BooneHealth

Community Health Needs Assessment & Implementation Plan 2022

Boone Hospital Center
1600 E. Broadway
Columbia, Missouri 65201

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Executive Summary

Boone Hospital Center, part of the Boone Health organization, is a 392-bed hospital located in Columbia, Missouri. Boone Hospital is known for its specialties cardiology, neurology, oncology, surgical and obstetrical services. For over 100 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 partnerships to address community health needs.

As a nonprofit hospital, 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 repeated the process in 2016 and 2019. These reports are available to the public on the Boone Health website (www.boone.health).

The CHNA process requires the hospital to define its community. For this CHNA, Boone Hospital has defined its community as Boone County.

The hospital must solicit input from people who both represent the broad interest of Boone County and who have special knowledge and expertise in public health. On July 19, 2022, Boone Hospital, in collaboration with Missouri Health Association (MHA), held a community forum with 16 key stakeholders. The group reviewed Boone Health's 2019 CHNA and primary data on key health indicators, and discussed changes in the community that have occurred since 2019. The community forum also discussed and identified current gaps in meeting community health needs, including social determinants of health, and opportunities for Boone Hospital to collaborate with community organizations to address needs.

An internal workgroup of Boone Health staff reviewed the community forum findings and secondary data related to the health conditions and socioeconomic determinants of health prioritized by the forum group and discussed which needs Boone Health is best able to address through its community wellness programs.

Both the community forum and internal workgroup participants reviewed data compiled by ExploreMOHealth (www.exploremohealth.org), which includes information from County Health Rankings, the American Community Survey, and Missouri ZIP Health Rankings. Unlike previous CHNA processes, where data was reviewed primarily at the county level, the 2022 CHNA focused on Boone County data broken out by ZIP codes to allow us to identify health disparities within the county.

At the end of the 2022 CHNA process, Boone Hospital identified three health needs to be addressed in our Implementation Plan:

- Diabetes
- Heart and Vascular Disease
- Skin Cancer

This report and the implementation plan were reviewed and approved by the Boone Health Board of Directors on December 19, 2022.

Community Description

For the purpose of this CHNA, Boone County, Missouri, is the defined community. Boone Hospital is located in the city of Columbia, the county seat and largest city of Boone County, Missouri. Boone County is in the central region of Missouri, and is located along I-70 halfway between the Kansas City and Saint Louis metropolitan areas.
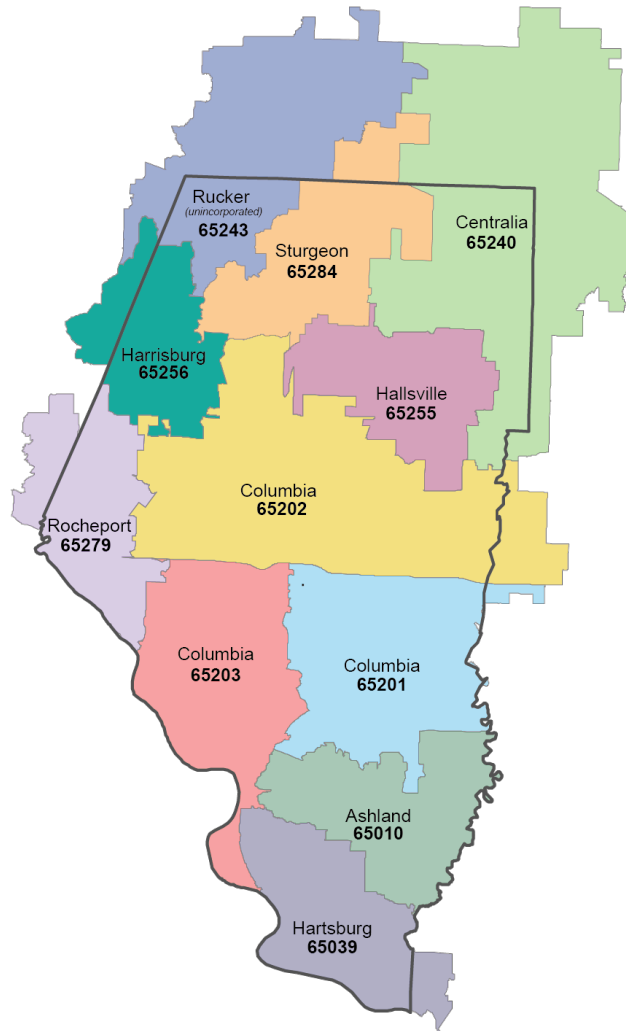
Boone County has a total land area of 685.5 square miles and includes the following incorporated communities:

City/Town	ZIP Code
Ashland	65010
Centralia	65240
Columbia (county seat)	65201 65202 65203
Hallsville	65255
Harrisburg	65256
Hartsburg	65039
Huntsdale	65203
McBaine	65203
Rocheport	65279
Sturgeon	65284

Population

Boone County had a population of 179,704 in 2020. Between 2010 and 2020, the population increased by 12.89%, reflecting significant growth. During the same period, Missouri saw a population change of 2.77%, lower than the national population change rate of 7.13%. Significant population growth can impact the utilization of healthcare and other community resources.

Boone County's population is 81% urban and 19% rural. Urban areas are defined by population count, density, and size threshholds and land development.

Demographics

	Boone County	Missouri	United States
Total Population	179,704	6,124,160	326,569,308
Female Population	51.5%	50.9%	50.76
Male Population	48.5%	49.1%	49.2%
White	80.4%	81.3%	70.4%
Black or African-American	8.9%	11.4%	12.6%
Asian	4.4%	2%	5.6%
Two or More Races	4.8%	3.5%	5.2%
American Indian and Alaska Native	0..4%	0.4%	0.8%
Native Hawaiian and Other Pacific Islander	0.1%	0.1%	0.2%
Hispanic or Latino (Any Race)	3.5%	4.3%	18.2%

US Census Bureau, American Community Survey, 2020

Age

The median age in Boone County in 31.6, compared to 38.7 in Missouri and 38.2 nationally. Boone County has a lower percentage of people below 18 years of age: 20.4% compared to 22.3% in Missouri and the United States.

Age	Boone County	Missouri	United States
Under 5 Years	5.8%	6.1%	6%
5 to 17 Years	14.6%	16.5%	16.4%
18 to 24 Years	19.1%	9.3%	9.3%
25 to 34 Years	15.2	13.4%	13.9
35 to 44	11.9%	12.2%	12.7%
45 to 54	10.4%	12.3%	12.7%
55 to 64	10.9%	13.5%	12.9%
65 Years and Over	12.3%	16.9%	16%

US Census Bureau, American Community Survey, 2020

Education

Education is linked to better health outcomes, higher incomes, and an overall higher quality of life. People who have more education and higher degrees of literacy may find it easier to comply with management for chronic conditions.

Founded in 1839, the University of Missouri in Columbia was the first public university both in the state and west of the Mississippi River. During the next 180-plus years, the University has played a major role in Boone County's growth and has contributed to the development of Columbia's healthcare institutions, including Boone Health and University of Missouri Health Care.

Other post-secondary schools in Boone County include Columbia College, a private university; Stephens College, a private women's university; and a satellite campus of Moberly Area Community College, a two-year public college.

With this emphasis on academia, it is not surprising that 47.7% of Boone County residents age 25 and older hold a bachelor's degree or higher, compared to 28.9% in Missouri overall. Only 5.36 percent of Boone County adults do not have high school diplomas compared to 9.41% in Missouri and 11.5% nationally.

Population Age 25+ with Bachelor's Degree or Higher

Boone County	Missouri	United States
47.7%	29.9%	32.9%

US Census Bureau, American Community Survey, 2021

Population with No High School Diploma

Boone County	Missouri	United States
5.36%	9.41%	11.47%

US Census Bureau, American Community Survey, 2021

U.S. Census data includes college students who are currently living in Boone County. In fall 2021, the University of Missouri alone reported a total enrollment of 31,412, which accounts for roughly 16% of Boone County's population. While we recognize the impact that college students have on overall income, poverty, and housing data, it is important not to overlook how these issues affect other Boone County residents, including children living in poverty.

Income and Poverty

Census data measures both households and families. Households include all persons – related or unrelated – who occupy a living unit such as a house, apartment, or mobile home, as their primary residence. A family is defined as two our more people who are related by birth, marriage, or adoption who share a residence.

Median household and family incomes in Boone County are both higher than in Missouri.

	Boone County	Missouri	United States
Household Median Income	$58,000	$57,400	$64,994
Family Median Income	$80,817	$72,843	$80,069

US Census Bureau, American Community Survey, 2021

Federal poverty levels (FPL) are set every year by the Census Bureau and vary by family size and ages of the family members. While a majority of people in Boone County live above the FPL, even an annual income at twice the FPL can present significant difficulties with access to healthcare, access to transportation, housing stability, and food security.

In 2021, the FPL was set at an income of $12,880 per year for an individual or $26,500 for a family of four.

Federal Poverty Levels (FPL)

	Boone County	Missouri	United States
Living At or Below 100% FPL	16.86%	13.01%	12.84%
Living At or Below 200% FPL *$25,760 per person* *$53,000 per family of 4*	33.67%	31.11%	29.79%
Living At or Below 50% FPL *$6,440 per person* *$13,250 per family of 4*	8.79%	5.66%	5.78%
Children Below 100% FPL	15.30%	17.35%	17.48%

US Census Bureau, American Community Survey. 2021

Public assistance refers to programs that provide cash or in-kind assistance to individuals, households, or families from a federal, state, or local government entity, including Supplemental Security Income (SSI), Temporary Assistance for Needy Families (TANF), and unemployment insurance compensation.

Households with Public Assistance Income

Boone County	Missouri	United States
1.71%	1.86%	2.45%

US Census Bureau, American Community Survey, 2021

Childhood Poverty by ZIP

ZIP Code	ZIP Name	Childhood Poverty (%)	Childhood Poverty Rank (of 937)	Socioeconomic Status Rank (of 937)
65010	Ashland	3.47	175	88
65240	Centralia	8.2	282	254
65201	Columbia	20.92	573	303
65202	Columbia	19.58	548	259
65203	Columbia	10.92	359	65
65255	Hallsville	28.43	708	330
65256	Harrisburg	4.24	200	115
65039	Hartsburg	6.94	255	28
65279	Rocheport	0	57	47
65243	Rucker	60.58	912	502
65284	Sturgeon	3.48	176	169

Missouri ZIP Health Data, 2021

2019 CHNA Measurement and Outcomes

At the completion of the 2019 CHNA, Boone Hospital prioritized diabetes and heart disease as community health needs that the hospital could address through community wellness initiatives. Boone Hospital's 2019 implementation plan to address both needs is outlined below.

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

    a. Screen 500 adults each year for glucose at Boone Hospital Center's Outpatient Diabetes and Nutrition Clinic and on Boone Hospital Center's Mobile Health Unit. We will also partner with other local organizations, i.e., Boone County Health Dept. Live Well by Faith etc.

    b. Follow up with 40% of clients who opt-in and are identified as in the pre-diabetes or diabetes range at screenings.

    c. Provide the clients with referral specialist access and educational materials to increase their knowledge of healthy lifestyle changes to help manage their condition.

II.   Heart Disease

    a. Improve cardiovascular health and quality of life through Prevention, Detection, Education and access to Treatment of risk factors for heart disease.

    b. Increase early identification, symptoms and treatment of heart disease and prevention of cardiovascular events.

These programs were slated to start in Spring 2020; however, due to public health restrictions necessary to prevent the spread of COVID-19, these programs were suspended indefinitely, with in-person community health activities not resuming until 2022. During this time, Boone Hospital also underwent reorganization as part of its transition away from BJC HealthCare, which included the establishment of a new Community Wellness department.

Conducting the 2022 CHNA

Community Forum

In July 2022, Boone Hospital conducted a community forum 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 E for a complete Community Forum Report).

On July 19, 2022, Boone Hospital Center conducted a community forum meeting. Boone Hospital invited key partners within Boone County to ensure diverse representation. Of the 22 invited, 16 individuals attended the in-person meeting held at Boone Hospital Center. These attendees included public health experts from Columbia/Boone County Public Health & Human Services.

The forum was facilitated by Stephen Njenga, MHA, CPHQ, CPPS, LSSYB, Director of Quality Measurement and Population Health Improvement with Missouri Hospital Association Quality Works®, who presented an update on Boone Hospital's 2019 CHNA and current secondary data findings derived from the exploreMOhealth platform and the MHA Health Equity Dashboards.

The objectives for the community forum were to:

- Gather input, reaction and advice on community health needs in Boone County
- Identify changes in community health needs since the 2019 CHNA
- Identify and rank priority issues in the primary service area of Boone County
- Identify local resources and opportunities for collaboration

Collaboration with these partners will help Boone Hospital Center identify opportunities to create programs for broader impact; avoid unnecessary duplication of programs or services; build our capacity for community engagement and collaborative problem solving; and help the community build upon and sustain health improvement activities.

Attendees were educated about the prioritization process which was key to their selection criteria for the priority health issues. Based on the findings of the past CHNA and current secondary data results, a list of measures were displayed, and attendees were asked to vote on each measure.

For each need, attendees were asked to consider the following:

- **Magnitude of the Problem:** Does the health need affect a large number of people within the community?
- **Severity of the Problem:** Does the health need have serious consequences (morbidity, mortality, or economic burden) for those affected?
- **Health Disparities:** Does the health need disproportionately impact the health status of one or more vulnerable population groups?
- **Community Assets:** Can the community make a meaningful contribution to addressing the health need based on its assets, relevant expertise, or organizations committed to addressing the need?

- **Ability to Leverage:** Is there opportunity to collaborate with existing community partnerships working to address the health need?

Needs that received the most votes were ranked from ascending to descending format. After the ranking exercise, attendees unanimously agreed on the top issues based on votes. Attendees were also asked to identify the strengths and barriers for each priority area.

The following priority issues were identified through the voting process:

1. Mental Health/Substance Abuse
2. Obesity
3. Social Determinants of Health
    a. Transportation
    b. Housing
    c. Uninsured/Underinsured
    d. Food Insecurity

Community forum attendees

- Angela Aayers, Boone County Sheriff Department
- April Bernhardt, Boone Health Social Work
- Kat Brissey, Boone Home Care & Hospice
- Sawiyyah Chanay, MU Extension, University of Missouri
- Jeff Coffman, City of Columbia Fire Department
- Kristin Cummins, Boone County Community Services Department
- Reverend James Gray, Secondary Ministry Baptist Church
- Dan Hartgrove, Boone Health Stroke Program
- Steve Hollis, City of Columbia
- Dana Jones, Columbia Public Schools
- Joanne Nelson, Boone County Community Services
- Debbie Newby, Missouri State Parks
- Sarah Rainey, City of Columbia (retired)
- Mary Ratliff, Columbia NAACP
- Rebecca Roesslet, Columbia/Boone County Public Health & Human Services
- Jessica Sida, Show Me State Games

Representatives from the following organizations were invited but unable to attend.

- Boone County Human Resources Department
- Veterans' United
- Local Motion (Formerly PedNet)

- Boone Health Board of Trustees
- MU Department of Public Health
- Stephens College

Secondary Data

Health by ZIP Code

While overall, Boone County is in the upper percentile among Missouri's 115 counties for health factors, health behaviors, and clinical care metrics, there may be health disparities within different parts of the county, particularly between Columbia and rural communities.

Where an individual lives is a significant indicator for their overall health outcomes and life expectancy. A person's ZIP code can be a bigger determinant of their health than their genetics.

The healthiest communities in the United States tend to have the most economic stability. On the other hand, economic instability, which includes high poverty rates, high unemployment rates, housing insecurity, food insecurity, and barriers to accessing health care, can contribute to poorer health outcomes.

For the 2022 CHNA, Boone Hospital Center used data from the Missouri ZIP Health Rankings Project, a collaboration between Washington University School of Medicine and the Hospital Industry Data Institute. The Missouri ZIP Health Rankings Project uses hospital discharge and census-based data applied to the County Health Rankings model of population health for 937 ZIP codes in Missouri. The ZIP-code level data used for this needs assessment are based on hospital discharges between October 2018 and September 2021 and 2020 American Community Survey of the US Census. This information is available to the public at **exploreMOhealth.org**.

To ensure we have zip code data for all of Boone County, we have included data from ZIP code 65243 (Clark, Missouri), which covers the northwest corner of the county, including the unincorporated community of Rucker.

For all measures, rankings go from 1 being most positive to 937 being most negative. A higher rank for health outcomes and for rates of cancer both indicate a healthier community. To better identify disparities at a glance, the 937 ZIP codes have been assigned to five quintiles:

1	1 – 187
2	188 – 375
3	376 – 562
4	563 – 740
5	741 - 937

County vs ZIP Code

According to 2021 County Health Rankings, Boone County is ranked 3rd out of 115 counties for Health Factors and 10th for Health Outcomes.

