of reducing obesity prevalence where it exists and preventing the incidence of new cases. A number of states have focused on promoting physical education and healthy nutrition in response to the growing overweight and obese populations in elementary and secondary schools. However, as noted by Riis *et al.* (2012), the effectiveness of state-level policy initiatives has yet to be substantiated.

### **III. Programmatic Interventions**

Studies have shown that the majority of parents with overweight children fail to recognize their child's weight as a problem and have a tendency to underestimate their child's weight (Etelson *et al.*, 2003). Without recognizing the need for a reduction in weight in the home setting, community-based, school-based and health care provider-based programs may represent the most promising opportunities for intervention for many overweight and obese youth. Childhood and adolescence are critical times at which individuals form lifelong dietary and physical activity habits, thereby reinforcing the strategic need to intervene with young schoolchildren (Wang & Beydoun, 2007).

There is growing evidence in support of effective programmatic interventions that operate on a much smaller scale. Programs aimed at preventing or reducing obesity in children and adolescents are abundant and widespread. Some interventions focus solely on prenatal nutrition and healthcare to support healthy maternal weight while others promote breastfeeding and infant nutrition. Many programs focus on creating early positive food experiences among preschoolers and early elementary students while simultaneously stimulating an appetite for



physical activity. There are a growing number of school-based programs which aim to supply nutrition education and physical education for children and adolescents (Deckelbaum & Williams, 2001). Given the multiplicity of settings and approaches, experts suggest that a coordinated, multi-sector approach is most likely to influence policy and increase investment in the monitoring, prevention, and control of child and adolescent obesity (Lobelo *et al.*, 2013).

### **A. Nutrition Focused Programs**

Nutrition-focused programs have shown promise in providing food security to low-income families while promoting healthy food choices. On a national level, the Supplemental Nutrition Assistance Program (SNAP) is the largest food assistance program in the United States. Over the past 30 years the program has reached anywhere between 7 percent and 10 percent of the total U.S. population (Rank & Hirschl, 2009). A recent study found that almost half of all American children will have resided in a household that received food stamps by the time they reach 20 years of age (Rank & Hirschl, 2009). A similar supplemental food assistance program for new and expectant mothers, newborns and children under the age of 5 years, known as Women, Infants and Children (WIC), also has a national presence (USDA, 2012). Some states have implemented parallel nutrition education programs alongside the WIC program (Sekhobo *et al.*, 2012)

An emerging nutrition program that has shown some success in Missouri is the *Missouri Farm to School Program* supported by the University of Missouri Extension. This initiative aims to promote the usage of locally grown produce for school meals and snacks, thereby increasing the consumption of fresh fruits and vegetables by students. In a survey conducted in 2010 of 421 Missouri elementary and secondary schools, the majority of respondents indicated that local produce accounted for less than 5 percent of the total amount of produce purchased, however 88.3 percent of respondents identified an interest in participating in such a program (McKelvey, 2010).

Breastfeeding promotion programs have enjoyed success in recent years. Among the multitude of documented benefits of breastfeeding are what Arenz *et al.* (2004) have described as “a small but consistent protective effect against obesity in children.” The World Health Organization adds to the list of benefits the reduction of risk for developing type II diabetes and lower blood pressure and cholesterol levels among breastfed children (Wojcicki & Heyman, 2012).

## **B. Multipronged Programs**

Other community-based obesity programs have taken a multipronged approach. Beginning in 2008, the Robert Wood Johnson Foundation began an initiative entitled *Healthy Kids, Healthy Communities* (HKHC) “to prevent obesity among high-risk children by changing local policies, systems, and environments” (Ohri-Vachaspati *et al.*, 2012). An analysis of 41 HKHC-funded initiatives found that the majority of programs provided incentives to retailers to identify underserved areas and serve healthy foods in those neighborhoods, improve methods for purchasing locally-sourced produce and enhancing infrastructure that promotes physical activity (e.g. sidewalks, bike trails, walking trails, etc.) (Ohri-Vachaspati *et al.*, 2012). In Kansas City a community coalition, *Building a Healthier Heartland* (BHH), has been established to promote a similar agenda in the Kansas City Metropolitan area (BHH, 2010).

