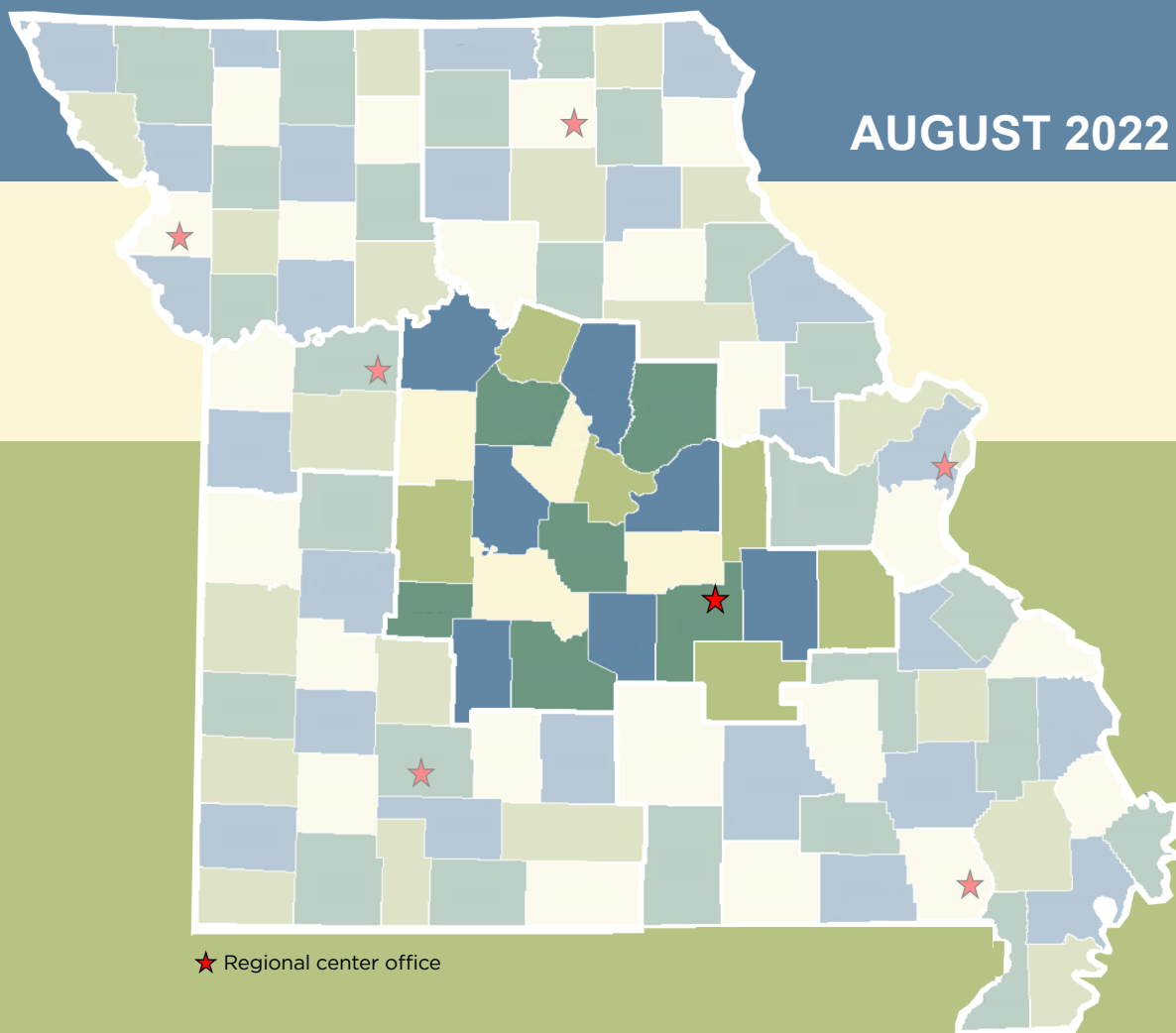


# Mid-Missouri Area Health Education Center Needs Assessment & Gap Analysis

AUGUST 2022



By the University of Missouri Center for Health Policy and Missouri AHEC Program Office  
at A.T. Still University-Kirksville College of Osteopathic Medicine



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University of Missouri



MAHEC  
Missouri Area Health Education Centers



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FIRST IN WHOLE PERSON HEALTHCARE

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By the University of Missouri Center for Health Policy<sup>a</sup>, and  
Missouri AHEC Program Office at A.T. Still University Kirksville College of Osteopathic Medicine<sup>b</sup>

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# Introduction

During Fall 2020, the Missouri Area Health Education Centers (MAHEC) began meeting with the University of Missouri Center for Health Policy (CHP) to develop a statewide needs assessment and gap analysis. The needs assessment scanned Missouri's health care landscape, focusing on population health needs as well as health care workforce and infrastructure. The resulting report provided an analysis of Missouri's health care system, identifying gaps between health needs and health services available in the state, as well as MAHEC's efforts to address these gaps.<sup>1</sup>

Upon completion of the statewide analysis, MAHEC continued working with CHP to produce a needs assessment and gap analysis for each region, including the Mid-Missouri AHEC (MID-MO AHEC) region. Analysis of population health in the region focuses on the social determinants of health and indicates that the MID-MO AHEC region's health disparities are largely influenced by poverty rates and proximity to health care services. Demographic factors play an important role in the MID-MO AHEC region, where the population is aging. Demand for health care may increase with the higher concentration of population aged 65 and older<sup>2</sup> and expanded coverage from Missouri's recent Medicaid expansion.<sup>3</sup>

Analysis of the health care workforce is provided by the MU Center for Health Policy's Missouri Health Care Workforce Project (MHCWP). In-depth information on the MID-MO AHEC region's health care workforce, health facilities, health status and community or social determinants of health are available and continually updated on the MHCWP website and indicator dashboards at

<https://mohealthcareworkforce.org/>. This report focuses on primary care, dental health, and mental and behavioral health care availability as well as professions such as nursing, pharmacy, physical therapy, community health workers. Generally, the MID-MO AHEC region is experiencing greater shortages of health care workers than Missouri as a whole. The report also provides an overview of health care infrastructure, including Federally Qualified Health Centers (FQHCs), Rural Health Clinics (RHCs), hospitals, and long-term care facilities, as well as telehealth and broadband access in the region.

Any analysis of health care needs and workforce in 2022 would be remiss to ignore the impact of the ongoing COVID-19 pandemic. While data sources always lag real-time conditions in health care, the impacts of the lag are more apparent during a pandemic. Health care needs and workforce are changing quickly in unexpected ways. This report uses the most recent data available, but many sources, including the 2015-2019 ACS 5-year population estimates, predate the start of the pandemic. One exception are data from MHCWP, which utilize Missouri Division of Professional Registration data from December 2021.

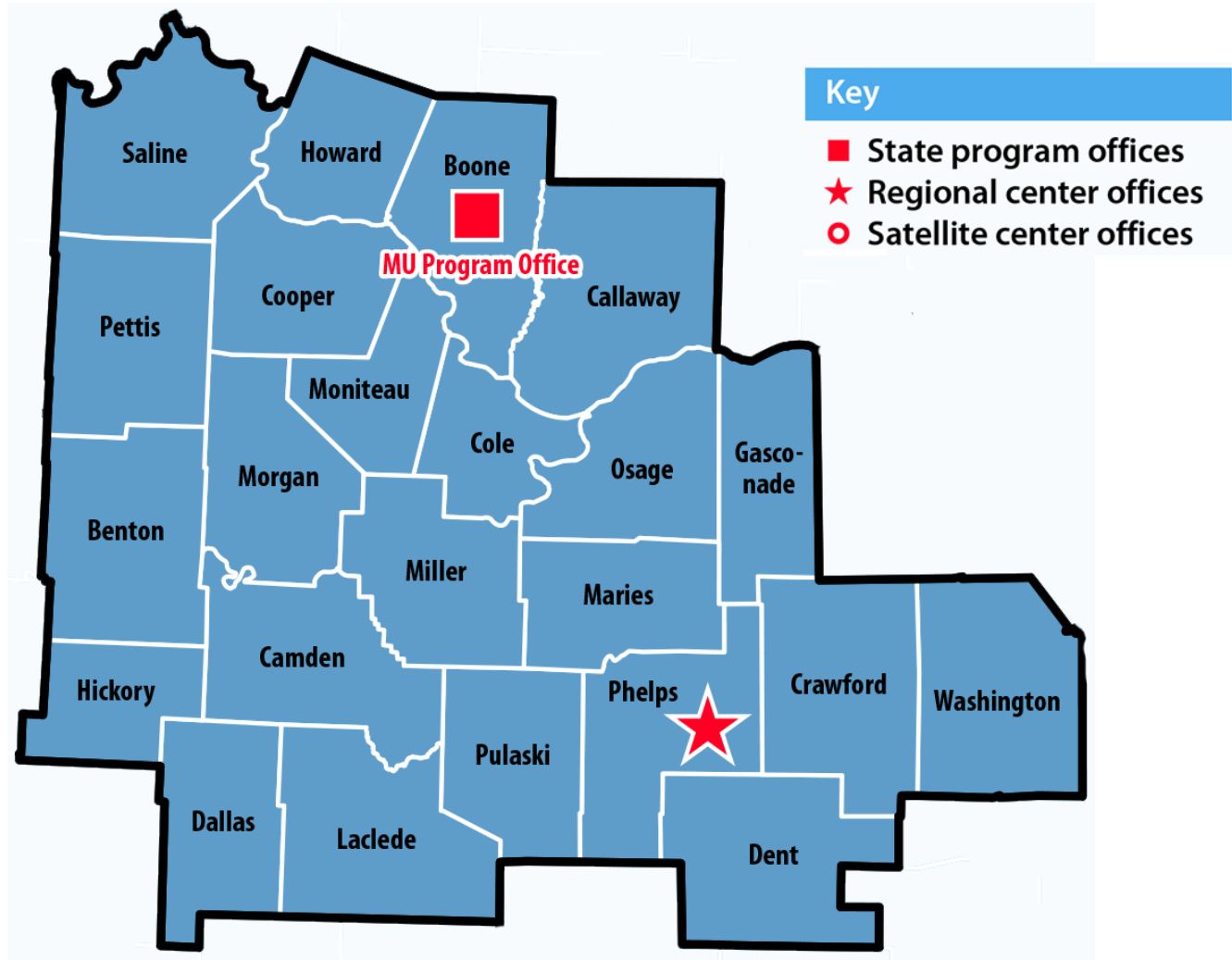
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<sup>1</sup> Center for Health Policy. (2022). Missouri Area Health Education Centers Needs Assessment and Gap Analysis. Columbia, MO: Center for Health Policy. Retrieved from <https://mohealthcareworkforce.org/publication/missouri-area-health-education-centers-needs-assessment-and-gap-analysis/>.

<sup>2</sup> Dall, T.M., Gallo, P.D., Chakrabarti, R., West, T., Semilla, A.P., & Storm, M.V. (2013). An aging population and growing disease burden will require a large and specialized health care workforce by 2025. *Health affairs*, 32(11), 2013-2020. <https://doi.org/10.1377/hlthaff.2013.0714>.

<sup>3</sup> HHS Press Office. (2021). Missouri Medicaid Expansion Brings Quality Essential Health Coverage to More than 275,000 Missourians. Retrieved from <https://www.hhs.gov/about/news/2021/10/04/missouri-medicaid-expansion-brings-quality-essential-health-coverage.html>.

Figure 1. Mid-Missouri Area Health Education Center (MID-MO AHEC) Region



## Population Health in the Region

The MID-MO AHEC region covers 23 counties in the middle of the state (Figure 1). The region has a population of 778,698 and covers a land area of 14,173 square miles. Approximately two-thirds of the region (64.3%) is considered rural by HRSA definition<sup>4</sup> (Table 1), while slightly more than one-third of the region is considered urban (35.7%). Two counties in the region, Boone and Callaway, have both urban and rural areas. The MID-MO AHEC region's population is aging in a pattern similar to other parts of Missouri. The residents of the region face geographic, socioeconomic, and cultural obstacles that result in health disparities. The MID-MO AHEC region's shortages and maldistributions of physicians and other health care providers are similar to other areas in Missouri and the US, where shortages are more acute in rural areas. Mindful of this, the region may need to expand its health care workforce to fit the needs of the population for improved access and comprehensive, coordinated care.

<sup>4</sup> Health Resources and Services Administration. (n.d.) *Defining Rural Population*. Retrieved from <https://www.hrsa.gov/rural-health/about-us/definition/index.html>.

## Population Demographics, Including Regional Challenges/Barriers

The MID-MO AHEC region's population and health care workforce needs are both rural and urban. Social determinants of health (SDOH) (conditions in which people are born, live, learn, work, play, worship, and age, that affect a wide range of health, functioning, and quality-of-life outcomes and risks<sup>5</sup>) play a fundamental role in rural and urban population health, but their patterns are distinct, rates varied, and solutions must be tailored. Rural residents experience disparities in socioeconomic status, standard health markers, and geographic challenges at greater rates than their urban counterparts, except for specific high-need urban populations. Urban areas have more diverse populations and a higher number of people needing health care services.

Tables 1 (MID-MO AHEC region) and 2 (State of Missouri) show demographics and social determinants of health, utilizing 2015-2019 American Community Survey population estimates to account for small populations within some categories. The American Community Survey is a sample survey conducted by the United States Census Bureau. Note that the font in Tables 1 and 2 reflects relative margins of error through a system developed by the Missouri Census Data Center (<https://mcdc.missouri.edu/>): **bold values** have a margin of error <15%, regular font has a margin of error between 15-35%, and margins of error 35% or greater are shaded light grey. Analysis on this regional report is focused on estimates in bold font; their lower relative margins of error enable a higher degree of confidence in the accuracy of the estimate.<sup>6</sup> Margins of error are calculated based on the size of the sample and the population. They can exceed 100% when sample sizes are small. For example, the ACS estimate for Pacific Islanders in the MID-MO AHEC region is 1,075, with a margin of error of 111.1%. Based on the margin of error calculation, the actual population of Pacific Islanders in the MID-MO AHEC region is likely between zero and 2,269.

The MID-MO AHEC region is less diverse than others: 88.8% of residents are white compared to 82.2% of the state's population. Most residents of the region have earned at least a high school diploma or its equivalent (88.4%), slightly lower than the state rate of 89.9%. Further, 26.2% of residents in the region have earned at least a bachelor's degree, lower than the state rate of 29.2%.

Missouri's population of adults aged 65 and older grew over the last decade (16.5% of the total population), and the percentage of older adults in the region is similar to that of the state at 16.8%. An aging population may affect the health sector in key ways: 1) retiring health professionals intensify workforce shortages<sup>7</sup> and 2) aging may increase health care needs.<sup>8</sup> See Figure 2 for a map of the population age 65 and older. The percentage of children under age 18 in the region is 21.7%, slightly less than the state rate of 22.6%.

