MRHA
Missouri Rural Health Association

LISTENING TO RURAL MISSOURI

A NEEDS ASSESSMENT

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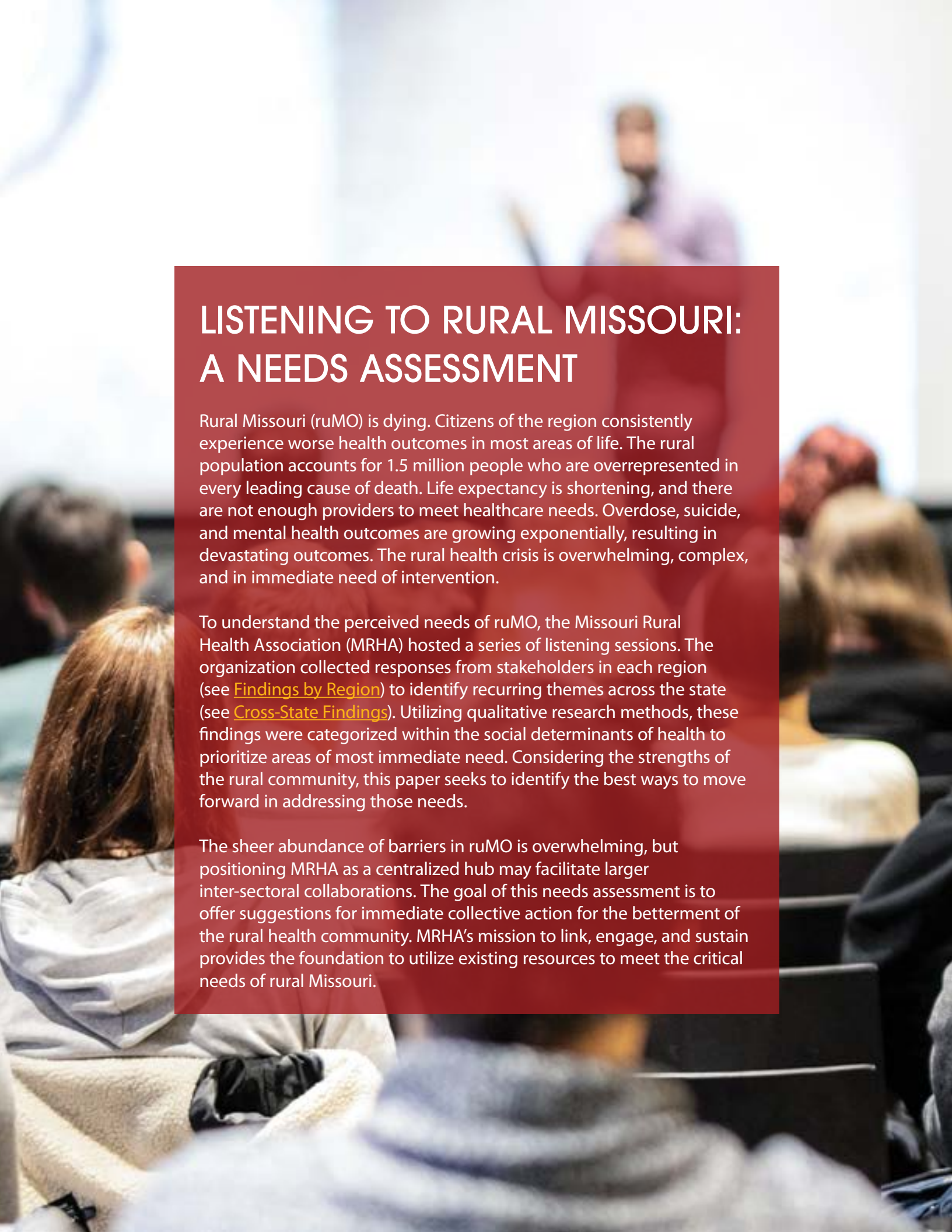


LISTENING TO RURAL MISSOURI: A NEEDS ASSESSMENT

Rural Missouri (ruMO) is dying. Citizens of the region consistently experience worse health outcomes in most areas of life. The rural population accounts for 1.5 million people who are overrepresented in every leading cause of death. Life expectancy is shortening, and there are not enough providers to meet healthcare needs. Overdose, suicide, and mental health outcomes are growing exponentially, resulting in devastating outcomes. The rural health crisis is overwhelming, complex, and in immediate need of intervention.

To understand the perceived needs of ruMO, the Missouri Rural Health Association (MRHA) hosted a series of listening sessions. The organization collected responses from stakeholders in each region (see Findings by Region) to identify recurring themes across the state (see Cross-State Findings). Utilizing qualitative research methods, these findings were categorized within the social determinants of health to prioritize areas of most immediate need. Considering the strengths of the rural community, this paper seeks to identify the best ways to move forward in addressing those needs.

The sheer abundance of barriers in ruMO is overwhelming, but positioning MRHA as a centralized hub may facilitate larger inter-sectoral collaborations. The goal of this needs assessment is to offer suggestions for immediate collective action for the betterment of the rural health community. MRHA's mission to link, engage, and sustain provides the foundation to utilize existing resources to meet the critical needs of rural Missouri.

THE DECLINE OF RURAL: A GROWING DEATH RATE

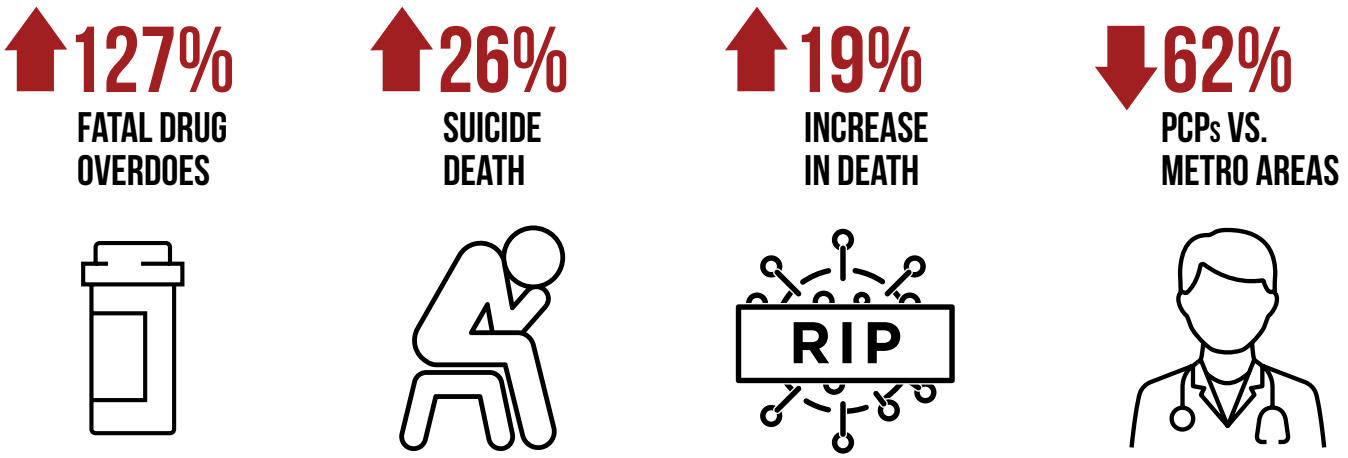
Rural lifespans are being cut short. ruMO represents a third of the state's population, but experiences greater mortality than urban peers in all ten leading causes of death, including a 7% higher infant mortality rate.[1] Over the last decade, fatal drug overdoses in ruMO have increased by 127% and death by suicide increased by 29%.2 The COVID-19 pandemic resulted in a 19% increase in death, and a decrease in life expectancy by 2.1 years.[2] This has led to the first recorded observation of state deaths outnumbering state births.[2] The most significant mortality spikes have been observed in the Ozark and Bootheel regions, where populations are the most vulnerable due to high rates of poverty and the long-term impacts of race based discrimination.[1] Unfortunately, the data shows rural health outcomes worsening rather than improving.

The opioid epidemic is a major contributor to the state's poor health outcomes. In 2017, only 20% of people in Missouri who experienced a fatal drug overdose received prior substance abuse treatment.[3] In the last decade, Missouri has seen overdoses increase by 73% and eight of the ten counties with the highest overdose rates are in rural areas.[3] Drug overdose is the leading cause of death among young adults in Missouri, greatly impacting future prospects for ruMO.[3]

Federal, state, and local reports continue to show disproportionately worsening health outcomes across ruMO. In 2019, approximately 230,000 years of potential life were lost.[4] The number of primary care physicians (PCPs) has steadily declined to 48 PCPs per 100,000 rural residents: 62% less than metropolitan counterparts.[5] Communities have voiced concerns about poor mental health, and evidence of adverse health outcomes are found in both statistical data and qualitative reports.[6] Rural Missouri is experiencing a spiraling decline in population as people continue to leave or die.

Why is the Death Rate Growing?

The environments and resources available within a community are the most influential predictors of health and livelihood. These factors, also known as social determinants of health (SDOH), are the "economic, social and environmental factors where health disparities take root, inequalities grow, and inequities reproduce, and are twice as influential on health outcomes than clinical care.[7] The United States Department of Health and Human Services (USDHHS) has established a disease prevention initiative, Healthy People 2030, which identifies five SDOH as the most influential factors on people's life expectancy, well-being, and quality of life. These determinants include access to healthcare, economic stability, education, community, and environment.[8]



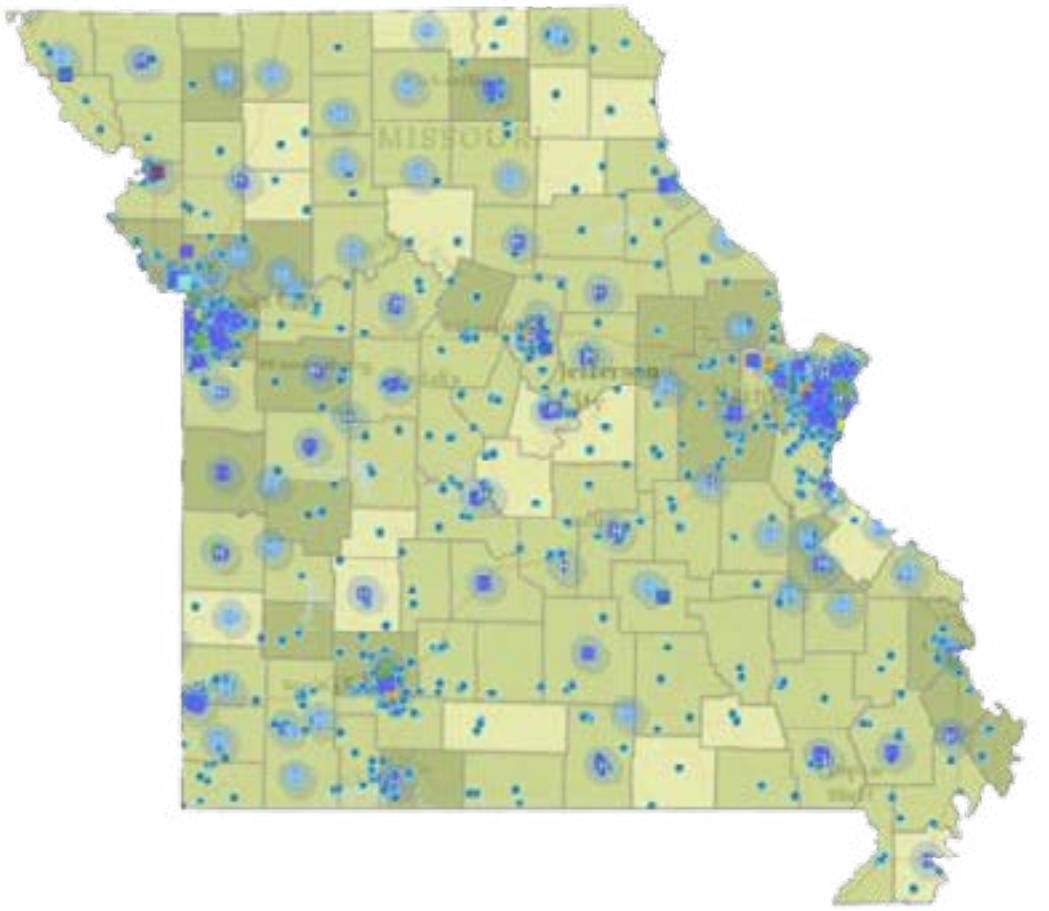
THE DECLINE OF RURAL: A GROWING DEATH RATE

Access to Health Care

There are not enough healthcare providers (HCPs) in rural counties to care for everyone. The federal government has defined most of ruMO as a Health Professional Shortage Area (HPSA). Over 78% of HPSAs in Missouri are in rural areas, with residents lacking adequate access to medical, dental and mental health providers.[1] Although a third of the state's population lives in rural counties, only a fifth of the state's providers practice there.[1]

In addition to the shortage of clinicians, ruMO citizens struggle to achieve equitable access to care in other ways:

- 17% lack access to broadband internet needed for telehealth services,[1]
- 85% lack access to non-emergency medical transportation,[9]
- 15% lack healthcare insurance,[1] and
- 45% do not have a nearby hospital.[6]