Initiated in 2010, the *Let's Move* campaign ([www.letsmove.gov](http://www.letsmove.gov)) combines several anti-obesity strategies under a single umbrella. These strategies, implemented at the national level, include the empowerment of parents and consumers by overhauling the nutritional labeling of products by the USDA, the improvement of the nutritional standards of the National School Lunch Program, increasing the number of opportunities for children to engage in physical activity and increasing access to high-quality foods in all U.S. communities (White House Task Force, 2010). This innovative multipronged approach has shown great potential for altering the course of the childhood obesity crisis –changing America’s approach to eating, nutrition and physical activity by simultaneously targeting individuals, neighborhoods and larger communities. According to health experts, the evidence base for home- and/or school-based behavioral and nutrition interventions is limited (Wojcicki & Heyman, 2012). Therefore, this national strategy aims to stimulate prevention efforts among the youngest Americans, including children under two years and preschoolers (Wojcicki & Heyman, 2012).

## **C. School-based Programs**

Programs focused on obesity reduction amongst children and adolescents typically occur in educational settings as this is the environment in which youth spend the majority of their waking hours (Mikkelsen, 2011). School-based interventions have been shown to function best with the active support of school leadership. Promising interventions require minimum investments in time, staff and other resources (Treu, 2011). One school-based intervention utilized a two-prong

approach, including nutritionist-led education for parents and teachers alongside an additional 90-minute weekly physical education class for students. The study period lasted approximately two years and obesity prevalence declined significantly in the intervention group from 17.0 percent to 12.3 percent in boys and 14.1 percent to 10.3 percent in girls (Kain *et al.*, 2008).

*The Guide to Community Preventive Services* (2013) has recently reported that school-based behavioral interventions to reduce time in front of a computer monitor or television screens (i.e., sedentary activity) have demonstrated their effectiveness in preventing obesity in children. Children who received curriculum to reduce television, videotape and video game use in a six-month randomized controlled trial of 192 elementary students showed statistically significant reductions in BMI (Robinson, 1999). A year-long study of 5<sup>th</sup> through 8<sup>th</sup> graders (10 to 15 years old) investigated the effects of two 60-minute physical education classes per week which included aerobic activity and sports play. The intervention group experienced a statistically significant drop in the ratio of obesity at post-test (24.7%) from pre-test (29.0%) (Farias *et al.*, 2009) Another study showed that the inclusion of activity-friendly equipment to an outdoor preschool playground reduced pre-intervention sedentary time by 16 percent (Hannon & Brown, 2008).

*The Coronary Artery Risk Detection In Appalachian Communities Kindergarten Project* (CARDIAC-Kinder) is an obesity and cardiovascular disease screening and intervention program for 4 to 6 year-olds in West Virginia. Once at-risk children are identified, interventions are aimed at increasing parents' knowledge and practice in delivering a healthy diet and increasing opportunities for physical activity to their children (Cottrell *et al.*, 2005). An evaluation of the CARDIAC-Kinder program revealed that parents of children in the intervention group reported that their children were more physically active and had consumed fewer sweets than the comparison group (Cottrell *et al.*, 2005).

As described previously, research suggests that social networks are an important determinant of overweight and obesity in youth. Successful obesity prevention and reduction programs promote opportunities for healthy and active social exchange. One study found active social networks and social cohesion within the neighborhood social environment to be associated with lower youth BMI when compared to youth with less robust social networks (Veitch *et al.*, 2012). *Energy Up* is an innovative anti-obesity program which combines the use of self-esteem building, avoidance of unhealthy foods and regular exercise targeted at inner-city high school

girls. The program consists of weekly two-hour sessions throughout the school year in which students exercise together, sample healthy foods and practice positive affirmations in addition to being given program-related homework assignments. An evaluation of the program revealed that obese participants lost an average of 12.9 pounds and overweight students lost an average of 2.9 pounds over a nine-month period (Chehab *et al.*, 2007).

The *Child and Adolescent Trial for Cardiovascular Health* (CATCH) is a nationwide obesity intervention program for elementary students. The program uses behaviorally-oriented classroom curriculum and a combination of school-based and family-oriented interventions grounded in advances in health promotion and behavior change theory (Webber *et al.*, 1995). One of the primary goals of the program is the reduction of childhood risk of becoming overweight and obese. An evaluation of the program in El Paso found that, of 224 third-grade participants, CATCH participants demonstrated a statistically significant lower risk of becoming overweight or obese (Coleman *et al.*, 2005).