2022 Health Factors - Missouri	2022 Health Outcomes - Missouri
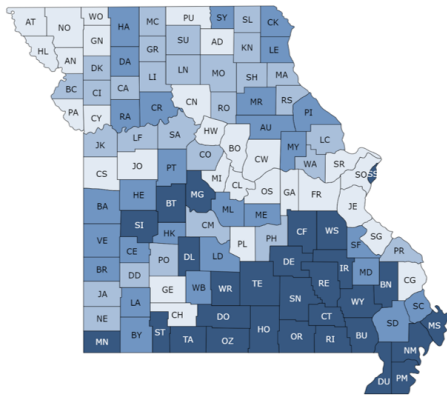
Health Factor Ranks: 1 to 29, 30 to 58, 59 to 86, 87 to 115

Health Outcome Ranks: 1 to 29, 30 to 58, 59 to 86, 87 to 115

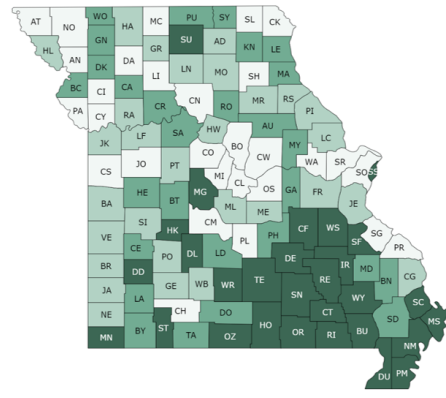**Health Factors** rankings reflect health behaviors, access to and use of health care services, and social and economic factors such as income and education.

Health Outcomes rankings measure the physical and mental health of residents, length of life, premature death, and quality of life.

County Health Rankings, 2021

Health Factors and Outcomes are generally high in each Boone County ZIP code, with lower scores in northwest Boone County.

Health Factors and Outcomes by ZIP

ZIP Code	ZIP Name	Health Factors Combined Rank	Health Outcomes Combined Rank	ZIP Health Rank	ZIP Health Rank Quintile
65010	Ashland	79	97	83	1
65240	Centralia	218	199	201	2
65201	Columbia	300	205	239	2
65202	Columbia	308	311	315	2
65203	Columbia	61	51	57	1
65255	Hallsville	303	335	324	2
65256	Harrisburg	123	159	132	1
65039	Hartsburg	28	21	25	1
65279	Rocheport	48	47	47	1
65243	Rucker	431	383	402	3
65284	Sturgeon	145	123	128	1

Missouri ZIP Health Rankings. 2021

Premature Deaths

Premature death measures live lost before age 75. Deaths are counted in the county where the individual lived, not where they died. Boone County has a lower premature death rate compared to the state and nation.

Premature Deaths per 100,000

Boone County	Missouri	United States
6,800	8,900	7,300

Missouri ZIP Health Rankings. 2021

From 2018 to 2020, the leading causes of death under age 75 in Boone County were cancer (447 persons), heart disease (353), accidents (173), chronic lower respiratory diseases (80), and intentional self-harm (74).

In 2020, there were 26 premature deaths due to COVID-19. This value is not currently available for 2021 and 2022.

At the ZIP code level, premature deaths are measured per 1,000 people. This information is based on 2017-2019 data and does not reflect premature deaths due to COVID-19. Depending on the number of people who live in a ZIP code, the premature death rate can fluctuate annually and may not necessarily reflect a trend.

Premature Death by ZIP Code

ZIP Code	ZIP Name	Premature Deaths per 1,000	Premature Deaths Rank (of 937)	Premature Deaths Quintile
65010	Ashland	1.32	180	1
65240	Centralia	1.44	223	2
65201	Columbia	0.88	92	1
65202	Columbia	1.65	288	2
65203	Columbia	0.94	105	1
65255	Hallsville	2.21	468	3
65256	Harrisburg	2.3	501	3
65039	Hartsburg	0.58	50	1
65279	Rocheport	1.23	165	1
65243	Rucker	1.54	253	2
65284	Sturgeon	1.34	189	2

Missouri ZIP Health Rankings. 2021

Access to Care

Access to care reflects an individual's or family's ability to get the health care they need, including primary, specialist and emergency care, and is a significant determinant for physical and mental health.

Clinical Care

Clinical care ranking factors in access to health care, insurance coverage, preventable hospitalizations.

Clinical Care by ZIP

ZIP Code	ZIP Name	Clinical Care Rank (of 937)	Clinical Care Quintile
65010	Ashland	57	1
65240	Centralia	120	1
65201	Columbia	127	1
65202	Columbia	140	1
65203	Columbia	34	1
65255	Hallsville	128	1
65256	Harrisburg	116	1
65039	Hartsburg	91	1
65279	Rocheport	122	1
65243	Rucker	427	3
65284	Sturgeon	35	1

Missouri ZIP Health Rankings, 2021

Provider Availability

Access to affordable care requires not only health insurance coverage, but an adequate number of providers who are available to treat patients. Boone County has the leading ratios of persons per health care providers compared to other Missouri counties, and the ratio is higher in the county than in the state overall, and the nation.

Persons per Primary Care Physicians*

Boone County	Missouri	United States
865:1	1400:1	1310:1

MD and DO physicians, excluding OB/GYN

US Department of Health and Human Services, Area Health Resources Files (AHRF) 2020-2021

Mental Health Providers Per Person

Boone County	Missouri	United States
277:1	460: 1	350:1

US Department of Health and Human Services, Area Health Resources Files (AHRF) 2020-2021

Dentists Per Person

Boone County	Missouri	United States
277:1	1650:1	1400: 1

US Department of Health and Human Services, Area Health Resources Files (AHRF) 2020-2021

Health Care Workers per 1,000 People by ZIP

ZIP Code	ZIP Name	Health Care Workers per 1,000	Health Care Workers Rank (of 937)	Health Care Workers Quintile
65010	Ashland	50.8	92	1
65240	Centralia	42.76	147	1
65201	Columbia	35.03	245	2
65202	Columbia	47.99	112	1
65203	Columbia	62.98	48	1
65255	Hallsville	38.6	196	2
65256	Harrisburg	55.1	77	1
65039	Hartsburg	46.4	120	1
65279	Rocheport	38.86	191	2
65243	Rucker	14.27	666	4
65284	Sturgeon	80.46	22	1

Missouri ZIP Health Rankings, 2021

Uninsured and Underinsured People

People without health care insurance have less access to health care, including preventative care. As a result, they are more likely to have poor health outcomes. A lack of health insurance coverage can also result in financial challenges caused by medical debt.

Population Age 18 to 64 Without Health Insurance, Percentage

Boone County	Missouri	United States
12%	14%	13%

Missouri ZIP Health Rankings, 2021

Children Under Age 19 Without Health Insurance, Percentage

Boone County	Missouri	United States
7%	7%	6%

Medicaid by ZIP

ZIP Code	ZIP Name	Medicaid per 1,000	Medicaid Rank (of 937)	Medicaid Quintile
65010	Ashland	333	488	3
65240	Centralia	310.65	433	3
65201	Columbia	336.12	495	3
65202	Columbia	710.71	860	5
65203	Columbia	359.64	549	4
65255	Hallsville	435.87	665	4
65256	Harrisburg	742.19	877	5
65039	Hartsburg	174.28	145	1
65279	Rocheport	327.37	475	3
65243	Rucker	337.81	497	3
65284	Sturgeon	361.79	555	4

Uninsured Patients by ZIP

Uninsured Patients with Hospital Inpatient, Emergency and Outpatient Visits (October 2018-September 2021)

ZIP Code	ZIP Name	Uninsured per 1,000	Uninsured Rank (of 937)	Uninsured Quintile
65010	Ashland	192.34	691	4
65240	Centralia	150.04	512	3
65201	Columbia	228.9	779	5
65202	Columbia	308.85	862	5
65203	Columbia	202.32	722	5
65255	Hallsville	206.05	732	5
65256	Harrisburg	277.32	837	5
65039	Hartsburg	116.34	327	2
65279	Rocheport	206.25	733	4
65243	Rucker	194.57	697	4
65284	Sturgeon	195.05	698	4

These numbers do not include underinsured people who have health care insurance plans but experience difficulty with paying out-of-pocket costs or deductibles. Underinsured people are also more likely to delay getting health care.

People with inadequate or no health care coverage are more likely to visit a hospital's emergency department for conditions that can be treated or managed in an outpatient setting, including chronic conditions like diabetes and heart disease. A lack of preventative or outpatient care can also lead to higher rates of preventable hospital stays.

Hospital Stays For Ambulatory-care Sensitive Conditions Per 100,000 Medicare Enrollees

Boone County	Missouri	United States
3,359	4,638	4,236

Preventable Emergency Department (ED) Visits by ZIP

ZIP Code	ZIP Name	Preventable ED Visits per 1,000	Preventable ED Visits Rank (of 937)	Prevent ED Visits Quintile
65010	Ashland	131.73	313	2
65240	Centralia	122.2	272	2
65201	Columbia	142.99	373	2
65202	Columbia	236.21	754	5
65203	Columbia	121.08	260	2
65255	Hallsville	152.61	427	3
65256	Harrisburg	172.18	517	3
65039	Hartsburg	78.41	60	1
65279	Rocheport	109.03	187	1
65243	Rucker	113.68	214	2
65284	Sturgeon	147.44	400	3

Missouri ZIP Health Rankings, 2021

Chronic Conditions

Chronic conditions are health conditions that require ongoing medical care, limit daily activities, or both. Chronic conditions including cancer, chronic lung disease, diabetes, stroke, and heart disease are the leading causes of death and disability in the United States. According to the CDC, 6 in 10 adults in the United States have a chronic condition and 4 in 10 adults have two or more chronic conditions.

Chronic conditions present significant health care costs, with 90% of the nation's annual health care expenditures being used to treat people with chronic and mental health conditions. Access to preventative and outpatient care to avoid or manage chronic diseases can reduce costs for individuals, families, and organizations.

Major risk factors for chronic diseases include tobacco use, poor nutrition, physical inactivity, and excessive alcohol use.

Asthma and Chronic Obstructive Pulmonary Disorder

Asthma causes episodes of difficulty breathing, chest tightness, wheezing and coughing. It can be caused by genetic, environmental, and occupational factors. Air pollution, viral respiratory infections, secondhand tobacco smoke, and irritants or allergens in the home or workplace have all been linked to asthma attacks in adults and children. Asthma is one of the most common chronic diseases among children.

Asthma Diagnoses by ZIP

ZIP Code	ZIP Name	Asthma per 1,000	Asthma Rank (of 937)	Asthma Quintile
65010	Ashland	73.87	793	5
65240	Centralia	53.25	616	4
65201	Columbia	50.97	583	4
65202	Columbia	91.89	854	5
65203	Columbia	69.86	776	5
65255	Hallsville	76.31	804	5
65256	Harrisburg	86.78	841	5
65039	Hartsburg	37.17	377	3
65279	Rocheport	88.63	847	5
65243	Rucker	53.01	613	4
65284	Sturgeon	65.27	742	5

Missouri ZIP Health Rankings, 2021

Chronic obstructive pulmonary disorder, or COPD, describes emphysema or chronic bronchitis. COPD is primarily caused by smoking tobacco. People with a history of asthma, respiratory infections, or exposure to air pollutants are also at higher risk for COPD. COPD can limit a person's daily activities, including their ability to work, and patients with COPD are at higher risk of developing severe COVID-19 or influenza. In 2018, COPD was the fourth leading cause of death in the United States.

Chronic Obstructive Pulmonary Disorder (COPD) Diagnoses by ZIP

ZIP Code	ZIP Name	COPD per 1,000	COPD Rank (of 937)	COPD Quintile
65010	Ashland	72	265	2
65240	Centralia	82.72	349	2
65201	Columbia	41.99	79	1
65202	Columbia	76.76	304	2
65203	Columbia	48.33	113	1
65255	Hallsville	89.25	402	3
65256	Harrisburg	99.63	471	3
65039	Hartsburg	44.9	91	1
65279	Rocheport	60.66	175	1
65243	Rucker	58.19	159	1
65284	Sturgeon	99.99	476	3

Missouri ZIP Health Rankings, 2021

COPD or Older Adult Asthma Admissions by ZIP

ZIP Code	ZIP Name	COPD or Older Adult Asthma Admissions per 1,000	COPD or Older Adult Asthma Admissions Rank (of 937)	COPD or Older Adult Asthma Admissions Quintile
65010	Ashland	0.82	223	1
65240	Centralia	0.92	257	1
65201	Columbia	0.76	205	1
65202	Columbia	1.24	361	1
65203	Columbia	0.61	162	1
65255	Hallsville	0.33	90	1
65256	Harrisburg	0.46	121	1
65039	Hartsburg	1.5	443	1
65279	Rocheport	0.82	224	1
65243	Rucker	0.84	231	3
65284	Sturgeon	3.73	827	1

Missouri ZIP Health Rankings, 2021

Younger Adult Asthma Admissions

ZIP Code	ZIP Name	Young Adult Asthma Admissions per 1,000	Young Adult Asthma Admissions Rank (of 937)	Young Adult Asthma Admissions Quintile
65010	Ashland	0.05	731	4
65240	Centralia	0.04	682	4
65201	Columbia	0.08	782	5
65202	Columbia	0.15	843	5
65203	Columbia	0.05	723	4
65255	Hallsville	0.16	852	5
65256	Harrisburg	0.23	880	5
65039	Hartsburg	0.46	918	5
65279	Rocheport	0.41	914	5
65243	Rucker	0	99	1
65284	Sturgeon	0.15	845	5

Missouri ZIP Health Rankings, 2021

Air Pollution

Air pollution can result in pulmonary issues include decreased lung function, asthma, or chronic bronchitis. Long-term exposure to fine particulate matter increases the risk of premature death risk in people 65 and older. People who live in poverty are more likely to be exposed to air pollutants.

The Environmental Protection Agency (EPA) has primary annual average standards of 12.0 micrograms per cubic meter. Boone County has a higher average daily density than Missouri state and the United States.

Particles may come from industrial operations, power plants, automobiles, or forest fires. Estimates are based on seasonal averages.

Average Daily Density of Fine Particulate Matter in Micrograms per Cubic Meter

Boone County	Missouri	United States
8.9 mcg	8.2	7.5

Environmental Public Health Tracking Network, 2018

Cancer

Cancer describes a group of over 100 different diseases where abnormal cell growth develops in a person's blood cells, organs, or tissues. Cancer is the second leading cause of death in the United States.

According to the American Cancer Society, at least 42% of newly diagnosed cancers in the United States are potentially avoidable, including cancers caused primarily by smoking, excess weight, alcohol consumption, physical inactivity, poor nutrition, or excessive sun exposure. Screening for certain kinds of cancer can result in prevention or early detection when treatment is more likely to be successful.

Diagnosis rates include all patients who were diagnosed with cancers but do not reflect stages or survival rates. An incidence rate may increase if more patients in the area are being screened and having cancer detected early, when it can be treated or cured.

Breast Cancer

Breast cancer is the second most common cancer among women in the United States and primarily affects women over 50 years old.

Breast Cancer Diagnoses by ZIP

ZIP Code	ZIP Name	Breast Cancer per 1,000	Breast Cancer Rank (of 937)	Breast Cancer Quintile
65010	Ashland	95.63	621	4
65240	Centralia	67.59	345	2
65201	Columbia	64.06	305	2
65202	Columbia	124.95	770	5
65203	Columbia	124.41	767	5
65255	Hallsville	109.2	706	4
65256	Harrisburg	249.78	916	5
65039	Hartsburg	96.01	624	4
65279	Rocheport	170.52	866	5
65243	Rucker	98.78	639	4

| 65284 | Sturgeon | 100.65 | 656 | 4 |

Breast Cancer Screening

Breast cancer deaths can be reduced by early detection through mammography screening.

While differing guidelines have been issued on when and how often a woman should have a mammogram, most major medical organizations, including the American College of Radiology, recommend all women at average risk for breast cancer have an annual mammogram starting at age 40. Confusion about recommended breast cancer screening guidelines may result in fewer patients receiving annual mammograms.

Percentage of female Medicare enrollees ages 65-74 that received an annual mammography screening. 2019

Boone County	Missouri	United States
49%	45%	43%

Colorectal Cancer

Colorectal cancer is the fourth-leading cause of cancer death among men and women in the United States.

Colorectal cancer can be detected and even treated in its precancerous stage through screening.

Colorectal Cancer Diagnoses by ZIP

ZIP Code	ZIP Name	Colorectal Cancer per 1,000	Colorectal Cancer Rank (of 937)	Colorectal Cancer Quintile
65010	Ashland	6.74	137	1
65240	Centralia	12.63	323	2
65201	Columbia	7.98	168	1
65202	Columbia	19.46	567	4
65203	Columbia	15.54	436	3
65255	Hallsville	15.9	450	3
65256	Harrisburg	78.97	908	5
65039	Hartsburg	3.92	82	1
65279	Rocheport	7.2	148	1
65243	Rucker	24.06	687	4
65284	Sturgeon	15.2	421	3

Lung Cancer

Lung cancer is the third-most common cancer in the United States and the leading cause of cancer deaths in both men and women. Tobacco smoking is the primary cause for lung cancer. People who smoke have a significantly higher risk of lung cancer compared to people who do not smoke, but smoking cessation can potentially lower one's risk of lung cancer incidence and death.

