4. Methodology

Introduction

The partners of the Ozark Health Commission developed a multi-faceted approach to collect data and complete the assessment. Throughout the process research was conducted to find evidence-based methods to help guide the committee. When evidence-based resources were not available, the committee used logic and rationale to create methods that would not inhibit progress of the assessment. The committee began the discussion of data collection and analysis with the end in mind—determining what data was needed to best understand and, subsequently, improve health in the community. The group decided to use a comprehensive approach to provide greater breadth and depth of information. The core of the data to be used in the assessment was secondary community health indicators, as the data is already available across various health categories. Secondly, the committee determined that having primary hospital data was a key component of the assessment. Not only does the data provide a unique and timely examination of a community's health, but it also provides the collaborative process to pilot this type of collection and use of hospital data. Third, to garner the perspective of partners and individuals within each of the Communities, it was decided that both a survey and focus groups would be conducted to provide first-hand information and feedback on health issues.

Throughout the primary and secondary data collection, the steering committee provided direction, feedback and guidance; whereas, the detailed research and efforts took place within subcommittees or with third-party contractors. The majority of the research and development of the methods was completed by four subcommittees. The subcommittees completed work on community health secondary data indicators, survey development and linkages to focus groups, primary hospital data indicators, and health issues and prioritization. The following sections within this section provide additional information on the work of the four subcommittees. Much of the work completed by the subcommittees happened concurrently, with the majority of the work occurring between May 2015 and February 2016.

Assessment Process

The assessment includes a two-step logic model to drive health outcomes. A logic model is composed of inputs, activities, outputs and outcomes. Model 1 walks through the process of completing the assessment, whereas Model 2 looks forward to the implementation of health improvement strategies. In Model 1, the majority of the work includes developing methods and collecting information needed to identify and prioritize health needs, which are detailed in this chapter of the report. The inputs in Model 1 provide all the information and resources needed to conduct activities, which then assembles it into a usable format for the Communities. The activities focus on developing the ranking to identify health needs. The outputs represent the health priorities that have been determined for each Community. The outcome represents the subsequent Community Health Implementation Plans that will be developed in response to the needs identified in the assessment. The process within Model 1 leads into Model 2, which ultimately leads to improved health outcomes.

Model 1: Assessment

Model 2 looks more like a traditional logic model. Partners bring together resources, time and collaborative efforts to develop and implement programs, policies, and system change. These activities result in changes to individuals, families, businesses, and the community at-large. The effect of these activities is demonstrated in improved health outcomes. The two-step logic model allows our lengthy and complicated process to be quickly explained and understood.

Model 2: Implementation

Secondary Data

Secondary Data Process

A committee on community health secondary data indicators was formed to identify indicators, collect and compile relevant data, and conduct an initial assessment of the findings. The committee was comprised of public health partners from the steering committee. The committee began their work to develop the methods and data collection in March 2015. The committee first completed research on health needs assessments conducted by other healthcare and public health throughout the nation. This research helped develop the set of indicators the committee would examine. The examination focused on recommendations of the CDC and several assessments identified as high quality by the National Association of City and County Health Officials[1]. The following category of indicators were identified: demographics, social determinants of health, nutrition, quality of life, environmental quality, access to health services, clinical preventive services, physical activity and obesity, tobacco, maternal, infant and child health, substance abuse, behavioral health, oral health, reproductive health and sexual health, communicable and chronic disease, hospitalizations, death and mortality, and injury and violence. As indicators were selected, they were also defined and sources were identified. The committee determined the indicators would be collected at the county-level and then combined into the Community-level for comparison. County-level data is available for individual Communities, health systems, public health agencies, and partners to examine the data on a more granular level.

To collect the secondary data, a graduate-level student was hired as an intern. The student collected and compiled more than 150 indicators from May 2015 through August 2015, which can be located in Appendix E. The primary collection point of data was Community Commons, through the Community Health Needs Assessment portion of the website.[2] Data was also collected from County Health Rankings[3] and the U.S. Census Bureau.[4] These sources provide a comprehensive dataset that are available for all counties within the OHC Region. While the data was collected from the online tools mentioned above, the sources of the data are from the following 27 datasets: U.S. Census Bureau, American Community Survey, 2009-2013 & 2008-2012[5], U.S. Census

[1] National Association of City and County Health Officials, http://archived.naccho.org/topics/infrastructure/accreditation/exemplary-sets-of-prereqs.cfm
[2] Community Commons; http://www.communitycommons.org/maps-data/; 2015.
[3] County Health Rankings; http://www.countyhealthrankings.org/; 2015.
[4] U.S. Census Bureau; http://www.census.gov/; 2015.
[5] U.S. Census Bureau, American Community Survey, http://www.census.gov/programs-surveys/acs/

Bureau, Decennial Census, 2000-2010[6], U.S. Department of Labor, Bureau of Labor Statistics, 2015[7], National Center for Education Statistics, Common Core of Data, 2008-2009[8], ESRI & U.S. Census TIGER Files, 2010 & 2013[9], Feeding America, 2012[10], U.S. Department of Housing and Urban Development, 2013[11], U.S. Census Bureau, County Business Patterns, 2013[12], Federal Bureau of Investigation, 2010-2012[13], Centers for Disease Control and Prevention, Behavioral Risk Factors Surveillance System, 2011-2012, 2006-2012, 2006-2010, 2005-2009[14], Centers for Disease Control and Prevention, National Environmental Public Health Tracking Network, 2008[15], U.S. Environment Protection Agency, The Safe Drinking Water Information System, 2013-2014[16], Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity, and Obesity, 2011[17], U.S. Department of Agriculture, Economic Research Service, 2011[18], Nielsen, Nielsen SiteReports, 2014[19], Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 2012[20], U.S. Census Bureau, Small Area Health Insurance Estimates, 2012[21], Dartmouth College Institute for Health Policy & Clinical Practice, 2012[22], U.S. Department of Health & Human Services, Health Resources and Services Administration, Area Health Resource File, 2012, 2013[23],

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[6] U.S. Census Bureau, Decennial Census, 2000-2010, http://www.census.gov/prod/www/decennial.html
[7] U.S. Department of Labor, Bureau of Labor Statistics, 2015; http://www.bls.gov/
[8] National Center for Education Statistics, Common Core of Data, 2008-2009; http://nces.ed.gov/ccd/
[9] ESRI & U.S. Census TIGER Files, 2010 & 2013; http://www.census.gov/geo/maps-data/data/tiger.html
[10] Feeding America, http://www.feedingamerica.org/
[11] U.S. Department of Housing and Urban Development, 2013; http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing
[12] U.S. Census Bureau, County Business Patterns, 2013; http://www.census.gov/econ/cbp/index.html
[13] Federal Bureau of Investigation, 2010-2012, https://www.fbi.gov/about-us/cjis/ucr/ucr
[14] Centers for Disease Control and Prevention, Behavioral Risk Factors Surveillance System, 2011-2012, 2006-2012, 2006-2010, 2005-2009; http://www.cdc.gov/brfss/index.html
[15] Centers for Disease Control and Prevention, National Environmental Public Health Tracking Network, 2008; http://www.cdc.gov/nceh/
[16] U.S. Environment Protection Agency, The Safe Drinking Water Information System, 2013-2014; http://www3.epa.gov/enviro/facts/sdwis/search.html
[17] Centers for Disease Control and Prevention, Division of Nutrition, Physical Activity, and Obesity, 2011, http://www.cdc.gov/obesity/strategies/healthy-food-env.html
[18] U.S. Department of Agriculture, Economic Research Service, 2011, http://www.ers.usda.gov/data-products/food-environment-atlas.aspx
[19] Nielsen, Nielsen SiteReports, 2014; http://www.claritas.com/sitereports/default.jsp
[20] Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 2012, http://www.cdc.gov/chronicdisease/index.htm
[21] U.S. Census Bureau, Small Area Health Insurance Estimates, 2012; http://www.census.gov/did/www/sahie/
[22] Dartmouth College Institute for Health Policy & Clinical Practice, 2012; http://tdi.dartmouth.edu/
[23] U.S. Department of Health & Human Services, Health Resources and Services Administration, Area Health Resource File, 2012, 2013; http://ahrf.hrsa.gov/

Centers for Medicare & Medicaid Services, National Provider Identification, 2014[24], U.S. Department of Health & Human Services, Center for Medicare & Medicaid Services, Provider of Services File, 2014[25], U.S. Department of Health & Human Services, Health Resources and Services Administration, Health Professional Shortage Area, 2015[26], Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, 2012[27], Centers for Disease Control and Prevention, National Vital Statistics System, 2006-2012[28], U.S. Department of Health & Human Services, Center for Medicare & Medicaid Services, 2012[29], National Institutes of Health, National Cancer Institute, Surveillance, Epidemiology, and End Results Program, State Cancer Profiles, 2007-2011[30], and U.S. Department of Transportation, National Highway Traffic Safety Administration, Fatality Analysis Reporting System, 2008-2010.[31]

As the secondary data was collected and compiled, it was also aggregated into selected Communities and placed into comparison tables to allow for a side-by-side examination of the data between Communities, the OHC Region, states and the nation. The committee then took the data and began to put some context with the indicators, which occurred in September and October 2015. The committee first reviewed each indicator to determine the relevance of the data based on the definition and significance of the dataset. Subsequently, the committee made observations about the indicators and how the OHC Region and Communities performed in comparison to the nation, states and the OHC Region. After the data was reviewed, the committee provided their findings to the steering committee. The following are the key findings of the collection of the community health indicators. Key findings within each category are provided. For a comprehensive list of comparison tables refer to Appendix F. For the county-level information that was used to create comparison tables, refer to Appendix G for the OHC

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[24] Centers for Medicare & Medicaid Services, National Provider Identification, 2014; https://www.cms.gov/Regulations-and-Guidance/HIPAA-Administrative-Simplification/NationalProvIdentStand/index.html

[25] U.S. Department of Health & Human Services, Center for Medicare & Medicaid Services, Provider of Services File, 2014; https://www.cms.gov/Research-Statistics-Data-and-Systems/Files-for-Order/NonIdentifiableDataFiles/ProviderofServicesFile.html

[26] U.S. Department of Health & Human Services, Health Resources and Services Administration, Health Professional Shortage Area, 2015; http://www.hrsa.gov/shortage/

[27] Centers for Disease Control and Prevention, National Center for HIV/AIDS, Viral Hepatitis, STD, and TB Prevention, 2012; http://www.cdc.gov/nchhstp/

[28] Centers for Disease Control and Prevention, National Vital Statistics System, 2006-2012; http://www.cdc.gov/nchs/nvss.htm

[29] U.S. Department of Health & Human Services, Center for Medicare & Medicaid Services, 2012; https://www.cms.gov/

[30] National Institutes of Health, National Cancer Institute, Surveillance, Epidemiology, and End Results Program, State Cancer Profiles, 2007-2011; http://seer.cancer.gov/

[31] U.S. Department of Transportation, National Highway Traffic Safety Administration, Fatality Analysis Reporting System, 2008-2010; http://www.nhtsa.gov/FARS

Regional breakdown and Appendix H for the Community-specific breakdown. Appendix I includes data collected from sources other than Community Commons.

