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Spring 2022

The Public Health Response to COVID-19 in the Northeast Region of Missouri

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Trott, Jennifer MPH; Mead, K. Holly PhD; Markus, Anne PhD, JD; Acosta, Alexis MSc; Baños, Jacqueline MPH; Conway, Ciara; Benoit, Marie-Anais; and Regenstein, Marsha PhD, "The Public Health Response to COVID-19 in the Northeast Region of Missouri" (2022). *Reports on Missouri's Public Health Response to COVID-19*. Paper 2.

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Regional Case Study Series:

The Public Health Response to COVID-19 in the Northeast Region of Missouri

Spring 2022

Milken Institute School
of Public Health

THE GEORGE WASHINGTON UNIVERSITY



Missouri Foundation
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ACKNOWLEDGMENTS

The George Washington University Milken Institute School of Public Health study team thanks Missouri Foundation for Health for their vision and commitment to a stronger public health system for Missouri. We would like to acknowledge their support and partnership, which enabled the development of this report. We are immensely grateful to the stakeholders from the fields of public health, business, education, health care and beyond who contributed their time to this study. Their candid recounting of experiences with COVID-19 response efforts made this report possible.

ABOUT THE GEORGE WASHINGTON UNIVERSITY MILKEN INSTITUTE SCHOOL OF PUBLIC HEALTH

The George Washington Milken Institute School of Public Health advances population health, wellbeing, and social justice locally, nationally, and globally by applying public health knowledge to enhance policy, practice, and management; conducting rigorous, basic, applied, and translational research; and educating the next generation of public health leaders, policy makers, practitioners, scientists, advocates, and managers.

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Executive Summary:

Northeast Missouri's Public Health Response to COVID-19

Spring 2022

Milken Institute School
of Public Health

THE GEORGE WASHINGTON UNIVERSITY



The Public Health Response to COVID-19 in the Northeast Region of Missouri is one of three regional reports that offers findings from conversations with local stakeholders and residents about their experience with the state and regional pandemic response. The study focused on the period from March 2020 through May 2021, just prior to the surge caused by the delta variant and well before the emergence of the omicron variant. Its aim is to document efforts by Northeast Missouri's local public health agencies (LPHAs) and a multitude of other stakeholders to combat COVID-19, and to identify lessons that could strengthen public health practices to better safeguard communities in the future.

Missouri's approach to public health is decentralized, and as such LPHAs were tasked with tapping local, regional, and state relationships and resources to wage a locally tailored response to a global virus. Uneven resources and a varied approach challenged pandemic response coordination, both regionally and across the state, despite enormous dedication by local public health; state and local elected officials; health care organizations; first responders; community non-profits; and countless others.

Northeast Missouri's 16 LPHAs (defined using the boundaries of Highway Patrol Region B¹), like those across the state, have been chronically underfunded compared to

departments in other states. Years of underinvestment in local public health departments took an enormous toll on staff, operations, and all other aspects of LPHAs' response to COVID-19. Some LPHAs had reserves they had built over a period of years that could be tapped for a major scale-up in workforce and other needed areas. Other LPHAs had little or no rainy-day funds and depended heavily on Coronavirus Aid, Relief, and Economic Security Act (CARES Act) funding to bridge their funding gaps. In the absence of CARES Act funding or reserves, LPHAs maintained services to the best of their ability, which often was not sufficient to muster a robust pandemic response and maintain traditional public health programs designed to help those most in need in their communities.

Our hope is that the following key study findings will be leveraged to strengthen the public health system's ability to continue responding to the COVID-19 pandemic, and to face future crises with greater resources, coordination, equitable strategies, modernized infrastructure, and public trust. Because Missouri is a large and diverse state, we also acknowledge there is no single pandemic story. Experiences and events of the crisis — including the speed of the virus's spread, how infection impacted populations, and how local authorities and stakeholders responded — differed from region to region.

1 Missouri Department of Health and Senior Services divides its health reporting regions according to the Missouri State Highway Patrol map. To view the regional map, see https://health.mo.gov/data/gis/pdf/map_ReportingRegions.pdf.

Readers therefore may also be interested in the companion reports, *The Public Health Response to COVID-19 in the Southwest Region of Missouri*² and *The Public Health Response to COVID-19 in the St. Louis Region of Missouri*.³ Findings from the three reports were used to inform the state-level recommendations in our report

Missouri's Public Health Response to COVID-19: Key Findings and Recommendations for State Action and Investment, which was developed for the purpose of strengthening the state public health system's ability to face future crises, and to capitalize on new and timely federal funding opportunities in the wake of the pandemic.⁴

- 2 Trott, J., Mead, K., Benoit, M., Hughes, D., Levi, J., Baños, J., Seyoum, S., and Regenstein, M. "The Public Health Response to COVID-19 in the Southwest Region of Missouri" (2022). Health Policy and Management Issue Briefs. https://hsrc.himmelfarb.gwu.edu/sphhs_policy_missouri/
- 3 Regenstein, M., Mead, K., Trott, J., Seyoum, S., Baños, J., Van Bronkhorst, H., Benoit, M., and Hughes, D. "The Public Health Response to COVID-19 in the St. Louis Region of Missouri" (2022). Health Policy and Management Issue Briefs. https://hsrc.himmelfarb.gwu.edu/sphhs_policy_missouri/
- 4 Levi, J., Regenstein, M., Hughes, D., Trott, J., Markus, A., Seyoum, S., Acosta, A., Benoit, M., Van Bronkhorst, H., Conway, C. "Missouri's Public Health Response to COVID-19: Key Findings and Recommendations for State Action and Investment". (September 2021). *Health Policy and Management Issue Briefs*. Paper 61. https://hsrc.himmelfarb.gwu.edu/sphhs_policy_briefs/61

KEY FINDINGS: NORTHEAST MISSOURI'S PUBLIC HEALTH RESPONSE TO COVID-19

Key Finding	Summary
A Prior Public Health Emergency Response and Preparedness Was an Asset During the Pandemic	<p>LPHAs' prior experience with public health emergencies, including H1N1 and flu outbreaks resulted in preparedness planning and relationships that helped to facilitate pandemic response efforts. However, some LPHAs felt caught off guard when the state diverged from public health emergency plans previously put in place and instead positioned health care entities to lead key efforts like vaccine distribution.</p> <p>Stakeholders noted limited community-based training and preparation for infectious-disease outbreaks in comparison to natural disaster and bioterrorism preparation.</p>
B Regional Partnerships and Resource Sharing Were Critical to the Pandemic Response	<p>The Northeast's rural geography necessitated collaboration and resource sharing. The Northeast's 16 LPHAs leveraged a pre-existing, longstanding model of shared staffing and resources to navigate logistics when executing complex pandemic response activities like mass vaccination. Regional partnership was a hallmark of the pandemic response.</p> <p>To compensate for the public health system's limited human and financial resources, other sectors also stepped in to conduct and support myriad COVID-19 response activities, and in some cases took a leadership role. A multi-sector approach helped increase access to testing in the region.</p>
C LPHA Staffing and Resource Constraints Profoundly Limited the Effectiveness of the Pandemic Response	<p>Even with strong local and regional partnerships, small health departments with limited staffing and resources struggled to keep pace with the speed and magnitude of the pandemic. LPHAs stretched and repurposed staff, and paused other public health services. Many tapped financial reserves, contract funds, and CARES Act funds from their county to shore up resources, but funding was often insufficient. Contact tracing was particularly burdensome for LPHAs and staffing needs were difficult to predict. Residents were empathetic to the constraints faced by health departments and were appreciative of their efforts.</p> <p>Health care organizations lent their capacity and resources to support key response efforts in the region like testing and vaccine distribution. Schools also assisted with contact tracing efforts.</p>

D Poor Coordination with the State Weakened the Region's Response

Stakeholders across the Northeast region appreciated that the pandemic response was tailored to community needs. However, as LPHAs faced an onslaught of questions about the novel virus and their decision making, stakeholders and residents alike desired clearer state-level guidance to inform decisions at the local level.

There was occasional confusion about the authority LPHAs had to implement pandemic-related public health measures. Mitigation strategies and protocols were used inconsistently across the region, undermining their value. LPHA staff sometimes faced vitriol from community members over public health measures.

E Inconsistent Data Reporting and Outdated IT Systems Stymied Timely Decision Making

LPHAs relied on their own systems for tracking cases during the early months of the pandemic. These systems were variable in quality and for some health departments included paper-based files and disease tracking methods.

Due to reliance on antigen testing in rural areas, LPHA case reporting was inconsistent with the state, which did not report antigen test results in the early months of the pandemic. This eroded public trust in the data. New case tracking systems were introduced by the state late in the pandemic, adding to LPHAs' burden, but also creating some new efficiencies. Stakeholders recommended modernization of technological services as a means to move public health forward.

F Trusted Information Sources Enhanced Communication Efforts but Contended with Rampant Misinformation

Public messaging campaigns were used in lieu of mandated mitigation measures in most areas of the Northeast. Multi-sector involvement in delivering public health messaging was viewed as a success, and was most impactful when trusted voices in the community were used and the messaging met people "where they were at."

Social media was viewed as a double-edged sword – transmitting both crucial information as well as propagating dangerous myths about the virus, most notably about the vaccine. A number of residents felt that clear, consistent messaging, including an explanation of the creation of the vaccine from start to finish, could have facilitated the public's trust and understanding in COVID-19 prevention and mitigation strategies.

Focus group residents expressed trust and confidence in their local public health officials. They cited strong leadership, community relationships, transparency, and political impartiality as important factors for building trust.

G The Public Health Response Did Not Sufficiently Meet the Needs of Older Adults and Individuals Living in Poverty

Poverty is a critical issue in Northeast Missouri with most counties exceeding the state's average poverty rate of 12.9%. LPHAs and other stakeholders noted that low-income and older adults in the Northeast struggled to obtain essential pandemic services due to cost, transportation, and digital access issues. Some regional efforts focused on providing transportation and registration assistance to older adults and low-income residents to ensure their access to testing and vaccination services. Cost of testing was also a barrier to its use.

Students in low-income households, and those living in remote and rural communities, struggled in the transition to remote learning. The cost associated with technological supplies and unreliable internet access in rural communities hindered students' ability to consistently participate in online learning.

H Public Health Messaging Was Not Tailored to Latino, Black, and Immigrant Communities

Language barriers and lack of culturally tailored education about the pandemic hindered efforts to reach people of color living in the Northeast. Some residents noted that better outcomes might have been achieved had information been translated and better targeted to meet the needs of Black, Hispanic/Latino, and immigrant communities.