Lung Cancer Incidence by ZIP

ZIP Code	ZIP Name	Lung Cancer per 1,000	Lung Cancer Rank (of 937)	Lung Cancer Quintile
65010	Ashland	30.3	615	4
65240	Centralia	18.93	353	2
65201	Columbia	9.21	126	1
65202	Columbia	25.57	528	3

65203	Columbia	19.53	372	2
65255	Hallsville	31.47	642	4
65256	Harrisburg	45.91	799	5
65039	Hartsburg	8.89	120	1
65279	Rocheport	26.94	555	3
65243	Rucker	48.82	815	5
65284	Sturgeon	38.44	737	4

Missouri ZIP Health Rankings, 2021

Percentage Of Adults Who Report As Current Smokers, Age-Adjusted

Boone County	Missouri	United States
18%	20%	16%

US Department of Health & Human Services, Health Indicators Warehouse. 2021

Smoking by ZIP

ZIP Code	ZIP Name	Smoking Diagnoses per 1,000	Smoking Rank (of 937)	Smoking Quintile
65010	Ashland	271.8	463	3
65240	Centralia	241.45	378	3
65201	Columbia	194.41	229	2
65202	Columbia	355.08	666	4
65203	Columbia	199.35	249	2
65255	Hallsville	316.04	573	4
65256	Harrisburg	433.65	792	5
65039	Hartsburg	178.44	176	1
65279	Rocheport	246.97	394	3
65243	Rucker	211.64	284	2
65284	Sturgeon	315.9	572	4

Missouri ZIP Health Rankings, 2021

Skin Cancer

Skin cancer is most commonly diagnosed cancer in the United States. The most common cause of skin cancer is overexposure to ultraviolet light from the sun or tanning beds. Melanoma, the third most common type of skin cancer and most common cancer in people under 30, has the highest risk of death if not detected and treated early. People who work outdoors are also at higher risk of skin cancer due to long-term sun exposure.

Most ZIP codes in Boone County were in the 4th or 5th quintiles for skin cancer rates in Missouri.

Skin Cancer Diagnoses by ZIP

ZIP Code	ZIP Name	Skin Cancer per 1,000	Skin Cancer Rank (of 937)	Skin Cancer Quintile
65010	Ashland	18.08	818	5
65240	Centralia	11.42	661	4
65201	Columbia	8.18	527	3
65202	Columbia	10.72	640	4
65203	Columbia	15.63	773	4
65255	Hallsville	25.16	879	5
65256	Harrisburg	15.38	765	5
65039	Hartsburg	12.7	701	4
65279	Rocheport	28.38	896	5
65243	Rucker	17.21	800	5
65284	Sturgeon	36.95	921	5

Missouri ZIP Health Rankings, 2021

Diabetes

Diabetes is a chronic disease that results when the body does not make or use insulin well, leading to difficulty regulating blood glucose. If untreated, high blood glucose can cause damage to blood vessels and nerves. People who have type 2 diabetes are at a higher risk of heart disease, stroke, and other complications. Risk factors for diabetes include excess weight, family history, physical inactivity, smoking, and prediabetes.

Over 37 million people in the United States – more than 10% of the population – live with diabetes.

Diabetes Diagnoses by ZIP

ZIP Code	ZIP Name	Diabetes per 1,000	Diabetes Rank (of 937)	Diabetes Quintile
65010	Ashland	246.21	558	3
65240	Centralia	227.49	498	3
65201	Columbia	155.58	222	2
65202	Columbia	312.39	723	4
65203	Columbia	214.71	451	3
65255	Hallsville	304.89	713	4
65256	Harrisburg	342.98	765	5
65039	Hartsburg	156.51	230	2
65279	Rocheport	277.81	655	4
65243	Rucker	243.53	545	3
65284	Sturgeon	324.84	741	5

Missouri ZIP Health Rankings, 2021

Uncontrolled diabetes and complications of diabetes can result in hospitalizations and increased medical costs for people with the condition.

Uncontrolled Diabetes Admissions

ZIP Code	ZIP Name	Uncontrolled Diabetes Admissions per 1,000	Uncontrolled Diabetes Admissions Rank (of 937)	Uncontrolled Diabetes Admissions Quintile
65010	Ashland	0.16	375	2
65240	Centralia	0.41	655	4
65201	Columbia	0.29	516	3
65202	Columbia	0.49	723	4
65203	Columbia	0.22	419	3
65255	Hallsville	0.33	560	3
65256	Harrisburg	0	208	2
65039	Hartsburg	0	101	1
65279	Rocheport	0.21	406	3
65243	Rucker	0	156	1
65284	Sturgeon	0.15	355	3

Missouri ZIP Health Rankings, 2021

Diabetes Short-Term Complications Admissions

ZIP Code	ZIP Name	Diabetes Short-Term Complications Admissions per 1,000	Diabetes Short-Term Complications Admissions Rank (of 937)	Diabetes Short-Term Complications Admissions Quintile
65010	Ashland	0.27	337	2
65240	Centralia	1.44	835	5
65201	Columbia	0.44	449	3
65202	Columbia	1.58	853	5
65203	Columbia	0.45	456	3

65255	Hallsville	0.66	589	4
65256	Harrisburg	2.07	889	5
65039	Hartsburg	0.35	394	3
65279	Rocheport	0.82	669	4
65243	Rucker	0.28	342	2
65284	Sturgeon	0.75	640	4

Missouri ZIP Health Rankings, 2021

Diabetes Patient Lower-Extremity Amputation Admissions

ZIP Code	ZIP Name	Diabetes Patient Lower-Extremity Amputation Admissions per 1,000	Diabetes Patient Lower-Extremity Amputation Admissions Rank (of 937)	Diabetes Patient Lower-Extremity Amputation Admissions Quintile
65010	Ashland	0.05	328	2
65240	Centralia	0.26	534	3
65201	Columbia	0.2	461	3
65202	Columbia	0.31	600	4
65203	Columbia	0.19	452	3
65255	Hallsville	0.16	421	3
65256	Harrisburg	0	306	2
65039	Hartsburg	0.12	366	2
65279	Rocheport	0	312	2
65243	Rucker	0.98	901	5
65284	Sturgeon	0.15	401	3

Heart Disease

Heart disease is the leading cause of premature death in the United States and describes several conditions, including coronary artery disease, artherosclerosis, heart failure, and arrhythmias. Some heart diseases are congenital, however, most heart disease results from weight gain, poor diet, physical inactivity, excessive alcohol use, and smoking.

Hypertension, or high blood pressure, and high cholesterol are reliable indicators of heart disease risk.

Heart Disease Diagnoses by ZIP

ZIP Code	ZIP Name	Heart Disease per 1,000	Heart Disease Rank (of 937)	Heart Disease Quintile
65010	Ashland	173	312	2
65240	Centralia	177.03	328	2
65201	Columbia	110.88	75	1
65202	Columbia	183.95	365	2
65203	Columbia	160.9	262	2
65255	Hallsville	195.31	413	3
65256	Harrisburg	302.8	747	5
65039	Hartsburg	120.27	98	1
65279	Rocheport	205.84	451	3
65243	Rucker	170.93	302	2
65284	Sturgeon	220.53	519	3

Missouri ZIP Health Rankings, 2021

Hypertension Diagnoses by ZIP

ZIP Code	ZIP Name	Hypertension per 1,000	Hypertension Rank (of 937)	Hypertension Quintile
65010	Ashland	358.32	411	3
65240	Centralia	320.66	316	2

65201	Columbia	226.47	97	1
65202	Columbia	397.23	511	3
65203	Columbia	335.59	347	2
65255	Hallsville	425.95	568	4
65256	Harrisburg	505.74	696	4
65039	Hartsburg	267.43	184	1
65279	Rocheport	451.78	613	4
65243	Rucker	342.01	367	2
65284	Sturgeon	444.35	593	4

Missouri ZIP Health Rankings, 2021

Atherosclerosis happens when plaque made of cholesterol deposits builds in the coronary arteries that supply blood to the heart. Coronary artery disease is a leading risk factor for heart attack.

Atherosclerosis Diagnoses by ZIP

ZIP Code	ZIP Name	Atherosclerosis Disease per 1,000	Atherosclerosis Disease Rank (of 937)	Atherosclerosis Disease Quintile
65010	Ashland	90.58	278	2
65240	Centralia	89.35	269	2
65201	Columbia	50.05	44	1
65202	Columbia	89.17	268	2
65203	Columbia	74.78	144	1
65255	Hallsville	105.32	388	3
65256	Harrisburg	160.24	690	4
65039	Hartsburg	69.48	114	1
65279	Rocheport	107.55	401	3
65243	Rucker	87.28	257	2
65284	Sturgeon	120.55	474	3

Missouri ZIP Health Rankings, 2021

Heart failure is a serious chronic condition that happens when the heart muscle is too weak to pump enough blood to meet the body's needs.

Heart Failure Admissions by ZIP

ZIP Code	ZIP Name	Heart Failure Admissions per 1,000	Heart Failure Admissions Rank (of 937)	Heart Failure Quintile
65010	Ashland	1.59	130	1
65240	Centralia	2.14	212	2
65201	Columbia	1.81	159	1
65202	Columbia	2.86	371	2
65203	Columbia	2.12	209	2
65255	Hallsville	2.38	266	2
65256	Harrisburg	3.9	602	4
65039	Hartsburg	2.77	352	2
65279	Rocheport	2.88	377	3
65243	Rucker	1.82	161	1
65284	Sturgeon	2.83	368	2

Stroke

Stroke is a medical emergency where blood supply to the brain is interrupted. This condition requires immediate emergency medical attention. Early intervention can lower the risk of death and reduce brain damage and other complications.

ZIP Code	ZIP Name	Stroke per 1,000	Stroke Rank (of 937)	Stroke Quintile
65010	Ashland	21.15	600	4
65240	Centralia	24.86	714	4
65201	Columbia	13.31	261	2
65202	Columbia	18.41	481	3
65203	Columbia	17.59	453	3
65255	Hallsville	23.36	664	4
65256	Harrisburg	17.68	460	3
65039	Hartsburg	23.89	689	4
65279	Rocheport	39.48	871	5
65243	Rucker	21.68	618	4
65284	Sturgeon	22.2	634	4

Missouri ZIP Health Rankings, 2021

Mental Health

Mental health describes an individual's emotional, psychological, and social well-being. A person's mental health affects how they respond to stress, interact with others, and manage the challenges of daily life. Social and emotional support are critical for overall good mental health and having adequate support is linked to educational achievement and economic stability.

A person does not need to have a diagnosed mental illness to experience poor mental health. Mental health problems can be caused by stressful or traumatic life experiences. In 2020, one in five American adults experienced mental health issues, while one in 20 live with a mental health disorder like major depression, bipolar disorder or schizophrenia.

Mental health disorders are a risk factor for chronic conditions, and chronic conditions are a risk factor for mental health disorders. The impact of chronic illness and pain on a person's quality of life may cause depression. Treatments for mental health disorders can result in weight gain, which is a risk factor for many chronic diseases, and treatments for physical health disorders can worsen depression or anxiety in patients. Mental health disorders can also be comorbid with each other – patients who experience major depression are more likely to be diagnosed with an anxiety disorder.

Effective mental health support or treatment can help people with mental health problems recover and experience an improved quality of life; however, in 2020, only 20% of adults received any mental health treatment including medication or counseling. Children and adolescents can have more difficulty accessing mental health treatment. In the United States, suicide is a leading cause of death among teenagers and young adults.

Average Number of Poor Mental Health Days Reported in Past 30 Days

Boone County	Missouri	United States
4.6	4.9	4.5

County Health Rankings. 2019

Mental Health Condition Diagnosis by ZIP

ZIP Code	ZIP Name	Mental Health Diagnoses per 1,000	Mental Health Diagnosed Rank (of 937)	Mental Health Quintile
65010	Ashland	46.25	809	5
65240	Centralia	28.03	602	4
65201	Columbia	44.41	791	5
65202	Columbia	61.64	854	5
65203	Columbia	61.61	853	5
65255	Hallsville	45.65	802	5
65256	Harrisburg	50.28	823	5
65039	Hartsburg	16.51	251	2
65279	Rocheport	45.24	801	5
65243	Rucker	27.56	593	4
65284	Sturgeon	44.4	790	5

Missouri ZIP Health Rankings, 2021

Lack of Social or Emotional Support

Adults aged 18 and older who self-report that they receive insufficient social and emotional support all or most of the time. Age-Adjusted Percentage

Boone County	Missouri	United States
17.50%	19.10%	20.70%

US Department of Health & Human Services, Health Indicators Warehouse. 2021

Substance Abuse

Substance abuse describes the use of alcohol or illegal, prescription, or over-the-counter drugs in excessive amounts or for unintended purposes. Substance abuse can cause physical, emotional, social, financial and legal problems.

Substance Use Disorder Diagnoses by ZIP

ZIP Code	ZIP Name	Substance Use Disorder Diagnoses per 1,000	Substance Use Disorder Rank (of 937)	Substance Use Disorder Quintile
65010	Ashland	5.21	783	5
65240	Centralia	2.69	436	3
65201	Columbia	7.35	870	5
65202	Columbia	8.28	889	5
65203	Columbia	4.8	746	5
65255	Hallsville	2.95	484	3
65256	Harrisburg	9.41	899	5
65039	Hartsburg	1.62	233	2
65279	Rocheport	3.29	549	3
65243	Rucker	1.68	247	2
65284	Sturgeon	5.22	785	5

Missouri ZIP Health Rankings, 2021

Opioid Use Disorder Diagnoses by ZIP

ZIP Code	ZIP Name	Opioid Use Diagnoses per 1,000	Opioid Use Rank (of 937)	Opioid Use Quintile
65010	Ashland	21.81	540	3
65240	Centralia	16.06	383	3
65201	Columbia	13.44	299	2
65202	Columbia	27.69	654	4

65203	Columbia	16.05	382	3
65255	Hallsville	30.9	696	4
65256	Harrisburg	37.65	769	5
65039	Hartsburg	11.31	221	2
65279	Rocheport	24.68	601	4
65243	Rucker	13.43	297	2
65284	Sturgeon	26.23	627	4

Missouri ZIP Health Rankings, 2021

Drug overdose deaths are a leading contributor to premature death and are largely preventable. Currently, the United States is experiencing an epidemic of drug overdose deaths. Since 2000, the rate of drug overdose deaths has increased by 137% nationwide. Opioids, including prescription pain relievers and heroin, contribute largely to drug overdose deaths; since 2000, there has been a 200% increase in deaths involving opioids.

Number of drug poisoning deaths per 100,000 population.

Boone County	Missouri	United States
18	28	23

Missouri ZIP Health Rankings, 2021

Excessive drinking is a risk factor for adverse health outcomes such as alcohol poisoning, hypertension, acute myocardial infarction, sexually transmitted infections, unintended pregnancy, fetal alcohol syndrome, sudden infant death syndrome, suicide, interpersonal violence, and motor vehicle crashes.

The CDC defines binge drinking as consuming five or more drinks for men, or four or more drinks for women, in about two hours. Nearly 1 in 6 U.S. adults are considered binge drinkers.

Percentage Of Adults Self-reporting Binge Or Heavy Drinking

Boone County	Missouri	United States
19%	19%	20%

US Department of Health & Human Services, Health Indicators Warehouse. 2021

While the percentage of self-reporting binge drinking is comparable to the state and nation, the percentage of alcohol-related driving deaths is higher in Boone County.

Percentage of Driving Deaths with Alcohol Involvement

Boone County	Missouri	United States
30%	28%	27%

County Health Rankings, 2020

Obesity

Obesity has been reliably linked with poor diet and limited physical activity. People with obesity have an increased risk for chronic conditions including heart disease, type 2 diabetes, cancer, stroke, sleep apnea and respiratory problems, osteoarthritis, and poor health status.

Percentage of Adults Age 18 and Older Reporting a Body Mass Index (BMI) Greater Than or Equal to 30

Boone County	Missouri	United Statess
33%	35%	32%

Obesity Diagnoses by ZIP

ZIP Code	ZIP Name	Obesity Diagnoses Per 1,000	Obesity Rank	Obesity Quintile
65010	Ashland	145.98	840	5
65240	Centralia	128.16	779	5
65201	Columbia	80.73	445	3
65202	Columbia	165.41	866	5
65203	Columbia	103.68	654	4
65255	Hallsville	149	846	5
65256	Harrisburg	188.25	899	5
65039	Hartsburg	75.83	405	3
65279	Rocheport	126.67	770	5
65243	Rucker	103.37	652	4
65284	Sturgeon	125.47	764	5

A lack of physical activity can contribute to obesity and is also linked with other chronic diseases. With many employees working sedentary jobs, having no physical activity in their leisure time can put them at greater risk for poor health outcomes. Easier access to gyms, parks, trails, and other locations for physical activity make it easier for individuals to incorporate physical activity into their daily life.