Implemented in an Australian community in 2004, *Romp & Chomp* was a community-wide intervention with a target group of 12,000 children. This multifaceted strategy focused on community capacity-building and broad environmental changes to increase healthy eating and physical activity in early-childhood care and educational settings (de Silva-Sanigorski *et al.*, 2010). Following the intervention, an evaluation of the program revealed a significantly lower mean weight and BMI in a 3.5 year-old subsample and a significantly lower prevalence of overweight and obesity in both the 2 and 3.5 year-old subsamples (by 2.5% and 3.4%, respectively) compared to the comparison sample. Children who participated in the intervention showed a significantly lower intake of packaged snacks, fruit juice, and sugary drinks than those in the comparison sample (de Silva-Sanigorski *et al.*, 2010).

Another example of an initiative which adopted a multi-level approach is *The Healthier Options for Public Schoolchildren* (HOPS)/*The OrganWise Guys* (OWG) program. This school-based program incorporates modified dietary offerings, nutrition and lifestyle educational curricula, a physical activity component and wellness projects targeted at 6 to 12 year-olds. The program intervention achieved statistically significant improvements in BMI, blood pressure and academic scores, among those in the intervention groups versus the control group (Hollar *et al.*, 2010).

## D. Healthcare-based Programs

The human and technological resources available within the U.S. health care system make health care-based interventions a promising option. Health plan involvement in overweight and obesity prevention efforts has increased markedly in recent years. Given the role of the insurance industry in the U.S. health care system, health plans have been described as "...natural leaders and partners in efforts to reduce overweight among children and adolescents" (Dietz, 2007). To date, these partnerships have taken the form of community- and school-based initiatives, providing clinical decision support tools, creating web-based self-management tools, developing anti-obesity tool kits to providers and covering obesity-related physician visits for beneficiaries (Dietz, 2007).

As experts in illness and disease, health care providers are an obvious stakeholder in the childhood and adolescent obesity challenge. Some argue that the success or failure of obesity-related interventions is dependent upon the extent to which physicians interact with their pediatric patients (Lopez & Knudson, 2012). By coordinating with schools and youth centers, physicians have the opportunity to directly impact the health behaviors of local youth (Lopez & Knudson, 2012). It is theorized that such interactions may take the form of regular lecture series, guest speakerships, and participation in local youth activity programs (Lopez & Knudson, 2012). Proponents of this strategy claim that the proactive nature of physician efforts is likely to be more successful than many of the reactive programs commonly adopted.

There are a number of strategies shown to be useful in the management of overweight and obese patients seen in primary care settings. The routine assessment of patient BMI allows providers to identify excesses of weight when the behaviors that contribute to them are tractable (Dietz & Robinson, 2005). For children, a fasting lipid profile is a reasonable test to determine overweight or obesity status (Dietz & Robinson, 2005). Recommended clinical interventions include a focus on habits of diet or activity that contribute to weight gain or impair weight loss (Dietz & Robinson, 2005).

One study enrolled obese children between 9 and 17 years of age in a family-centered program which consisted of behavioral curriculum sessions, dietary advice from a registered dietitian and monthly consultations with a primary care physician. After one year, mean changes in body weight for the lifestyle group were -0.8 kg compared to + 5.6 kg in the control group (Díaz *et al.*,

2010). Such promising results provide strong evidence in support of interventions based on a pairing of primary care physicians and registered dieticians.

Other experts suggest that the medical management of obesity and relevant education be viewed “as foundations to change, but to pursue increasingly intensive viable options until overweight and obese children make clinically significant progress toward improved health and happiness” (Kirschenbaum & Gierut, 2013). This view supports an increasing trend towards pursuing surgical interventions in children, including laparoscopic adjustable gastric banding and laparoscopic Roux-en-Y gastric bypass (Kelleher *et al.*, 2013).

While dietary and behavioral interventions remain the first line defense in the fight to prevent and reduce obesity in youth, surgical interventions have been advocated by some for morbidly obese adolescents (10 to 19 years old) (Tsai *et al.*, 2007; Kelleher *et al.*, 2013). Surgical interventions remain relatively rare, however their use has steadily increased from 0.8 per 100,000 in 2000 to 2.4 per 100,000 in 2009 (Kelleher *et al.*, 2013). One survey of 451 pediatricians and family practice physicians indicated that nearly half of respondents would not refer children under the age of 18 to bariatric surgery (Woolford *et al.*, 2010). A retrospective case control study of pediatric gastric bypass patients found that, after a 12-month follow up, mean BMI fell 37 percent in surgical patients compared to a 3 percent reduction in nonsurgical patients (Lawson *et al.*, 2006). While medium-term results appear promising, the long-term effectiveness of bariatric surgical procedures for adolescent patients remains unclear.