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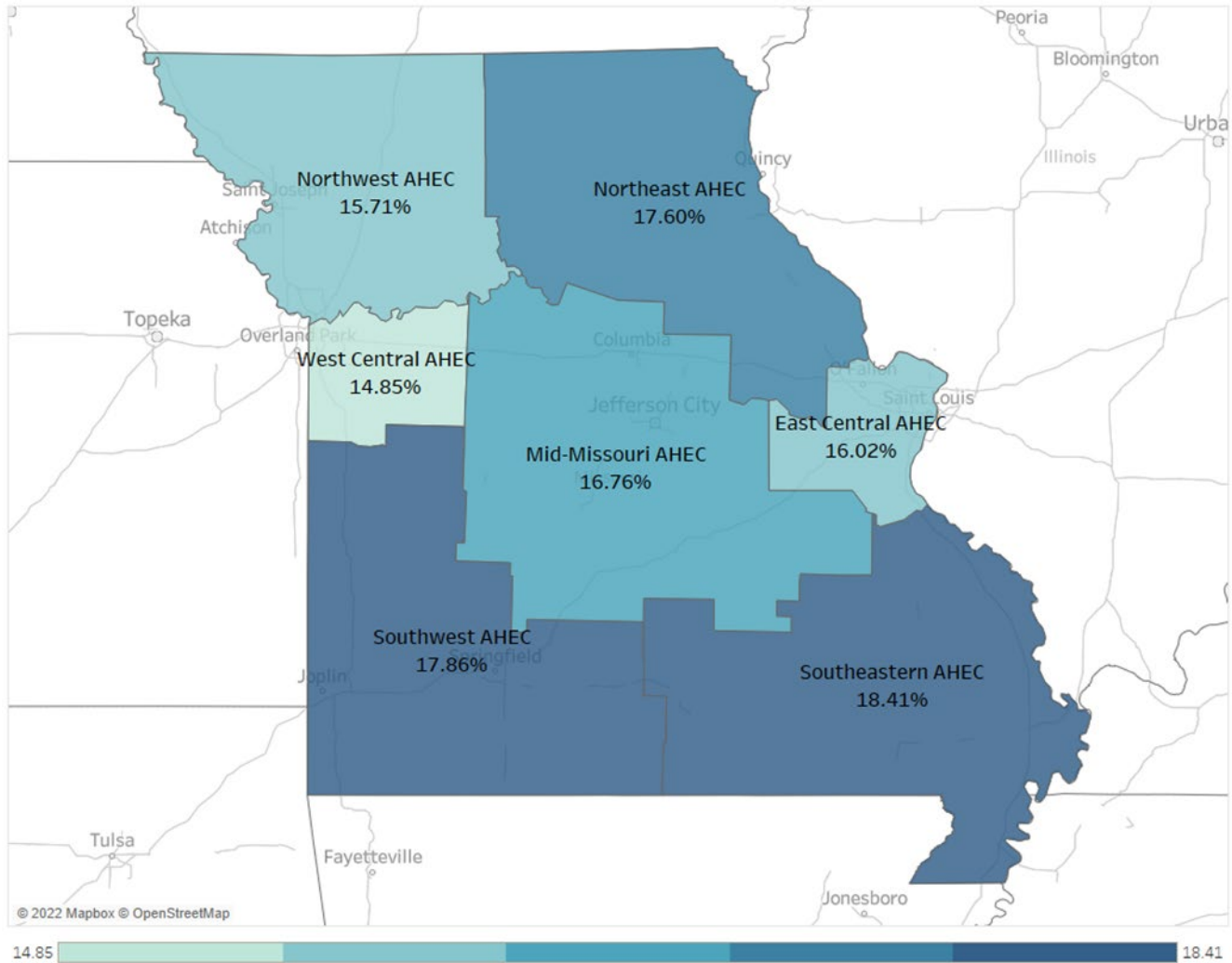
<sup>5</sup> Social Determinants of Health. (n.d.) *Healthy People 2020*. Retrieved from <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health>.

<sup>6</sup> Qualtrics. (2022). Your guide to margin of error. Retrieved from <https://www.qualtrics.com/experience-management/research/margin-of-error/>.

<sup>7</sup> Bolin, J.N., Bellamy, G.R., Ferdinand, A.O., Vuong, A.M., Kash, B.A., Schulze A., Helduser J.W. (2015, Summer). *Rural Healthy People 2020*. Retrieved from: New Decade, Same Challenges. *Journal of Rural Health*. 31(3):326-33. doi: 10.1111/jrh.12116.

<sup>8</sup> Dall, T. M., Gallo, P. D., Chakrabarti, R., West, T., Semilla, A. P., & Storm, M. V. (2013). An aging population and growing disease burden will require a large and specialized health care workforce by 2025. *Health affairs*, 32(11), 2013-2020. <https://doi.org/10.1377/hlthaff.2013.0714>.

**Figure 2. Percent Population Age 65 and Older**



Note: Dynamic, interactive maps of community indicators, including population age 65 and older, are available for all AHEC regions at <https://mohealthcareworkforce.org/indicator-dashboards/community/>.

Additional health care access barriers that exist in the region are tied to socioeconomic challenges including poverty, housing and food insecurity, as well as a lack of transportation and health insurance. In the MID-MO AHEC region, 15.8% of the population, more than 100,000 persons, live in poverty, higher than the state rate of 13.7%. Moreover, 19.1% of residents in the age group under the age of 18 live in poverty in the region, compared to the state rate of 18.7%.



In the MID-MO AHEC region, one in four households (25.4%) are housing cost burdened, with rent or mortgage and utilities accounting for more than 30% of the household income, slightly less than the state rate of 26.4%. While housing costs are often lower in rural areas than urban areas in Missouri, so are incomes, which can result in relatively similar rates of housing cost burden in rural and urban areas. The margins of error are too great to compare the MID-MO AHEC region's urban households with their rural counterparts, but the state rates offer helpful information: 27.4% of urban and 24.1% rural households in the state are housing cost burdened.

More than ten percent (11.7%) of residents in the MID-MO AHEC region lack health insurance, which impedes the ability of low-income individuals to access primary and preventive care. In comparison, Table 2 (below) reports that 10.9% of Missourians lack health insurance, including 13.8% in rural counties and 9.5% in urban counties. Further, 11.1% of residents in the MID-MO AHEC region live with a disability, slightly higher than the state rate of 10.2%.

While margins of error for the region are too large to reliably report on food insecurity and transportation access at the regional level, the estimates for Missouri offer a useful comparison. Missouri has the 17<sup>th</sup> highest food insecurity rate in the nation.<sup>9</sup> Food insecure families are at a higher risk for weight gain and chronic disease, e.g., diabetes, hypertension.<sup>10</sup> Food insecurity is also associated with psychological distress, anxiety, and depression among low-income women and children, and these physical and mental health effects are especially detrimental when there is the lack of access to proper medical care.<sup>11</sup> Transportation is another key social determinant of health. Moreover, in rural areas, individuals may drive sixty or more miles to reach appropriate care<sup>12</sup> and more than six percent of rural Missouri households lack access to a vehicle (Table 2).

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<sup>9</sup> US Department of Agriculture Economic Research Service. (n.d.) *Key Statistics and Graphics*. Retrieved from <https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/key-statistics-graphics.aspx>.

<sup>10</sup> Liu, Y., Njai, R., Greenlund, K., Chapman, D., Croft, J. Relationships Between Housing and Food Insecurity, Frequent Mental Distress, and Insufficient Sleep Among Adults in 12 US States, 2009. (nd.) *Preventing Chronic Disease*. 2014. Retrieved from <http://doi:10.5888/pcd11.130334>.

<sup>11</sup> Calender, C., Barker, R. (editor). (December 2015). Health Equity Series: Food Insecurity. Missouri Foundation for Health. Retrieved from <http://mffh.org/wp-content/uploads/2016/04/Health-Equity-Series-Food-Insecurity.pdf>.

<sup>12</sup> Bolin, J.N., Bellamy, G.R., Ferdinand, A.O., Vuong, A.M., Kash, B.A., Schulze, A., Helduser, J.W. (2015, Summer). *Rural Healthy People 2020*. Retrieved from: New Decade, Same Challenges. *Journal of Rural Health*. 31(3):326-33. doi: 10.1111/jrh.12116.

**Table 1. Summary of Demographics in the Mid-Missouri AHEC Region<sup>13</sup>**

Criterion	MID-MO Region		MOE <sup>14</sup>	Rural	% MID-MO	MOE	Urban	% of MID-MO	MOE
Estimated 2015-2019 Population	778,698		1.9%	500,570	64.3%	3.0%	278,128	35.7%	5.3%
Land Area (mi <sup>2</sup> )	14,173			12,531	88.4%		1,642	11.6%	
Population Density/mi <sup>2</sup>	55			40			169		
Counties <sup>15</sup>	23			22			3		
Racial/Ethnic	MID-MO Region	%	MOE	Rural	% of Rural	MOE	Urban	% of Urban	MOE
White	691,747	88.8%	2.0%	460,969	92.1%	3.0%	230,778	83.0%	6.0%
Black/Afr. American	40,268	5.2%	20.3%	14,835	3.0%	55.2%	25,433	9.1%	32.2%
Native American	4,365	0.6%	34.7%	3,354	0.7%	45.2%	1,011	0.4%	149.8%
Asian	13,960	1.8%	25.8%	4,605	0.9%	78.3%	9,355	3.4%	38.6%
Pacific Islander	1,075	0.1%	111.1%	754	0.2%	158.5%	321	0.1%	372.2%
Other	6,246	0.8%	59.1%	4,381	0.9%	84.2%	1,865	0.7%	197.9%
Multi-Racial	21,037	2.7%	19.8%	11,672	2.3%	35.7%	9,365	3.4%	44.5%
Hispanic/Latino <sup>16</sup>	29,025	3.7%	19.5%	20,293	4.1%	27.8%	8,732	3.1%	64.7%
Age Cohorts	MID-MO Region	%	MOE	Rural	% of Rural	MOE	Urban	% of Urban	MOE
<18	168,692	21.7%	4.9%	109,958	22.0%	7.5%	58,734	21.1%	14.1%
65+	130,534	16.8%	3.6%	93,330	18.6%	5.1%	37,204	13.4%	12.7%
Social Determinants of Health	MID-MO Region	%	MOE	Rural	% of Rural	MOE	Urban	% of Urban	MOE
Persons in poverty <sup>17</sup>	116,461	15.8%	9.0%	77,311	16.3%	13.5%	39,150	14.8%	26.7%
<18 in poverty	31,450	19.1%	13.8%	23,143	21.6%	18.7%	8,307	14.4%	52.2%
HS Graduate +	455,545	88.4%	2.9%	291,273	85.9%	4.5%	164,272	93.4%	8.0%
Bachelor's Degree +	135,026	26.2%	5.4%	63,869	18.8%	11.4%	71,157	40.4%	10.2%
No Health Insurance (<65)	75,832	11.7%	8.7%	55,638	13.7%	11.9%	20,194	8.4%	32.8%
Disability (<65)	71,822	11.1%	7.4%	52,417	12.9%	9.9%	19,405	8.1%	29.5%
Housing Cost Burdened	72,323	25.4%	7.7%	43,718	24.5%	12.8%	28,605	26.9%	19.6%
Households without a vehicle	17,195	5.8%	16.2%	10,809	5.8%	25.7%	6,386	5.8%	43.6%

<sup>13</sup> Missouri Census Data Center. (2021). ACS Profiles [dataset application]. Retrieved from <https://mcdc.missouri.edu/applications/acs/profiles/>.

<sup>14</sup> MOE: Relative margin of error.

<sup>15</sup> Three counties contain both urban and rural census tracts, therefore the number of urban and the number of rural counties in this row total more than 23.

<sup>16</sup> Includes Hispanic or Latinx of any race.

<sup>17</sup> Denominator includes persons for whom poverty status is determined, which is lower than total population.

**Table 2. Summary of Demographics by State, Urban, and Rural Counties<sup>18</sup>**

Criterion	Missouri		MOE <sup>19</sup>	Rural	% of MO	MOE	Urban	% of MO	MOE
Estimated 2015-2019 Population	6,104,910		0.2%	2,055,390	33.7%	0.7%	4,049,520	66.3%	0.4%
Land Area (mi <sup>2</sup> )	68,742			59,591	86.7%		9,150	13.3%	
Population Density/mi <sup>2</sup>	89			34			443		
Counties <sup>20</sup>	115			102			19		
Racial/Ethnic	Missouri	%	MOE	Rural	% of Rural	MOE	Urban	% of Urban	MOE
White	5,015,904	82.2%	0.3%	1,906,204	92.7%	0.7%	3,109,700	76.8%	0.4%
Black/Afr. American	701,334	11.5%	1.2%	60,716	3.0%	13.5%	640,618	15.8%	1.3%
Native American	27,084	0.4%	5.6%	13,020	0.6%	11.6%	14,064	0.3%	10.8%
Asian	120,654	2.0%	3.0%	13,664	0.7%	26.4%	106,990	2.6%	3.4%
Pacific Islander	8,231	0.1%	14.5%	2,507	0.1%	47.7%	5,724	0.1%	20.9%
Other	71,335	1.2%	5.2%	14,884	0.7%	24.8%	56,451	1.4%	6.5%
Multi-Racial	160,368	2.6%	2.6%	44,395	2.2%	9.4%	115,973	2.9%	3.6%
Hispanic/Latino <sup>21</sup>	254,791	4.2%	2.2%	71,321	3.5%	7.9%	183,470	4.5%	3.1%
Age Cohorts	Missouri	%	MOE	Rural	% of Rural	MOE	Urban	% of Urban	MOE
<18	1,381,612	22.6%	0.6%	466,198	22.7%	1.8%	915,414	22.6%	0.9%
65+	1,006,725	16.5%	0.5%	382,257	18.6%	1.2%	624,468	15.4%	0.8%
Social Determinants of Health	Missouri	%	MOE	Rural	% of Rural	MOE	Urban	% of Urban	MOE
Persons in poverty <sup>22</sup>	810,045	13.7%	1.3%	330,838	16.8%	3.2%	479,207	12.1%	2.2%
<18 in poverty	252,071	18.7%	1.7%	105,296	23.2%	4.1%	146,775	16.4%	3.0%
HS Graduate +	3,731,783	89.9%	0.4%	1,201,893	85.9%	1.1%	2,529,890	92.0%	0.5%
Bachelor's Degree +	1,212,562	29.2%	0.6%	243,674	17.4%	3.0%	968,888	35.2%	0.8%
No Health Insurance (<65)	555,130	10.9%	1.2%	230,380	13.8%	2.9%	324,750	9.5%	2.0%
Disability (<65)	518,371	10.2%	0.7%	210,870	12.6%	1.8%	307,501	9.0%	1.3%
Housing Cost Burdened	616,342	26.4%	0.9%	181,285	24.1%	3.1%	435,057	27.4%	1.3%
Households without a vehicle	165,906	6.9%	1.7%	47,735	6.1%	5.8%	118,171	7.3%	2.4%

<sup>18</sup> Missouri Census Data Center. (2021). ACS Profiles [dataset application]. Retrieved from <https://mcdc.missouri.edu/applications/acs/profiles/>.

<sup>19</sup> MOE: Relative margin of error.

<sup>20</sup> Six Missouri counties contain both urban and rural census tracts, therefore the number of urban and the number of rural counties in this row total more than 115.

<sup>21</sup> Includes Hispanic or Latinx of any race.

<sup>22</sup> Denominator includes persons for whom poverty status is determined, which is lower than total population.

## **Demand for Culturally Competent and Diverse Workforce**

The MID-MO AHEC region is less diverse in race and ethnicity than national and state averages.<sup>23</sup> However, culturally competent and trauma informed health care professionals are still needed to meet the needs of the underrepresented among the region's population, and inclusivity, diversity and equity (IDE) training continue to be important for health care providers in the region.

The lesbian, gay, bisexual, transgender, and queer (LGBTQ+) community faces stigma, systematic discrimination, and differential access to health insurance, which combined with a lack of culturally competent care results in poor health outcomes. The physical and mental health of LGBTQ+ individuals is compromised when economic and social influences lead to social isolation, psychological distress, anxiety, depression, low self-esteem, and the ailments tied to poor mental health status.<sup>24</sup> Many LGBTQ+ individuals do not receive the care they require—an issue that is particularly difficult for transgender people, especially given that the majority of health insurers, including Medicaid, Medicare, and Veteran plans do not cover transgender-specific care. Data on the LGBTQ+ community are emerging. The Census Bureau began collecting information on sexual orientation and gender identity through their Household Pulse Survey in July 2021. While regional data are not available, the LGBT population in Missouri is estimated to be 6.9% (+/- 0.9%).<sup>25</sup>

The region's underrepresented racial and ethnic populations and LGBTQ+ health disparities may be addressed through training focused on cultural proficiency for all health care providers.

