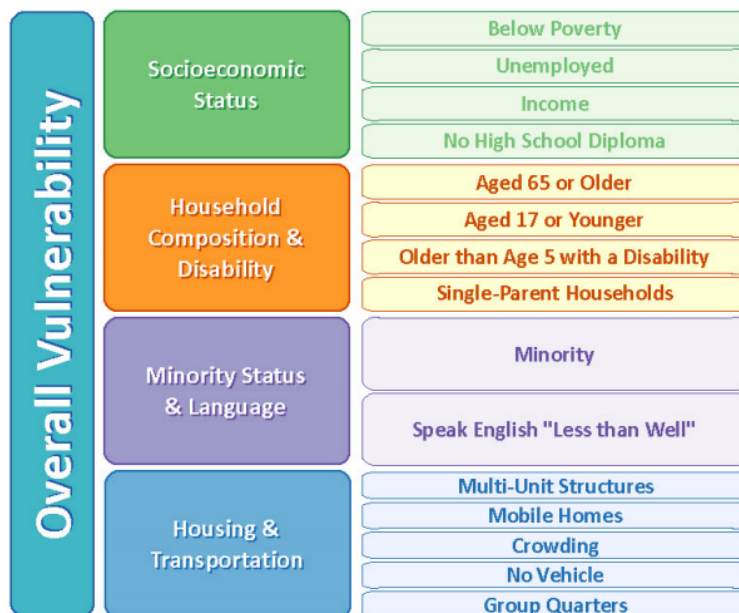# Populations of Interest

Methodology to Identify At-Risk Populations

The Ozarks Health Commission (OHC) wanted to ensure that vulnerable and at-risk populations were considered when identifying and addressing community health needs. Vulnerable populations, such as people in poverty, minorities, and the elderly, often experience higher rates of chronic illness and worse health outcomes creating health disparities between various socioeconomic classes and/or demographic groups. Therefore, the OHC created a subcommittee to develop a process to identify and understand vulnerable populations within each Community.

The subcommittee identified a CDC-developed tool called the Social Vulnerability Index (SVI),[1] which was created to help emergency planners identify and map groups that may be most at-risk in the event of a disaster. The SVI uses U.S. Census and American Community Survey data to identify at-risk groups by ranking all census tracts on 15 social factors. The factors are grouped into four main themes, as illustrated in the figure below.[2][3] Since the SVI flags groups more vulnerable than 90% of all comparative census tracts, the OHC applies the SVI to identify vulnerable groups within each county.

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[1] https://svi.cdc.gov/Index.html
[2] https://gis.cdc.gov/grasp/svi/A%20Social%20Vulnerability%20Index%20for%20Disaster%20Management.pdf
[3] https://svi.cdc.gov/Documents/Publications/CDC_ATSDR_SVI_Materials/SVI_Poster_07032014_FINAL.pdf

Additionally, the SVI tool identifies groups that are at-risk for being flagged, allowing the OHC to identify potential emerging areas of concern.

For example, according to the most recent (2016) SVI data, Texas County, MO has three flagged groups: People living in poverty, low income, and those with a disability. Barry County, MO does not have any flagged groups. However, there are three groups that have the potential of being flagged (more vulnerable than 85% of other census tracts): unemployed, low income, and limited English proficiency.[4]

The subcommittee determined that the assessment process would involve identifying groups that are flagged or have the potential to be flagged. Development of Community Health Improvement Plans could then include a prioritization process to identify and develop Community-specific strategies with special consideration of these populations.

The subcommittee determined a limitation of the SVI tool is that it was specifically created for emergency planners, and the factors within the theme of "Housing and Transportation" did not have as direct of a connection to health as the other themes. The subcommittee modified the SVI by assessing populations that live in substandard housing.

The subcommittee completed a crosswalk between each SVI factor and the Assessed Health Issues (AHI) identified through public health data to ensure a connection between the factor and the AHIs. The group agreed to include measures that aligned with at least 50% of the AHI. This led to the removal of the following six measures:

- Single parent households
- Multi-unit structures
- Mobile homes
- Crowding
- No vehicle
- Group quarters

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[4] Centers for Disease Control and Prevention/ Agency for Toxic Substances and Disease Registry/ Geospatial Research, Analysis, and Services Program. Social Vulnerability Index [2016] Database [State]. http://svi.cdc.gov/SVIDataToolsDownload.html. Accessed on [April 2018].

