

## A Summary of Missouri's Public Health System Capacity to Deliver the

Missouri Foundational Public Health Services Model

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Transformation of Missouri's public health system has been attempted multiple times in the past 20 years. The most recent and most comprehensive attempt has been made through public health professionals organizing around a grassroots initiative called #HealthierMO.

#HealthierMO is unique in its grassroots approach in that it is directed by local public health agencies and public health system stakeholders themselves, with goal of transforming Missouri's public health system from within. The transformation initiative has been built upon the national Foundational Public Health Services (FPHS) model, which defines a core set of public health capabilities and areas of expertise that must be available in every community to assure a functioning public health system and establish the foundation upon which an additional service platform will be built.

#### **FPHS Model Development**

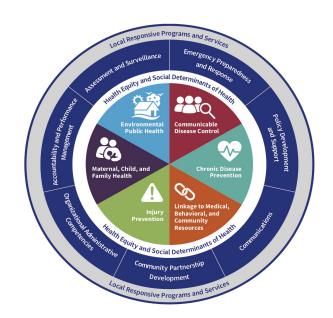
Missouri is not the first state to adapt the national FPHS model as the structure for transforming its public health system. Missouri is following in the footsteps of other states, examining their models, then inviting a workgroup of volunteer public health professionals to determine which FPHS activities best represented public health work in Missouri. Development of the model was guided by a simple question: What activities of public health must be available to all Missourians in every part of the state? The FPHS workgroup was provided with a detailed review comparing FPHS models from all other states. They considered accreditation standards like MICH and PHAB. They relied upon their real-world experience and they eventually settled on the core set of services that would become the Missouri FPHS model.

#HealthierMO then hosted focus groups in every region of the state and invited any LPHA who would participate to contribute to the model. A wide variety of feedback was gathered during the focus groups including the suggestion that Missouri's FPHS model align with the Universal Chart of Accounts and the inclusion of health equity in the model. The focus group participants examined each component of the FPHS model and eventually settled on six areas of expertise and seven capabilities, each defined by its own list of activities.

#### Visual Model

The work of the focus groups resulted in a highly detailed list of FPHS activities that would provide a common understanding of services, and later be used to evaluate costs, identify gaps, and justify requests for additional funding; however, the utility and comprehensiveness of the full written model made it too complex to present without explanation to public health workers, and certainly to the general public.

To present the model to ourselves,
Missouri public health system
stakeholders worked with the
#HealthierMO team to design a visual
representation of the FPHS model. The
"pie slices" at the center represent the
foundational areas of expertise, the heart
of public health. The dark blue ring
catalogues the foundational capabilities.



### **Health Equity**

Of much discussion was the way that health equity would be emphasized within the model. The workgroup and focus groups agreed equity should be integrated into the FPHS capabilities and areas, rather than separated out as its own piece. The visual model explicitly calls out "Health Equity and Social Determinants of Health", depicting it as a circle encompassing the FPHS areas, underlying the FPHS capabilities, and as a lens through which public health services are assured.

## **FPHS Capacity Assessment**

Once the model was established, Missouri's capacity to assure the FPHS needed to be assessed. This capacity assessment would reveal the gaps in the current capacity and be used to approximate the costs to fully deliver the FPHS model across the state. LPHAs assessed their own capacity on a scale of 1 to 6, in which scores 1 to 3 indicated that the service was not assured, and scores 4 to 6 indicated that the service was assured to some extent. If the FPHA indicated they were unable to assure a specific service (scores 1 to 3), they were then asked a follow-up question: "What would you need to provide this service?", along with seven options: hire more people with this expertise, specific training for our existing people, specific technology, partner with another LPHA, share with another entity, we face resistance in providing this, or we do not think this is necessary. All but two of Missouri's 114 LPHAs participated in the Capacity Assessment. (Note: At the time of the survey, there were 114 LPHAs. There are now 115.)