## **Medicaid Expansion**

Starting July 1, 2021, all Missourians aged 19 to 64 earning up to 138% of the federal poverty level became eligible for Medicaid.<sup>26</sup> Missouri began processing applications on October 1, 2021.<sup>27</sup> Prior to expansion, just over one million Missourians (n=1,029,000) were enrolled in the MO HealthNet program. Washington University Center for Health Economics and Policy (CHEP) estimates 275,000 Missourians are eligible to enroll through

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<sup>23</sup> Missouri Census Data Center. (2021). ACS Profiles [dataset application]. Retrieved from <https://mcadc.missouri.edu/applications/acs/profiles/>.

<sup>24</sup> United States Department of Health and Human Services. (n.d.) *Lesbian, Gay, Bisexual, and Transgender Health. Healthy People 2020*. Retrieved from <https://www.healthypeople.gov/2020/topics-objectives/topic/lesbian-gay-bisexual-and-transgender-health>.

<sup>25</sup> Anderson, L., File, T., Marshall, J., McElrath, K., Scherer, Z. (2021). New Household Pulse Survey Data Reveals Differences between LGBT and Non-LGBT Respondents During COVID-19 Pandemic. Retrieved from <https://www.census.gov/library/stories/2021/11/census-bureau-survey-explores-sexual-orientation-and-gender-identity.html>.

<sup>26</sup> HHS Press Office. (2021). *Missouri Medicaid Expansion Brings Quality Essential Health Coverage to More than 275,000 Missourians*. Retrieved from <https://www.hhs.gov/about/news/2021/10/04/missouri-medicaid-expansion-brings-quality-essential-health-coverage.html>.

<sup>27</sup> Norris, L. (2021). *Missouri and the ACA's Medicaid Expansion*. Retrieved from <https://www.healthinsurance.org/medicaid/missouri/>.

Medicaid expansion, including 14,403 in the NEMO AHEC region, which is 4.4% of the area’s population.<sup>28</sup> Estimates may shift due to pandemic impacts on employment and income. See Table 3 for more information.

**Table 3. Medicaid Expansion Estimates by AHEC Region**

<b>AHEC Region</b>	<b>Percent of Region’s Population to Enroll (%)</b>	<b>Regional Enrollee Estimate (#)</b>	<b>Regional Population Estimate (#)</b>
<b>East Central</b>	2.9%	58,829	2,025,851
<b>Mid-Missouri</b>	4.8%	37,340	783,453
<b>Northeast</b>	4.4%	14,403	328,749
<b>Northwest</b>	3.3%	20,276	618,639
<b>Southeastern</b>	5.1%	26,989	525,060
<b>Southwest</b>	5.3%	51,343	960,115
<b>West Central</b>	4.3%	38,818	895,561
<b>Total</b>	<b>4.0%</b>	<b>247,498</b>	<b>6,137,428</b>

Note: Estimates provided by the Center for Health Economics and Policy at Washington University in St. Louis based on an analysis of the 2019 American Community Survey and 2018 Small Area Health Insurance Estimates files, with slightly different population estimates than the 2015-2019 ACS 5-year estimates used elsewhere in this report. Funding support provided by Missouri Foundation for Health.

### **Medically Underserved Areas/Populations (MUA/Ps)**

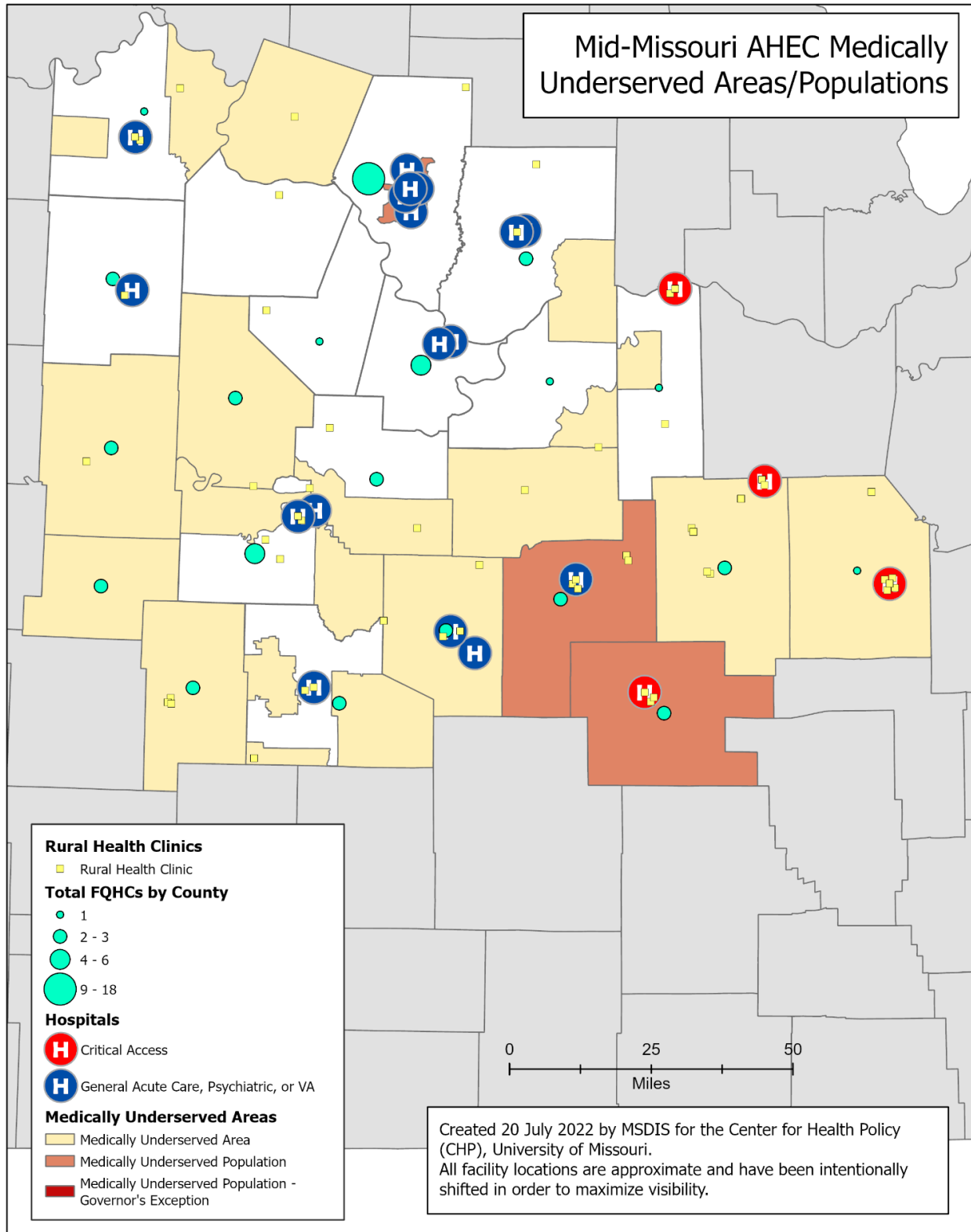
The MID-MO AHEC region’s specific population health needs are addressed through a number of federal health care and health care workforce initiatives. Medically Underserved Areas/Populations (MUA/Ps) are areas or populations which HRSA designates as having a shortage of primary care providers, high incidence of infant mortality, high poverty or a concentration of older adult residents.<sup>29</sup> Programs like the Health Center Program and CMS Rural Health Clinic Program utilize MUA/Ps to allocate federal resources to areas of greatest need.

Nine of the 23 counties in the region (Benton, Crawford, Dallas, Hickory, Howard, Maries, Morgan, Pulaski and Washington) and portions of an additional seven counties (Callaway, Camden, Gasconade, Laclede, Miller, Osage and Saline) have been designated as medically underserved areas (MUA). All of Dent and Phelps counties and portions of Boone County are designated as Medically Underserved Populations. See Figure 3 for more information on MUA/Ps in the MID-MO AHEC region.

<sup>28</sup> Missouri Foundation for Health. (2021). *Medicaid expansion enrollment and eligibility update: Characteristics of expansion enrollees*. Retrieved from [https://cpb-us-w2.wpmucdn.com/sites.wustl.edu/dist/1/2391/files/2020/04/FactSheet\\_NewEnrolleeDemographics\\_final.pdf](https://cpb-us-w2.wpmucdn.com/sites.wustl.edu/dist/1/2391/files/2020/04/FactSheet_NewEnrolleeDemographics_final.pdf).

<sup>29</sup> Health Resources and Services Administration. (2021). *What is a shortage designation?* Retrieved from <https://bhwa.hrsa.gov/workforce-shortage-areas/shortage-designation>.

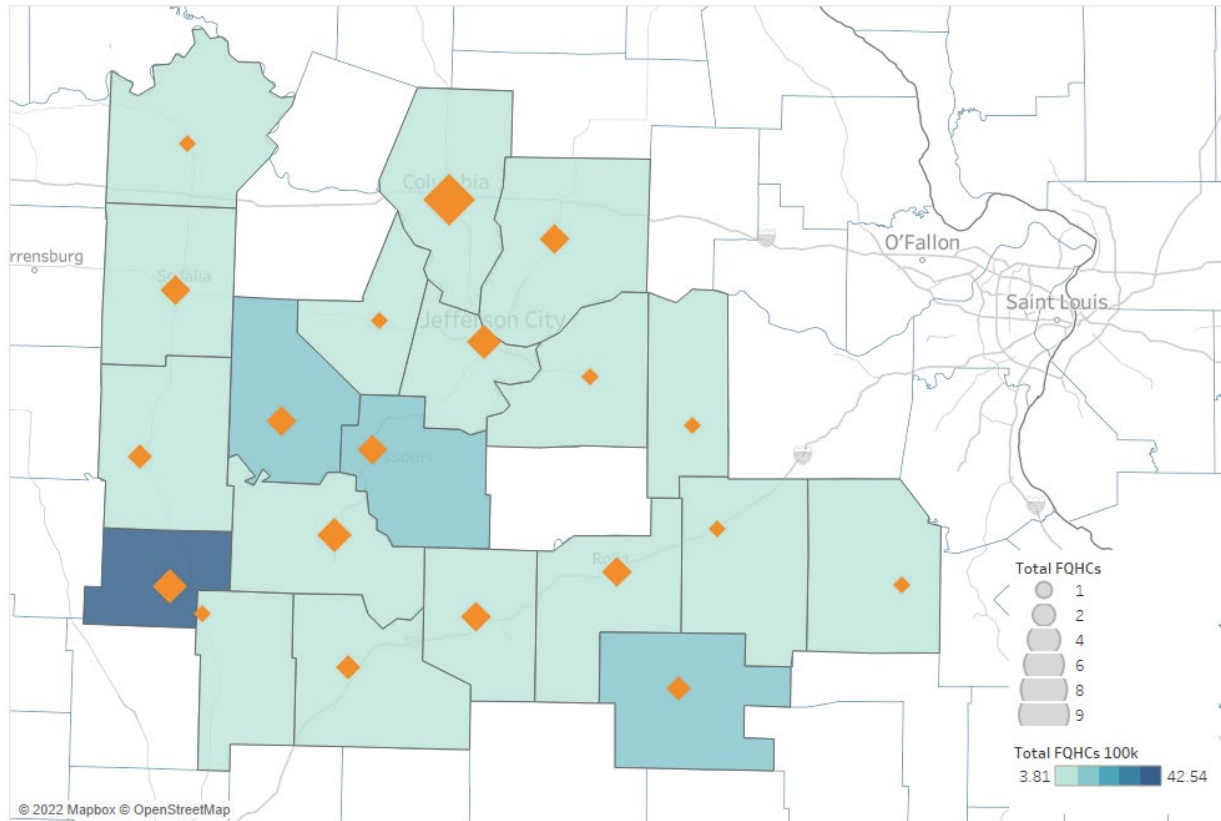
**Figure 3. Medically Underserved Areas/Populations (MUA/Ps)**



Note: Dynamic, interactive maps of MUA/Ps and medical facilities in all AHEC regions are available under Indicator Dashboards at <https://mohealthcareworkforce.org/>.

Federally Qualified Health Centers (FQHCs) are important safety net providers for primary care, dental, and mental and behavioral health. They are relatively well distributed throughout the MID-MO AHEC region, as seen in Figure 4. Cooper, Howard and Maries counties lack FQHCs, though they each have at least one Rural Health Clinic, as seen in Figure 5 below.

**Figure 4. Federally Qualified Health Centers (FQHCs) per 100,000 Residents**



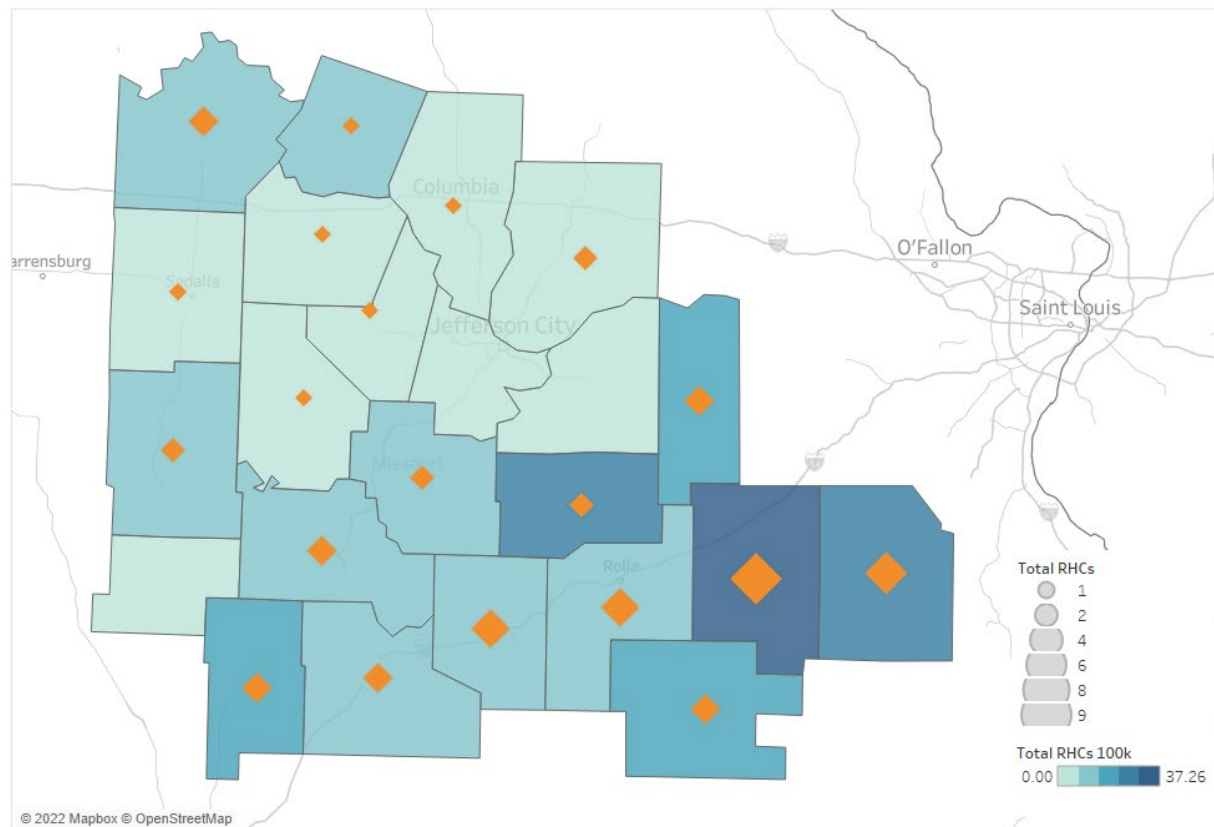
Source: American Community Survey (2015-2019 5 year estimates), MO Department of Health and Senior Services via Missouri Spatial Data Information Service (2022)

Note: Dynamic, interactive maps of medical facilities in all AHEC regions are available at <https://mohealthcareworkforce.org/indicator-dashboards/medical-facilities/>.

