

2019 COMMUNITY HEALTH NEEDS ASSESSMENT REPORT AND IMPLEMENTATION PLAN



TABLE OF CONTENTS

EXECUTIVE SUMMARY	3
COMMUNITY DESCRIPTION	4
PREVIOUS CHNA MEASUREMENT AND OUTCOMES RESULTS	8
CONDUCTING THE 2019 CHNA	9
Primary Data Collection	9
Secondary Data Summary	13
Internal Work Group Prioritization Meetings.....	18
APPENDICES	23
About Boone Hospital Center	23
Net Community Benefit Expense.....	24
Boone County Demographic.....	25
Focus Group Report	29
Focus Group Members.....	41
Internal Work Group Members	42
Secondary Data	43
IMPLEMENTATION PLAN	67
Community Health Needs to be Addressed	67
Community Health Needs that will not be Addressed	71

EXECUTIVE SUMMARY

Boone Hospital Center, a member of BJC HealthCare, is a 392-bed hospital located in Columbia, Missouri. Among its many specialty areas, Boone Hospital is known for its cardiology, neurology, oncology, surgical and obstetrical services. For over 90 years, the hospital has provided progressive health care programs, services and technologies in its mission to improve the health of the people and communities in mid-Missouri. Boone Hospital has also established effective partnerships towards the goals of improving the health of the community. (See Appendix A).

Like all nonprofit hospitals, Boone Hospital is required by the Patient Protection and Affordable Care Act (PPACA) to conduct a community health needs assessment (CHNA) and create an implementation plan every three years. Boone Hospital completed its first CHNA and implementation plan in 2013 and again in 2016. These reports were posted to the hospital's website to ensure easy access to the public.

As part of the CHNA process, each hospital is required to define its community. Boone Hospital defined its community as Boone County. Once the community is defined, input must be solicited from those who represent the broad interests of the community served by the hospital, as well as those who have special knowledge and expertise in the area of public health.

Boone Hospital conducted its 2019 assessment in two phases. The first phase consisted of a focus group discussion with key leaders and stakeholders representing the community. This group reviewed the primary data and community health need findings from 2016 and discussed changes that had occurred since 2016. Additionally, the focus group reviewed gaps in meeting needs, as well as identified potential community organizations for Boone Hospital to collaborate with in addressing needs.

During phase two, findings from the focus group meeting were reviewed and analyzed by a hospital internal work group of clinical and non-clinical staff. Using multiple sources, including Healthy Communities Institute and Centers for Disease Control and Prevention (CDC)/State Cancer, a secondary data analysis was conducted to further assess the identified needs. This data analysis identified some unique health disparities and trends evident in Boone County when compared against data for the state and country.

At the conclusion of the comprehensive assessment process, Boone Hospital identified two health needs where focus is most needed to improve the health of the community it serves: 1)Heart/Vascular Disease and 2) Diabetes.

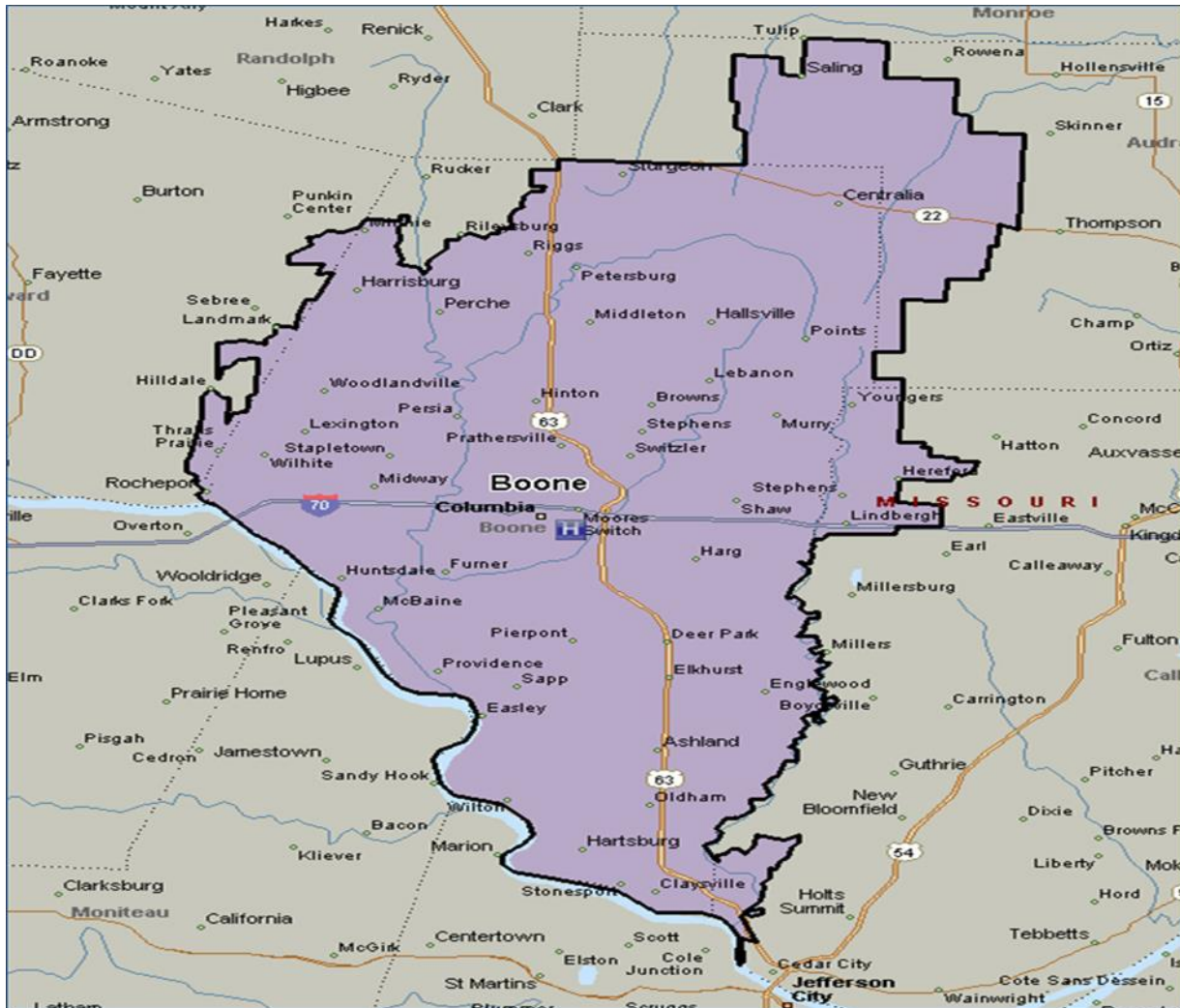
The analysis and conclusions were presented, reviewed and approved by the Boone Hospital Board of Directors.

COMMUNITY DESCRIPTION

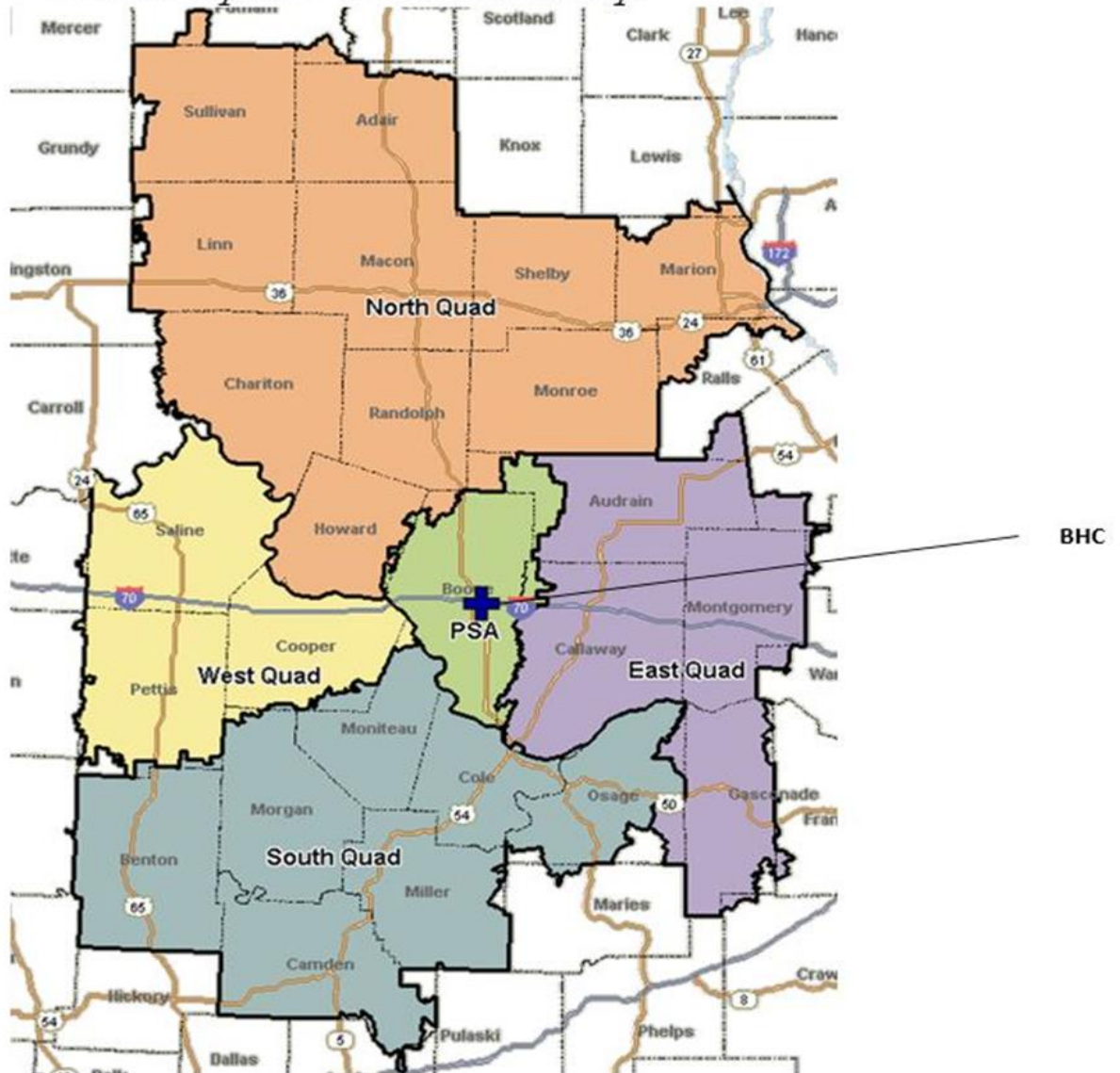
Boone Hospital is located in Boone County in the city of Columbia, Missouri, the county seat and largest city in Boone County. For the purpose of this CHNA, the hospital defined its community as Boone County.

Boone Hospital is a member of BJC HealthCare, one of the largest, nonprofit health care organizations in the country. BJC HealthCare hospitals serve urban, suburban and rural communities through 15 hospitals and multiple community health locations primarily in the greater St. Louis, southern Illinois and mid-Missouri regions.

Boone County includes 507.80 square miles. Boone Hospital is located along the I-70 corridor in mid-Missouri and has a service area of 25 counties.



Boone Hospital Center Market Map



Boone Hospital's primary service area (PSA) is represented by the green shaded area in the center of the map. The four quad areas outside the PSA indicate the hospital's secondary service areas.

POPULATION

Population data are necessary to understand the health of the community and plan for future needs. Boone County had a population of 178,271 in 2017. The population experienced a 9.6 percent increase from 2010 to 2017, a significant growth for the county.

GENDER/RACE/ETHNICITY

BOONE COUNTY 2017 POPULATION

178,271

51.5 percent Female (91,810)

48.5 percent Male (86,461)

79.0 percent White (140,834)

9.6 percent African American (17,114)

5.0 percent Asian (8,914)

3.4 percent Hispanic or Latino (6,061)

3.1 percent Two or More Races (5,526)

0.4 percent Am. Indian & Alaska Nat. (713)

0.1 percent Native Haw. & Other P.I. (178)

MISSOURI 2017 TOTAL POPULATION

6,113,532

50.9 percent Female (3,111,788)

49.1 percent Male (3,001,744)

79.5 percent White (4,860,258)

11.8 percent African American (721,397)

2.1 percent Asian (128,384)

4.2 percent Hispanic or Latino (256,768)

2.3 percent Two or More Races (140,611)

0.6 percent Am. Indian & Alaska Native (36,681)

0.1 percent Native Haw. & Other P.I. (6,114)

AGE

The age structure of a community is an important determinant of its health and the health services it will need. In 2017, persons 65 years and over in the county totaled 11.8 percent compared to 16.5 percent in the state.

EDUCATION

Individuals who do not finish high school are more likely than people who finish high school to lack the basic skills required to function in an increasingly complicated job market and society. Adults with limited education levels are more likely to be unemployed, on government assistance or involved in crime.

In Boone County, 93.5 percent of the population 25 and older had a high school diploma compared to 88.8 percent the state.

For many, having a bachelor's degree is the key to a better life. The college experience develops cognitive skills, and allows learning about a wide range of subjects, people, cultures and communities. Having a degree also opens up career opportunities in a variety of fields, and is often the prerequisite to a higher-paying job. It is estimated that college graduates earn about \$1 million more per lifetime than their non-graduate peers. (Healthy Communities Institute)

In Boone County, 45.9 percent of the population 25 and older had a bachelor's degree when compared to 27.6 percent in the state.

INCOME

The median income of households in the county at \$52,005 was slightly higher than the state median average of \$51,542. Home ownership was lower in Boone County (50.4 percent) than the state (57.8 percent).

POVERTY IN BOONE COUNTY

With an estimated poverty rate of 18.7 percent, Boone County had a higher percentage of persons living in poverty than Missouri (14.6 percent). While this higher poverty rate might be attributable to the sub-population of college students who earn less income, it is important not to overlook families who live below the poverty level.

Federal poverty thresholds are set every year by the Census Bureau and vary by size of the family and ages of the family members. A high poverty rate is both a cause and a consequence of poor economic conditions. A high poverty rate indicates that local employment opportunities are not sufficient to provide for the local community. Through decreased buying power and decreased taxes, poverty is associated with lower-quality schools and decreased business survival. (Healthy Communities Institute)

While the 6 & under age group had the highest percentage of children living below the poverty level in Boone County, that age group was 20 percent lower than the rate in the state. The overall rate of children living below the poverty level was 15.2 percent compared to 20.0 percent in the state.

The Native Hawaiian or other Pacific Islander race had the highest rate of children living below the poverty level in Boone County. The Native Hawaiian or Other Pacific Islander race also had the highest rate of people living below the poverty level in the county (48.5 percent).

The 18-24 age group in Boone County had the highest rate of those living below the poverty level (52.9 percent). This same age group had the highest rate in the state (25.6 percent). Females living below the poverty level in the county had a higher rate (19.7 percent) when compared to the state (15.9 percent). Males living below the poverty level in the county had a higher rate (17.7 percent) when compared to the state (13.3 percent).

PREVIOUS (2016) CHNA MEASUREMENT AND OUTCOMES RESULTS

At the completion of the 2016 CHNA, Boone Hospital identified the top priority need as Obesity where focus was most needed to improve the health of the community served by the hospital. The following tables detail results, goals and current status of this community health need.

TABLE 1: BOONE HOSPITAL CENTER 2016 CHNA SUMMARY OUTCOMES
COMMUNITY HEALTH NEED: OBESITY
PROGRAM: KIDS ON TRACK
PROGRAM GOAL
To increase physical activity among children and their families.
PROGRAM OBJECTIVES
<p>a) WELLWARE staff will establish a baseline number of children aged 3-14, living in Boone County, who will participate in the program in the first year.</p> <p>b) To increase the baseline by 10% of participants each year after the initial start year.</p> <p>c) To establish a baseline number of the participants who have incorporated physical activities into their life after the three-month participation period.</p> <p>d) To increase each past year number of participants who have incorporated physical activity in their life after participation by 10 % in the following year.</p>
CURRENT STATUS
<p>2017: 1,297 families participated. 111 families responded to a follow-up survey in November 2017 about their children’s physical activity level. 56% reported 4+ hours of physical activity a week; 27% reported 2-3 hours of physical activity a week; 13% reported 1-2 hours of physical activity a week; 4% reported less than 1 hour of physical activity a week.</p> <p>2018: 966 families participated. 67 families responded to a follow-up survey in November 2018 about their children’s physical activity level. 53% reported 4+ hours of physical activity a week; 30% reported 2-3 hours of physical activity a week; 14% reported 1-2 hours of physical activity a week; 3% reported less than 1 hour of physical activity a week.</p> <p>2019: 365 families participated. During online registration, families were asked a question about their children's physical activity level. Of the 342 responses, 42% reported 4+ hours of physical activity a week; 25% reported 2-3 hours of physical activity a week; 11% reported 1-2 hours of physical activity a week; 3% reported less than 1 hour of physical activity a week. A follow-up survey will be sent in fall 2019.</p>

TABLE 1: BOONE HOSPITAL CENTER 2016 CHNA SUMMARY OUTCOMES CONTINUED

PROGRAM: HEAD-TO-TOE
PROGRAM GOAL
To improve knowledge of leading a healthy lifestyle among children and their families
PROGRAM OBJECTIVES
a) Provide intensive group educational sessions that focus on nutrition, physical activity and emotional health to 30 children per year.
b) Increase knowledge of nutrition, physical activity and emotional health among participants by a 5% increase
CURRENT STATUS
In 2017 , Boone Hospital Center had 7 Head To Toe program participants. In 2018 , the program was planned but not held due to low registration. The Head to Toe program was then reassessed and restructured as the Family Wellness Program. Changes included holding nine (9) weekly sessions instead of 12 and a reduced program fee. However, due to low enrollment, the program has been discontinued at this time.

CONDUCTING THE 2019 CHNA

PRIMARY DATA COLLECTION: FOCUS GROUP

Boone Hospital conducted a focus group to solicit feedback from community stakeholders, public health experts and those with a special interest in the health needs of residents located in Boone County. (See Appendix D for complete Focus Group Report)

Eight of 10 invited participants representing various Boone County organizations participated in the focus group. (See Appendix E). The focus group was held at the hospital on Jan. 10, 2019, with the following objectives identified:

- 1) Determine whether the needs identified in the 2016 hospital CHNA are still the right areas on which to focus
- 2) Explore whether there are needs on the list that should no longer be a priority
- 3) Determine where there are gaps in the plans to address the prioritized needs
- 4) Identify other organizations with whom the hospital should consider collaborating
- 5) Discuss what has changed since 2016 when these needs were prioritized, and whether there are new issues to be considered
- 6) Understand what other organizations are doing to impact the health of the community and how those activities might complement the hospitals' initiatives
- 7) Evaluate what issues the stakeholders anticipate becoming a greater concern in the future that we need to consider now

NEEDS THAT SHOULD BE REMOVED FROM THE LIST

Stakeholders agreed that the needs being addressed should remain, and nothing should be removed from the list.

OTHER NEEDS THAT SHOULD BE ADDRESSED

The data on the availability of health care providers is misleading as it is weighted in favor of Columbia and influenced by the presence of the medical school. Rural communities struggle to attract primary care providers, especially in northern and southern Boone County.

GAPS BETWEEN DEFINED NEEDS AND OUR ABILITY TO ADDRESS THEM

- Early intervention will produce better results if substance abuse is caught earlier in the abuse cycle.
- Many who need diagnostic tests are unable to afford them. This limits the ability of local health care providers to catch health issues early and to avoid more acute life-threatening disease.
- Data suggest Boone County has a housing issue.

OTHER ORGANIZATIONS WITH WHOM TO COLLABORATE

- Independent Living Center of Mid Missouri, an organization that helps individuals with disabilities to live more independently
- Compass Health Network and Burrell Behavioral Health, large mental health providers
- The Youth Community Coalition (YC2), which includes more than 50 organizations that work toward decreasing substance abuse and promoting healthy behaviors among youth in Columbia
- PedNet, a group that focuses on creating walkable communities and access to bike trails, and community development organizations who recommend how to integrate residential, commercial and industrial developments to encourage walking and healthy communities
- Future collaborations on policy and advocacy issues at the local, state and federal level
- Access to Boone Hospital's emergency department utilization data to identify individuals who are high utilizers of the system and understand what can be done to recognize their underlying needs

CHANGES SINCE THE 2016 CHNA

- The lack of available mental health (psychiatric) services is new in the last three years; even those with health insurance are unable to access services due the limited number of available providers.
- The opioid crisis was also not discussed three years ago; access to Suboxone and physicians who can/will prescribe it are also new conversations.
- The life expectancy of Americans has decreased nationally.
- Insurance payment changes have impacted the ability of some individuals to receive services.
- The PDMP (prescription drug monitoring program) has begun in Boone County as a way to help address the opioid crisis.
- The Community Health Fund has supported the *Look Around Boone* campaign to raise awareness of, and destigmatize mental health issues, particularly among youth.

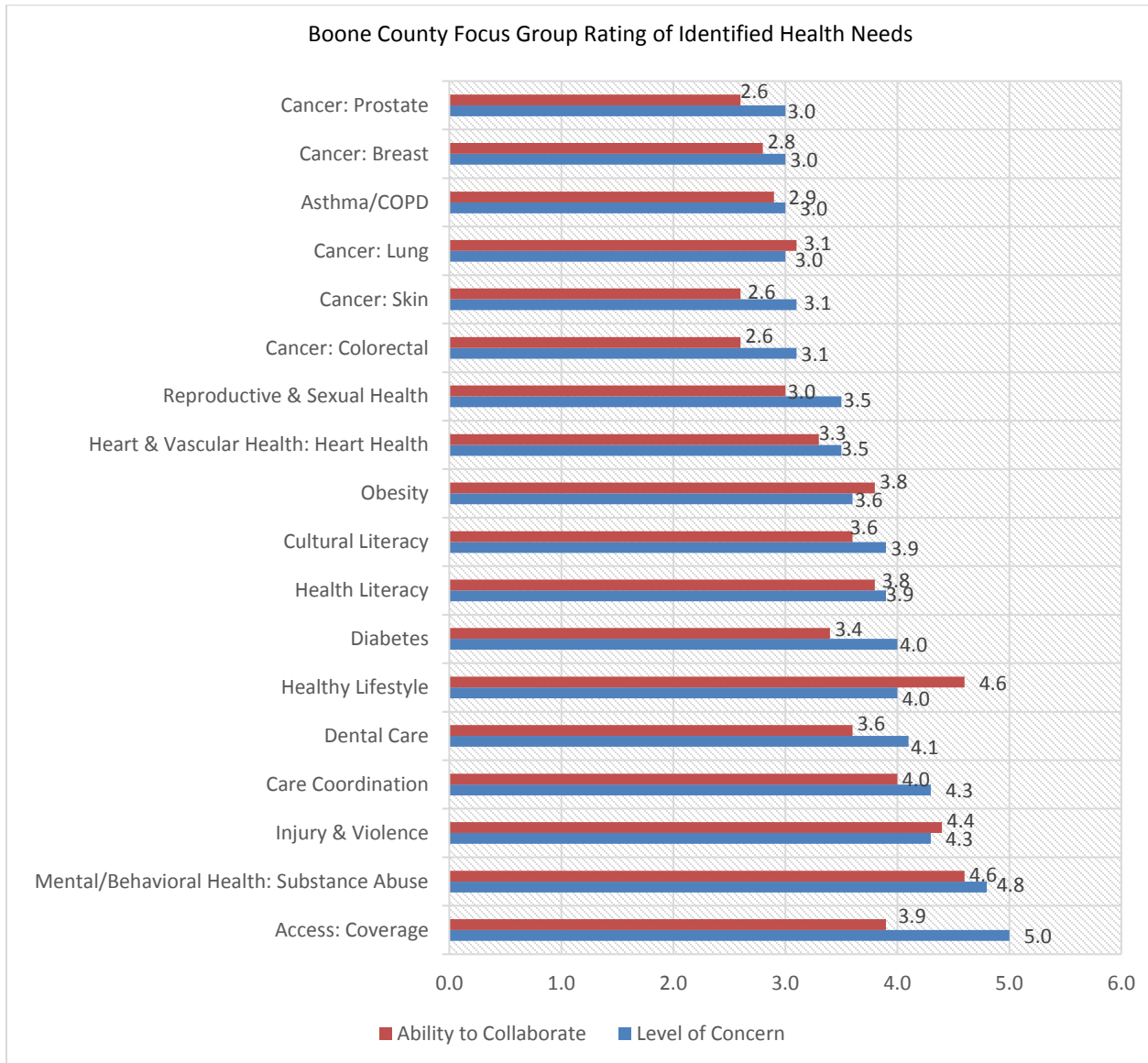
HEALTH CONCERNS FOR THE FUTURE

- Passage of legislation to allow the dispensation of medical marijuana
- Juuling and the use of e-cigarettes
- Lack of Medicaid expansion
- Inequality related to access and health outcomes, particularly by race
- Increased awareness that natural disasters seem to have become more intense
- Increased focus on prevention
- Hospital should increase its advocacy for local ordinances to improve community health

- Hospital should address high utilizers of the health care system especially in the emergency department

RATING OF NEEDS

Participants were given the list of the needs identified in the 2016 assessment and directed to re-rank them on a scale of 1 (low) to 5 (high), based on their perceived level of community concern and the ability of community organizations to collaborate in addressing:



Mental/Behavioral Health: Substance Abuse and Healthy Lifestyle were rated highest in terms of ability to collaborate. Access: Coverage and Mental/Behavioral Health: Substance Abuse were rated highest for level of concern.