Percentage of adults age 18 and over reporting no leisure-time physical activity (age-adjusted).

Boone County	Missouri	United States
29%	30%	26%

Percentage Of Population With Adequate Access To Locations For Physical Activity

Boone County	Missouri	United States
78%	70%	80%

Lack of access to healthier food options also contributes to obesity. This topic is further explored below under Food Insecurity.

Social Determinants of Health

Social determinants of health are the social, economic, and environmental factors that affect health outcomes. Where and how a person lives and works can have a greater impact on their health than their family history. Social determinants of health are also the leading cause of health disparities within communities.

Our community forum prioritized three social determinants of health as areas of need in Boone County: food security, housing, and transportation.

Food Insecurity

Food insecurity describes poor access to adequate food because of a lack of money or available food resources. Inconsistent access to food, particularly healthier food options, is linked with negative health outcomes including weight gain, chronic conditions, premature mortality, activity limitations, and increased medical costs. Children who grow up in food-insecure households are more likely to have poor health, lower cognitive scores, and more developmental delays than children who live in food-secure households.

Boone County has a higher rate of food insecurity than Missouri or the United States.

Food Insecurity Rate

Boone County	Missouri	United States
11.5%	11.4%	10.2%

Feeding America, 2021

Free or reduced price lunches are served to qualifying students in families with income between under 185 percent (reduced price) or under 130 percent (free lunch) of the US federal poverty threshold as part of the federal National School Lunch Program.

Students Eligible for Free or Reduced Price Lunch, Percent

Boone County	Missouri	United States
43.1%	49%	53.2%

National Center for Education Statistics, 2021

The USDA Supplemental Nutrition Assistance Program (SNAP) supports food budgets for individuals and households who have at most a gross monthly income of 130% of current Federal Poverty Levels and net monthly income of 100% FPL. The percentage of households receiving SNAP benefits in Boone County is lower than the state and national rates.

Percent Households Receiving SNAP Benefits

Boone County	Missouri	United States
7.3%	10.5%	11.4%

US Census Bureau, American Community Survey, 2021

Housing

Good health relies on adequate housing. A safe home can lend a stronger feeling of stability to families and individuals. Inadequate and poor-quality housing can contribute to health problems including chronic diseases, infections, and injuries.

Affordable housing also improves overall health. Families that experience severe cost burden in paying for housing (defined as exceeding 30% of household income) must make difficult decisions about paying for health care, medication, healthy foods, and other basic need, which can result in less preventative care, poor management of chronic conditions, and increased stress levels.

Severe housing problems indicates the percentage of households with at least one of the following housing problems: overcrowding, high housing costs (exceeding , lack of kitchen facilities or lack of plumbing facilities.

Households with Severe Housing Problems, Percentage

Boone County	Missouri	United States
16%	13%	17%

Cost Burdened Households (Housing Costs Exceed 30% of Income), Percentage

Boone County	Missouri	United States
29.1%	25%	30.4%

Vacancy rates show how many residential properties in a neighborhood are unoccupied. Higher vacancy rates have been linked to poorer health outcomes. Areas where many vacant properties are abandoned or not maintained are also associated with higher levels of crime, drug use, injuries, and premature death. In the data below, vacancy does not necessarily mean the property is abandoned.

Vacant Housing by ZIP

ZIP Code	ZIP Name	Percent Vacant Housing	Percent Vacant Housing Rank (of 937)	Percent Vacant Housing Quintile
65010	Ashland	4.17	58	1
65240	Centralia	8.07	181	1
65201	Columbia	10.87	270	2
65202	Columbia	8.19	185	1
65203	Columbia	6.86	136	1
65255	Hallsville	6.07	115	1
65256	Harrisburg	23.25	663	4
65039	Hartsburg	2	18	1
65279	Rocheport	19.8	567	4
65243	Rucker	20.54	586	4
65284	Sturgeon	10.17	252	2

The presence of college students has resulted in higher renter-occupied housing levels in Columbia than in rural areas.

Renter Occupied Housing by ZIP

ZIP Code	ZIP Name	Renter Occupied Housing (%)	Renter Occupied Housing Rank (of 937)	Renter Occupied Housing Quintile
65010	Ashland	22.64	610	4
65240	Centralia	19.34	514	3
65201	Columbia	61.54	926	5
65202	Columbia	37.93	851	5
65203	Columbia	35.68	831	5
65255	Hallsville	23.01	623	4
65256	Harrisburg	2.1	34	1
65039	Hartsburg	6.73	106	1
65279	Rocheport	5.42	79	1
65243	Rucker	6.88	112	1
65284	Sturgeon	22.01	593	4

Transportation

A person's and community's transportation choices have an impact on active living, air quality, and traffic crashes. A person's commuting method –walking, biking, using public transit, carpooling, or driving alone – depends on many factors including the physical environment, financial and employment status, and individual health and safety. Many communities, particularly in rural areas, require a motor vehicle for reliable access to jobs, food, and health care.

The city of Columbia operates a bus service that runs Monday through Saturday, including a door-to-destination paratransit service for eligible individuals.

Households with No Motor Vehicle, Percent

Boone County	Missouri	United States
6.03%	6.63%	8.45%

US Census Bureau, American Community Survey. 2021

Driving Alone and Long Commutes

Among walking, biking, taking public transit, carpooling, or individuals driving alone, the last is the most damaging to community health. In most counties, driving alone is also the primary form of transportation to work. Walking and mixed methods commuting are associated with lower BMI than commuting by car. Car-only commuters have significantly higher body fat percentage than commuter who walk, bike or commute by mixed methods. People who drive to work are less likely to reach recommended activity levels than people who use other forms of transportation.

Driving Alone to Work

Boone County	Missouri	United States
77%	81%	75%

Missouri ZIP Health Rankings. 2021

Driving Alone to Work by ZIP

ZIP Code	ZIP Name	Rate per 1,000 Pop. Driving Alone to Work	Percent Driving Alone Rank (of 937)	Driving Alone Quintile
65010	Ashland	473.29	891	5
65240	Centralia	344.6	413	3
65201	Columbia	361.28	504	3
65202	Columbia	428.36	789	5
65203	Columbia	405.24	693	4
65255	Hallsville	406.69	699	4
65256	Harrisburg	392.56	637	4
65039	Hartsburg	424.52	779	5
65279	Rocheport	452.81	851	5
65243	Rucker	306.34	262	2
65284	Sturgeon	497.54	919	5

Missouri ZIP Health Rankings. 2021

Longer commuting distances in vehicles have been associated with an increase in blood pressure and body mass index, and a decrease in physical activity. Each extra hour spent in a car every day increases the risk of obesity by 6%. Longer commute times have also been associated with poorer mental health.

Among workers who commute in their car alone, the percentage that commute more than 30 minutes.

In Boone County overall 16% of workers who drive alone to work commute more than 30 minutes each way. The rate of people with long commutes is higher in rural areas of Boone County compared to Columbia.

Long Commute (>30 Minutes), Percentage

Boone County	Missouri	United States
16%	32%	37%

US Census Bureau, American Community Survey. 2021

Long Commute By ZIP

ZIP Code	ZIP Name	Rate per 1,000 Pop. Commuting > 30 minutes	Percent Long Commute Rank (of 937)	Percent Long Commute Quintile
65010	Ashland	90.74	158	1
65240	Centralia	175.67	606	5
65243	Rucker	200.59	700	4
65201	Columbia	57.14	46	1
65202	Columbia	73.35	95	1
65203	Columbia	70.12	85	1
65255	Hallsville	141.38	432	3
65256	Harrisburg	203.86	714	4
65039	Hartsburg	139.89	426	3
65279	Rocheport	119.68	327	2
65284	Sturgeon	282.97	877	5

Internal Workgroup

Boone Hospital chose 11 employees to participate on an internal CHNA workgroup representing various hospital departments including Social Work, Home Health, Emergency Department, Community Wellness, Diabetes Management, Primary Care, Stroke and STEMI Outreach, and Patient Experience. (See Appendix C)

The workgroup held two virtual meetings on Teams to analyze the primary and secondary data and to complete the priority ranking for the hospital's CHNA.

Meeting 1

The internal workgroup met virtually to review the purpose for the CHNA, role of the workgroup and goals for the project. The workgroup reviewed the key findings from the 2019 CHNA report and the July 2022 community forum and relevant data. The internal group agreed decided to rank all needs identified and prioritized by the focus group, including social determinants of health. Criteria to rank these needs were presented and the focus on ZIP code as a determinant of health was discussed.

Workgroup members were emailed a worksheet to complete before the second meeting. They also received secondary data, including health indicators listed by ZIP code.

The work group used a ranking process to assign weight to criteria by using the established criteria for priority setting:

- **Magnitude of the Problem:** How many people are affected by the problem?
- **Severity of the Problem:** What are the consequences of not addressing this problem?
- **Health Disparities:** How does this problem affect vulnerable populations?
- **Community Assets:** Do we need new or more community programs to address this issue?
- **Ability to Leverage:** How much opportunity do we have to collaborate with community partners to address the need?

 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. (See sample below.)

Ranking			Uninsured/Underinsured Patients
	Rating (1-5)	Weight (1-3)	Score
How many people are affected by the problem?	3	3	9
What are the consequences of not addressing this problem?	5	3	15
How does this problem affect vulnerable populations?	5	3	15
Do we need new or more community programs to address this issue?	2	2	4
How much opportunity do we have to collaborate with community partners to address the need?	4	3	12
Total Score			55

Meeting 2

The workgroup met again, to review the group's compiled ranking of community health needs. The group compared its results to the focus group's ranking. Consensus was reached on whether the ranking should stand or be adjusted.

Boone Health Internal Workgroup	Community Forum

1. Mental Health & Substance Abuse
2. Access to Care
3. Uninsured-Underinsured Patients
4. Diabetes
5. Obesity
6. Cancer
7. Heart Disease
8. Stroke
9. Transportation
10. Housing
11. Food Insecurity
12. Asthma
	1. Mental Health & Substance Abuse
	2. Obesity
	3. Social Determinants of Health
	   a. Transportation
	   b. Housing
	   c. Uninsured/Underinsured
	   d. Food Insecurity
	
	The ranking of other needs was not provided.

Once needs were ranked, the discussion shifted to which of these needs Boone Hospital could best address with its current community health resources and partnerships. The group discussed community organizations and resources at Boone Health that currently work to address some needs.

Based on our existing resources and data, it was determined that the areas where Boone Health is best positioned to address community health needs are:

- Diabetes
- Heart and Vascular Disease
- Skin Cancer

Summary

Just a few miles can make a big difference in an individual's health. People who live in areas with more poverty tend to have poorer health outcomes overall, including premature death, chronic diseases, and substance abuse. While the county may be healthier in comparison to other Missouri counties, it is important not to overlook the disparities between ZIP codes, including our rural communities and even within Columbia.

In recent years, the public health and medical communities have paid more attention to the social determinants of health, including access to care, insurance, food security, housing, and transportation. When individuals and families have financial difficulties with rent, food, or getting to work, they are more likely to delay health care, especially preventative and routine care that could avoid an emergency room visit, hospitalization, or premature death.

While healthcare organizations do not directly address the social determinants of health, understanding the challenges patients face outside the clinic or hospital can help us better understand the barriers to receiving preventive care, staying compliant with management of a chronic disease, or adopting healthier lifestyle habits. Healthcare organizations can also collaborate with other organizings and resources in our community to support patients in areas of greatest need.

The Community Health Needs Assessment does not determine what a hospital will prioritize in terms of inpatient or emergency care, but rather guides our community benefit programming. Community benefit includes programs beyond the normal scope of clinical care that improve community health, support the next generation of healthcare professionals, ease government burden, support community building, and empower people to make healthier decisions. Helping a person who has a high A1C at a screening establish a medical care home can prevent the costs of hospitalization.

With our current resources and partnerships, Boone Hospital Center is best able to implement community benefit programs to address diabetes, heart disease, and skin cancer.

Implementation Plan

A. Community health needs to be addressed

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

Rationale:

According to the CDC, 34.2 million US adults have diabetes, and 1 in 5 of them don't know they have it. Diabetes is the seventh leading cause of death in the United States. Diabetes is the leading cause of kidney failure, lower-limb amputations, and adult blindness. In the last 20 years, the number of adults diagnosed with diabetes has more than doubled.

Program Goals:

a. To increase early detection of pre-diabetes and improve the quality of life for all persons who have or are at risk for diabetes through prevention detection, education and access to treatment of risk factors for Pre-diabetes.

b. Implement community-based use of HbA1C testing to increase early identification, symptoms related to prediabetes or diabetes; to better assess overall health as it relates to blood glucose levels.

Program Objectives:

a. Screen 350 adults each year for glucose using Boone Health's Mobile Health Unit. We will also partner with other local organizations: Boone County Health Dept., Compass Health Network - Family Health Center, The ARC, and other community organizations.

b. Provide individuals with on-site education and materials to increase their knowledge of healthy lifestyle changes to help manage their condition.

Action Plan:

a. Boone Health's Community Wellness team of health professionals will provide HbA1c screenings.

b. Individuals within the ranges will be referred to the appropriate health care provider and/or encouraged to seek medical attention.

c. Ranges:

- Normal: <5.6
- Pre-diabetic: 5.7-6.4%
- Diabetic: >6.5%

d. Individuals within the elevated ranges will be encouraged to seek medical attention.

e. Provide information on nutrition counseling and/or diabetes education resources.

f. Offer re-screening between six months and one year to determine any changes in risk factors behaviors.

g. Community Wellness staff will provide on-site individualized counseling for those identified as at-risk.

Expected Outcomes:

    a. Early detection of pre-diabetes and bring awareness to those individuals who have an elevated blood glucose level but are unaware.

    b. Healthy lifestyle changes among those at risk for diabetes or already have diabetes.

Outcomes Measurement:

    a. Document number of total individuals screened.

    b. Document number of individuals screened with an elevated A1C results.

    c. Provide 6-month follow-up screening.

II. Heart and Vascular: Heart Disease and Stroke

Rationale:

According to the American Heart Association, at least 48%, (211.5 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. Fortunately, it is also among the most preventable.

- 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:

    a. To increase cardiovascular health and improve the quality of life for all persons who have or are at risk for heart disease or stroke through prevention detection, education, and access to treatment.

    b. Implement community-based blood pressure checks to increase early identification, symptoms related to cardiovascular incidents and stroke; to better assess overall health as it relates to cardiovascular system and stroke.

Program Objectives:

a. Screen 350 adults for high blood pressure using Boone Health's Mobile Health Unit. We will also partner with other local organizations: Boone County Health Dept., Compass Health Network - Family Health Center, The ARC, and other community organizations.

b. Provide individuals with on-site education and materials to increase their knowledge of healthy lifestyle changes to help manage their condition.

Action Plan:

a. Boone Health's Community Wellness team of health professionals will provide blood pressure screenings and education.

b. The individuals who have high blood pressures will be referred to the appropriate health care provider and/or will be encouraged to seek medical attention.

- RANGES:
- Normal: <120/80

c. Individuals within the elevated ranges will be encouraged to seek medical attention.

d. Offer re-screening between six months and one year to determine any changes in risk factors behaviors.

e. Community Wellness staff will provide on-site individualized counseling for those identified as at-risk, and the importance of calling 911 and the signs and symptoms of stroke will be reviewed with all participants.

Expected Outcomes:

a. Early detection and prevention of heart disease and stroke.

b. Healthy lifestyle changes among those at risk for the diseases.

Outcomes Measurement:

a. Document number of total individuals screened.

b. Document number of individuals screened with out-of-range blood pressures.

c. Provide 6-month follow-up screening.

III. Skin Cancer

Rationale: One in five Americans will develop some type of skin cancer over the course of a lifetime. With early detection and treatment, however, most skin cancers are treatable. Early detection and treatment of any form of skin cancer is essential both to prevent the disease from spreading to other areas of the body and to achieve better outcomes. Research has shown that most skin cancers are detected by patients rather than doctors. Learning how to examine your own skin can promote skin health and can dramatically reduce the risks of having significant problems with skin cancer. Therefore, Community Wellness staff will implement skin cancer screening and education in its service areas.

Program Goals:

a. Increase early detection of skin cancer through the number of individuals screened for skin cancer.

    b.   Implement community-based skin cancer checks to increase early identification related to skin cancer; to better assess overall health as it relates to skin cancer.

Program Objectives:

    a.   Screen 150 adults each year for skin cancer using Boone Health's Mobile Health Unit. We will also partner with other local organizations: Boone County Health Dept., Compass Health Network - Family Health Center, The ARC, and other community organizations.

    b.   Provide individuals with on-site education and materials to increase their knowledge of healthy lifestyle changes to help manage their condition.