Figure 5 displays Rural Health Clinics and rates of clinics per 100,000 residents in the region. Like FQHCs, RHC rates appear higher than the rest of the state; however, the great distances between the clinics means that transportation is a barrier to equitable access in this region. Rural Health Clinics fill important gaps in primary care, dental care, and mental and behavioral health in rural areas.



**Figure 5. Rural Health Clinics (RHCs) per 100,000 Residents**



Note: Dynamic, interactive maps of medical facilities in all AHEC regions are available at <https://mohealthcareworkforce.org/indicator-dashboards/medical-facilities/>. Rural Health Clinic locations are reported by the Missouri Department of Health and Senior Services through Missouri Spatial Data Information Service (<https://data-msdis.opendata.arcgis.com/>). The “RHC Finder” on the Missouri Association of Rural Health Clinics website may include additional RHCs (<https://www.marhc.org/rhcfinder>) not shown in Figure 5.

## Health Care Workforce Landscape in the Region

Analysis of the MID-MO AHEC’s region focuses on primary care, dental health, and mental and behavioral health, as well as additional professions such as nursing, pharmacy, physical therapy, community health workers and the public health workforce. For the purposes of this regional analysis, primary care includes these specialties: family medicine, general practice, internal medicine, obstetrics and gynecology (OB/GYN) and pediatrics. Dental health includes dentists, dental hygienists and dental assistants. Mental and behavioral health includes licensed professional counselors, psychologists, licensed social workers, marital and family therapists, psychiatrists, child psychiatrists, behavior analysts and assistant behavior analysts.



The analysis finds lower rates of health care providers throughout the MID-MO AHEC region than the state, with the exception of licensed practical nurses (LPNs) and dental assistants.

### Primary Care

A high-quality primary care workforce providing sufficient regional coverage is key to healthy individuals, families and communities. Primary care providers are on the front lines as the first source of non-emergency care. Through education to manage daily health, treatment for sickness, and linkages to specialized care, primary care providers help people live healthier lives and incur fewer medical costs over time.<sup>30</sup>

### Primary Care Physicians

The ratio of primary care physicians (PCP) to the region’s population is one PCP for every 804 residents (Table 4). Despite the presence of a medical school within the region, this ratio is below the state’s ratio of one PCP per 621 residents.

**Table 4. Primary Care Physicians by MID-MO AHEC Region and State**

Mid-Missouri AHEC Region Provider Type	Region State	Rural # (%)	Partially Rural # (%)	Urban # (%)	Total Provider Type	Total Population of AHEC Region	Ratio Provider Type to AHEC Region Population
Primary Care Physicians	Region	246 (25%)	581 (60%)	141 (15%)	968	778,698	1 to 804
	State	1,224 (12%)	847 (9%)	7,753 (79%)	9,824	6,104,910	1 to 621

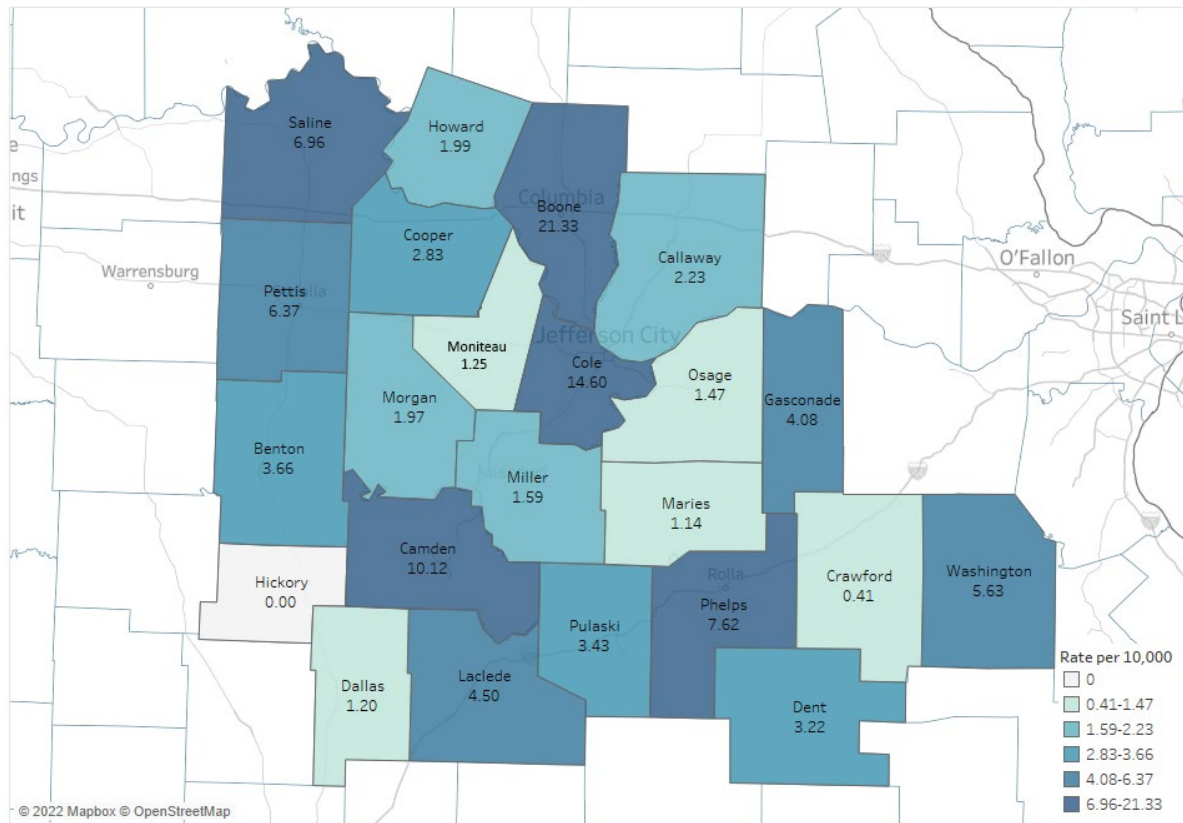
Note: Primary care physicians include the specialties of Family Medicine, General Practice, Internal Medicine, Obstetrics and Gynecology (OB/GYN) and Pediatrics.

Data on primary care physicians in the region are from the Missouri Division of Professional Registration public release file.<sup>31</sup> According to these data, Hickory County does not have any PCPs (Figure 6). Crawford County has just 0.41 PCP for every 10,000 residents and an additional seven counties (Dallas, Howard, Maries, Miller, Moniteau, Morgan and Osage) have less than two.

<sup>30</sup> Cleveland Clinic. (2021). *The importance of having a primary care doctor*. Retrieved from <https://my.clevelandclinic.org/health/articles/16507-the-importance-of-having-a-primary-care-doctor>.

<sup>31</sup> The Missouri Division of Professional Registration allows licensees to opt out of inclusion in their public release files. As such, some practicing primary care physicians are not included in this dataset.

**Figure 6. Geographic Distribution of Primary Care Physicians per 10,000 Residents (2022)**



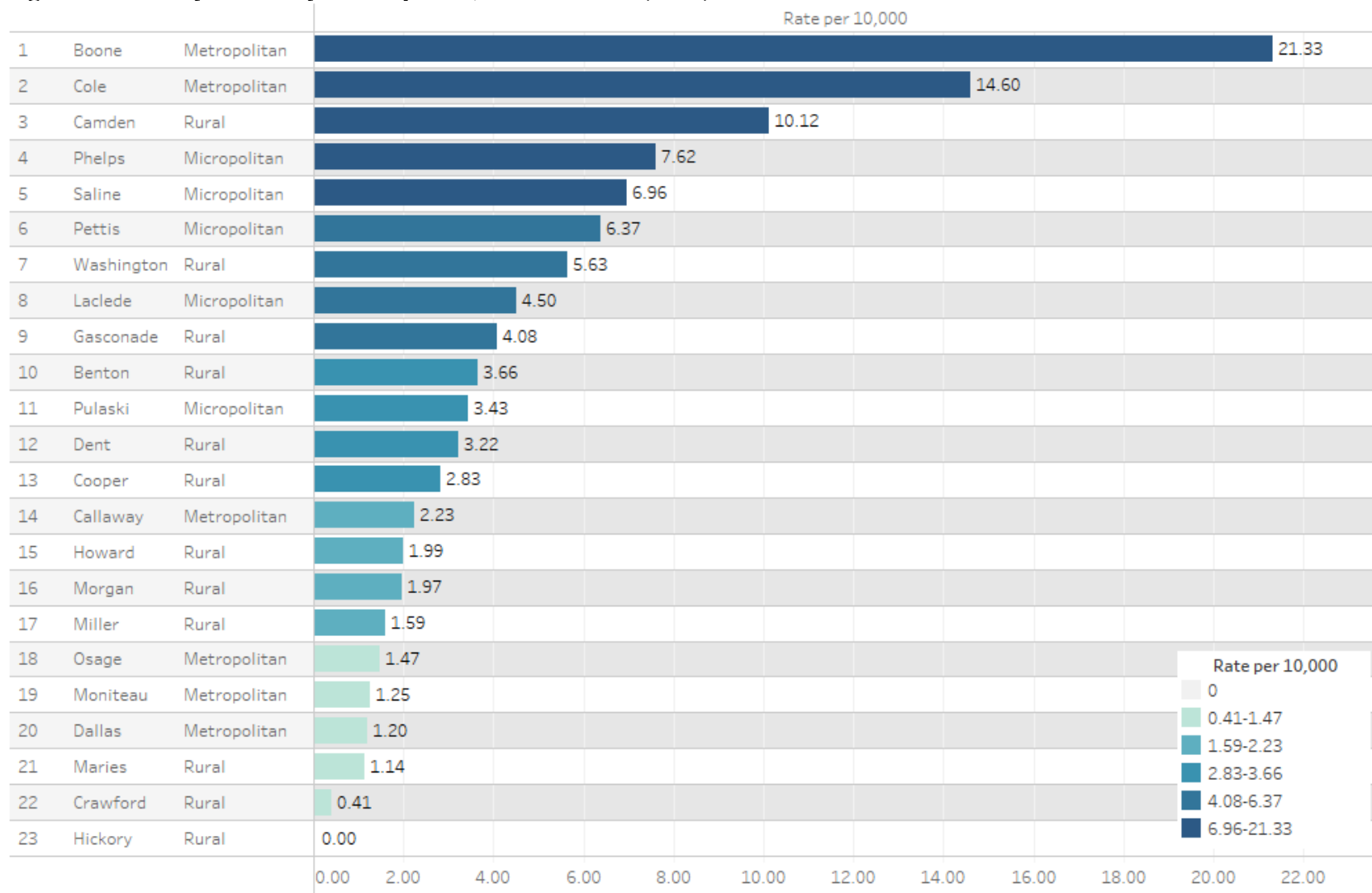
Source: Missouri Division of Professional Registration (2022)

Primary Care includes Family Medicine/General Practice, Internal Medicine, Obstetrics and Gynecology and Pediatrics.

Note: Dynamic, interactive maps of primary care physicians and other providers in all AHEC regions are available at <https://mohealthcareworkforce.org/indicator-dashboards/workforce/>.

Boone and Cole counties lead the region in the availability of primary care physicians, with 21.33 and 14.60 physicians per 10,000 residents, respectively (Figure 7). The rate of physicians in these two counties may be due to their proximity to the University of Missouri School of Medicine.

**Figure 7. Primary Care Physicians per 10,000 Residents (2022)**



Source: Missouri Division of Professional Registration (2022)

Primary Care includes Family Medicine/General Practice, Internal Medicine, Obstetrics and Gynecology and Pediatrics.

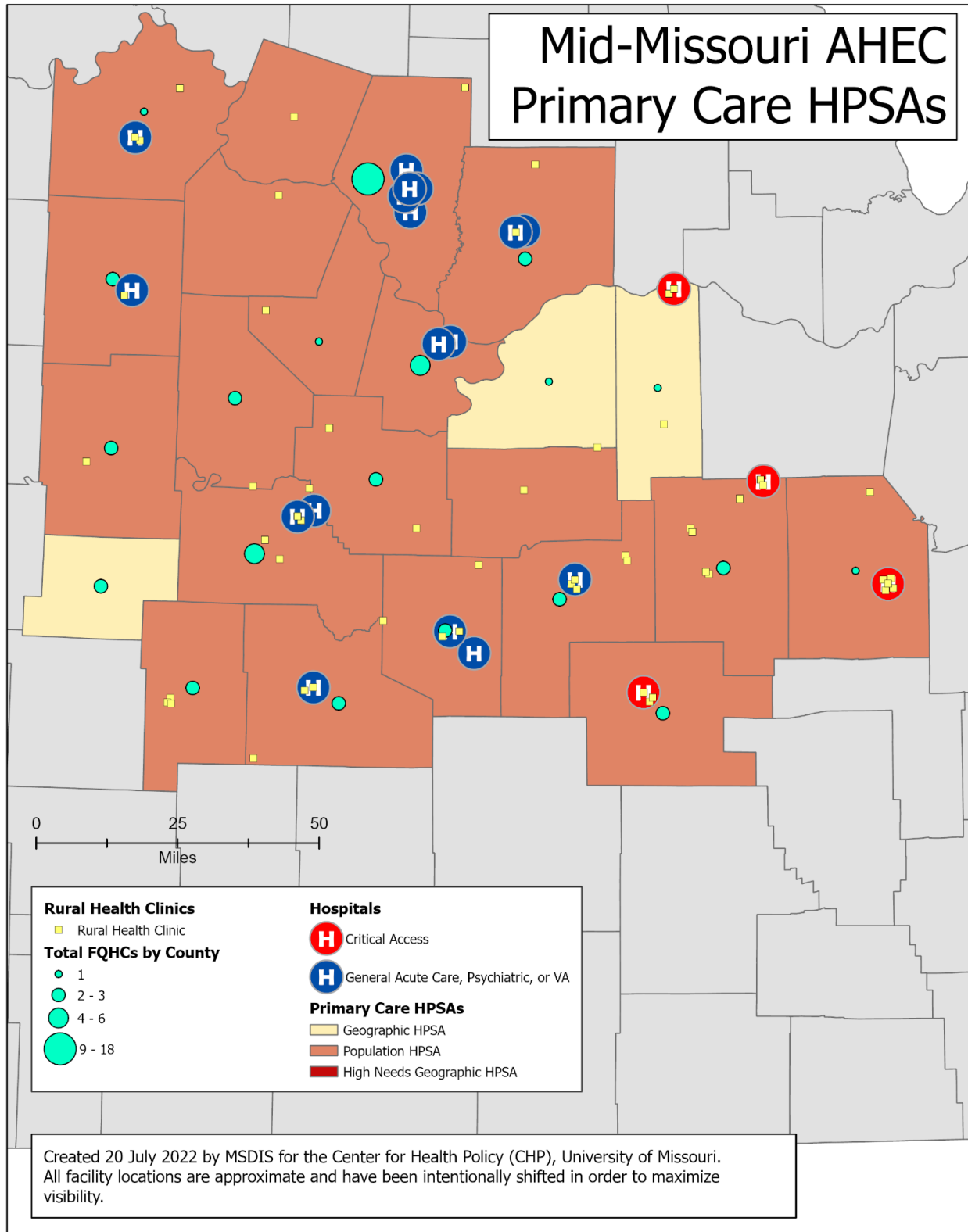
**Primary Care Health Professional Shortage Areas (HPSAs)**

A **Primary Care Health Professional Shortage Area (HPSA)** is an area, population, or facility designated by HRSA as having an insufficient number of primary care providers. HPSAs are utilized by federal programs such as National Health Service Corps, Nurse Corps, Indian Health Service (IHS) Loan Repayment Program, and Rural Health Clinic Program to allocate resources to designated areas of shortage.<sup>29</sup> All of the region is included in a primary care HPSA. Three of the counties are geographic HPSAs and the remaining twenty counties in the region are population HPSAs (Figure 8).