SECONDARY DATA SUMMARY

Based on the primary data reviewed by focus group members (see graph on previous page), key areas were identified for a secondary data analysis. These areas represent the most prevailing issues identified by the focus group.

The majority of the analysis was completed comparing Boone County, Missouri and the United States. In order to provide a comprehensive view (analysis of disparity and trend) the most up-to-date secondary data was included on the following needs:

- Access to Health Care
- Access: Transportation
- Asthma
- Heart and Vascular Health
- Obesity
- Healthy Lifestyle
- Diabetes
- Reproductive Health
- Cancer
- Behavioral Health/Mental Health: Mental Health
- Behavioral/Mental Health: Substance Abuse
- Injury and Violence

While Boone Hospital Center has identified two needs as its primary focus, the following needs will continue to be appropriately addressed by the hospital and other organizations in Boone County.

ACCESS TO HEALTH CARE

In 2018, the rate of mental health providers in Boone County was nearly 20 times higher than the rate in the state. When comparing the rate of primary care providers (for the year 2016), dentists (for the year 2017) and non-physician primary care providers (for the year 2018), the rate in the county was higher than the rate in the state. The rate of preventable hospital stays was lower in the county than in the state. (2015)

The rate of adults and children with health insurance in Boone County in 2017 was slightly higher than the rate in Missouri. In 2016, the 55-64 age group in the county had the highest rate of health insurance (96.7 percent) and the 45-54 age group had the lowest rate (84.8 percent).

ASTHMA

The rate of asthma hospitalizations for Whites in the county and the state were similar while the rate of hospitalizations for African Americans was 21 percent lower in the county than the state. (2011-2015)

The rate of emergency room visits for Whites was lower in the county than in the state. The rate for African Americans was 21 percent lower in the county than in the state. (2011-2015)

The age-adjusted death rate due to chronic lower respiratory disease in Boone County was 36.7 per 100,000, 29 percent lower than the rate in the state.

HEART AND VASCULAR HEALTH

Heart disease and stroke are among the most preventable diseases in the U.S., yet are the most widespread and costly health conditions facing the nation today. Heart disease and stroke are the first and third leading causes of death for both women and men. These diseases are also major causes of illness and disability and are estimated to cost the U.S. hundreds of billions of dollars annually in health care expenditures and loss of productivity. (CDC Division for Heart Division and Stroke Prevention).

Whites in Boone County had a 28 percent lower rate of deaths due to heart disease when compared to Whites in the state; African Americans in Boone County had a 3 percent lower death rate when compared to African Americans in the state. A similar pattern existed for ischemic heart disease. Whites had a 5 percent lower death rate due to stroke in the county compared to Whites in the state. African Americans had a 13 percent higher death rate due to stroke in the county compared to African Americans in the state. (2007-2017)

OBESITY

For 2016, Boone County had a 10 percent lower rate of obesity when compared to the state. This was similar to prior years.

HEALTHY LIFESTYLE

The fruit and vegetable consumption of adults in Boone County decreased 59 percent from 2007 to 2016 and the state saw a decrease of 49 percent during the same time period.

Numerous studies have shown a clear link between the amount and variety of fruits and vegetables consumed and rates of chronic diseases, especially cancer. According to the World Cancer Research Fund International, about 35 percent of all cancers can be prevented through increased fruit and vegetable consumption. (Healthy Communities Institute).

DIABETES

Diabetes is a leading cause of death in the United States. According to the Centers for Disease Prevention and Control (CDC), more than 25 million people have diabetes, including both diagnosed and undiagnosed cases.

Diabetes disproportionately affects minority populations and the elderly, and its incidence is likely to increase as minority populations grow and the U.S. population becomes older. (Healthy Communities Institute).

The rate of deaths, hospitalizations and emergency room visits for Whites with diabetes in Boone County were lower when compared to the rates of Whites in Missouri. The rate of deaths for African Americans with diabetes in Boone County was 78 percent higher than the rate of African Americans in Missouri; the rate of hospitalizations were 18 percent higher than the state; and the rate of emergency room visits were 18 percent higher than the state.

For the three-year period ending in 2015 through the three-year period ending in 2017, the rate of deaths from diabetes in Boone County increased 36 percent while the rate in the state increased 2 percent.

For the five-year period ending in 2015 and in 2016, Boone County had experienced a lower age-adjusted death rate due to diabetes compared to the state; however, for the five-year period ending in 2017, Boone County had a 6 percent higher age-adjusted death due to diabetes when compared to the state.

REPRODUCTIVE HEALTH

Babies born with low birth weight are more likely than babies of normal weight to have health problems and require specialized medical care in the neonatal intensive care unit. Low birth weight is typically caused by premature birth and fetal growth restriction, both of which are influenced by a mother's health and genetics. The most important things an expectant mother can do to prevent low birth weight are to seek prenatal care, take prenatal vitamins, stop smoking, and stop drinking alcohol and using drugs. (Healthy Communities Institute).

For the five-year period ending in 2016, African American mothers in the county had the lowest rate of early prenatal care at 73.9 percent compared to White mothers in the county who had the highest rate at 87 percent.

Smoking during pregnancy poses risks for both mother and fetus. A baby born to a mother who has smoked during her pregnancy is more likely to have less developed lungs and a lower birth weight, and is more likely to be born prematurely. It is estimated that smoking during pregnancy causes up to 10 percent of all infant deaths. Even after a baby is born, secondhand

smoking can contribute to SIDS (Sudden Infant Death Syndrome), asthma onset and stunted growth. (Healthy Communities Institute).

When comparing the rate of mothers in Boone County who smoked during pregnancy to the state by race/ethnicity, 16.6 percent of African American mothers smoked during pregnancy compared to 11.4 percent in the state. Among the White population, 11.8 percent smoked in the county during pregnancy compared to 15.8 percent in the state.

CANCER

Cancer is a leading cause of death in the United States, with more than 100 different types of the disease. According to the National Cancer Institute, lung, colon and rectal, breast, pancreatic and prostate cancer lead in the greatest number of annual deaths.

For the five-year period ending in 2011 through the five-year period ending in 2014, Boone County experienced a higher cancer incident rate than the state; however, for the five-year period ending in 2015, Boone County had a lower incident rate (446.7 per 100,000) compared to the state rate (450.4 per 100,000).

For the five-year period ending in 2015, Hispanics were the only race in Boone County that had a slightly higher incident rate of cancer than Hispanics in the state.

The incident rate of breast cancer among African Americans was 135.2/100,000 in Boone County compared to 133.6/100,000 in the state. Among Whites, the incident rate was 139.8/100,000 in the county and 127.5/100,000 in the state. (2011-2015)

For the five-year period ending in 2011 to the five-year period ending 2015, the age-adjusted death rate due to breast cancer increased 6 percent in Boone County while the state increased 5.8 percent.

For the five-year period ending in 2011 through the five-year period ending in 2014, Boone County experienced a lower colorectal cancer incident rate when compared to the state; however, for the five-year period ending in 2015, Boone County (42.5 per 100,000) experienced a higher rate when compared to the state (41.7 per 100,000).

For the five-year period ending in 2011 through the five-year period ending in 2015, the incident rate of lung and bronchus cancer decreased 15.6 percent in Boone County compared to 2.4 percent in the state.

While the incident rate of prostate cancer in Boone County was slightly higher than the rate in the state, Boone County experienced a 33.4 percent decline since the five-year period ending in 2011 while the state experienced a 19.5 percent drop in the prostate cancer incident rate.

BEHAVIORAL HEALTH/MENTAL HEALTH: MENTAL HEALTH

In state fiscal year 2017, 2,008 Boone County residents received treatment for serious mental illness at publically-funded facilities compared to 1,868 in 2016. Mood disorders (1,344) were the most common behavioral health disorder followed by anxiety (1,001).

BEHAVIORAL HEALTH/MENTAL HEALTH: SUBSTANCE ABUSE

In FY2016, FY2017 and FY 2018, alcohol was the primary drug responsible for the most admissions of individuals to substance abuse treatment programs in Boone County.

INJURY AND VIOLENCE

A violent crime is a crime in which the offender uses or threatens to use violent force upon the victim. Violence negatively impacts communities by reducing productivity, decreasing property values and disrupting social services. (Healthy Communities Institute).

For the three-year period ending 2010 to the three-year period ending 2016, the rate of violent crime decreased by 8 percent in Boone County and decreased by 0.6 percent in Missouri.

INTERNAL WORKGROUP MEETINGS

Boone Hospital chose 10 employees to participate on an internal CHNA workgroup representing various hospital departments including Women & Children’s Health; Cardiology and Cardiovascular/Thoracic Surgery; Oncology/Neurology; Admissions and Social Work; Marketing & Public Relations; Community Outreach/Business Development; Home Care and Hospice; and Diabetes Education & Nutrition. (See Appendix F)

The workgroup met twice to analyze the primary and secondary data and to complete the priority ranking for the hospital’s CHNA.

MEETING 1

The internal workgroup met March 15, 2019, to review the purpose for the CHNA, role of the workgroup and goals for the project. The workgroup reviewed the key findings from the 2016 report and the current findings from the 2019 focus group.

Through discussion and consensus, the workgroup reviewed the list of health needs and decided not to rank Dental Care or Injury & Violence because Boone Hospital does not have direct resources to address these issues. Additionally, the group struggled to decide if substance abuse should be ranked or not. There was in depth conversation regarding the lack of resources to address the opioid crisis in their community. At the end of the discussion, the group agreed to retain Mental Health: Substance Abuse on the list with a focus on opioid abuse or overdose.

During this meeting, the workgroup also reviewed and agreed upon the criteria (below) to rank the top health needs. The ranking was conducted individually by email and prior to the second meeting.

TABLE 2: CRITERIA FOR PRIORITY SETTING			
	RATING	WEIGHT	SCORE
How many people are affected by the problem?			
What are the consequences of not addressing this problem?			
Are existing programs addressing this issue?			
How important is this problem to community members?			
How does this problem affect vulnerable populations?			
TOTAL SCORE			

Source: Catholic Health Association

The work group used a ranking process to assign weight to criteria by using the established criteria for priority setting above. Criteria of overriding importance were weighted as “3,” important criteria were weighted as “2,” and criteria worthy of consideration, but not a major factor, were weighted as “1.” Health needs were then assigned a rating ranging from one (low need) to five (high need) for each criteria. The total score for each need was calculated by multiplying weights by rating.

MEETING 2

The workgroup met again May 8, 2019, to review the final ranking of community health needs. Health needs highlighted in red were eliminated from the ranking during the workgroup’s first meeting. (Table 3)

RANK	COMMUNITY HEALTH RANKING: HIGHEST-LOWEST	TOTAL SCORES
1	Heart & Vascular: Heart Health	388
2	Diabetes	351
3	Mental/Behavioral Health: Substance Abuse	340
4	Cancer: Breast	306
5	Cancer: Lung	301
6	Obesity	298
7	Access to Care: Coverage	294
8	Cancer: Colorectal	274
9	Cancer: Prostate	269
10	Coordination of Care	250
11	Cancer: Skin	242
12	Healthy Lifestyle	237
13	Health Literacy	227
14	Asthma/COPD	221
15	Reproductive/Sexual Health	216
16	Cultural Literacy	198
	Injury & Violence	
	Dental Care	

Additionally, the group compared its results to the focus group ranking. (Table 4)

TABLE 4: BOONE HOSPITAL CENTER INTERNAL WORKGROUP VS. BOONE COUNTY STAKEHOLDERS RANKING		
RANK	BOONE HOSPITAL CENTER INTERNAL WORK GROUP RANKING	BOONE COUNTY COMMUNITY STAKEHOLDERS RANKING
1	Heart & Vascular: Heart Health	Access: Coverage
2	Diabetes	Mental Health/ Substance Abuse
3	Mental/Behavioral Health: Substance Abuse	Injury and Violence
4	Cancer: Breast	Coordination of Care
5	Cancer: Lung	Dental Care
6	Obesity	Healthy Lifestyle
7	Access to Care: Coverage	Diabetes
8	Cancer: Colorectal	Health Literacy
9	Cancer: Prostate	Cultural Literacy
10	Coordination of Care	Obesity
11	Cancer: Skin	Heart/Vascular Health
12	Healthy Lifestyle	Reproductive /Sexual Health
13	Health Literacy	Cancer: Colorectal
14	Asthma/COPD	Cancer: Skin
15	Reproductive/Sexual Health	Cancer: Lung
16	Cultural Literacy	Asthma/COPD
17		Cancer: Breast
18		Cancer: Prostate

Next, the work group reviewed results of the secondary data using the Healthy Communities Institute (HCI) Data Scoring Tool, which compares data from similar communities in the nation. The tool provides a systematic ranking of indicators for Boone County and helps prioritize the needs. The scoring is based on how a county compares to other similar counties within the state and U.S., the average state value, the average U.S. value, historical indicator values, Healthy People 2020 targets, and locally set targets, depending on data availability. The team reviewed the scores by indicators.

Table 5 shows:

- primary data from the focus group ranking
- needs identified by the internal work group ranking
- results of the secondary data using Healthy Communities Institute scoring tools that compared data from similar communities in the nation

TABLE 5: BOONE COUNTY HOSPITAL CENTER VS. BOONE COUNTY COMMUNITY STAKEHOLDERS & HEALTHY COMMUNITY INSTITUTE RANKINGS			
RANK	BOONE HOSPITAL CENTER RANKING	BOONE COUNTY COMMUNITY STAKEHOLDERS RANKING	HEALTH COMMUNITY INSTITUTE
1	Heart & Vascular: Heart Health	Access: Coverage	Depression: Medicare Population
2	Diabetes	Mental Health/Substance Abuse	Food Insecure Children Likely Ineligible for Assistance
3	Mental/Behavioral Health: Substance Abuse	Injury and Violence	Severe Housing Problems
4	Cancer: Breast	Coordination of Care	Breast Cancer Incidence Rate
5	Cancer: Lung	Dental Care	Food Insecurity Rate
6	Obesity	Healthy Lifestyle	Osteoporosis: Medicare Population
7	Access to Care: Coverage	Diabetes	Adults who Drink Excessively
8	Cancer: Colorectal	Health Literacy	Fast Food Restaurant Density
9	Cancer: Prostate	Cultural Literacy	People Living Below Poverty Level
10	Coordination of Care	Obesity	SNAP Certified Stores
11	Cancer: Skin	Heart/Vascular Health	Chlamydia Incidence Rate: Females 15-19
12	Healthy Lifestyle	Reproductive/Sexual Health	Alcohol-Impaired Driving Deaths
13	Health Literacy	Cancer: Colorectal	Colorectal Cancer Incidence Rate
14	Asthma/COPD	Cancer: Skin	Diabetic Monitoring: Medicare Population
15	Reproductive/Sexual Health	Cancer: Lung	Alzheimer's Disease or Dementia: Medicare Population
16	Cultural Literacy	Asthma/COPD	Persons with Disability Living in Poverty (5-year)
17		Cancer: Breast	Oral Cavity and Pharynx Cancer Incidence Rate
18		Cancer: Prostate	Children with Low Access to a Grocery Store

- Diabetes; Substance Abuse; Breast Cancer; Colorectal Cancer; and Reproductive/Sexual Health; were health needs ranked by all three groups.
- The focus group and internal work group listed the following needs: Heart & Vascular: Heart Health; Lung Cancer; Obesity; Access to Care: Coverage; Prostate Cancer; Coordination of Care; Skin Cancer; Healthy Lifestyle; Healthy Literacy; Asthma/COPD; and Cultural Literacy.

Summary

The workgroup reviewed the outcomes from the 2016 implementation plan to address Obesity. The Head-to-Toe/Family Wellness program was discontinued due to insufficient enrollment and the Kids on Track program experienced its lowest enrollment during past 3 years. And after a thorough review of the ranking, the group felt they were well equipped to address Heart and Vascular Disease as well as Diabetes. These two needs were ranked as first and second by the internal work group. Diabetes is also part of BJC HealthCare strategic direction for the next five years. Therefore, the team decided that Heart and Vascular Disease and Diabetes should be their focus. The team will continue to work on programs that will address Obesity, however at this point, Obesity will not be part the implementation plan. As a result, the workgroup agreed to discontinue Obesity as a CHNA priority for 2019.

At the conclusion of the comprehensive assessment process to determine the most critical needs in Boone County, the workgroup concluded that Boone Hospital will focus on Heart/Vascular Disease and Diabetes.

APPENDICES

APPENDIX A: ABOUT BOONE HOSPITAL CENTER

Boone Hospital Center is a 392-bed full-service hospital located in Columbia, Missouri. It is a regional referral center located in the center of the state. The hospital provides progressive healthcare programs, services, and technology to people in 25 mid-Missouri counties.

Although the hospital is full service, areas in which Boone Hospital Center excels are cardiology, neurology, oncology, surgical, obstetrical services, and numerous other specialties. The hospital maintains a 24-hour emergency center with hospital-based ambulance service and a helipad for incoming emergency air transportation. The hospital employs over 1,700 on its staff and 350 physicians on the medical staff.

Boone Hospital Center is a leader in providing the latest technology, including an innovative surgery center offering progressive endoscopic and laser surgery procedures. The hospital provides numerous community educational lectures and events, centering on disease prevention and wellness.

To help community members make healthy lifestyle choices, Boone Hospital Center offers resources and programs that encourage wellness and prevention. Boone Hospital Center's community and corporate outreach services offer screenings, prevention, health literacy and fitness programs to communities in mid-Missouri, partnering with local employers to promote wellness and improve their employees' health.

Boone Hospital Center has been certified as a "Magnet Hospital" three times by the American Nurses Credentialing Center, which places them in the top 1 percent of hospitals worldwide for nursing. From 2015 through 2018, Boone Hospital Center was ranked as the #1 hospital in mid-Missouri by U.S. News & World Report.

In 2017, Boone Hospital provided \$17,342,394.00 in community benefit serving 66,196 persons. This total includes:

- \$12,148,451.00 in financial assistance and means-tested programs serving 15,084 individuals
- 8,457 individuals on Medicaid at a total net benefit of \$5,190,197.00

Boone Hospital also provided a total of \$5,193,943.00 to 51,112 persons in other community benefits including, community health improvement services, subsidized health services and in-kind donations. (See Appendix B for Community Benefit Expenses)

APPENDIX B: BOONE HOSPITAL 2017 COMMUNITY BENEFIT EXPENSES

BOONE HOSPITAL CENTER: 2017 TOTAL NET COMMUNITY BENEFIT EXPENSES		
CATEGORY	PERSONS SERVED	TOTAL NET BENEFIT
FINANCIAL ASSISTANCE AND MEANS-TESTED PROGRAMS		
Financial Assistance at Cost	6,627	\$6,958,254
Medicaid	8,457	\$5,190,197
TOTAL FINANCIAL ASSISTANCE AND MEANS-TESTED PROGRAMS	15,084	\$12,148,451
OTHER COMMUNITY BENEFITS		
Community Health Improvement Services	16,231	\$693,013
Health Professional	86	\$3,109
Subsidized Health Services	34,795	\$3,924,076
In-Kind Donation		\$573,745
TOTAL OTHER COMMUNITY BENEFITS	51,112	\$5,193,943
GRAND TOTAL	66,196	\$17,342,394

APPENDIX C: BOONE COUNTY DEMOGRAPHIC

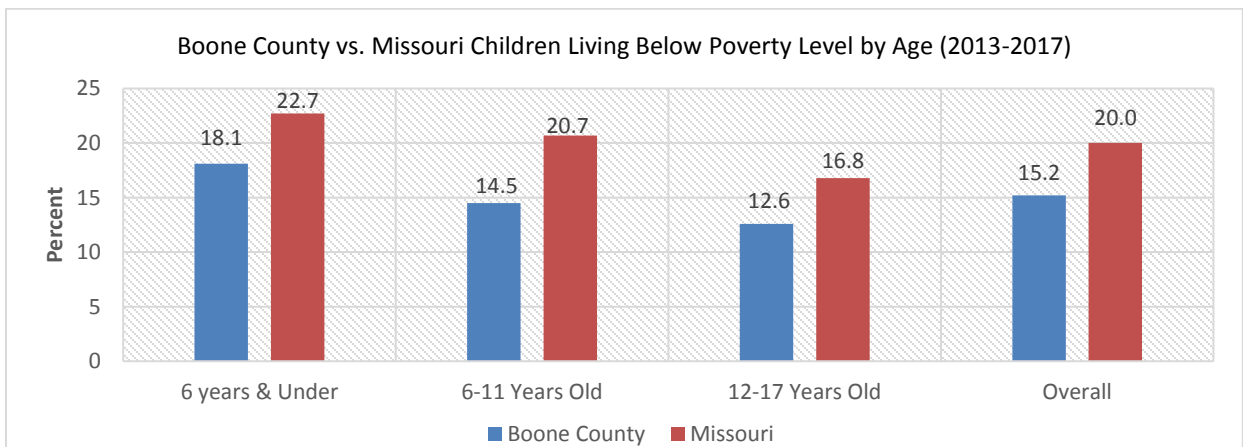
DEMOGRAPHIC OF BOONE COUNTY VS. MISSOURI		
	BOONE COUNTY	MISSOURI
GEOGRAPHY		
Land area in square miles, 2010	507.80	6,874,1.52
Persons per square mile, 2010	1967.2	87.1
POPULATION		
Population, 2017	178,271	6,113,532
Population, 2010	162,642	5,988,923
Population, Percent Change - 2010 -2017	9.6	2.1
AGE		
Persons Under 5 Years, Percent, 2017	5.9	6.1
Persons Under 18 Years, Percent, 2017	20.3	22.6
Persons 65 Years and over, Percent, 2017	11.8	16.5
GENDER		
Female Person, Person, 2017	51.5	50.9
Male Persons, Percent, 2017	48.5	49.1
RACE / ETHNICITY		
White, Percent, 2017	81.8	83.1
White Alone, not Hispanic or Latino, Percent, 2017	79.0	79.5
African American Alone, Percent, 2017	9.6	11.8
Asian Alone, Percent, 2017	5.0	2.1
Hispanic or Latino, Percent, 2017	3.4	4.2
Two or More Races, Percent, 2017	3.1	2.3
American Indian and Alaska Native alone, Percent, 2017	0.4	0.6
Native Hawaiian and Other Pacific Islander Alone, Percent, 2017	0.1	0.1
LANGUAGE		
Foreign Born Persons, Percent, 2013-2017	6.0	4.0
Population Age 5+ with Language Other than English Spoken at Home	7.5	6.0

Source: US Census Bureau

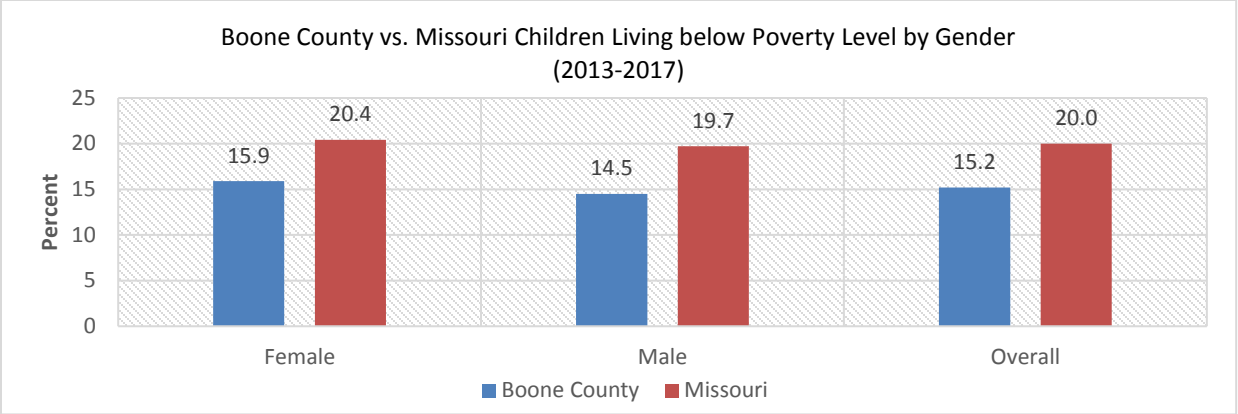
BOONE COUNTY DEMOGRAPHIC INCLUDING EDUCATION / INCOME / HOUSING VS. MISSOURI

	BOONE COUNTY	MISSOURI
EDUCATION		
High School Graduate or Higher, Percent of Persons Age 25+, 2013-2017	93.5	88.8
Bachelor's Degree or Higher, Percent of Persons Age 25+, 2013-2017	45.9	27.6
INCOME		
Per Capita Income, 2013-2017	\$28,495	\$28,282
Median Household Income, 2013-2017	\$52,005	\$51,542
People Living Below Poverty Level, Percent, 2013-2017	18.7	14.6
HOUSING		
Housing Units, 2017	77,399	2,792,506
Homeownership, 2013-2017	50.4	57.8
Median Housing Units Value, 2013-2017	\$177,800	\$145,400
Households, 2013-2017	68,898	2,386,203
Average Household Size 2013-2017	2.4	2.5