#### **FPHS Data Clusters**

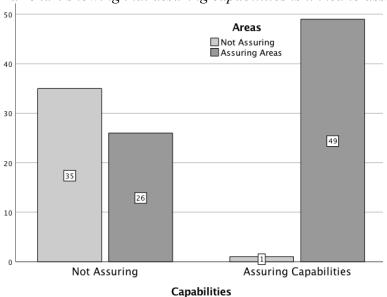
To better understand the complexities about the public health system revealed by the FPHS capacity survey, it was necessary to distinguish which LPHAs could or could not currently assure the elements of the FPHS model. Should that separation be done geographically, by county population, or perhaps separating urban from rural? We landed on using a statistical technique called a *two-step cluster analysis* to separate groups of LPHAs who were generally able to assure the model components from those who were generally not. The clustering was considered separately for areas and capabilities. An LPHA could assure one, both, or neither.

Overall, 44.6% (50 of 111) of LPHAs assured the capabilities and 67.9% (76 of 112) assured the areas of expertise. One LPHA answered questions about all the areas, but didn't answer all of the capability questions, resulting in the cluster counts differing by one. Although the evaluation of assuring and not assuring was done at the county level, we had promised to protect the anonymity of the LPHAs who answered the survey; therefore, all descriptions in this summary report will either be anonymous (assure vs. not assure cluster) or presented at the level of regions.

## Is Capability Capacity Necessary for Areas of Expertise Capacity?

Many public health professionals in other states have stated that capacity in FPHS capabilities is necessary in order to provide FPHS areas. Abilities like organizational administrative competencies, emergency preparedness, and communications should be the foundation that supports the areas of expertise. Our survey empirically demonstrated that this was true. LPHAs who assure FPHS capabilities are 2.3 times more likely to assure FPHS areas of expertise than LPHAs who do not assure capability. Only 42.6% of LPHAs who did not

assure the capabilities were able to assure the areas, compared to 98% of LPHAs who did assure the capabilities. These findings strongly support the contention that FPHS capabilities are foundational to providing FPHS areas and appear to represent the first time the link between capabilities and areas provision has been empirically tested and verified.



Bar chart showing that assuring capabilities is linked to assuring areas

Do the FPHS Assurance Clusters Reflect Levels of Urbanization?

Is there an urban vs. rural divide in public health and does it explain FPHS performance? The simple answer is: *Yes, but not in the way that you think*. The LPHAs were separated into urbanization categories based upon their 2010 population density: rural (< 20K per square mile) densely settled rural (< 40K) semi-urban (< 150K) urban (>150K). Note that this is population *density*, not raw population. Given the statewide percentage for each level of urbanization, both the largest urban and smallest rural LPHAs are assuring capabilities and areas at rates higher than expected. Densely settled rural and semi-urban were slightly less likely to assure either areas or capabilities but were more likely to assure the areas without assuring the capabilities.

Are the FPHS Clusters a Function of Urbanization?

	Rural	Dense rural	Semi-urban	Urban
Assure Capability	28.0%	26.0%	28.0%	18.0%
Assure Areas	27.6%	30.3%	30.3%	11.8%
State percentage of urbanization	24.1%	33.0%	31.3%	11.6%

## Do the FPHS Assurance Clusters Reflect Funding Levels?

It is easy to suggest that money is the solution for problems facing Missouri's public health system, but in this analysis, the data clearly bears this out. None of the typical funding areas are related to the ability to assure FPHS (i.e., population, tax rate, total revenue all sources, total local revenues, total FTEs, number of paid holidays for staff, annual fringe rate percentage). However, overall per-capita funding alone – apart from all other financial, personnel, or population variables – distinguished the group of LPHAs who lacked capacity from those who possess capacity. The mean differences in funding are approximately \$6.50 per capita for capabilities and \$10 per capita for areas.

It is not the overall level of funding, but the equitable distribution of funding *per capita* that best predicts whether an LPHA assures the FPHS model or not. Average taxation rate for LPHAs were practically identical (0.2 vs. 0.1), so efforts at increasing a mill tax should be informed by the full report to estimate the per capita increase necessary to close the gap for a specific locale.