Study Approach and Methods

In summer 2020, Missouri Foundation for Health contracted with The George Washington University Milken Institute School of Public Health to assess Missouri's public health preparedness and response capacities to the COVID-19 pandemic and future public health crises. The purpose of the regional case studies is to 1) document the multi-level and multi-stakeholder efforts to combat COVID-19 and 2) identify lessons from the pandemic that could strengthen public health practices to better safeguard communities in the future.

In the Northeast region, which is designated Region B by Missouri DHSS (see Figure 2), we spoke candidly with 25 professional stakeholders in various counties and towns (see the types of stakeholders we interviewed in Appendix A, Table A). Our sample included stakeholders within and outside the field of public health, including schools, health care, the business community, policymakers, and social service organizations. Our interviews began in October 2020 and concluded in May 2021, prior to the surge caused by the delta variant. We promised confidentiality and anonymity to study participants to encourage candor when recounting their perspectives and professional experiences. *We refer to this group throughout the report as stakeholders.*

We also conducted 11 focus groups and two one-on-one interviews with people living in the Northeast region to examine public perceptions of the pandemic response. *We refer to this group throughout the report as focus group residents or participants.* We spoke with a total of 56 residents during spring 2021. Table B in Appendix A provides information on the characteristics of the focus group participants. *One limitation of our study is that our sample of residents consisted of individuals who were well-informed about and interested in discussing the Northeast region's response to COVID-19. They were also generally supportive of public health's role in helping to stop the spread of the virus. As such, they provided thoughtful and reasoned input on the public health response in Missouri; however, we acknowledge that our sample does not represent large groups of residents who favored a limited role for public health and other government organizations with respect to the COVID-19 response.*

Our interviews with stakeholders and focus group discussions with residents were supplemented by media accounts and other publicly available data sources. For more information on the study methodology see Appendix A.

How the COVID-19 Pandemic Unfolded in Northeast Missouri

March 2020–May 2021

“ We knew it was a SARS-type event similar to what had happened in the past, so [there was] not a lot of great emphasis from state or federal level, or sense of urgency by anyone, by any means — until we got our first case in the state of Missouri, on March the 7th. And then all hell broke loose. ”

– LOCAL PUBLIC HEALTH STAKEHOLDER

In order to understand the COVID-19 response in Northeast Missouri, it is important to first know the manner and context in which the virus impacted the region and its residents over the time of the case study, from March 2020 through May 2021.

As COVID-19 infiltrated the urban areas of Missouri in early March, LPHAs in the Northeast corner of the state cautiously monitored the virus from afar. On March 13, 2020, Governor Parson declared a state of emergency — months before some counties in the Northeast region

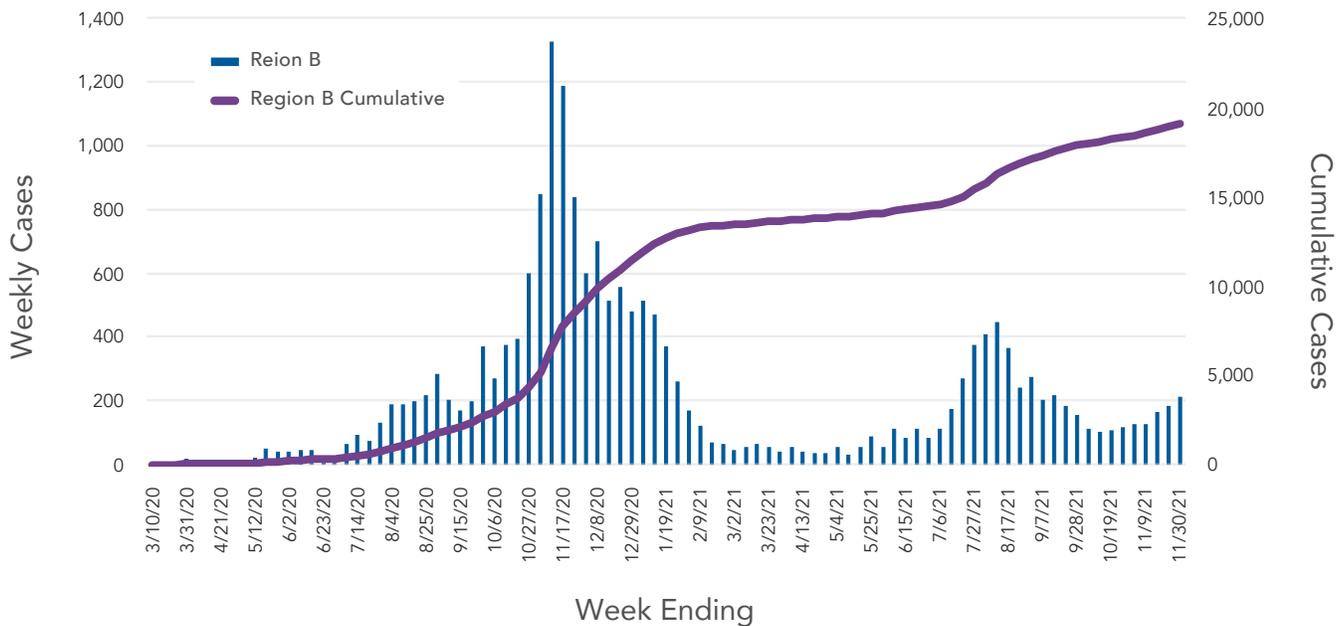
would even report their first cases.⁵ The brunt of the pandemic was slow to impact the rural and sparsely populated communities that make up much of the Northeast, providing the region’s LPHAs, hospitals, and emergency response services with a window of opportunity to ready a response (see Figure 1).

By early April 2020, Governor Parson implemented a statewide stay-at-home order placing limits on building capacity and non-essential travel.⁶ Northeast communities were generally receptive to early measures taken

5 Missouri Secretary of State. Executive Order 20-02. (2020, March 13). <https://www.sos.mo.gov/library/reference/orders/2020/eo2>

6 Missouri Governor Michael L. Parson. Stay at home order. (2020, April 3). <https://governor.mo.gov/press-releases/archive/governor-parson-issues-statewide-stay-home-missouri-order-control-contain>

FIGURE 1. WEEKLY AND CUMULATIVE COVID-19 CASES FOR NORTHEAST MISSOURI, MARCH 2020 – NOVEMBER 2021



This graph represents weekly and cumulative PCR confirmed COVID-19 cases for Highway Patrol Region B. SOURCE: Missouri Hospital Association analysis of MO DHSS EpiTrax data, Mar. 10, 2020 – Nov. 30, 2021.

by businesses and public venues to limit capacity or temporarily close. However, as Governor Parson lifted a month long stay-at-home order on May 4, 2020,⁷ many Northeast Missourians were enthused to return to routine social and economic activities. Rural communities continued to be reassured by relatively low case rates, apart from scattered outbreaks such as the one at the Kirksville-based Kraft Heinz food plant.⁸ With few exceptions, most communities in the Northeast never returned to the restrictions seen in the first two months of the pandemic, with much public sentiment pointing toward the “natural social distancing” that a

rural region afforded. Across the Northeast, only one county and a handful of schools would pursue mask mandates during the course of the pandemic, and those mandates were enacted in some of the most populous areas in the region.^{9,10}

Accustomed to working collaboratively in the face of natural disasters and public health emergencies, the Northeast’s emergency and public health apparatuses tapped staff and volunteers across county lines to meet local and regional needs. In early May 2020, the distribution of funds from the CARES Act provided welcome

7 Missouri Governor Michael L. Parson. Extension stay at home order COVID-19. (2020, April 16). <https://governor.mo.gov/press-releases/archive/governor-parson-extends-statewide-stay-home-missouri-order-through-may-3>

8 Greenstein, M. (2020, May 21). Kirksville bologna factory confirms COVID-19 outbreak. *KSHB*. <https://www.kshb.com/news/coronavirus/kirksville-bologna-factory-confirms-covid-19-outbreak>

9 Adair County Mask Ordinance. (2020, November 23). <https://adair.lphamo.org/wp-content/uploads/2020/11/11242020115522.pdf>

10 City of Kirksville Mask Ordinance No. 12407. (2020, November 24). https://www.kirksvillecity.com/filestorage/9701/9967/16590/Face_Covering_Ordinance_12407.pdf

help to some LPHAs engaged in testing and contact tracing efforts. However, some county governments refused to pass the funds on to their LPHAs.¹¹ Without adequate CARES Act funds, many LPHAs drew upon their own cash reserves or redirected existing contracts to cover the costs of COVID-19 staffing and supplies. Local businesses in the region also received CARES Act funding to replace lost revenue and support other COVID-19 related costs.^{12,13}

Summer 2020 brought some areas of the Northeast their first real spikes in case rates, as the region resumed daily life and greenlit large events. By July 2020, the city of Hannibal became a federally designated “Red Zone.”¹⁴ Following July 4th celebrations, DHSS staff were sent to Macon County to assist with testing due to continued outbreaks in the region.¹⁵ Noting a lack of public and political support for implementing stringent public health measures, most LPHAs worked to educate on mask wearing and social distancing. As summer progressed, cases accelerated across several counties in the Northeast.¹⁶ School districts, often working with

LPHAs, weighed fall 2020 re-opening decisions and established mitigation protocols.

Like many areas in Missouri and the US, the Northeast region experienced one of its worst COVID-19 surges in fall and winter 2020. The surge stressed local and regional health care organizations, causing ICU bed and staffing shortages and challenging LPHAs’ ability to keep up with contact tracing.^{17,18} Health care providers and LPHAs brought in volunteers, hired new staff, and in some cases stretched their existing staff to help shoulder the burden.

In early January 2021, as the vaccine began rolling out to the general public, the Northeast’s LPHAs worked strategically and creatively to secure doses for their communities. Smaller LPHAs formed partnerships with hospitals and larger health departments to store vaccines.^{19,20} Initial demand was high, and the Northeast quickly became a hub for local residents and others traveling from far-off urban areas to take advantage of the efficiently run and well-stocked vaccination events.