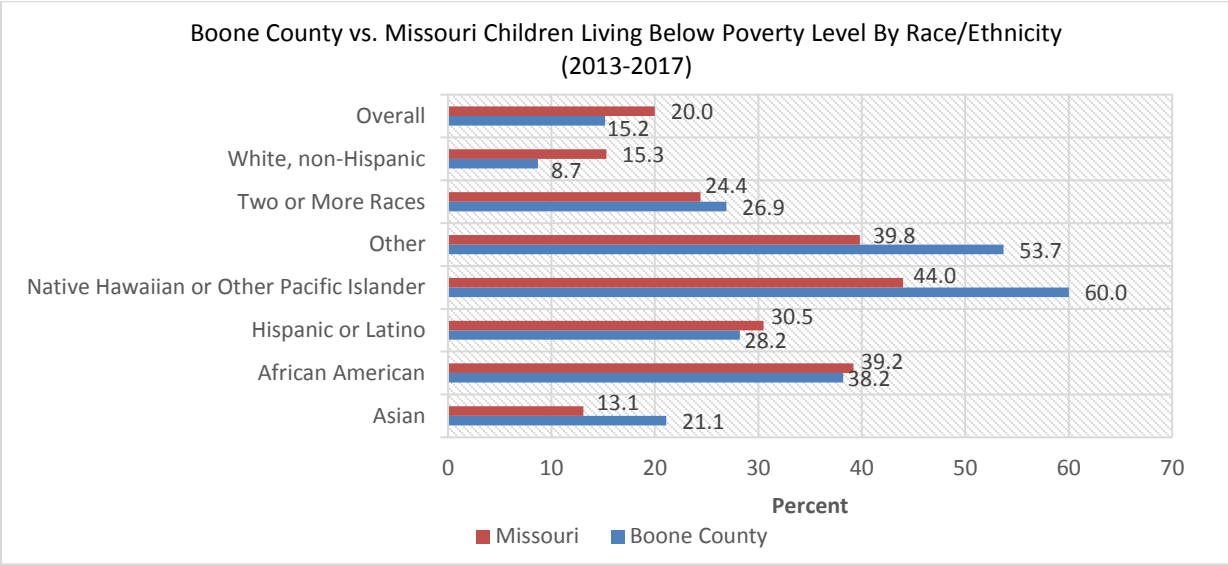
Source: US Census Bureau



Source: Healthy Communities Institute

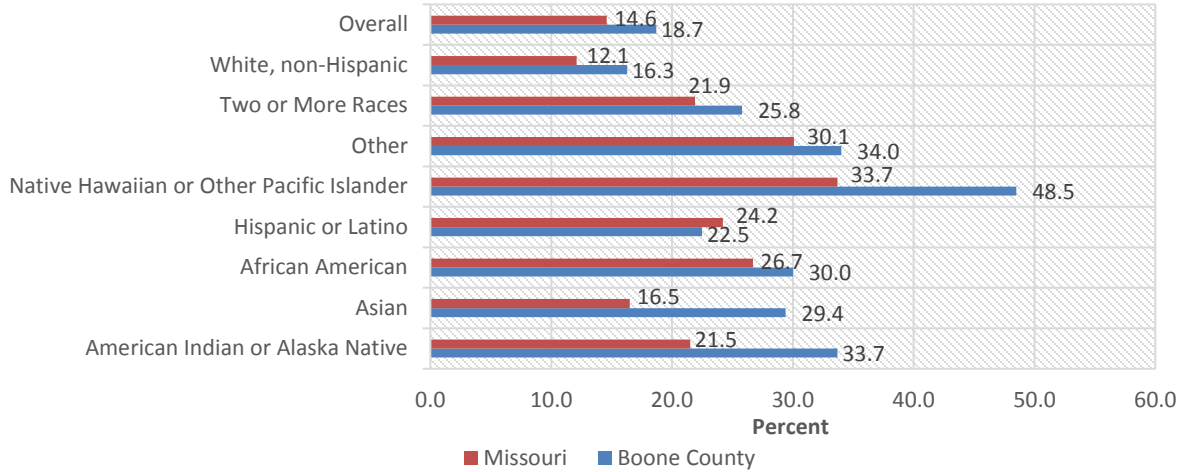


Source: Conduent Healthy Communities Institute



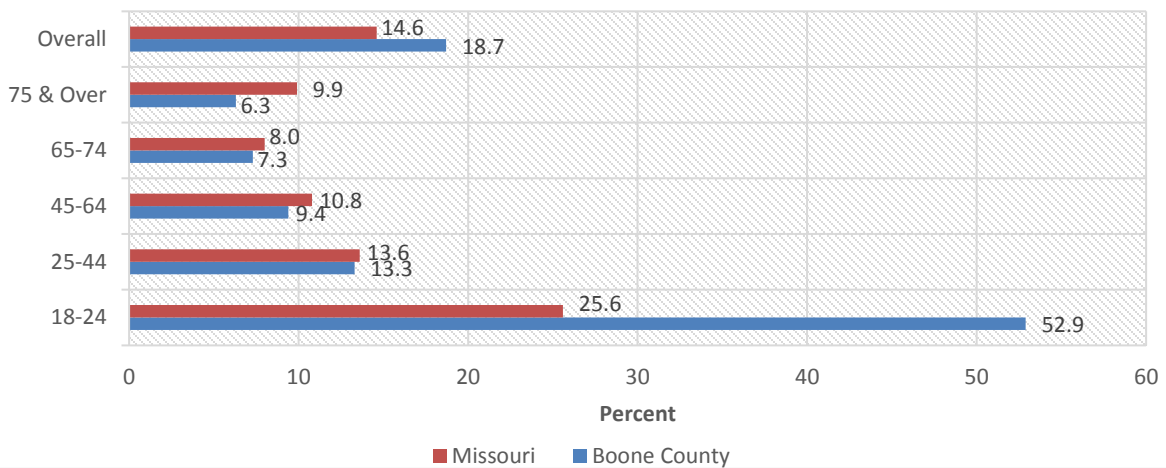
Source: Conduent Healthy Communities Institute

Boone County vs. Missouri People Living Below Poverty Level By Race / Ethnicity (2013-2017)



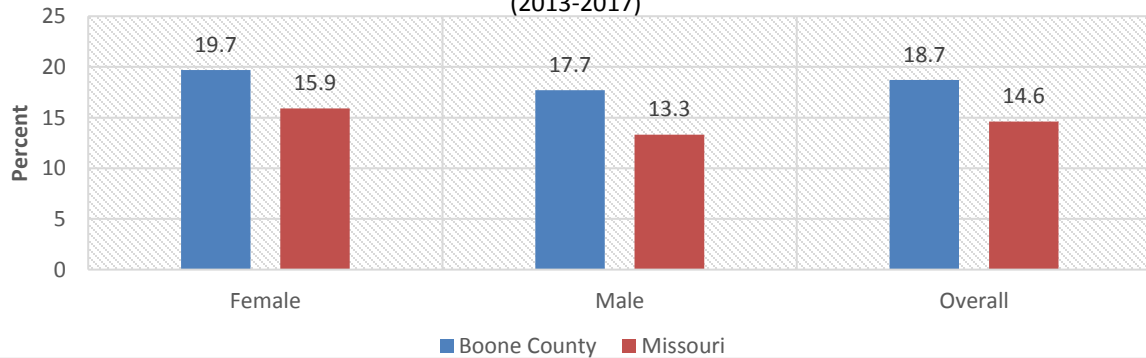
Source: Healthy Communities Institute

Boone County vs. Missouri People Living Below Poverty by Age (2013-2017)



Source: Conduent Healthy Communities Institute

Boone County vs. Missouri People Living Below Poverty Level by Gender (2013-2017)



Source: Conduent Healthy Communities Institute

APPENDIX D: BOONE COUNTY COMMUNITY STAKEHOLDERS FOCUS GROUP REPORT

**PERCEPTIONS OF THE HEALTH NEEDS
OF BOONE COUNTY RESIDENTS
FROM THE PERSPECTIVES OF COMMUNITY LEADERS**

PREPARED BY:

Angela Ferris Chambers
Director, Market Research & CRM
BJC HealthCare

February 20, 2019

TABLE OF CONTENTS

BACKGROUND..... 2

RESEARCH OBJECTIVES 2

METHODOLOGY 3

KEY FINDINGS..... 5

RATING OF NEEDS 10

NEXT STEPS 11

BACKGROUND

In the Patient Protection and Affordable Care Act (PPACA) passed in March 2010, non-profit hospitals were mandated to conduct a community-based health needs assessment (CHNA) every three years. As a part of that process, each hospital is required to solicit input from those who represent the broad interests of the community served by the hospital, as well as those who have special knowledge and expertise in the area of public health and underserved populations.

Boone Hospital Center (BHC) conducted its first assessment in 2013, followed by a second in 2016. The next iteration is due in December 2019.

RESEARCH OBJECTIVES

The main objective of this research is to solicit feedback on the health needs of the community from experts and those with special interest in the health of those served by the hospitals of Boone County.

Specifically, the discussion focused around the following ideas:

- 1) Determine whether the needs identified in the 2016 hospital CHNA are still the right areas on which to focus
- 2) Explore whether there are there any needs on the list that should no longer be a priority
- 3) Determine where there are the gaps in the plans to address the prioritized needs
- 4) Identify other organizations with whom the hospital should consider collaborating
- 5) Discuss what has changed since 2016 when these needs were prioritized, and whether there are new issues to be considered
- 6) Understand what other organizations are doing to impact the health of the community and how those activities might complement the hospitals' initiatives
- 7) Evaluate what issues the stakeholders anticipate becoming a greater concern in the future that we need to consider now

METHODOLOGY

To fulfill the PPACA requirements, BHC conducted a single focus group with public health experts and those with a special interest in the health of Boone County residents. It was held on January 10, 2019, at the hospital in Columbia, MO. The group was facilitated by Angela Ferris Chambers of BJC HealthCare. The discussion lasted about ninety minutes.

Eight individuals representing various Boone County organizations participated in the discussion. (See Appendix)

Jim Sinek, President of Boone Hospital Center, welcomed participants at the beginning of the meeting. Those observing on behalf of the sponsoring hospital were also introduced.

During the group, the moderator reminded the community leaders why they were invited - that their input on the health priorities of the community is needed to help the hospital move forward in this next phase of the needs assessment process.

The moderator shared the demographic and socioeconomic profile of Boone County. Information on the needs prioritized by the hospital in its most recent assessment, and the highlights of the hospital’s implementation plan were also presented during the discussion.

The following health needs (based on the revised nomenclature) were identified in the 2016 hospital CHNA and implementation plan.

Identified Needs	Being Addressed	Not Addressed
Access to care: coverage		X
Asthma/COPD		X
Cancer: breast		X
Cancer: colorectal		X
Cancer: lung		X
Cancer: prostate		X
Cancer: skin		X
Coordination of care		X
Cultural literacy		X
Diabetes		X
Dental health		X
Health literacy		X
Healthy lifestyle		X
Heart and vascular		X
Injury and violence		X
Mental health/substance abuse		X

Obesity	X
Reproductive/sexual health	X

The moderator also shared several pieces of information to help further identify the health needs of Boone County, including:

- the best performing health indicators
- the best performing social determinants of health
- the worst performing health indicators
- the worst performing social determinants of health

Other health indicators were shared describing access to health insurance, access to healthcare providers, and the death rate due to drug poisoning.

At the end of the presentation, the community stakeholders rated the identified needs based on their perceived level of concern in the community, and the ability to collaborate to address them.

KEY FINDINGS

FEEDBACK ON THE NEEDS BEING ADDRESSED:

The details of the need being addressed by BHC (obesity) were reviewed by the moderator.

One stakeholder observed that the **risk and protective factors for obesity** align with those related to substance abuse, mental health, crime and violence. So there are opportunities to collaborate with community partners addressing these other issues and also have a potential impact on obesity.

Another stakeholder mentioned that **disparities around health outcomes** (especially those related to race) should be considered when BHC is identifying the needs to address. She specifically mentioned racial disparities in outcomes related to heart and vascular disease, and diabetes.

NEEDS THAT SHOULD BE REMOVED FROM THE LIST:

Stakeholders agreed that the needs being addressed should remain, and nothing should be removed from the list.

OTHER NEEDS THAT SHOULD BE ADDRESSED:

The data on the **availability of health care providers** is misleading as it is weighted in favor of Columbia and is influenced by the presence of the medical school. Rural communities struggle to attract primary care providers, especially in northern and southern Boone County.

GAPS BETWEEN DEFINED NEEDS AND OUR ABILITY TO ADDRESS THEM:

When it comes to mental health and substance abuse, one stakeholder reflected that there are misunderstandings about how **substance use impacts brain function and decision making**. It affects an individual's ability to make positive choices that impact their physical health. Early intervention will produce better results if substance abuse is caught earlier in the abuse cycle.

Many who need **diagnostic tests** are unable to afford them. This limits the ability of local healthcare providers to catch health issues early and to avoid more acute life-threatening disease. Providers often have to resort to a cheaper way of diagnosing an issue, which may not always be the most effective.

- The stakeholder gave the example of colonoscopy, which is often financially out of reach for many patients. A FIT (fecal immunochemical test) is used instead because it is less expensive, but not always accurate in terms of diagnosing colon cancer.

Another stakeholder reflected that the data suggested that there is a **housing issue** in Boone County. If an individual is struggling with having a safe, affordable place to lay his head, he will be less concerned with maintaining a healthy lifestyle. Although there are homeless shelters in Boone County, there are not enough beds to meet the need. The influx of refugee populations is also contributing to the need for housing.

OTHER ORGANIZATIONS WITH WHOM TO COLLABORATE:

One stakeholder suggested that **Independent Living Center of Mid Missouri** would be an organization to include in future discussions. Their focus is on helping individuals with disabilities to live more independently.

Another suggested that the large mental health providers, **Compass Health Network** and **Burrell Behavioral Health**, be considered as additional organizations with whom to collaborate.

The **Youth Community Coalition (YC2)** was also identified as an organization with which to partner. It includes over 50 organizations who work toward decreasing substance abuse and promoting healthy behaviors among youth in Columbia.

Given that BHC identified obesity as one of its areas of focus, **PedNet** would be a great organization to invite to the table. Their focus is on creating walkable communities and access to bike trails. This stakeholder also suggested partnering with community development organizations who recommend how to integrate residential, commercial and industrial developments to encourage walking and healthy communities.

- At a basic level, one stakeholder noted that some communities do not have access to sidewalks which encourage children and families to play, walk, and know their neighbors in a safe environment.

Another stakeholder suggested that there are opportunities for **future collaborations on policy and advocacy issues** at the local level, as well as at the state and federal level. She would like to see BHC play more of a role in identifying and advocating for local level changes that can improve the health of the community.

Another suggested having access to **BHC emergency department utilization data** to identify individuals who are high utilizers of the system and understand what can be done to recognize their underlying needs.

CURRENT COLLABORATIONS THAT WERE HIGHLIGHTED:

Phoenix Programs received a state-targeted resource grant called “Medication First.” The focus is on providing medication to those dealing with substance abuse to stop the cravings, and then to deal with the issues that are contributing to their addiction. The program has been very effective, but the organization has already spent the funds they were allocated.

The **Housing Authority** mentioned that they service many different populations, including a tower that houses individuals with disabilities, and one for those over age 55. There are many community organizations who provide education to the residents on healthy lifestyles, sponsor diabetes clinics, nail clinics and perform cancer screenings.

The **Health Department** provides many different programs in collaboration with others to improve the health of the community.

- They offer education on sexual health and provide free testing for sexually transmitted diseases to **Phoenix Programs’** patients. Hepatitis C, AIDs and other blood-borne illnesses are a major risk among the population of drug users.
- The Department also promotes healthy food options by sponsoring community gardens, “live-well restaurants” that identify healthy food choices on their menus, and the “Stock Healthy, Shop Healthy” program where they offer healthy food in neighborhood convenience stores where it might not normally be available.
- In addition, the Health Department has a staff member whose focus is on working with African-American church communities to address healthy eating as it affects diabetes, obesity and heart disease. She partners with **Weight Watchers** programs to teach church members how to prepare healthier versions of the meals they enjoy (like baked

chicken versus fried chicken). This program is actually paid for through the Community Health Fund, which is obtained through the BHC lease payment.

- The Department is also working on better integrating behavioral and physical health. The representative mentioned a program that focuses on screening pregnant women for anxiety and depression when they come in for their prenatal care. They are encouraging the primary care providers to evaluate the health of the entire person, not just their physical health needs.
- The Department of Health representative mentioned that they would value a closer relationship with Boone Hospital Center, especially as they develop their five year community health improvement plan. They used to work with Boone to address high utilizers of the emergency department, but that project ended. They would love to re-engage with the hospital on that issue.

The representative of **Boone County Community Health Services** mentioned that the 2017 Annual Report itemizes all of the programs that are offered through the Community Health Fund. These programs represent investment in the health of children and families of Boone County.

Another stakeholder mentioned that the **Hy-Vee** grocery store performs A1c screenings to address diabetes. They also have clinicians and nutritionists on staff to provide education on shopping for healthy food.

CHANGES SINCE THE 2016 CHNA:

The **lack of available mental health (psychiatric) services** is new in the last three years. Even those with health insurance are unable to access services, due the limited number of available providers.

The **opioid crisis** was also not discussed three years ago. Access to Suboxone and physicians who can/will prescribe it are also new conversations.

Since the last focus group, the **life expectancy of Americans** has actually gone down nationally.

Insurance payment changes have impacted the ability of some individuals to receive services. High deductible marketplace insurance plans have impacted how health care providers treat patients. Restrictive changes in Medicaid coverage for pregnant women have impacted the timing of when dating ultrasounds are performed so as not to burden the mother with a high bill.

The **PDMP** (prescription drug monitoring program) has been rolled out in Boone County as a way to help address the opioid crisis.

The Community Health Fund has supported the **Look Around Boone** campaign to raise awareness of, and destigmatize mental health issues, particularly among youth.

HEALTH CONCERNS FOR THE FUTURE:

The passage of legislation to allow the **dispensation of medical marijuana** is a concern among several of the stakeholders. Because it is now legal, more people may be using it. This increased access may mean that individuals may begin using it at a younger age. People who begin using at a lower age “means more years of very expensive chronic illness.”

- Not only is there concern about increased access due to its legalization, but also concern about its normalization. In every state where they have made medical marijuana legal, another bill is ultimately introduced to legalize recreational marijuana. The stakeholders were concerned about youth and adolescents having easier access to the drug.

Juuling and the use of e-cigarettes are also new issues that have raised much concern about their impact on the health of children. There is a feeling that if the health community does not get ahead of this issue, there may be dire consequences. Another mentioned that the legislative effort to support and pass Tobacco 21 includes e-cigarettes, which they viewed as a positive thing. This is a local Columbia ordinance to raise the age to purchase tobacco to 21.

The **lack of Medicaid expansion** continues to be a concern. Several stakeholders reported that other states have utilized Medicaid waivers to work on issues like housing.

Inequality related to access and health outcomes, particularly by race, appears to some to be worsening. Where people live has been shown to be linked to their health outcomes.

There is an increased awareness that **natural disasters** seem to have become more intense. Those who already struggle with housing appear to be more greatly affected because they live in less expensive areas which do not always have redundant systems to protect them. Emergency preparedness would help, but mitigation – getting people out of those disaster-prone areas, or by giving them redundant systems – would be even better.

Putting an increased focus on **prevention** is a concern, as it is much more cost effective than intervention and treatment. The Phoenix Program representative referred to the 2019 Surgeon’s General report on addiction that indicated for every \$1 spent, some programs save as much as \$64 on treatment and incarceration costs.

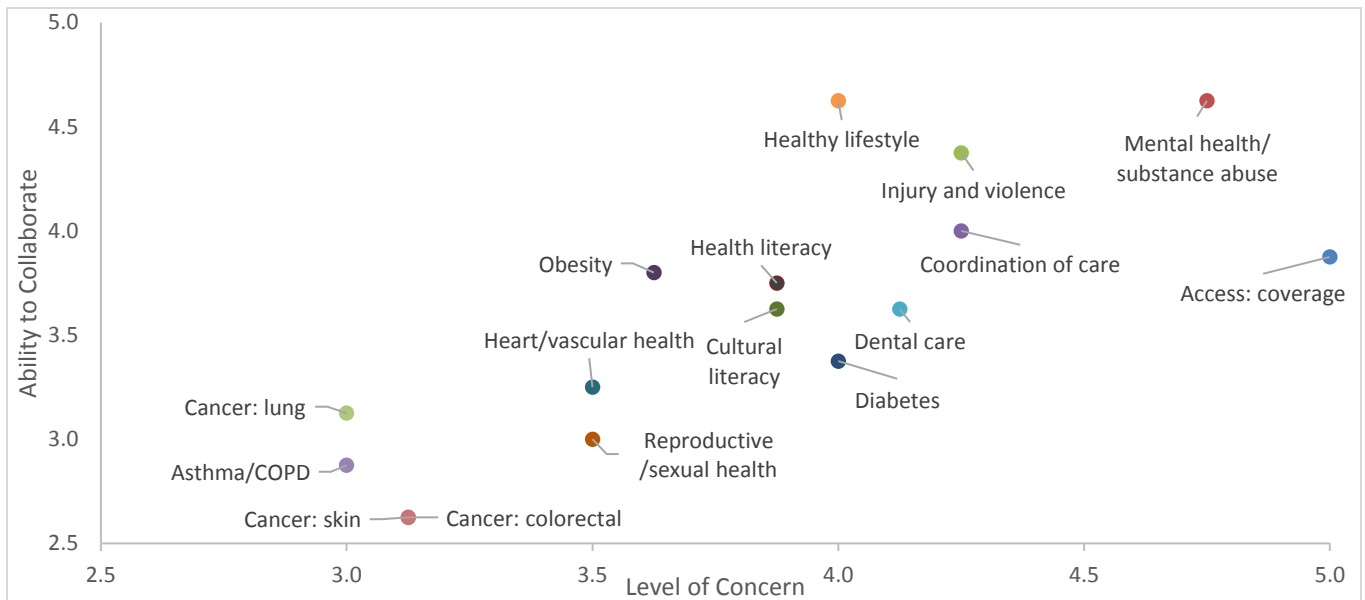
- She specifically referred to the **alcohol outlet density** which is a predictor of higher levels of crime, violence and alcohol use disorders. Columbia has the most alcohol outlets per capita and is the “drunkiest city” in the state.
- She suggested that there is an opportunity to support increased messaging on substance use issues and partner with the **Wellness Resource Center** at the University.

One stakeholder would like to see Boone Hospital Center increase their **advocacy for local ordinances** that would improve the health of the community.

They would also like to see Boone Hospital Center address those who are **high utilizers of the health care system**, especially in the emergency department. They have partnerships with other organizations to look at this issue through the lens of criminal justice and homelessness, but would like to partner with BHC to look at healthcare utilization to be able to identify those who are most in need and to prioritize resources.

RATING OF NEEDS

Participants rated the needs identified in the 2016 assessment on a scale of 1 (low) to 5 (high), based on their **perceived level of community concern** and the **ability of community organizations to collaborate around them**.



The issues of **access to insurance coverage** was rated the highest in terms of level of concern. Concerns about **mental health/substance abuse** were not far behind, but rated highest in **ability to collaborate**.

Health Need	Level of Concern	Ability to Collaborate
Access: coverage	5.0	3.9
Mental health/ substance abuse	4.8	4.6
Injury and violence	4.3	4.4
Coordination of care	4.3	4.0
Dental care	4.1	3.6
Healthy lifestyle	4.0	4.6
Diabetes	4.0	3.4
Health literacy	3.9	3.8
Cultural literacy	3.9	3.6
Obesity	3.6	3.8
Heart/vascular health	3.5	3.3
Reproductive /sexual health	3.5	3.0
Cancer: colorectal	3.1	2.6
Cancer: skin	3.1	2.6
Cancer: lung	3.0	3.1
Asthma/COPD	3.0	2.9
Cancer: breast	3.0	2.8
Cancer: prostate	3.0	2.6

NEXT STEPS

Using the input received from community stakeholders, Boone Hospital Center will consult with its internal workgroup to evaluate this feedback. They will also consider other secondary data, and determine whether/how their priorities should change. The final needs assessment and implementation plan is due by December 31, 2019.