## What does this Finding Mean for Funding?

The capacity survey offers insight into how some lower-funded LPHAs use their existing funding to still provide areas of expertise, along with the implications for future funding. In the full report, readers can find detailed explorations of the relationships between funding and FPHS

performance. In summary, there is no generalizable pattern between level of funding and availability of employees or assuring of any particular component in the model. The overall lack of a pattern suggests that LPHAs make individualized decisions about how best to allocate limited resources.

Another finding showed that money spent on hiring was 4.25 times more important to assuring capabilities than assuring areas (effect size for total FTEs for capabilities (d = .34); for areas (d = .08)). If funding allocated to FPHS areas is directed through contracts that are too prescriptive, local needs may not be addressed. These findings suggest flexibility in future funding allocations could increase the effectiveness of funding allocated to FPHS areas, allowing LPHAs to apply it to real-world needs within their community or agency.

### **Training is Important to the Future of Public Health.**

Going into the COVID-19 pandemic, 95% of Missouri LPHAs had 10 or fewer trained contact tracers on staff and 66% had 5 or fewer. In a state with a population of 6.1 million, only 408 local public health professionals were trained to administer immunizations, 90% of LPHAs had six or fewer trained immunizations staff, and over half (58%) had four or less. LPHAs have now increased capacity by cross-training staff as contract tracers. By later reports during formal and informal discussions, many LPHAs trained more of their staff to do contact tracing during the pandemic, marking a potential shift away from job-specific siloes to a multi-disciplinary team approach to building healthier communities. Data from the capacity survey also identified the need for staff training as a consistent second-place finisher for greatest needs to assure FPHS capabilities and areas (see Appendix A for details).

#### The Case for Supporting LPHA Directors/Administrators

The challenges of the COVID-19 response have contributed to unprecedented turnover within Missouri's public health system. When this report was written, 22 LPHA directors/administrators had retired or otherwise left their position since COVID-19 started a year ago (19% turnover). Within the last 18 months, 1 in 4 Missouri LPHAs (25%) have experienced a change in leadership. Director turnover is important because the Capacity Assessment data reveal that LPHAs led by directors with less than two years of experience were approximately 2.7 times less likely to assure the FPHS capabilities. Director turnover was less damaging to assurance of FPHS areas, perhaps because specific LPHA staff specialize in FPHS areas and are likely to remain even through administrative turnover.

Directors of some LPHAs have assistants and co-directors to assist with administrating the LPHA. Other LPHA directors function not only as the director, but also in one or more additional roles at the LPHA. LPHA directors who were required to multi-task in this way, rather than focusing solely on the director role were 1.62 times less likely to assure the capabilities than LPHAs whose director has only one role.

Mitigating the effects of director turnover and addressing multitasking represents a massive challenge to delivering the FPHS model in Missouri. Assuming that LPHA directors multitask because of limited budgets or because they do not have enough staff to fill needed roles, it affects the ability of the LPHA to assure the FPHS capabilities. Future funding decisions should consider whether LPHA directors need to be able to focus on administrative functions alone, and whether director multitasking should be a criterion in considerations regarding resource allocation. New administrators may perhaps need training and mentoring, and

collaboration with more experienced directors or other professionals to gain vital information, navigate their new positions, and increase their capacity to assure the FPHS capabilities.

#### The Role of Accreditation

LPHAs were asked about their progress toward accreditation through Missouri Institute for Community Health (MICH) and/or their progress toward accreditation through the national Public Health Accreditation Board (PHAB). The survey showed that accreditation is rare. Only 13.4% of LPHAs are currently accredited by MICH, 7.2% are accredited by or seeking accreditation from PHAB, but most are not considering applying for accreditation from either MICH (69.6%) or PHAB (80.4%). When asked about barriers to accreditation, two responses dominated: seeking accreditation is cost-prohibitive (71.6%) and time-prohibitive (68.8%).

The value of accreditation is that it predicts capacity. Accredited LPHAs are 2.7 times more likely to fully assure the FPHS model than unaccredited agencies. Capacity assessment data show 76.2% of accredited LPHAs fully assure the FPHS model compared to 36% of non-accredited LPHAs. However, accreditation does not *guarantee* capacity. Among non-accredited LPHAs, the same percentage fully assure the FPHS model (36%) as those who do not (36%). Nor does the type of accreditation affect FPHS assurance. Data show 73.3% of MICH-accredited LPHAs had full assurance and 85.7% of PHAB- accredited LPHAs had full assurance.