Map Legend

All Hospitals, POS September 2020

Primary Care Physicians (Expanded Definition), All, CMS NPPES October 2022

Missouri Psychiatric Beds, MHA 2020

Psychiatric Beds

Hospitals, Definitive Healthcare 2020

Other Hospitals

Hospitals with ICU Beds

Hospitals, DHS-MO 2021

Critical Access

General Acute Care

Long Term Care

Other Hospital Type

Psychiatric Hospital

Rehabilitation Hospital

VA

Opioid Use Disorder, Medicare Beneficiaries, Rate by County, CMS 2020

Over 41

27 - 41

3 - 26

Under 26

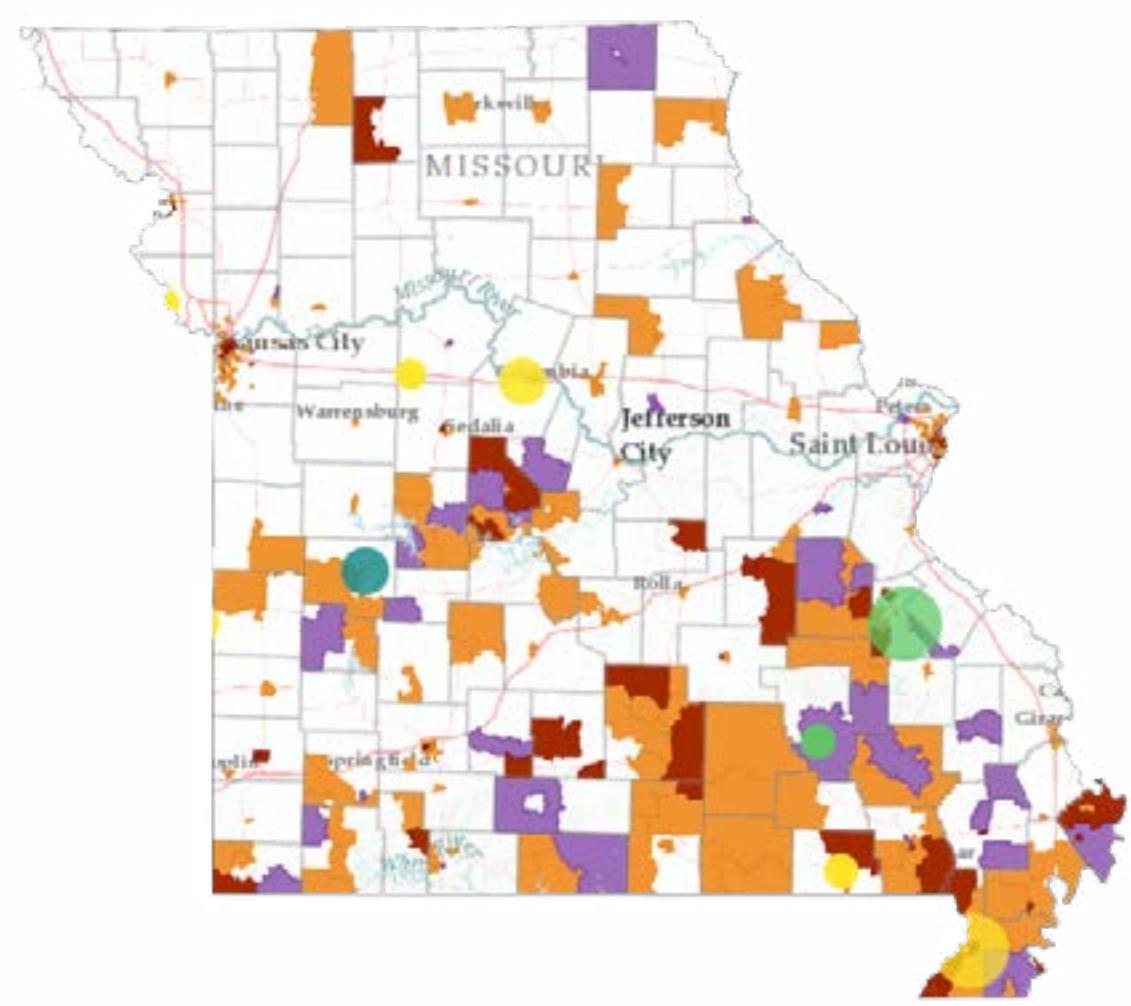
No date or data suppressed

https://allthingsmissouri.org/missouri-map-room/, 11/8/2022

THE DECLINE OF RURAL: A GROWING DEATH RATE

Closures and Vulnerability

The continuing closure of rural hospitals has forced residents to arrange for extensive travel to access routine and emergent clinical services.[6] Ten hospitals closed in rural counties between 2014-20, and 55 counties in ruMO do not have a hospital (Appendix G).[1,10] This has compelled some residents to travel more than 40 minutes to reach a hospital with emergency services.[1] Unfortunately, these closures have been prominent in the southeast region of the state where social determinants of health are disproportionately worse than other regions.[1,10]. Up to 26 rural hospitals in Missouri are in danger of closing - this puts 43% of all Missouri rural hospitals at risk of closure.[11]



Map Legend

Rural Hospital Closures, UNC 2005-2020
- 2005 - 2008
- 2009 - 2011
- 2012 - 2014
- 2015 - 2017
- 2018 - 2020

Vulnerable Populations Footprint, ACS 2016-2020

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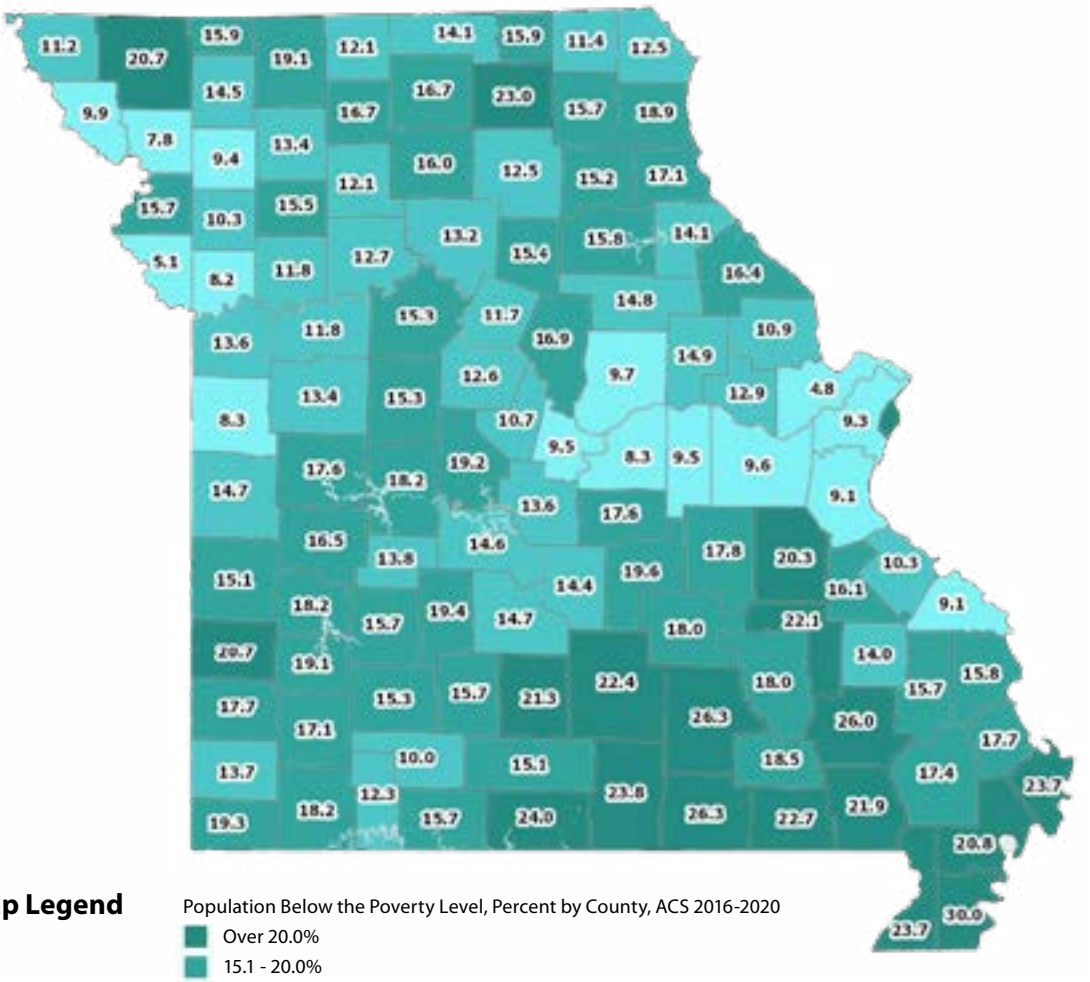
THE DECLINE OF RURAL: A GROWING DEATH RATE

Economic Stability

Research continues to show that lower income levels are correlated with worse health outcomes and reduced life expectancy.[12] A lack of income prevents families from obtaining food, shelter, healthcare, and education needed to lead healthy lives.[13] Poverty rates for children and adults in rural counties are higher, with 16% of ruMO residents living in poverty.[1] One in six children in rural counties experience poverty; this results in substandard child health outcomes and decreased psychological wellbeing into adulthood.[1]

Unemployment is one of the most significant triggers of economic insecurity for families, as it restricts access to adequate income, resources, and benefits that typically support stability in the home.[13] Lack of employment often leads to increased stress, decreased financial stability, and a lack of adequate insurance coverage. The correlation between unemployment, low income and poor health outcomes is especially evident in the southeast region of the state. For example, Pemiscot County has the second highest rural unemployment rate, highest poverty rate, and highest death rate when compared to other counties.[1] These trends were also exacerbated by the unexpected impacts of the COVID-19 pandemic, which worsened pre-existing experiences of economic instability.[1]



Map Legend

Population Below the Poverty Level, Percent by County, ACS 2016-2020

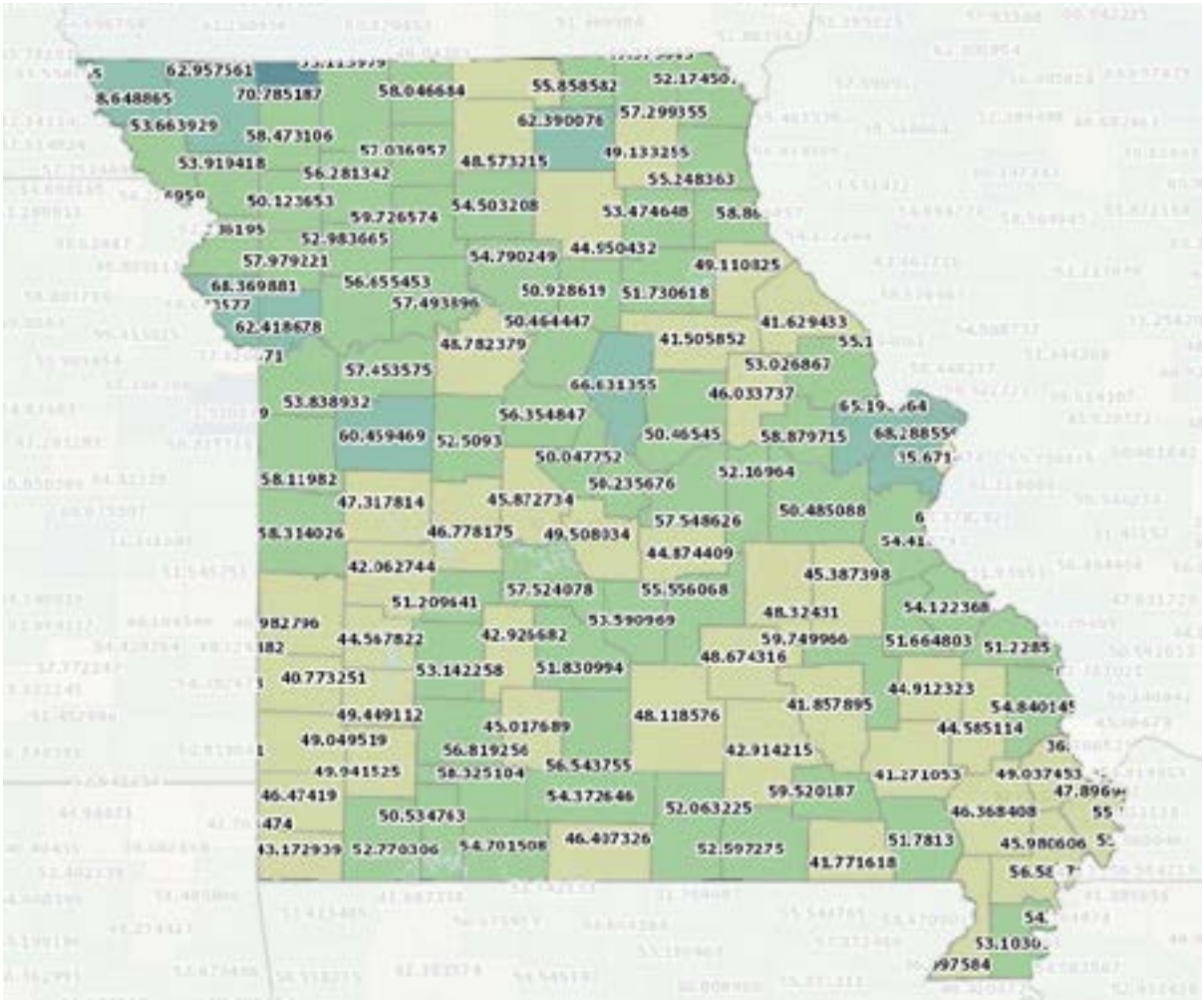
- Over 20.0%
- 15.1 - 20.0%
- 10.1 - 15.0%
- Under 10.1%
- No data or data suppressed

https://allthingsmissouri.org/missouri-map-room/, 11/15/2022

THE DECLINE OF RURAL: A GROWING DEATH RATE

Education

Education impacts one's ability to achieve financial stability, obtain gainful employment, navigate the complexities of the healthcare system, and practice healthy lifestyle behaviors.[1] Lower levels of education have been found to correlate with higher rates of cardiovascular disease, alcoholic liver disease, drug overdose, and suicide.[1] In Missouri, the life expectancy increased for those with a Bachelor's degree of higher, but decreased for those with the equivalent of a high school diploma.[1] Up to 14% of ruMO residents lack a high school degree, in comparison to 8% of urban residents, putting them at a higher risk of experiencing unemployment and a lower likelihood of obtaining health insurance.[1] These limitations presented can lead to a high chance of economic instability and less access to affordable clinical care.[6]



Map Legend

Education Scores by County, Opportunity Index 2018

- 70.0 - 95.5
- 60.0 - 69.9
- 50.0 - 59.9
- 40.0 - 49.9
- 11.9 - 39.9
- No data

https://allthingsmissouri.org/missouri-map-room/, 11/15/2022

THE DECLINE OF RURAL: A GROWING DEATH RATE

Community

Many individuals in ruMO face challenges gaining support from a positive social environment which contributes to worse health outcomes. Black, Indigenous, and People of Color (BIPOC) in Missouri often experience disparate health outcomes in all areas; Black Missourians experience premature death at a higher rate than White populations.[14] The Missouri Foundation for Health (MFH) found that LGBTQ+ rural Missourians have significantly worse health outcomes due to a lack of culturally competent providers and a shortage of affirming healthcare services.[15] These population specific disparities highlight how underprivileged populations in ruMO continue to be at the greatest risk of experiencing poor health consequences.