OHC Region Secondary Data Findings

Demographics

Population

The OHC Region is comprised of both rural and urban settings. Most of the Communities are less dense than the nation, but overall the OHC Region is growing more quickly the remainder of the nation.

- *Region*: 2.3 million; ranges from Rogers: 514,842 to Monett: 96,994
- *Density*: 65.23 people per square mile (US average: 88.23); ranges from Springfield: 214.87 to Boonville: 25.09
- *Metropolitan Statistical Areas (MSA)*: Fayetteville-Springdale-Rogers, Fort Smith, Joplin, Springfield-Branson
- *Population Growth*: 15.08% (US: 9.74%) growth from 2000-2010; ranges from Rogers: 31.5% to Boonville: 4.45%
- *Variance in Age Groups*: Bolivar: 21.75% of population age 65 or older (Region: 15.35%, US: 13.43%)

Racial, Ethnic and Linguistic Diversity

In general, the OHC Region lacks racial, ethnic and linguistic diversity. White is the overwhelming majority in most of the Communities. Some Communities have greater amounts of racial and ethnic diversity, but still fall short of the national average. Additionally, there is less linguistic diversity throughout the OHC Region.

- *White/Caucasian*: 87.95% (US 74.02%); ranges from Bolivar: 96.51% to Rogers: 80.44%
- *Native American/Alaska Native*: 2.43% (US: 0.82%); ranges from Fort Smith: 4.84% to Bolivar: 0.31%
- *Black/African American*: 1.95% (US: 12.57%); ranges from Fort Smith: 3.24% to Branson: 0.38%
- *Asian*: 1.46% (US: 4.89%); ranges from Rogers: 2.49% to Bolivar: 0.38%
- *Some Other Race*: 2.31% (US: 4.73%); ranges from Rogers: 5.99% to Bolivar: 0.41%
- *Hispanic Latino*: 7.06% (US: 16.62%); ranges from Rogers: 13.88% to Bolivar: 1.86%

- *Foreign Born*: 4.83% (US: 12.95%); ranges from Rogers: 9.89% to Bolivar: 1.27%
- *Linguistically Isolated Population*: 2.05% (US: 4.76%); ranges from Rogers: 4.34% to Lebanon: 0.49%
- *Limited English Proficiency*: 3.64% (US: 8.63%); ranges from Rogers: 7.54% to Lebanon: 1.22%

Social Determinants of Health

Income and Poverty

The OHC Region as whole is more economically depressed than the United States. Income is less than the nation and poverty is higher than the nation. Medicaid rates are higher than the nation which is likely due, in part, to Arkansas's expansion of Medicaid in 2013.

- *Unemployment*: 5.4% (US: 5.9%); ranges from Springfield: 4.6% to Branson: 10.1%
- *Per Capita Income*: $21,597 (US: $28,154); ranges from Boonville: $18,683 to Rogers: $24,123
- *Children Below 100% Federal Poverty Level*: 26.68% (US: 21.58%); ranges from Springfield: 22.84% to Bolivar: 33.7%
- *Children Below 200% Federal Poverty Level*: 55.06% (US: 43.81%); ranges from Springfield: 49.69% to Boonville: 62.46%
- *Population Below 100% Federal Poverty Level*: 18.61% (US: 15.37%); ranges from Springfield: 17.03% to Fort Smith: 20.87%
- *Population Below 200% Federal Poverty Level*: 43.37% (US: 34.23%); ranges from Springfield: 39.33% to Boonville: 50.29%
- *Population Enrolled in Medicaid*: 22.15% (US: 20.21%); ranges from Springfield: 17.16% to Boonville: 28.93%
- *Children Eligible for Free/Reduced Price Lunch Program*: 57.63% (US: 51.7%); ranges from Springfield: 45.85% to Boonville: 72.01%

Vulnerable Populations

The OHC Region has a greater percent of the population with a disability, but a lesser percent of single female households compared to the nation.

- *Population with Any Disability*: 15.97% (US: 12.13%); ranges from Rogers: 12.23% to Boonville: 21.02%
- *Female Householder, No Husband Present*: 10.24% (US: 13.1%); ranges from Booneville: 8.3% to Fort Smith: 11.8%

Education

The OHC Region tends to be less educated than the nation; however the current high school graduation rate for the OHC Region is higher.

- *Population with Associate's Level Degree or Higher*: 26.88% (US: 36.65%); ranges from Springfield: 33.77% to Boonville: 17.06%
- *Population with No High School Diploma*: 15.30% (US: 13.98%); ranges from Springfield: 10.08% to Boonville: 20.91%
- *High School Graduation Rate*: 83.10% (US: 75.5%); ranges from Springfield: 87.20% to Fort Smith: 78.40%

Nutrition

The OHC Region performs similarly to the nation and includes indicators both above and below the national average. Overall, the OHC Region appears to have access to the Supplemental Nutrition Assistance Program (SNAP) and Women, Infants, and Children (WIC) stores, less access to fast food, but tends to not have high access to healthy food. There is limited data on dietary behaviors and some of the data that is available is dated.

- *Population in Tracts with High Healthy Food Access*: 3.59% (US: 5.02%); ranges from Lebanon: 10.56% to Springfield: 0%
- *Population in Tracts with No Healthy Food Outlet*: 27.42% (US: 18.63%); ranges from Rogers: 19.45% to Joplin: 41.42%
- *Fast Food Restaurant Access:* 63.34 establishments per 100,000 (US: 72.74); ranges from Monett: 40.08 to Springfield: 84.36
- *SNAP- Authorized Food Store Access*: 86.27 establishments per 100,000 (US: 78.44); ranges from Monett: 101.73 to Springfield: 75.62
- *WIC- Authorized Food Store Access*: 15.2 establishments per 100,000 (US: 15.6); ranges from Monett: 19.6 to Springfield: 11.9
- *Ate Fruits and Vegetables Less Than 5 Times per Day*: 80.48% (US: 75.67%); ranges from Rogers: 78.92% to Lebanon: 82.63% (data is from 2005-2009)

Quality of Life

Quality of life greatly affects health. There is considerable variation from the top performing to bottom performing Communities, and in all of the measures 1 or more Community performs better than the nation.

- *Food Insecurity Rate*: 15.99% (US: 15.94%); ranges from Monett 14.56% to Fort Smith: 17.65%
- *Substandard Housing Environment*: 29.05% (US: 36.11%); ranges from Monett: 27.22% to Springfield: 30.93%
- *Vacancy Rate*: 16.25% (US: 12.45%); ranges from Springfield: 8.43% to Bolivar: 37.9%
- *Violent Crime Rate*: 354.6 per 100,000 residents (US: 395.5); ranges from Boonville: 235.4 to Springfield: 466.4
- *Lack of Social Support*: 18.75% (US: 20.68%); ranges from Springfield: 16.07% to Monett: 28.72%
- *Number of Poor Mental Health Days*: 3.61 in the last 30 days; ranges from Fort Smith: 3.37 to Bolivar: 4.67

Environmental Quality

The environmental quality of the OHC Region is generally healthier than the nation with better air quality rates; however, the use of public transportation is significantly lower than the nation.

- *Air Quality – Particulate Matter 2.5*: 0.25% (US: 1.19%); ranges from Springfield: 0.05% to Booneville: 0.75%
- *Air Quality Index – Ozone*: 0% (US: 0.47%)
- *Water Quality – Drinking Water Violations*: 5.49%; ranges from Springfield: 2.88% to Booneville: 23.59%
- *Use of Public Transportation*: 0.37% (US: 5.01%); ranges from Rogers: 0.49% to Joplin: 0.2%

Access to Health Services

In general the OHC Region has a greater population of uninsured adults and children. All races and ethnicities in the OHC Region, besides the Hispanic population, perform poorly compared to the nation. The OHC Region also has less access to care, providers and resources.