The accreditation process can be a mechanism to increase FPHS capacity. If pursuit of accreditation begins with establishing quality-improvement processes and developing the LPHA workforce, benefits will accrue with or without achieving accreditation standards. However, full accreditation requires resources. LPHAs will likely need both funding and staffing resources to achieve accreditation, along with support for developing an agency strategic plan, community

health improvement plan, workforce development plan, and a community health assessment. Additional state funding could help LPHAs with costs, but additional staff may be necessary to give LPHAs sufficient time to work on accreditation. Regardless of whether LPHAs actually achieve full accreditation, working to achieve accreditation standards will increase capacity in the FPHS, and fully assuring FPHS will get them most of the way toward accreditation.

#### The Future of Transformation

How might a template for transforming of Missouri's public health system take shape? Based on the findings in the FPHS capacity survey and #HealthierMO's experience with transformation work in Missouri over the past three years, this report offers several data-based considerations for discussions about how to implement transformation of the public health system towards providing the foundational capacities and areas.

- Community Health Assessment. A reasonable first step would be to educate LPHAs on the
  strategic need for conducting a community health assessment and support their efforts to do
  so at least once every three years. Strategic planning requires time, money, and effort.

  Faced with limited resources and high demand for local public health services, many
  LPHAs must be reactionary, rather than strategic, in their program and service delivery.

  The community health assessment, while certainly not the only tool available, is an
  adequate starting place for discussing how to plan for future needs and address root causes.
- 2. Strategic Community Partnerships. Many LPHAs identified a need to partner with either another LPHA or another entity to effectively assure the FPHS components. Public health agencies can engage active participation from community members in order to achieve the level of buy-in required for sustainable change.

- 3. *Programs and Policies*. LPHAs can leverage their relationships with community health partners and fellow LPHAs to encourage public buy-in and support for policy change. Support can also be sought for those programs that would address their areas of lack, identified by the FPHS capacity survey and/or the community health assessment.
- 4. *Mentorship*. Given the level of turnover among LPHA administrators, one way to support new administrators would involve a six-month to a year-long mentoring program in which a dedicated expert mentor would walk with the health department to complete the strategy outlined above.
- 5. *Costing Analysis*. Having established the capacity of Missouri LPHAs to deliver the FPHS model across the state, the next step would be a costing assessment. This should reveal where funding gaps exist and identify the cost to fill those gaps.

#### What is the role of the state health department in making these changes?

One area in which the state health department could improve the function of LPHAs, would be the inclusion of discretionary funding within the contracts. The fact that so many LPHAs still manage to provide areas of expertise despite not having capabilities in place shows that local agencies have allocated their existing funding to be responsive to local needs. Because local needs vary and are more easily recognized by entities closest to the community in which the needs exist, perhaps LPHAs should be given greater latitude in which to allocate their funding, having demonstrated that they have historically done so responsibly. This change would allow LPHAs to direct their activities toward programs that are responsive to needs within the local communities while still meeting the broad purpose for the funding.

#### Conclusion

There is reason for optimism about Missouri's public health system. The demands of COVID-19 have certainly stressed the system and contributed to turnover among LPHA administrators, but it has also highlighted opportunities for improvement. The public health system dramatically changed its focus in response to the global pandemic, but relatively few public health fundamentals have changed behind the chaos; it has been strained but it is not been irreparably damaged. The chaotic federal response during the first year of the pandemic is now re-normalizing: funding state public health systems, restoring a commitment to science, and above all, effectively delivering vaccines to the citizenry.