11 Moore, K., & Kelly, M. (2020, August 2). Missouri got millions to fight COVID-19, but 50 health agencies haven’t seen a penny. *Kansas City Star*. <https://www.kansascity.com/news/coronavirus/article244568372.html>

12 Hannibal Regional EDC. (2020, July 3). Marion County allocates \$2,175,639 for the first round of CARES Act funding award decisions. <https://hredc.com/news/marion-county-allocates-2175639-for-the-first-round-of-cares-act-funding-award-decisions/>

13 McDonald, T. (2020, September 3). Collaboration aims to help with utility bills. *Hannibal Courier Post*. https://www.hannibal.net/archive/article/collaboration-aims-to-help-with-utility-bills/article_79134cad-a62d-500b-a64d-2cd94a2d5c36.html

14 Nelson, A. (2020, July 30). Missouri elevates to federal “red zone” for coronavirus cases. *Missouri Net*. <https://www.missourinet.com/2020/07/30/missouri-elevates-to-federal-red-zone-for-coronavirus-cases/>

15 Nelson, B. (2020, July 10). State Health Department Staff headed to Macon for mass COVID-19 testing event. *The Macon County Home Press*. <https://www.maconhomepress.com/articles/2943/view>

16 Hannibal Courier-Post. (2020, August 21). COVID increases in Marion, Ralls, Monroe counties. *Hannibal Courier-Post*. https://www.hannibal.net/archive/article/covid-increases-in-marion-ralls-monroe-counties/article_3eb4c0df-9cd5-58a1-be08-82917f3a6186.html

17 Shorman, J., Ritter, S., & Kelly, M. (2020, November 15). ‘A very dangerous time’: COVID rules return as Kansas, Missouri hospitals on the brink. *The Kansas City Star*. <https://www.kansascity.com/news/coronavirus/article247174934.html>

18 Garlock, J. (2020, November 16). NEMO hospital puts out plea for help from retired healthcare workers amid COVID crisis. *KTVO*. <https://ktvo.com/news/local/covid-crisis-prompts-nemo-hospital-to-put-out-plea-for-help-from-retired-healthcare-worker>

19 McDonald, T. (2021, February 22). Vaccination clinic reflects community teamwork. *Hannibal Courier Post*. https://www.hannibal.net/news/local/vaccination-clinic-reflects-community-teamwork/article_5744a69d-bb5f-5c45-a84c-83ee6fcf3c93.html

20 McGee, C. (2021, February 28). Adair County Health Department says mass vaccination event was a huge success. *KTVO*. <https://ktvo.com/news/local/adair-county-health-department-says-mass-vaccination-event-was-a-huge-succes>

However, demand soon waned. Vaccination rates in the region proceeded at a pace that underperformed the national average and expectations, leaving the Northeast vulnerable to the rapid spread of the delta variant.^{21,22,23,24}

As spring 2021 arrived, optimism about the pandemic's outlook increased nationally. Federal health officials loosened guidance on masking and social distancing for the vaccinated in June 2021.²⁵ However, after a relatively calm spring, the Northeast saw isolated spikes in case rates going into summer 2021.²⁶ The Sewer-shed Surveillance Project detected the delta variant in wastewater samples in Brookfield, in Linn County, in late May. Case numbers there soared, with 5% of the county's population becoming infected in just 6 weeks.²⁷ A "pandemic of the unvaccinated" ensued as the delta variant spread, trouncing hopes of the pandemic coming to a near-term end.

By late August 2021, high case numbers and low hospital capacity tested the region's LPHAs and health care providers, who experienced a painful sense of déjà vu. As a health care stakeholder remarked, "*It's demoralizing to get past a hurdle, only to find the same hurdle right around the corner.*"²⁸ Since our study ended, the region has continued to fight the virus, including facing the emergence of the omicron variant. The past two years have left many in the public health field feeling defeated; however, this study comes at an opportune time to address the long-standing problems and weaknesses that were made so apparent by COVID-19, and to learn from and invest in the successes of the region's pandemic response.

21 Gray, B., Merrilees, A. (2021, March 7). Rural vaccine surpluses around Missouri spark frustration and questions. *St. Louis Post Dispatch*. https://www.stltoday.com/lifestyles/health-med-fit/coronavirus/rural-vaccine-surpluses-around-missouri-spark-frustration-and-questions/article_96c76d86-ccfc-53b9-898a-5ceba944749a.html

22 Missouri COVID-19 vaccine tracker. (2021). *Springfield News-Leader*. <https://data.news-leader.com/covid-19-vaccine-tracker/missouri/29/>

23 Christie, A., Brooks, J.T., Hicks, L.A., et al. (2021). Guidance for implementing COVID-19 prevention strategies in the context of varying community transmission levels and vaccination coverage. *MMWR Morb Mortal Wkly Rep*; 70:1044–1047. DOI: <http://dx.doi.org/10.15585/mmwr.mm7030e2>

24 *The New York Times*. Tracking coronavirus in Missouri: latest map and case count. <https://www.nytimes.com/interactive/2021/us/missouri-covid-cases.html>

25 Rabin, R.C., Mandavilli, A., Weiland, N. (2021, May 13). Vaccinated Americans may go without masks in most places, federal officials say. *The New York Times*. <https://www.nytimes.com/2021/05/13/health/coronavirus-masks-cdc.html>

26 Keller, R., & Weinberg, T. (2021, May 28). COVID surge in north Missouri creates worries for summer as vaccinations decline. *Missouri Independent*. <https://missouriindependent.com/2021/05/28/covid-surge-in-north-missouri-creates-worries-for-summer-as-vaccinations-decline/>

27 Lenthang, M. (2021, June 23). Missouri tracks spread of delta variant using wastewater. *ABC News*. <https://abcnews.go.com/US/missouri-tracks-spread-delta-variant-wastewater/story?id=78419065>

28 Keller, R. (2021, August 28). Missouri ICUs filling as delta variant wave moves into northeast, southeast regions. *Missouri Independent*. <https://missouriindependent.com/2021/08/28/missouri-ic-us-filling-as-delta-variant-wave-moves-into-north-east-southeast-regions/>

I. Public Health Infrastructure in the Northeast

Missouri's public health system represents a decentralized approach that relies on decision-making at the local level.²⁹ Sixteen (16) of the state's 115 local public health departments are located in counties in the Northeast region — Region B (see Figure 2). Within the Northeast region, county health departments are governed by boards of trustees,³⁰ but each varies in terms of size, staffing, infrastructure, services, and funding (see Appendix A, Table C). Boards of trustees of local public health departments raise money for public health through tax levies that range from \$0.09 in Monroe County to \$0.30 in Schuyler County.³¹

The 16 counties in the Northeast are rural, with a median population of 8,037. Knox is the least populated county in Region B, with a population of 3,744, and Marion County is the most populous, with 28,525 residents. Kirksville (Adair County) and Hannibal (Marion and Ralls Counties), the two largest cities in the region, are hubs for health care, employment, and higher education.

Access to the health care safety net is variable in the Northeast, making the presence of a local public health department all the more critical. There are five counties in the region without a hospital or community health center.³²

The Northeast region's population is predominantly White, with Black populations ranging from 0.1% to 5.6% of residents (see Appendix A, Table C). Hispanic/Latino and people of other ethnicities also live in this region, especially where industries such as agriculture and meat processing employ relatively high numbers of immigrant workers. Sullivan County, for example, has a Hispanic/Latino population of 18.6% and is home to the Smithfield Foods' pork processing plant. Across the region, poverty is a critical issue. Fourteen counties (88%) exceed the state's average poverty rate of 12.9%.

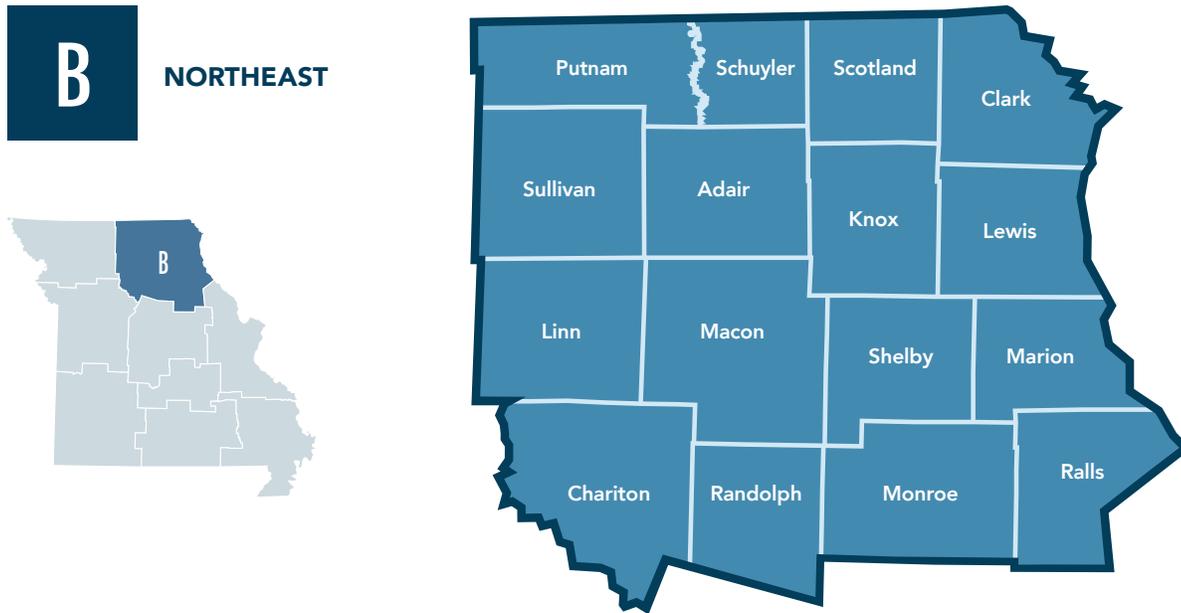
29 Decentralized local public health governance indicates that local government employees lead local health departments and local governments have autonomy over fiscal decisions. See, <https://www.astho.org/Research/Data-and-Analysis/State-and-Local-Governance-Classification-Tree/>.

30 The majority of Missouri LPHAs and all of the LPHAs in Region B operate under a Board of Trustees governance model. The Board sets policy for the LPHA and is initially appointed by the County Commission, and then elected on a term basis by the public. Under this model, the Board sets an annual tax levy specifically for public health purposes, that cannot exceed a certain maximum rate. For more information, see Missouri Department of Health and Senior Services. Public health works: a web based orientation manual for public health leaders. (March 2019). <https://health.mo.gov/living/lpha/phworks/publichealthworks.pdf>.

31 Missouri Department of Health and Senior Services. Public health works: a web-based orientation manual for public health leaders. (March 2019). <https://health.mo.gov/living/lpha/phworks/publichealthworks.pdf>

32 Missouri Department of Health and Senior Services. Medical facilities in Missouri. <https://arcg.is/01H5L8>

FIGURE 2. MAP OF MISSOURI DHSS HEALTH REPORTING REGIONS: NORTHEAST MISSOURI (REGION B)



SOURCE: Missouri Department of Health and Senior Services. Health Reporting Regions. (n.d.) health.mo.gov/data/gis/pdf/map_ReportingRegions.pdf

None of the 16 LPHAs in the Northeast are accredited by either of the two accrediting bodies available to LPHAs in the state.^{33,34} The process of accreditation enhances an LPHA's ability to respond to public health crises because it requires a comprehensive review of capacity and public health processes, including an emphasis on emergency preparedness. According to a recent capacity

assessment of Missouri's LPHAs, the cost and time to pursue accreditation are the two biggest barriers preventing the majority of the state's LPHAs from pursuing it.³⁵

Like their counterparts in other regions of the state, Northeast Missouri's LPHAs have been chronically underfunded³⁶ and thus experience challenges in building

33 The Public Health Accreditation Board (PHAB) is a national organization that sets standards for tribal, state, local and territorial public health agencies. For more information, see Public Health Accreditation Board. Why become accredited? <https://phaboard.org/why-become-accredited/>.