- *Uninsured adults*: 25.19% (US: 20.76%); ranges from Springfield: 20.93% to Booneville: 30.18%
    - *White/Caucasian*: 15.49%; (US: 10.42%) ranges from Rogers: 13.74% to Branson: 18.37%
    - *Native American/Alaska Native*: 28.26% (US: 27.92%); ranges from Joplin: 11.02% to Branson: 41.55%
    - *Black/African American*: 20.72% (US: 17.52%); ranges from Lebanon: 12.83% to Branson: 55.83%

- *Asian*: 22.18% (US: 14.95%); ranges from Lebanon: 18.21% to Joplin: 57.32%
- *Some Other Race*: 33.22% (US: 33.22%); ranges from Rogers: 30.12% to Joplin: 81.25%
- *Hispanic Latino*: 32.3% (US: 29.62%); ranges from Lebanon: 21.39% to Fort Smith: 37.86%

- *Uninsured Children*: 8.83% (US: 7.54%); ranges from Springfield: 7.66% to Monett: 11.39%
- *Access to Primary Care*: 63.6/100,000 (US: 74.5); ranges from Springfield: 83.17 to Monett: 43.35
- *Access to dentists*: 42.96/100,000 (US: 63.18); ranges from Springfield: 56.58 to Booneville: 28.66
- *Mental health providers*: 564.72; ranges from Springfield: 420.58 to Branson: 1631.30
- *Federally Qualified Health Centers*: 2.28 (US: 1.92); ranges from Monett: 5.14 to Springfield: 1.29
- *Population Living in a Health Professional Shortage Area*: 60.54% (US: 34.07%); ranges from Rogers: 20.04% to Joplin and Monett: 100%
- *Lack of a Consistent Source of Primary Care*: 24.32% (US: 22.07%); ranges from Monett: 12.42% to Fort Smith: 29.28%

Clinical Preventive Services

The OHC Region has lower clinical preventive screenings and services compared to the nation; however, some Communities performed better than the nation.

- *Mammography screening*: 58.2% (US: 62.98%); ranges from Springfield: 63.84% to Booneville: 50%
- *Hemoglobic A1c Test*: 81.58% (US: 84.57%); ranges from Springfield: 89.49% to Fort Smith: 75.84%
- *Cervical Screening (Pap smear)*: 70.91% (US: 78.48%); ranges from Rogers: 75.22% to Joplin: 66.35%
- *Colon Cancer Screenings*: 53.4% (US:61.34%); ranges from Springfield: 64.71% to Booneville: 43.53%

Physical Activity and Obesity

Obesity affects the entire OHC Region, which has a higher rate than the nation. The OHC Region also performs poorly on physical activity with the majority of the population being sedentary.

- *Obesity*: 31.81% (US: 27.14%); ranges from Springfield: 29.3% to Fort Smith: 36.65%
- *Physical Inactivity*: 27.61% (US: 22.64%); ranges from Springfield: 22.46% to Booneville: 33.79%
- *Access to Exercise Opportunities*: 64.59%; ranges from Springfield: 77.54% to Bolivar: 50.50%

Tobacco

The rate of tobacco use in the OHC Region is higher than the nation, with all Communities above the national rate.

- *Tobacco Usage*: 23.49% (US: 18.08%); Healthy People 2020 Target: 12.0%; ranges from Rogers: 20.12% to Monett: 30.77%

Maternal, Infant and Child Health

The OHC Region has a higher teen pregnancy rate compared to the nation but performs better in low birth weight rates.

- *Teen Births*: 50.25/1,000 (US: 36.6); ranges from Springfield: 35.26 to Booneville: 68.63
- *Low Birth Weight*: 7.32% (US: 8.2%); Healthy People 2020 Target: 7.8%; ranges from Bolivar: 6.58% to Fort Smith: 7.97%

Substance Abuse

The majority of the OHC Region has a lower rate of alcohol abuse compared to the nation.

- *Alcohol Consumption*: 12.94% (US: 16.94%); ranges from Branson: 4.9% to Monett: 17.4%

Behavioral Health

The OHC Region performs poorly in behavioral health, with higher rates of suicide and depression than the nation.

- *Suicide*: 16.42/100,000 (US: 11.82); Healthy People 2020 Target: 10.2; ranges from Springfield: 14.14 to Lebanon: 22.13
- *Depression (Medicare Population)*: 17.51% (US: 15.45%); ranges from Booneville 14.54% to Springfield: 20.45%

Oral Health

The oral health of the OHC Region is worse than the nation. All Communities in the OHC Region have a higher percentage of under-utilizing dental care and poor dental health.

- *Dental Care Utilization*: 39.19% (US: 30.15%); ranges from Lebanon: 36.02% to Monett: 65.21%
- *Poor Dental Health*: 22.16% (US: 15.65%); ranges from Rogers: 18.12% to Monett: 31.47%

Reproductive Health and Sexual Health

The OHC Region performs well compared to national rates in sexual health. In general, the rates are higher in more urban settings, such as Rogers and Springfield.

- *Chlamydia Incidence*: 340.73/100,000 (US: 456.7); ranges from Bolivar: 199.03 to Springfield: 412.01
- *Gonorrhea Incidence*: 51.3/100,000 (US: 107.5); ranges from Branson: 17.38 to Springfield: 97.65
- *HIV/AIDS Prevalence*: 106.94/100,000 (US: 340.37); ranges from Bolivar: 31.41 to Springfield 167.36

Communicable and Chronic Disease

The chronic disease morbidity rates for the OHC Region are higher than the national rates. The OHC Region also has higher incidence rates for cervical and lung cancer than the nation.

- *Poor General Health*: 18.3% (US: 15.74%); ranges from Springfield: 15.1% to Booneville: 22.43%
- *Breast Cancer Incidence*: 108.6/100,000 (US: 122.7); Healthy People 2020 Target: 40.9; ranges from Joplin: 95.7 to Springfield: 123.5
- *Cervical Cancer Incidence*: 8.61/100,000 (US: 7.8); Healthy People 2020 Target: 7.1; ranges from Springfield: 6.4 to Branson: 14.5
- *Colon and Rectum Cancer Incidence*: 42.3/100,000 (US: 43.3); Healthy People 2020 Target: 38.7; ranges from Branson: 37.24 to Lebanon: 45.62
- *Lung Cancer Incidence*: 71.96/100,000 (US: 64.9); ranges from Rogers: 63.28 to Booneville: 83.32
- *Prostate Cancer Incidence*: 115.03/100,000 (US: 142.3); ranges from Joplin: 86.46 to Rogers: 134.29
- *Heart Disease Morbidity*: 5.68% (US: 4.40%); ranges from Branson: 3.87% to Lebanon: 7.77%

- *Cerebrovascular Disease/Stroke Morbidity*: 47.55/100,000 (US: 40.39); ranges from Branson: 40.85 to Monett: 55.76
- *High Blood Pressure Morbidity*: 30.05% (US: 28.16%); ranges from Branson: 26.62% to Booneville: 34.23%
- *High Cholesterol Morbidity*: 40.57% (US: 38.52%); ranges from Rogers: 33.65% to Fort Smith: 51.52%
- *Diabetes Morbidity*: 9.93% (US: 9.11%); ranges from Springfield: 8.41% to Fort Smith: 11.69%
- *Asthma Prevalence*: 13.37% (US: 13.36%); ranges from Lebanon: 10.69% to Joplin: 15.9%

Hospitalizations

In general, the OHC Region has a higher preventable hospitalization rate than the nation; however, three of the nine Communities have a lower rate than the nation.

- *Preventable Hospital Events*: 67.69/1,000 (US: 59.24); ranges from Springfield: 49.53 to Booneville: 92.14

Death and Mortality

The OHC Region performs more poorly in all listed mortality rates then the nation. The OHC Region has more than 1,500 premature deaths than the national average.

- *Premature Death*: 8,442/100,000 (US: 6,851); ranges from Rogers: 7,239 to Fort Smith: 9,921
- *Stroke Mortality*: 47.55/100,000 (US: 40.39); ranges from Branson: 40.85 to Monett: 55.76
- *Ischaemic Heart Disease Mortality*: 150.45/100,000 (US: 118.96); ranges from Springfield: 126.88 to Fort Smith: 186.58
- *Heart Disease Mortality*: 220.91/100,000 (US: 184.55); ranges from Springfield: 197.39 to Booneville: 265.36
- *Cancer Mortality*: 186.72/100,000 (US: 174.08); ranges from Springfield: 172.44 to Fort Smith: 205.6
- *Lung Disease Mortality*: 56.61/100,000 (US: 42.67); ranges from Branson: 48.38 to Booneville: 67.46
- *Unintentional Injury Mortality*: 54.38/100,000 (US: 38.85); Healthy People 2020: 36.0; ranges from Rogers: 41.91 to Bolivar: 66.93
- *Motor Vehicle Accident*: 11.55/100,000 (US: 7.55); ranges from Rogers: 8.31 to Bolivar: 18.63
- *Pedestrian Accident*: 0.8 (US: 1.38); Healthy People 2020 Target: 1.3; ranges from Branson: 0.2 to Fort Smith 1.4

- *Homicide*: 4.23/100,000 (US: 5.63); Healthy People 2020: 5.5; ranges from Rogers and Springfield 3.35 to Lebanon: 7.35
- *Infant Mortality*: 6.56/1,000 (US: 6.52); ranges from Monett: 5.82 to Lebanon: 7.44

Injury and Violence

In general, the OHC Region performs well compared to the nation in violent crime rates.

- *Violent Crime*: 354.6/100,000 (US: 395.5); ranges from Lebanon: 274.1 to Springfield: 466.4

Primary Hospital Data

Another key component of the assessment was the collection of the partnering hospitals' Emergency Department (ED) data. The steering committee determined that this data was essential for the assessment process, because it provided current information about the specific Communities and populations that are being assessed. It also helps in identifying community specific needs, therefore assisting in the creation of the strategic implementation plans. The combination of individual hospital data to this extent had not been attempted in the OHC Region. As such, the committee felt that it was essential to identify key indicators that would provide valuable information, but not overwhelm either the individual organizations or the collaborative process. To develop a process to determine the indicators and collection methods, a Primary Hospital Data Committee was created. The committee was comprised of hospital representatives from three of the four partnering systems and public health representatives. The committee began meeting in September of 2015 and completed its work by February 2016.