Populations by Category

Socioeconomic Status

Poverty, Income, Employment, and Education

Two SVI indicators measure the income status of the county population: Poverty and Per Capita Income. Poverty measures the proportion of the population living below 100% of the Federal Poverty Level. Per Capita Income measures the average yearly income earned per person. A person's income status is closely tied to his or her health. Generally, people with a higher income have easier access to healthcare by means of transportation, health insurance, and finances to pay out-of-pocket expenses. Additionally, they are more likely to engage in healthy lifestyle behaviors, such as exercising, eating healthy food, and abstaining from tobacco use.[5] Therefore, their risk for acute and chronic illness is lower than that of those that live near or below poverty.

Two socioeconomic indicators closely tied to income are education and employment. The education indicator measures the prevalence of the population, age 25 and older, that does not have a high school diploma. The employment indicator measures the prevalence of the population, age 16 and older, that are unemployed. In general, people with a higher income are more educated, which means they typically 1) have increased knowledge of healthy lifestyle activities and 2) are better positioned for higher paying jobs which increases their means for participating in these activities.[6] Similarly, a person's employment status is closely tied to his or her access to healthcare.

Each of these socioeconomic indicators are predictive of behaviors that lead to worse health outcomes related to Cardiovascular Disease, Lung Disease, Mental Health, Oral Health, Diabetes, and Cancer. Income and employment status are more directly tied to a person's mental health.[7] [8] Therefore, addressing populations that live near or below poverty, have low education levels, and/or are unemployed, will impact their health related to all AHI.

Household Composition and Disability

Age 17 or Younger

Children less than 18 years of age are generally dependent on a caregiver to ensure their basic, educational, and healthcare needs are met. If a parent is not able to nurture and protect his or her child, which is statistically evident in families facing the complexities of poverty, the child is more

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[5] https://www.cdc.gov/socialdeterminants/
[6] https://www.healthaffairs.org/doi/full/10.1377/hlthaff.21.2.60
[7] https://www.cdc.gov/pcd/issues/2015/14_0451.htm
[8] http://www.apa.org/pubs/journals/releases/ort-7513.pdf

likely to participate in risky and unhealthy behavior.[9] Children living in poverty are more likely to experience abuse and neglect which can cause them to leave the house prematurely, have early pregnancies, and/or associate with inappropriate peers.[10] As the child gets older, low educational attainment can negatively affect employment possibilities, housing, access to healthcare, nutrition, and more.

Regardless of income, children are more susceptible to environmental risks due to developing immune systems. Yet, their risk increases if they live in poverty.[11] Health problems can result from contaminated water, poor sanitation, indoor smoke, and widespread disease vectors such as mosquitos and an unsafe food supply. In regard to the assessment's AHI, these conditions can increase the threat of a child developing lung related disease, as well as mental, behavioral, and substance use issues while still in adolescence. Additionally, risky behaviors that develop during childhood years are likely to remain as an adult and/or affect their health status later in life. These may lead to worse health outcomes in all identified AHI: cardiovascular disease, lung disease, diabetes, oral health, and mental health.

Age 65 or Older

Oftentimes, adults age 65 and older experience risk factors that increase with age, such as decreased mobility, social isolation, chronic disease, financial decline, nutritional needs, and age-related illnesses. Living in poverty compounds the effect of these risk factors as it becomes more challenging to access available health and social resources. This population experiences an increased risk of dealing with one or more of all the AHI.

Persons with Disability

According to the International Classification of Functioning, Disability, and Health, a disability involves dysfunction of bodily function, limitations in activity, and/or restrictions in participating in life situations, and is the interaction between an individual with a health condition and personal and environmental factors.[12] Disability is diverse, with some health conditions requiring extensive attention and care while others do not. People with disabilities are vulnerable to insufficiencies in healthcare services, such as prohibitive costs, limited availability of services, physical barriers, and inadequate skills and knowledge of health workers. Additionally, they may experience greater vulnerability to co-morbid conditions, age-related conditions, secondary conditions, engaging in risky

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[9] G.W. Evans , "The Environment of Childhood Poverty," American Psychologist 59 , no. 2 (2004): 77 – 92. Crossref, Medline, Google Scholar

[10] G. Brown , "Mental Illness," Applications of Social Science to Clinical Medicine and Health Policy, ed. L.H. Aiken and D. Mechanic (New Brunswick: Rutgers University Press, 1986), 175–203. Google Scholar

[11] G.W. Evans , "The Environment of Childhood Poverty," American Psychologist 59 , no. 2 (2004): 77 – 92. Crossref, Medline, Google Scholar

[12] http://www.who.int/classifications/icf/icfbeginnersguide.pdf?ua=1

health behaviors, and higher rates of premature death.[13] Co-morbid, age-related, and secondary conditions may include all of the AHI.