Action Plan:

    a.   Boone Health's Community Wellness team of health professionals will provide skin cancer screenings.

    b.   Individuals who are identified to have an abnormal or suspicious lesion will receive a skin cancer screening report form with documented findings and any abnormalities will be documented with subject's personal phone.

    c.   Participants found to have an abnormal or suspicious lesion will be advised to follow up with their primary care physician or dermatologist. If the participant does not currently have a primary care physician, resources are provided to direct participants to follow-up care.

    d.   Participants will be educated on the proper way to conduct self-examination, proper use of sunscreen, as well as the best sunscreen to use.

    e.   All participants will receive a folder with educational information detailing the process of conducting a self-exam at home, as well as how to prevent skin cancer. Information on sunscreen and its proper use is also included in the folder.

Expected Outcomes:

    a.   Early detection of skin cancer and bring awareness to those individuals at higher risk for skin cancer.

    b.   Improve knowledge of self-examination of skin and skin cancer prevention.

Outcomes Measurement:

    a.   Document number of total individuals screened.

    b.   Document number of individuals with abnormal findings.

    c.   Participants will receive a follow-up letter reminding them to schedule an appointment with healthcare provider and/or dermatologist.

    d.   Provide 12-month follow-up screening.

B. Needs Not Addressed by this Implementation Plan

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

Access to Care/Uninsured

Boone Hospital Center will continue to provide counseling to assist patients with determining eligibility for and enrollment in coverage, means-tested, and financial assistance programs.

Asthma/COPD

Boone Hospital Center offers pulmonary rehabilitation for eligible patients, including patients with 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.

Cancer

Boone Hospital Center provides clinical screenings for breast, colorectal, lung, and other cancers.

Obesity

Boone Hospital Center's community wellness and patient care programs address the contributing factors of obesity and disorders comorbid with obesity, including heart disease and diabetes.

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.

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.

Food Insecurity

SNAP benefits are available to qualified households through the Missouri State Family Support Services. Nutrition education and vouchers for healthy food are available to pregnant women, new mothers, infants, and children under age 5 through the WIC Program, which is offered through the Columbia/Boone County Public Health and Human Services department. The Columbia Farmers Market Access to Health Food Program allows families to use SNAP and WIC benefits to buy healthy food.

The Food Bank for Central and Northeast Missouri serves over 10,000 people a month in 32 counties by distributing food to partnering food pantries, shelters, and meal programs. In Boone County, multiple food pantries and mobile pantries are Food Bank partners. Programs targeted for specific populations include Aging Best for seniors, Meals on Wheels for seniors and people with disabilities, Tiger Pantry for University of Missouri students and staff, and the Douglass Park Summer Lunch Program for school-age children in Columbia.

Housing

In 2021, the state of Missouri began the State Assistance for Housing Relief (SAFHR) program to offer emergency rental assistance for qualified applicants whose income is at or below 80% of their area median income. SAFHR will no longer accept applicants on January 31, 2023.

Columbia Housing Authority provides subsidized housing services for low-income families, elderly residents, and persons with disabilities, including the Section 8 Housing Choice voucher program that provides rental assistance to families and individuals in private rental housing, as well as homelessness assistance, self-sufficiency programs, and medical transportation.

Several apartment communities in Columbia and Centralia offer affordable and income-restricted units.

Transitional housing programs offer short-term support for people who are homeless, recovering from substance abuse, living with a disability, or released from a corrections facility find safe housing and develop skills for independent living. Welcome Home Inc. in Columbia provides rehousing and transitional housing for homeless veterans. New Horizons Community Supports Services in Columbia provides housing support and programs to help adults with disabling mental illness or mental illness concurrent with substance abuse find stability and develop skills for independent living.

Needs-based programs for home ownership can first-time homebuyers with lower incomes overcome the barriers associated with down payments, closing costs, or repairs. The City of Columbia works with the Department of Health and Urban Development (HUD) for its Homeownership Assistance Program. Qualified applicants can receive a loan to use for the down payment and closing costs for a house in Columbia city limits.

Outside of Columbia, the USDA Rural Development Program helps low-income applicants obtain safe and sanitary housing in rural areas and offers financial assistance towards mortgage payments. The program also provides direct loans that can also be used for home repairs, renovations, construction, or site preparation.

Transportation

The City of Columbia operates a bus and door-to-door paratransit service 6 days a week. Reduced costs are available for lower-income riders. OATS Transit provides door-to-door transportation within Boone County for medical appointments, shopping, or employment on weekdays. Services for Independent Living operates a door-to-door ride service within Columbia, Boone County, and surrounding counties (Audrain, Callaway, Cooper, Howard, Montgomery, Randolph) for people who are 55 or older, disabled, or a military veteran. MO HealthNet offers non-

emergency medical transportation services. This program for MO HealthNet participants can provide or reimburse costs for transportation to and from scheduled health care appointments.

APPENDIX A: About Boone Hospital Center

Boone Hospital Center is a 392-bed full-service hospital and regional referral center located in Columbia, Missouri. As part of Boone Health, 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 1,800 on its staff and 350 physicians and providers 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 wellness 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 four times by the American Nurses Credentialing Center. From 2015 through 2022, Boone Hospital Center has been ranked as the #1 hospital in mid-Missouri by U.S. News & World Report.

In 2020, Boone Hospital provided $31,236,382 in community benefit serving 56,612 persons. This total includes: $20,714,598 in financial assistance and means-tested programs serving 20,955 individuals, including 13,330 individuals on Medicaid.

Boone Hospital also provided a total of $10,521,784 to 35,617 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 2020 Community Benefit Expenses

Boone Hospital Center: 2020 Total Net Community Benefit Expenses		
Category	Persons Served	Total Benefit
Financial Assistance and Means-Tested Programs		
Financial Assistance At Cost	7,665	$ 7,101,603
Medicaid	13,330	$ 13,612,995
Total Financial Assistance and Means-Tested Programs	**20,995**	**$ 20,714,598**
Other Community Benefits		
Community Health Improvement Services	2,211	$ 538,258
Health Professionals	N/A	$ 30,703
Subsidized Health Services	33,406	$ 9,399,383
In-Kind Donation	N/A	$ 553,440
Total Other Community Benefits	**35,617**	**$ 10,521,784**
Grand Total	**56,612**	**$ 31,236,382**

APPENDIX C: Boone Hospital Internal Workgroup

April Bernhardt, Social Work

Amy Bierk, Wound Care

Colton Downing, STEMI Program

Ariel Flood, Patient Experience

Corey Hardin, Emergency Department

Gus Kirchoff, Home Care and Hospice

Janet Kimmons, Diabetes Education

Jared Long, Primary Care

Lisa Todd, Community Wellness

Erin Wegner, Community Wellness

Drew Wilkinson, Lab Services

Jenny Workman, Community Wellness

Facilitator: Jessica Park, Marketing

Appendix D: Secondary Data Sources

Data sources used for the secondary data analysis included:

ExploreMOHealth

exploreMOhealth.org

Created as a partnership between Missouri Foundation for Health and the MHA Health Institute, the not-for-profit corporation affiliated with the Missouri Hospital Association, this site provides tools for exploring a dataset of all Missouri counties, including data at ZIP code level from by the Missouri ZIP Health Rankings project.

Missouri ZIP Health Rankings

The Missouri ZIP Health Rankings Project is a collaboration between researchers at the Washington University School of Medicine and the Hospital Industry Data Institute, the data company of the Missouri Hospital Association. Funded by the Robert Wood Johnson Foundation, the project provides a unique approach to measuring community health at the ZIP code level, using hospital discharge and census-based data applied to the County Health Rankings model of population health.

ZIP code-level data are based on hospital discharges occurring between fiscal years 2019 and 2021 (October 1, 2018 through September 30, 2021), and the 2020 American Community Survey of the U.S. Census. ZIP code datafiles are available to the public at **exploreMOhealth.org**

County Health Rankings

countyhealthrankings.org

The County Health Rankings program is a collaboration between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute to provide data on the multiple factors that influence health. The annual County Health Rankings measure vital health factors, including high school graduation rates, obesity, smoking, unemployment, access to healthy foods, the quality of air and water, income inequality, and teen births in nearly every U.S. county.

Additional sources included the Centers for Disease Control and Prevention (cdc.gov), American Cancer Society (cancer.org), American Heart Association (heart.org), and the U.S. Department of Health and Human Services (mentalhealth.gov).

APPENDIX E: Boone County Community Forum Report

BOONE HOSPITAL CENTER

Community Health Needs Assessment
Community Forum Meeting

July 19, 2022

Boone Hospital Center
Community Forum Meeting

Boone Hospital Center conducted a community forum meeting in Boone County, their primary service area. A diverse group of community members were invited to gather key information as required of the community health needs assessment (CHNA) process. Hospital staff representatives sent invitations to key partners within the PSA to ensure diverse representation. A total of 16 individuals attended the in-person meeting on July 19, 2022, at 4 p.m., held at the Boone Hospital Conference Center. This location was easy-to-find, accessible and comfortable. The forum was scheduled in the evening to avoid time conflicts with work and school. Senior leadership staff at the hospital set a friendly tone welcoming all the attendees. The meeting coordinator at the hospital provided dinner and refreshments during this session. As required of the process, hospitals engaged public health and other key partners in all steps, but especially in the selection of issues for community-based action. Quality Works® staff facilitated the community forum and provided an agenda to help organize the events of the meeting. Staff presented the 2019 CHNA findings and current secondary data findings derived from the exploreMOhealth platform and the MHA Health Equity Dashboards.

This community forum represented an important step of presenting data on the health of communities in Boone County and getting feedback about what issues should be prioritized. Collaboration with these partners will help Boone Hospital Center leverage existing assets in the community, creating the opportunity for (1) broader impact, (2) avoiding unnecessary duplication of programs or services while building the capacity of community engagement, (3) collaborative problem solving, and (4) positioning the community to build upon and sustain health improvement activities.

Attendees were educated about the prioritization process which was key to their selection criteria for the priority health issues. Based on the findings of the past CHNA and current secondary data results, a list of measures were displayed, and attendees were asked to vote on each measure. Note: Each participant cast only one vote and items that garnered the most votes were ranked from ascending to descending format. After the ranking exercise, the attendees unanimously agreed on the top three issues that rose to the top of the list based on votes. Per the attendees, the health factors that drive the top three issues will help address the other items that did not gather enough votes through the voting and ranking process.

The table that follows shows the prioritization criteria used to identify the top issues of focus.

Examples of Prioritization Criteria	
Magnitude of the Problem	The health need affects a large number of people within the community.
Severity of the Problem	The health need has serious consequences (morbidity, mortality and/or economic burden) for those affected.
Health Disparities	The health need disproportionately impacts the health status of one or more vulnerable population groups.
Community Assets	The community can make a meaningful contribution to addressing the health need because of its relevant expertise and/or assets as a community, and because of an organization commitment to addressing the need.
Ability to Leverage	There is opportunity to collaborate with existing community partnerships working to address the health need, or to build on current programs emerging opportunities, etc.

The following priority issues were identified through the voting process.

1. Mental Health/Substance Abuse
2. Obesity
3. Social Determinants of Health
   a. Transportation
   b. Housing
   c. Uninsured/Underinsured
   d. Food Insecurity

During the forum meeting, attendees were asked to identify and write on sticky notes the strengths and barriers for each priority area. These were then placed on white placards affixed to a wall. The scribe captured the opportunities and solutions from the placards. The following information was gathered during the focus group meeting.

Mental Health/Substance Abuse

Strengths
- Multiple specialists
- There is a large network of private practice counselors.
- Free access
- Higher education institutions to train professionals
- Access to virtual specialists in mental health
- Multiple clinicians for outpatient care
- Telehealth resources available
- Mental health screening in public schools
- Narcan availability
- Family cohesion programs availability
- Access to mental health education/educators
- EAP on-site

- Youth mental health resources
- Substance use disorder recovery resources

Barriers
- Long wait times to access services
- Limited space in hospital care
- Lack of providers to deliver services
- Lack of adequate funding
- Not enough doctors and facilities
- Access and knowledge of resources
- Medicaid expansion
- Long wait times to access assessments and treatment
- Lack of options/availability for inpatient/residential treatment
- Nowhere to go for substance abuse
- Mental health pain
- Lack of options though for underinsured or uninsured; wait lists even for those who have Medicaid to receive inpatient care/residential care

Obesity

Strengths
- Good parks and trails
- Access to bariatric clinic
- Access to places to workout that will help in weight loss
- Live Well Boone County Initiative
- Farmers market
- Access to resources
- Affordable programs
- Medical providers available for outpatient care
- There are a lot of medical providers in the community to treat and support.

Barriers
- Food deserts/swamps
- Lack of access to healthy foods
- Food education for underserved families
- Access to workout facilities due to cost
- Doctors medicate but do not prescribe exercise
- Inflation on groceries and impact of benefit cliff on household food budget
- Nutrition classes unavailability
- Healthy food affordability
- Stigma that if it is something controllable or a choice

Social Determinants of Health (SDOH)

Strengths
- Recovery friendly workplaces
- Strong faith community filling the gaps
- Multiple resources to address certain SDOHs available
- Community foundations
- Support groups
- Beginning to have increased awareness of issues and how it relates to health outcomes
- Local organizations working together to manage and find solutions for housing
- Medicaid expansion
- Bus system and expansion of routes
- Boone County has seen an increase in community services like Big Tree Medical that are able to help self-pay/underinsured patients.

Barriers
- No adequate and affordable housing in Columbia
- Loss of funding from Boone Hospital to the county to help with SDOH
- Underinsured have need for health care but have to choose between cost or care
- Need for bus expanded hours, routes, and more drivers
- Personal accountability
- Health care education for the insured
- Lack of awareness of resources and Medicaid expansion
- Transportation limited range outside the city limits
- Cost of transportation and lack of adequate public transportation

Opportunities
- Collaboration
- Networking forums for mental health and substance abuse providers is important. There are pockets of this happening – particularly in relation to Veterans Administration/homelessness, but something wider is needed. Also figuring out a way to work through the underinsured barrier to meeting needs in that moment.
- Screening
- Understanding factors that impact health
- Targeted interventions
- Telehealth
- When it comes to obesity, greater community awareness of services and causes is key to combating the associated stigma.
- Transportation SDOH – Whether expansion of services by a social service agency/city or some alternative solution, Medicaid transportation has been lacking, particularly for patients who need rides at time of discharge from the hospital. Most of the trips scheduled end up being canceled as there is no company to handle the transportation request. This is typically for patients who live outside of Boone County but has occurred more locally occasionally.

- Prescription assistance is also lacking in that community partners may be able to locate funds to pay prescriptions for a month, but then long-term assistance is still not available (particularly when prescriptions are generic).

Solutions
- Access to programs that pay for healthy foods
- Conduct a comprehensive gap analysis to identify areas where gaps exist
- Increased awareness of available resources
- Health education
- Heath promotion
- Potential funding opportunities to help leverage what's currently available
- Collaboration and not competition between organizations

Federal law requires that an assessment must consider "input from persons who represent the broad interests of the community serviced by the hospital facility, including those with special knowledge of or expertise in public health." Internal Revenue Service (IRS) regulations indicate that to meet this requirement, the CHNA must at a minimum solicit and consider input from all of the following sources:

- At least one state, local, tribal or regional governmental public health department (or equivalent departments or agencies), with knowledge, information or expertise relevant to the health needs of that community.
- Members of medically underserved, low-income and minority populations in the community served by the hospital facility or individuals or organizations serving or representing the interests of such populations. Medically underserved populations include populations experiencing health disparities or at risk of not receiving adequate medical care because of being uninsured or underinsured or due to geographic, language, financial, or other barriers.
- Written comments received on the hospital's most recently conducted CHNA and most recently adopted implementation strategy.

In addition to the sources described above, the IRS regulations note that hospitals may solicit and take into account input received from a broad range of persons located in or serving its community, including but not limited to, health care consumers and consumer advocates, nonprofit and community-based organizations, academic experts, local government officials, local school districts, health care providers and community health centers, health insurance and managed care organizations, private businesses, and labor and workforce representatives.

In the event a hospital solicits, but cannot obtain, input from a source above, the hospital's CHNA report must describe the hospital facility's efforts to solicit input from such source.

Below is a list of the community forum attendees.

Name	Organization
Angela Aayers	Boone County Sheriff Department
April Bernhardt	Boone Health
Kat Brissey	Boone Health
Sawiyyah Chanay	MU Extension, University of Missouri
Jeff Coffman	City of Columbia Fire Department
Kristin Cummins	Boone County Community Services Department
Reverend James Gray	Secondary Ministry Baptist Church
Dan Hartgrove	Boone Health
Steve Hollis	City of Columbia
Dana Jones	Columbia Public Schools
Joanne Nelson	Boone County Community Services
Debbie Newby	Missouri State Parks
Sarah Rainey	City of Columbia (retired)
Mary Ratliff	Columbia NAACP
Rebecca Roesslet	Columbia/Boone County Public Health & Human Services
Jessica Sida	Show Me State Games

Representatives from the following organizations were invited but unable to attend.