The Hospital Data Committee chose to focus on patients that enter the health systems through the ED, because the ED captures patients with all insurance types, including those without insurance. This approach provides the opportunity to assess potential health disparities across patient groups. Also, the Hospital Data Committee wanted to assess the impact of mental health illness in the OHC Region. Therefore, the data collected emphasized patients with a primary and/or secondary mental health diagnosis. The list below includes all data sets collected by each hospital partner:

- *ED Only vs ED Admitted*
- *ED by Top 20 Patient Home Zip Codes*
- *ED by Emergency Severity Index*
- *ED by Principal Diagnosis Group*
- *ED by Age Groups*
- *ED by Principal Diagnosis Group, Age 0-17*
- *ED by Principal Diagnosis Group, Age 18-64*
- *ED by Principal Diagnosis Group, Age 65+*
- *ED by Payer Group*
- *ED by Payer Group, by Principal Diagnosis Group*
- *ED by Patient Race*
- *ED by Patient Race (Top 5 Race Groups by Volume), by Principal Diagnosis*
- *ED Visits with a Behavioral Health (BH) Principal Diagnosis by Top 20 Coded Diagnosis*
- *ED Visits with a BH Secondary Diagnosis (non BH Principal) by Principal Diagnosis Group*

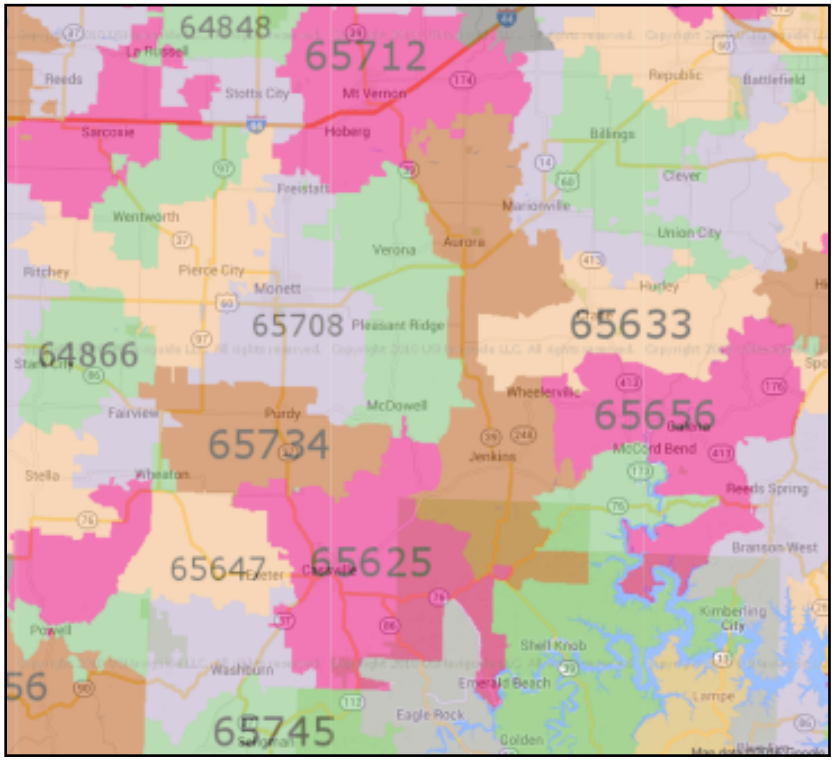
Each facility utilized their respective organization's analytics team. Also, each facility used their previous fiscal year; therefore, the date ranges varied. ICD-9 diagnosis groups (first three digits only) were used to ensure consistent data collection across facilities. In order to identify behavioral health diagnoses, analytics teams used The American Academy of Professional Coders (AAPC) Top 50 Behavioral Health Codes. When each hospital finished analysis, the Hospital Data Committee combined ED data sets in Communities with more than 1 ED. This approach maintained the collaborative nature of the Regional Health Assessment and provided a holistic perspective of community health needs.

Primary Hospital Data—Monett Findings

ED by Top 20 Patient Home Zip Codes

There are three Critical Access Hospitals in the Monett Community. The majority (18%) of ED patients in the Monett Community reside in the Aurora area, as well as surrounding cities such as Monett (17%) and Cassville (14%). After these areas, there is a fairly even distribution of the top 20 zip codes of ED patients that visited all EDs, as indicated in the table below.

ED by Top 20 Patient Home Zip Codes		
All EDs		
Zip	**City**	**Percent**
65605	Aurora	18.3%
65708	Monett	17.1%
65625	Cassville	13.9%
65712	Mount Vernon	5.3%
65734	Purdy	4.6%
65723	Pierce City	3.7%
65745	Seligman	3.6%
65647	Exeter	3.6%
65705	Marionville	3.4%
65769	Verona	3.3%
65633	Crane	2.6%
65772	Washburn	2.6%
64874	Wheaton	1.4%
65747	Shell Knob	1.3%
65707	Miller	1.0%
65610	Billings	0.8%
64873	Wentworth	0.7%
65641	Eagle Rock	0.7%
65656	Galena	0.6%
65756	Stotts City	0.6%
All Other Zip Codes		11.0%
All Cases		100.00%



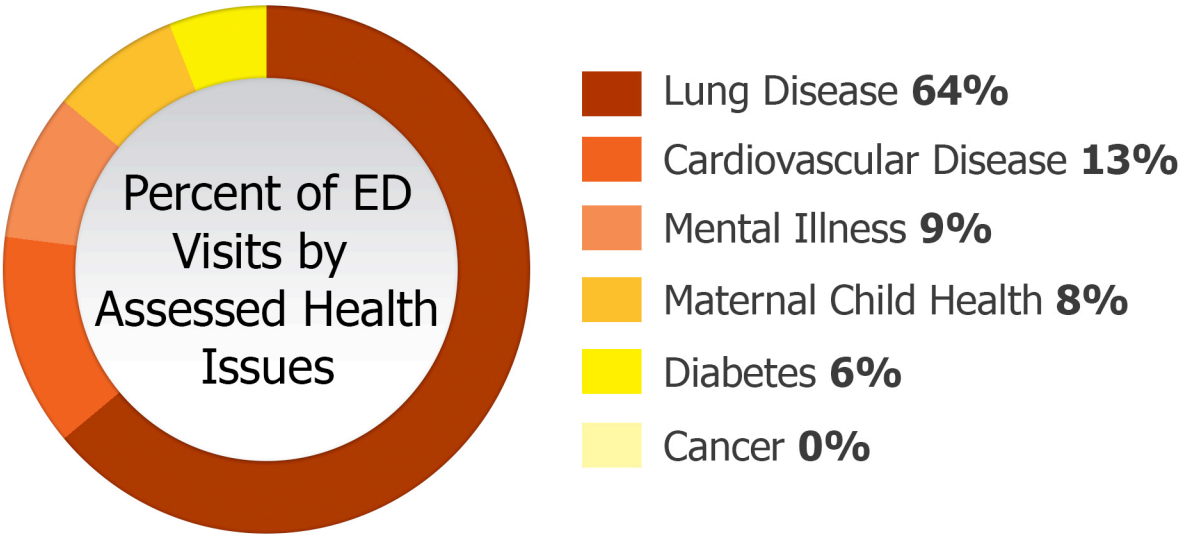
ED Patient Population

Of all ED patients, 36% had Medicaid, 24% had Commercial insurance, 22% had Medicaid, and 18% did not have health insurance. Approximately 2% of patients presenting to the ED were admitted to the hospital and 98% were discharged after being treated. Overall, 77% of ED patients were between the ages of 18 to 64. Thirty-four percent were children, 0-17, and 19% were over the age of 65. Of all ED Patients, 91% of patients were Caucasian, 5% were Hispanic, and 3% classified as other.

ED by Principal Diagnosis Group

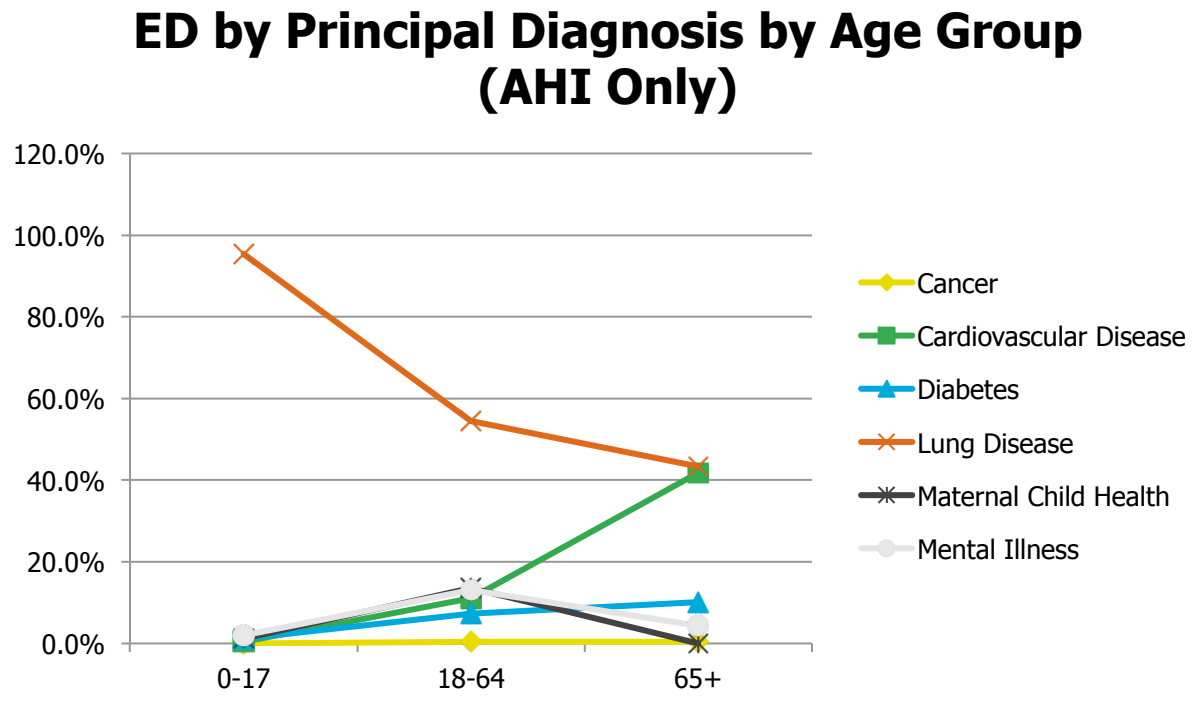
For the purposes of the assessment, the OHC committee analyzed Principal Diagnoses Groups that specifically related to six assessed health issues: Cardiovascular Disease, Lung Disease, Mental Health, Maternal and Infant Health, Cancer, and Diabetes. Oral Health is not easily segmented in the primary data due to grouping diagnoses into the first three digits of ICD-9 coding. In this section of the narrative, we will discuss the hospital primary data findings of these specific health issues. Also, for clarification, the group of issues assessed for this report will be referred to as Assessed Health Issues [AHI].