34 The Missouri Institute for Community Health (MICH), is a Missouri-specific and voluntary accreditation for LPHAs that is a lower-cost option for those seeking accreditation. For more information, see Missouri Institute for Community Health. Accreditation introduction. <https://michweb.org/accreditation-introduction/>.

35 HealthierMO. (2021, March 13). Report on the capacity of Missouri's public health system to deliver the Missouri foundational public health services model. https://82e4c309-d318-40ba-b895-4b0debd596f5.filesusr.com/ugd/9bd019_e1413ba555784d6eb-889ca21674fd5ab.pdf

36 Missouri Budget Project. The health of Missouri is at stake. (2016, January 16). <https://www.mobudget.org/the-health-of-missouri-is-at-stake/>

infrastructure and staff capacity with the diversification of skills required to address the full range of public health needs in their communities. The 16 LPHAs that make up the Northeast Region B's health reporting district adopted a "shared services" model where they regularly share information, resources, and staffing, including an emergency planner, environmentalists, nurses, and other specialist staff. This provides enhanced capacity across health departments, some of which have fewer than 10 full- and part-time staff members combined. This network was established well before the COVID-19 pandemic, and these LPHAs leveraged it throughout the pandemic response.

Funding to meet the needs of the COVID-19 response was a challenge for LPHAs in the Northeast. Many LPHAs drew down on their state and local contracts to maintain revenues to the extent possible. When CARES Act funding became available, LPHAs that received funds were able to use them to shore up funding gaps.³⁷ However, these funding avenues did not adequately support both COVID-19 activities and routine public health programming. Additionally, temporarily scaling up small staffs to meet the demands of an unpredictable pandemic was a challenging and financially risky endeavor for Northeast health departments.

37 Missouri Department of Health and Senior Services. CARES Act funding toolkit for local governments. <https://health.mo.gov/news/newsitem/uuid/64d61390-482c-4322-b2b7-71d74ba119d7>

II. Strengths and Challenges in Northeast Missouri's Public Health Response to COVID-19

The following sections present key findings related to strengths and challenges identified by professionals from multiple sectors involved in the pandemic response, as well as residents' perceptions of the pandemic response.

A. Prior Public Health Emergency Response and Preparedness Was an Asset During the Pandemic

“ I think we had planned for a lot of scenarios that are more likely to occur: massive tornadoes, or something along those lines. This was a different scale. And a lot of our plans were about action that could be immediately taken, whereas this is a lot about advice coming from multiple different directions and then making a decision really at various different levels to act. ”

— LOCAL PUBLIC HEALTH STAKEHOLDER

Northeast Missouri is versed in emergency planning and has recent experience flexing its resources to fend off infectious disease outbreaks. Most notably, in 2009-2010, when flu cases in Missouri increased 174.5% from the year prior due to the H1N1 pandemic, state and local emergency response systems were activated to mount a response. Health departments in the region launched public messaging and vaccination efforts targeted to

high-risk groups, including children under 15 years of age.³⁸ As a result, LPHAs formed and strengthened partnerships with local school districts and other community agencies. A public health stakeholder recalled: *“With H1N1, it was led by public health from the beginning, and I just remember that we all had the plans, we used the plans, the state sent the vaccine, then we distributed the vaccine through local public health agencies.”*

38 Bureau of Communicable Disease Control and Prevention. Communicable disease surveillance 2009 annual report. <https://health.mo.gov/living/healthcondiseases/communicable/communicabledisease/annual09/Annual09.pdf>

In the wake of the H1N1 pandemic, the Northeast region's LPHAs continued to play a leading role in annual flu vaccinations. Many LPHAs felt that the experience of this earlier pandemic helped with specific aspects of the COVID-19 response, such as testing, vaccine distribution, and PPE use. Several local public health departments described having detailed plans drawn up for vaccination clinics, such as a location in the community where vaccines could be distributed, lists of volunteers who could be tapped, and mechanisms for community outreach.

A stakeholder from the business community highlighted the connection between these flu clinics and well-run COVID-19 testing and vaccination efforts, stating, *"I think that [distributing flu shots] really set our health department up well to do the drive-through COVID-19 testing and then the vaccines."* A number of residents in the focus groups echoed this sentiment, praising Northeast LPHAs planning and preparation around the vaccine clinics. One resident noted, *"I was just really impressed with the... forethought in terms of the things that from most of our public perception, we just think, 'Oh good, they're giving flu shots,' when behind the scenes for years, they've been working towards something, if it's needed."*

"I think that [distributing flu shots] really set our health department up well to do the drive-through COVID-19 testing and then the vaccines."

– Business community stakeholder

In addition to prior public health emergency experience, many of the region's emergency response stakeholders—including law enforcement agencies, ambulance districts, fire departments, hospitals, county health departments, and others—routinely participated in disaster preparedness meetings, practice runs, and action and improvement reports for the federal government. At least one county had an emergency management

partnership in place between a county health department, city government, and first responders that met and practiced on a routine basis and created a broad community emergency plan, which was said to have been helpful.

Limitations of Emergency Preparedness and Planning

Several public health stakeholders noted that they were caught off guard when the state's COVID-19 emergency response diverged considerably from plans that had been put into place following H1N1 and 9/11: *"... we've had these emergency preparedness contracts where we've had to develop all of these manuals for mass vaccination, emergency preparedness. Nobody [at the state] ever addressed all those plans [during COVID-19] and I don't know if it's because there's been so much turnover at the state level... But the plan was gone."* For example, although LPHAs in the region played an important role in COVID-19 vaccination efforts, prior plans to have them lead vaccination distribution never came to fruition. Instead, health care organizations were tapped for their capacity to lead mass pandemic efforts. One LPHA stakeholder pointed out: *"I think mass vaccines are kind of our bread and butter and then they were only going to give us [LPHAs] 3% or whatever of the allocation for the state. So it's like, 'Why?' I don't know. I just felt it was a missed opportunity to really utilize the health departments in a way that they are already practicing."*

In spite of the many efforts to plan for large-scale emergencies, stakeholders across multiple sectors reported feeling ill-prepared to deal with the COVID-19 pandemic. Although there had been at least one communicable disease simulation in Adair County in 2018, recent community preparedness exercises in the region had been more focused on disasters and bioterrorism, which one health care stakeholder remarked, *"doesn't quite prepare you for something quite like this."*

B. Regional Partnerships and Resource Sharing Were Critical to the Pandemic Response

“ We [collaborate] in our region because we have to and we’ve always done it that way because it works for us and now everybody else is like, ‘Oh, yeah. Collaboration. What a brand-new thought.’ Yeah, not new for us. ”

— LOCAL PUBLIC HEALTH STAKEHOLDER

As COVID-19 moved through Northeast Missouri, pre-existing community and regional partnerships were essential to coordinating a flexible pandemic response. The rural geography of the region presented inherent challenges in distributing resources and making services like testing and vaccination easily accessible; many stakeholders described close and longstanding relationships as essential to addressing these challenges. As one stakeholder in the education sector put it, *“In our region, it’s a lot of sharing because it’s rural. Everybody is spread out, but then everybody comes together.”*

Pre-pandemic, the 16 LPHAs in Region B met regularly to collaborate on public health programming and to share information. Several county health departments shared staffing, including an emergency planner who was contracted to serve 10 counties in the Northeast. One public health stakeholder commended Northeast LPHAs’ coordination: *“We’re kind of unique because we’re used to not having a lot of resources, so we all work really well together.”* Another stakeholder observed: *“Everything they [LPHAs] have to do is collaborative.”*

One county can’t handle everything. If somebody is doing it, everybody will jump in.”

Public health stakeholders expressed pride in their ability to navigate distribution challenges during the vaccine rollout due to innovative collaboration across LPHAs and other health care organizations. The state’s plan, which relied on “High Throughput Health Centers” to distribute vaccines regionally,³⁹ posed difficulties for very rural areas where there were no large health care organizations nearby to offer vaccines and the population was not sizable enough for individual LPHAs to meet the minimum order required. One stakeholder explained: *“We only had Pfizer, which was shipped in large [quantities of] doses. Well, I can probably vaccinate my whole county with one tray of [Pfizer] vaccines. It was very difficult when it came in large amounts.”* Local public health departments created a workaround by operating a rotation system to share and allocate large shipments of the vaccine, ensuring that each county eventually obtained sufficient doses for their communities if they were able to use it.

39 Governor Michael L. Parson. Governor Parson announces high throughput health center COVID-19 vaccine allocations for March 1-14, 2021. (2021, March 1). <https://governor.mo.gov/press-releases/archive/governor-parson-announces-high-throughput-health-center-covid-19-vaccine>

Multi-Sector Community Partnerships

The health care, education, and business sectors supported pandemic response activities. During the vaccine rollout, regional hospitals offered their storage capacity by holding several large trays of vaccine for health departments in other areas of the region, whose staff would then travel to the hospital to transport smaller, more manageable volumes back to their counties. A public health stakeholder explained: *“We all got together with a hospital who had an ultra-cold freezer. We placed just two large orders and then split them... You show up, you pick up your vaccine, you put it in the fridge, and you give it [out] within five days. We did a lot of that in the early days before health departments could place orders.”* One LPHA used emergency funding to purchase a freezer to store vaccines, which allowed earlier access to vaccines and also provided vaccine storage for other counties.