- Boone County Human Resources Department
- Veterans' United
- Local Motion (Formerly PedNet)
- Boone Health Trustee
- MU Department of Public Health
- Stephens College
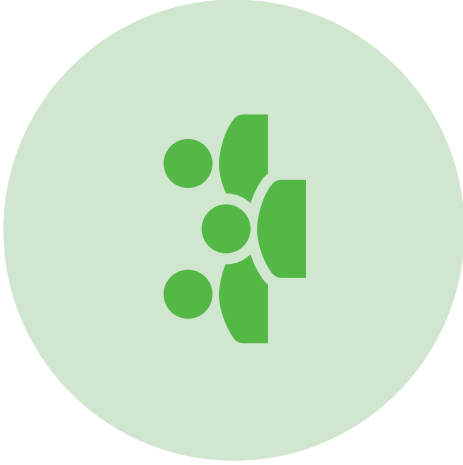
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COMMUNITY HEALTH NEEDS ASSESSMENT FOCUS GROUP MEETING
BOONE HOSPITAL CENTER
IN COLLABORATION WITH THE MISSOURI HOSPITAL ASSOCIATION,
MANAGEMENT SERVICES CORPORATION
4 p.m. Tuesday, July 19, 2022
Boone Hospital Conference Center
Columbia, Missouri

 I. Introductions and Purpose

 II. Community Health Needs Assessment data - Boone County

 III. What is your perception of the most serious health issues facing this community?

    A. Ranking the top health issues in this community

 IV. What are the greatest barriers to addressing the top issues identified?

 V. What is your perception of the most beneficial health resources or services in this community?

 VI. What are some potential opportunities that can help improve the health of this community?

 VII. What are some potential solutions to the top issues identified through the prioritization process?

 VIII. What can the hospital and collaborating partners do collectively to improve the health and quality of life in this community?

 IX. Closing Comments

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Boone Hospital Center Community Health Needs Assessment Focus Group

Stephen Njenga
Missouri Hospital Association

July 19, 2022

QUALITY WORKS®

COMUNITY HEALTH NEEDS ASSESSMENT FOCUS GROUP MEETING

BOONE HOSPITAL CENTER

IN COLLABORATION WITH THE MISSOURI HOSPITAL ASSOCIATION,

MANAGEMENT SERVICES CORPORATION

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VIII. What can the hospital and collaborating partners do collectively to improve the health and quality of life in this community?

IX.   Closing Comments

QM QUALITY WORKS®

Introductions

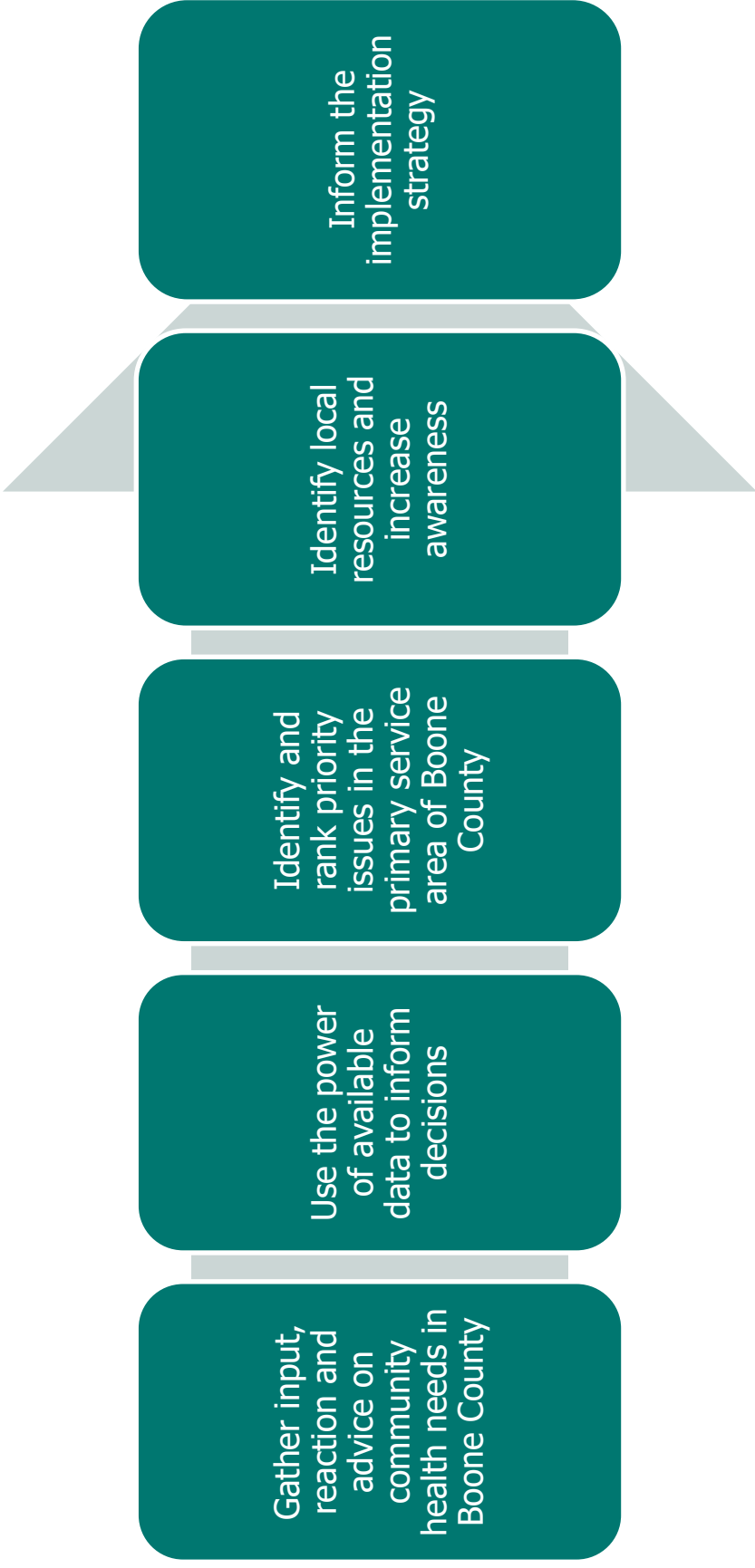ORGANIZATION/
AFFILIATION

NAME

QUALITY WORKS®

Community Health Needs Assessment

- Section 501(r) of the IRS tax code placed new requirements on 501(c)(3) organizations that operate at least one hospital facility.

- CHNA every three years
- Implementation strategy

COMMUNITY HEALTH NEEDS ASSESSMENT

GUIDANCE AND IMPLEMENTATION STRATEGY

2021

MHA
MISSOURI HOSPITAL ASSOCIATION

QM QUALITY WORKS®

Why Are We Here?

Gather input, reaction and advice on community health needs in Boone County

Use the power of available data to inform decisions

Identify and rank priority issues in the primary service area of Boone County

Identify local resources and increase awareness

Inform the implementation strategy

QUALITY WORKS®

Important Things About CHNA Data

- Data quality and validity
  - ▲ Reliable data source?
  - ▲ Appropriate data collection methods used?
  - ▲ Sample used?
  - ▲ How old is the data?
  - ▲ Geographic areas covered?
- Consider groups disproportionately affected by poor health outcomes
- All data have limitations; it's important to be transparent

QM QUALITY WORKS®

exploreMOhealth

MHA's Health Equity Dashboards released in fall 2021! **Learn more** ▼

Magnifying community health in Missouri

Source: https://exploremohealth.org/

QUALITY WORKS®

RWJF County Health Rankings & MO ZIP Health Rankings Model
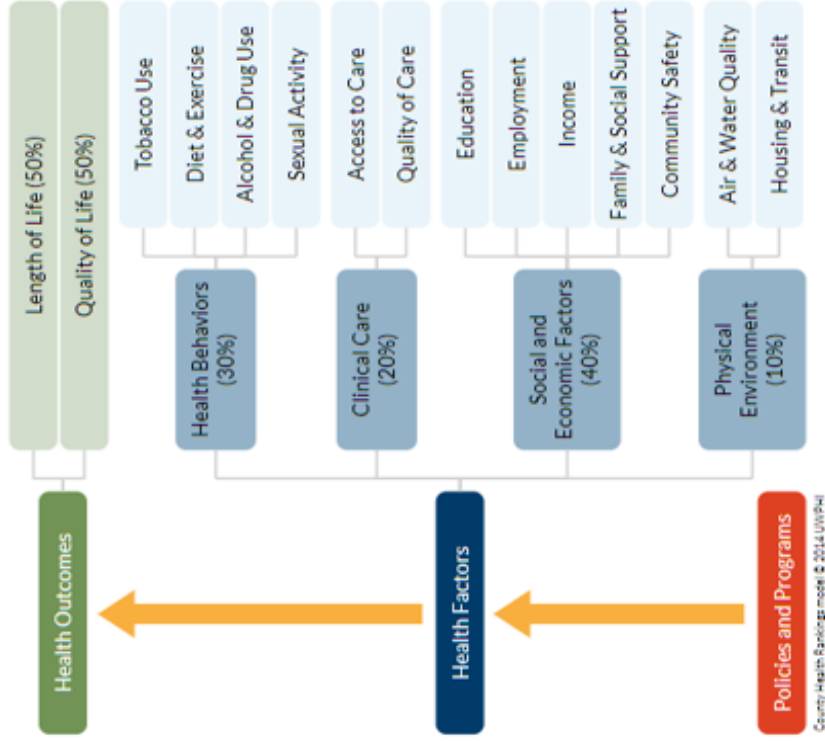
- Causal Order:
  - Local differences in policies and social benevolence →
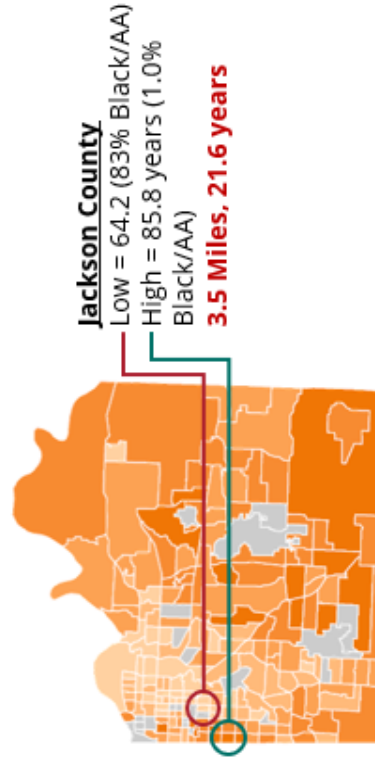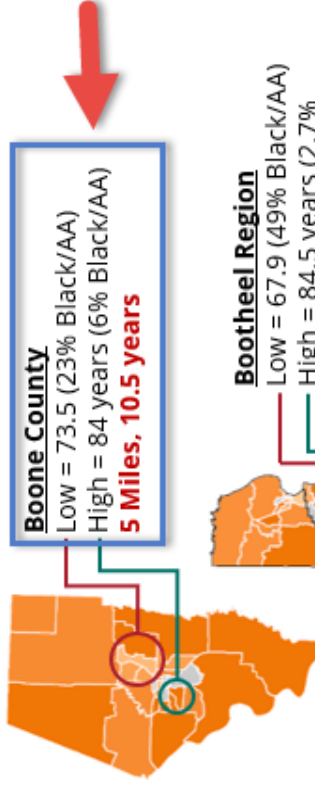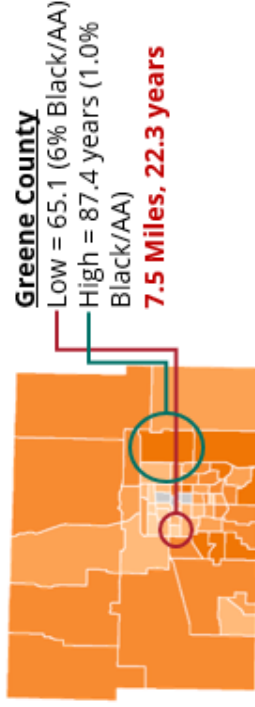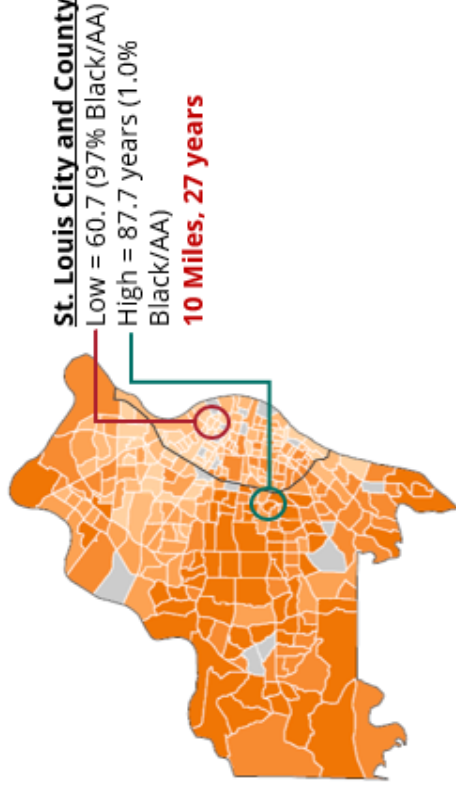 - Result in local differences in health factors →
  - That result in local differences in health outcomes →

How well and how long we live is determined far upstream.

County Health Rankings model © 2014 UWPHI
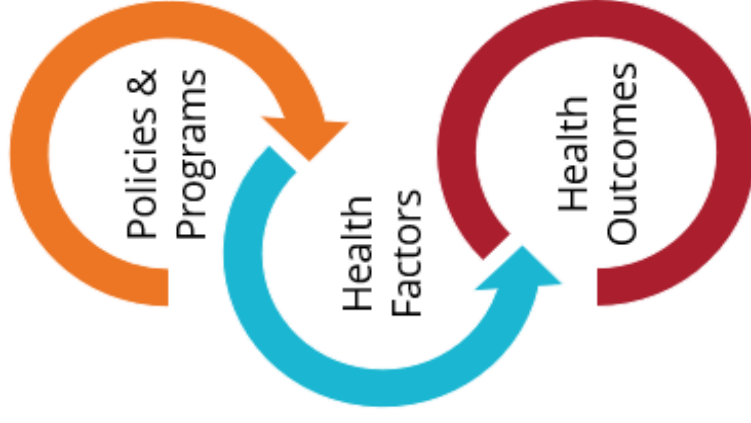
Miles Away, Worlds Apart

Life Expectancy by Census Tract

Greene County
Low = 65.1 (6% Black/AA)
High = 87.4 years (1.0% Black/AA)
7.5 Miles, 22.3 years

Boone County
Low = 73.5 (23% Black/AA)
High = 84 years (6% Black/AA)
5 Miles, 10.5 years

Bootheel Region
Low = 67.9 (49% Black/AA)
High = 84.5 years (2.7% Black/AA)
70 Miles, 16.6 years

St. Louis City and County
Low = 60.7 (97% Black/AA)
High = 87.7 years (1.0% Black/AA)
10 Miles, 27 years

Jackson County
Low = 64.2 (83% Black/AA)
High = 85.8 years (1.0% Black/AA)
3.5 Miles, 21.6 years

Source: 2010-2015 US Centers for Disease Control and Prevention, National Vital Statistics Program and 2019 US Census American Community Survey

QM QUALITY WORKS®

Total Population

A total of 179,704 people live in the 685.55 square mile report area defined for this assessment according to the U.S. Census Bureau American Community Survey 2016-20 5-year estimates. The population density for this area, estimated at 262.1 persons per square mile, is greater than the national average population density of 92.4 persons per square mile.

Report Area	Total Population	Total Land Area (Square Miles)	Population Density (Per Square Mile)
Boone County, MO	179,704	685.55	262.1
Missouri	6,124,160	68,748.48	89.1
United States	326,569,308	3,533,038.14	92.4

Data Source: US Census Bureau, American Community Survey. 2021 Source geography: ZCTA → Show more details

Change in Total Population (2010 - 2020)

According to the United States Census Bureau Decennial Census, between 2010 and 2020 the population in the report area grew by 20,968 persons, a change of 12.89%. A significant positive or negative shift in total population over time impacts healthcare providers and the utilization of community resources.