APPENDIX E: BOONE COUNTY COMMUNITY STAKEHOLDERS FOCUS GROUP PARTICIPANTS AND BOONE HOSPITAL OBSERVERS

BOONE COUNTY COMMUNITY STAKEHOLDERS FOCUS GROUP PARTICIPANTS

LAST NAME	FIRST NAME	ORGANIZATION	ATTENDED
Estes	Rebecca	Department of Health & Human Services	X
Harlan	Heather	Phoenix Programs	X
Hollis	Steve	Department of Health & Human Services	x
Kelly	Jack	Family Health Center	x
Osborne	Lori	Columbia Public Schools	
Mark	Becky	Columbia Housing Authority	x
Schouten	Loretta	Youth Empowerment Zone	x
Starr	Amy	Veteran United	x
Wehner	Kevin	Central Missouri Community Action	
Wallis	Kelly	Boone County Community Services	X

BOONE HOSPITAL CENTER OBSERVERS

LAST NAME	FIRST NAME	ORGANIZATION	ATTENDED
Jessica	Parks	Boone Hospital Center	x
Sinek	Jim	Boone Hospital Center	X
Zimmerman	Jeff	Boone Hospital Center	x
Smith	Lorie	Boone Hospital Center	x
Karley	King	BJC HealthCare	X

APPENDIX F: BOONE HOSPITAL INTERNAL WORKGROUP

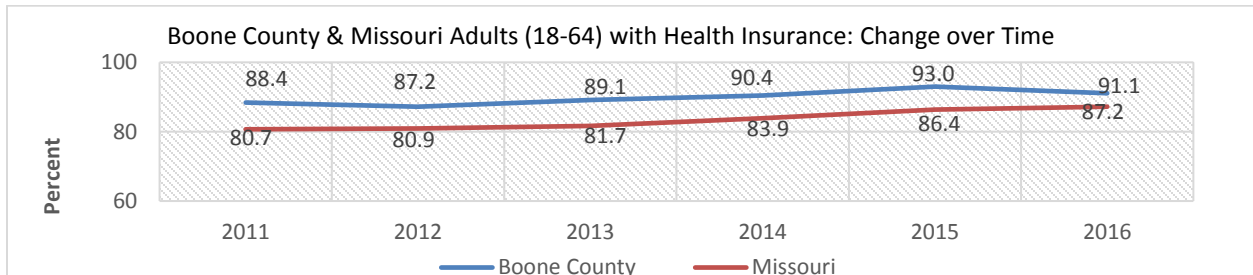
BOONE HOSPITAL CENTER: 2019 CHNA INTERNAL WORKGROUP			
LAST NAME	FIRST NAME	TITLE	DEPARTMENT
Barnes	Sherri	Manager	Women's and Children's Health
Begemann	Amy	Service Line Director	Cardiology and Cardiovascular/Thoracic Surgery
Brower	Cherrie	Manager	Home Care and Hospice
Eikel	Liz	Manager	Admissions and Social Work
Park	Jessica	Communications Consultant II	Marketing & Public Relations
Balsley	Anne	Nurse Navigator	Oncology/Neurology
Smith	Lorie	Business Development Consultant	Community Outreach/Business Development
Zimmermann	Jeff	Manager	Community Outreach/Business Development
Wegner	Erin	Marketing Consultant I	Marketing & Public Relations
Anderson	Jennifer	Supervisor	Diabetes Education & Nutrition

APPENDIX G: SECONDARY DATA

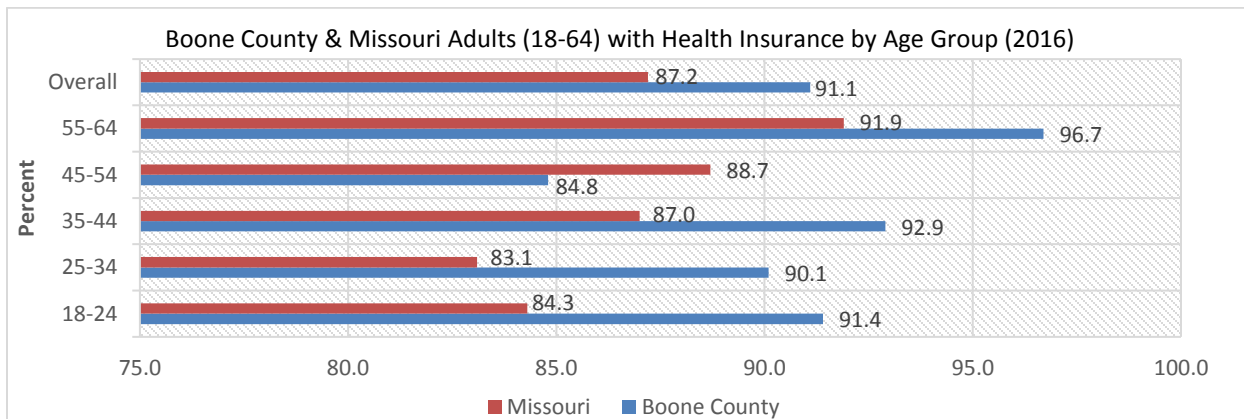
ACCESS TO HEALTH CARE

BOONE COUNTY ACCESS TO HEALTH CARE		
HEALTH INDICATORS	BOONE COUNTY	MISSOURI
Percent Adults with Health Insurance Age 19-64 (2017)	88.9	86.8
Percent Children with Health Insurance (2017)	95.5	94.9
Primary Care Providers Rate / 100,000 (2016)	109	71
Dentist Rate/100,000 (2017)	65	57
Mental Health Providers Rate/100,000 (2018)	3314	170
Non-Physicians Primary Care Providers Rate / 100,000 (2018)	134	87
Preventable Hospital Stays: Medicare Population / 1000 (2015)	37.6	56.6

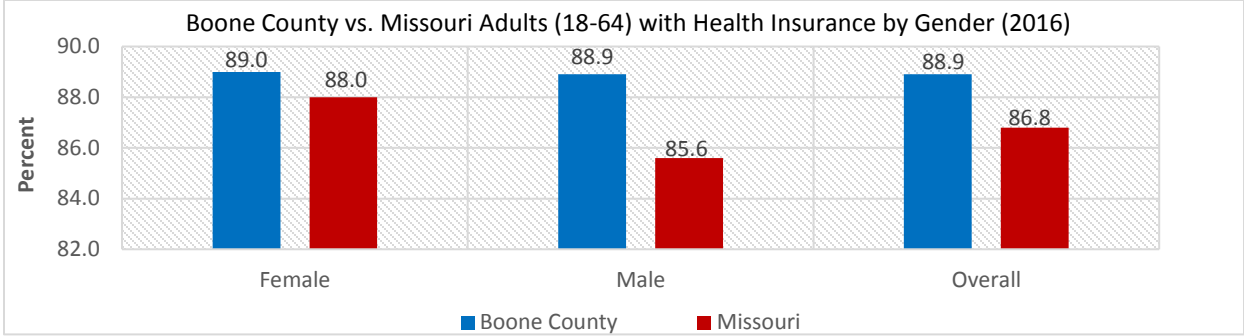
Source: Conduent Healthy Communities Institute/ County Health Ranking



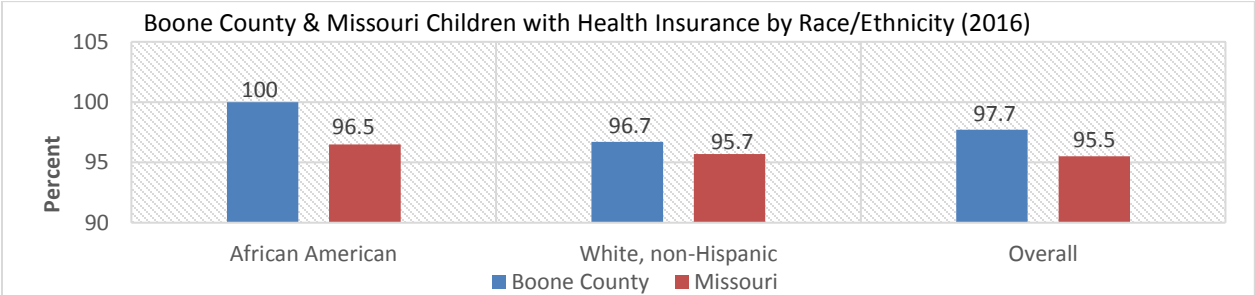
Source: Conduent Healthy Communities Institute



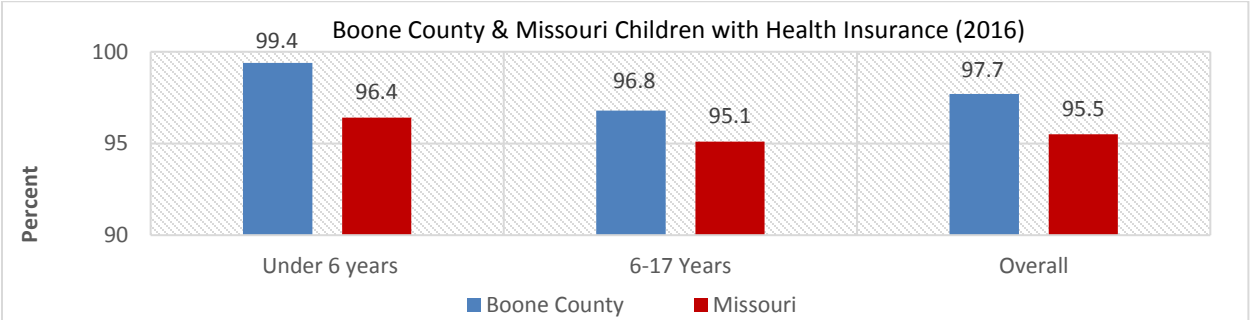
Source: Conduent Healthy Communities Institute



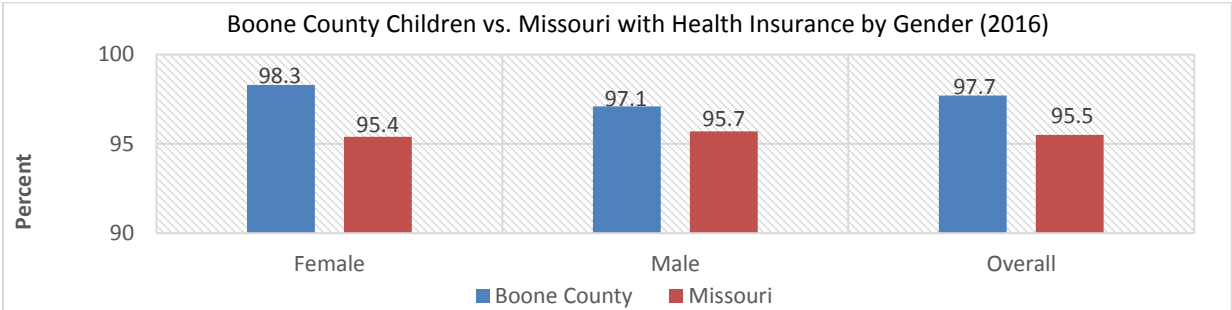
Source: Conduent Healthy Communities Institute



Source: Conduent Healthy Communities Institute



Source: Conduent Healthy Communities Institute



Source: Conduent Healthy Communities Institute

ACCESS: TRANSPORTATION

ACCESS: TRANSPORTATION		
HEALTH INDICATORS	BOONE COUNTY	MISSOURI
Percent Households without a Vehicle (2013-2017)	6.0	7.0
Percent Workers Commuting by Public Transportation (2013-2017)	1.1	1.5
Mean Travel Time to Work; Age 16+ (2013-2017)	17.9 Minutes	23.5 Minutes

Source: Conduent Healthy Communities Institute

ASTHMA

BOONE COUNTY VS. MISSOURI ASTHMA RATES		
HEALTH INDICATORS	BOONE COUNTY	MISSOURI
Asthma Death / 100,000 Population (2007-2017)	0.98*	1.1
Asthma Hospitalizations /10,000 Population (2011-2015)	10.45	11.27
Asthma Emergency room Visits / 10,000 Population (2011-2015)	4.09	5.39

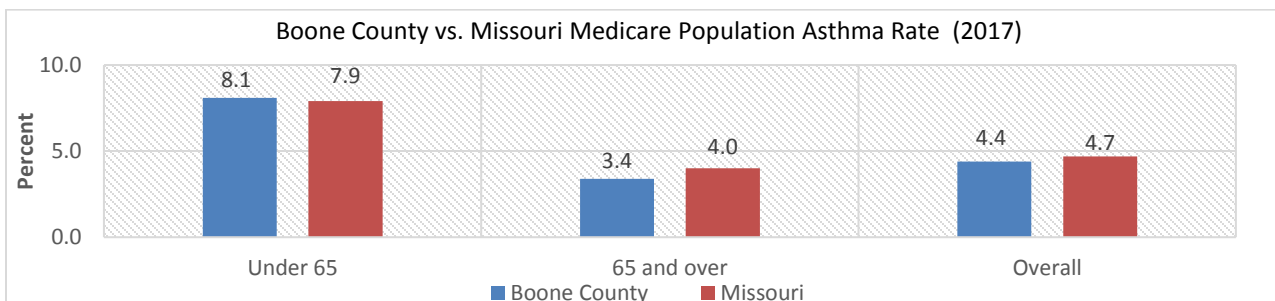
Source: Missouri Health Department & Senior Services

* Fewer than 20 events in numerator; rate is unreliable.

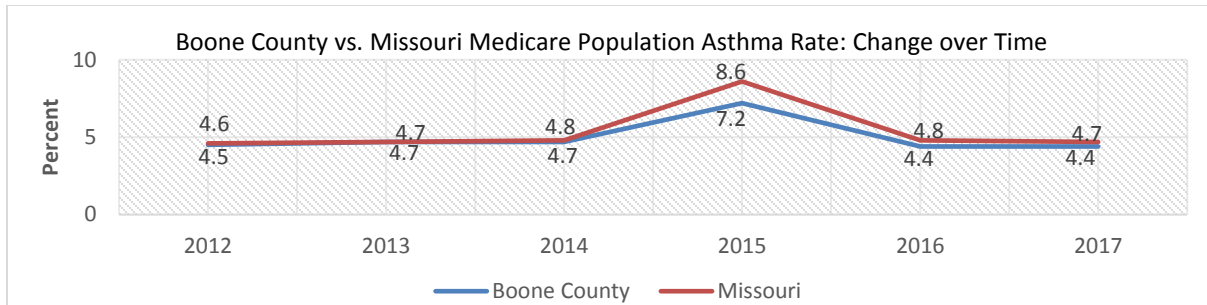
BOONE COUNTY VS. MISSOURI THREE-YEAR MOVING ASTHMA AVERAGE RATE						
HEALTH INDICATORS	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI
	2011-2013		2012-2014		2013-2015	
Asthma Hospitalizations /10,000 population	10.27	11.74	11.11	11.44	10.76	10.65
Asthma Emergency Room Visits/ 1000 population	3.8	5.39	3.99	5.47	4.24	5.34

Source: Missouri Health Department & Senior Services

Trend Analysis for asthma deaths was not displayed because at least one of the 3-year period of the moving average has fewer than 20 events.



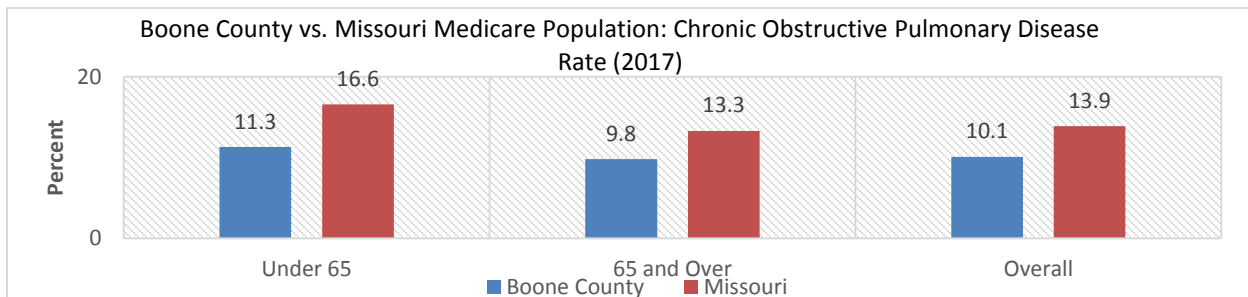
Source: Conduent Healthy Communities Institute



Source: Conduent Healthy Communities Institute

BOONE COUNTY vs. MISSOURI ASTHMA RATE BY RACE/ ETHNICITY				
HEALTH INDICATORS	WHITE		AFRICAN AMERICAN	
	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI
Death / 100,000 (2007-2017)	0.91*	0.83	2.20*	3.08
Hospitalizations / 10,000 (2011-2015)	7.7	7.13	28.17	35.59
Emergency Room Visits / 1,000 (2011-2015)	2.56	3.02	14.21	18.16

Source: Missouri Health Department & Senior Services



Source: Conduent Healthy Communities Institute

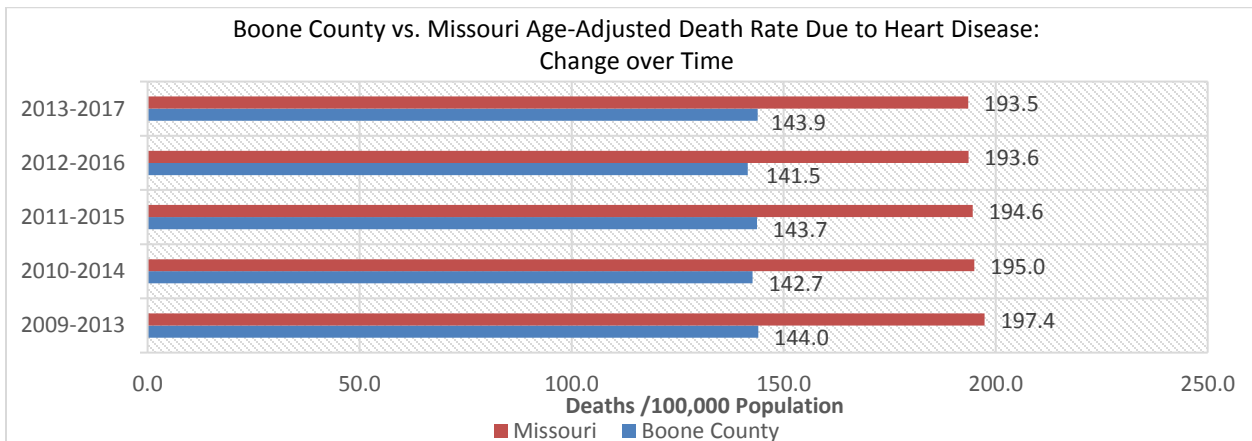
BOONE COUNTY VS. MISSOURI & U.S. RESPIRATORY DISEASES RATE			
HEALTH INDICATORS	BOONE COUNTY	MISSOURI	U.S.
Percent Adults with Current Asthma (2016)	10	9.7	9.3
Age-Adjusted Death Rate due to Chronic Lower Respiratory Disease /100,000 Population (2013-2017)	36.7	51.9	41.1
Asthma: Medicare Population in Percent (2015)	4.4	4.7	5.1

Source: Missouri Health Department & Senior Services

Heart and Vascular Health

BOONE HOSPITAL CENTER VS. MISSOURI HEART DISEASE & STROKE AGE-ADJUSTED RATE		
HEALTH TOPICS	BOONE COUNTY	MISSOURI
HEART DISEASE		
Deaths / 100,000 (2007-2017)	145.42	199.32
Hospitalizations / 10,000 (2011-2015)	80.97	109.46
Emergency Room Visits / 1,000 (2011-2015)	11.91	15.12
ISCHEMIC HEART DISEASE		
Deaths / 100,000 (2007-2017)	78.79	124.16
Hospitalizations / 10,000 (2011-2015)	25.15	32.53
Emergency Room Visits / 1,000 (2011-2015)	0.13	0.57
STROKE / OTHER CEREBROVASCULAR DISEASE		
Deaths / 100,000 (2007-2017)	41.35	43.02
Hospitalizations / 10,000 (2011-2015)	23.14	27.85
Emergency Room Visits / 1,000 (2011-2015)	0.43	0.77

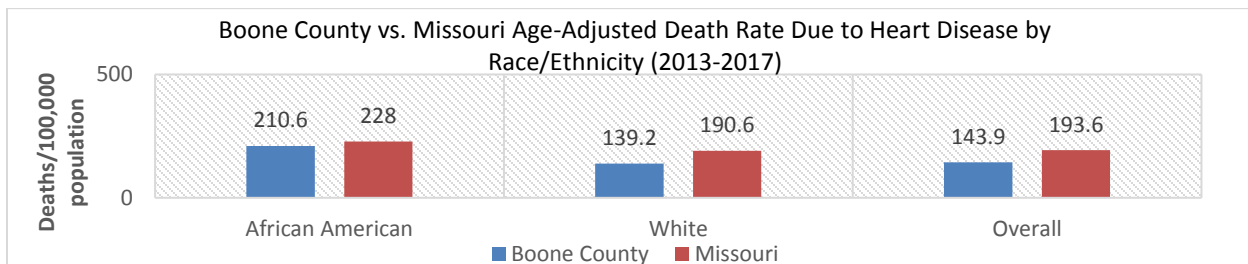
Source: Missouri Department of Health & Senior Services (MICA)



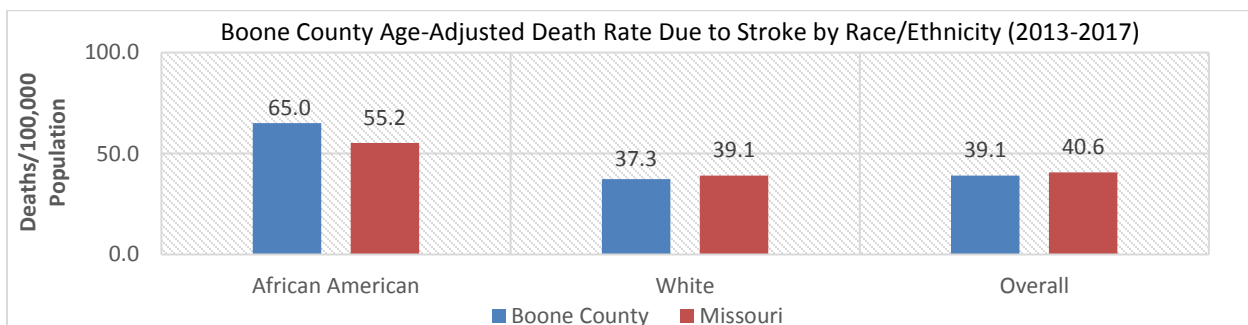
Source: Conduent Healthy Communities Institute

BOONE HOSPITAL CENTER VS. MISSOURI HEART DISEASE & STROKE AGE-ADJUSTED RATE BY RACE / ETHNICITY				
	WHITE		AFRICAN AMERICAN	
HEALTH INDICATORS	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI
HEART DISEASE				
Deaths / 100,000 (2007-2017)	140.64	196.24	227.7	235.6
Hospitalizations / 10,000 (2011-2015)	75.99	102.13	139.29	164.99
Emergency Room Visits / 1,000 (2011-2015)	10.67	13.48	24.93	25.7
ISCHEMIC HEART DISEASE				
Deaths / 100,000 (2007-2017)	76.71	123.1	122.75	141.23
Hospitalizations / 10,000 (2011-2015)	24.64	32.06	31.1	33.04
Emergency Room Visits / 1,000 (2011-2015)	0.12	0.59	0.18*	0.35
STROKE / OTHER CEREBROVASCULAR DISEASE				
Deaths / 100,000 (2007-2017)	39.44	41.62	63.86	56.71
Hospitalizations / 10,000 (2011-2015)	21.91	25.66	35.68	44.57
Emergency Room Visits / 1,000 (2011-2015)	0.41	0.77	0.67	0.69

Source: Missouri Department of Health & Senior Services (MICA)