Many stakeholders, particularly from sectors outside of public health, stressed that a multi-sector approach was also pivotal in successfully increasing access to testing, including free community testing. In late April 2020, Adair County held one of the first free drive-through testing events in the region, made possible through a partnership with Missouri’s DHSS and several local health care organizations.⁴⁰ The county’s receipt of a rapid, point-of-care Abbott testing system from the state enabled it to build up its testing capacity to host testing events with several community partners, including Northeast Regional Medical Center, which performed all test processing in-house.^{41,42}

To further increase testing event offerings, DHSS also partnered with health centers in the Northeast by sending them testing kits and supplies.⁴³ Residents saw the results of these efforts and a number reported that over time testing availability increased as more sectors got involved and more sites became available, particularly in the larger counties: *“If you couldn’t get in at the health department, two blocks away is the doctor’s office... And if that wasn’t working, [there were] drive-through clinics every day.”*

In some cases, sectors outside of public health took the lead in convening stakeholders. In one county, the school superintendent set up weekly calls with the local hospital and community organizations to discuss the COVID-19 response. The county’s LPHA was also invited to these calls. Sectors outside of public health also helped amplify critical public health messaging about COVID-19. For example, a county commissioner convened the public health department, first responders, health care workers, education officials, and others to establish a cohesive community response. A stakeholder from a community-based organization felt this effort *“was extraordinarily helpful within that county to be able to do that coordinated effort, and it was from top-down leadership.”* Residents in our focus groups also observed local public health departments partnering with other institutions and leading the charge in most cases: *“I think the local public health department is kind of the face, but I do think they are working with other agencies in the town, as well, to kind of help at least create more of a uniform message.”*

40 Capuano, A. (2020, April 29). Hundreds tested for COVID-19 at free drive-thru clinic in Adair County. KTVO. <https://ktvo.com/news/local/hundreds-tested-for-covid-19-at-free-drive-through-clinic-in-adair-county>

41 Adair County Health Department. Rapid testing for COVID-19 available in Adair County. (2020, April 24). <https://adair.lphamo.org/wp-content/uploads/2020/04/Rapid-Testing-Adair-County-3-24-20-WEB.pdf>

42 Missouri Department of Health and Senior Services. Increased testing capacity allows Missouri to expand criteria for patient testing. (2020, April 23). <https://health.mo.gov/news/newsitem/uuid/912934b4-fa13-408b-a9b7-627db5c1c1e1/increased-testing-capacity-allows-missouri-to-expand-criteria-for-patient-testing>

43 Missouri Department of Health and Senior Services. Impact summary. (2020). <https://health.mo.gov/living/healthcondiseases/communicable/novel-coronavirus/pdf/impact-summary-2020.pdf>

C. LPHA Staffing and Resource Constraints Profoundly Limited the Effectiveness of the Pandemic Response

“ Our public health safety net system [has] been bleeding out for decades because it’s funded, under the control of the county, who really don’t have much knowledge of and shouldn’t really be in control of public health. I think we need a pretty clear revamp of our public health. Hopefully everyone understands that public health is very important just as they recognized many decades ago when they established the public health departments. ”

— HEALTH CARE STAKEHOLDER

In spite of the benefits of cross-sector collaboration, the pandemic often overwhelmed local public health capacity in the region. Ramping up for response efforts was difficult given limited staff and resources going into the pandemic. LPHAs drew upon their financial reserves, existing contract funds, or CARES Act funding from their counties to hire additional staff; however, funds were not always available or sufficient for the level of need. Many health departments diverted existing staff — including administrators, accountants, nutritionists, and environmentalists — to COVID-19 testing and contact tracing functions. Volunteers were sometimes needed to backfill staff. As the unpredictability of the pandemic became evident, LPHAs contended with making impossible projections for future staffing needs. One LPHA stakeholder described the toll of unexpected case surges: “We’d been three weeks without a case and we had 12 [cases] in 16 hours, which doesn’t sound like a lot of cases to big places. But when you have two and a half nurses who are doing everything else plus COVID, we all felt it.”

Health departments often had to halt routine programs and services for pandemic response efforts, which further lowered their revenue streams. As one LPHA stakeholder explained, “I think, especially being small, it was kind of pretty bare-bones there for a while... We paused doing [routine] immunizations because we had so many cases that we couldn’t keep up with the contact tracing... I do feel like a lot of our other programming went to the wayside.”

At times, LPHAs had to curtail their involvement in certain pandemic activities due to infrastructure and capacity limits. This was often felt by residents in the area, as one focus group participant noted about their health department: “They did not have enough support or financing... to both man the health department and do the contact tracing. It was like either/or.” In another example, an LPHA stakeholder explained that securing the infrastructure and personnel time for vaccine clinics was a “financial drag.”

“They did not have enough support or financing ...to both man the health department and do the contact tracing. It was like either/or.”

– Focus group participant

When limited LPHA testing capacity met with the region’s rural geography, further difficulty ensued, particularly in low-population areas with few testing sites. A health department in one county explained: *“We could not get testing up here. We’re too far from everything. Even when COVID-19 started, there was no testing alternative.”* Another health department made the difficult decision not to take on testing responsibilities in their community because a hospital was a drivable distance away: *“We just didn’t have the means to do it.”* While rapid testing was thought to be more readily available and convenient for residents living in more rural areas, some in our focus groups felt that there was not an adequate supply: *“There are not really any [places] around these rural areas where you can go get rapid testing and same-day results. Missouri puts out all these different locations, whether [in] Kansas City and St. Louis, and they’re in these big cities. Nobody’s going to drive two hours when they’re not ill to get a rapid test.”*

Most health departments eventually leaned on organizations outside of public health to help with efforts.

Many schools and health care organizations hired their own contact tracers or used existing staff to support tracing efforts. One clinical organization, for example, assigned their human resources staff to contact tracing, saying that it was *“not something you would ever suspect coming into a pandemic, that your HR team would be bearing the brunt of the burden [of contact tracing], but it sure was.”*

Some focus group residents were keenly aware that LPHAs were constrained in their response efforts due to preexisting staffing and funding limitations, particularly in smaller counties: *“They just were overwhelmed when all of a sudden, they were having to do contact tracing, and they were trying to organize vaccines. They’re trying to give information and they were dealing with such a divided population that was wanting them to do one thing and then other people wanting them to do another thing. So they were, I’m sure, at the end of their ropes.”* Even in larger counties, participants saw the impact that response efforts were having on health departments’ constrained resources, and appreciated the physical and emotional toll it was taking on staff: *“I’d say from my perspective, they have just been warriors in this from the very beginning ... They have been providing daily updates on case counts and [they have] a very small staff who are, I’m sure, completely underpaid and overworked and exhausted and come under scrutiny and protests. They have just done an amazing job.”*

In sum, public health leaders believed resource sharing was critical to their response, however the low baseline funding that Northeast’s health departments faced meant that they had a depleted arsenal for fighting COVID-19 from the start.

D. Poor Coordination with the State Weakened the Region's Response

“I would like to reiterate that Missouri as a whole, I do like that they gave the decision making — and how each community was going to handle the spread in their community — to the hands of the locals.”

— HEALTH CARE STAKEHOLDER

Most Northeast stakeholders felt that local entities should have the ability to tailor public health measures to the community. Even though they were facing a global pandemic, a local approach—versus a statewide, one size fits all response—was said to be particularly relevant to the region due to its uniquely rural geography. One business community stakeholder felt that stringent measures employed in urban areas did not seem applicable in the Northeast: *“We’re in a rural area. We’re socially distant by design. We have fewer people. And the lockdowns that were in the St. Louis, Kansas City area, I don’t think were needed here... We’ve got a school district in my county that they have maybe eight kids in the entire class and they’re a K-12 [school]. I think we’re so different than an urban setting that I like the local choice better than a statewide thing.”*

However, several stakeholders across sectors still took some exception when it came to what they observed as *“the state’s hands-off approach”* in providing clear guidance and public messaging related to the virus, particularly early on in the pandemic. Despite regular and frequent communication with the state, several questions from LPHAs in particular went unanswered during the first year

of the pandemic. One public health stakeholder recounted, *“We met, and continue to meet, weekly with the state, by way of conference calls, and we still can’t get answers to a lot of the questions that we have.”* Some LPHAs reported that they felt ill equipped to make decisions on their own and did not have the bandwidth to research and implement mitigation policies when the state did not issue clear guidance: *“We don’t have enough information. We’re building the plane in the air as we fly it.”* A public health stakeholder explained: *“[The] phone was ringing non-stop. It was very trying when it first happened. And we answered lots of questions. And honestly, I don’t know if we answered those questions correctly.”*

Challenges in Implementing Local Public Health Response Strategies

In the Northeast region, LPHAs are governed by a board of trustees whose members are publicly elected and are under obligation of their County Commission to pass legislation.⁴⁴ Occasionally LPHAs found themselves in disagreement with their boards about mitigation measures that were publicly unpopular, and as a result had to

44 Missouri Department of Health and Senior Services. Public health works: a web-based orientation manual for public health leaders. (March 2019). <https://health.mo.gov/living/lpha/phworks/publichealthworks.pdf>

anticipate and navigate pushback from board members, other elected officials, and the general public. Some stakeholders reported that public health officials experienced bullying and personal threats over mitigation measures, making it challenging for them to do their jobs; some officials in public health met resistance even from people with whom they had close, long-standing relationships: *“The mental health [impact] on our workers is unreal and I’ve had several [health department] administrators tell me that they’re losing great nurses that have been there for years because they can’t take it anymore. They can’t take the verbal abuse they get on the phones from people that they have to put in quarantine or isolate.”*

Quarantine protocols were especially scrutinized by parents and students in several counties, as CDC and state guidelines frequently evolved, and were not always aligned.

School districts across the region worked with LPHAs to implement school closure and reopening decisions, quarantine and isolation protocols, and other mitigation measures. Quarantine protocols were especially scrutinized by parents and students in several counties, as CDC and state guidelines frequently evolved, and were not always aligned. For example, some LPHAs

defined “close contacts” according to CDC guidance while others shifted toward looser guidance, impacting which students and staff were required to quarantine and for how long. In an attempt to reduce the number of students in quarantine, Governor Parson announced in November 2020 a plan that included less-restrictive quarantine protocols than those backed by CDC. This directive put some LPHAs in a difficult position to either adjust to the state’s recommendations or keep enforcing guidance by the CDC.⁴⁵

Due to public sentiment and the rural nature of the region, city- and county-wide mask mandates were not common in the Northeast. Exceptions included Adair County and the city of Kirksville, where mandates were in place from November 2020^{46,47} to May 1, 2021.^{48,49} Additionally, school districts in three counties pursued mask mandates, and some national business chains had masking requirements in the area as well. In the few circumstances where there were mask mandates, stakeholders and residents pointed to difficulties with enforcement and adherence. As one resident noted, *“I feel like it’s kind of mixed, going from ... campus that’s just fully locked down, masks in buildings and on the quad... versus going to Walmart, where masks are required but then you walk in and there’s nobody wearing them.”*

Some LPHAs were disappointed at not having the state’s backing and support for mitigation measures and policies because it led to difficulties with implementation and enforcement: *“I think that the way we [public health] were portrayed in it as ‘Oh, that’s up to the locals, that’s a local decision’... [But] how do we mandate that?”* In some cases, LPHAs’ authority to enforce public health measures according to the state statute was unclear. In at least one county, legal counsel was consulted to determine what the LPHA had the power to do.