Environment

The surrounding environment has a profound impact on one's health. In comparison to urban areas, rural communities often have less accessible options for physical activity, such as fitness facilities, recreational organizations, parks, or sidewalks. Only 5% of Scotland County residents have access to areas supportive of physical exercise.[6] Low-income Missourians are also more likely to have difficulty purchasing nutritious foods that support a healthy diet and lower risk for chronic diseases. Accessing nutritious food is a challenge in rural areas like Mercer County, where almost half of those with low-income live in a food desert.[6] Incorporating healthy behaviors into daily life is challenging when the community infrastructure is not built in a way to make these lifestyle habits feasible.

Addressing SDOH in ruMO

The data reveals a complicated and devastating problem in ruMO, resulting in health outcomes that are on a downward trend. As hospitals close, the problem grows exponentially. Without intervention, the implications are beyond worrying. Much of this information is not new, and despite efforts from a plethora of organizations to address the rural health crisis, lifespans continue to decline.

THE DECLINE OF RURAL: A GROWING DEATH RATE

Is Rural Missouri Worth the Investment?

Although the wellness of rural families in Missouri is important in and of itself, it is crucial to note neighboring urban communities and national industries cannot function without rural Missouri. An abundance of the state's natural resources are produced within ruMO (Appendix B-D). In comparison to other US states, Missouri:

- has the second highest number of farms (95,000+),
- is the second largest producer of hay (6.4 million tons),
- the third highest producer of beef cows (2.04 million heads),
- and the fourth highest producer of rice (15.5 million cwt).[16]

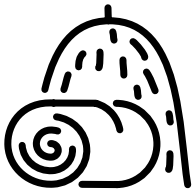
The Urban Institute highlights that ruMO contains numerous energy rich hubs, remote recreational and cultural areas, and high employment agricultural industries.[17] The health and livelihood of rural Missourians must be supported, not only as a matter of health equity, but also to stabilize national agricultural and energy industries that rely on these resources.

As health in ruMO worsens, populations die prematurely or move to other areas that more adequately support their livelihood. A survey of Missouri farmers found a lack of access to affordable healthcare not only impacts their personal health, but also causes a degree of financial strain that forces them to delay farm investments.[18] This detrimentally impacts the agricultural industry, as farmers are forced to pursue non-agricultural employment to achieve financial stability and obtain affordable healthcare.[18] Failing to address the rural health crisis will have long reaching impacts on rural families and the economy of the state and nation.

Missouri's production of natural resources in comparison to other US states:

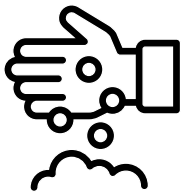
2ND HIGHEST NUMBER
95,000+ FARMS

2ND LARGEST PRODUCER
6.4 MIL. TONS HAY



3RD LARGEST PRODUCER
2.04 MIL. HEADS BEEF

4TH HIGHEST PRODUCER
15.5 MIL. CWT. RICE



COMMUNITY ASSESSMENT

While it may be tempting to develop interventions from analyzing the raw data, the value of community voices cannot be understated. SDOH provide a framework by which one can understand the manifestation of health outcomes, but the priorities of stakeholders are paramount to success. To best address and understand the concerns of the rural community, MRHA conducted a series of listening sessions. The goal of these meetings was to engage community stakeholders in a collaborative effort to assess the health needs, barriers, and strengths of ruMO.

Methodology

To address the diverse perspectives from communities across Missouri, MRHA divided the state into nine regions. Each region discussed a series of four questions:

1. What are continued barriers in your community?
2. What are possible solutions to those barriers?
3. Why have these solutions not been implemented?
4. What is currently working to break down barriers in your community?

Participants were asked to write down their answers to these questions on sticky notes and place them on posters underneath the corresponding question. Each sticky note was discussed to ensure understanding. All responses were recorded by hand, entered in a central database, and kept for analysis.

1,000+ RESPONSES TO QUESTIONS FROM 417 PARTICIPANTS

To identify the areas of greatest priority and impact across all ruMO, MRHA utilized qualitative research methods to code and analyze the information collected. All regions were included in this paper's findings with a total 417 total respondents (see Cross State Findings).

Each individual response was reviewed by region to identify and code overlapping themes, then cross-analyzed with results from the rest of the state (see Findings by Region). Finally, to highlight areas of highest priority, all findings were coded with SDOH for the purpose of determining future intervention strategies.

COMMUNITY ASSESSMENT

What are continued barriers in your community?

Stakeholders primarily consider the lack of available services to be the primary barrier in ruMO. The most frequently discussed barriers relate to transportation (16%), health care providers (16%), service offerings (13%), and insurance coverage (10%). Cost (6%), education (6%), and telehealth connectivity (6%) are also concerns. When cross-analyzing for SDOH, the primary barriers are access to health care (65%) and economic stability (21%). There are not enough providers to meet rural patients' needs and both the transportation & telehealth infrastructure are inadequate to compensate.

What are possible solutions to those barriers?

By far, participants were most interested in solutions which address the lack of access to healthcare (66%). These include efforts to recruit and retain the rural health workforce (16%) and address the lack of transportation services (13%). Efforts to increase telehealth connectivity (8%), scope of service offerings (8%), and availability of adequate insurance coverage (8%) are also priorities. The rural health community perceives that interventions which increase available service lines will be most impactful in addressing current barriers.

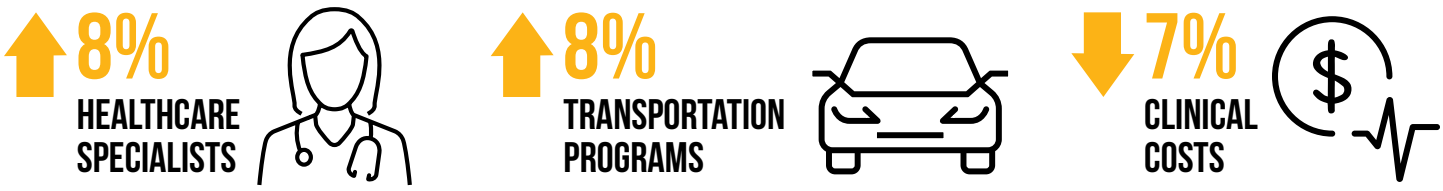
Why have these solutions not been implemented?

These solutions are considered to have not been implemented due to a lack of funding (17%) and a shortage of healthcare providers (16%). State/federal policy (8%), cost of services (7%), insurance coverage (7%), and lack of health education (6%) were also identified as major problem areas. To address these concerns, intervention strategies need to focus on increasing these specific resources in ruMO.

What is currently working to break down barriers in your community?

Working together to overcome barriers and develop creative solutions has been the most successful. Stakeholders have created innovative ways to increase service offerings (17%) and engage in strategic collaborations (14%). Communities have also found success in addressing transportation (8%), recruiting staff (8%), and reducing costs for clinical care (7%). When ruMO comes together to overcome mutual barriers, innovative solutions are created.

Stakeholders working together to develop creative solutions have created innovation ways to:



COMMUNITY ASSESSMENT

What is currently working to break down barriers?

Coded Theme	Response
Strategic Collaboration	"Go to clubs (Elks, Eagles, Lions, etc.) to get support" "Align local farmers with schools and hospitals" "Build relationships with media and influencers" "Community services working together to pool resources" "Partnership between organizations and schools providing prevention access" "Meeting with economic development board"
Continuity of Care	"Started COVID vaccine community coalition" "Coordination of care through one agency"
Cost	"Sliding Scale Clinics" "Promotion of Prevention Services with health dept offering affordable or free services" "Some telehealth available at little or no cost" "Better communication for community projects to seek grant money"
Cultural Competency	"Meet people where they are" "Reduce fear of deportation"
Distance	"Mobile health clinics" "Mobile Mammography unit coming to the community clinics" "Mobile crisis units"
Education	"Wellness education via social media" "[Supporting] EMS with CHWs to provide follow-up and support of care" "Open access models" "ECHO programs" "Health programming at the library"
Funding	"Private foundation funding delivery of healthy foods to senior housing"
Healthcare Providers	"Paramedics giving vaccinations" "Local doctors/dentists offering an exam room for visiting specialists" "Build a coalition of businesses to attract good staff"
Insurance Coverage	"Helping patients enroll in Medicare" "Local public health associations providing more services and accept insurance"
Telehealth and Connectivity	"Providers choosing to incur cost for telehealth to open satellite offices" "Electric co-ops supplying better internet where private internet companies aren't going" "Paying for hotspots and Wi-Fi devices for technology access"
Navigation	"Health Navigators" "Community Health Workers at state level" "Application Assistance"
Organizational Strategies	"Communication of Community Health Needs Assessment and use of data to target expansion of services"
Preventative Care	"More robust marketing of providers on sharing importance of preventative healthcare" "Offer special preventative clinics at health departments free or low-cost" "MU extension preventative programs offering some free services"
Service Offerings	"Mobile pharmacies for vaccinating" "Contract with LabCorp for reduced blood draws and labs" "Expansion of 24/7 crisis lines/services" "Community based services for mental health MAT services"
Transportation	"Gas Cards" "Church groups providing transportation" "Purchase vans so hospital can help with transportation" "Lyft or Uber services where available" "Local foundations paying for rides and investing in the expansion of volunteer driver networks"

INTERPRETATION

With rapidly growing mortality rates, hospital closures, and dwindling resources, ruMO has been placed in a precarious position. However, rural Missouri has shown creativity, innovation, and ingenuity to address ever growing health issues, despite a lack of funds. Improvement in rural health will only be feasible if stakeholders work together to use existing resources and opportunities at their full potential.

Addressing SDOH

The primary reported barriers to healthcare access include inadequate transportation, provider shortages, low service offerings, and a lack of connectivity. Suggested solutions for overcoming these barriers include increasing the number of health care providers, stabilizing the transportation infrastructure, increasing available healthcare services, and expanding the implementation of telehealth solutions. By far, the most frequently reported reasons for not implementing solutions include the lack of adequate funding to support programs and services, and the inability to recruit and retain a rural health workforce. Communities have been mostly successful in finding creative solutions to increase service offerings through strategic collaboration.

Equity

Although communities in ruMO have poorer health in relation to their urban counterparts, there are specific rural populations that experience a compounded level of health inequity. This is especially prevalent in historically marginalized populations including those who meet any or all the following criteria:

- Low income
- Low education levels
- Identify as LGBTQ+
- Identify as a racial/ethnic minority [1, 6, 19]

For example, Pemiscot county in southeastern Missouri has the worst health outcomes in the state. They also have one of the largest low income and Black populations (27%).[1, 6]

INTERPRETATION

Findings

After review and analysis of the insightful feedback received from rural stakeholders, MRHA has observed the following as the most significant needs of ruMO to improve health:

Stabilization of a larger rural healthcare workforce
Expanded scope of practice for advanced practitioners
Growth of transportation services to support long-distance medical transport
Transportation support at low cost to the patient and outside of normal business hours
Increased availability of mobile clinics and crisis units
Expansion of healthcare service programs, particularly in relation to mental health
Wider support for Medicaid recipients
Additional funding to support rural healthcare efforts
The development of cross-discipline coalitions
Support of existing programs
Enhanced outreach activities
Reduced staff isolation and burnout
Development of a shared vision to improve rural health

In addition to the above, the ruMO community also voiced a need for increased attention paid to:

High direct and indirect costs for healthcare, regardless of insurance status
Gaps in accessibility of affordable health insurance coverage
Challenges identifying covered services and approved service locations
Incomplete expansion of Medicaid
Reactive orientation of health care (rather than proactive/preventative)
Poor health literacy
Common confusion related to navigating the complexities of health insurance polices

Although these needs are evident across ruMO, each region has specific needs related to their problem areas. In the regional data section of this paper, more information on the needs and barriers in each community can be found (see Findings by Region). This regional data can be utilized to identify the most suitable locations for the initiation of pilot projects. It is also suggested that future organizational efforts should include a specific needs assessment for each region.