A **Geographic HPSA** represents an entire population of people from a specific geography such as a county or a state who are experiencing a shortage of health care providers. Gasconade, Hickory and Osage counties are designated as geographic HPSAs.

A **Population HPSA** represents a specific group of people within a defined geographic area like a county or a state who are experiencing a shortage of health care providers. Specific groups may include low-income persons, migrant workers, Medicaid eligible persons, and others. All of the remaining counties in the MID-MO AHEC region are designated as Population HPSAs.

**Figure 8. Primary Care HPSAs**



Note: Dynamic, interactive maps of HPSAs and medical facilities in all AHEC regions are available under Indicator Dashboards at <https://mohealthcareworkforce.org/>.

## Dental Health

Dental health is foundational to overall health and well-being. Dental health is linked to the overall health of the body, including susceptibility to oral cancer, lung disease, pregnancy and birth complications, pneumonia, stroke, heart attack and diabetes.<sup>32</sup> Access to quality dental education, prevention, treatment of disease, replacement and repair is crucial for all.

### Dental Health Providers

Dental health providers include dentists, dental hygienists, and dental assistants. The 2021 data on these providers are from Missouri Division of Professional Registration public release licensure data, and do not include providers who opt out of the public release file. Table 5 shows the number and ratios of dental care providers in the MID-MO AHEC region. The region is experiencing greater shortages of dentists and dental hygienists than the state average, while the ratio of dental assistants in the region (1:718) is better than the state ratio (1:981).

**Table 5. Dental Health Providers by MID-MO AHEC Region and State**

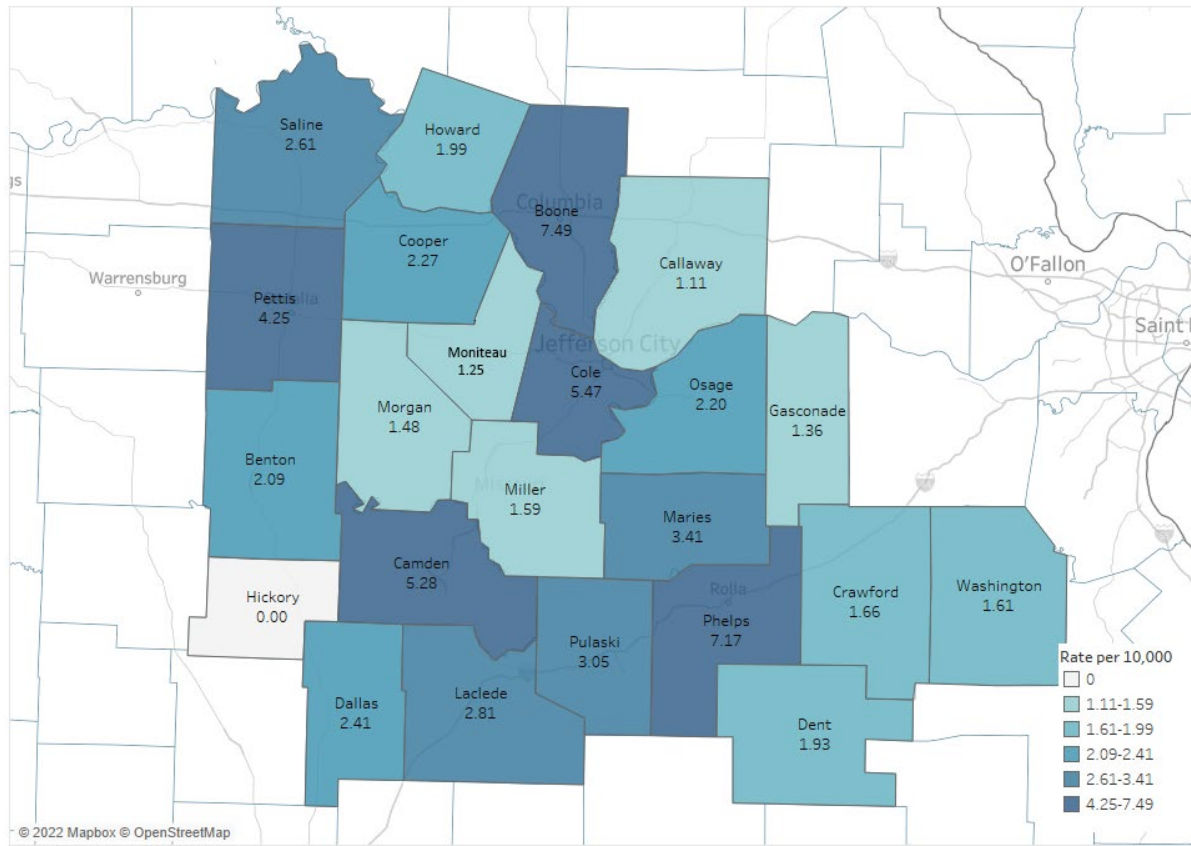
Mid-Missouri AHEC Region Provider Type	Region State	Rural # (%)	Partially Rural # (%)	Urban # (%)	Total Provider Type	Total Population of AHEC Region	Ratio Provider Type to AHEC Region Population
Dentists	Region	148 (45%)	138 (42%)	42 (13%)	328	778,698	1 to 2,374
	State	537 (17%)	222 (7%)	2,452 (76%)	3,211	6,104,910	1 to 1,902
Dental Hygienists	Region	211 (56%)	131 (35%)	33 (9%)	375	778,698	1 to 2,077
	State	893 (25%)	311 (9%)	2,424 (67%)	3,628	6,104,910	1 to 1,683
Dental Assistants	Region	597 (55%)	294 (27%)	193 (18%)	1,084	778,698	1 to 718
	State	2,198 (35%)	507 (8%)	3,512 (56%)	6,217	6,104,910	1 to 981

Figure 9 provides the geographic distribution of dentists per 10,000 regional residents. There are no dentists in Hickory County according to the public release data. Scarcity of providers not only causes issues for patient access to dental care, but also may lead to overburdened providers in other counties. The dental hygienist and dental assistant workforce may lessen the impact of the dentist shortage in the area. A single dentist working with a team of hygienists and assistants could serve more patients than a dentist alone.<sup>33</sup>

<sup>32</sup> Mayo Clinic. (2021). *Oral health: A window to your overall health*. Retrieved from <https://www.mayoclinic.org/healthy-lifestyle/adult-health/in-depth/dental/art-20047475>.

<sup>33</sup> Bersell, C.H. (2017). Access to Oral Health Care: A National Crisis and Call for Reform. *Journal of Dental Hygiene*, 91(1), 6-14.

**Figure 9. Geographic Distribution of Dentists per 10,000 Residents (2022)**

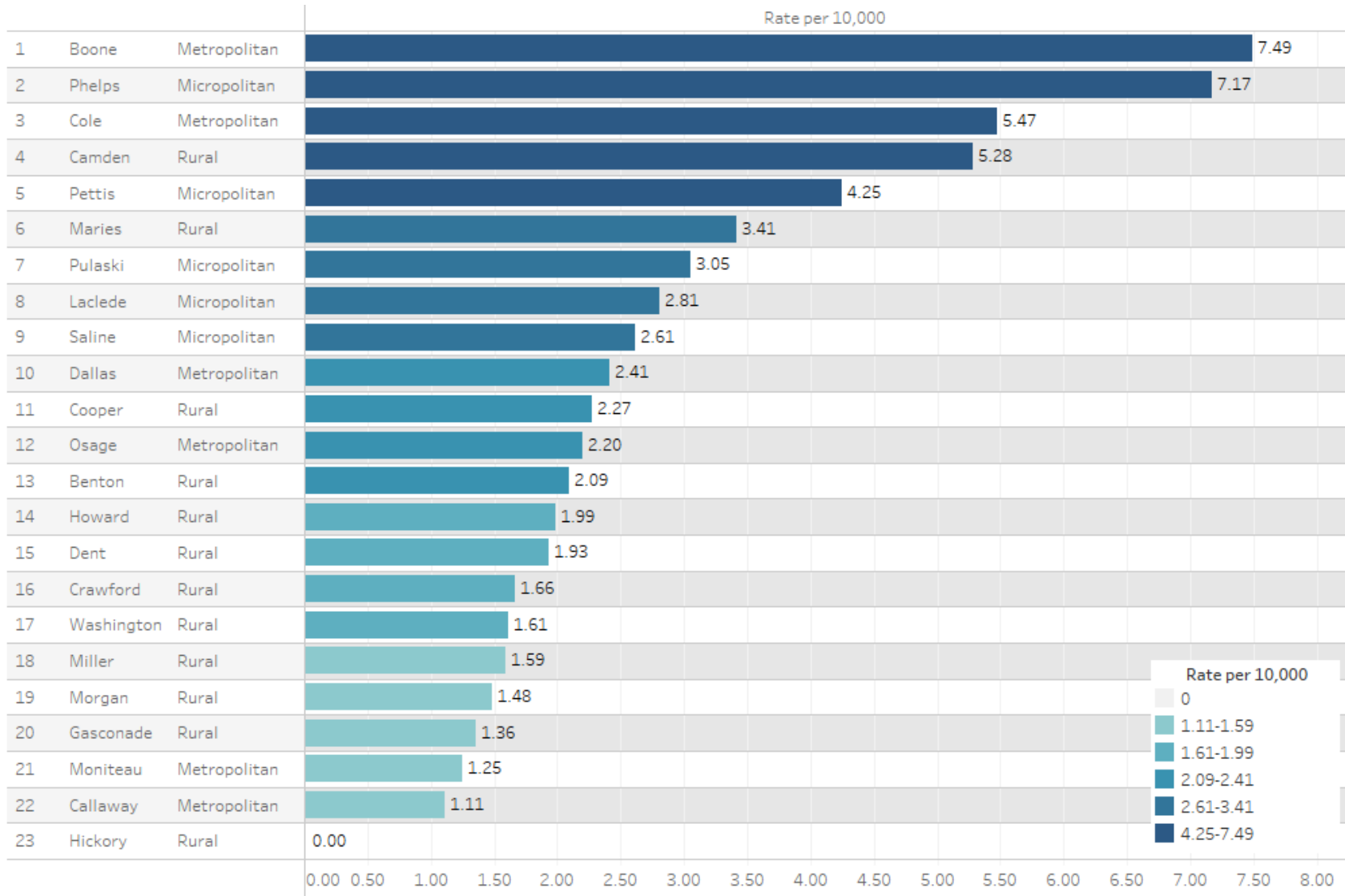


Source: Missouri Division of Professional Registration (2022)

Note: Dynamic, interactive maps of dentists and other providers in all AHEC regions are available at <https://mohealthcareworkforce.org/indicator-dashboards/workforce/>.

Figure 10 shows that residents of Boone and Phelps counties have the greatest access to dentists, with 7.49 and 7.17 dentists per 10,000 residents, respectively. There are nine counties (Callaway, Crawford, Dent, Gasconade, Howard, Miller, Moniteau, Morgan and Washington) with less than two dentists per 10,000 residents. As mentioned earlier, Hickory County has no dentists according to the Missouri Division of Professional Registration public release file.

**Figure 10. Dentists per 10,000 Residents (2022)**

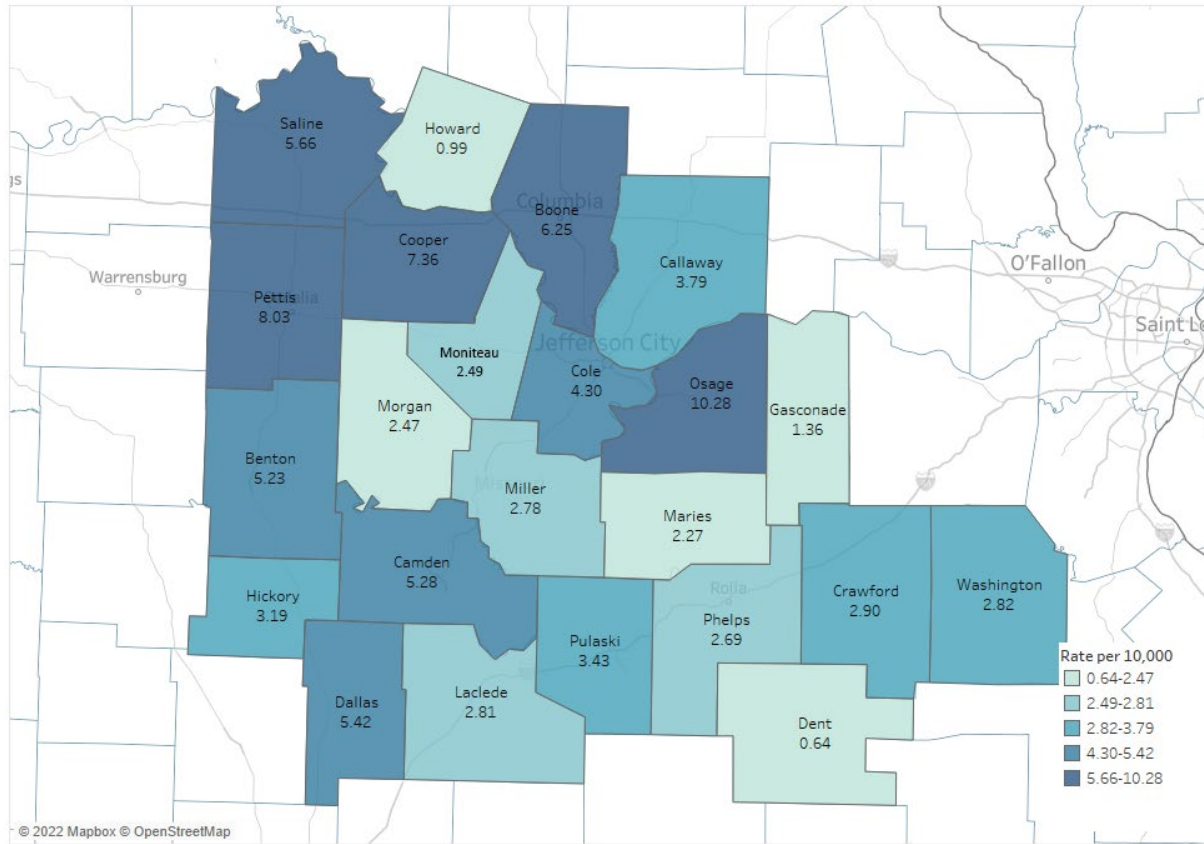


Source: Missouri Division of Professional Registration (2022)



According to the public release file from the Missouri Division of Professional Registration, two counties (Howard and Dent) have less than one dental hygienist per 10,000 residents (Figure 11). Osage County has the highest rate of dental hygienists, with 10.28 per 10,000 residents.