Of all ED visits, 22% are related to AHI. For The chart below indicates the percent of ED visits for all AHI. Lung disease accounts for 64% of visits for the total of these conditions.



ED by Principal Diagnosis Group, By Age Group

The primary hospital data reveals that health needs vary by age group. The chart below illustrates how the rate of visits due to all health issues changes across age groups:

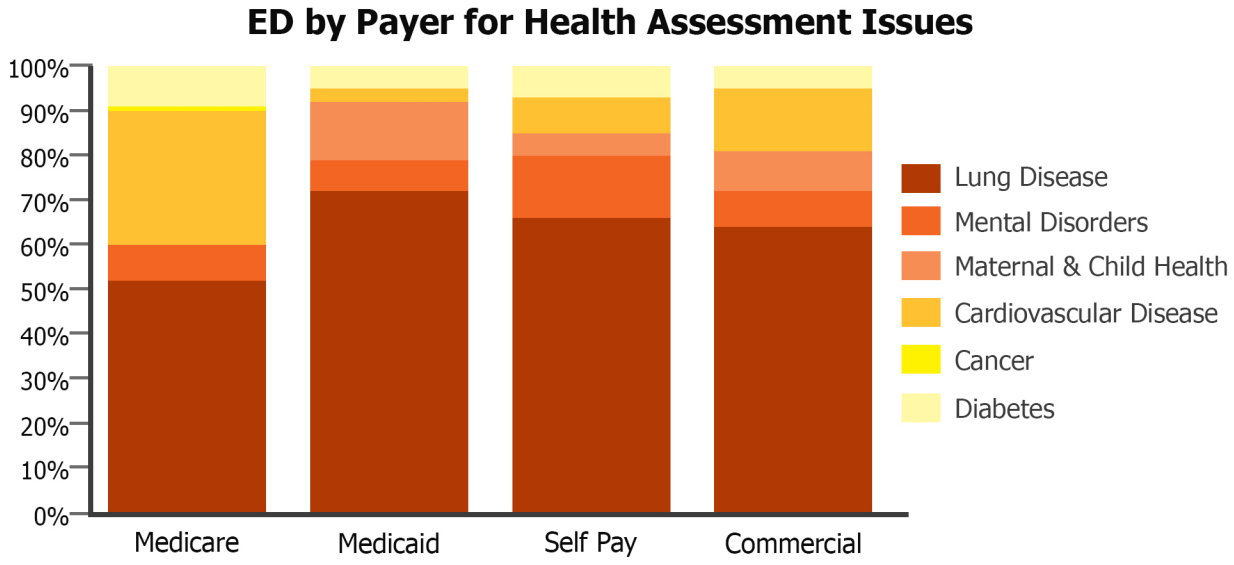


In children age 0-17, the most pressing health issue is Lung Disease which accounts for 95% of visits for all AHI. In adults age 18-64, Lung Disease accounts for 55% of AHI, Maternal and Child Health accounts for 14% and Mental Illness accounts for 13%.

In adults age 65 and older, Lung Disease accounts for 43% of all AHI visits, Cardiovascular Disease counts for 42% and Diabetes accounts for 10%.

ED by Payer Group, by Principal Diagnosis Group

The chart below illustrates ED by payer for all AHI.

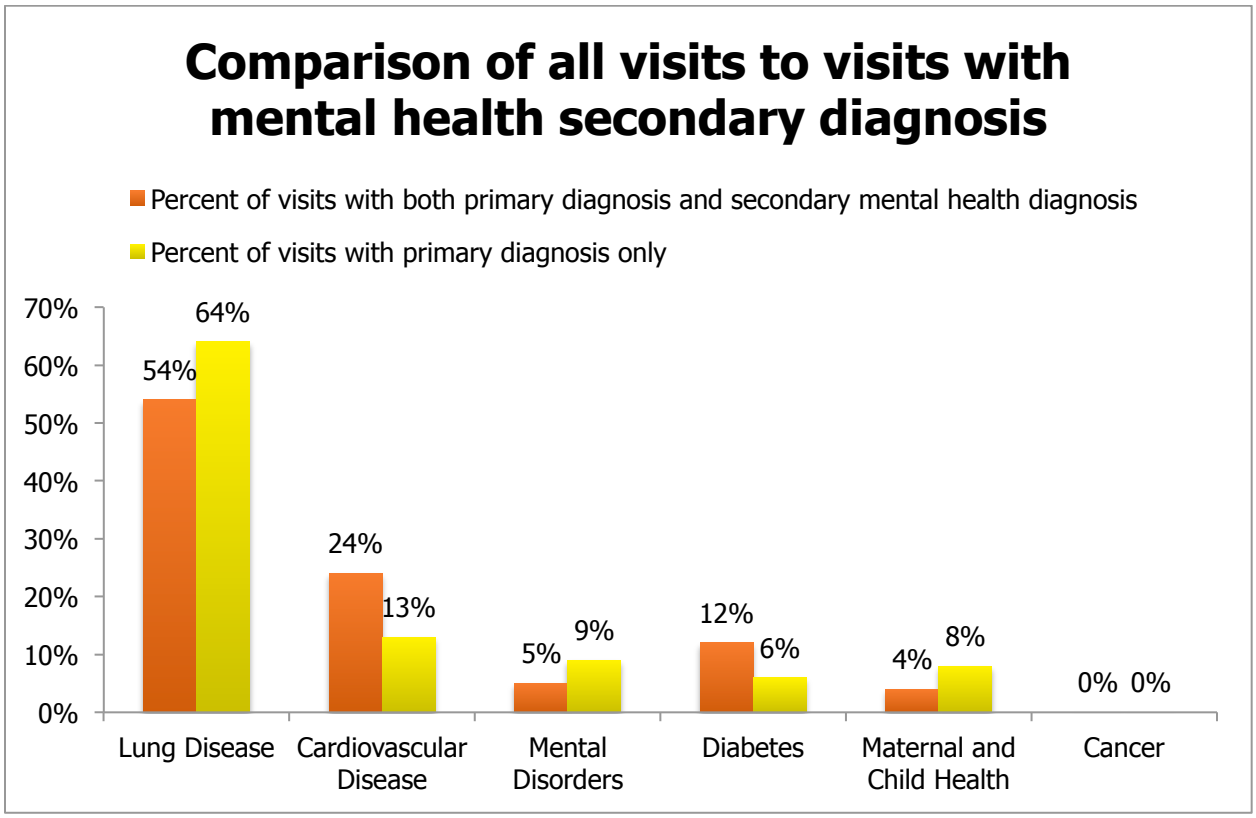


Lung disease accounts for 72% of visits for those with Medicaid, 66% of visits for those without health insurance, 64% of those with commercial insurance, and 52% of those with Medicare. To note, mental health disorders account for 14% of AHI for the uninsured. For patients with Medicare, 30% of all AHI visits are due to cardiovascular disease.

Behavioral Health Diagnosis

To gain an understanding of the type of mental issues affecting area residents, hospitals collected information about ED visits with a behavioral health primary diagnosis. The data reveals the 27% of all ED visits are due to anxiety, dissociative and somatoform disorders, 14% are due to personality disorders, 14% are due to alcohol dependence syndrome, and eight percent due to depressive disorder and issues not classified in other coding groups.

Hospitals also collected information about ED visits with a behavioral health secondary diagnosis. It is possible that when a person presents to the ED for a health issue, such as cardiovascular needs, they may also have an underlying mental health issue which is identified in the ED. The provider in the ED may give this patient a primary diagnosis related to the cardiovascular issue and a secondary mental health diagnosis. The chart below compares patients that received a primary diagnosis of one of the AHI, but did not have a secondary mental health diagnosis to those that had both the primary diagnosis and the secondary mental health diagnosis.



Community Survey

A committee was formed to create and implement the survey used in the assessment. The committee also used the initial findings of the survey to help develop the questions for the focus groups. The committee began meeting in June 2015 and was comprised of hospital, academic and public health partners.

The committee met regularly over a two-month period to develop the survey. As the goals were determined, the committee decided that, although the survey could provide useful information, a full-scale scientific process including question validation would not be used. With that in mind, the survey committee performed a scan of other community surveys that had been conducted throughout the nation to guide and inform the process. As the committee reviewed other surveys, themes and approaches to guide the questioning emerged. In particular, the focus became to garner feedback from residents in the OHC Region on prioritizing issues that are barriers to improved health. In addition, the committee determined that there was significant value in obtaining perspectives on health from both individuals and organizations that provide services to the community. As a result, an additional survey that had minor adjustments made for the organizational perspective was also administered. After the survey was developed, it was approved through the Intuitional Review Board through the Office of Research

Administration at Missouri State University and translated into Spanish. The full survey can be found in the Appendix J of this report.

Survey Process

As is common with many surveys, basic demographic information was collected. On the individual survey it included: age, gender, race/ethnicity, educational attainment, the presence of children in the home and geography (zip code). On the organizational side, it included: the type and size of organization and geography (county). The survey included three Likert-based matrices. The matrices focused on ability to access care, severity and impact of health issues, and the severity and impact of social issues on health. A four-point Likert scale was used for one of the questions and the other two used a different five-point Likert scale. Each included options for not having enough information to answer the question and for the question not applying to the respondent. Three ranking questions were focused on placing priorities on health issues, social issues and health improvement opportunities. In one of the questions, respondents were asked to identify the top issue of concern. In the other two, they were asked to rank the top 3 items. In addition, 7 other questions were asked, primarily focusing on their perception of the community (e.g. Is the community a good place to raise children?).