Stakeholders are primarily concerned with the ever-increasing shortage of services. The availability of future resources is precarious due to the increasing instability of the economy. The problems rural stakeholders are continuously challenged with continue to grow. The needs of the rural community are great, and a significant amount of collaborative effort will be required to develop programs which address the full scope of challenges. If existing organizations and advocates in ruMO can become engaged in collaboration and linked with external resources, then sustainable solutions can be developed.

IF EXISTING ORGANIZATIONS AND ADVOCATES IN RUMO CAN BECOME ENGAGED IN COLLABORATION AND LINKED WITH EXTERNAL RESOURCES, THEN SUSTAINABLE SOLUTIONS CAN BE DEVELOPED.

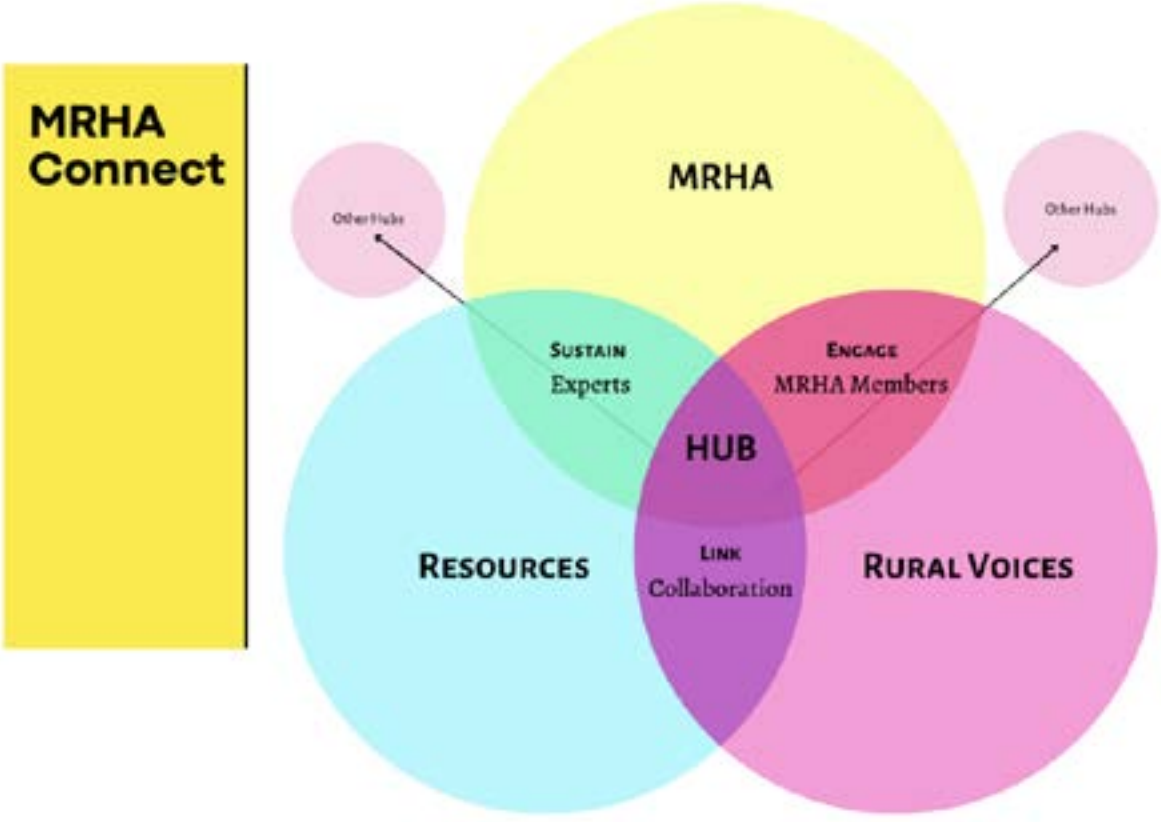
INTERVENTION

The growing healthcare crisis in ruMO is multifaceted and complex. Missouri's rural communities face several challenges when attempting to maintain health equity:

- The availability of direct service providers is severely limited.
- Geographic isolation limits collective advocacy efforts.
- Community members need further education on how to access health programs and maintain healthy lifestyles.
- The cost of healthcare services is high.
- There is a lack of funding to maintain active programs.
- Communities experience inconsistent connectivity and telehealth accessibility.
- The complexity of navigating health insurance

The United States is experiencing a technological revolution that is transforming all aspects of life. The COVID-19 pandemic thrust telehealth and connectivity to the forefront, rapidly accelerating the everyday use of online platforms. With significant resources being allocated to broadband infrastructure, the internet is quickly becoming the most accessible highway between communities. While urban communities are advantaged by organic close-proximity collaborations, online platforms such as MRHA Connect may provide a virtual space that transcends the geographic silos that challenge rural communities.

Utilizing the health networks framework developed by RHIhub, technology can be a foundational tool that unites ruMO to overcome mutual challenges.[20] Utilizing the existing MRHA Connect model, powered by Higher Logic technology, an active online rural health community can be grown. Through strategic participation, MRHA has the potential to link rural stakeholders with resources, encourage meaningful discussions, and develop sustainable tools that address specific concerns in ruMO. These connections have the potential to empower isolated healthcare stakeholders through the building of productive and supportive relationships that result in information sharing. These partnerships can support the development of accessible and inclusive programming across the state.



INTERVENTION

To understand the potential for MRHA to impact the health crises in ruMO, one must first distinguish the associated areas of influence. **Four main connection points have been identified: MRHA, Rural Voices, Resources, and other hubs.** MRHA Connect could function as a tool to capitalize on the overlap between these connectivity points. Within the overlap is where MRHA has the resources to develop tailored communities in strategic collaboration.

Connection Points	
Missouri Rural Health Association	MRHA staff MRHA Board of Directors Volunteers Student Interns
Resources	Academics Vendors Coalitions Subject Matter Experts
Rural Voices	Rural Community Leaders Stakeholders Professionals Rural Citizens
Connection to other Hubs	National Rural Health Association

MRHA CONNECT COULD FUNCTION AS A TOOL TO CAPITALIZE ON THE OVERLAP BETWEEN THESE CONNECTIVITY POINTS. WITHIN THE OVERLAP IS WHERE MRHA HAS THE RESOURCES TO DEVELOP TAILORED COMMUNITIES IN STRATEGIC COLLABORATION.

Engage. Engagement with rural stakeholders should be at the core of MRHA efforts. As the collection of rural voices is critical to the functioning of this tool, it is suggested that these communities be able to engage in collaboration free of charge. Developing a technological platform in which rural stakeholders may engage in an ongoing discussion about their needs, innovations, and challenges is critical. At the center of MRHA Connect is a singular space to discuss issues relevant to all, but this can be further specialized into tailored communities. For example, a specific community could be made for Region A. This becomes the organization's key feedback loop, in which needs are identified, discussed, organized, and then connected to appropriate resources communities.

Sustain. The secondary objective should be the development of sustainable resources through collaboration with experts. MRHA often receives inquiries from groups who are developing tools and resources but lack the ability to reach and tailor resources to the rural community. Many of these groups also have funds available to support the distribution of their resources. Developing resource specific communities with outside collaborators could function both as an effective way to develop culturally competent resources and sustain a revenue stream.

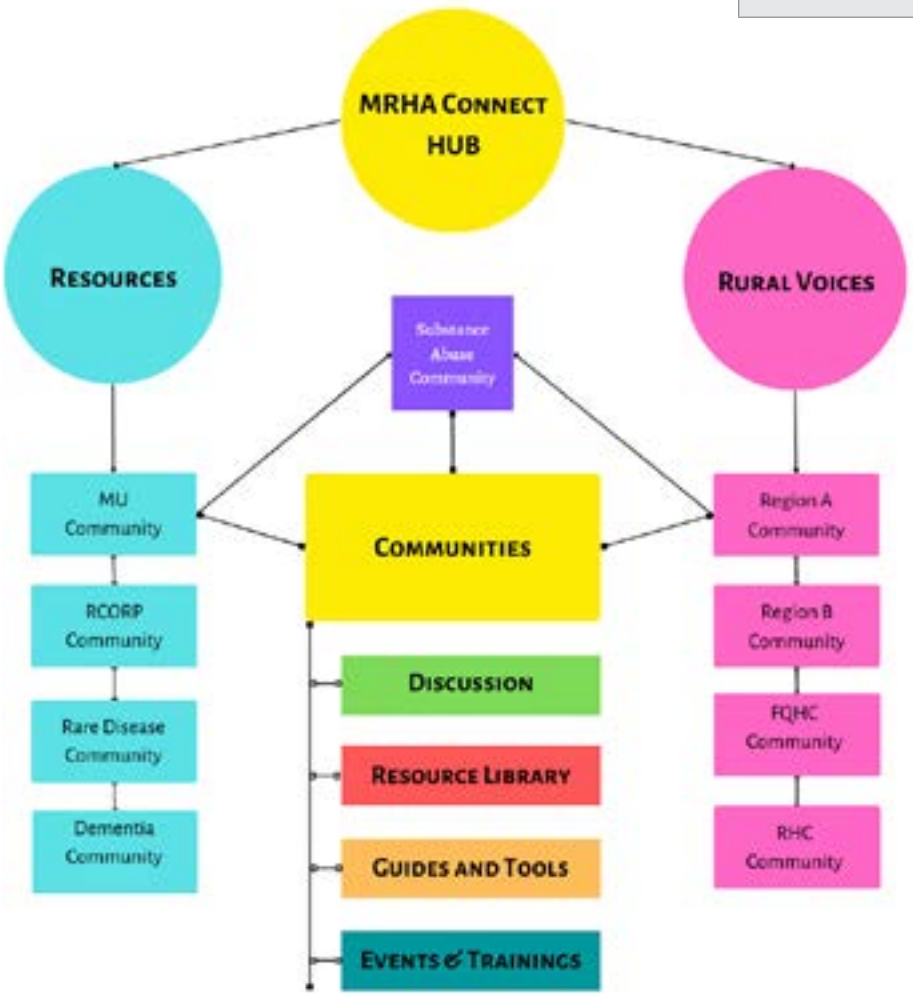
Link. The third goal should be the creation of topic specific communities. There is a plethora of issues that need to be addressed and starting broad will be the most effective. These communities may splinter into more targeted communities later. Community topics may include substance abuse, workforce recruitment, advocacy, dementia care, transportation, etc. These communities become the linkage point between those who develop resources and those who need them. Access to these communities may be limited by one's organizational membership status to make the platform financially self-sufficient.

INTERVENTION

MRHA Connect

MRHA Connect could serve as a connective tool that encourages interdisciplinary collaboration, resource sharing and development, and collective advocacy. To do so, the priority should be to create specific topic communities that engage various stakeholders interested in that health area. Each community, despite their focus, would have access to the same set of functional tools. For example, the "Region A" or "Substance Abuse Community" would each have their own individual feeds with discussion boards, resource libraries, guides and event/training announcements tailored to their specific community.

Community Features	
Discussions	Discussion threads allow for asynchronous communication between participants of a community on a variety of topics.
Resource Library	Each library can host documents, videos, tools, and electronic resources developed for a specific community.
Guides and Tools	Guides, or "blogs," allow the creation of lasting resources for troubleshooting issues. They also allow for their own discussion.
Events and Trainings	The event management tool easily organizes, shares, stores, and collects payment for any webinar, conference, or events a community may hold.



MRHA CONNECT COULD SERVE AS A CONNECTIVE TOOL THAT ENCOURAGES INTERDISCIPLINARY COLLABORATION, RESOURCE SHARING AND DEVELOPMENT, AND COLLECTIVE ADVOCACY.

INTERVENTION

Case Study

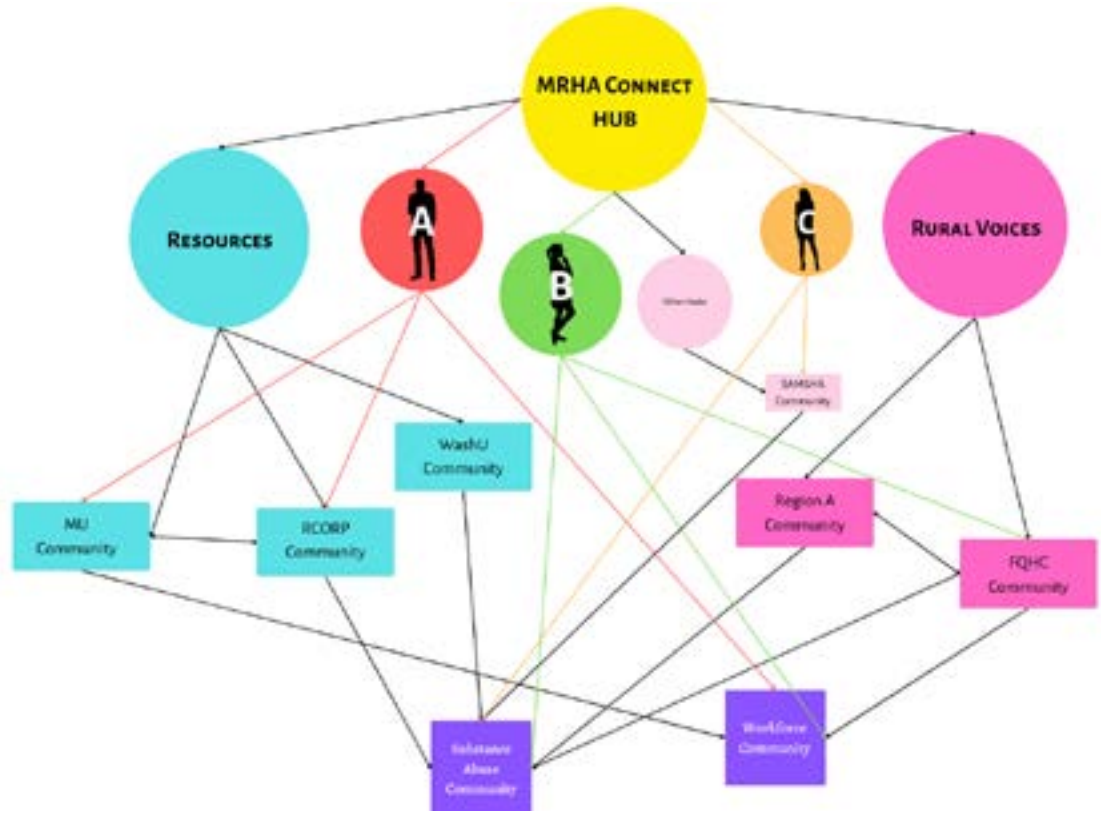
Below is a flow-chart on how three individuals might come to engage in various MRHA Connect communities. In this example, there are three different MRHA Connect participants.