Source: Conduent Healthy Communities Institute

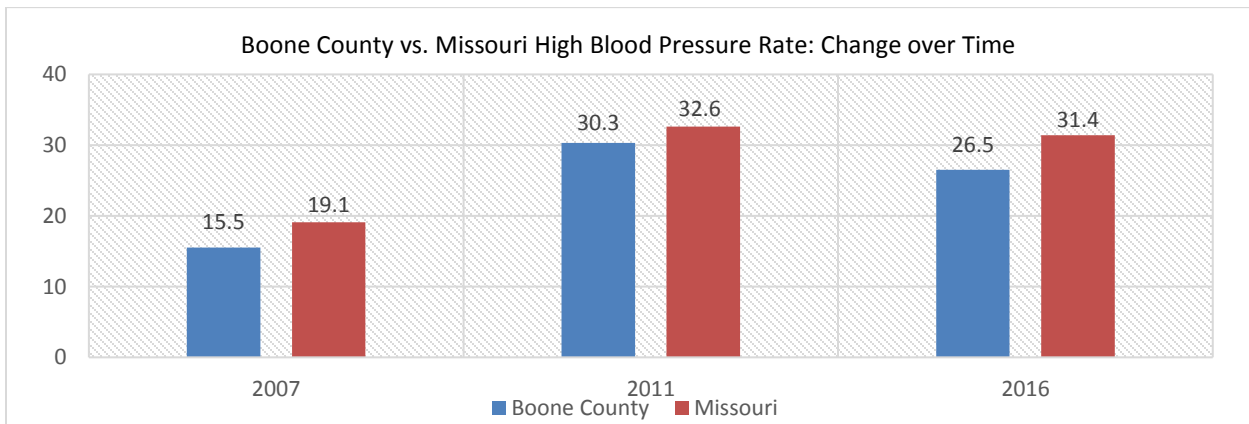


Source: Conduent Healthy Communities Institute

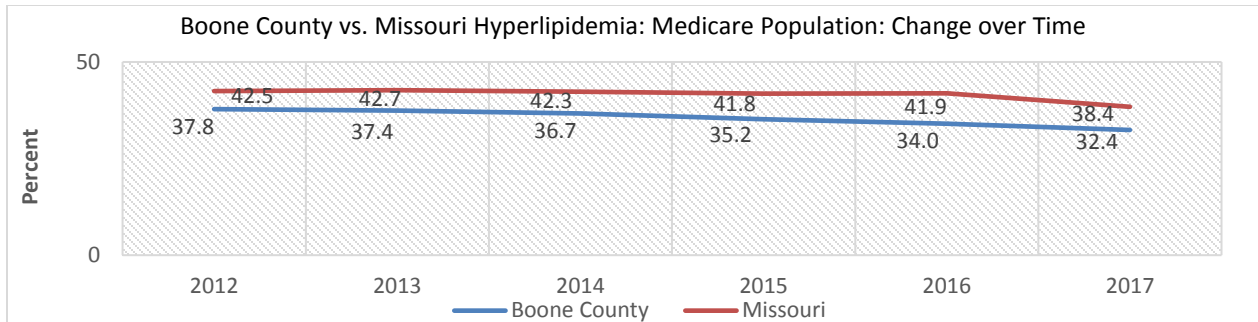
BOONE HOSPITAL CENTER VS. MISSOURI HEART DISEASE & STROKE THREE-YEAR MOVING AVERAGE RATES

	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI
DEATHS / 100,000	2013-2015		2014-2016		2015-2017	
Heart Disease	146.87	194.78	141.69	194.15	144.6	193.5
Ischemic Heart Disease	69.86	114.21	72.31	111.17	71.53	108.36
Stroke / Other Cerebrovascular Disease	37.33	40.56	39.05	40.55	39.59	40.65
HOSPITALIZATIONS / 10,000	2011-2013		2012-2014		2013-2015	
Heart Disease	88.27	115.58	80.88	108.12	73.04	102.68
Ischemic Heart Disease	29.17	34.89	24.3	31.91	20.83	30.04
Stroke / Other Cerebrovascular Disease	23.87	28.44	23.35	27.47	22.54	27.16
EMERGENCY ROOM VISITS / 1,000	2011-2013		2012-2014		2013-2015	
Heart Disease	12.14	15.25	11.85	15.1	11.67	14.97
Ischemic Heart Disease	0.13	0.6	0.11	0.57	0.12	0.54
Stroke / Other Cerebrovascular Disease	0.39	0.78	0.43	0.76	0.47	0.75

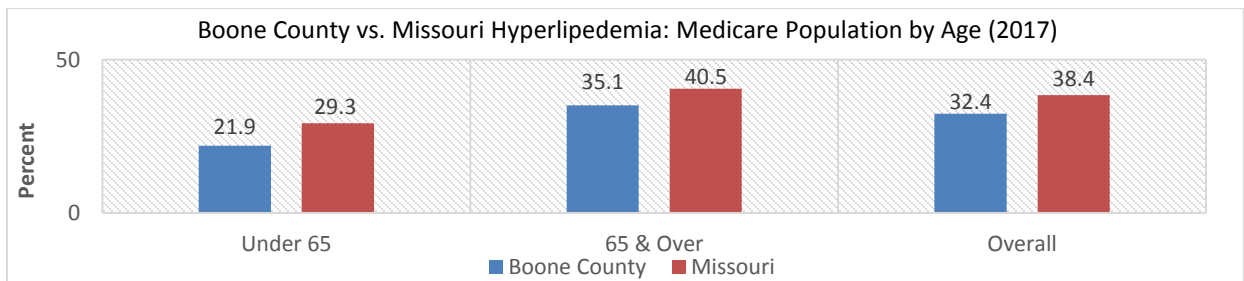
Source: Missouri Department of Health & Senior Services (MICA)



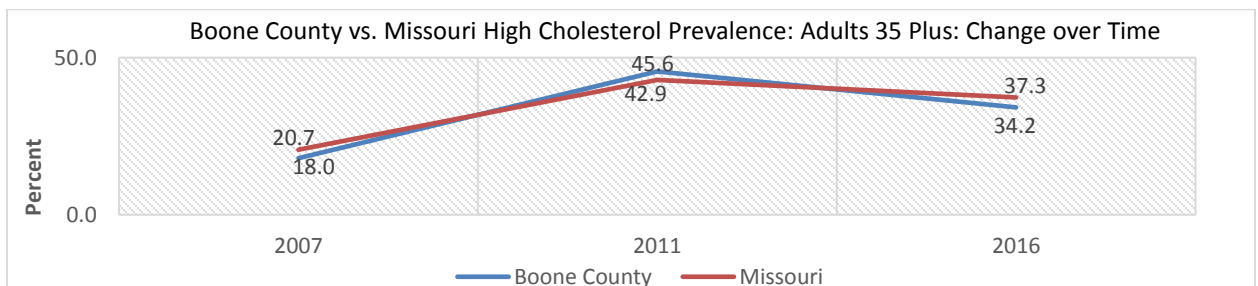
Source: Conduent Healthy Communities Institute



Source: Conduent Healthy Communities Institute

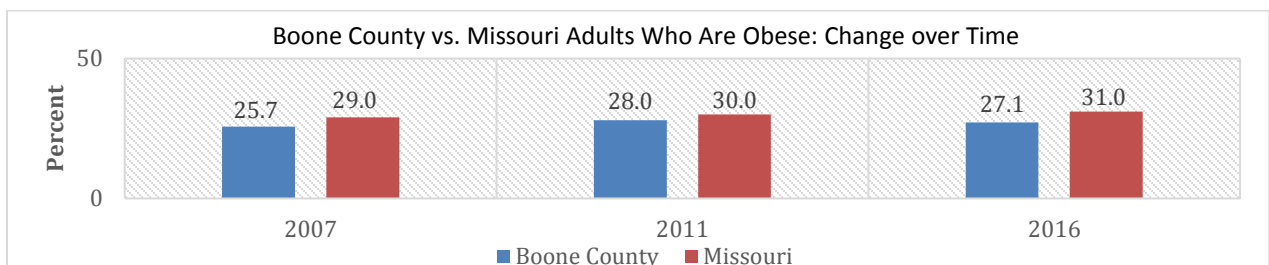


Source: Conduent Healthy Communities Institute

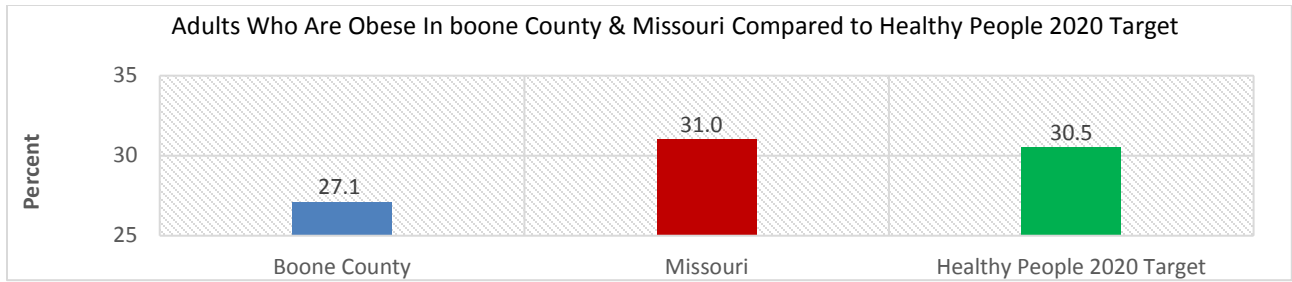


Source: Healthy Communities Institute

OBESITY

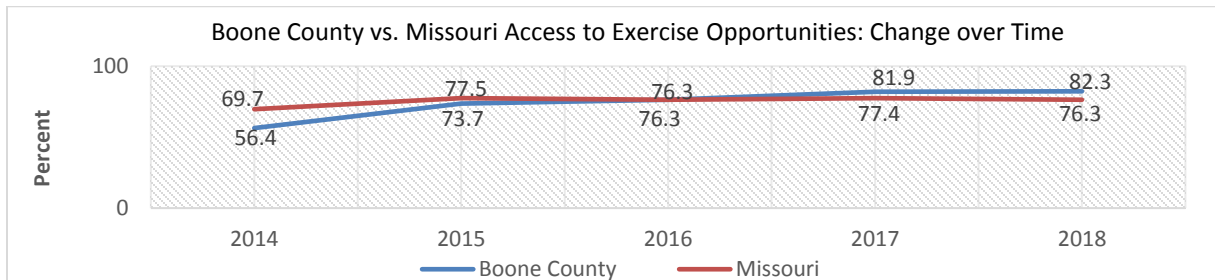


Source: Conduent Healthy Communities Institute

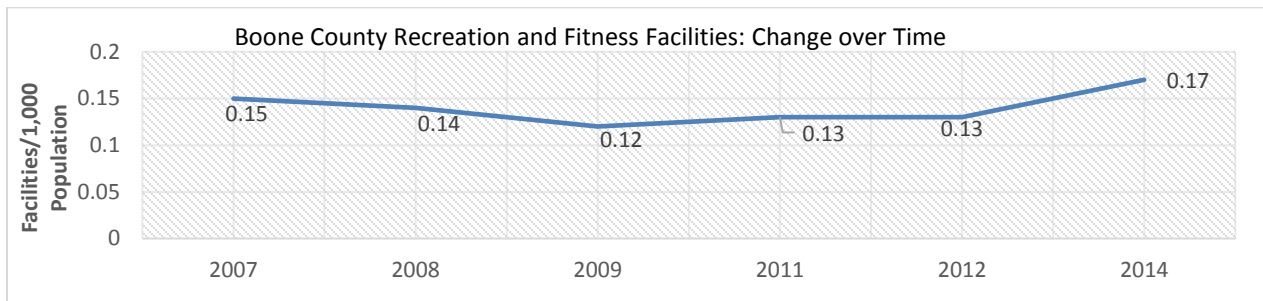


Source: Conduent Healthy Communities Institute

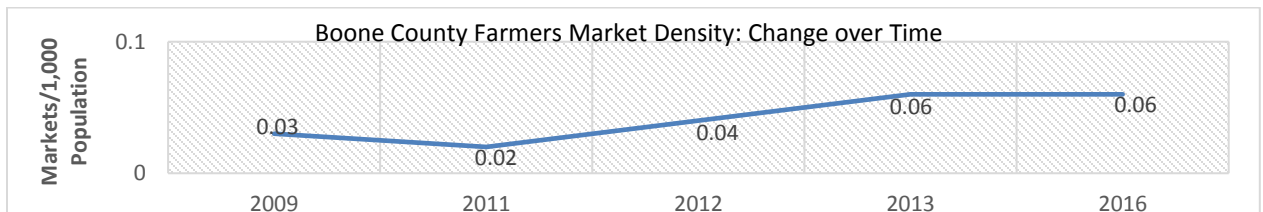
HEALTHY LIFESTYLE



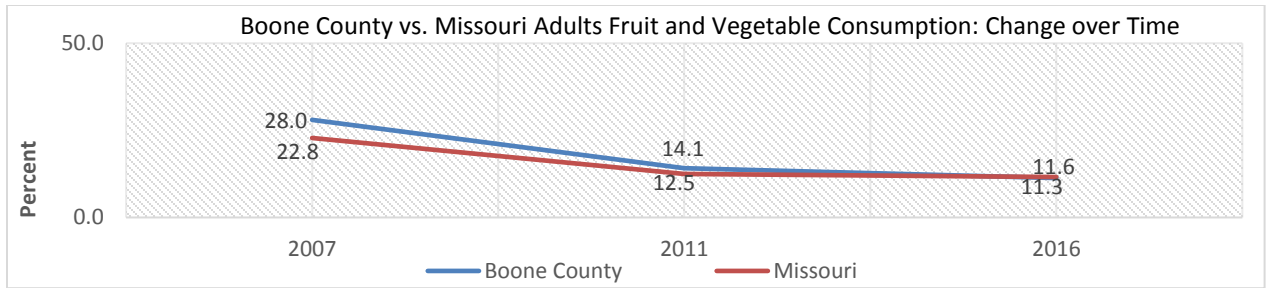
Source: Conduent Healthy Communities Institute



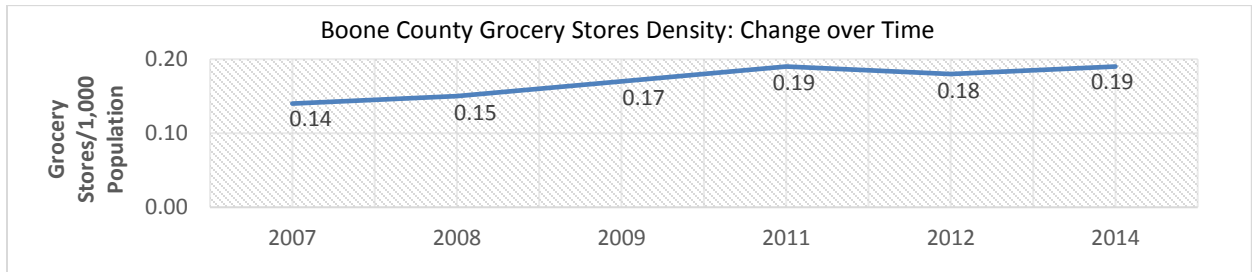
Source: Conduent Healthy Communities Institute



Source: Conduent Healthy Communities Institute



Source: Conduent Healthy Communities Institute

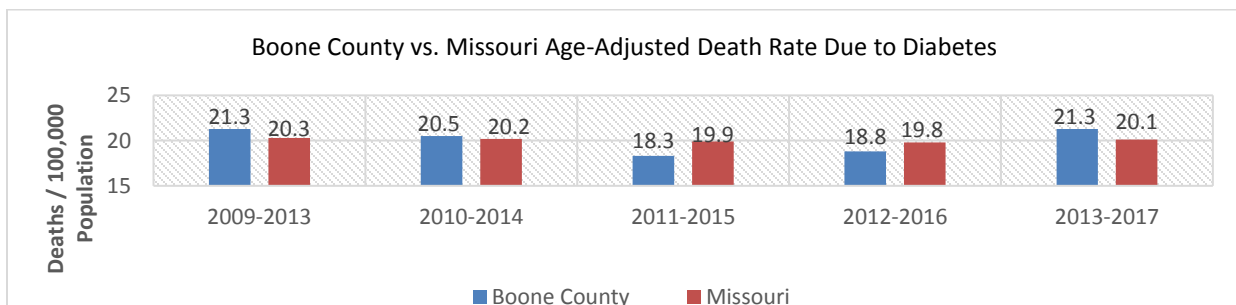


Source: Conduent Healthy Communities Institute

DIABETES

BOONE COUNTY VS. MISSOURI DIABETES MELLITUS BY RACE/ ETHNICITY				
DIABETES MELLITUS	WHITE		AFRICAN AMERICAN	
	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI
Deaths / 100,000 (2007-2017)	17.68	18.84	65.68	36.82
Hospitalizations / 10,000 (2011-20115)	12.9	15.31	54.19	45.83
Emergency Rooms Visits / 1,000 (2011-2015)	1.02	1.56	5.74	4.86

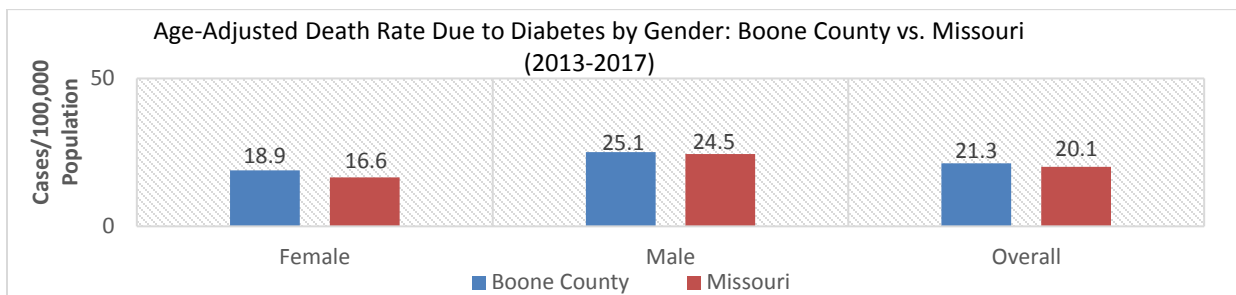
Source: Missouri Department of Health & Senior Services (MICA)



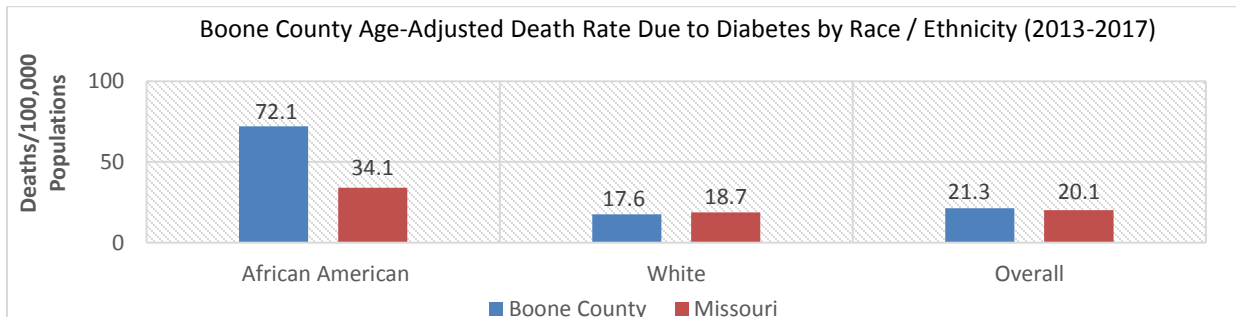
Source: Conduent Healthy Communities Institute

BOONE COUNTY VS. MISSOURI THREE YEARS MOVING DIABETES MELLITUS AVERAGE RATE						
DIABETES MELLITUS	2013-2015		2014-2016		2015-2017	
	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI
Death / 100,000 Population	17.16	19.8	18.56	19.67	23.36	20.24
DIABETES MELLITUS	2011-2013		2012-2014		2013-2015	
	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI
Hospitalizations /10, 000 Population	14.86	18.5	15.95	18.63	17.94	18.63
Emergency Room Visits/ 1000 Population	1.22	1.92	1.34	1.96	1.55	1.99

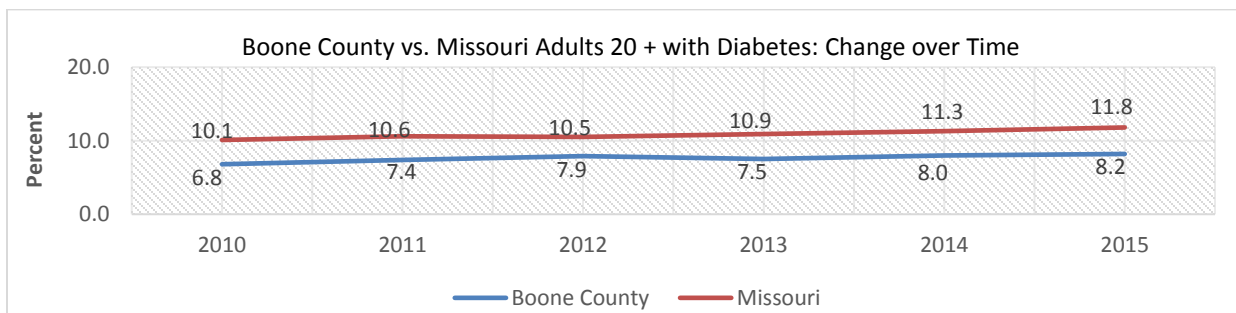
Source: Missouri Department of Health & Senior Services (MICA)



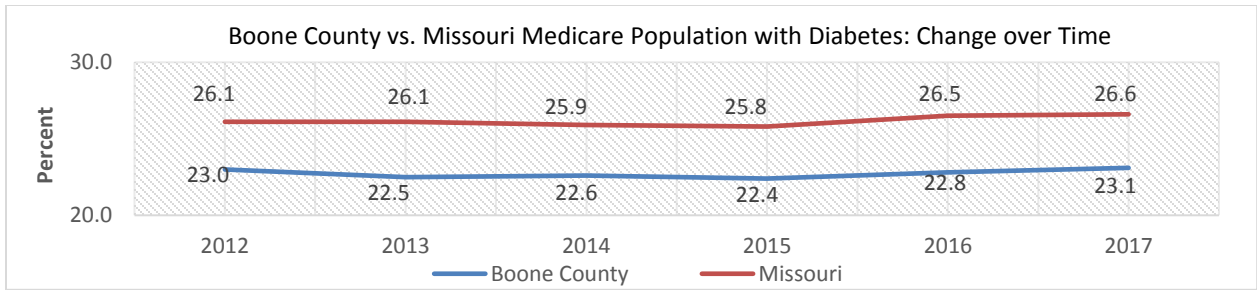
Source: Conduent Healthy Communities Institute



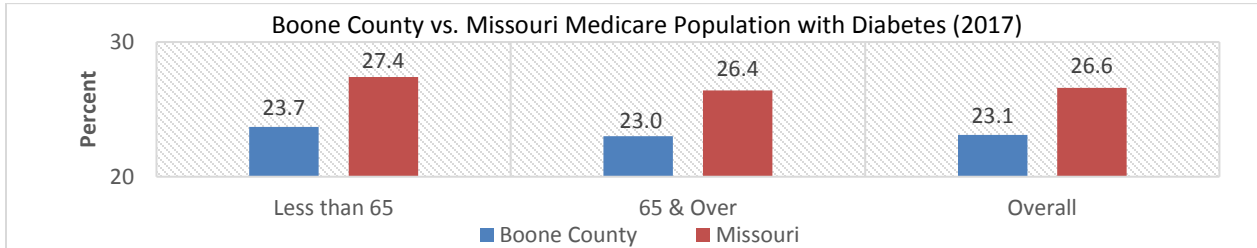
Source: Conduent Healthy Communities Institute