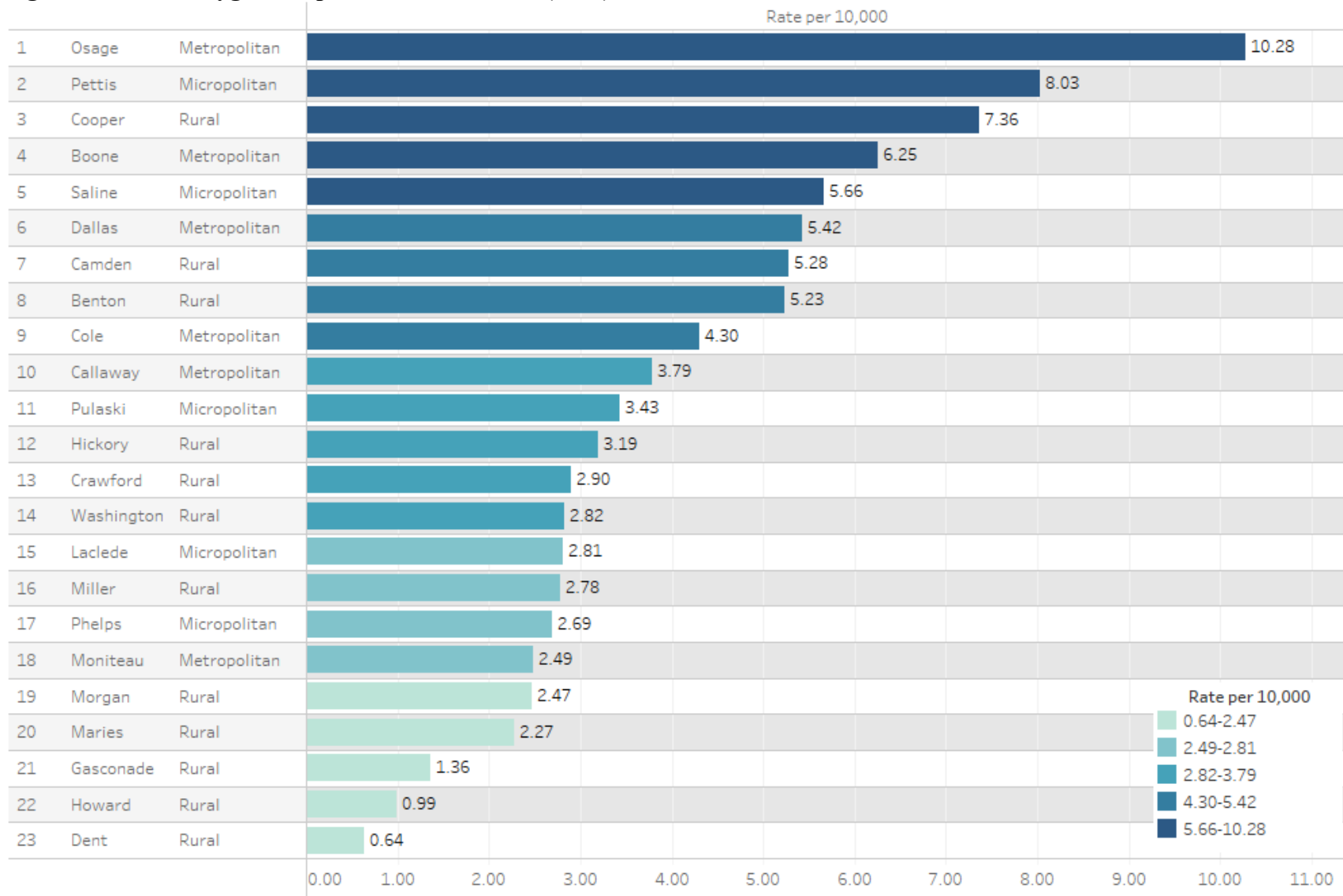
**Figure 11. Geographic Distribution of Dental Hygienists per 10,000 Residents (2022)**



Source: Missouri Division of Professional Registration (2022)

Note: Dynamic, interactive maps of dental hygienists and other providers in all AHEC regions are available at <https://mohealthcareworkforce.org/indicator-dashboards/workforce/>.

**Figure 12. Dental Hygienists per 10,000 Residents (2022)**



Source: Missouri Division of Professional Registration (2022)

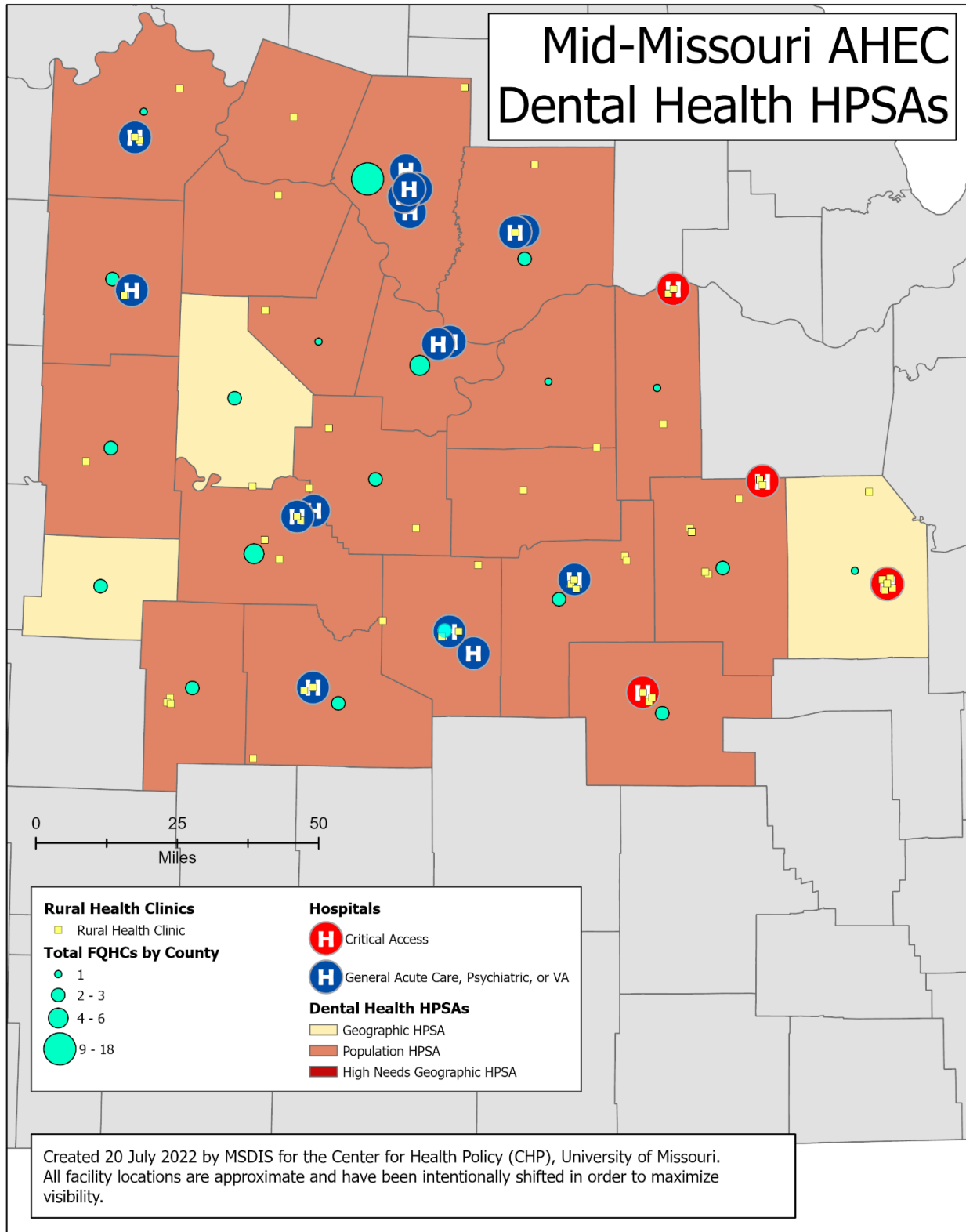
### **Dental Health Professional Shortage Areas (HPSAs)**

The MID-MO AHEC region is almost entirely a Population HPSA for dental health, which means that special populations in the region lack access to dental health care. The exceptions are Hickory, Morgan and Washington which are deemed a Geographic HPSA for dental health. A Geographic HPSA means that all residents of these three counties face a shortage of dental health care.<sup>34</sup> See Figure 13 for more information.

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<sup>34</sup> Office of Rural Health and Primary Care. (2021). *Health in rural Missouri: Biennial report 2020-2021*. Retrieved from <https://health.mo.gov/living/families/ruralhealth/pdf/biennial2020.pdf>

Figure 13. Dental Health HPSAs



Note: Dynamic, interactive maps of HPSAs and medical facilities in all AHEC regions are available under Indicator Dashboards at <https://mohealthcareworkforce.org/>.

## Mental and Behavioral Health

Mental and behavioral health care helps people identify how behaviors influence their health including how to adopt positive behaviors to replace unhealthy ones. Mental illness and substance use disorders are key factors in disability, mortality, and health care costs. The prevalence of opioid addiction and related deaths is a crisis that continues. Mental and behavioral health professionals focus on wellness and prevention, helping patients manage mental and behavioral issues that allow them to lead happier, healthier, and more productive lives.<sup>35</sup>

### Mental and Behavioral Health Workforce

This section includes a summary of counts of the MID-MO AHEC region’s mental and behavioral health providers for 2021 provided by the Missouri Division of Professional Registration. Mental and behavioral health providers include licensed professional counselors, psychologists, licensed social workers, marital and family therapists, psychiatrists, child psychiatrists, behavior analysts and assistant behavior analysts. Table 6 is a summary of the 2021 data and shows both the region and state data for comparison. Population data were retrieved from the 2015-2019 ACS 5-year estimates.

The MID-MO AHEC region has few mental and behavioral health providers (one for every 447 residents) compared to the state ratio (one provider for every 394 residents). The ratio of providers to population is noteworthy because of the increased need for mental health services due to trauma and PTSD from pandemic-related issues as well as the ongoing opioid crisis. Increased rates of insurance coverage due to Medicaid expansion and ACA may increase demand at a time of acute shortages in the region.<sup>36</sup> Telehealth services, which are popular sources of mental and behavioral health care, may provide an alternative for residents with adequate broadband service.

**Table 6. Mental and Behavioral Health Providers by MID-MO AHEC Region and State**

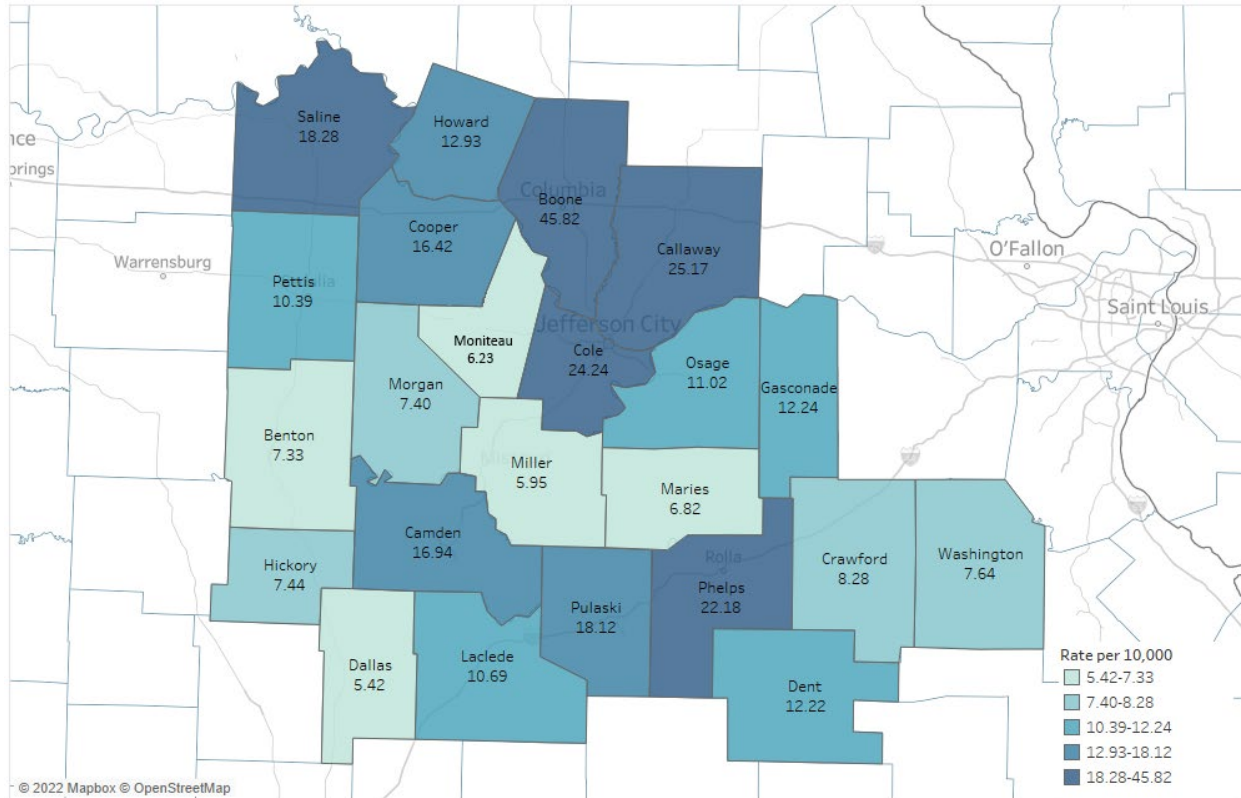
Mid-Missouri AHEC Region Provider Type	Region State	Rural # (%)	Partially Rural # (%)	Urban # (%)	Total Provider Type	Total Population of AHEC Region	Ratio Provider Type to AHEC Region Population
Mental and Behavioral Health	Region	579 (36%)	855 (53%)	171 (11%)	1,741	778,698	1 to 447
	State	2,283 (16%)	1,184 (8%)	10,709 (76%)	15,478	6,104,910	1 to 394

<sup>35</sup> Medline Plus. (2015). *Mental Health*. Retrieved from <https://medlineplus.gov/mentalhealth.html>.

<sup>36</sup> Grimm, C. A. "Hospitals Reported That the COVID-19 Pandemic Has Significantly Strained Health Care Delivery." (2021). Retrieved from <https://oig.hhs.gov/oei/reports/OEI-09-21-00140.pdf>.

The shortages and maldistributions of mental and behavioral health providers can be seen in Figure 14. Figure 15 shows a wide variation in mental and behavioral health providers in the region. Rates of mental and behavioral health providers range from a low of 5.42 providers per 10,000 residents in Dallas County to 45.82 per 10,000 residents in Boone County.

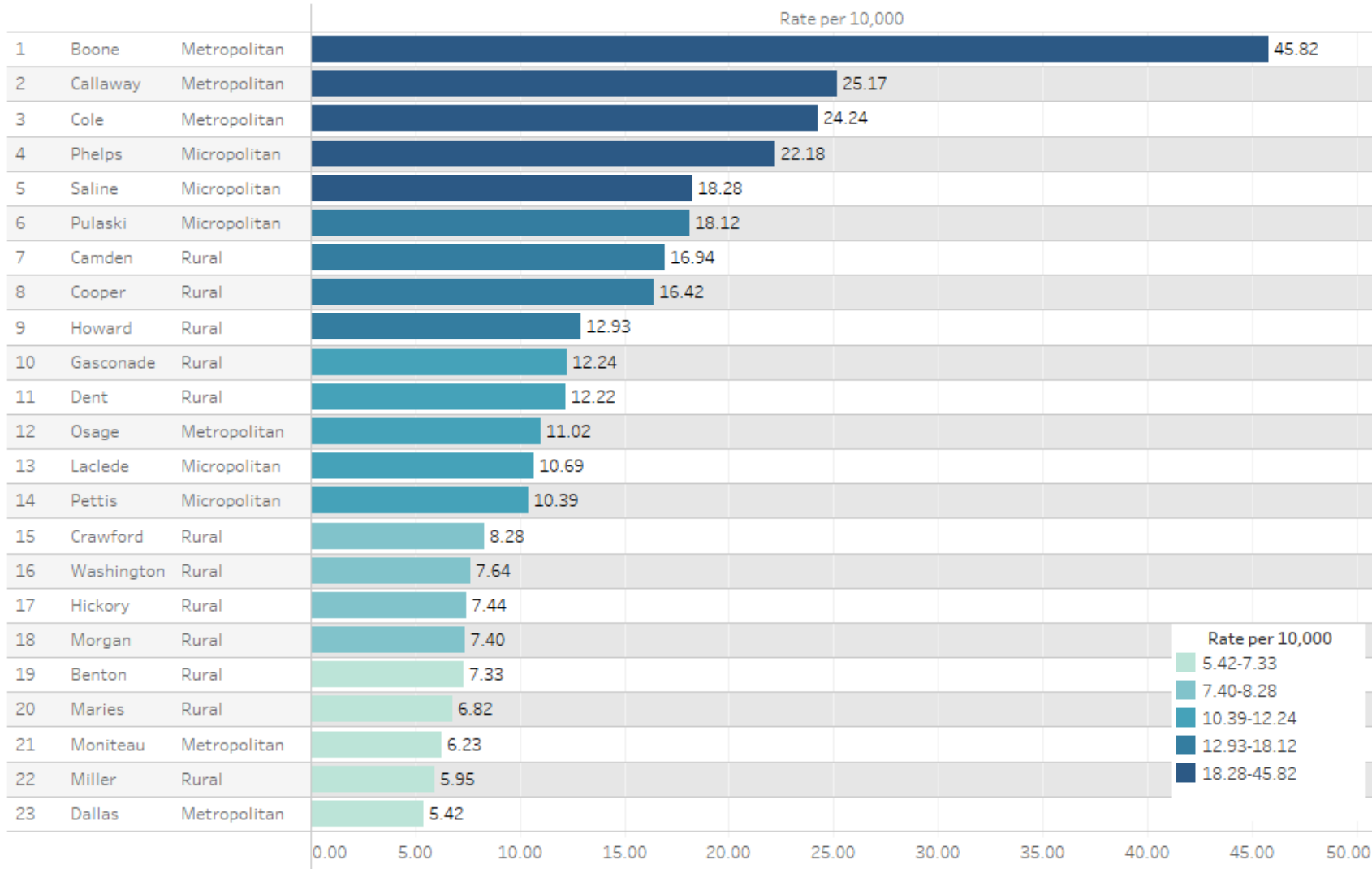
**Figure 14. Geographical Distribution of Mental and Behavioral Health Providers per 10,000 Residents (2022)**



Source: Missouri Division of Professional Registration (2022)  
 Mental & Behavioral Health includes Assistant Behavior Analyst, Behavior Analyst, Child Psychiatry, License Professional Counselor, Licensed Social Worker, Marriage & Family Therapist, Psychiatry and Psychologist.