Minority Status and Language

Minority and Speak English "Less than Well"

Health disparities among racial and ethnic minorities are well-documented. Variations in health outcomes arise from factors such as lack of health insurance, limited access to healthcare, and disparities in quality of care. Additionally, an inability of providers to recognize and address disparities, lack of data collection, analysis, and distribution of resources affect health outcomes as well.[14] Because the social construct of one's environment can predict his or her health outcomes, it is important to understand the unique needs of diverse populations to ensure access to social and health services. Similarly, it is important to understand the health issues faced by specific racial and ethnic minorities. For example, there is a greater prevalence of hypertension among African Americans than Caucasians.[15] Additionally, Hispanics are burdened by asthma as they are more likely to work in environments that may make them sick and/or not provide access to healthcare. The risk for developing one or more of the AHI varies by race and ethnicity. Therefore, the first step in identifying unique health needs is to understand the ethnic and racial features of a Community.

Housing

Substandard Housing

The proportion of the population that lives in substandard housing is a predictor of health status and is also linked closely with socioeconomic status. Substandard housing is defined by the U.S. Census Bureau as "the number and percentage of owner- and renter-occupied housing units having at least one of the following conditions: 1) lacking complete plumbing facilities, 2) lacking complete kitchen facilities, 3) with 1.01 or more occupants per room, 4) selected monthly owner costs as a percentage of household income greater than 30%, and 5) gross rent as a percentage of household income greater than 30%. Selected conditions provide information in assessing the quality of the housing inventory and its occupants. This data is used to easily identify homes where the quality of living and housing can be considered substandard".

These substandard housing units are more likely to contain physical hazards, lead-based paint, radon, and mold, and are often found in declining neighborhoods. Many times these neighborhoods lack the

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[13] http://www.who.int/news-room/fact-sheets/detail/disability-and-health
[14] https://minorityhealth.hhs.gov/Assets/pdf/2015_0916_Report_to_Congress_on_Minority_Health_Activities_FINAL.pdf
[15] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4108512/

physical infrastructure to allow exercise and lack safe physical exercise opportunities. The Substandard Housing indicator is predictive of exposures that can lead to heart disease, lung disease, mental health disparities, diabetes, and cancer.[16] Addressing substandard housing issues will impact resident health related to several AHI.

Populations of Interest for Branson Community

Populations of Interest: Branson Community

	Boone	Stone	Taney	Carroll	Community	OHC Region
Land Area in Square Miles (sq mi)	590.33	464.04	632.44	629.98	2316.79	18459.54
Total Population	37,301	31,197	53,853	27,690	150,041	1,270,868
Population Density (pop/sq mi)	63.19	67.23	85.15	43.95	64.76	68.85
Poverty	0.62	0.35	0.64	0.62	0.56	0.67
Unemployed	0.70	0.68	0.59	0.38	0.59	0.54
Per Capita Income	0.70	0.55	0.76	0.76	0.69	0.75
No High School Diploma	0.61	0.53	0.43	0.66	0.56	0.57
Age 65+	0.73	0.97	0.73	0.81	0.81	0.57
Age 17 or younger	0.45	0.06	0.33	0.44	0.32	0.58
Older than Age with a Disability	0.84	0.85	0.71	0.66	0.77	0.69
Minority	0.19	0.13	0.37	0.56	0.31	0.32
Non-English Speaking	0.05	0.27	0.54	0.90	0.44	0.44
Substandard Housing (%)	23.9%	26.8%	32.6%	27.6%	27.7%	27.6%

Unless otherwise noted, all numbers are percentile rankings with values ranging from 0 to 1, with higher values indicative of greater vulnerability. Percentiles are from the CDC's SVI data.	
Red highlight	The population in this county is more vulnerable than 90% of all other counties in its respective state
Orange highlight	The population in this county is more vulnerable than 85% of all other counties in its respective state
Yellow highlight	The population in this county is more vulnerable than 80% of all other counties in its respective state

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[16] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1447157/