Report Area	Total Population, 2010 Census	Total Population, 2020 Census	Population Change, 2010-2020	Population Change, 2010-2020, Percent
Boone County, MO	162,642	183,610	20,968	12.89%
Missouri	5,988,913	6,154,913	166,000	2.77%
United States	312,471,181	334,735,155	22,263,994	7.13%

Note: This indicator is compared to the state average.
Data Source: US Census Bureau, Decennial Census. 2021 Source geography: Tract → Show more details

Population Change 2010-2020 Percent%

- Boone County (12.89%)
- Missouri (2.77%)
- United States (7.13%)

-20%   60%
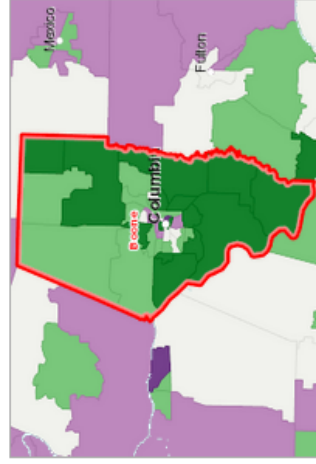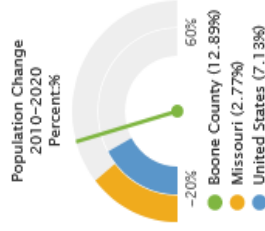
Population Change, Percent by Tract, US Census 2010 - 2020

- Over 10.0% Increase (+)
- 2.0 - 10.0% Increase (+)
- Less Than 2.0% Change (+/-)
- 2.0 - 10.0% Decrease (-)
- Over 10.0% Decrease (-)
- No Population or No Data
- Boone County, MO

⟐ View larger map

QM QUALITY WORKS®
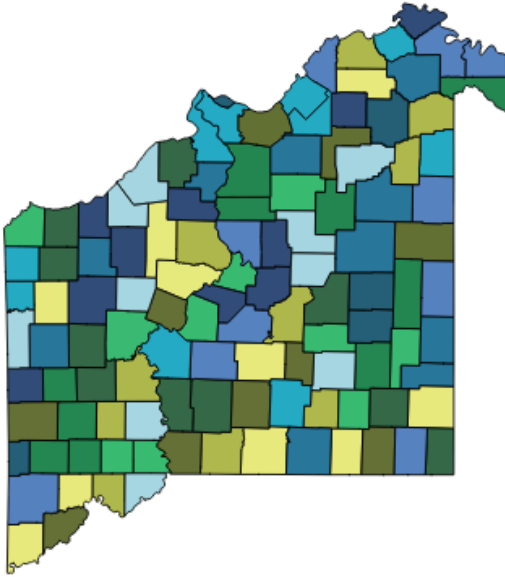
Chronic Condition Explorer

Missouri Health Atlas

Spotlight on ZIP Health

Spotlight on ZIP Health ⓘ

To get started, select a county from the map or dropdown menu.

⬇ DOWNLOAD PDF   🖨 PRINT

Boone ›

Highlighted County-Level Issues for Boone County

Health Factor	Rank*
Clinical Care Rank	1
Health Factors Rank	3
Socioeconomic Factors Rank	4
Health Behaviors Rank	6
Health Outcomes Rank	9
Length of Life Rank	10
Quality of Life Rank	14
Physical Environment Rank	67

Statewide Rank of 115 (1=best)

QM QUALITY WORKS®

Top Focus Areas Identified in 2019

Heart/Vascular Disease

Diabetes

QM QUALITY WORKS®

2019 Internal Work Group Ranking

Heart Health	Diabetes	Mental/Behavioral Health: Substance Abuse
Cancer: Breast	Cancer: Lung	Obesity
	Access to Coverage	

QM QUALITY WORKS®

2019 Boone County Community Stakeholders Ranking

Access: Coverage	**Mental Health/Substance Abuse**	**Injury and Violence**
Coordination of Care	**Dental Care**	**Healthy Lifestyle**
	Diabetes	

2019 CHNA Secondary Data Priorities

Asthma

Healthy Lifestyle

Access: Transportation

Obesity

Diabetes

Access to Health Care

Health and Vascular Health

2022 CHNA Secondary Data Results

Mental Health	Substance abuse	Obesity	Stroke
Diabetes	Heart Disease	Cancer	Asthma
	Hypertension	Arthritis/Joint Disease	

Spotlight on ZIP Health – Boone County

Top Ranked ZIP Codes in Boone County

ZIP Code	Name	Rank**	Top Health Factor	Top Social Factor
65039	Hartsburg	25	Stroke	Drive Alone to Work
65279	Rocheport	47	Stroke	Low Birthweight
65203	Columbia	57	Mental Health	Income Inequality by Race
65010	Ashland	83	Hospital Utilization	Drive Alone to Work
65215	Columbia	122	Mental Health	Household Size

Bottom Ranked ZIP Codes in Boone County

| ZIP Code	Name	Rank**	Top Health Factor	Top Social Factor
65243	Clark	402	Sexually Transmitted Infections	Childhood Poverty
65255	Hallsville	324	Obesity	After Hour Emergency Visits
65202	Columbia	315	Substance Use Disorder	Uninsured Hospital Visits
65201	Columbia	239	Substance Use Disorder	Renter Occupied Housing
65240	Centralia	201	Obesity	One Parent Households

*** Statewide Rank of 937 (1=best)*

Mental Health

FY2019-21 hospital inpatient, emergency department, and outpatient diagnosed mental disorder-MDC 19 (rate per 1,000)
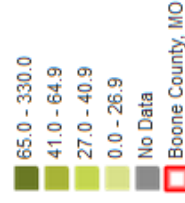
ZIP Code	ZIP Name	County	Mental Health Diagnosed per 1,000	Mental Health Diagnosed per 1,000 Z-Score	Mental Health Diagnosed Rank (of 937)	Quality of Life Rank (of 937)
65010	Ashland	Boone	46.25	0.88	809	588
65240	Centralia	Boone	28.03	-0.08	602	141
65243	Clark	Boone	27.56	-0.10	593	172
65201	Columbia	Boone	44.41	0.61	791	68
65202	Columbia	Boone	61.64	1.33	854	434
65203	Columbia	Boone	61.61	1.33	853	123
65215	Columbia	Boone	8.42	-0.90	56	1
65255	Hallsville	Boone	45.65	0.86	802	193
65256	Harrisburg	Boone	50.28	0.85	823	691
65039	Hartsburg	Boone	16.51	-0.56	251	37
65279	Rocheport	Boone	45.24	0.64	801	825
65284	Sturgeon	Boone	44.40	0.61	790	303

Data Source: Washington University School of Medicine, Hospital Industry Data Institute, *Missouri ZIP Health Rankings. 2021 Source geography: ZIP* → *Show more details*
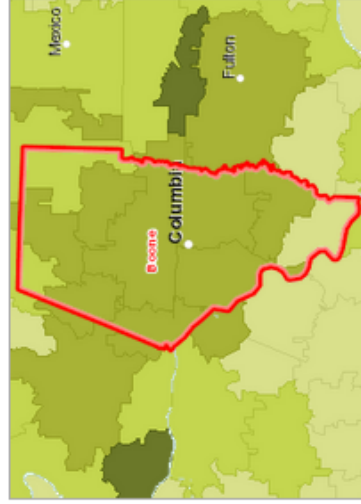
Mental Health Disorder Diagnoses Occurring in a Hospital Setting per 1,000 Total Population by ZIP Code, ZHR 2021

- 65.0 - 330.0
- 41.0 - 64.9
- 27.0 - 40.9
- 0.0 - 26.9
- No Data
- Boone County, MO

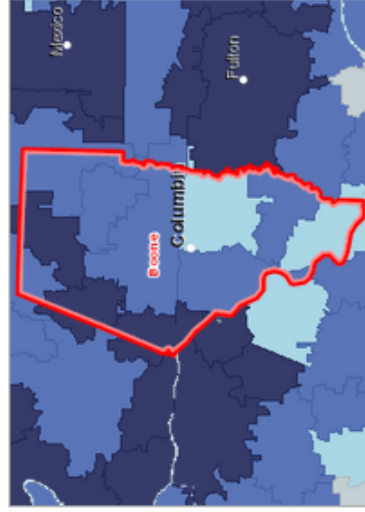

View larger map

QUALITY WORKS®

Heart Disease

FY2019-21 hospital inpatient, emergency department, and outpatient diagnosed heart disease (rate per 1,000)

ZIP Code	ZIP Name	County	Heart Disease per 1,000	Heart Disease per 1,000 Z-Score	Heart Disease Rank (of 937)	Quality of Life Rank (of 937)
65010	Ashland	Boone	173.00	-0.49	312	588
65240	Centralia	Boone	177.03	-0.48	328	141
65243	Clark	Boone	170.93	-0.50	302	172
65201	Columbia	Boone	110.88	-0.95	75	68
65202	Columbia	Boone	183.95	-0.41	385	434
65203	Columbia	Boone	160.90	-0.58	282	123
65215	Columbia	Boone	2.41	-1.78	1	1
65255	Hallsville	Boone	195.31	-0.32	413	193
65256	Harrisburg	Boone	302.80	0.48	747	691
65039	Hartsburg	Boone	120.27	-0.88	98	37
65279	Rocheport	Boone	205.84	-0.24	451	825
65284	Sturgeon	Boone	220.53	-0.14	519	303

Data Source: Washington University School of Medicine, Hospital Industry Data Institute, Missouri ZIP Health Rankings, 2021 Source geography: ZIP → Show more details

Heart Disease Diagnoses Occurring in a Hospital Setting per 1,000 Total Population by ZIP Code, ZHR 2021

- 200.0 - 1,537.0
- 140.0 - 199.9
- 100.0 - 139.9
- 0.0 - 99.9
- No Data
- Boone County, MO

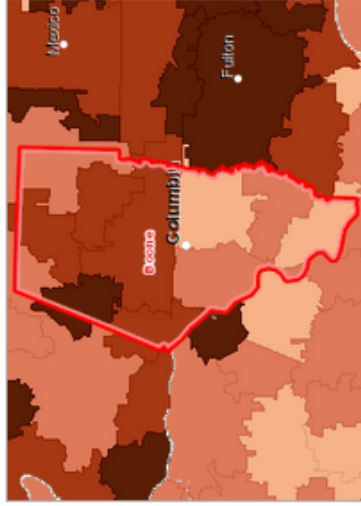View larger map

QUALITY WORKS®

Hypertension

FY2019-21 hospital inpatient, emergency department, and outpatient diagnosed hypertension (rate per 1,000)
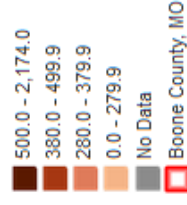
ZIP Code	ZIP Name	County	Hypertension per 1,000	Hypertension per 1,000 Z-Score	Hypertension Rank (of 937)	Quality of Life Rank (of 937)
65010	Ashland	Boone	358.32	-0.33	411	588
65240	Centralia	Boone	320.66	-0.50	316	141
65243	Clark	Boone	342.01	-0.41	367	172
65201	Columbia	Boone	228.47	-0.92	97	88
65202	Columbia	Boone	397.23	-0.16	511	434
65203	Columbia	Boone	335.59	-0.43	347	123
65215	Columbia	Boone	0.00	-1.93	1	1
65255	Hallsville	Boone	425.95	-0.03	568	193
65256	Harrisburg	Boone	505.74	0.32	698	691
65039	Hartsburg	Boone	287.43	-0.74	184	37
65279	Rocheport	Boone	451.78	0.08	613	825
65284	Sturgeon	Boone	444.35	0.05	593	303

Data Source: Washington University School of Medicine, Hospital Industry Data Institute, Missouri ZIP Health Rankings. 2021 Source geography: ZIP → Show more details

Hypertension Diagnoses Occurring in a Hospital Setting per 1,000 Total Population by ZIP Code, ZHR 2021

- 500.0 - 2,174.0
- 380.0 - 499.9
- 280.0 - 379.9
- 0.0 - 279.9
- No Data
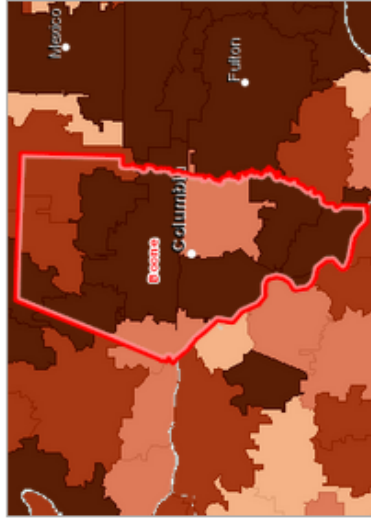- Boone County, MO

View larger map

QUALITY WORKS®

Other Cancer

FY2019-21 hospital inpatient, emergency department, and outpatient diagnosed cancer-other types (rate per 1,000)

| ZIP Code	ZIP Name	County	Other Cancer per 1,000	Other Cancer per 1,000 Z-Score	Other Cancer Rank (of 937)	Quality of Life Rank (of 937)
85010	Ashland	Boone	37.87	0.80	851	588
85240	Centralia	Boone	23.90	0.10	689	141
85243	Clark	Boone	41.96	1.01	871	172
85201	Columbia	Boone	16.84	-0.25	408	68
85202	Columbia	Boone	29.07	0.36	770	434
85203	Columbia	Boone	27.14	0.27	738	123
85215	Columbia	Boone	0.00	-1.09	1	1
85255	Hallsville	Boone	31.47	0.48	798	193
85256	Harrisburg	Boone	61.07	1.98	909	891
85039	Hartsburg	Boone	40.88	0.95	868	37
85279	Rocheport	Boone	14.19	-0.38	292	825
85284	Sturgeon	Boone	24.29	0.12	877	303

Data Source: Washington University School of Medicine, Hospital Industry Data Institute, Missouri ZIP Health Rankings. 2021 Source geography: ZIP → Show more details

Other Cancer (Unspecified Neoplasm) Diagnoses Occurring in a Hospital Setting per 1,000
Total Population by ZIP Code, ZHR 2021

- 25.0 - 288.0
- 17.5 - 24.9
- 12.0 - 17.4
- 0.0 - 11.9
- No Data
- Boone County, MO

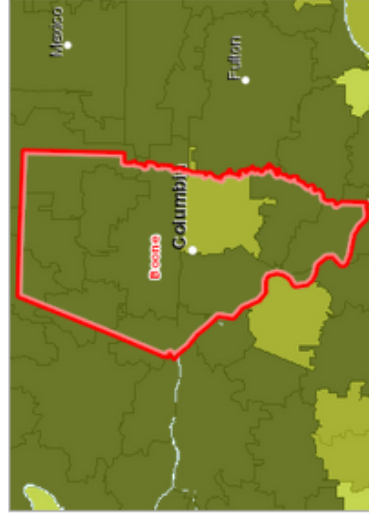View larger map

QUALITY WORKS®
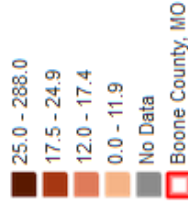
Stroke

FY2019-21 hospital inpatient, emergency department, and outpatient diagnosed ischemic stroke (rate per 1,000)

| ZIP Code	ZIP Name	County	Stroke per 1,000	Stroke per 1,000 Z-Score	Stroke Rank (of 937)	Quality of Life Rank (of 937)
65010	Ashland	Boone	21.15	0.02	600	588
65240	Centralia	Boone	24.88	0.29	714	141
65243	Clark	Boone	21.68	0.06	618	172
65201	Columbia	Boone	13.31	-0.56	281	88
65202	Columbia	Boone	18.41	-0.18	481	434
65203	Columbia	Boone	17.59	-0.24	453	123
65215	Columbia	Boone	0.00	-1.55	1	1
65255	Hallsville	Boone	23.36	0.18	684	193
65256	Harrisburg	Boone	17.68	-0.24	460	691
65039	Hartsburg	Boone	23.89	0.22	689	37
65279	Rocheport	Boone	39.48	1.38	871	825
65284	Sturgeon	Boone	22.20	0.10	634	303

Data Source: Washington University School of Medicine, Hospital Industry Data Institute, *Missouri ZIP Health Rankings. 2021 Source geography: ZIP → Show more details*

Stroke/Other Cerebrovascular Diagnoses Occurring in a Hospital Setting per 1,000 Total Population by ZIP Code, ZHR 2021

- 14.0 - 125.0
- 9.5 - 13.9
- 7.0 - 9.4
- 0.0 - 6.9
- No Data
- Boone County, MO

View larger map

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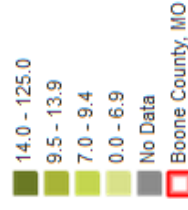
Arthritis/Joint Disease

FY2019-21 hospital inpatient, emergency department, and outpatient diagnosed arthritis and joint disorders (rate per 1,000)
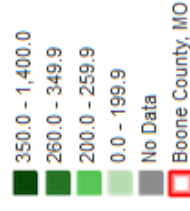
ZIP Code	ZIP Name	County	Arthritis/Joint Disease per 1,000	Arthritis/Joint Disease per 1,000 Z-Score	Arthritis/Joint Disease Rank (of 937)	Quality of Life Rank (of 937)
65010	Ashland	Boone	440.88	0.79	804	588
65240	Centralia	Boone	322.73	0.09	824	141
65243	Clark	Boone	331.10	0.13	842	172
65201	Columbia	Boone	289.55	-0.23	472	68
65202	Columbia	Boone	425.38	0.70	786	434
65203	Columbia	Boone	407.27	0.59	788	123
65215	Columbia	Boone	7.22	-1.79	1	1
65255	Hallsville	Boone	489.55	1.08	843	193
65256	Harrisburg	Boone	618.46	1.84	891	691
65039	Hartsburg	Boone	320.87	0.07	618	37
65279	Rocheport	Boone	498.46	1.13	848	825
65284	Sturgeon	Boone	429.89	0.72	790	303