Note: Dynamic, interactive maps of mental and behavioral health providers and other providers in all AHEC regions are available at <https://mohealthcareworkforce.org/indicator-dashboards/workforce/>.

**Figure 15. Mental and Behavioral Health Providers per 10,000 Residents (2022)**



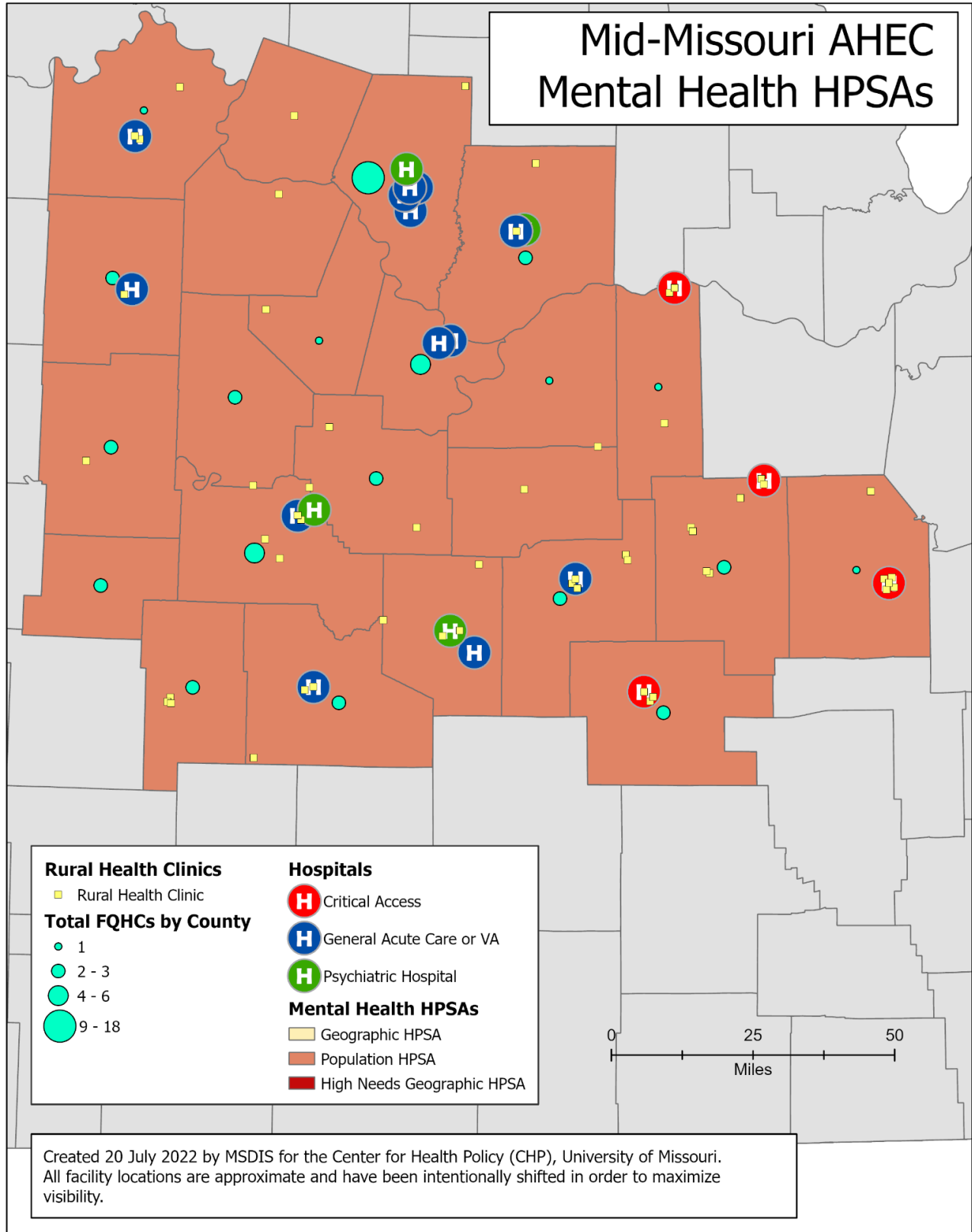
Source: Missouri Division of Professional Registration (2022)  
 Mental & Behavioral Health includes Assistant Behavior Analyst, Behavior Analyst, Child Psychiatry, Licensed Professional Counselor, Licensed Social Worker, Marriage & Family Therapist, Psychiatry and Psychologist.

### **Mental Health Professional Shortage Areas (HPSAs)**

All of the MID-MO AHEC region is covered by a Mental Health Population HPSA (Figure 16). Population HPSAs indicate that special populations in the region, such as low-income populations, lack access to mental and behavioral health care.



Figure 16. Mental Health HPSAs



Note: Dynamic, interactive maps of HPSAs and medical facilities in all AHEC regions are available under Indicator Dashboards at <https://mohealthcareworkforce.org/>.

## Nursing Workforce

The Missouri State Board of Nursing offers two license types: Licensed Practical Nurse (LPN) and Registered Nurse (RN). While Missouri’s Advance Practice Nurses (APRNs) are licensed as RNs, their title reflects completion of a terminal degree, national credentialing, and recognition by the Missouri State Board of Nursing of their advanced practice status. When considering Missouri’s nursing workforce, it is important to note the differences in the scope of practice among LPNs, RNs and APRNs. With their ability to prescribe and supervise LPNs and RNs, APRNs are more comparable to physicians and physician assistants in the workforce. Table 7 presents 2021 nurse counts from Missouri Division of Professional Registration licensure data, as well as population counts from 2015-2019 ACS 5-year estimates.

There are fewer RNs (one for every 108 residents) and APRNs (one for every 893 residents) per population than in the state as a whole. In contrast, there are more LPNs (1:306) per population than the state ratio (1:401).

**Table 7. Nursing Workforce by MID-MO AHEC Region and State**

Mid-Missouri AHEC Region Provider Type	Region State	Rural # (%)	Partially Rural # (%)	Urban # (%)	Total Provider Type	Total Population of AHEC Region	Ratio Provider Type to AHEC Region Population
Advanced Practice Registered Nurses (APRNs)	Region	326 (37%)	422 (48%)	124 (14%)	872	778,698	1 to 893
	State	1,506 (17%)	697 (8%)	6,881 (76%)	9,084	6,104,910	1 to 672
Registered Nurses (RNs)	Region	2,469 (34%)	3,614 (50%)	1,121 (16%)	7,204	778,698	1 to 108
	State	11,594 (17%)	5,693 (8%)	52,325 (75%)	69,612	6,104,910	1 to 88
Licensed Practical Nurses (LPNs)	Region	1,352 (53%)	835 (33%)	354 (14%)	2,541	778,698	1 to 306
	State	5,813 (38%)	1,376 (9%)	8,017 (53%)	15,206	6,104,910	1 to 401

## **Selected Allied Health Professions**

Table 8 includes 2021 data from Missouri Division of Professional Registration and population numbers from 2015-2019 5-year ACS estimates. Provider shortages are more acute in the MID-MO AHEC region than the state. Shortages for pharmacists, pharmacy technicians, physical therapists, and physical therapy assistants may be particularly concerning for the region due to an aging population with increased need for many services.<sup>37</sup>

### **Pharmacy Workforce**

Pharmacist and pharmacy technician counts and ratios indicate less access to pharmacy care for Mid-Missourians than other residents of the state. As populations age, they may require more access to pharmacy care. The MID-MO AHEC region may be impacted by a pharmacist shortage, with only 711 pharmacists licensed to provide services to an area population of 778,698, which means there is one pharmacist for every 1,095 residents in the region. Services such as Express Scripts may increase access to prescription medications for MID-MO AHEC residents, though filling prescriptions is just one of the services provided by pharmacists.

### **Physical Therapy Workforce**

Residents of the Mid-MO AHEC region have less access to physical therapists (PTs) and physical therapist assistants (PTAs) than Missourians overall. Two issues that may impact the need for PTs and PTAs are the opioid epidemic and the aging population. As the Missouri population ages, their need for physical therapy services may increase. Additionally, there is widespread need for non-addictive alternatives to treat pain, with one study finding 78 percent of Americans surveyed preferred drug-free pain management to opioids.<sup>38</sup> Physical therapy is one such option that can provide education on pain and pain management as well as effective treatment.

### **Community Health Worker Workforce**

Community Health Workers (CHWs) are a relatively new workforce in the US and Missouri. CHWs provide frontline public health services in their own communities and serve as liaisons between health care and social service providers and the communities they serve. CHWs serve in both formal and informal capacities and can be employees or volunteers.<sup>39</sup> Table 8 presents the most current counts of credentialed CHWs in the MID-MO AHEC region (one per 40,984 residents) and Missouri (one per 29,351 residents). Demand for CHWs is anticipated to grow due to expanding health care coverage through Medicaid expansion as well as the growth in Missourians over the age of 65.

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<sup>37</sup> Dall, T. M., Gallo, P. D., Chakrabarti, R., West, T., Semilla, A. P., & Storm, M. V. (2013). An aging population and growing disease burden will require a large and specialized health care workforce by 2025. *Health affairs*, 32(11), 2013-2020. <https://doi.org/10.1377/hlthaff.2013.0714>.

<sup>38</sup> Mintken, P. E., Moore, J. R., Flynn, T. W. (April 30, 2018) *Physical Therapists' Role in Solving the Opioid Epidemic*. Retrieved from <https://www.jospt.org/doi/10.2519/jospt.2018.0606>.

<sup>39</sup> National Institute for Healthcare Management Foundation. (April 7, 2021) *Community Health Workers: Their Important Role in Public Health*. Retrieved from <https://nihcm.org/publications/community-health-workers-infographic>.

**Table 8. Selected Allied Health Professions by MID-MO AHEC Region and State**

Mid-Missouri AHEC Region Provider Type	Region State	Rural # (%)	Partially Rural # (%)	Urban # (%)	Total Provider Type	Total Population of AHEC Region	Ratio Provider Type to AHEC Region Population
Pharmacists	Region	302 (42%)	338 (48%)	71 (10%)	711	778,698	1 to 1,095
	State	1,350 (19%)	520 (7%)	5,238 (74%)	7,108	6,104,910	1 to 859
Pharmacy Technicians	Region	1,295 (59%)	669 (31%)	226 (10%)	2,190	778,698	1 to 356
	State	6,204 (29%)	1,317 (6%)	13,539 (64%)	21,060	6,104,910	1 to 290
Physical Therapists	Region	121 (30%)	206 (52%)	70 (18%)	397	778,698	1 to 1,961
	State	579 (16%)	296 (8%)	2,701 (76%)	3,576	6,104,910	1 to 1,707
Physical Therapy Assistants	Region	74 (49%)	41 (27%)	35 (23%)	150	778,698	1 to 5,191
	State	395 (33%)	105 (9%)	704 (58%)	1,204	6,104,910	1 to 5,071
Community Health Workers	Region	8 (42%)	11 (58%)	0 (0%)	19	778,698	1 to 40,984
	State	20 (10%)	53 (25%)	135 (65%)	208	6,104,910	1 to 29,351

### Public Health Workforce

Based in a variety of organizations that are part of a diverse and complex system, the public health workforce promotes and protects the health of communities.<sup>40</sup> Missouri has a decades-long history of efforts to transform the public health system, including efforts to normalize public health services across the state. For example, grassroots efforts by the #HealthierMO Initiative (HealthierMO, <https://www.healthiermo.org/>), include an analysis of Missouri’s public health system capacity titled *A Summary of Missouri’s Public Health System Capacity to Deliver the Missouri Foundational Public Health Services Model*: [https://www.healthiermo.org/\\_files/ugd/9bd019\\_f678e32c6fa24128958b9280f5f03450.pdf](https://www.healthiermo.org/_files/ugd/9bd019_f678e32c6fa24128958b9280f5f03450.pdf). While the Local Public Health Agency regions analyzed in the report do not fully align with Missouri AHEC regions, the analysis nonetheless provides a useful resource to better understand the region’s public health workforce.

<sup>40</sup> American Public Health Association. (2022, February 17). *What Is Public Health*. Retrieved from APHA.org: <https://www.apha.org/What-is-Public-Health>.

## MHA Regional Workforce Report Summary<sup>41</sup>

The Missouri Hospital Association (MHA) produces an annual workforce report (<https://web.mhanet.com/media-library/2022-workforce-report/>), as well as regional profiles. MHA's Central Region Profile overlaps with most of the MID-MO AHEC region ([https://www.mhanet.com/mhaimages/workforce/2022/Central\\_Region\\_2022\\_WF.pdf?utm\\_source=Workforce+-+Central+-+2022](https://www.mhanet.com/mhaimages/workforce/2022/Central_Region_2022_WF.pdf?utm_source=Workforce+-+Central+-+2022)). Four counties in the MID-MO AHEC region (Benton, Hickory, Pettis, and Saline) are in MHA's West Central region ([https://www.mhanet.com/mhaimages/workforce/2022/WC\\_Region\\_2022\\_WF.pdf](https://www.mhanet.com/mhaimages/workforce/2022/WC_Region_2022_WF.pdf)); Dallas County from the MID-MO AHEC region is in MHA's Ozark region ([https://www.mhanet.com/mhaimages/workforce/2022/Ozark\\_Region\\_2022\\_WF.pdf](https://www.mhanet.com/mhaimages/workforce/2022/Ozark_Region_2022_WF.pdf)).

MHA's reports focus on the vacancy and turnover rates of health care professions working in hospitals. In the Central MHA region, the highest vacancy rates are occupational therapy assistant – certified, surgical technician, and nurse assistants. In the West Central MHA region, the highest vacancy rates are housekeeper, respiratory therapist – registered, and medical laboratory technician. In the Ozarks MHA region, the highest vacancy rates are licensed practical nurse, nurse assistants, and staff registered nurse. The RN vacancy rate in all three MHA regions (Central 15.5%; West Central 13.2%; Ozark 18.2%) are lower than the state rate of 19.8%.