Survey Monkey was used to streamline the data collection, compilation and analysis. The survey included four potential paths based on 2 links (English and Spanish) and the first question (Individual or Organization). The announcement of the survey was made through a joint effort of all participating partners with a coordinated press release. Individual organizations promoted the completion of the survey through email, networking, social media and promotion at point of service within facilities. Incentives were not offered to participants at any point of survey collection. To maximize the response rate, the survey was kept open and promoted from August 2015 until December 2015. Preliminary results were collected at the beginning of November 2015 to inform the line of questioning developed for the focus groups. Final results were then tabulated in December 2015 and January 2016. The following are the key findings of the survey, which were then used to help develop a line of questioning to be used in the focus groups and to provide the committee with some feedback, albeit not validated, on the concerns of both individuals and organizations in the OHC Region.

Survey Findings

The survey had a total of 2,542 responses. Of these responses, 2,521 (99%) were in English and 21 (1%) were in Spanish. There were 1,586 individual responses, which

was 62.4% of the total, and 956 organizational responses, representing 37.6% of total responses. Responses for both the organizational (county) and individual (zip code) surveys were generally focused in the more dense populations—Branson, Fort Smith, Joplin, Lebanon, Rogers and Springfield. The following heat maps illustrate the distribution of responses.

Figure 1. Individual survey responses, represented by Zip Code

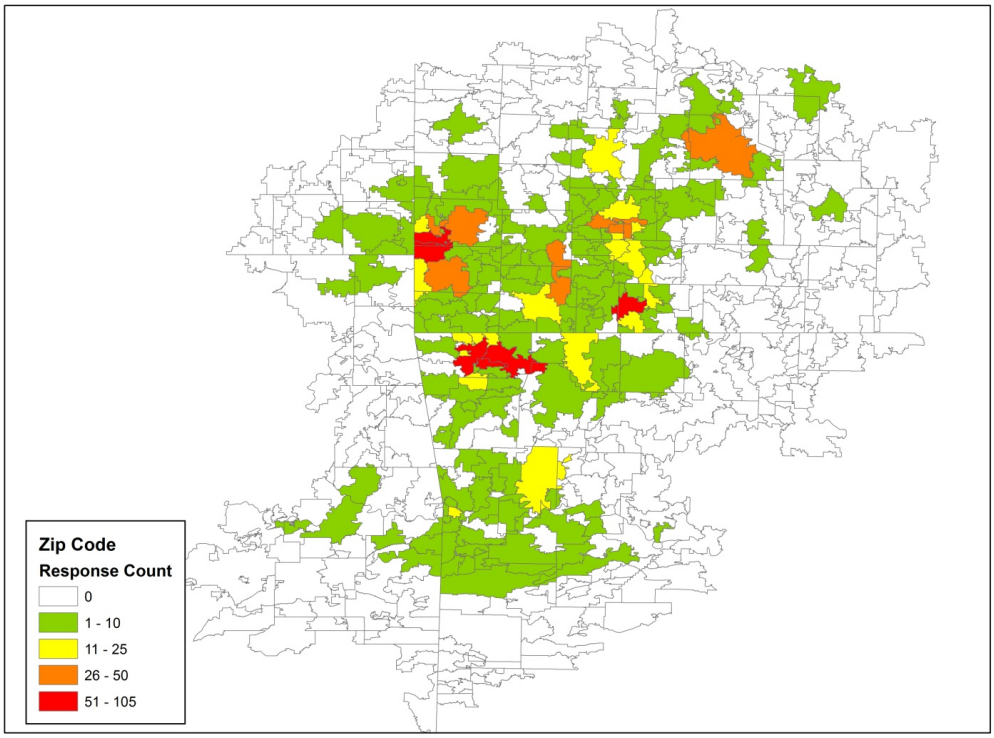
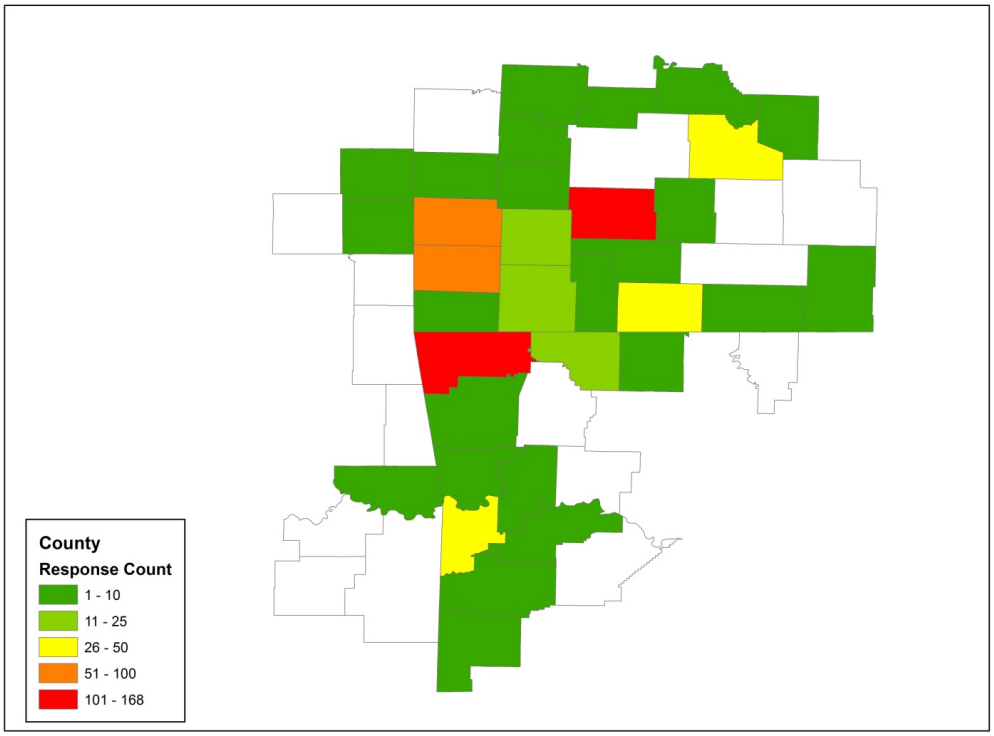


Figure 2. Organizational survey responses, represented by County



Organizational Responses

There are several key findings from the organizational survey. The following is a brief review of the findings. A full set of findings from the survey can be found in Appendix K of the report. Participants were asked to respond for the population served by their organization. The majority of participating partners (72%) identified themselves as working in health care.

- In evaluating access to care, the greatest perceived difficulty was accessing behavioral health services (33% had great difficulty access care or were not able to access care), followed closely by dental care (27%). Specialist (18%) and primary care (15%) presented some challenge, with the Emergency Department having limited challenges to access.
- Respondents' top five concerns with regards to health issues (rated very serious or serious) were the cost of health (60% of respondents), unhealthy lifestyles (54%), mental health (51%), chronic disease (44%) and alcohol and substance abuse (43%).
- When ranking the top three barriers to improved health, the same three issues arose (500 people completed the question). The top three barriers, based on total responses, were unhealthy lifestyles (306 responses), cost of health care

(296) and mental health (207). When examining only the top barrier to health, the same three are present, in a slightly different order: cost of health (147), unhealthy lifestyle (116) and mental health (59).
- The top three concerns were not feeling connected (18%), domestic violence (20%) and not having adequate housing (27%). Additionally, housing was seen as the number 1 barrier to health (52% of 405 respondents).

Individual Responses

The individual portion of the survey also provided some interesting findings, but did not align as expected with the organizational responses. Of the respondents, 78% were female; 3% identified themselves as Hispanic, 92% identified themselves as white; 36% had children living in the home; and overall the group was highly educated with 54% having a Bachelor's degree or higher, 35% with some college and 11% with a high school diploma or less.

- In terms of accessing care, only 1 of the items, primary care, was as high as 10% in having great difficulties or were unable to get the care.
- Only two issues were above the threshold of 10% when rating health concerns as serious or very serious: chronic disease (10%) and cost of health (24%).
- Out of 1,238 responses identifying the top three barriers to improve health, the same three issues rose to the top for both total responses and the number 1 concern. Cost of health care was the number 1 issue (482 top concern, 843 total votes), followed by unhealthy lifestyles (227, 655) and aging problems (172, 502).
- When examining the most pressing social issues, none of the items were viewed to be serious or very serious (no item was at or above 5%); however when asked to rank the top barrier to improved health, not feeling connected received the overwhelming majority of votes with 68% of respondents (629 responses) identifying it as the top barrier.

Focus Groups

Focus Group Process

A researcher from Missouri State University's Sociology Department was contracted to complete the focus groups. The researcher has experience with healthcare and focus groups. The researcher also served on the survey committee and was an integral part of the process. After the topics of focus were identified in August 2015, the researcher developed the focus group questions and submitted them to the survey committee and the steering committee to review and provide feedback. The survey committee also

helped determine the number of focus groups and the target audience for the focus groups. The committee determined that residents were the most important group from which to receive in-depth feedback. Additionally, the committee determined that it was necessary to conduct focus groups in each of the nine Communities due to variances in local perceptions and barriers. Focus group facilitator trainings were conducted in September and October 2015, with focus groups occurring in November and December 2015. The following section, which was extracted directly from the researcher's report, details the methods, recruitment of participants and the instrument used in the focus groups.

"A typical focus group consists of a facilitator, note-taker, and 4-10 participants and is 45-90 minutes in duration. The aim of a focus group is to collect qualitative information (perceptions, opinions, experiences, and details that help explain, for example, closed-ended survey responses). Focus group findings, like all interview findings, are not expected to be able to be generalized to a larger population; rather, focus group findings are a snapshot of the dynamics of a few people, each with their own perspectives and experiences, at a particular point in time. A local facilitator and a local note-taker were identified and then trained to conduct the Ozarks Health Commission Focus Group Interview. Next, eligible participants were recruited for the focus group event.