45 Missouri Governor Michael L. Parson. Proper mask usage may prevent close contacts from quarantining. (2020, November 12). <https://governor.mo.gov/press-releases/archive/governor-parson-announces-changes-states-k-12-school-quarantine-guidance>

46 Adair County Mask Ordinance. (2020, November 23). <https://adair.lphamo.org/wp-content/uploads/2020/11/11242020115522.pdf>

47 City of Kirksville Mask Ordinance No. 12407. (2020, November 24). https://www.kirksvillecity.com/filestorage/9701/9967/16590/Face_Covering_Ordinance_12407.pdf

48 Adair County Public Health Department. (2021, April 15). Novel coronavirus update: mask wearing is strongly recommended even without mandate. <https://adair.lphamo.org/2019-novel-coronavirus-update/>

49 City of Kirksville Mask Ordinance No.12425. (2021, March 1). https://www.kirksvillecity.com/filestorage/9701/9967/16590/Ord_12425.pdf

E. Inconsistent Data Reporting and Outdated IT Systems Stymied Timely Decision Making

“It’s a lot to do when you’re doing the contact tracing and then you’re trying to do the [disease monitoring]... And changing and learning a new system in the middle of a pandemic probably wasn’t the smartest thing that we’ve ever done. Maybe we should’ve prepared a little bit better if our system couldn’t take something like that.”

— LOCAL PUBLIC HEALTH STAKEHOLDER

LPHAs relied on their own systems for tracking cases throughout the early months of the pandemic. These systems were variable in quality and for some health departments included paper-based files and disease tracking methods.

State data was not always consistent with LPHAs’ data, causing confusion among community members. The use of antigen testing serves as a prime example. In less-populated areas of the Northeast, antigen testing became more popular than PCR testing because it was less expensive and could be processed on-site within a few hours, whereas PCR test processing could take 10-12 days. However, during the early months of the pandemic, the state did not report antigen test results. According to stakeholders and residents, the lower case data reported by the state eroded public trust in LPHAs’ more-inclusive data. A public health stakeholder explained: “People felt like we were inflating numbers

and were trying to make it worse than it was, especially because they had access to the state dashboard as well.” Another noted that the disease monitoring systems were lagging behind the virus’s spread in the community: “It’s not hitting the system fast enough. We’re finding that now with death certificates and things like that, too. My numbers are off [from] what the state has.”

A number of residents said they turned to other sources in search of more reliable data, including Matthew Holloway, a Missouri resident, who began tracking state and county-level data with daily Facebook updates in March of 2020.⁵⁰ Several felt Holloway’s reports had the most accurate data in the state. One participant who worked at a local church noted she consistently used his data over local or state data for “rubrics and decision-making processes” for the church community: “Matthew Holloway was great. His data tracking independently was better than anything statewide.”

50 Holloway, M. Missouri COVID-19 update. (2020). <https://theholloway.wixsite.com/mholloway-covid19>

State data was not always consistent with LPHAs' data, causing confusion among community members.

In an effort to improve COVID-19 tracking and increase the accuracy of data, the state eventually implemented state-wide reporting systems, including EpiTrax and MO ACTS.⁵¹ Local stakeholders, however, noted that the implementation of these systems came late in the response and caused frustration, as already overburdened LPHA staff had to switch gears midstream. Many LPHAs described using and learning the systems simultaneously. One public health stakeholder from a smaller health department described not knowing whether they were using it correctly: *"We did finally learn the new system. However, I'm not sure that we're all putting in what we need to put in. I feel like most of the time, we're putting out fires instead of becoming proficient in anything. Keeping track of everybody was difficult for us... I can't imagine what some of the larger counties are having to deal with. However, they also get to have staff that are designated for that, and we don't."* Using these new systems for contact tracing purposes became particularly challenging in some very rural areas with limited internet access.

Despite these challenges, the new systems created efficiencies in disease tracking efforts for some, especially among LPHAs with limited staffing. One LPHA described their contact tracer's office as filled with paper files until they were able to utilize EpiTrax. Another health care stakeholder involved in contact tracing acknowledged the big difference between how LPHAs and the state were reporting data a year prior to the pandemic, describing the evolution of reporting among LPHAs and others involved: *"From paper to computer to just pulling the data. Now they're just pulling the COVID-19 lab results by themselves, which is wonderful. It's a big relief."*

Multiple interviewees also noted that there were technological barriers that hindered communication. A stakeholder from the business sector said the state needs to move towards modern information-sharing services and that the modernization process needs to be ongoing, not a one-and-done deal. Another business stakeholder claimed that real-time information sharing was not even an option because of how outdated certain webpages and systems were. When stakeholders were asked about possible recommendations and solutions for public health moving forward, one of the most-common responses was modernizing technological services, specifically data-sharing services and broadband internet.

51 Missouri Department of Health and Senior Services. COVID-19 technology response system. (2020). <https://health.mo.gov/living/healthcondiseases/communicable/novel-coronavirus/technology.php>

F. Trusted Information Sources Enhanced Communication Efforts but Contended with Rampant Misinformation

“So what we tried to do is support our community, support our health department, and try to get accurate information when they needed it, but not inundate people. Because they will shut off and they will not listen. We talked about what we’re seeing, [the number of] people in the COVID unit. So many deaths. By then, our community had begun to realize, ‘Oh, maybe it is real because my grandma had it or my uncle had it.’”

— HEALTH CARE STAKEHOLDER

LPHAs and organizations outside of public health had a commitment to educate their communities with reliable information about ways to stay safe during the pandemic. Several stakeholders felt that educational campaigns were more successful when they were more personalized, delivered by trusted community members, and met people “where they were at.” A local health care stakeholder spoke about the power of educational efforts in the pandemic response, affirming that “people feel better about getting [the vaccine] after we’ve done some education and talked to them.”

Communication with the public about prevention strategies like mask wearing took several forms, including billboards, newspapers, and word-of-mouth. One health department, for instance, developed a COVID-19 public education and information plan that utilized radio, newspaper, and regional television.

In a few counties, the education, business, and health care sectors played important roles in developing public

COVID-19 communication campaigns and leveraging established community partnerships and programs to deliver messaging. For example, a hospital created a regional partnership using CARES Act funding to bring together 20 to 30 different groups to communicate with, educate, and provide moral support to the public. The partnership utilized trusted voices in the community, such as employers and churches, in an attempt to educate citizens without overwhelming them, tailoring their messaging “to match how it would be accepted.” In another county, the business community ran personal-responsibility messaging, and featured community “COVID champions” who had played a positive role in fighting the virus.

LPHAs and health care organizations also relied on social media to disseminate information. Several residents identified LPHAs’ Facebook pages as an important source of information on the pandemic. Participants relied on them for updates on case rates, testing sites, and information on vaccination availability and registration: “I enabled Facebook Notifications for any time

the health department posted on Facebook. So, I was catching almost all of their updates and in terms of information-sharing, I think they have done a great job and have continued [to] develop well over time.”

Misinformation and Inconsistencies in Public Health Messaging

Stakeholders and residents, however, also noted the power of social media and certain news sources to spread misinformation. One health department employee observed that using Facebook to communicate information about COVID-19 “can turn into a shouting match with some people who think it’s all a conspiracy theory.” One resident noted: “So much of this [the problem with misinformation] I think is related to social media, where everybody is an expert and people have lost the ability to discern that epidemiologists and virologists and physicians, in general, are people that we should be taking seriously.”

The need for consistent messaging at the state, regional, and local levels to strengthen public health recommendations came up repeatedly in interviews and focus groups. One resident remarked, “People don’t know why these recommendations are ... important. [The recommendations] are getting pushed out without really spending time educating [about] them or doing the quality health communication that needs to get done, to help people understand why this is important. There isn’t really any persuasive communication going on.” Some residents also suggested that the lack of clear messaging from the outset about the vaccine’s safety and efficacy contributed to vaccine hesitancy in their communities. One resident said that inconsistent messaging failures from state and federal officials undermined local public health authority: “Our health department and other officials locally have to combat ... conflicting information coming from elected officials either at the state level or the national level ... You have people in really high positions going against what scientists say, or what public health officials say, and I can’t reconcile it in my own head.”

Confusion surrounded school mitigation strategies in several towns. Many parents and teachers in the focus groups were frustrated with how frequently school COVID-19 protocols seemed to vacillate. They felt

that this contributed to non-adherence, either through misunderstandings or blatant disregard for seemingly weak authority. A number of residents said a “cohesive message” clearly explaining the risks and recommendations for school-aged children would have helped. A teacher in the focus groups noted, “It was ugly a lot of the time at school this year ... We’ve gone through so many variations of what our criteria was going to be for whether we went completely online or whether we stayed at hybrid or whether we went back full-time in person. If there had been some very clear direction, it would have made that time period easier.”

Valuable Lessons Learned for Earning Public Trust

The majority of residents trusted their local public health officials and were more likely to rely on them for information about the pandemic than the state’s health department. Over half of participants could identify their local public health department director by name, while only a few could name the state director. Many residents said their confidence in LPHAs’ messaging was higher when officials cited the science in their recommendations and were transparent about what they did not know. Others said strong leadership and visibility were critical to instilling trust and confidence. Having a presence in the community prior to the pandemic through services like flu vaccine clinics also appeared to increase residents’ confidence in their health department as a trusted source of public health information.

Several residents felt that LPHAs that did not engage in the political back and forth associated with the pandemic were more successful at communicating public health messages. These agencies focused on science and the data in their updates, rather than engage in political debate. Some said that local endorsements from well-respected community members lent credibility to public health messaging coming from local public health departments. As one resident explained, “I think in these small towns whenever you can get somebody who is a figurehead in the community to get behind something, I think that’s really helpful.”

G. The Public Health Response Did Not Sufficiently Meet the Needs of Older Adults and Individuals Living in Poverty

“There’s a disparity, of course, with individuals with resources being able to have access to the vaccine while seniors and individuals that do not have resources are not able to have the vaccine.”

— COMMUNITY ORGANIZATION STAKEHOLDER

People of advanced age and those with low incomes faced particular issues when accessing essential public health services. In the Northeast region 14 out of 16 counties exceeded the state’s average poverty rate of 12.9% — in many cases, by several percentage points.⁵² Older adults make up 17%⁵³ of the population in Missouri, but in the Northeast older adults make up about 20% of the population in several counties.⁵⁴

Older individuals and those living in poverty were disproportionately affected by a lack of access to computers, broadband, and internet, which impeded their ability to learn about and register for services like testing and vaccination. Because vaccine registration was predominantly done through online platforms, some health care stakeholders feared that, early in the vaccine rollout, “people who are more tech savvy” were leapfrogging older, less-technology-adept individuals who were at higher risk. Residents in one focus group also raised

this issue, noting that they had heard “horror stories” about the challenges of registering online and how it impacted low-income and older individuals. As one resident pointed out, “The more-vulnerable people... don’t have the capacity to do it online.” A stakeholder from a community organization emphasized that “[even] being able to... utilize the phone system to get signed up” was a barrier for some older individuals.