Source: Conduent Healthy Communities Institute

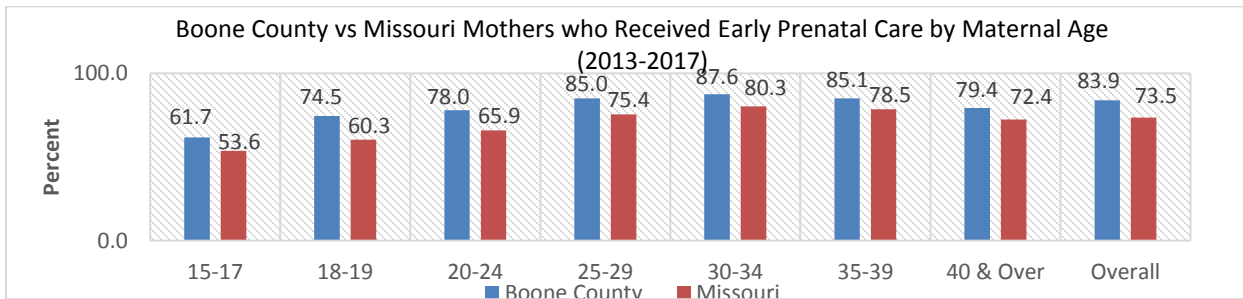


Source: Conduent Healthy Communities Institute

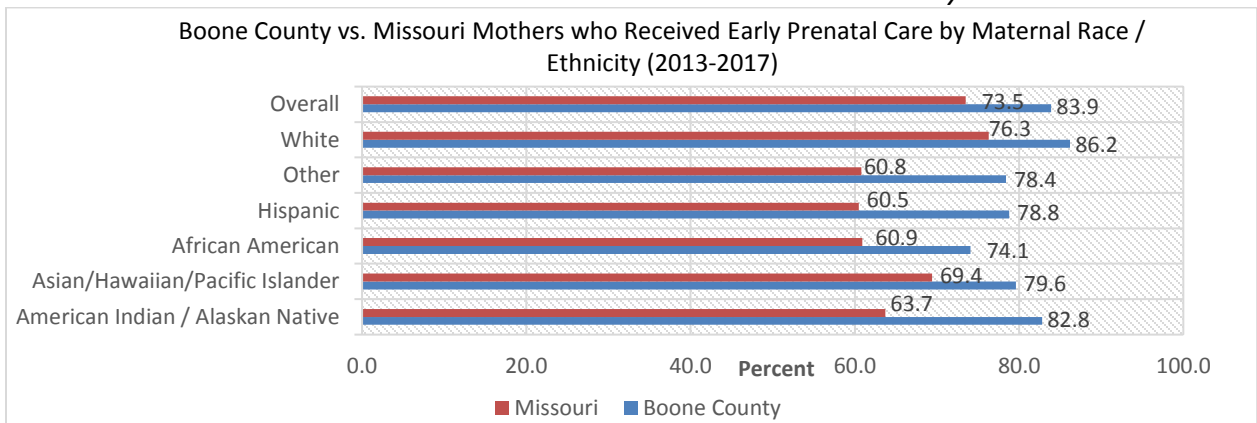


Source: Conduent Healthy Communities Institute

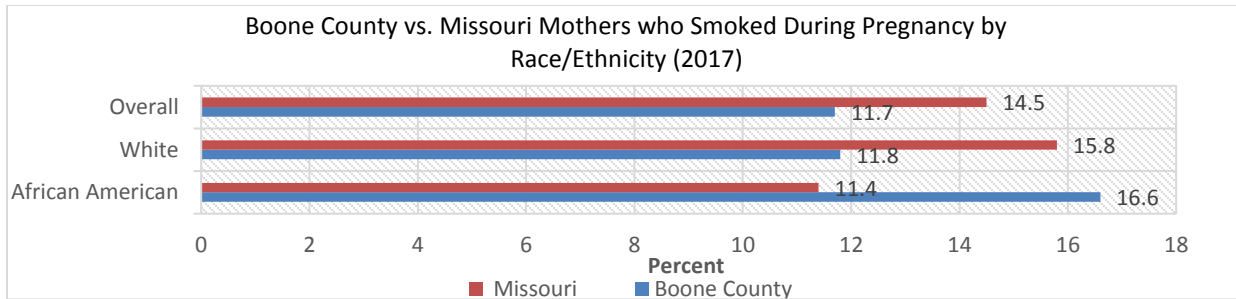
REPRODUCTIVE HEALTH



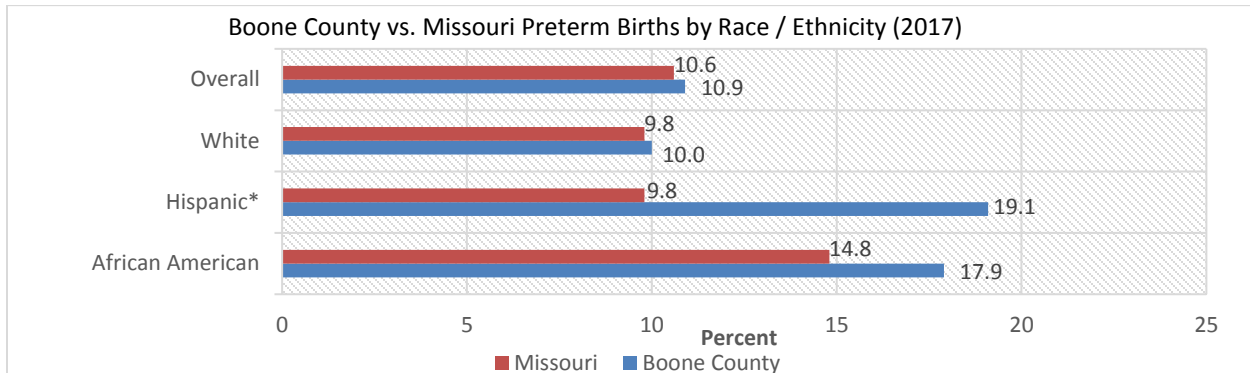
Source: Conduent Healthy Communities Institute



Source: Conduent Healthy Communities Institute

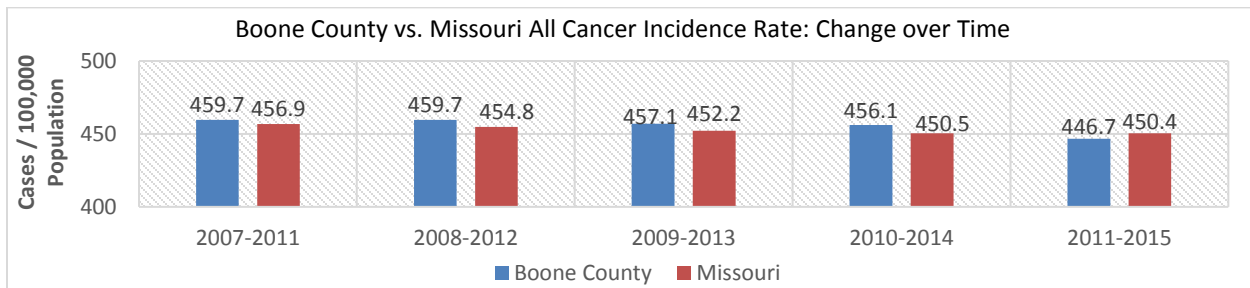


Source: Conduent Healthy Communities Institute

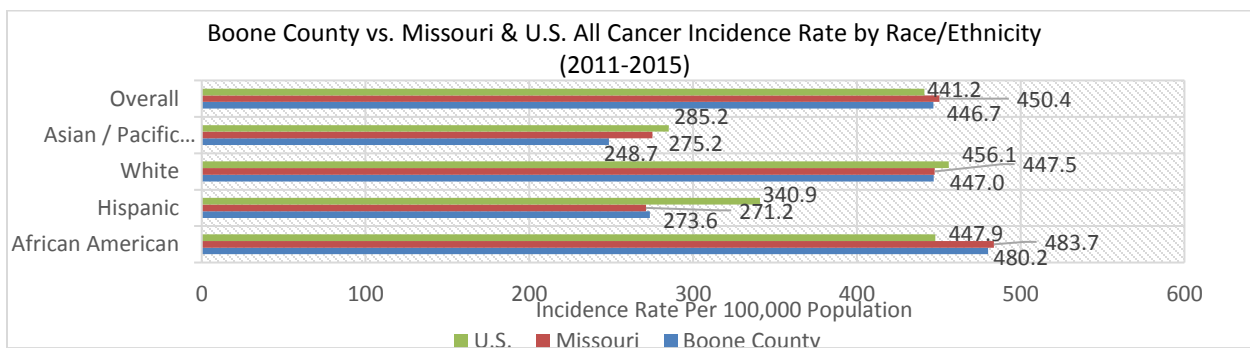


Source: Conduent Healthy Communities Institute

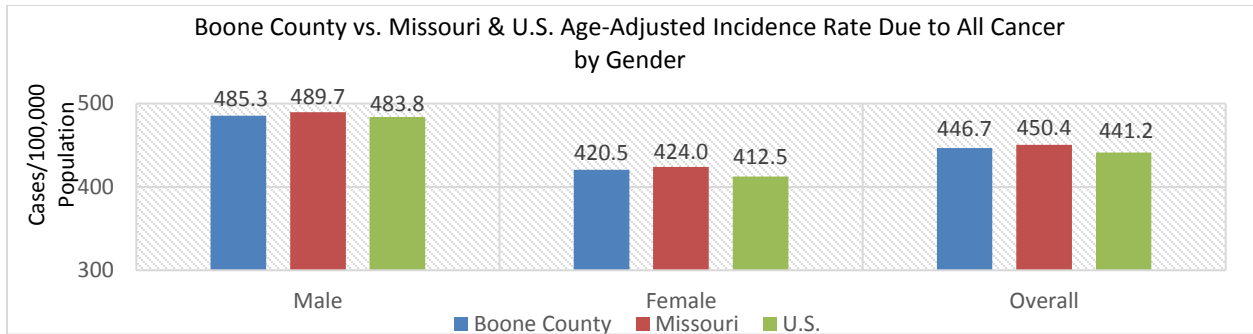
CANCER



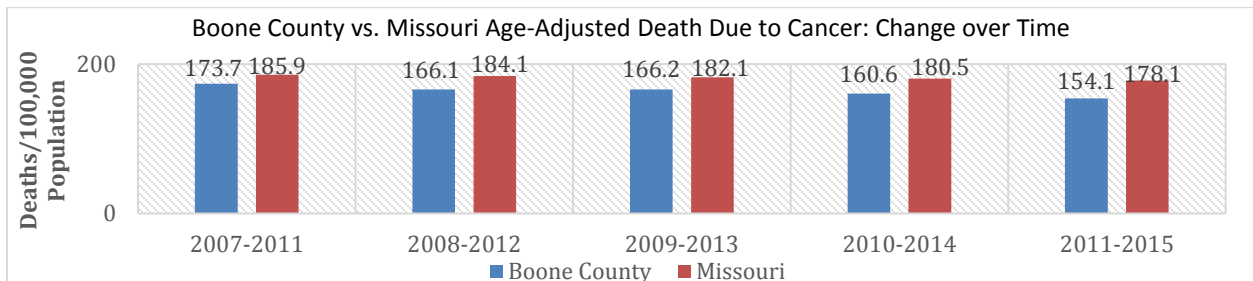
Source: Conduent Healthy Communities Institute



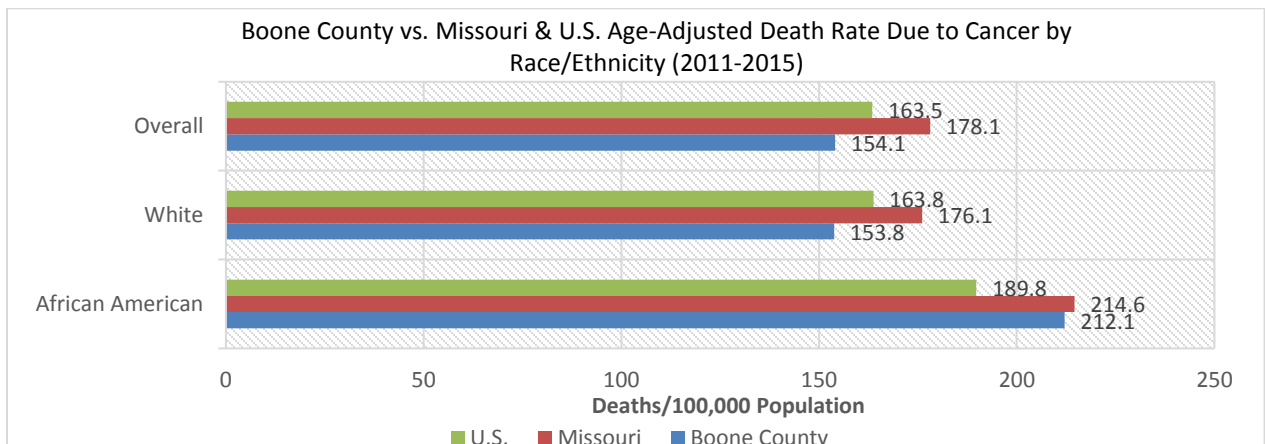
Source: Conduent Healthy Communities Institute / CDC State Cancer Profile



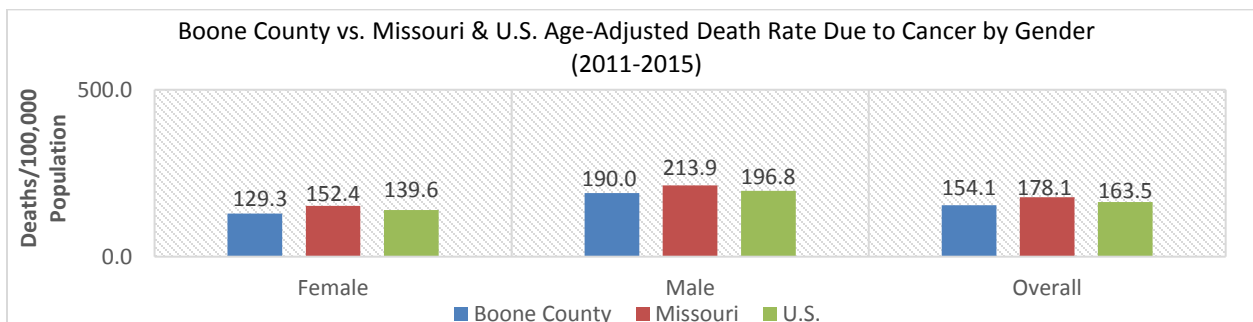
Source: Conduent Healthy Communities Institute / CDC State Cancer Profile



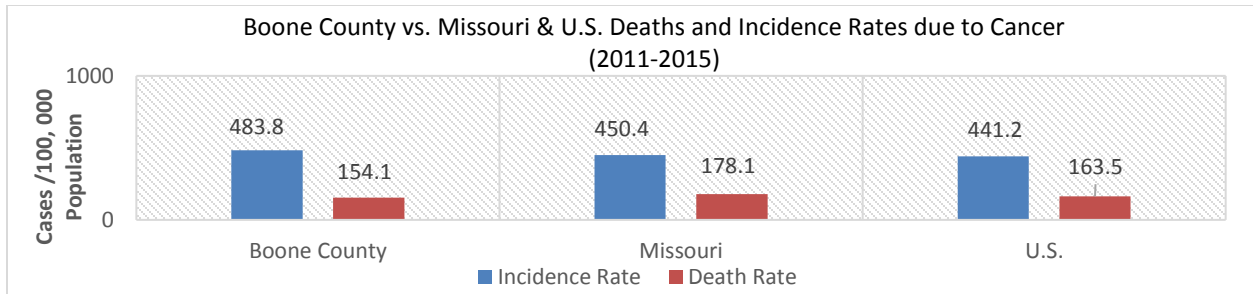
Source: Conduent Healthy Communities Institute



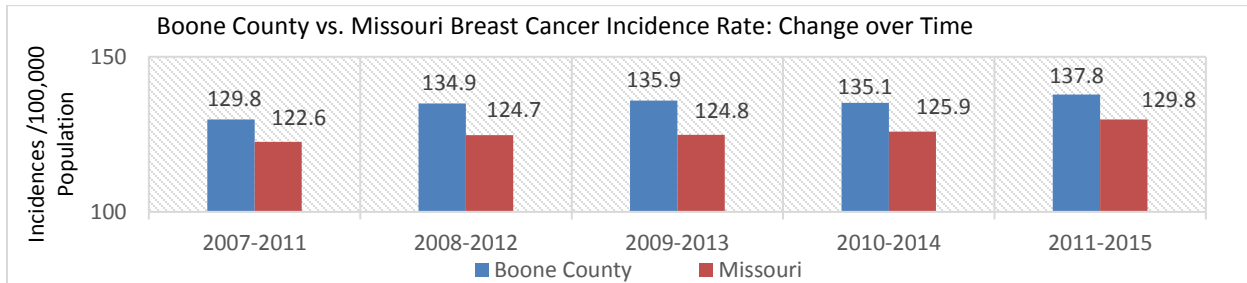
Source: Conduent Healthy Communities Institute / CDC State Cancer Profile



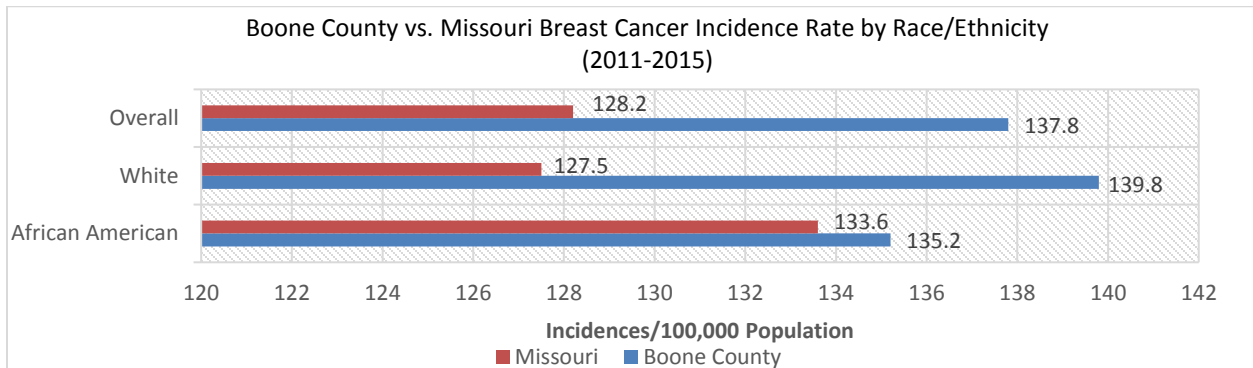
Source: Conduent Healthy Communities Institute / CDC State Cancer Profile



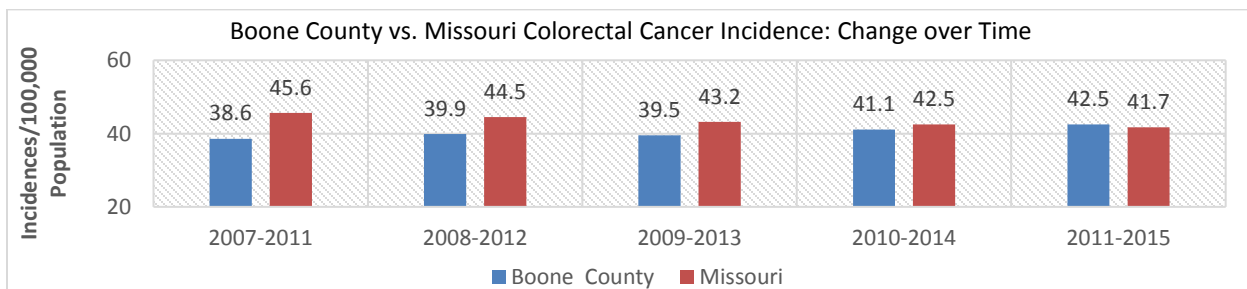
Source: Conduent Healthy Communities Institute/ CDC State Cancer Profile



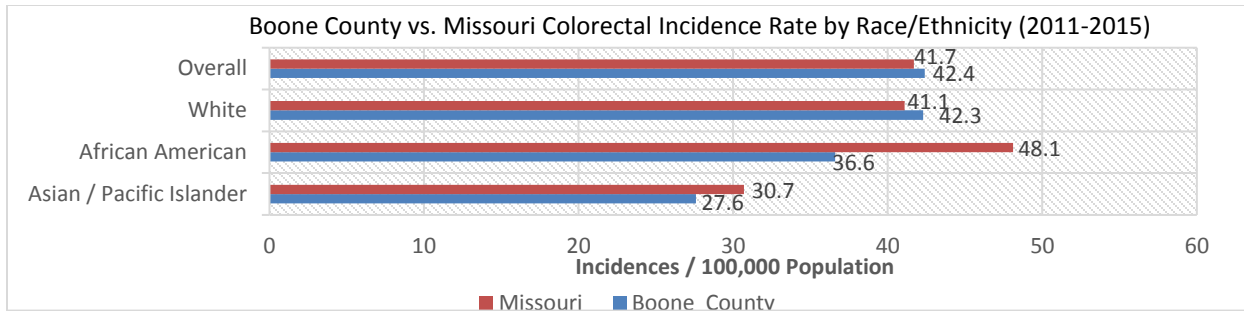
Source: Conduent Healthy Communities Institute



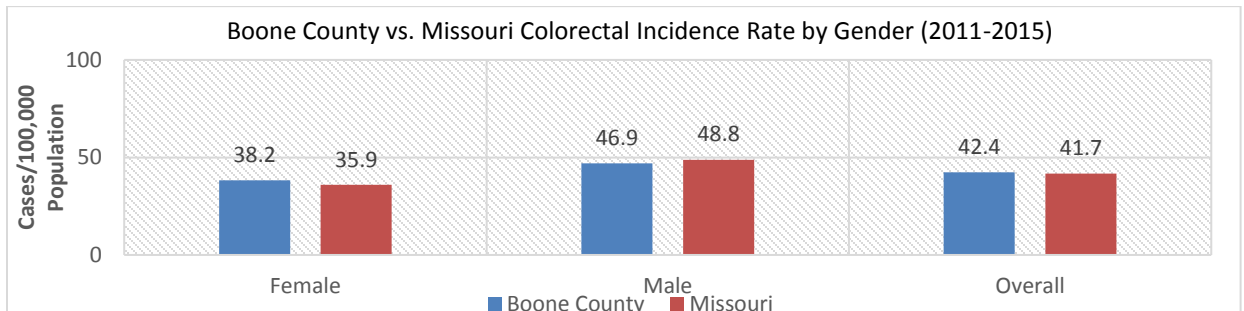
Source: Conduent Healthy Communities Institute



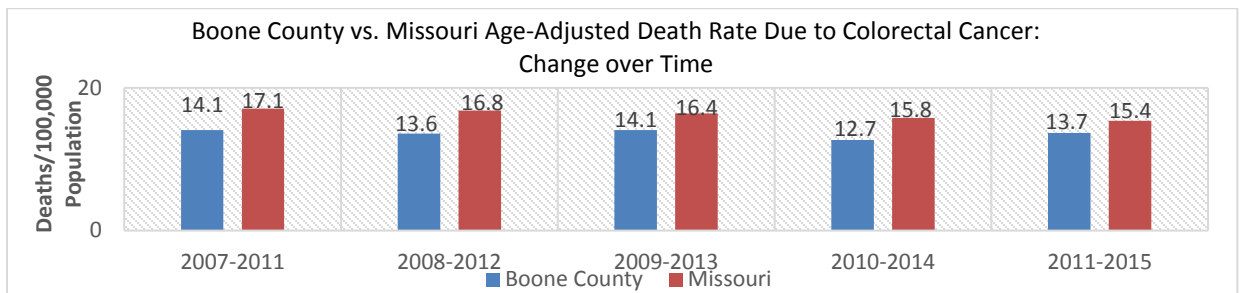
Source: Conduent Healthy Communities Institute



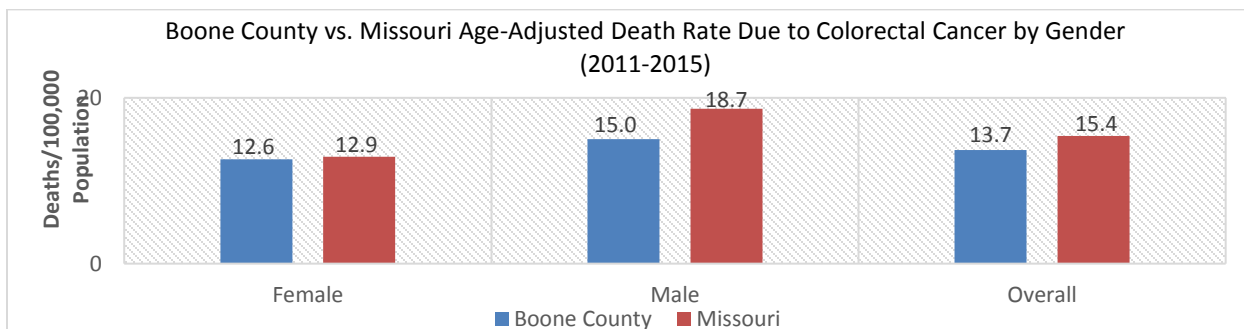
Source: Conduent Healthy Communities Institute



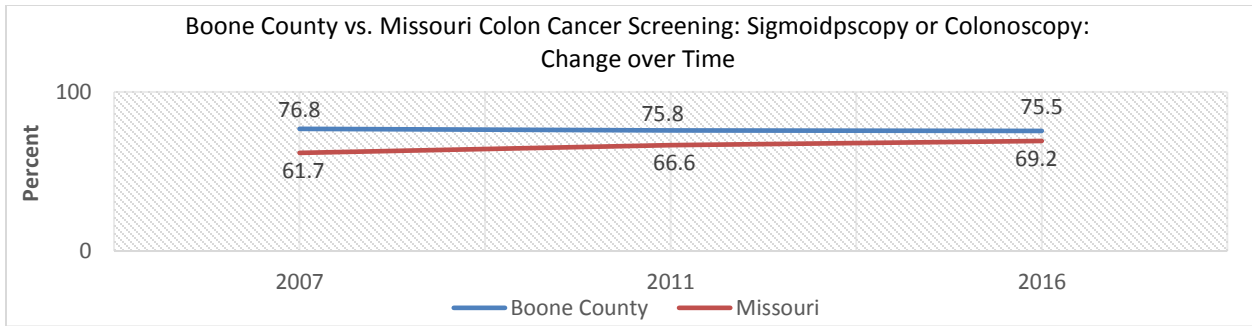
Source: Conduent Healthy Communities Institute