"From the survey, we realized that that older adults and women were overrepresented respondents in the initial electronic survey, while Medicaid recipients and those with no health insurance were underrepresented respondents; therefore, we attempted, when recruiting for the focus group interview, to achieve a balanced variety of health and healthcare experiences. Our goal was to compose a focus group of not less than 6 people with the following characteristics:

Age: A maximum of 3 older adults

Gender: A minimum of 2 men

Insurance:

- A minimum of 1 individual without insurance
- A minimum of 1 Medicaid recipient
- A maximum of 2 Medicare recipients
- A maximum of 2 private insurance recipients

Behavioral Health: a minimum of 2 individuals

"The goal of our focus group interview was to better understand citizens' perceived connections to health information and services in their community. The theme of connection arose from the preliminary findings of the 2015 Citizen Survey, in which "lack of social connection" was identified by many citizens to be a reason for poor health. Literature abounds in the social sciences, in epidemiology and more recently, in medicine that supports the correlation between strong social connections and positive health status and outcomes. For these reasons, citizens' perceptions of their connections to health information and services in their communities was the main theme of the focus group interview.

Focus Group Interview Guide

Introductory Phase

1. What kinds of health issues or wellness concerns have you – or your family – had, in the last year or two?

Central Discussion Phase
2. Tell me a little bit about what you did – or what you tried to do – for this issue or concern.
Probe: *for examples, you might have talked to a family member or friend, or you might have tried to look for information, or you might have called a professional.*

3. Tell me whether you had an easy or difficult time trying to deal with your issue or concern.
Probe: *Can you tell me what kinds of things made it feel that way?*

4. What kind of help is available in your community for these kinds of issues and concerns?
Probe: *Can you say more? How do you feel about that? Why do you think there is no help available for that?*
If you think there is help but you don't know much about it – what should be done so that you (and others) could know more?

5. How comfortable do you feel with those in your community when it comes to your health and wellbeing?
Probe: *Can you say more? How do you feel about that?*

6. What would help you feel connected - or more connected - to health and well-being resources in your community?

Closing Phase

Is there anything on your minds that you wanted to talk about that I did not cover?

"The key terms used in the focus group interview were health, community, and connection. They were defined as follows:

Health: the physical, mental, and social aspects of health across the life course (inclusive of behavioral or mental health and aging related matters)

Community: family, friends, acquaintances, and all the people you see on a day to day basis – the mailman, your pastor, a grocery clerk, your physician, elected officials and more.

Connection: who you know, how comfortable you feel with them, whether you know about services and programs in your area and how important those things are to you."

Focus Group Findings

As each focus group was conducted, data was sent to the researcher for analysis and interpretation. Results were returned to the full committee, which focused on three areas of findings: health issues, connection and community, and emergent themes. The most commons themes that emerged during the health issues discussion were chronic disease concerns (9 of 9 focus groups discussed), aging (8 of 9), mental health (5 of 9), infant health (5 of 9), unhealthy lifestyles (5 of 9), and the cost of healthcare (5 of 9). Each of the nine focus groups highlighted concerns with connections within their community and ranged from indentifying specific subsets of the population to the entire Community. Lastly, each of the nine focus groups came to the conclusion that there were significant health and related social issues that could be addressed within the Community. The following tables present the summary of these findings. For findings specific to the Community, refer to Appendix K.

	Bolivar	Booneville	Branson	Fort Smith	Lebanon	Monett	Rogers	Joplin	Springfield
Health Issues and Wellness Concerns									
Aging	X	X	X	X	X		X	X	X
Chronic Disease	X	X	X	X	X	X	X	X	X
Mental Health	X			X			X	X	X
Infant Health		X			X	X	X		X
Unhealthy lifestyles		X		X			X	X	X
Cost of Health Care			X	X		X	X		X
Dental			X				X		X
Infectious Disease			X						
Accidents							X		X
Difficulty Accessing Care							X		
Housing Concerns									X

	Bolivar	Booneville	Branson	Fort Smith	Lebanon	Monett	Rogers	Joplin	Springfield
Connection and Community									
	Pros: positive experience with older community, health clinic	PTSD is misunderstood	Did not feel connected	Variety of concerns on connectedness	Church and school connections important	Reliant on churches	Housing	Difficulty with appointments	barriers lead to isolation, hopelessness
	Suggestions: more support	Elderly lack meaning		need for more personal connection	Disconnected from healthcare	limited services	Challenge with connection	behavioral health	
		Children are not safe							

	Bolivar	Booneville	Branson	Fort Smith	Lebanon	Monett	Rogers	Joplin	Springfield
Emergent Themes									
	Concern with Rural Emergency Services	Lack of jobs, education	Lack of access to economic opportunity	Cultural Competence needed	Lack of support	Rural challenges with access to care	Support	Mental health care access	Gaps in services for poor
	Importance of Friends, Family, Church in Improving Health	Drug use	Intolerance	Medication Concerns	Community is aging	Inequality based on health coverage	Need for Hispanic resources	advantages working in health care	
		Lack of medical services	Alternative medicine & preventive care		Lack of quality medical staff				

Identifying and Prioritizing Health Issues

Lastly, a committee was formed to develop the process of identifying and prioritizing the health issues for the OHC Region and Communities. This committee included representation from both healthcare and public health. The committee began meeting in October 2015 and concluded their work by March 2016. The process began with narrowing the roughly 150 secondary indicators by focusing on indicators in which the OHC Region and Communities performed poorly, compared to the nation. This process revealed that the OHC Region was under-performing in 34 indicators. In the individual Communities, the process revealed that between 35 indicators (Springfield) to 51 indicators (Fort Smith) were under-performing compared to the nation. These indicators highlighted the areas of health and risk factors that the OHC Region experiences more challenges to improved health than the rest of the nation.

In the OHC Region, 34 indicators were examined and placed into similar groupings to create health issues. This process identified seven groupings that are considered Assessed Health Issues (AHI) and several other groups of social determinants of health. The committee then identified associated indicators and grouped them within the AHI. For example, high blood pressure and cholesterol, as well as other health issues related to the cardiovascular system, were collapsed into "cardiovascular disease". If relevant,

an indicator was used in multiple groupings. For instance, tobacco use was used in both lung disease and cancer. In addition, the list of poor-performing indicators for each Community was examined to ensure that additional health issues were not present. This process did not present any additional health issues. The AHI identified were: Cancer, Cardiovascular Disease, Lung Disease, Oral Health, Mental Health, Maternal and Child Health, and Diabetes. The social determinants of health were poverty and access to health services. The committee then developed an objective review process for scoring the AHI. The scoring system included both key data points and community perspective providing a more thorough examination of the AHI. The following sections outline the AHI and the scoring system that was developed.

Assessed Health Issues Defined

The seven defined AHI that emerged from the process described above are detailed in this section. AHI were broadly defined to help Communities and partners coalesce around a topic and allow for varying pathways for health improvement. Indicators used to represent each AHI do not represent all of the available indicators available for a particular AHI; however, they are indicators in which the OHC Region scored more poorly than the nation.

Cancer

Cancer is a disease in which individuals suffer from an uncontrolled growth of cells derived from normal tissues.[32] Cancers considered in this study included breast, colorectal, lung and prostate. The conditions and behavior factors listed below were identified as those that contribute to cancer.

- Incidence-lung
- Mortality-cancer
- Tobacco use
- Cancer screenings: mammograms, cervical, sigmoidoscopy or colonoscopy

Since morbidity data is not available for cancer, incidence of cancer was used and was calculated with the combined incidence rates for breast, colorectal, lung and prostate cancers. This data was collected from Community Commons. Cancer death rates were used for mortality, using data from Centers for Disease Control and Prevention, National Vital Statistics System by the UPC to indicate the severity of the disease.

[32] National Institutes of Health- http://www.cancer.gov/about-cancer/what-is-cancer

Cardiovascular Disease

Cardiovascular disease is a disease of heart and blood vessels. This can include conditions such as stroke, hypertension, heart valve problems, and numerous other related conditions.[33] The conditions and behavior factors listed below were identified as those that contribute to cardiovascular disease and the OHC Region performed more poorly than the nation.

- Heart disease mortality
- Elevated blood pressure
- Elevated cholesterol levels
- Ischemic, valve, hypertension, etc.
- Heart disease morbidity
- Alcohol abuse
- Obesity
- Physical inactivity
- Fruit/veggie consumption
- Tobacco use

Heart disease morbidity was chosen to indicate the morbidity of the disease as reported from Behavioral Risk Factor Surveillance Survey (BRFSS). For the purposes of scoring cardiovascular disease, heart disease mortality incidence data from Centers for Disease Control and Prevention, National Vital Statistics System by the UPC was selected to indicate the mortality of the disease.

Diabetes

Diabetes and related conditions result from the body's inability to adequately process sugar.[34] The conditions and behavior factors listed below were identified as those that contribute to diabetes and are those that the OHC Region performed poorly.

- Diabetes prevalence
- Screening
- A1c Test
- Obesity
- Fruit/vegetable consumption
- Inactivity

To represent diabetes, morbidity was evaluated using diabetes prevalence from BRFSS. No mortality data was available for the OHC Region.

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[33] National Institutes of Health- https://www.nlm.nih.gov/medlineplus/heartdiseases.html
[34] National Institutes of Health- https://www.nlm.nih.gov/medlineplus/diabetes.html

Lung Disease

Lung disease is a broad category of conditions affecting the lungs including: bronchitis, emphysema, asthma, pneumonia, and COPD.35 The conditions and behavior factors listed below were identified as those that contribute to lung disease, and the OHC Region performs poorly in comparison to the nation.

- Asthma prevalence
- Tobacco use
- Inactivity
- Mortality—lung disease

Asthma percentage data from BRFSS was chosen to represent the morbidity of the disease. Lung disease mortality data from Centers for Disease Control and Prevention, National Vital Statistics System by the UPC was selected to indicate death associated with the disease.