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## Appendix M:

### Project Staff

Eduardo J. Simoes, MD, MSc, DLSHTM, MPH (PI)  
Chair and Distinguished Professor  
Department of Health Management and Informatics,  
School of Medicine, University of Missouri  
Columbia, MO 65212  
Phone: 573-882-1679  
Fax: 573-882-6158  
[simoese@health.missouri.edu](mailto:simoese@health.missouri.edu)

Jeannette Jackson-Thompson, MA, MSPH, PhD  
Director, Missouri Cancer Registry and Research Center *and*  
Research Associate Professor, Department of Health Management and Informatics  
School of Medicine  
401 Clark Hall  
University of Missouri  
Columbia, MO 65211  
Phone: 573-882-7775  
Fax: 573-884-9655  
[jacksonthompsonj@health.missouri.edu](mailto:jacksonthompsonj@health.missouri.edu)

Chester Lee Schmaltz, PhD  
Senior Statistician  
Missouri Cancer Registry and Research Center  
Department of Health Management and Informatics  
School of Medicine  
401 Clark Hall  
University of Missouri  
Columbia, MO 65211  
Phone: 573-882-7775  
Fax: 573-884-9655  
[schmaltzc@health.missouri.edu](mailto:schmaltzc@health.missouri.edu)

Adam Bouras, MHA, MSHI, MSc  
Project Director  
Department of Health Management and Informatics,  
School of Medicine, University of Missouri  
Columbia, MO 65212  
Phone: 573-882-1679  
Fax: 573-882-6158  
[bourasm@health.missouri.edu](mailto:bourasm@health.missouri.edu)

Esmaeel Rahmani, MD, MSHI  
Research Assistant  
Department of Health Management and Informatics,  
School of Medicine, University of Missouri  
Columbia, MO 65212  
Phone: 573-882-1679  
Fax: 573-882-6158  
[ery87@missouri.edu](mailto:ery87@missouri.edu)

Philip Burger, MHA, MPH  
Department of Health Management and Informatics,  
School of Medicine, University of Missouri  
Columbia, MO 65212  
Phone: 573-882-1679  
Fax: 573-882-6158  
[phillipberger@mail.missouri.edu](mailto:phillipberger@mail.missouri.edu)

## Figures

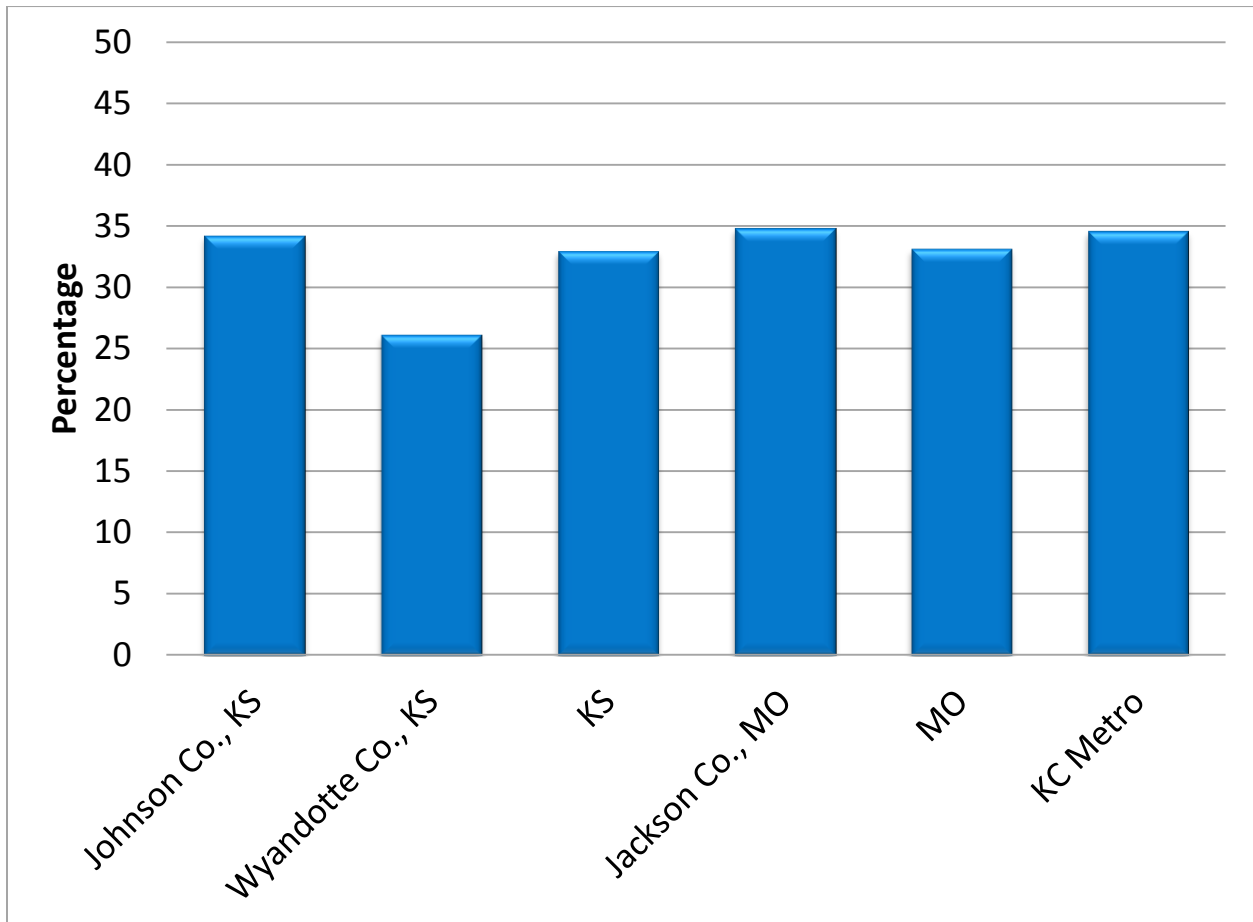
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### 3) Overweight/Obesity and Related Behaviors