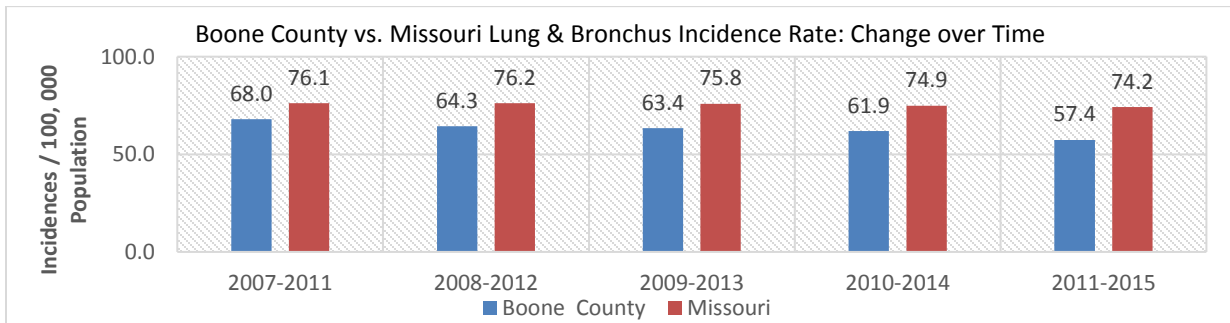
Source: Conduent Healthy Communities Institute



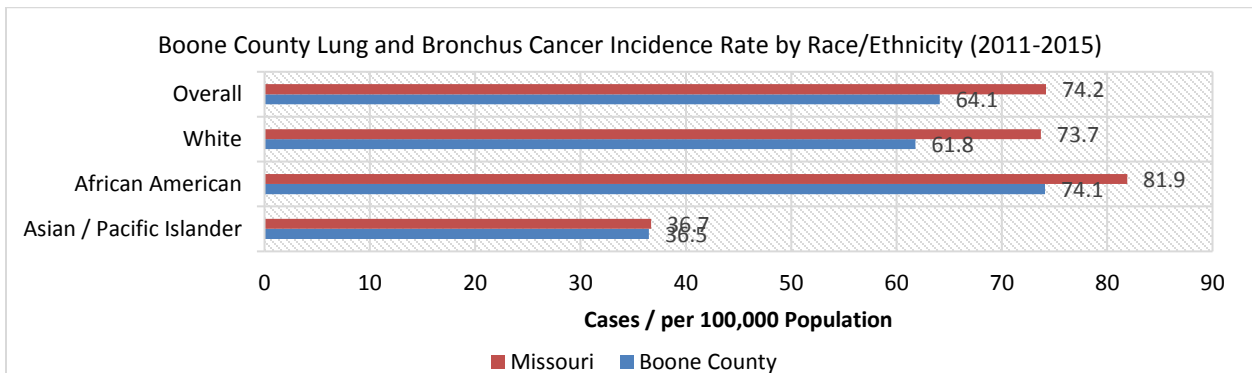
Source: Conduent Healthy Communities Institute



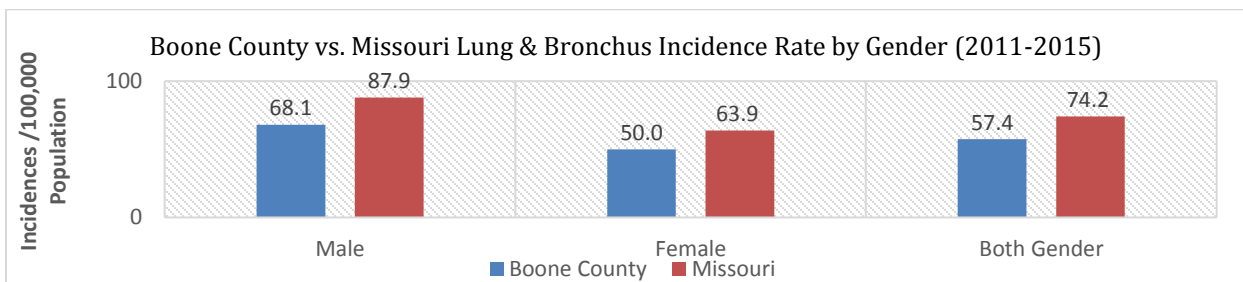
Source: Conduent Healthy Communities Institute



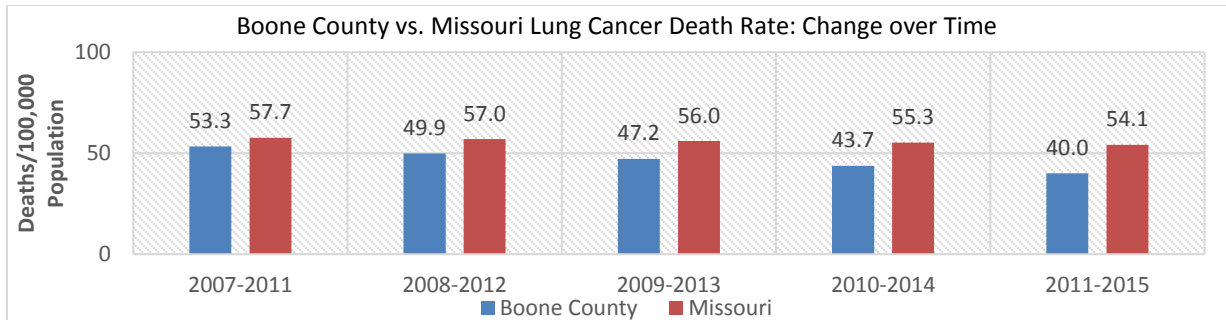
Source: Conduent Healthy Communities Institute



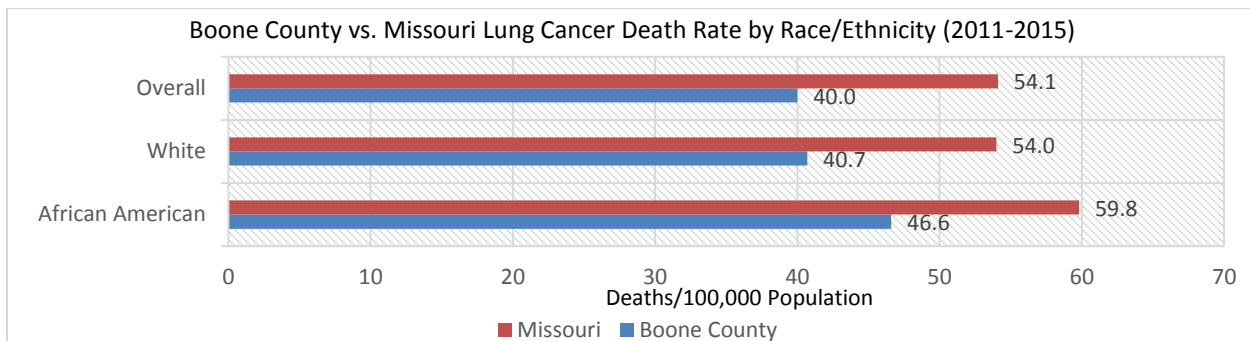
Source: Conduent Healthy Communities Institute



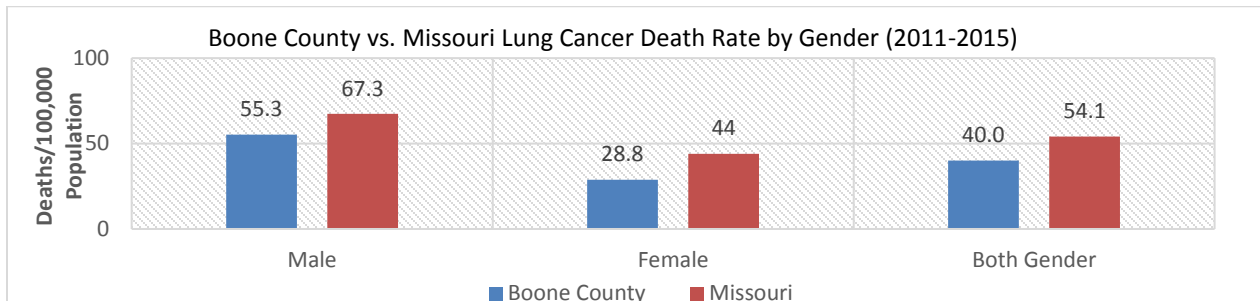
Source: Conduent Healthy Communities Institute



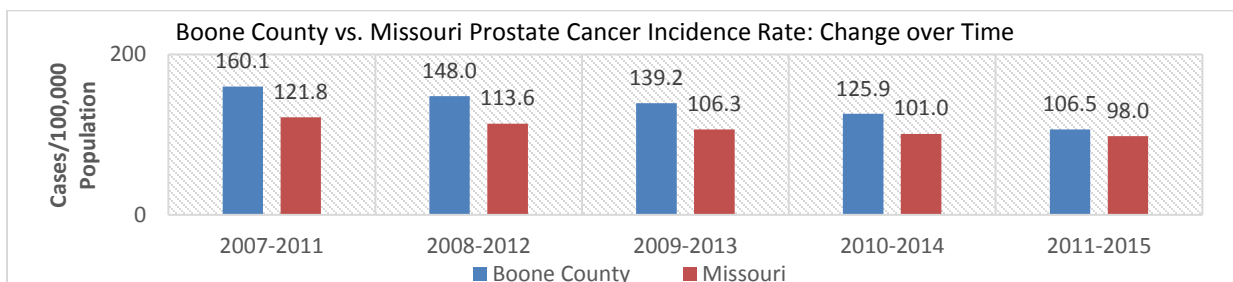
Source: Conduent Healthy Communities Institute



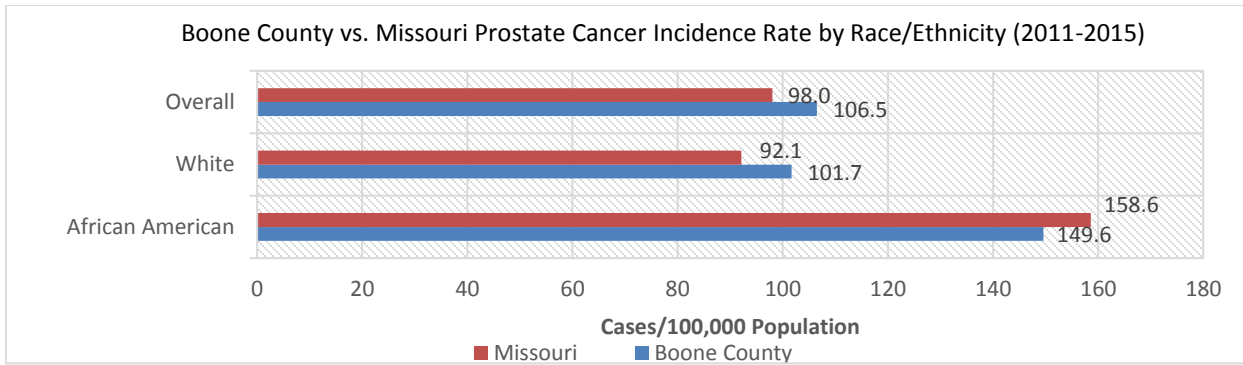
Source: Conduent Healthy Communities Institute



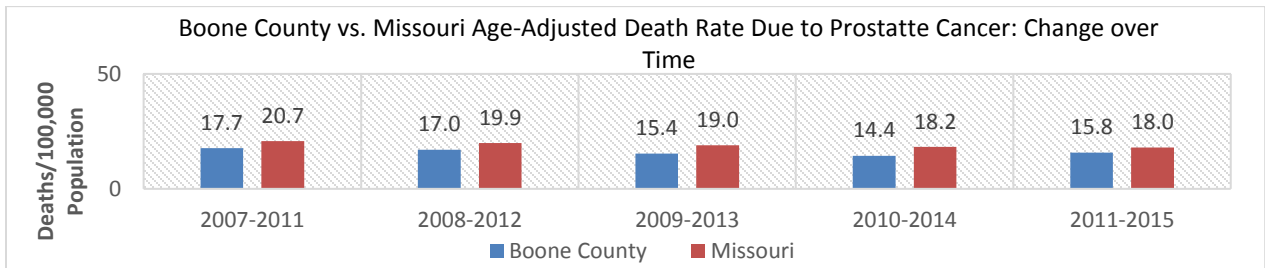
Source: Conduent Healthy Communities Institute



Source: Conduent Healthy Communities Institute

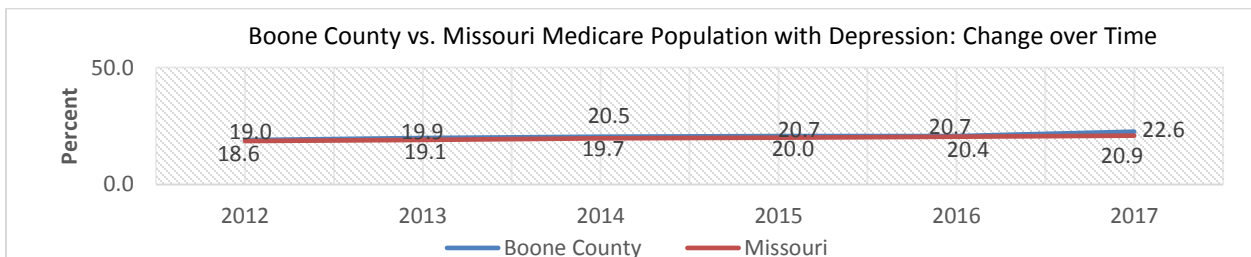


Source: Conduent Healthy Communities Institute

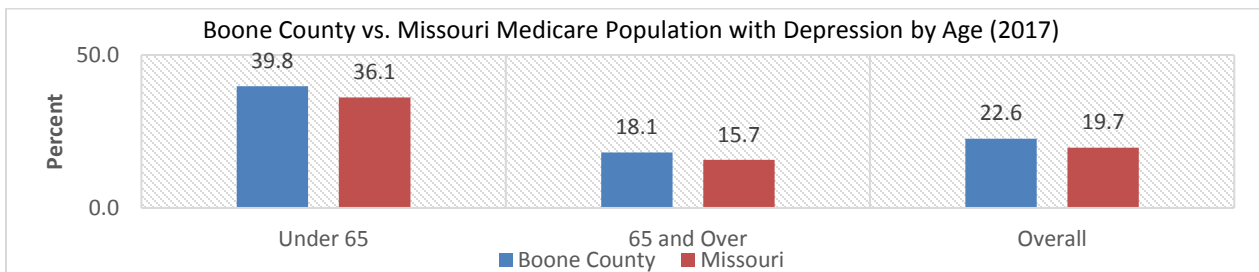


Source: Conduent Healthy Communities Institute

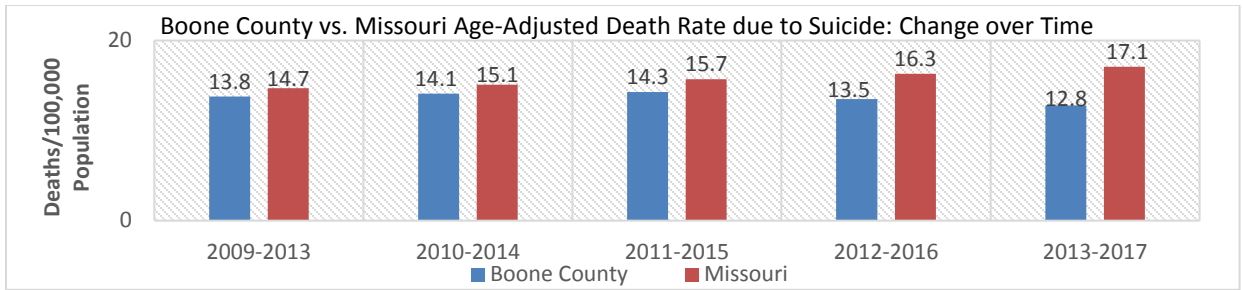
MENTAL/BEHAVIORAL HEALTH



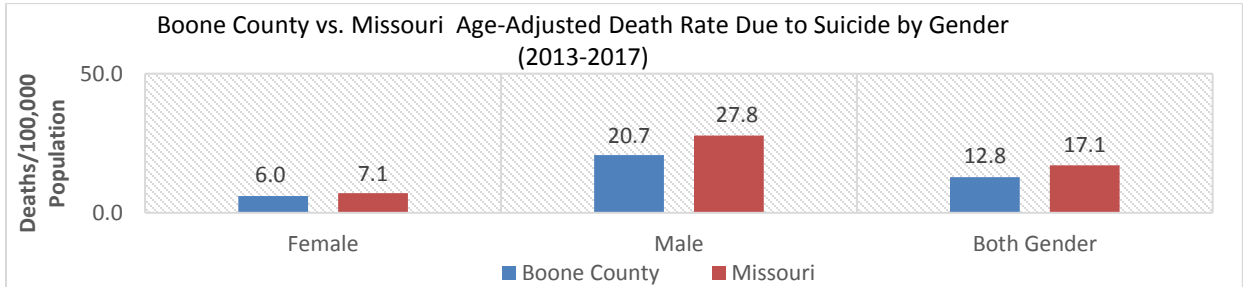
Source: Conduent Healthy Communities Institute



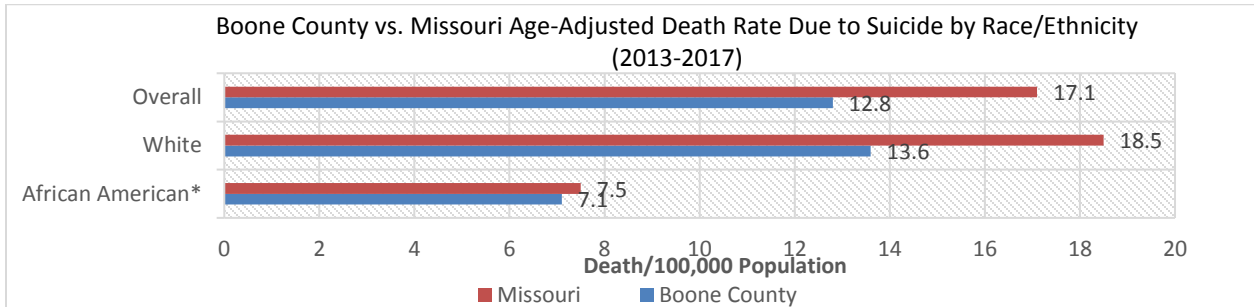
Source: Conduent Healthy Communities Institute



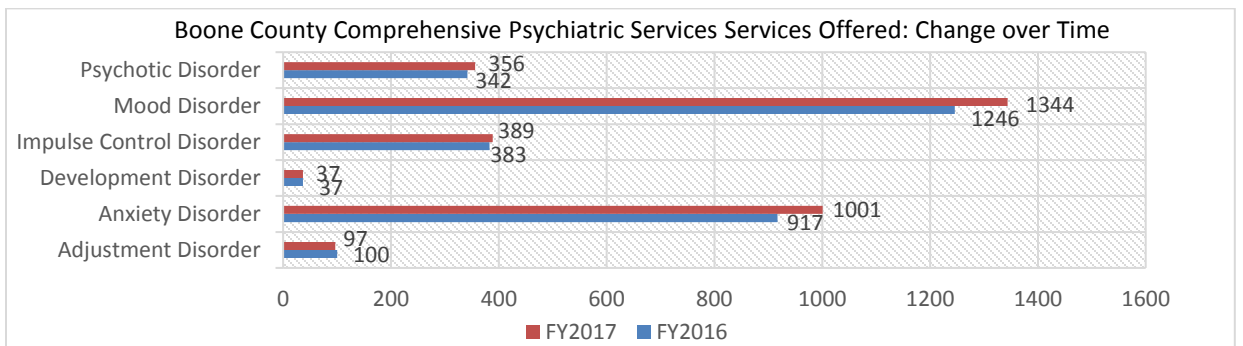
Source: Conduent Healthy Communities Institute



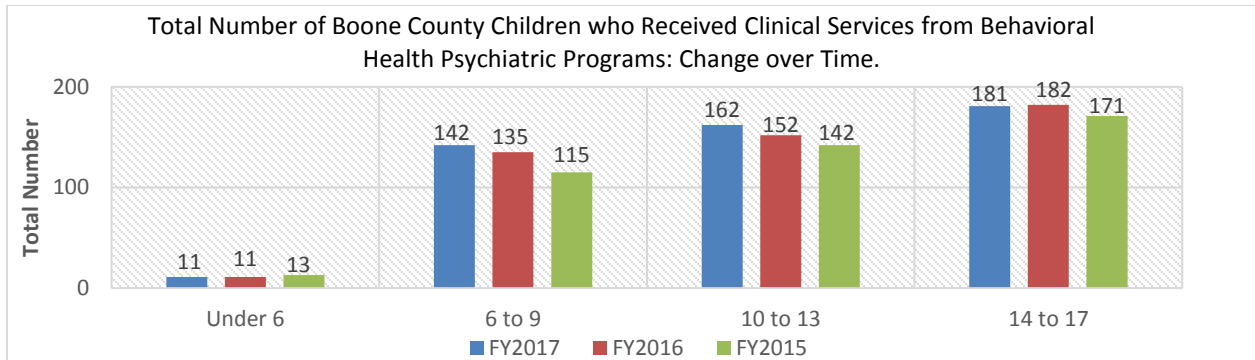
Source: Conduent Healthy Communities Institute



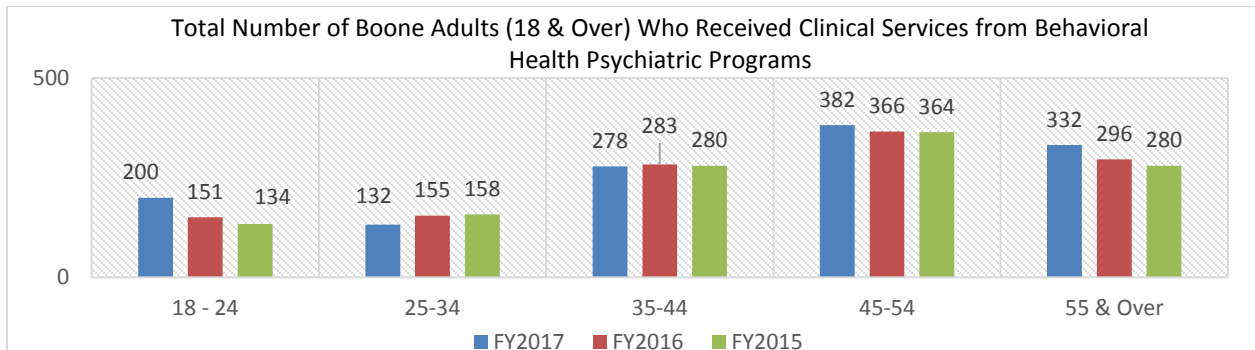
Source: Conduent Healthy Communities Institute