Maternal and Infant Health

Maternal and infant health refers to the health of women and infants during pregnancy, childbirth and postpartum period. The two indicators below represent the areas that the OHC Region performs poorly when compared to national rates.

- Teenage pregnancies
- Infant mortality

The percent of births to mothers ages 15-19 was used to indicate morbidity. The infant mortality rate was used to score mortality. The source for data was Centers for Disease Control and Prevention, National Vital Statistics System by the UPC.

Mental Health

Mental health includes emotional, behavioral, psychological and social well-being. Mental health includes diseases and conditions such as: depression, anxiety, other mood disorders and substance abuse.[36] The following indicators represent the areas of mental health that the OHC Region performs poorly when compared to national rates.

- Suicide
- Depression
- Alcohol abuse

[35] National Institutes of Health- https://www.nlm.nih.gov/medlineplus/ency/article/000066.htm
[36] Centers for Disease Control and Prevention- http://www.cdc.gov/mentalhealth/basics.htm

The data for morbidity was obtained from Medicare fee-for-service population with depression. The data for mortality was from suicide rates, and the source of data was Centers for Disease Control and Prevention, National Vital Statistics System by the UPC.

Oral Health

Oral health broadly defines health-related issues associated with the mouth and associated organs and includes issues such as: tooth decay, gum disease and infection.[37] The indicators below represent those oral health indicators that the OHC Region performs poorly on when compared to the nation.

- Dental care utilization
- Poor dental health
- Access to dentists

The percentage of individuals who reported poor dental health through BRFSS was used to determine morbidity. Oral health mortality data was not available throughout the entire OHC Region.

Health Indicator Scoring

Information from Kaiser Permanente and the National Association of County and City Health Officials (NACCHO) were used as guides in the process. These resources provided guidance for a "Prioritization Matrix" to be used to identify AHI. A prioritization matrix is a commonly used tool for prioritization and is ideal when health issues are considered against multiple criteria. Decision matrices provide a visual method for prioritizing and accounting for criteria with varying degrees of importance. Ideas for the criteria were based on the Hanlon Method.[38] The committee modified Hanlon's criteria (seriousness, magnitude and effectiveness) to better fit the data and Communities within the OHC Region. The Hanlon Method also incorporates the 'PEARL' Test, which screens for propriety, economics, acceptability, resources and legality. The actual test was not performed in this process, but some of the concepts were used as criteria for the matrix (i.e. community readiness). This modification was required due to condensed timeline, the diversity within the Communities and consistent partner engagement throughout the OHC Region.

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[37] Centers for Disease Control and Prevention, http://www.cdc.gov/OralHealth/
[38] National Association of County & City Health Officials, http://archived.naccho.org/topics/infrastructure/CHAIP/upload/Final-Issue-Prioritization-Resource-Sheet.pdf

The scoring system used two key components—evidence from the data and evidence from the community. The data used in the scoring system includes morbidity and mortality for each of the AHI, comparisons of these indicators to national performance, and the pervasiveness of health issues presented in the primary hospital data. The data used to provide community evidence of momentum around the health issue were feasibility to change the health issue and the readiness of the Community. With the data elements, the committee decided to use a best-fit approach. For each AHI, a key indicator was selected to represent the entire issue. While this provides a more focused examination of each AHI, it also provides a more clear and objective examination of each AHI. In addition, to help inform the process of ranking and prioritization, the committee decided to include whether or not AHI were identified in the focus groups. The committee did not feel that the initial process to coordinate and integrate the focus groups and the survey results was compatible enough to include them with a scoring mechanism. The committee did feel it was important to include them to inform the prioritization process, but not provide a score. Additionally, the results of the survey were not given a score in the prioritization matrix. The terms in the survey were too general (e.g. chronic disease) and would not allow for individual AHI to be identified. The following provides detailed information about the scoring criteria used to complete the ranking for health issues.

Morbidity

Morbidity (also referred to as prevalence) evaluates how common the health issue is in a population. Typically it is represented as a percentage of the population with the health issue. For AHI without available prevalence data, the incidence rate was used. There are multiple indicators that are within the defined AHI. For the process, the committee identified the indicator that was the best fit with the AHI to use a single indicator. The morbidity data is based on the NACCHO health assessment information.[39] Incidence data thresholds were created by the committee, which based the top category on an incidence rate that would create a prevalence of 5% within a 10 year period.

Score	Prevalence	Incidence (per 100,000)
4	>10%	> 500
3	1% - 9.9%	250-499
2	.1% - .9%	100-249
1	<.1%	< 100

[39] National Association of County & City Health Officials, http://archived.naccho.org/topics/infrastructure/CHAIP/upload/Final-Issue-Prioritization-Resource-Sheet.pdf

Mortality

Death rates (mortality) are used to evaluate long-term impact and severity of a health issue to a community. As with prevalence, the best fit indicator was used to represent the AHI. The score was based on the rank of each AHI's rate of death, compared to other AHI. To illustrate, heart disease is commonly a top 2 cause of death and would therefore receive a score of 4, whereas an issue such as suicide may be the fifth leading cause of death on the list and would therefore receive a score of 2.

Score	Severity/Seriousness
4	Uses the geographic areas top causes for death and provides categorical ranking. The 2 issues with the highest mortality rate.
3	Mortality rates that rank 3 – 4.
2	Mortality rates that rank 5 – 6.
1	Mortality rates that rank 7 and below or data is not available.

Morbidity and Mortality Comparison to National Rate

In addition to knowing the morbidity and mortality rate in a community, further comparing the rate to the nation provides additional information on whether an AHI should be prioritized. Percent difference [(Community rate – national rate)/national rate] is used to understand how the Community rates differ from the national rates. Applying percent difference instead of simply relying on the difference between Community and national rates provides more consistent and accurate comparisons across categories. The committee developed the 4 thresholds and used a consensus approach to develop the thresholds.

Score	Percent Difference
4	>25% higher than national rates
3	11% - 24% higher than national rates
2	1% - 10% higher than national rates
1	<= national rates

Primary Hospital Data:

Secondary data provides a robust look at health indicators and AHI in a Community, but there are certain limitations to exclusively using secondary data to determine health priorities. Most notably, secondary data typically lags 3 to 5 years, raising concerns whether the data is too dated to fully represent the AHI. Layered primary data from

hospital systems helps to provide greater confidence in the process and final conclusions/health priorities. The primary data used in this process comes from hospital Emergency Departments from throughout the OHC Region. Visits to the Emergency Department were classified by the Principal Diagnosis Group (using ICD-9 coding). The visits based on Principal Diagnosis Group were tabulated for each Community. The Principal Diagnosis Groups were then associated with AHI (e.g. Diseases of the Respiratory System and Lung Disease). The primary data score was based on the percent of Emergency Department visits associated with identified AHI.

Score	Percent of Visits Associated with Health Issues
4	>25% of visits
3	11% - 24% of visits
2	1% - 10% of visits
1	< 1% of visits

Feasibility to Change the Issue

Feasibility to change the issue evaluates both the simplicity of the issue and the control a community has over the issue. Issues with a clear, evidence-based approach and those which can be solved by addressing a single issue are viewed as more feasible to change, whereas ones that are multi-faceted or with no clear approach to change are viewed as less feasible. To illustrate, mental health is a multi-faceted health issue with no clearly defined path to make significant improvements in a limited time frame. Issues that can be addressed at a local level are viewed to be more feasible to change, whereas issues that are not controlled by the community are viewed as less feasible to change. To further illustrate, access to care is largely impacted by whether or not a community has expanded Medicaid, which is not feasible for an individual community to change. Contradictory to the first 2 ranking criteria, "Feasibility to Change the Issue" and "Community Readiness to Change" are a more broad and inclusive examination of the AHI in the Community, rather than focusing on a single indicator. The committee based the categories on information found within the NACCHO Guide to Prioritization Techniques[40] and used community experience of committee members to determine definitions and thresholds for the categories.

[40] National Association of County & City Health Officials, http://archived.naccho.org/topics/infrastructure/CHAIP/upload/Final-Issue-Prioritization-Resource-Sheet.pdf

Score	Feasibility to Change
4	High Feasibility: Single issue and high level of control within the community; Implementation plans are easier
3	Moderate Feasibility: Multi-faceted issue and high level of control within the community;
2	Limited Feasibility: Single issue and low level of control within the community;
1	Low Feasibility: Multi-faceted issue and low level of control within the community; Implementation plans are challenging

Community Readiness to Change

The community readiness to change evaluates both the Community, and organizations within the Community's, readiness to impact the issue. A Community with collaborative efforts already underway is more likely to adopt health priorities and impact change. Organizations that have efforts or funding already in place to address an issue are more ready to impact change. Priority was placed on having community collaboration already in place due to the fact that this component of change can take longer and be more challenging to put into place than an organization's focus. Communities that have both key organizations serving as a backbone for AHI and community collaboration that is moving in parallel and coordinated fashion are more closely following the Collective Impact Model,[41] which provides an effective approach to advance progress around community issues. This approach was developed by the committee, which based the standard on the Collective Impact Model and used a consensus approach to determine the breakpoints for scoring.

Score	Community Readiness to Change
4	Both community collaboration and organization focus on the issue are in place.
3	A community collaborative is in place, but there is no specific organizational focus on the issue.
2	One or more organizations have specific focus or projects to address the issue, but efforts are not coordinated.
1	There are no community collaborative efforts or organizational efforts in place.

These criteria provide the scores for each AHI.

[41] Collective Impact Forum, https://collectiveimpactforum.org/what-collective-impact

To complete the ranking for each of the Communities, prevalence, mortality, their associated comparison to national rates and primary data were completed by the OHC committee. For the final two criteria, Communities completed Feasibility to Change and Community Readiness to Change, which generated the final score.

This score was then used by Communities to have conversations around which, and how many, AHI to select as the priorities for the Community. In addition, Communities can also add other health issues that were not identified in the process outlined herein. Priority AHI ranged from 3 to 5. The priority AHI will then be the basis for developing Community Health Improvement Plans.