#### a) Overweight/Obesity and Related Behaviors for Adults Ages 18 and Older and Mothers

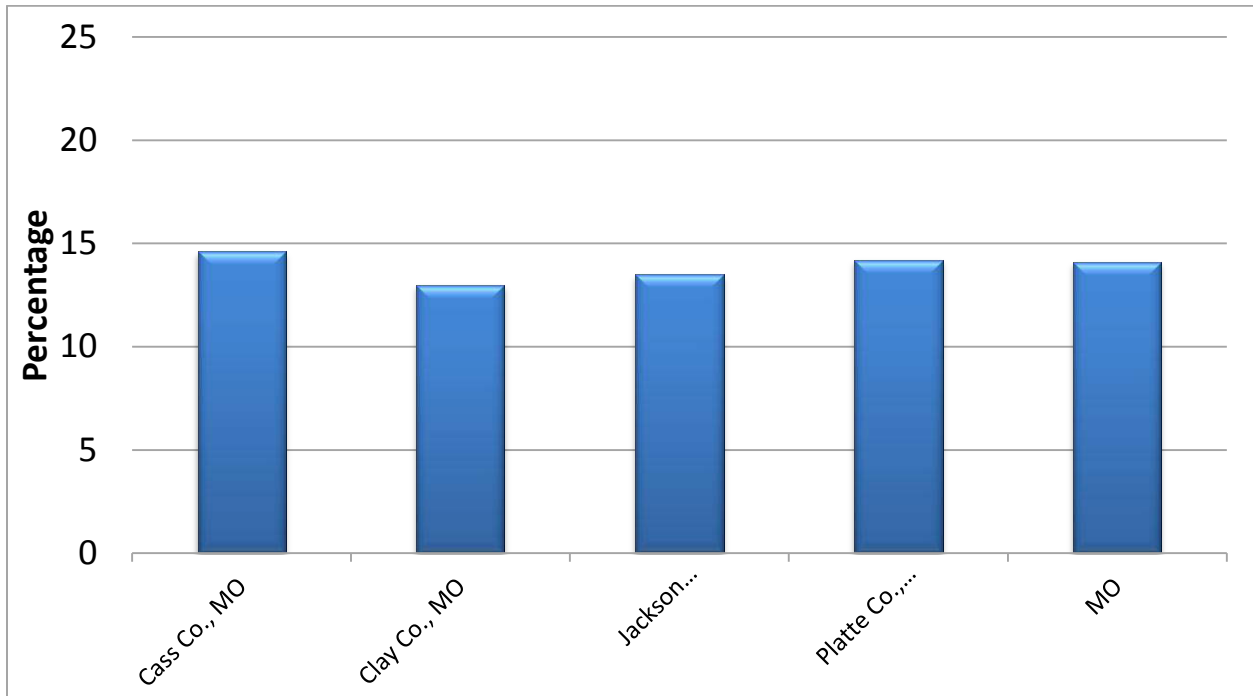
##### 3.a.1 (b). Prevalence of overweight among adults 18 and older

In Appendix J, the graph for 3.a.1 has the prevalence of overweight/obesity combined; 3.a.2 has the prevalence of obesity alone. This additional graph shows the prevalence of overweight alone.