Multiple stakeholders also discussed the need for targeted services for individuals without accessible transportation, including older adults and homebound populations. A health care stakeholder referred to transportation as one of the “social barriers and... detriments to care” most seriously impacting older adults. In some cases, hospitals and LPHAs assisted in the registration and transportation process. One hospital worked with local social service agencies to offer a vaccine clinic near a shuttle line in an attempt to reach residents who rely on

52 Missouri Census Data Center. Missouri county fact sheets. (2020). <https://mcdc.missouri.edu/applications/MO-county-factsheets/>

53 United States Census Bureau. Quick facts: Missouri. (2020). <https://www.census.gov/quickfacts/MO>

54 Missouri Census Data Center. Missouri county fact sheets. (2020). <https://mcdc.missouri.edu/applications/MO-county-factsheets/>

public transportation. An LPHA in another county established a similar partnership with a regional transportation service to bring older individuals to a central location where they could receive the vaccine. One community organization in the region worked specifically with older adults living in low-income housing to assist them with vaccine scheduling and registration. A stakeholder from that community organization recalled, *“I went to two low-income housing projects here in town for seniors ... I was in their lobby for two hours scheduling time for seniors to get signed up to get their vaccination.”*

The cost of testing was a major financial barrier that put testing out of reach for many people with limited incomes. In the early stages of the testing rollout, free community testing was not readily available in many areas of the region. Rapid tests were more likely to be available in more rural areas; however, they were less accurate and therefore not trusted by some. One stakeholder reported that the more-accurate PCR test cost around \$100.00. Another stakeholder, from the education sector, said that, *“a lot of people weren’t willing to be tested because it cost money.”*

Some stakeholders also discussed the struggles that low-income students faced when primary and secondary schools in the region transitioned to remote schooling

The cost of testing was a major financial barrier that put testing out of reach for many people with limited incomes.

during the early phases of the pandemic. In some of these cases, students in low-income households were expected to purchase necessary technology in order to participate in online learning. One stakeholder from the education sector expressed concern that the school did not have enough technological supplies to support these students. Other education stakeholders recalled telling their local public health departments that students in the most-rural counties would be disadvantaged by virtual learning, as internet access and reliability greatly varied. A local public health official stated, *“I worry about the majority of the kids that don’t have that support system on a normal day, much less with a tablet and a keyboard and they’ve got to Zoom-meet every morning.”*

H. Public Health Messaging Was Not Tailored to Latino, Black, and Immigrant Communities

Across Missouri, people of color were disproportionately impacted by COVID-19. Despite being 11% of Missouri's population, Black people made up 35% of COVID-19 cases and 14% of deaths.^{55,56} Latino people are 4% of the population but made up 13% of COVID-19 cases and 3% of deaths.^{57,58} A handful of residents, who work with community- and faith-based organizations serving immigrant communities, raised concerns about this disproportionate impact. These residents emphasized the missed opportunity of tailoring communication to various cultures and languages. In one focus group, residents discussed a recent outbreak in the local Congolese community and suggested that information had not been adequately targeted to that community and had not been translated into French. One resident said, *"The main thing for us was the language barrier. Like, a lot of [people in the Congolese community] don't understand English, and vice versa—I don't speak very good French."*

Another resident said that this problem had also emerged for the Hispanic/Latino community in the area. They also noted that getting enough interpreters had been challenging given the need to continually translate and update information about the ever-evolving pandemic.

A stakeholder from a community organization feared that insufficiently targeted messaging to Black, Latino, and immigrant community members would result in disparities in vaccination rates. The same stakeholder noted that communication strategies failed to take into account structural racism, specifically for Black community members who already experience high levels of *"fear and distrust"* of the health system.

55 Kaiser Family Foundation. COVID-19 cases by race/ethnicity. (2021). <https://www.kff.org/other/state-indicator/covid-19-cases-by-race-ethnicity/?currentTimeframe=0&selectedRows=%7B%22states%22:%7B%22missouri%22:%7B%7D%7D%7D&sort-Model=%7B%22collId%22:%22White%20%25%20of%20Cases%22,%22sort%22:%22asc%22%7D>

56 The COVID Tracking Project. Missouri: all race and ethnicity data. (2021). <https://covidtracking.com/data/state/missouri/race-ethnicity>

57 Kaiser Family Foundation. COVID-19 cases by race/ethnicity. (2021). <https://www.kff.org/other/state-indicator/covid-19-cases-by-race-ethnicity/?currentTimeframe=0&selectedRows=%7B%22states%22:%7B%22missouri%22:%7B%7D%7D%7D&sort-Model=%7B%22collId%22:%22White%20%25%20of%20Cases%22,%22sort%22:%22asc%22%7D>

58 The COVID Tracking Project. Missouri: all race and ethnicity data. (2021). <https://covidtracking.com/data/state/missouri/race-ethnicity>

Key Recommendations: Strengthening the Public Health Response to COVID-19 and Future Crises in Northeast Missouri

The infusion of new federal dollars into Missouri has the potential to bring more money to the state's public health infrastructure than ever before. Our hope is that these findings will be leveraged for the purpose of strengthening the public health system's ability to continue to respond to the COVID-19 pandemic and to face future crises with greater resources coordination, equitable strategies, modernized infrastructure, and public trust. Specific recommendations for advancing this vision are detailed in our report *Missouri's Public Health Response to COVID-19: Key Findings and Recommendations for State Action and Investment*⁵⁹

59 Levi, J., Regenstein, M., Hughes, D., Trott, J., Markus, A., Seyoum, S., Acosta, A., Benoit, M., Van Bronkhorst, H., Conway, C. "Missouri's Public Health Response to COVID-19: Key Findings and Recommendations for State Action and Investment". (September 2021). Health Policy and Management Issue Briefs. Paper 61. https://hsrc.himmelfarb.gwu.edu/sphhs_policy_briefs/61

TABLE 1. MISSOURI'S PUBLIC HEALTH RESPONSE TO COVID-19: KEY RECOMMENDATIONS FOR STRENGTHENING PUBLIC HEALTH INFRASTRUCTURE IN MISSOURI

Recommendation	The State of Missouri Should:
<p>1 Provide financial support and technical assistance for public health accreditation.</p>	<p>Create a special fund to provide technical assistance for LPHAs to assess readiness for accreditation via the Public Health Accreditation Board, identify costs to close gaps, and cover fees associated with the accreditation application process.</p>
<p>2 Prioritize equity.</p>	<p>Expand funding, staff, and other supports to help LPHAs integrate equity principles into data collection and reporting and community engagement (i.e., trust building, links to social services). Increase workforce and funding for the Office of Minority Health.</p>
<p>3 Build a modernized surveillance system.</p>	<p>Build a modernized system and provide LPHAs or regional bodies with hardware and software to manage the system, consistent with federal standards.</p>
<p>4 Create regional coordinating bodies.</p>	<p>Incentivize and support greater formal sharing of staffing and services among smaller LPHAs, with a lead public health agency designated to convene and coordinate, designed to develop and strengthen all foundational public health capabilities.</p>
<p>5 Bolster the public health workforce.</p>	<p>Support workforce development through equitable recruiting, hiring, and promotion practices; new training programs; enhanced salaries for LPHA leaders with advanced training; and deploy skilled staff within regions.</p>
<p>6 Ensure equitable public health funding across the state.</p>	<p>Provide a minimum level of funding for LPHAs, linked to delivery of foundational public health services and an equity analysis incorporating social vulnerability, and ensure that public health money flows directly to LPHAs.</p>
<p>7 Clarify LPHA governance structure and authorities.</p>	<p>Commission legal analysis to create greater consistency in decision making and oversight across LPHA governance and financing.</p>
<p>8 Harmonize policy development.</p>	<p>Ensure consistent policies across jurisdictions for public health prevention and mitigation measures. DHSS should establish and adhere to protocols for consultation with LPHAs on new policies during emergencies.</p>

SOURCE: Levi, J., Regenstein, M., Hughes, D., Trott, J., Markus, A., Seyoum, S., Acosta, A., Benoit, M., Van Bronkhorst, H., Conway, C. "Missouri's Public Health Response to COVID-19: Key Findings and Recommendations for State Action and Investment". (September 2021). Health Policy and Management Issue Briefs. Paper 61. https://hsrc.himmelfarb.gwu.edu/sphhs_policy_briefs/61

Appendix A: Methods and Data Sources

Stakeholder Interviews

This project employed a mixed-methods, qualitative comparative case study approach to conduct an evaluation of the public health response to COVID-19 in Missouri. The findings in this report come principally from interviews with stakeholders. A total of 131 stakeholders from state and local public health departments, elected and other government officials, health care organizations, educational institutions, the business community, faith-based organizations, membership associations, and a variety of social support services and other non-profits were interviewed virtually from October 2020 to May 2021. Twenty-five of these interviews were conducted in the Northeast region (Table A). Interviews were supplemented by media accounts and other publicly available data sources, as well as focus groups with 56 residents in the region (Table B).

A purposeful sample of stakeholders was recruited in a mix of counties throughout Northeast Missouri (Table A) to reflect variation in experiences with public health practice, local governmental processes and structures, and potential opportunities for strengthening public health statewide. Participants were recruited through snowball sampling, reviews of media reports, and general research techniques. All interviewees were promised confidentiality. Interview questions came from guides developed by GW for this study and customized to the sector represented by the interviewee. In the vast majority of cases, each interview consisted of one individual stakeholder and two GW study members. Interviewees did not receive compensation for their participation.

Interviews were audio-recorded with permission and then transcribed. Alternatively, careful note-taking was used when interviewees did not consent to audio-recording. All of the transcripts and notes were coded using the *Dedoose* qualitative software platform and following standard protocols for building a codebook and applying the codes to transcripts. Each interview transcript was coded by two or more GW study team members. Coded interview excerpts were reviewed for common themes, both within and across geographic regions. Themes were identified based on a variety of rationales, including the frequency with which they were mentioned in different transcripts and regions, the emphasis with which they were presented, and consensus amongst different GW study team members.

The selection of regions for in-depth analysis was informed by the Missouri State Emergency Management System (SEMA) division of the state into nine distinct regions (A-I), which are each affiliated with a Highway Patrol Troop. Highway Region B consists of 16 counties located in the Northeast corner of Missouri (see Figure 2). These counties include: Adair, Chariton, Clark, Knox, Lewis, Linn, Macon, Marion, Monroe, Putnam, Ralls, Randolph, Schuyler, Scotland, Shelby, and Sullivan.⁶⁰ Interviews were conducted with stakeholders from 6 different sectors in Northeast Missouri's Highway Region B (Table A).