The hospital professions with the highest turnover rates are food service worker/dietary aid, housekeeper, and nurse assistants in the Central MHA region; nurse assistants, housekeeper, and food service worker/dietary aid in the West Central MHA region; and licensed practical nurse, nurse assistants, and staff registered nurse in the Ozark MHA region. The RN turnover rate in the Central (21.3%) and Ozark (19.5%) MHA regions are slightly lower than the state average of 22.1%. However, West Central region's RN turnover rate is much higher at 26.4%.

This is important regional data because the solutions are different between vacancies (e.g., increase focus on recruiting new entrants to the field) and turnover (e.g., increase focus on retaining existing employees).

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<sup>41</sup> Missouri Hospital Association. (2022). *2022 MHA Workforce Report: Northeast Region Profile*. Retrieved from [https://www.mhanet.com/mhaimages/workforce/2022/NE\\_Region\\_2022\\_WF.pdf](https://www.mhanet.com/mhaimages/workforce/2022/NE_Region_2022_WF.pdf).

**Table 9. MID-MO AHEC Region compared to Missouri Hospital Association (MHA) Region**

<b>Mid-Missouri AHEC Region Counties</b>	<b>MHA Region</b>
Benton County	West Central
Boone County	Central
Callaway County	Central
Camden County	Central
Cole County	Central
Cooper County	Central
Crawford County	Central
Dallas County	Ozark
Dent County	Central
Gasconade County	Central
Hickory County	West Central
Howard County	Central
Laclede County	Central
Maries County	Central
Miller County	Central
Moniteau County	Central
Morgan County	Central
Osage County	Central
Pettis County	West Central
Phelps County	Central
Pulaski County	Central
Saline County	West Central
Washington County	Central

## Health Care Infrastructure in the Region

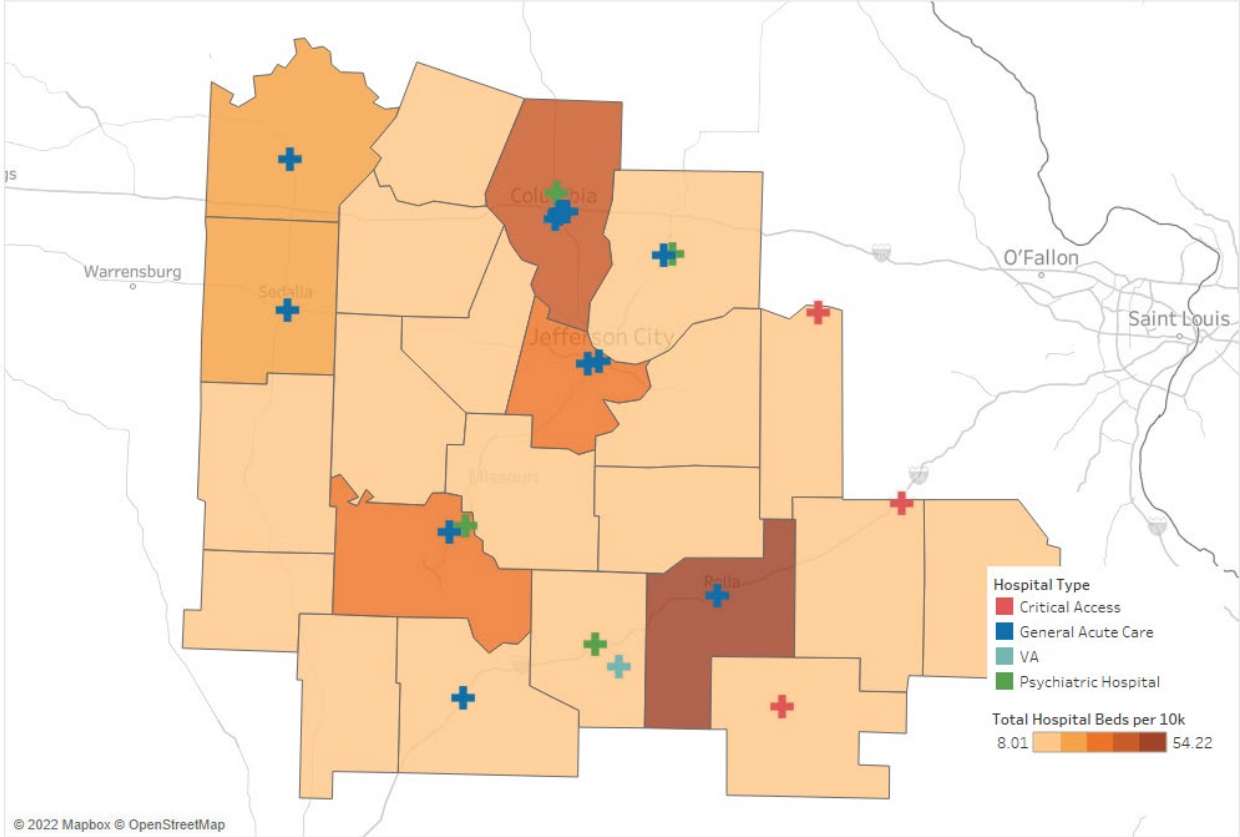
Primary care, dental health care, and mental and behavioral health care, and the workforce needed to deliver services, are all important aspects of the MID-MO AHEC region's health care landscape. Infrastructure is another important piece. FQHCs and Rural Health Clinics were mentioned earlier in this document, but it is also important to consider hospitals, long-term care facilities and even broadband access when examining the MID-MO AHEC region's health care infrastructure.

### Hospitals

Figure 17 displays the geographic location and distribution of hospitals across the MID-MO AHEC region, along with rates of total beds per 10,000 residents. Trauma Level I hospitals serve as comprehensive tertiary care facilities offering the most specialized services for every aspect of injury care, and University of Missouri Health Care in Columbia provides the only Level I care in the region. Level II hospitals can provide initial treatment for all injuries though some patients may need to be transferred to a Level I facility. Level II care is not available in the region. Level III Trauma Centers can assess, resuscitate, and stabilize patients before transfer to Level I and II hospitals. Level III care is available at Lake Regional Health System in Camden County.

Gaps in availability of hospital care are visible throughout the MID-MO AHEC region, as rural residents face long drive times and increased cost to access care, and emergency responders may need to cross county lines to connect patients with life-saving services. Several counties in the region have neither a general acute nor a critical access hospital: Benton, Cooper, Dallas, Hickory, Howard, Maries, Miller, Morgan, Osage and Pulaski.

**Figure 17. Hospitals and Total Beds Per 10,000 Residents**



Source: American Community Survey (2015-2019 5 year estimates), MO Department of Health and Senior Services via Missouri Spatial Data Information Service (2022)

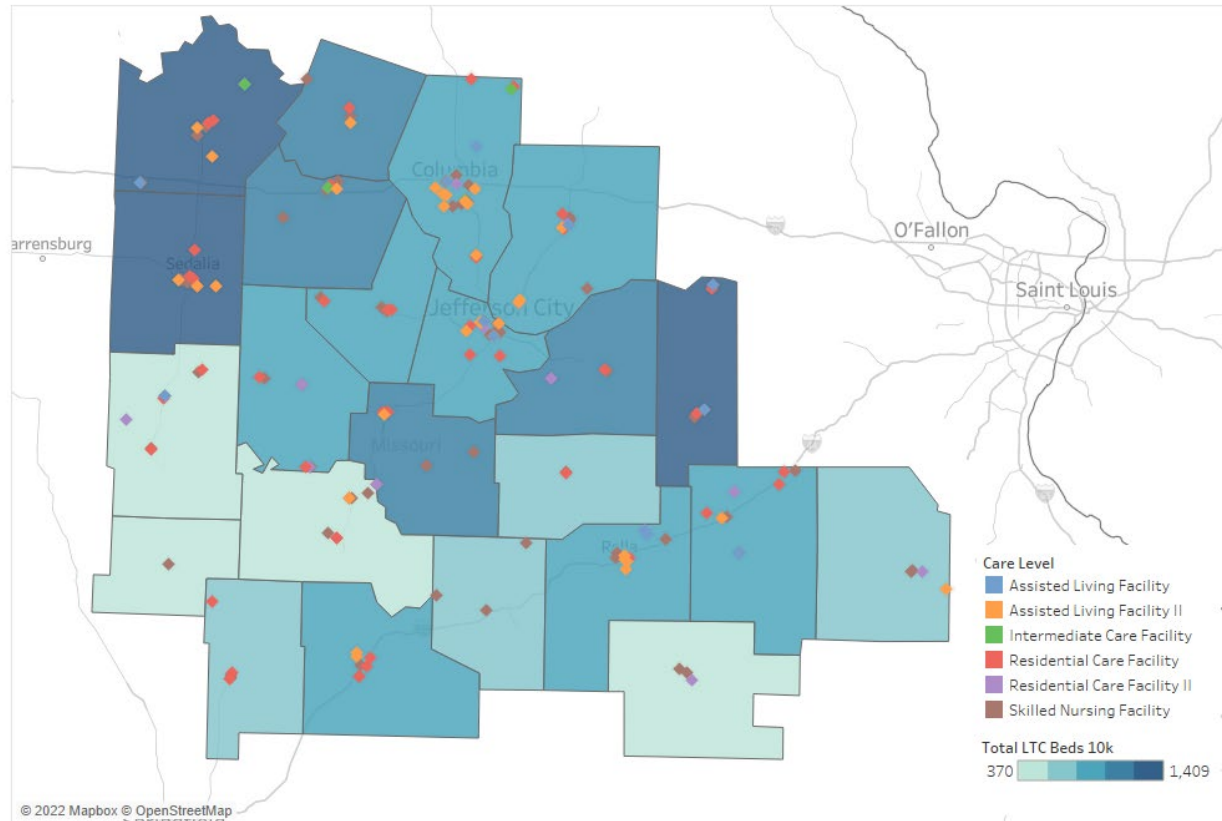
Note: Dynamic, interactive maps of medical facilities in all AHEC regions are available at <https://mohealthcareworkforce.org/indicator-dashboards/medical-facilities/>.



## Long-Term Care Facilities

Figure 18 provides a visualization of long-term care facilities in the region, based on the rate of long-term care beds per 10,000 population age 65 or older in 2022. The MID-MO AHEC region has 837.5 beds per 10,000 population age 65 or older.

**Figure 18. Long-Term Care Facilities and Total Beds Per 10,000 Residents Age 65+**



Source: American Community Survey (2015-2019 5 year estimates), MO Department of Health and Senior Services via Missouri Spatial Data Information Service (2022)

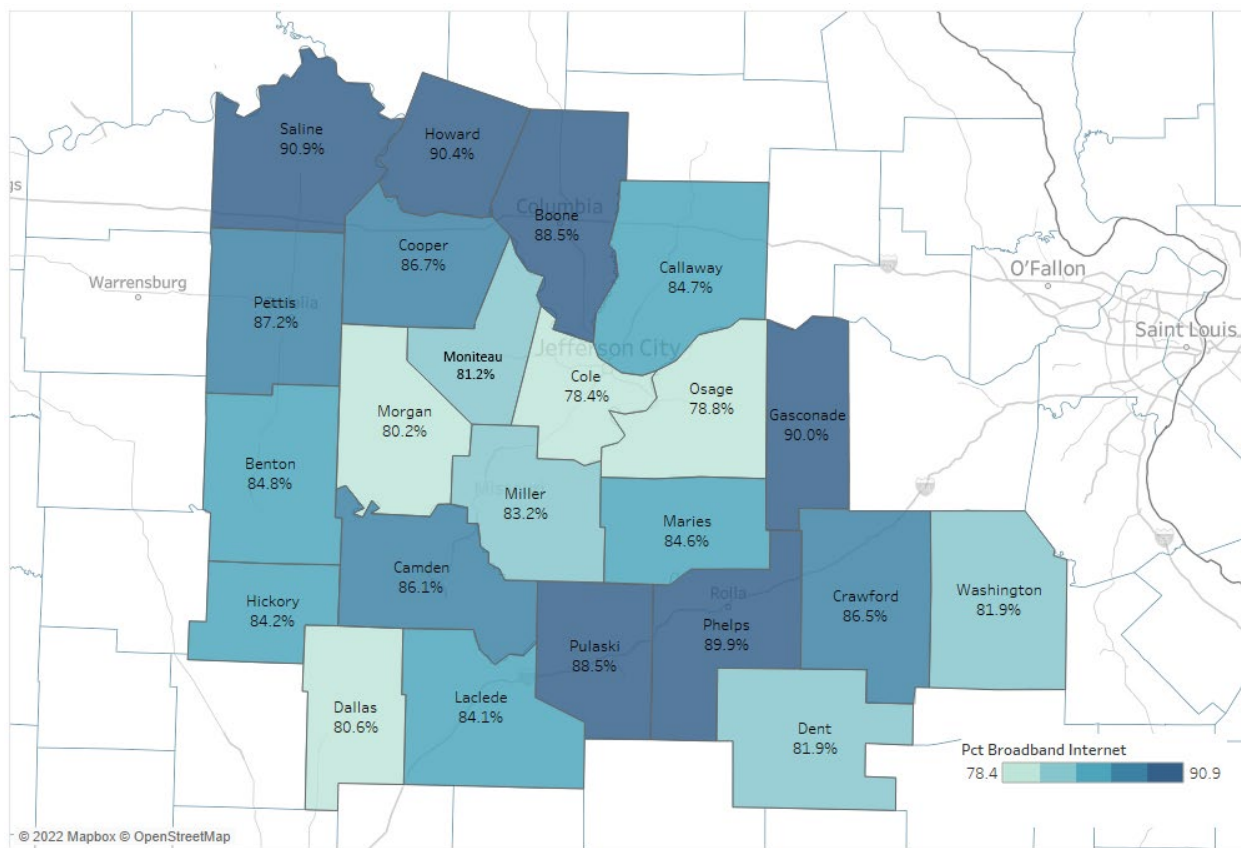
Note: Dynamic, interactive maps of medical facilities in all AHEC regions are available at <https://mohealthcareworkforce.org/indicator-dashboards/medical-facilities/>. Age 65 and older was used as the age category of interest due to Medicare eligibility. Care levels include:

- ALF: Assisted Living Facility
- ALF II: Assisted Living Facility with additional requirements for evacuation assistance
- ICF: Intermediate Care Facility
- RCF: Residential Care Facility
- RCF II: Residential Care Facility requiring a licensed Nursing Home Administrator
- SNF: Skilled Nursing Facility

## Broadband Access

Telehealth coverage and utilization was greatly expanded during the COVID-19 pandemic. Many of these policy changes may become permanent to increase health care access.<sup>42</sup> Thus, broadband access is an important piece of health care infrastructure. Figure 19 displays the percentage of households with a broadband internet subscription at the county level within the MID-MO AHEC region. Unfortunately, many of the counties with low percentages of broadband at home also have a small number of health care providers and facilities. One potential solution is extending the audio-only telehealth options introduced during the pandemic, allowing those without broadband internet to access some care with their phone line.<sup>43</sup>

**Figure 19. Percentage Households with a Broadband Internet Subscription**



Source: American Community Survey (2015-2019 5-year estimates)

<sup>42</sup> Koma, W., Cubanski, J., and Neuman, T. (n.d.) *Medicare and Telehealth: Coverage and Use During the COVID-19 Pandemic and Options for the Future*. Retrieved from <https://www.kff.org/medicare/issue-brief/medicare-and-telehealth-coverage-and-use-during-the-covid-19-pandemic-and-options-for-the-future>.

<sup>43</sup> Ibid 42.

*Mid-Missouri Area Health Education Center*  
**Needs Assessment and Gap Analysis**

By the University of Missouri Center for Health Policy and Missouri AHEC Program Office  
at A.T. Still University-Kirksville College of Osteopathic Medicine

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