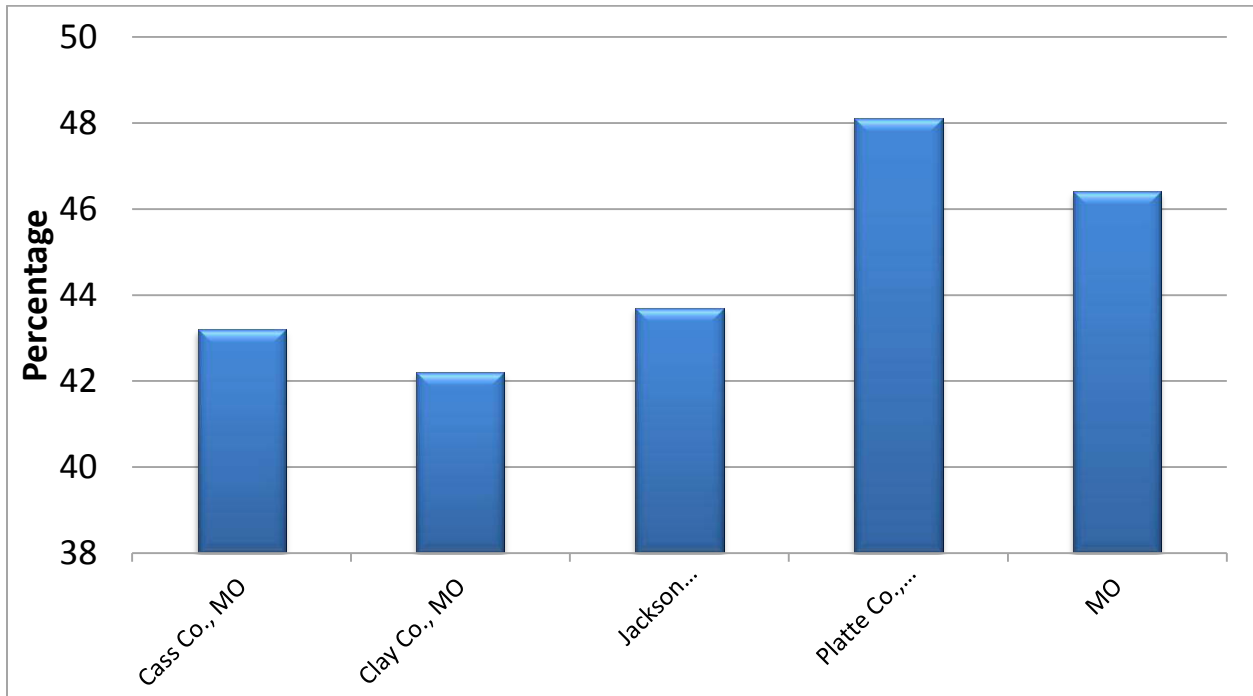
3.a.3 (b). Prevalence of low-income postpartum women who were overweight prior to pregnancy (Missouri)

In Appendix J, the graph for 3.a.3's Missouri data has the prevalence of overweight/obesity combined and overweight alone plotted together as separate series; 3.a.4 has the prevalence of obesity alone. This additional graph shows the prevalence of overweight by itself; graph 3.a.3 (c) in this addendum shows combined overweight/obesity alone.



3.a.3 (c). Prevalence of low-income postpartum women who were overweight/obese prior to pregnancy (Missouri)

In Appendix J, the graph for 3.a.3's Missouri data has the prevalence of overweight/obesity combined and overweight alone plotted together as separate series; 3.a.4 has the prevalence of obesity alone. This additional graph shows the prevalence of combined overweight/obesity by itself; graph 3.a.3 (b) in this addendum shows overweight alone.