⁶⁰ Missouri Department of Public Safety SEMA. State regional coordinators program. https://sema.dps.mo.gov/programs/area_coordinator.php

TABLE A. INTERVIEWS IN NORTHEAST MISSOURI (OCTOBER 2020 – APRIL 2021)

Sector	Who is Included?	Number of Interviews
Business	Chamber of commerce, business councils, economic groups	3
Community/Faith Organizations	Non-profits, for-profits, health networks, community partnerships, social services, churches, faith-based social service organizations	2
Education	K-12, higher education, and education-focused entities	6
Health Care	Hospitals and health centers, health care associations, long-term care facilities, and behavioral health	6
Policy	Government entities (city, county)	1
Public Health	Emergency management, LPHAs, research, and other public health-focused organizations	7
Total		25

Quotes were selected from transcribed interviews in the region and were condensed, abbreviated, or minorly redacted to protect confidentiality and clarify phrases in the event that the transcription service made errors or if the interviewees repeated themselves or added filler words (e.g., “um”) that distracted from their overall statements.

Focus Groups with Residents

We also held 11 focus groups and two one-on-one interviews with a total of 56 participants, all of whom resided in the Northeast region. We recruited participants through community-based organizations and leaders, faith-based institutions, local public health forums, such as COVID-19-related Facebook groups, and other community coalitions.

Our focus group sample comprises self-selected participants, who take the pandemic very seriously. In line with the convention of purposeful sampling in qualitative evaluations, this sample provides us with an intentionally well-informed group of participants, who have thoughtful and reasoned input on the public health response in Missouri.

While we appreciate participation from a more representative population of residents would have given us perspective on those with whom the public health response struggled to engage, we believe our sample provides a more useful and accurate assessment of how the public health response unfolded, how it was interpreted by those who understood its importance, and how the social and political context in the state impacted it.

We collected socio-demographic information from participants using a screening survey disseminated prior to the focus groups. Participants also provided information on COVID-19-related questions, including whether they had ever tested positive for COVID-19 and their vaccination status. During the focus groups, we also collected information from participants using Google polls. These polls focused on topics related to the public health response and asked participants to reflect on specific guidelines, including those recommended by the CDC; identify sources of information they use to get updates on the pandemic; and report their level of confidence in local public health officials.

All focus groups were conducted via Zoom and participants were invited to contribute through oral discussion or written comments using the chat function. Focus groups were recorded and transcribed for accuracy. Study members analyzed transcripts and chat records using NVivo software and examined key themes that emerged during the discussions. Themes were identified based on the frequency and intensity with which participants discussed an issue both across and within groups. Poll data were also analyzed to triangulate themes that emerged in the groups. Focus group participants received gift cards to Amazon or local stores in appreciation of their time.

Socio-Demographics of Focus Group Participants

While the majority of participants in the focus groups lived in Adair County, we also had residents participate from Randolph, Macon, Knox, Ralls, and Putnam Counties. The vast majority (86%) of participants were female and a majority (59%) were below the age of 50. Almost all of the participants (93%) identified as White, 2% identified as Black, 4% identified as Asian or Asian American, and 2% identified as Middle Eastern.

Half of respondents (50%) had completed either some college/two-year degree or four years of college, and 45% had earned a graduate degree. Most (71%) had a household income of less than \$99,000. Those participating in focus groups had a variety of employment situations. Most (66%) reported they worked as paid employees, and a small percentage (14%) said they were retired. Another 14% reported not working at the time of the focus group. Most participants lived in rural communities, with 82% reporting they lived in a non-metro area with a population of less than 20,000 people. More information about the northeast focus group participants can be found in Table B.

TABLE B. NORTHEAST FOCUS GROUP PARTICIPANT DEMOGRAPHICS

Number of Respondents **56**

Age	Respondents (% of total)
21-29	6 (11%)
30-39	12 (21%)
40-49	15 (27%)
50-59	11 (20%)
60-69	7 (13%)
70+	5 (9%)

Gender	Respondents (% of total)
N (%) female	48 (86%)
Identify as Transgender	2 (3.6%)

Race/Ethnicity	Respondents (% of total)
White	52 (93%)
Black	1 (2%)
Other	3 (5%)

Identify as Hispanic/Latino	Respondents (% of total)
N (%)	0 (0%)

Language	Respondents (% of total)
Speaking a language other than English at home, N (%)	1 (2%)

Highest Grade Level/ School	Respondents (% of total)
Some high school, but did not graduate	0 (0%)
High school degree or GED	3 (5%)
Some college or 2-year degree	12 (21%)
4-year college graduate	16 (29%)
Graduate school degree	25 (45%)
Other/prefer not to answer	0 (0%)

Income	Respondents (% of total)
Less than \$49,999	19 (34%)
Between \$50,000-\$99,999	21 (37%)
Between \$100,000-\$149,000	14 (25%)
Above \$150,000	2 (4%)
Other/prefer not to answer	0 (0%)

TABLE B. NORTHEAST FOCUS GROUP PARTICIPANT DEMOGRAPHICS (CONTINUED)

Number of Respondents 56

Employment Status	Respondents (% of total)
Working (as paid employee)	37 (66%)
Self-employed	3 (5%)
Retired	8 (14%)
Not working*	8 (14%)

Urban-Rural Makeup	Respondents (% of total)
City/Metro Area with a Population of 250,000 or more people	0 (0%)
City/Metro Area with a Population of 50,000 to 250,000 people	0 (0%)
City/Metro Area with a Population of 20,000 to 49,000 people	10 (18%)
Non-Metro Area (population of ≤ 20,000)	46 (82%)
Other/prefer not to answer	0 (0%)

*Category includes those that are unemployed, students, and those with disabilities which prevent them from working

Public Health Infrastructure and Demographics in Northeast Missouri

TABLE C. PUBLIC HEALTH INFRASTRUCTURE AND DEMOGRAPHICS IN NORTHEAST MISSOURI

County	Population ⁶¹	Racial & Ethnic Composition ⁶²	Persons living below poverty (%) ⁶³	LPHA Governance ⁶⁴	Per Capita Public Health Revenue ⁶⁵
Adair County	25,314	White: 89.4%; Black: 3.4%; AI/AN: 0.4%; Asian or PI: 2.7%; Multiracial: 2.0%; Hispanic: 2.6%	19.2%	Board of Trustees	\$40.51
Chariton County	7,408	White: 94.8%; Black: 2.4%; AI or AN: 0.5%; Asian or PI: 0.3%; Multiracial: 1.3%; Hispanic: 0.9%	12.5%	Board of Trustees	\$51.97
Clark County	6,634	White: 96.8%; Black: 0.4%; AI or AN: 0.2%; Asian or PI: 0.4%; Multiracial: 1.3%; Hispanic: 0.9%	14.2%	Board of Trustees	\$43.83

County	Population ⁶¹	Racial & Ethnic Composition ⁶²	Persons living below poverty (%) ⁶³	LPHA Governance ⁶⁴	Per Capita Public Health Revenue ⁶⁵
Knox County	3,744	White: 95.5%; Black: 0.6%; AI or AN: 0.6%; Asian or PI: 0.4%; Multiracial: 1.7%; Hispanic: 1.4%	16.7%	Board of Trustees	\$73.40
Lewis County	10,032	White: 92.5%; Black: 3.2%; AI or AN: 0.5%; Asian or PI: 0.5%; Multiracial: 1.7%; Hispanic: 1.9%	16.6%	Board of Trustees	\$132.44
Linn County	11,874	White: 94.2%; Black: 0.0%; AI or AN: 0.4%; Asian or PI: 0.4%; Multiracial: 1.7%; Hispanic: 2.8%	18.9%	Board of Trustees	\$52.63
Macon County	15,209	White: 93.1%; Black: 2.5%; AI or AN: 0.4%; Asian or PI: 0.7%; Multiracial: 1.9%; Hispanic: 1.8%	12.5%	Board of Trustees	\$48.82
Marion County	28,525	White: 90.0%; Black: 5.0%; AI or AN: 0.3%; Asian or PI: 0.8%; Multiracial: 2.5%; Hispanic: 1.9%	13.9%	Board of Trustees	\$33.66
Monroe County	8,666	White: 92.5%; Black: 2.9%; AI or AN: 0.6%; Asian or PI: 0.4%; Multiracial: 2.1%; Hispanic: 1.7%	13.4%	Board of Trustees	\$38.62
Putnam County	4,681	White: 95.3%; Black: 0.3%; AI or AN: 0.3%; Asian or PI: 0.5%; Multiracial: 1.3%; Hispanic: 2.5%	15.7%	Board of Trustees	\$82.64
Ralls County	10,355	White: 95.2%; Black: 1.4%; AI or AN: 0.2%; Asian or PI: 0.4%; Multiracial: 1.5%; Hispanic: 1.3%	10.0%	Board of Trustees	\$49.89
Randolph County	24,716	White: 88.8%; Black: 5.6%; AI or AN: 0.6%; Asian or PI: 0.8%; Multiracial: 2.5%; Hispanic: 2.2%	16.5%	Board of Trustees	\$51.64
Schuyler County	4,032	White: 96.4%; Black: 0.1%; AI or AN: 0.4%; Asian or PI: 0.3%; Multiracial: 1.2%; Hispanic: 1.7%	20.8%	Board of Trustees	\$67.76
Scotland County	4,716	White: 97.1%; Black: 0.1%; AI or AN: 0.3%; Asian or PI: 0.2%; Multiracial: 1.2%; Hispanic: 1.1%	14.4%	Board of Trustees	\$51.78

County	Population ⁶¹	Racial & Ethnic Composition ⁶²	Persons living below poverty (%) ⁶³	LPHA Governance ⁶⁴	Per Capita Public Health Revenue ⁶⁵
Shelby County	6,103	White: 95.1%; Black: 0.9%; AI or AN: 0.4%; Asian or PI: 0.2%; Multiracial: 1.5%; Hispanic: 2.2%	15.8%	Board of Trustees	\$76.50
Sullivan County	5,999	White: 76.7%; Black: 3.2%; AI or AN: 1.4%; Asian or PI: 1.1%; Multiracial: 1.1%; Hispanic: 18.6%	15.6%	Board of Trustees	\$60.65

*MICH Accreditation,⁶⁶ + PHAB Accreditation⁶⁷

61 United States Census Bureau. Quick Facts. (2020). <https://www.census.gov/quickfacts/fact/table/US/PST045219>

62 United States Census Bureau. Quick Facts. (2020). <https://www.census.gov/quickfacts/fact/table/US/PST045219>

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