- **Person A:** Tim is an academic who works with the University of Missouri (MU) and is involved with the Rural Communities Opioid Response Program (RCORP) grant.
- **Person B:** Sally is an admin at a Federally Qualified Health Center (FQHC) in Region B.
- **Person C:** Jill works with the Substance Abuse and Mental Health Services Administration (SAMHSA) and develops substance use disorder (SUD)resources.

Tim(A) would have access to the MRHA Connect participant feed that contains resources, information, event invitations, and requests that are relevant to everyone interested in MRHA and ruMO. Tim (A) would also be a part of the MU and RCORP communities which coordinate specific rural efforts for those groups. Tim may also be in the workforce community, as he is interested in helping students gain employment post-graduation.

Sally (B) would have access to the MRHA Connect participant feed, but she also engages in the community specifically for those working with Missouri FQHCs. She is not a participant in the Region A community, as she works in Region B. Sally (B) is interested in both solving the workforce problem and SUD. Therefore, she is a participant in both communities.

Jill (C) has an interest in developing and sharing new SUD resources as a part of her position with SAMSHA. Jill (C) is a participant in a community that connects individuals from other hubs and a participant of the SUD community. This would effectively reduce the distance between Jill (C) and rural stakeholders, as she would be able to disseminate resources and gain timely feedback on additional resources that could be developed to support the rural community.



CONCLUSION

Link, Engage, Sustain

Through the utilization of existing resources, MRHA has the potential to function as the central connectivity point for stakeholders in ruMO. Establishing MRHA Connect as an intuitive collaborative platform can create rural networks well equipped to address the needs of specific communities, examine topics of concern, and link communities to resources across rural Missouri. By establishing these virtual networks, MRHA staff can engage members and stakeholders in strategic collaboration, advocacy efforts, and sustainable resource development.

The growing health crisis in ruMO is evidenced by exponentially growing death rates, severe disparities in health equity, and major systemic consequences for all of Missouri. Stakeholders are primarily concerned by the lack of access to health services, high healthcare costs, inadequate insurance coverage, poor health literacy, lack of transportation, and unstable healthcare staffing. Along with the intensifying mental health and opioid crises, insufficient funding to support health programs, and persistent health inequities, ruMO faces a rapidly shrinking resource pool.

Utilizing the strengths of the community, these challenges are not insurmountable. Stakeholders have already found strategic collaborations to be the most effective way to increase access to resources for healthcare consumers and organizations alike. In the face of great adversity, ruMO has shown innovation and ingenuity by developing mobile services, collaborating with other partner organizations, and providing discounted care for those most in need. With the bolstering of additional educational programs, broader transportation services, a well-developed telehealth infrastructure, and increased service offerings, ruMO could drastically improve health outcomes.

Without the promise of additional funding streams and tools to address the daunting barriers found in ruMO, empowering solutions are necessary. By engaging the dedicated rural workforce with strategic partners and subject matter experts, MRHA can serve as a central hub that links communities with one another. MRHA Connect has the potential to serve as the foundation for state-wide collaborations that develop sustainable resources and programs that meet the complex needs of ruMO. **Through collaboration, relationship building, and mutual advocacy, rural Missouri can overcome and thrive.**

What are Continued Barriers?

SDOH	N	%	Theme	N (Total = 417)	%
Education	26	6%	Education	26	6%
Economic Stability	88	21%	Hospital Reimbursement	16	4%
			Cost	27	6%
			Insurance Coverage	40	10%
			Income	5	1%
Environment	9	2%	Housing	6	1%
			Nutrition	1	<1%
			Environment	2	<1%
Community	24	6%	Priority of Healthcare	6	1%
			Trust	7	2%
			Stigma	5	1%
			Cultural Competency	3	1%
			Overall Wellness	3	1%
			Strategic Collaboration	0	0%
Access to Healthcare	270	65%	Distance	16	4%
			Transportation	67	16%
			Healthcare Access	21	5%
			Service Offerings	53	13%
			Healthcare Providers	66	16%
			Telehealth and Connectivity	23	6%
			Preventative Care	6	1%
			Continuity of Care	5	1%
			Navigation Services	4	1%
			Policy	1	<1%
			Organizational Strategies	0	0%
			Funding	8	2%
			Other	0	0%

What are Possible Solutions?

SDOH	N	%	Theme	N (Total = 417)	%
Education	20	6%	Education	20	6%
Economic Stability	52	17%	Hospital Reimbursement	10	3%
			Cost	14	5%
			Insurance Coverage	26	8%
			Income	2	1%
Environment	7	2%	Housing	4	1%
			Nutrition	3	1%
			Environment	0	0%
Community	25	8%	Priority of Healthcare	3	1%
			Trust	6	2%
			Stigma	1	<1%
			Cultural Competency	2	1%
			Overall Wellness	2	1%
			Strategic Collaboration	11	4%
Access to Healthcare	203	66%	Distance	9	3%
			Transportation	**39**	**13%**
			Healthcare Access	3	1%
			Service Offerings	26	8%
			Healthcare Providers	**48**	**16%**
			Telehealth and Connectivity	24	8%
			Preventative Care	3	1%
			Continuity of Care	4	1%
			Navigation Services	12	4%
			Policy	13	4%
			Organizational Strategies	7	2%
			Funding	15	5%
			Other	2	1%

Why Have These Solutions Not Been Implemented?

SDOH	N	%	Theme	N (Total = 417)	%
Education	14	6%	Education	14	6%
Economic Stability	50	22%	Hospital Reimbursement	9	4%
			Cost	17	7%
			Insurance Coverage	17	7%
			Income	7	3%
Environment	1	<1%	Housing	0	0%
			Nutrition	0	0%
			Environment	1	<1%
Community	31	13%	Priority of Healthcare	12	5%
			Trust	7	3%
			Stigma	0	0%
			Cultural Competency	2	1%
			Overall Wellness	1	<1%
			Strategic Collaboration	9	4%
Access to Healthcare	135	58%	Distance	0	0%
			Transportation	11	5%
			Healthcare Access	2	1%
			Service Offerings	3	1%
			Healthcare Providers	**38**	**16%**
			Telehealth and Connectivity	9	4%
			Preventative Care	0	0%
			Continuity of Care	3	1%
			Navigation Services	0	0%
			Policy	19	8%
			Organizational Strategies	10	4%
			Funding	40	17%
			Other	1	<1%

What is Currently Working to Address Barriers?

SDOH	N	%	Theme	N (Total = 417)	%
Education	10	5%	Education	10	5%
Economic Stability	22	11%	Hospital Reimbursement	1	1%
			Cost	13	7%
			Insurance Coverage	8	4%
			Income	0	0%
Environment	3	2%	Housing	0	0%
			Nutrition	2	1%
			Environment	1	1%
Community	33	17%	Priority of Healthcare	1	1%
			Trust	3	2%
			Stigma	0	0%
			Cultural Competency	2	1%
			Overall Wellness	0	0%
			Strategic Collaboration	**27**	**14%**
Access to Healthcare	121	63%	Distance	11	6%
			Transportation	16	8%
			Healthcare Access	1	1%
			Service Offerings	**33**	**17%**
			Healthcare Providers	16	8%
			Telehealth and Connectivity	10	5%
			Preventative Care	7	4%
			Continuity of Care	4	2%
			Navigation Services	10	5%
			Policy	4	2%
			Organizational Strategies	5	3%
			Funding	4	2%
			Other	4	2%

FINDINGS BY REGION

REGION A

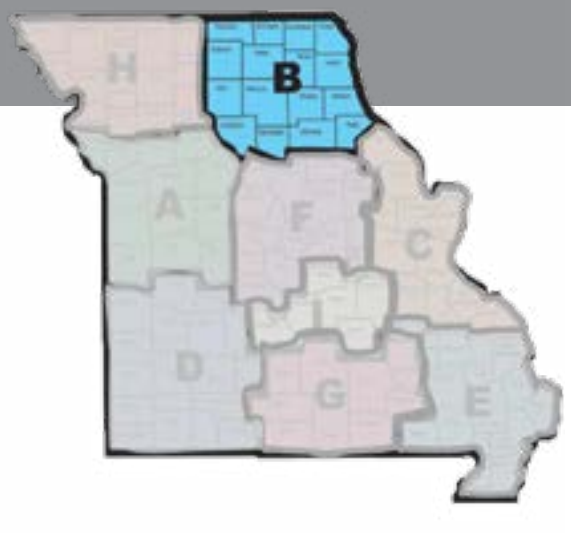
Counties:

Platte
Clay
Jackson
Cass
Bates
Ray
Carroll
Lafayette
Johnson
Henry
Saline
Pettis
Benton

Question 1:	Theme	N (Total = 38)	%
What are continued barriers in your community?	Transportation	5	13%
	Trust	5	13%
	Healthcare Providers	7	18%
Question 2:	**Theme**	**N (Total = 20)**	**%**
What are possible solutions to those barriers?	Transportation	4	20%
	Service Offerings	5	25%
	Healthcare Providers	5	25%
Question 3:	**Theme**	**N (Total = 10)**	**%**
Why have these solutions not been implemented?	Hospital Reimbursement	2	20%
	Healthcare Providers	3	30%
	Funding	4	40%
Question 4:	**Theme**	**N (Total = 13)**	**%**
What is currently working to break down barriers in your community?	Transportation	2	15%
	Service Offerings	2	15%
	Policy	2	15%
	Other	2	15%

Stakeholders in western Missouri communicated that lack of transportation support, trust, and stable healthcare provider availability were primary barriers to health, with a significant need for more competitive workforce salaries and additional mental health providers. The region has struggled to sustain a competitive recruitment plan primarily due to a lack of funding to support hiring efforts. Successful efforts to overcome these challenges include meeting with the economic development board, collaborating with community organizations and legislators, and performing additional outreach to expand services and share information.

FINDINGS BY REGION



REGION B

Counties:

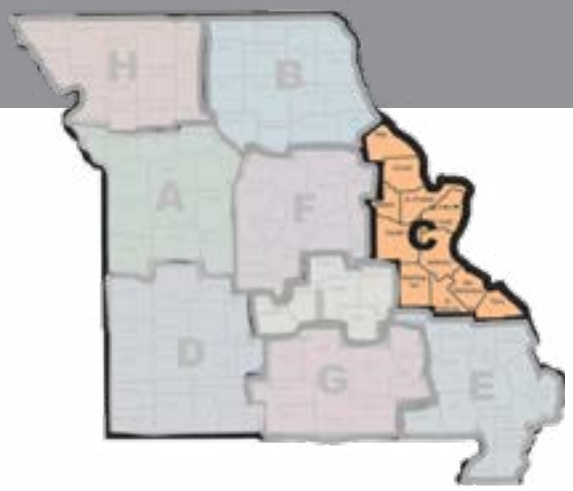
Linn	Monroe	Sullivan
Macon	Ralls	Adair
Shelby	Putnam	Knox
Marion	Shuyler	Lewis
Chariton	Scotland	
Randolph	Clark	

Question 1:	Theme	N (Total = 66)	%
What are continued barriers in your community?	Transportation	13	20%
	Healthcare Providers	12	18%
	Internet/Technology Challenges	10	15%
Question 2:	**Theme**	**N (Total = 20)**	**%**
What are possible solutions to those barriers?	Transportation	4	20%
	Healthcare Providers	6	30%
	Telehealth and Connectivity	3	15%
Question 3:	**Theme**	**N (Total = 31)**	**%**
Why have these solutions not been implemented?	Education	4	13%
	Healthcare Providers	11	35%
	Funding	4	13%
Question 4:	**Theme**	**N (Total = 17)**	**%**
What is currently working to break down barriers in your community?	Transportation	4	24%
	Service Offerings	2	12%
	Healthcare Providers	2	12%
	Navigation Services	2	12%
	Strategic Collaboration	3	18%

Stakeholders in northeastern Missouri reported a lack of transportation support, inadequate broadband coverage and telehealth infrastructure, and HCP shortages. Proposed solutions included the placement of community health workers within hospital emergency services, increased pay for physicians, and use of public spaces to attend telehealth visits. Inadequate recruitment and retention of HCPs is a continuing challenge. Accessibility challenges have been overcome by coordinating volunteer transportation services and collaborating with other larger organizations, foundations, and faith groups.