Data Source: Washington University School of Medicine, Hospital Industry Data Institute, *Missouri ZIP Health Rankings. 2021* Source geography: ZIP → *Show more details*
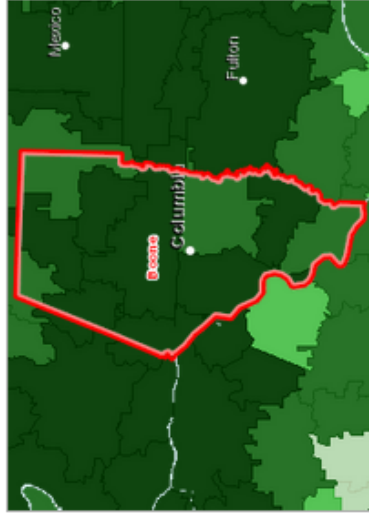
Arthritis and Lupus Diagnoses Occurring in a Hospital Setting per 1,000 Total Population by ZIP Code, ZHR 2021

- 350.0 - 1,400.0
- 260.0 - 349.9
- 200.0 - 259.9
- 0.0 - 199.9
- No Data
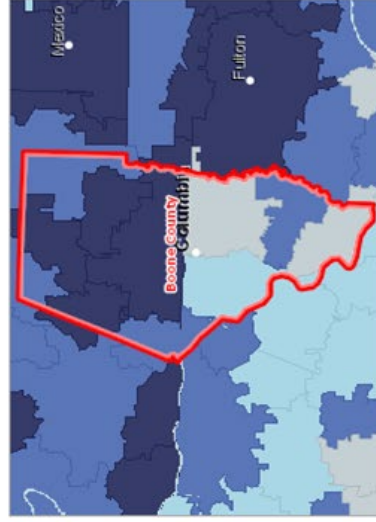- Boone County, MO

View larger map

Diabetes

FY2019-21 hospital inpatient, emergency department, and outpatient diagnosed diabetes (rate per 1,000)

ZIP Code	ZIP Name	County	Diabetes per 1,000	Diabetes per 1,000 Z-Score	Diabetes Rank (of 937)	Quality of Life Rank (of 937)
65010	Ashland	Boone	246.21	-0.02	558	588
65240	Centralia	Boone	227.49	-0.16	498	141
65243	Clark	Boone	243.53	-0.04	545	172
65201	Columbia	Boone	155.58	-0.68	222	68
65202	Columbia	Boone	312.39	0.46	723	434
65203	Columbia	Boone	214.71	-0.25	451	123
65215	Columbia	Boone	2.41	-1.80	1	1
65255	Hallsville	Boone	304.89	0.41	713	193
65256	Harrisburg	Boone	342.98	0.68	765	691
65039	Hartsburg	Boone	156.51	-0.68	230	37
65279	Rocheport	Boone	277.81	0.21	655	825
65284	Sturgeon	Boone	324.84	0.55	741	303

Data Source: Washington University School of Medicine, Hospital Industry Data Institute, Missouri ZIP Health Rankings. 2021 Source geography: ZIP → Show more details

Diabetes Mellitus Diagnoses Occurring in a Hospital Setting per 1,000 Total Population
by ZIP Code, ZHR 2021

- 300.0 - 1,350.0
- 220.0 - 299.9
- 160.0 - 219.9
- 0.0 - 159.9
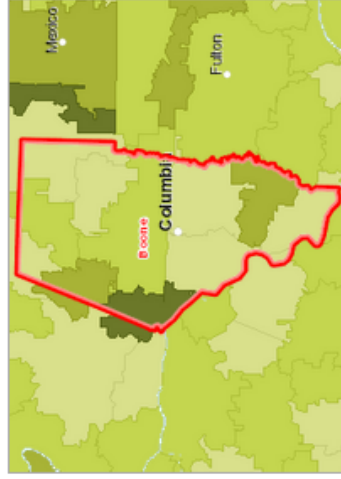- No Data
- Boone County, MO

View larger map

Quality of Life Rank

The Quality of Life Rank is based on environment factors including Arthritis/Joint Disease, Atherosclerosis, Breast Cancer, Cancer, Chronic Diseases, Colorectal Cancer, COPD, Diabetes, ED Utilization, Female Genital Cancer, Gastrointestinal Cancer, Heart Disease, Hospital Utilization, Hypertension, Inpatient Utilization, Kidney Disease, Liver Disease, Low Birthweight, Lung Cancer, Lymphatic Cancer, Male Genital Cancer, Mental Health, Nonspecified Cancer, Other Cancer, Secondary Malignancies, Skin Cancer, Stroke, Urinary Cancer, and Uterine/Cervical Cancer.

ZIP Code	ZIP Name	County	Quality of Life Index Score	Quality of Life Rank (of 937)
65010	Ashland	Boone	0.08	588
65240	Centralia	Boone	-0.75	141
65243	Clark	Boone	-0.68	172
65201	Columbia	Boone	-0.98	68
65202	Columbia	Boone	-0.21	434
65203	Columbia	Boone	-0.81	123
65215	Columbia	Boone	-2.43	1
65255	Hallsville	Boone	-0.63	193
65256	Harrisburg	Boone	0.31	691
65039	Hartsburg	Boone	-1.21	37
65279	Rocheport	Boone	0.81	825
65284	Sturgeon	Boone	-0.44	303

Data Source: Washington University School of Medicine, Hospital Industry Data Institute, *Missouri ZIP Health Rankings*. 2021 Source geography: ZIP → *Show more details*

Quality of Life Outcomes Rank (of 937) by ZIP Code, ZHR 2021

- 706 - 937
- 471 - 705
- 236 - 470
- 1 - 235
- No Data
- Boone County, MO

View larger map

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MHA Health Equity Dashboard

MANAGE OPERATIONS TREAT PATIENTS SERVE COMMUNITIES Advocacy Education & Events Emergent Issues Engagement Membership

MHA Health Equity Dashboards

EXPLORE THE DASHBOARDS
View the steps

1 Get started with the Priority Guide

2 Take a deeper dive with the Disparity Explorer

3 Evaluate risk-adjusted differences in health outcomes

4 Understand diversity in your community's composition

5 Learn more and take action to improve health equity in your community

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STEP 1

County Selection

Select One or More Counties
Boone >

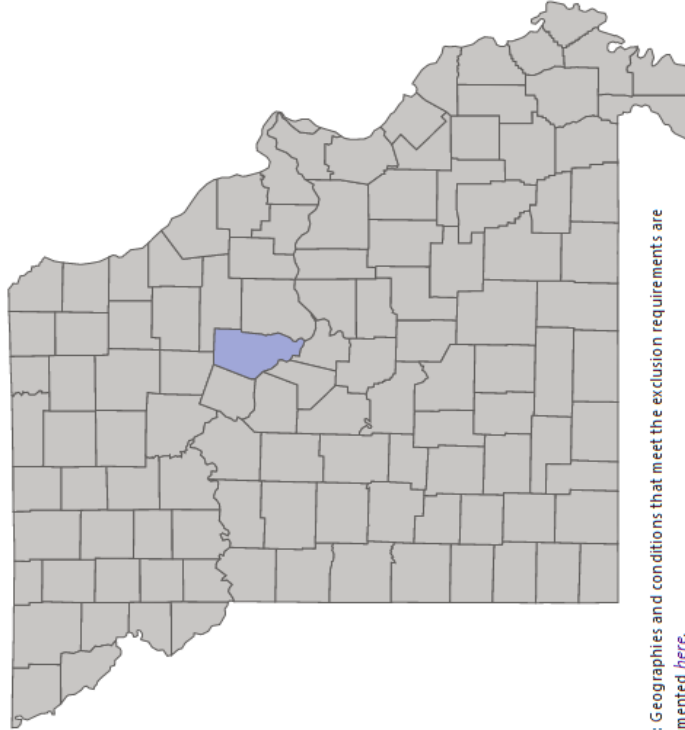**Demographic Group 1**
WHITE >

Demographic Group 2
BLACK OR AFRICAN AMERICAN >

Note: Geographies and conditions that meet the exclusion requirements are documented here.

DATA AND ANALYTICS POWERED BY HIDI

Disparity Factors, Total Encounters and Prevalence Rates for Selected Geographies

Domain and Condition Indicator	Unique Individuals Diagnosed Group 1	Unique Individuals Diagnosed Group 2	Prevalence Group 1	Prevalence Group 2	Disparity Factor
SDOH					
Medicaid	14,433	7,945	7.16%	24.46%	3.42
Other Psychosocial Z-Code	281	93	0.14%	0.29%	2.05
Housing Z-Code	1,110	367	0.55%	1.13%	2.05
Employment Z-Code	805	264	0.40%	0.81%	2.04
Upbringing Z-Code	1,007	293	0.50%	0.90%	1.81
Any Z-Code	3,679	1,005	1.82%	3.09%	1.70
Education Z-Code	64	16	0.03%	0.05%	1.55
Uninsured	35,992	8,822	17.85%	27.16%	1.52
Social Environment Z-Code	236	49	0.12%	0.15%	1.29
Family Z-Code	1,097	211	0.54%	0.65%	1.19
Maternal & Child Health					
Extreme Immaturity	27	22	0.01%	0.07%	5.06
Low Birthweight	112	51	0.06%	0.16%	2.83
Preterm Birth	339	127	0.17%	0.39%	2.33
Preterm Labor	114	32	0.06%	0.10%	1.74
Gestational Diabetes	640	129	0.32%	0.40%	1.25
Heavy Birthweight	278	40	0.14%	0.12%	0.89
Risk Behaviors					
Malingering	172	67	0.09%	0.21%	2.42
Tobacco	20,110	5,720	9.97%	17.61%	1.77
Substance Use Disorder	5,928	1,659	2.94%	5.11%	1.74
MDC 20-Any Inpatient SUD	1,350	265	0.67%	0.82%	1.22
Alcohol Use Disorder	4,161	809	2.06%	2.49%	1.21

STEP 2

Condition
Physical Health (Select One Below) (Column) + Asthm...

Select Counties for Zip Drill Through
Boone

Race/Ethnicity
WHITE

Payer
All

Sex
All

Age Group
All

Race/Ethnicity
BLACK OR AFRICAN AMERIC...
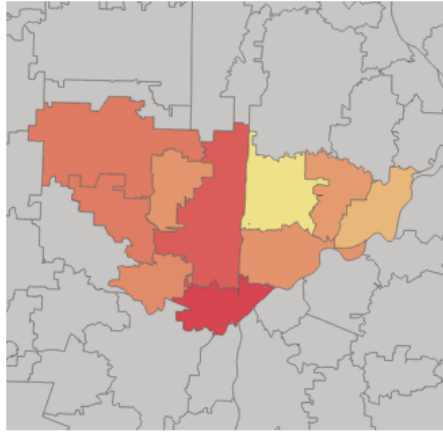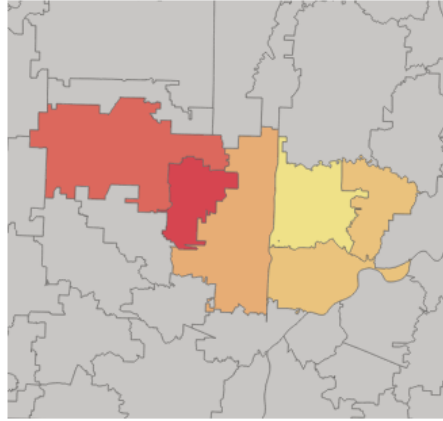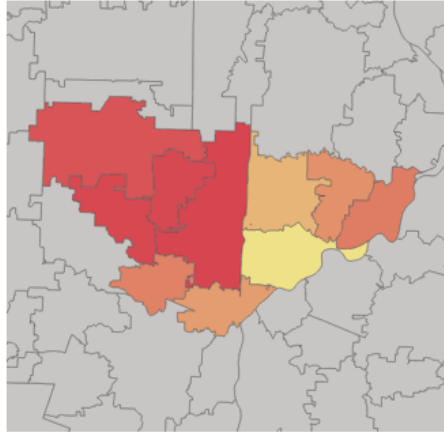
Payer
All

Sex
All

Age Group
All

Prevalence of Asthma
for Demographic Group 1

Prevalence of Asthma
for Demographic Group 2

	Prevalence for Demographic Group 1	Prevalence for Demographic Group 2	Group 2 vs Group 1 Disparity Factor
	4.63%	**7.83%**	**1.69**

Zip	Zip Name	Unique Individuals Group 1	Prevalence for Group 1	Unique Individuals Group 2	Prevalence for Group 2	Disparity Factor ▼
65255	Hallsville, MO	6,300	4.65%	99	12.12%	2.61
65240	Centralia, MO	10,827	5.09%	156	10.90%	2.14
65201	Columbia, MO	53,006	3.45%	9,815	6.71%	1.94
65010	Ashland, MO	9,958	4.57%	167	7.78%	1.70
65203	Columbia, MO	69,362	4.69%	10,319	7.75%	1.65
65202	Columbia, MO	53,747	5.57%	15,591	8.52%	1.53

Note: For geographies with 11 or more unique encounters for selected demographic group.

Tree Map Selection
- Race Age
- Race Payer
- Race Sex Age
- Race Sex Payer

BL/AA 75 to 84	BL/AA 40 to 64	BL/AA 20 to 39	OTH 0 to 19	WHITE 40 to 64	WHITE 75 to 84	WHITE 0 to 19	OTH 40 to 64	ASIA...	OTH...
9.30%	8.04%	6.74%	5.80%	5.32%	4.97%	4.24%	3.93%	2.89%	2.76%
BL/AA 0 to 19	BL/AA 65 to 74	MULTI 0 to 19	WHITE 65 to 74	HISPANIC 0 to 19	HISPANIC 40 to...	WHITE 85+	ASIAN 0 to 19	UNK 0 to 19	
9.03%	7.86%	6.37%	5.69%	5.20%	4.73%				
						WHITE 20 to 39	HISPANIC 20 to 39	ASIAN 20 to 39	
						4.19%	3.38%		
						3.98%	3.34%		

DATA AND ANALYTICS POWERED BY **HIDI**

STEP 2

Condition

Physical Health (Select One Below) (Column) + Diabet... ▾

Select Counties for Zip Drill Through

Boone ▾

	Race/Ethnicity	Sex
	WHITE ▾	Female ▾
	Payer	Age Group
	Medicare ▾	All ▾

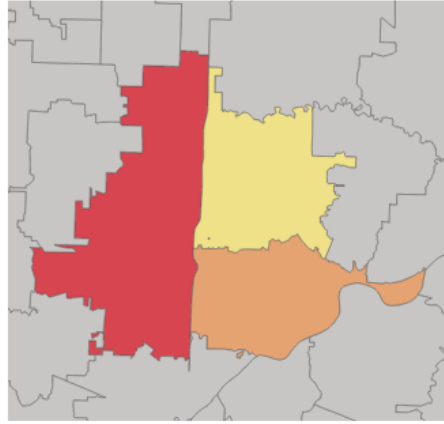|	Race/Ethnicity	Sex
	BLACK OR AFRICAN AMERIC... ▾	Female ▾
	Payer	Age Group
	Medicare ▾	All ▾

Prevalence of Diabetes for Demographic Group 1

Prevalence of Diabetes for Demographic Group 2

Prevalence for Demographic Group 1	Prevalence for Demographic Group 2	Group 2 vs Group 1 Disparity Factor
17.15%	34.94%	2.04

Zip	Zip Name	Unique Individuals Group 1	Prevalence for Group 1	Unique Individuals Group 2	Prevalence for Group 2	Disparity Factor
65203	Columbia, MO	8,488	13.81%	705	34.33%	2.49
65201	Columbia, MO	4,285	15.85%	433	33.26%	2.10
65202	Columbia, MO	6,033	21.00%	904	35.95%	1.71

Note: For geographies with 11 or more unique encounters for selected demographic group.

Tree Map Selection
- ● Race Age
- ○ Race Payer
- ○ Race Sex Age
- ○ Race Sex Payer

DATA AND ANALYTICS POWERED BY **HIDI**

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Overall

Based on the 2019 CHNA findings, and secondary data results shared today, what are the top issues that we need to focus on in the next three years?

Prioritization Criteria to Consider

Examples of Prioritization Criteria	
Magnitude of the Problem	The health need affects a large number of people within the community.
Severity of the Problem	The health need has serious consequences (morbidity, mortality and/or economic burden) for those affected.
Health Disparities	The health need disproportionately impacts the health status of one or more vulnerable population groups.
Community Assets	The community can make a meaningful contribution to addressing the health need because of its relevant expertise and/or assets as a community, and because of an organizational commitment to addressing the need.
Ability to Leverage	There is opportunity to collaborate with existing community partnerships working to address the health need, or to build on current programs, emerging opportunities, etc.

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Focus Group Prioritization

- Access: Coverage
- Mental health
- Substance abuse
- Chronic diseases
  - ▲ Cancer
  - ▲ Diabetes
  - ▲ Heart Disease
  - ▲ Asthma
  - ▲ Stroke

- Obesity
- Social Determinants of Health
  - ▲ Transportation
  - ▲ Housing
  - ▲ Uninsured

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Questions

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Final Thoughts – Next Steps

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