Source: Missouri Department of Mental Health

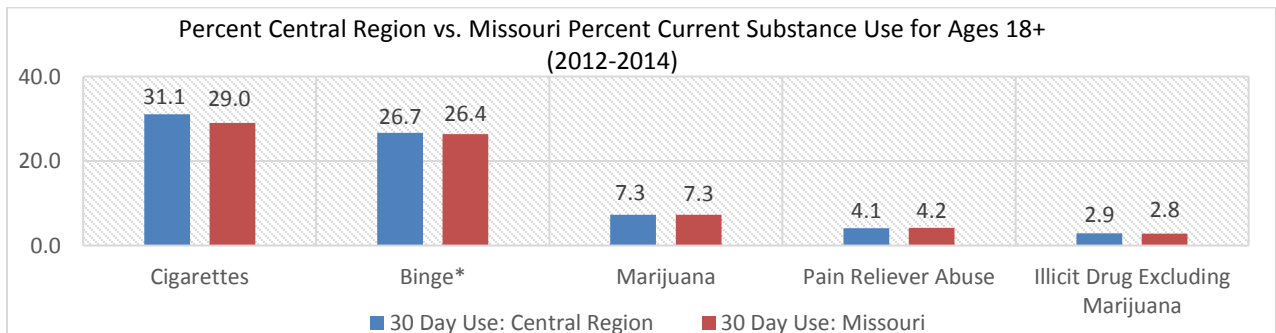


Source: Missouri Department of Mental Health

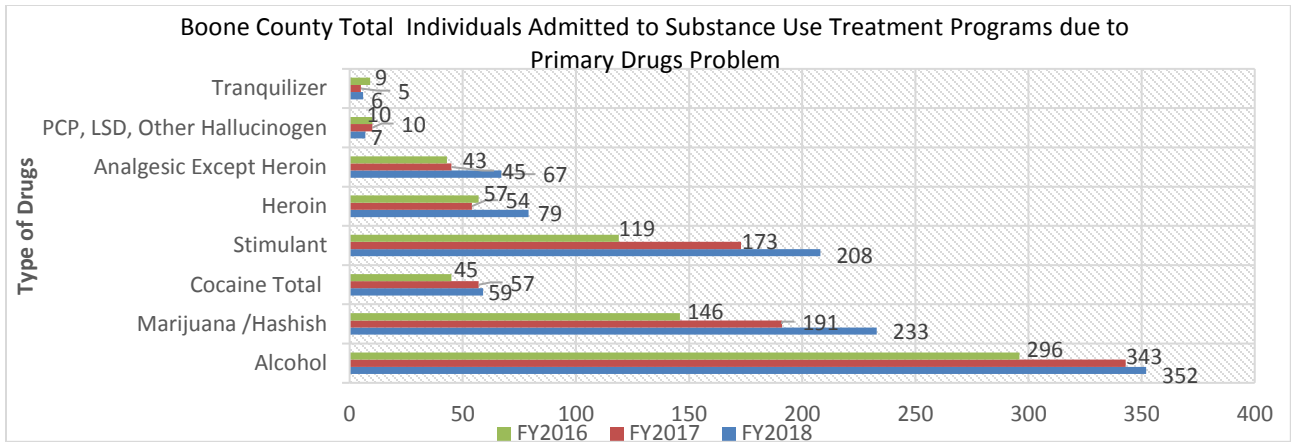


Source: Missouri Department of Mental Health

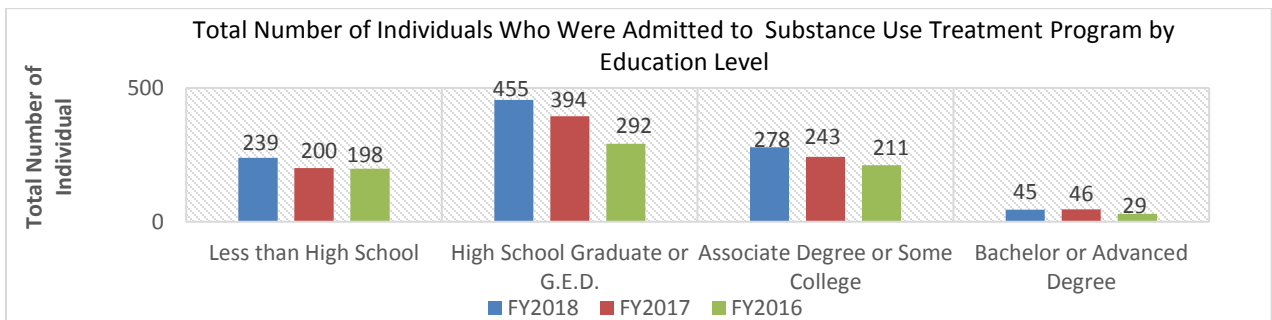
BEHAVIORAL/MENTAL HEALTH: SUBSTANCE ABUSE



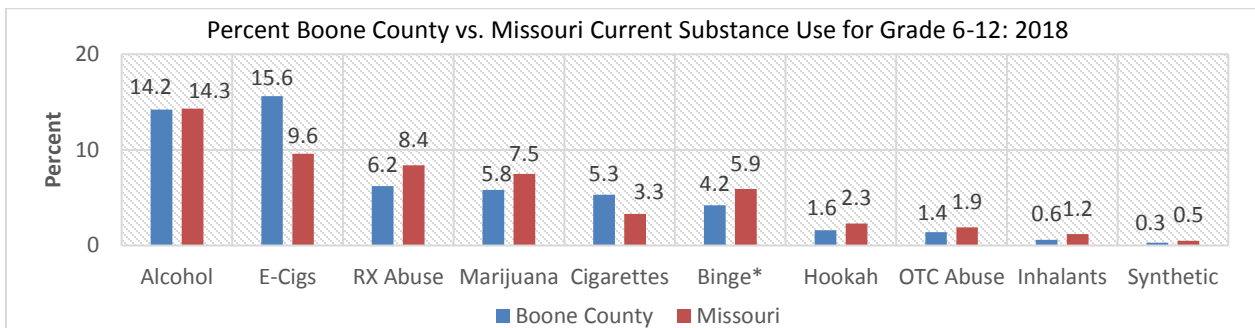
Source: Missouri Department of Mental Health



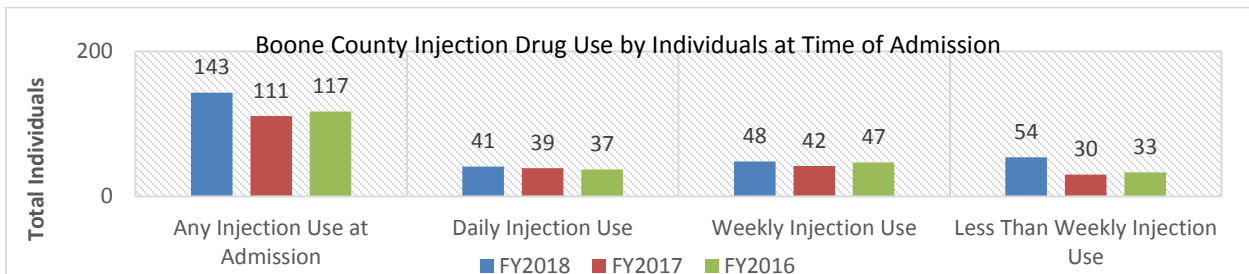
Source: Missouri Department of Mental Health



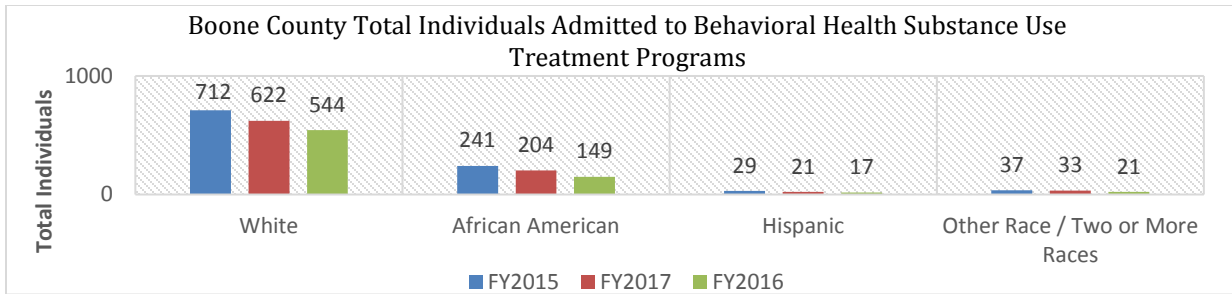
Source: Missouri Department of Mental Health



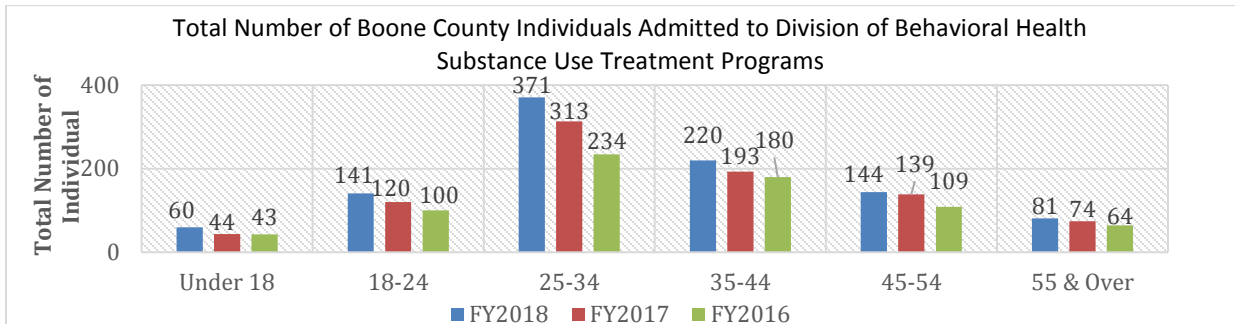
Source: Missouri Department of Mental Health



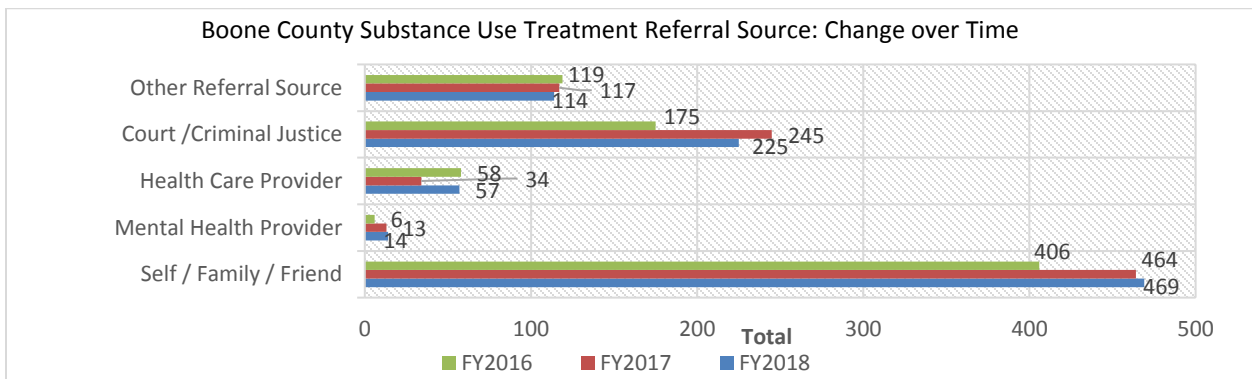
Source: Missouri Department of Mental Health



Source: Missouri Department of Mental Health

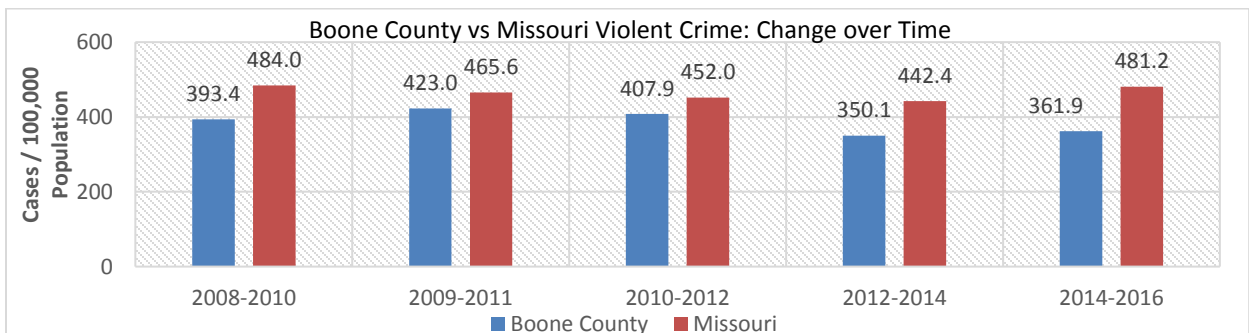


Source: Missouri Department of Mental Health



Source: Missouri Department of Mental Health

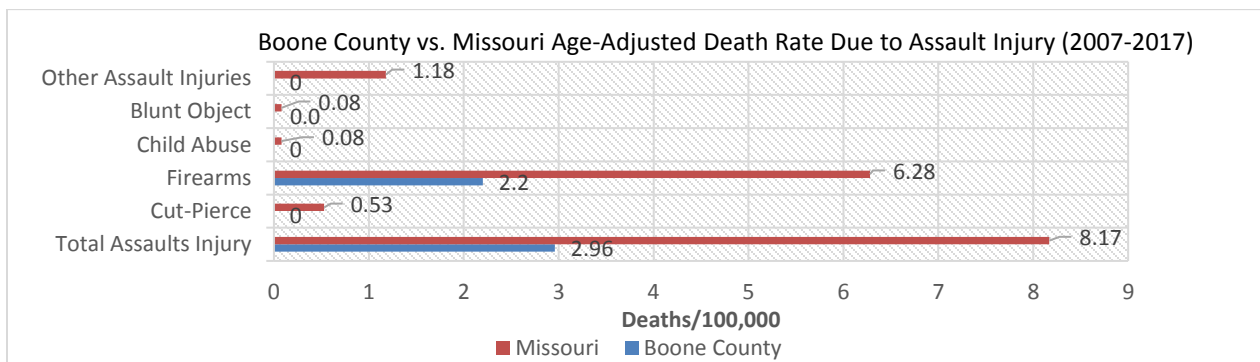
INJURY AND VIOLENCE



Source: Conduent Healthy Communities Institute

BOONE COUNTY VS. MISSOURI THREE-YEAR MOVING ASSAULT INJURY AVERAGE RATE						
	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI
HEALTH INDICATORS	2011-2013		2012-2014		2013-2015	
HOSPITALIZATION / 10,000 POPULATION						
Total Assault Injuries	1.16	2.53	0.89	2.46	0.9	2.44
EMERGENCY ROOM VISITS /1,000 POPULATION						
Total Assault Injuries	2.26	3.82	2.28	3.59	2.46	3.43

Source: Missouri Department of Health & Senior Services (MICA)



Source: Missouri Department of Health & Senior Services (MICA)

Trend Analysis not displayed for death because at least one of the 3-year period of the moving average has fewer than 20 events

BOONE COUNTY VS. MISSOURI ASSAULT INJURY PROFILE BY ETHNICITY/RACE				
	WHITE		AFRICAN AMERICAN	
HEALTH INDICATORS	BOONE COUNTY	MISSOURI	BOONE COUNTY	MISSOURI
DEATHS / 100,000 POPULATION (2013-2017)				
Total Assault Injury	1.7	3.52	14.98	37.76
Firearm	1.11*	2.12	12.55	32.44
HOSPITALIZATION / 10,000 POPULATION (2005-2015)				
Total Assault Injury	0.99	1.55	6.48	10.34
Firearm	0.6*	0.16	1.75	4.7
EMERGENCY ROOM VISITS / 1,000 POPULATION (2005-2015)				
Total Assault Injury	1.87	2.85	7.31	9.45
Firearm	0.01	0.02	0.22	0.6

Source: Missouri Department of Health & Senior Services (MICA)

DATA SOURCES USED FOR THE SECONDARY DATA ANALYSIS INCLUDED:

CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC)/STATE CANCER PROFILES is a web site that provide data, maps, and graphs to help guide and prioritize cancer control activities at the state and local levels. It is a collaboration of the National Cancer Institute and the Centers for Disease Control and Prevention. <https://statecancerprofiles.cancer.gov>

CONDUENT HEALTHY COMMUNITIES INSTITUTE (HCI), an online dashboard of health indicators for St. Louis County, offers the ability to evaluate and track the information against state and national data and Healthy People 2020 goals. Sources of data include the National Cancer Institute, Environmental Protection Agency, U.S. Census Bureau, U.S. Department of Education, and other national, state, and regional sources. <http://www.healthycommunitiesinstitute.com/>

MISSOURI INFORMATION FOR COMMUNITY ASSESSMENT (MICA) is a system that helps to prioritize diseases using publicly available data. The system also provides for the subjective input of experts to rank their perceived seriousness of each issue. (http://health.mo.gov/data/mica/MICA/County_Level_Study).

MISSOURI DEPARTMENT OF MENTAL HEALTH provides numerous comprehensive reports and statistics on mental health diseases, alcohol and drug abuse. http://dmh.mo.gov/ada/countylinks/saint_louis_county_link.html

IMPLEMENTATION PLAN

A. COMMUNITY HEALTH NEEDS TO BE ADDRESSED

I. Diabetes: Pre-diabetes and Diabetes Mellitus (Type 2 Diabetes)

Rationale:

Diabetes is a leading cause of death in the United States. According to the Centers for Disease Prevention and Control (CDC), more than 30.3 million people have diabetes, including both diagnosed and undiagnosed cases. This disease can have a harmful effect on most of the organ systems in the human body; it is a frequent cause of end-stage renal disease, non-traumatic lower-extremity amputation, and a leading cause of blindness among working-age adults. Persons with diabetes are also at increased risk for ischemic heart disease, neuropathy and stroke. Diabetes disproportionately affects minority populations and the elderly, and its incidence is likely to increase as minority populations grow and the U.S. population becomes older. (Healthy Communities Institute).

Program Goals:

- To increase early detection of pre-diabetes and improve the quality of life for all persons who have, or are at risk for diabetes.
- Implement community-based use of HbA1C testing for clients who screen in the prediabetes range, are known pre-diabetics, or have diabetes; to better assess overall health as it relates to blood glucose level.

Program Objectives:

- Screen 500 adults each year for glucose at Boone Hospital Center's Outpatient Diabetes and Nutrition Clinic as well as utilizing the Boone Hospital Center's Mobile Health Unit. We will also partner with other local organizations: Boone County Health Dept. Live Well by Faith etc.
- Follow-up with 40% of clients who opt-in and are identified as in the pre-diabetes or diabetes range at screenings.
- Provide the clients with referral specialist access as well as educational materials to increase their knowledge of healthy lifestyle changes to help manage their condition.

Action Plan

- Boone Hospital Center's Community Education registered nurses, dietitians and other health professionals will provide the blood glucose / HbA1c screenings.
- Follow-up with individuals at 3 months, 6 months, and one year, whose results are in the:
 - Pre-diabetes range:
 - Fasting- 100-125 mg/dl
 - Non-fasting- 140-199 mg/dl)

- or A1C 5.7-6.4%
- Diabetes range:
 - Fasting: Greater or equal to 126 mg/dl
 - Non-fasting- greater than 200
 - or A1C >6.5%
- Coordinate access to a physician referral specialist for individuals with high glucose levels that need an appointment or do not have a physician.
- Provide information on nutrition counseling and/or diabetes education available through hospital.
- Offer re-screening between six months and one year to determine any changes in risk factors behaviors.
- Community Education staff will also provide individualized counseling for those identified as at-risk.
- Clients identify one lifestyle change to improve. Follow up includes documenting if they were able to meet their goal at 6 weeks, 3 months, 6 months, and one year.
- Document lifestyle changes made by client, whether client shared result with physician or requested physician referral specialist call, and educational materials sent to client.

Expected Outcomes:

- Increase early detection of pre-diabetes and bring awareness to those individuals who have an elevated blood glucose level but are unaware.
- Increase awareness in healthy lifestyle change among individuals at risk for diabetes or already have diabetes.

Outcomes Measurement

- Document number of total individuals screened for diabetes
- Document number of individuals screened with a result in elevated blood glucose range.
- Track number of referrals made to dietitians, physicians, etc., by documenting when client is/was scheduled for follow-up screening.
- Document during follow-up phone calls if knowledge level has improved, ability to maintain lifestyle changes, and any further support/education given.

II. Heart and Vascular: Heart Disease

Rationale:

Currently more than 1 in 3 adults (85.6 million) live with 1 or more types of cardiovascular disease. In addition to being the leading cause of death, heart disease results in serious illness and disability, decreased quality of life, and hundreds of billions of dollars in economic loss every year. Heart disease is among the most widespread and costly health problems facing the nation today, accounting approximately \$320 billion in health care expenditures and related expenses annually. (Healthy People 2020) Fortunately, it is also among the most preventable.

The leading controllable risk factors for heart disease are:

- Blood pressure
- Cholesterol
- Tobacco use
- Blood sugar
- Unhealthy diet and physical inactivity
- Overweight and obesity

Over time, these risk factors cause changes in the heart and blood vessels that can lead to heart attacks, heart failure, and strokes. It is critical to address risk factors early in life to prevent these devastating events and other potential complications of chronic cardiovascular disease.

Program Goals:

- Improve cardiovascular health and quality of life through Prevention, Detection, Education and access to Treatment of risk factors for heart disease.
- Increase early identification, symptoms and treatment of heart disease and prevention of cardiovascular events.

Program Objectives:

- Set a baseline in 2020 and increase the number of adults who screen for blood pressure, cholesterol and blood glucose in Boone County and surrounding counties by 10% each year.
- Successful contact of 40% of at-risk participants who opt-in for follow-up each year.
- Within the year following the initial screening, Community Education staff will confirm that five (5) percent of those contacted will have an appointment scheduled for a follow-up appointment with their physician.

Action Plan:

- In collaboration with Boone Hospital Center and Missouri Heart Center, registered nurses, dietitians and other health professionals will provide heart disease screenings, including blood pressure, cholesterol (total and high-density lipoprotein, HDL) and blood glucose, at the annual Heart Fair and other community health screening events. Heart health education will also be given to participants.
- All participants will receive individualized counseling regarding presence or absence of personal risk factors. Identified at-risk individuals will be given counseling which includes individualized interpretation of results, educational materials regarding healthy lifestyle changes including diet that may reduce risk factors. The importance of calling 911 and the signs and symptoms of stroke will be reviewed with all participants.
- Successful contact and counseling with 40% of those identified as at-risk who opt-in at 3 months, 6 months and one-year post-screening.
- Of those who were identified as at-risk and opt in, follow-up at three months, six months, and one year will include documentation of the following:

Expected Outcomes:

- Early detection and prevention of heart disease.
- Healthy lifestyle changes among those at risk for the diseases.

Outcomes Measurement:

- Offer re-screening at six months and one year to determine any changes in risk factors for cardiovascular disease.
- Educational lectures and major events such as the Heart Fair and additional Community Heart Health Screenings offered quarterly.
- Evaluate benefit of program through pre- & post-test at event, discerning if attendees gained knowledge or intend to make a change.
- Adjust focus of programs based on feedback

B. Needs Not Addressed by this Implementation Plan

While heart disease and diabetes are our prioritized health needs, Boone Hospital Center will continue to offer the following programs and services to address the following health needs:

- A. **Cancer: Breast**
Boone Hospital Center continues to provide clinical screenings for prostate, colorectal and breast cancer.
- B. **Cancer: Lung**
Boone Hospital Center continues to provide lung cancer screenings for patients who meet certain risk factors. In 2015, Medicare began covering lung cancer screenings for eligible patients.
- C. **Obesity**
Boone Hospital Center's community outreach programs address the contributing factors of obesity and disorders comorbid with obesity, including heart disease and diabetes.
- D. **Access to Coverage**
Boone Hospital Center will continue to provide counseling to assist patients with determining eligibility for and enrollment in coverage and financial assistance programs.
- E. **Cancer: Prostate/Colorectal**
Boone Hospital Center continues to provide clinical screenings for prostate and colorectal cancer.
- F. **Coordination of Care**
Coordination of care between inpatient, outpatient and primary care settings will continue to be a priority for patient care at Boone Hospital Center.
- G. **Cancer: Skin**
Boone Hospital Center continues to provide free skin cancer screenings to the community in the spring and summer. These skin cancer screenings are conducted by nurses with specialized training in skin cancer screenings and include follow-up care for patients with abnormal findings.
- H. **Healthy Lifestyle**
Education about leading a healthy lifestyle and empowering people to reduce their risk of preventable disease continues to an important part of Boone Hospital Center's mission to improve the health of the people and communities we serve. The programs in our implementation plan to address obesity are designed to help participants make healthier lifestyle choices.
- I. **Health Literacy**
Health literacy and patient education continues to be an important part of Boone

Hospital Center's patient care and community health programs, including programs and general education about the risks, prevention and management of heart disease and diabetes.

J. Cultural Literacy

As Boone County continues to grow and become more diverse, including a growing refugee population, cultural literacy becomes increasingly important. Boone Hospital Center recognizes and continually addresses the need for increased cultural literacy to improve patient care, health literacy, and coordination of care, including translation services. County resources include refugee and immigration services, El Centro Latino for Spanish-speaking residents, and Services for Independent Living to support the needs of the disabled. Boone County's Community Services Department has also funded a two-year pilot program, Live Well by Faith which works with historically black churches to provide screenings and wellness programs.

At this time, Boone Hospital Center does not have programs or resources to directly address these identified health needs. Boone Hospital Center supports the Boone County Health Department and other programs that help address the below needs.

A. Mental Health / Substance Abuse

Boone County's Community Services Department and Children's Service Fund and the Public Health and Human Services Department are working with community partners to explore how to improve access to outpatient mental health services, destigmatize use of mental health services, and reduce substance abuse. County mental health resources include Burrell Behavioral Health's Family Health Program, Family Counseling Center, UMC Psychological Services Clinic, Missouri Psychiatric Center, New Horizons and Phoenix Programs for substance abuse treatment.

B. Asthma/COPD

Columbia/Boone County Public Health and Human Services offers smoking cessation programs. Boone Hospital Center refers patients and members of the community to these programs.

C. Reproductive and Sexual Health

Columbia/Boone County Public Health provides low-cost or free reproductive and sexual health services to Boone County residents. These services include HIV/STD testing, counseling and prevention education; women's health screenings; pregnancy testing, and referrals for pregnancy and prenatal care.

D. Injury and Violence

Boone County's Public Health and Human Services Department has assembled a Safe and Healthy Neighborhood action team, which collaborates with the community to improve neighborhood safety and reduce crime.

E. Dental Care

Access to affordable dental care, especially for adults, remains an area of need in Boone County. Dental care resources for children include Family Dental Center, Mid-Missouri Dental Center, and the Kings' Daughters Dental Aide program which receives referrals from school nurses. Dental care is also covered for pregnant women by MO HealthNet. The Public Health and Human Services Department acute dental pain relief program helps adults with demonstrated financial need and no access to dental insurance receive x-rays and simple procedures. The nearest dental school clinic is at the University of Missouri-Kansas City.