FINDINGS BY REGION

REGION C



Counties:

Pike
Lincoln
Warren
St. Charles
St. Louis
Franklin
Jefferson
Washington
St. Francois
St. Genevieve
Perry

Question 1:	Theme	N (Total = 35)	%
What are continued barriers in your community?	Transportation	8	23%
	Service Offerings	4	11%
	Healthcare Providers	7	20%
Question 2:	**Theme**	**N (Total = 25)**	**%**
What are possible solutions to those barriers?	Transportation	7	28%
	Telehealth and Connectivity	3	12%
	Funding	3	12%
Question 3:	**Theme**	**N (Total = 16)**	**%**
Why have these solutions not been implemented?	Cost	3	19%
	Insurance Coverage	2	13%
	Healthcare Providers	3	19%
	Funding	2	13%
Question 4:	**Theme**	**N (Total = 14)**	**%**
What is currently working to break down barriers in your community?	Transportation	3	21%
	Education	2	14%
	Service Offerings	2	14%

Stakeholders in east-central Missouri voiced limited transportation options, insufficient service offerings, and ineffective recruitment and retention strategies to hire and maintain a well-developed healthcare workforce. Proposed solutions include additional funding to expand transportation support services, integrated electronic medical records to improve continuity of care during telehealth visits, and increased funding for HCP salaries.

Consistent barriers to improvement include the high cost of insurance coverage, economic inflation, unstable healthcare staffing and lack of funding for "interactivity" or collaboration. The region has found crisis stabilization centers, open access models, and rideshare transportation services as effective avenues to overcome these challenges.

FINDINGS BY REGION

REGION D

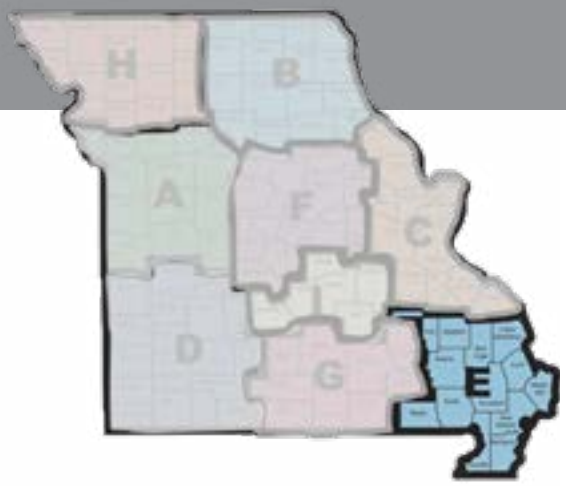
Counties:

St. Clair	Dallas	McDonald
Hickory	Jasper	Barry
Barton	Vernon	Stone
Dade	Greene	Taney
Cedar	Webster	Christian
Polk	Newton	Lawrence

Question 1:	Theme	N (Total = 33)	%
What are continued barriers in your community?	Cost	4	12%
	Transportation	5	15%
	Service Offerings	6	18%
	Healthcare Providers	4	12%
Question 2:	**Theme**	**N (Total = 67)**	**%**
What are possible solutions to those barriers?	Education	6	9%
	Healthcare Providers	8	12%
	Telehealth and Connectivity	7	10%
Question 3:	**Theme**	**N (Total = 46)**	**%**
Why have these solutions not been implemented?	Priority of Healthcare	5	11%
	Cost	5	11%
	Healthcare Providers	9	20%
	Funding	10	22%
Question 4:	**Theme**	**N (Total = 41)**	**%**
What is currently working to break down barriers in your community?	Education	4	10%
	Service Offerings	7	17%
	Healthcare Providers	4	10%
	Navigation Services	4	10%
	Strategic Collaboration	6	15%

Stakeholders in southwest Missouri voiced concerns about the limitation of healthcare services, lack of reliable transportation assistance, staffing shortages and high out-of-pocket costs. Proposed solutions include increased health education in the community, additional training for HCPs, higher salary and benefits packages for HCPs, and an expanded broadband infrastructure. Barriers are primarily related to workforce recruitment challenges and the prioritization of funding towards non-health related programs. Opportunities for improvement lie in offering mobile clinics/assessments, collaborating with community partners, ECHO programs, and community health worker employment to provide individualized patient support.

FINDINGS BY REGION



REGION E

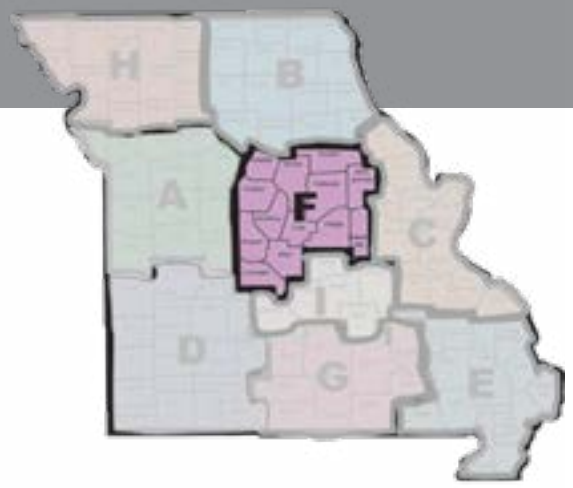
Counties:

Iron
Madison
Bollinger
Cape Girardeau
Wayne
Stoddard
Scott
Ripley
Butler
Mississippi
New Madrid
Dunklin
Pemiscot

Question 1:	Theme	N (Total = 33)	%
What are continued barriers in your community?	Hospital Reimbursement	4	12%
	Insurance Coverage	4	12%
	Education	8	24%
	Continuity of Care	4	12%
Question 2:	**Theme**	**N (Total = 25)**	**%**
What are possible solutions to those barriers?	Transportation	5	20%
	Insurance Coverage	4	16%
	Telehealth and Connectivity	3	12%
	Strategic Collaboration	3	12%
Question 3:	**Theme**	**N (Total = 28)**	**%**
Why have these solutions not been implemented?	Insurance Coverage	4	14%
	Policy	5	18%
	Organizational Strategies	5	18%
Question 4:	**Theme**	**N (Total = 15)**	**%**
What is currently working to break down barriers in your community?	Insurance Coverage	2	13%
	Strategic Collaboration	6	40%

The southeastern region identified challenges related to misinformation, lack of health insurance literacy, slow Medicaid expansion, and fractured systems of care. Proposed solutions include growth of transportation services, simplification of insurance coverage options, broadband expansion, and the creation of formal collaborations among HCPs. Barriers to these solutions are related to a lack of adequate healthcare policy, insurance policies that discourage use of coverage, and organizational systems oriented to profit rather than health. Overcoming these barriers can take place by building regional and county coalitions, breaking down information and resource silos, and integrating service providers.

FINDINGS BY REGION



REGION F

Counties:

Howard
Boone
Audrain
Callaway
Montgomery
Cooper
Moniteau
Morgan
Cole
Osage
Gasconade
Miller
Camden

Question 1:	Theme	N (Total = 21)	%
What are continued barriers in your community?	Transportation	5	24%
	Education	3	14%
	Service Offerings	5	24%
Question 2:	**Theme**	**N (Total = 20)**	**%**
What are possible solutions to those barriers?	Transportation	4	20%
	Insurance Coverage	4	20%
	Healthcare Providers	3	15%
Question 3:	**Theme**	**N (Total = 9)**	**%**
Why have these solutions not been implemented?	Policy	2	22%
	Funding	3	33%
Question 4:	**Theme**	**N (Total = 20)**	**%**
What is currently working to break down barriers in your community?	Cost	3	15%
	Insurance Coverage	3	15%
	Service Offerings	3	15%

Central Missouri voiced concerns about the lack of available medical transportation, poor health insurance literacy, and limited availability of mental health and primary care practitioners. Proposed solutions include purchasing transportation vehicles for individual clinics, insurance navigation support, and additional HCP recruitment incentives such as increased student loan repayment. Restrictive social and health policies along with inadequate funding make overcoming these barriers difficult. However, these barriers have been broken down through sliding scale clinics, expanded maternal-infant health programs, program specific grant funding and additional healthcare providers accepting Medicaid.

FINDINGS BY REGION

REGION G

Counties:

Wright	Reynolds	Howell
Texas	Douglas	Oregon
Shannon	Ozark	Carter

Question 1:	Theme	N (Total = 56)	%
What are continued barriers in your community?	Transportation	6	11%
	Education	6	11%
	Service Offerings	8	14%
	Healthcare Providers	10	18%
Question 2:	**Theme**	**N (Total = 26)**	**%**
What are possible solutions to those barriers?	Hospital Reimbursement	3	12%
	Education	4	15%
Question 3:	**Theme**	**N (Total = 28)**	**%**
Why have these solutions not been implemented?	Trust	3	11%
	Healthcare Providers	4	14%
	Policy	3	11%
	Funding	3	11%
Question 4:	**Theme**	**N (Total = 18)**	**%**
What is currently working to break down barriers in your community?	Distance	3	17%
	Service Offerings	3	17%
	Strategic Collaboration	5	28%

Southcentral Missouri has been challenged by the lack of transportation support, health and insurance literacy, general staffing shortages, and the limited availability of dental, mental health and specialist practitioners. Proposed solutions include allowing reimbursement for RNs to provide billable services, performing outreach to educate the community on political advocacy related to health policy, and utilizing additional HRSA funding towards public education. Continuing challenges include the general lack of funding, diminished sense of trust due to political tension, legislative resistance to supporting programs for low-income families, and a sense of hopelessness among providers. Current solutions have included mobile mammography units, opening of small community clinics, and increased partnerships to create coalitions and share limited resources.

FINDINGS BY REGION

REGION H

Counties:

Atchison	Worth	Davies
Holt	Gentry	Caldwell
Nodaway	DeKalb	Mercer
Andrew	Clinton	Grundy
Buchanan	Harrison	Livingston

Question 1:	Theme	N (Total = 80)	%
What are continued barriers in your community?	Transportation	13	16%
	Insurance Coverage	13	16%
	Healthcare Providers	15	19%
Question 2:	**Theme**	**N (Total = 53)**	**%**
What are possible solutions to those barriers?	Cost	7	13%
	Service Offerings	6	11%
	Healthcare Providers	11	21%
Question 3:	**Theme**	**N (Total = 38)**	**%**
Why have these solutions not been implemented?	Priority of Healthcare	4	11%
	Cost	4	11%
	Insurance Coverage	4	11%
	Funding	8	21%
Question 4:	**Theme**	**N (Total = 22)**	**%**
What is currently working to break down barriers in your community?	Cost	4	18%
	Service Offerings	4	18%
	Preventative Care	4	18%

Northwestern Missouri is challenged by severely limited transportation support, high cost of insurance coverage, and difficulty attracting a healthcare workforce. Proposed solutions include decreasing fees for services, supporting drug share cost programs, extending clinic hours into the evening, creating school-based prevention programs, and supporting more competitive workforce recruitment. The most significant barrier is the need for increased funding, followed by challenges related to local government not prioritizing healthcare and complex insurance regulations. The most successful initiative to overcome these challenges has been the offering of low-cost or free preventative services within public health organizations.

FINDINGS BY REGION

REGION I

Counties:

Laclede	Phelps
Pulaski	Dent
Maries	Crawford

Question 1:	Theme	N (Total = 55)	%
What are continued barriers in your community?	Transportation	9	16%
	Service Offerings	14	25%
	Healthcare Providers	8	15%
Question 2:	**Theme**	**N (Total = 53)**	**%**
What are possible solutions to those barriers?	Insurance Coverage	5	9%
	Education	5	9%
	Healthcare Providers	10	19%
Question 3:	**Theme**	**N (Total = 26)**	**%**
Why have these solutions not been implemented?	Insurance Coverage	4	15%
	Healthcare Providers	3	12%
	Strategic Collaboration	3	12%
	Funding	5	19%
Question 4:	**Theme**	**N (Total = 33)**	**%**
What is currently working to break down barriers in your community?	Distance	4	12%
	Service Offerings	10	30%
	Healthcare Providers	4	12%
	Telehealth and Connectivity	6	18%

This southcentral region has voiced concerns about the lack of affordable and reliable transportation services, staffing shortages, low pay for providers, and the severe lack of mental health services leading to long appointment waitlists. Proposed solutions include creating incentives to attract providers to the area, increasing student loan forgiveness for HCPs, increasing utilization of Medicaid for newly eligible enrollees, and providing additional education in the community about existing resources. Barriers include the overall lack of funding, lack of affordable insurance coverage, shortage of provider applicants, and competition among healthcare organizations leading to resource silos. Current solutions include mobile clinics and crisis units, increased telehealth usage and additional educational programs for current healthcare employees.

APPENDIX A

Over 1.5 million people in Missouri live in rural areas. Although there is less diversity in rural areas compared to urban areas, the ruMO population still includes a wide variety of racial and ethnic backgrounds, identities, abilities, socioeconomic classes, and educational backgrounds. Table 1 displays the demographics of the ruMO population. Not all regions in ruMO have similar demographics, and some regions have larger representation of certain subpopulations than others. Accounting for the demographic representation among different regions in comparison to health outcomes is a necessary approach to identifying which populations in ruMO have the greatest need for advocacy and support.