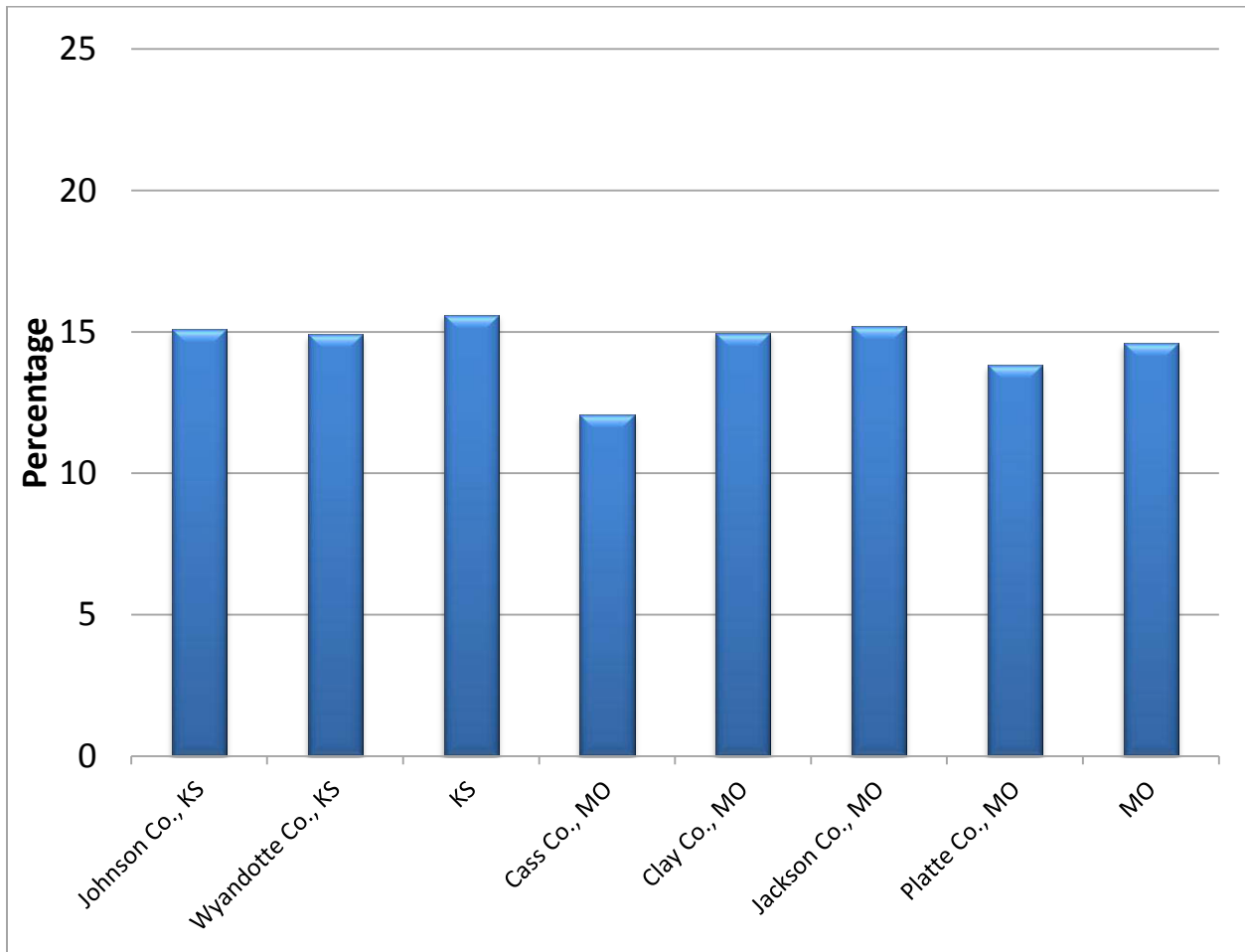




## b) Overweight/Obesity and Related Behaviors for Children

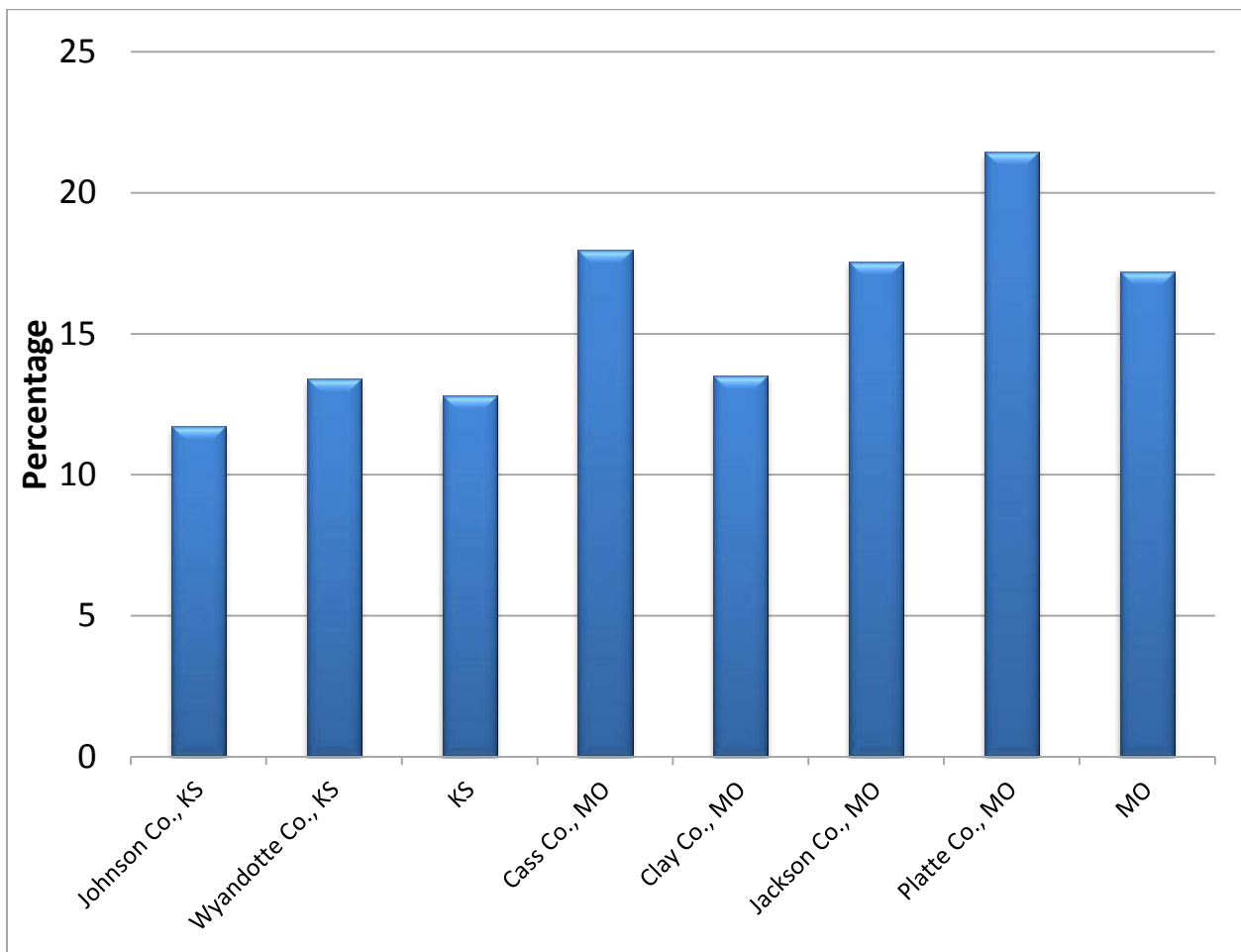
3.b.5 (b). Prevalence of low-income children (age 2—4) with a Body Mass Index (BMI)-for-age indicating overweight

In Appendix J, the graph for 3.b.5 has the prevalence of overweight and obesity plotted together as separate series. This additional graph shows the prevalence of overweight by itself; graphs 3.b.5 (c) and 3.b.5 (d) in this addendum show obesity by itself and combined overweight/obesity, respectively.



3.b.5 (c). Prevalence of low-income children (age 2—4) with a Body Mass Index (BMI)-for-age indicating obesity

In Appendix J, the graph for 3.b.5 has the prevalence of overweight and obesity plotted together as separate series. This additional graph shows the prevalence of obesity by itself; graphs 3.b.5 (b) and 3.b.5 (d) in this addendum show overweight by itself and combined overweight/obesity, respectively.



3.b.5 (d). Prevalence of low-income children (age 2—4) with a Body Mass Index (BMI)-for-age indicating overweight/obesity

In Appendix J, the graph for 3.b.5 has the prevalence of overweight and obesity plotted together as separate series. This additional graph shows the prevalence of overweight/obesity combined; graphs 3.b.5 (b) and 3.b.5 (c) in this addendum show overweight by itself and obesity by itself, respectively.