Table 1 ruMO Demographics [6, 19, 21, 22]

Characteristic	N	%
Rural residents	1,514,327	24.5% of MO
Counties	99	86% of MO
Race		
White	1,405,304	92.8%
Black	49,733	3.2%
American Indian or Alaska Native	8,390	0.6%
Asian	12,353	0.8%
Hawaiian/Pacific Islander	1,958	0.1%
Multiple or Other	57,394	3.8%
Ethnicity		
Hispanic/Latinx	54,516	3.6%
Not Hispanic/Latinx	1,459,811	96.4%
Age		
Younger than 18	390,696	25.8%
Age 19 - 64	914,653	60.4%
65 and over	208,977	13.8%
Sexual Orientation*		
Heterosexual	1,456,783	96.2%
LGBTQ+	57,544	3.8%

Characteristic	N	%
Disability Status*		
1+ disabilities	219,577	14.5%
0 disabilities	1,294,750	85.5%
Education		
Without high school diploma	207,462	13.7%
High school diploma	595,130	39.3%
Some college	324,065	21.4%
Associate degree	121,146	8.0%
College degree	169,604	11.2%
Graduate degree	96,917	6.4%
Income Level		
Living in poverty	242,292	16.0%
Not living in poverty	1,272,035	84.0%
Insurance Coverage		
Covered by medical insurance	1,287,177	85%
Not covered by medical insurance	227,149	15%
*Estimated from state distributions		

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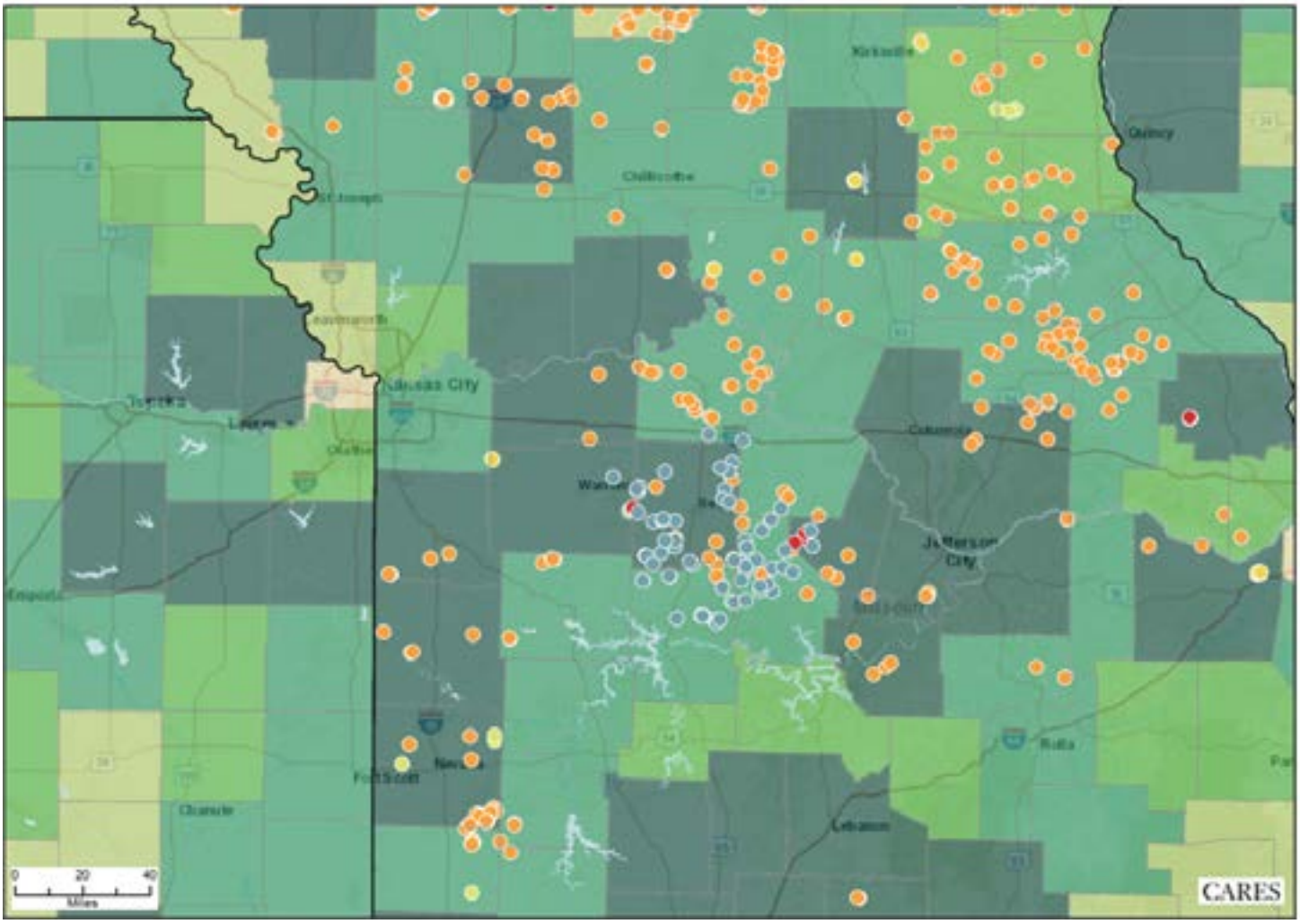
APPENDIX B

Farms and Animals



Map Legend

Number of Farms by County, Census of Agriculture 2017

- Over 1,000
- 650 - 1,000
- 500 - 649
- 250 - 499
- Under 250
- No Farms or Data Suppressed

NPDES Missouri Animal Feeding Operations - Animal Unit, Type, MODNR 2019

- BEEF
- BROILERS
- DAIRY
- GOAT/HORSE
- LAYERS
- PULLETS
- SWINE
- TURKEYS

https://allthingsmissouri.org/missouri-map-room/, 10/26/2022

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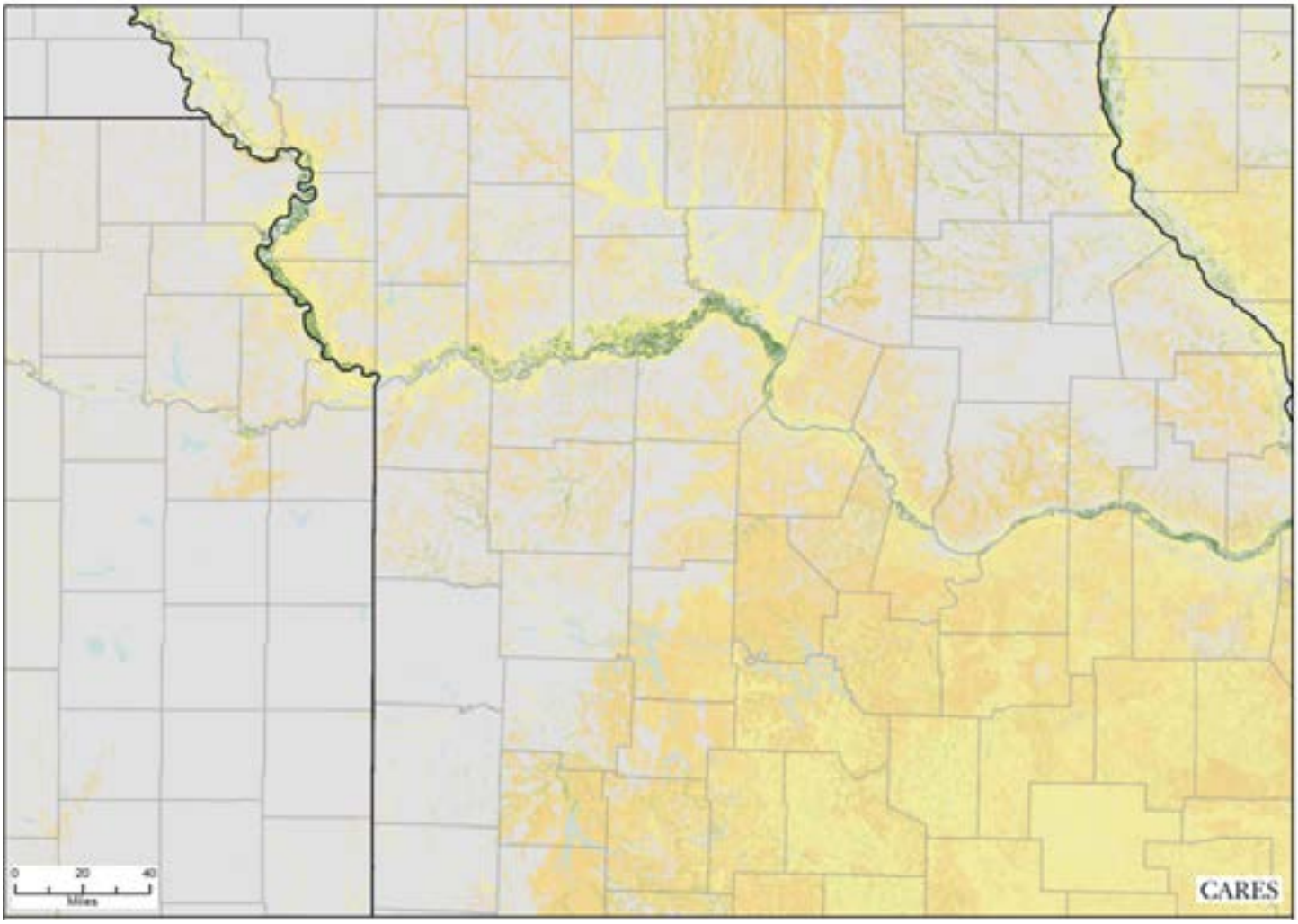
APPENDIX C

Forest Productivity



Map Legend

Forest Productivity by Soil Map Unit, NRCS 2021

- Over 150 cubic ft./acre/year
- 101 - 150 cubic ft./acre/year
- 51 - 100 cubic ft./acre/year
- 26 - 50 cubic ft./acre/year
- 1 - 25 cubic ft./acre/year
- Not Rated

https://allthingsmissouri.org/missouri-map-room/, 10/26/2022

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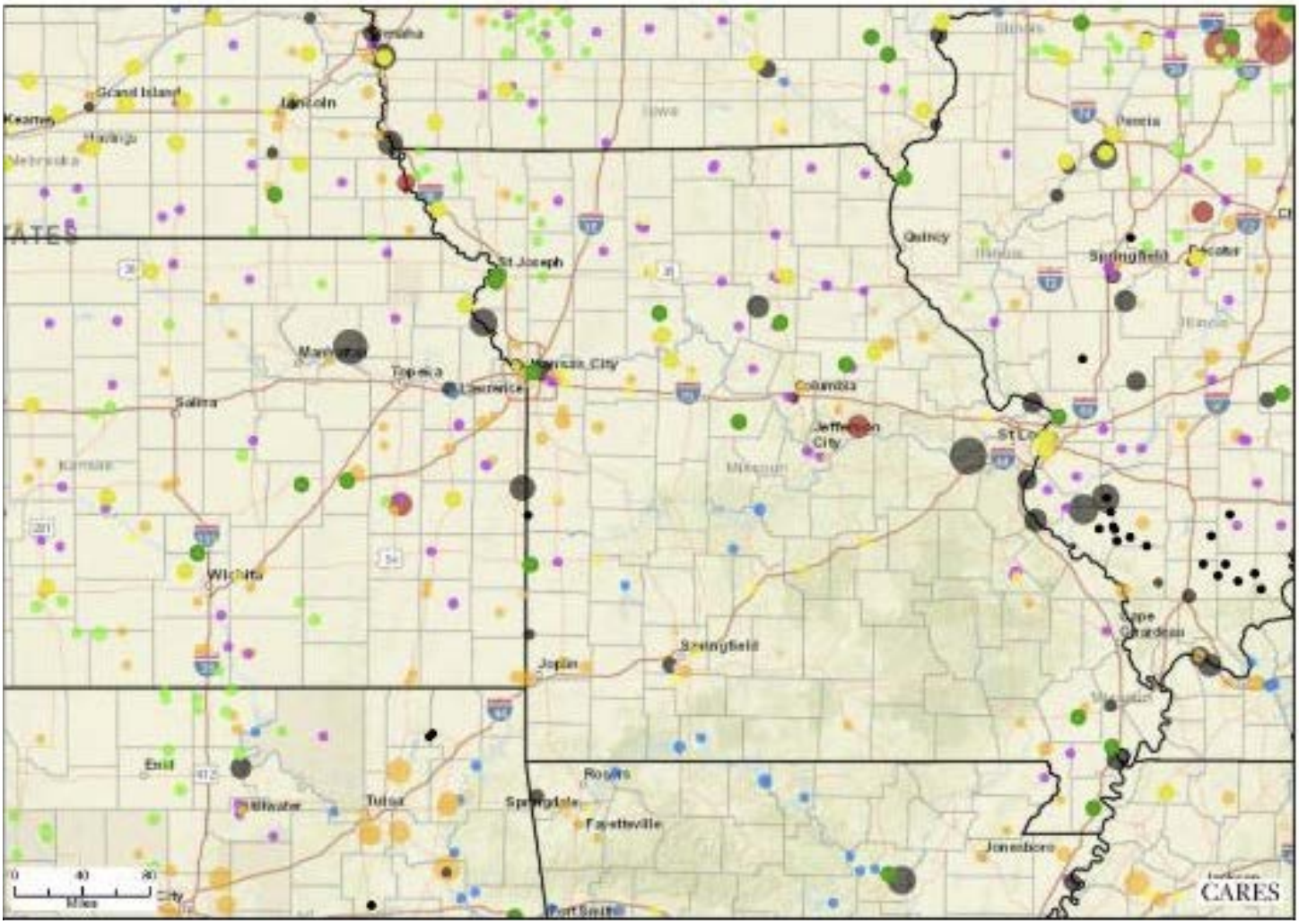
APPENDIX D

Rural Energy



Map Legend

Power Plants, Location and Total Output (MWI, EIA 2019)

- Coal
- Hydroelectric
- Natural gas
- Nuclear
- Petroleum
- Solar
- Wind
- Other

- 50
- 1,700
- 3,350
- 5,000

- Uranium Deposits. Location. DHS 2018
- Biodiesel Plants. Location. DHS 2018
- Ethanol Plants. Location. DHS 2018
- Coal Mines. Location. EIA 2017

https://allthingsmissouri.org/missouri-map-room/, 10/26/2022

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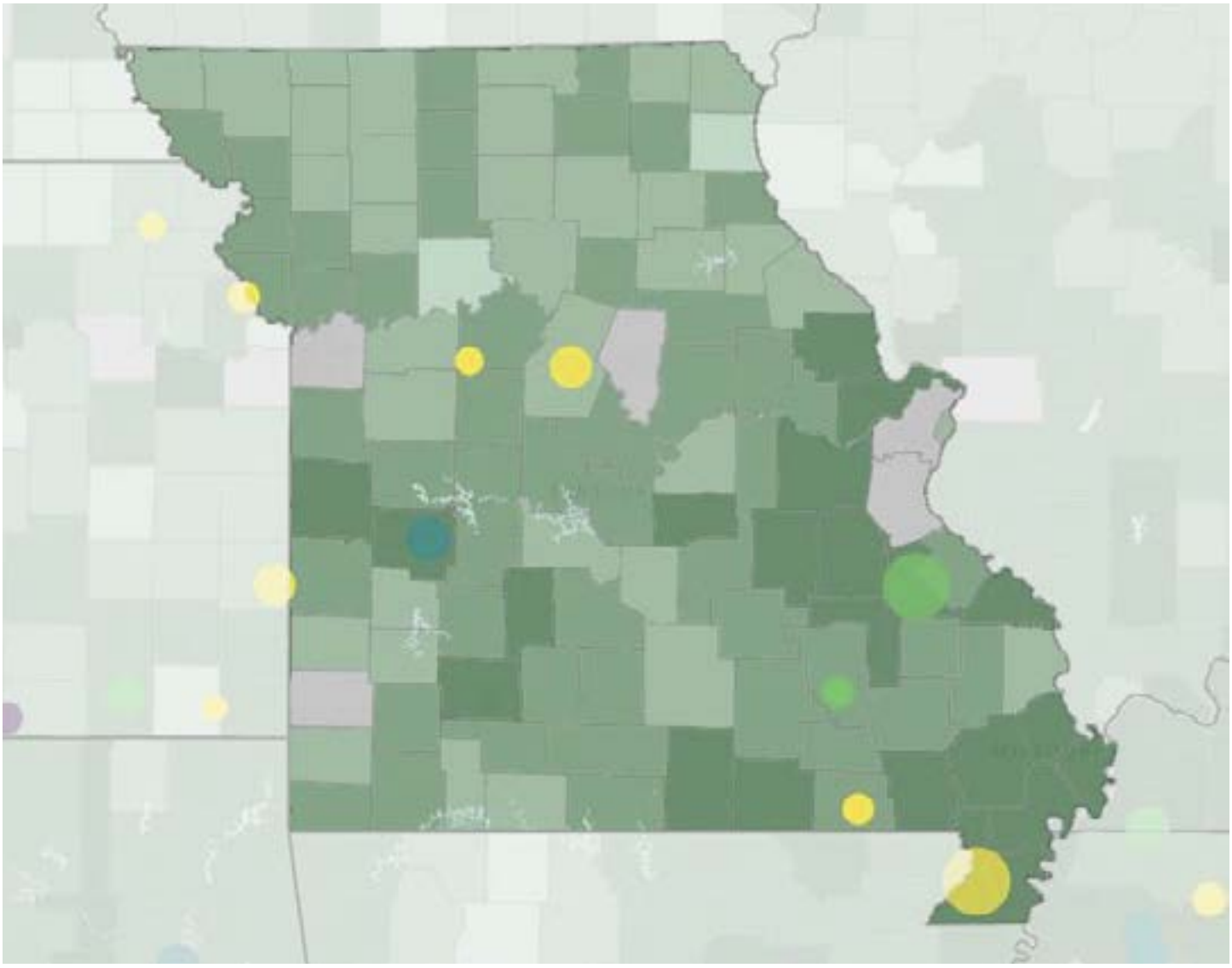
APPENDIX E

ruMO Hospital Closures and Prevalence of Mental Health/Substance Use Disorders



Map Legend

Rural Hospital Closures, UNC 2005-2020
- 2005 - 2008
- 2009 - 2011
- 2012 - 2014
- 2015 - 2017
- 2018 - 2020

Mental Health and Substance Use, Medicare Beneficiaries, Percent of Medicare Beneficiaries by County, CMS 2020
- Over 36%
- 33 - 36%
- 30 - 32%
- Under 30%
- No Data or Date Suppressed

https://allthingsmissouri.org/missouri-map-room/, 11/8/2022

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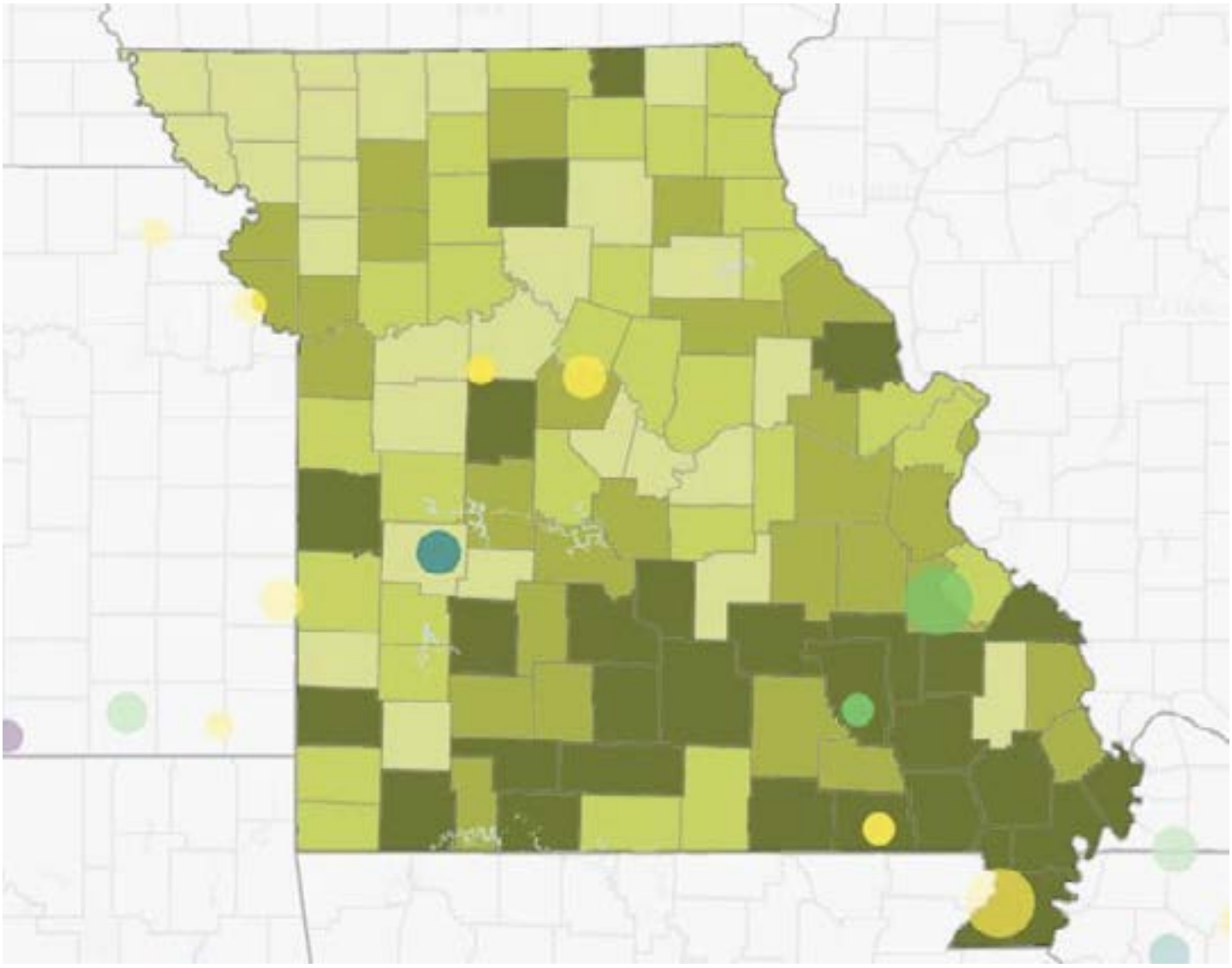
APPENDIX F

ruMO Hospital Closures and Lack of Needed Medical Care



Map Legend

Did Not Get Needed Medical Care in Last 12 Months, Percent by County, Missouri CLS 2016

- 21.94 - 33.79
- 18.66 - 21.93
- 16.40 - 18.65
- 7.39 - 16.39

Rural Hospital Closures, UNC 2005-2020

- 2005 - 2008
- 2009 - 2011
- 2012 - 2014
- 2015 - 2017
- 2018 - 2020

https://allthingsmissouri.org/missouri-map-room/, 11/8/2022

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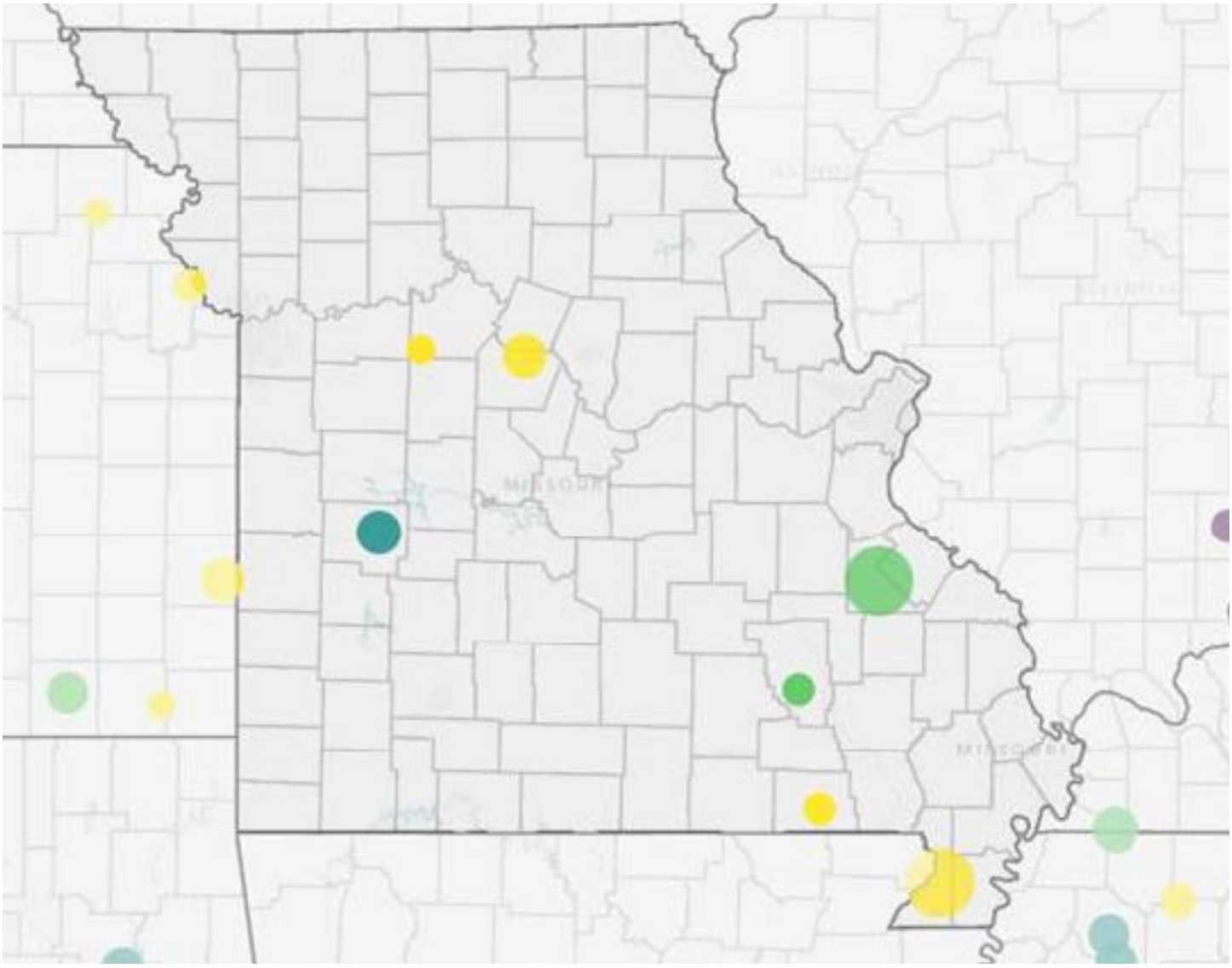
APPENDIX G

Missouri Rural Hospital Closures



Map Legend

Rural Hospital Closures, UNC 2005-2020

- 2005 - 2008
- 2009 - 2011
- 2012 - 2014
- 2015 - 2017
- 2018 - 2020

https://allthingsmissouri.org/missouri-map-room/, 11/10/2022

Return

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