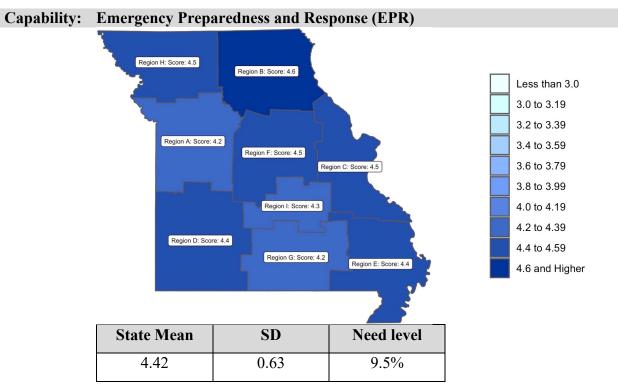
The coming year will be a turning point, however. At the local level, COVID-19 has been a profound challenge, but public health fundamentals remain intact. If local public agencies in Missouri are provided the funding they require, they can build on those existing fundamentals and move toward transforming public health in Missouri. If LPHAs are starved of funds, not provided the support and training that they need, or stripped of their ability to provide governmental public health, then high turnover and erosion of public health services will likely occur in Missouri, jeopardizing the lives and health of Missourians across the state and leaving us underprepared for the next pandemic or public health threat.

#HealthierMO continues to collect and analyze data in an effort to best support
Missouri's public health agencies, facilitating organic changes that will help them assure the
FPHS, shape the future of Missouri's public health system, and provide all of us with the fair
opportunity to live healthier lives.

## Appendix A

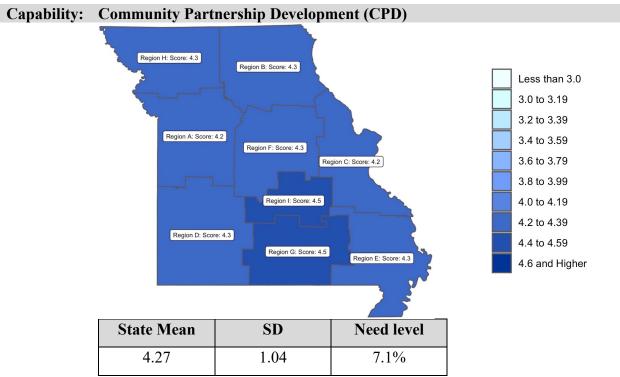
## **FPHS Capacity Across Missouri**

The #HealthierMO FPHS Capacity survey asked LPHAs about their capacity to perform activities in each of the seven FPHS capabilities and the six FPHS areas of expertise. We promised LPHAs that we would protect their anonymity and not reveal individual scores; however, we were able to aggregate scores by regions of the state. capabilities are listed first, followed by areas of expertise, each in order of capacity from highest to lowest. Darker colors indicate greater capacity. The greatest needs are the most common responses identifying what would be needed in order to assure that item.



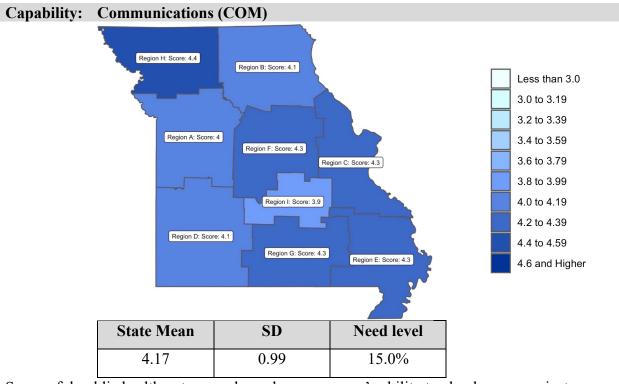
The Emergency Preparedness and Response (EPR) capability reflects the capacity to promote ongoing community resilience and preparedness, issue and enforce public health orders, share information with key partners and the general public, lead the health and medical response to emergencies, and address natural or other disasters and emergencies, including special protection of vulnerable populations. EPR capacity is uniformly high across the state with most LPHAs in or approach the 90% level. The lowest ranking is for utilization of the Missouri Laboratory Response Network (MOLRN) at 50.9%.

**Greatest needs:** Hiring (41.1%), with training as a close second (32.6%)



The Community Partnership Development (CPD) capability reflects the ability to create, convene, and sustain strategic collaborative relationships with local, state, and regional partners, in keeping with the Public Health 3.0 model. These initiatives should be guided by data and should address health inequities and social determinants of health. This capability was strongly endorsed across the state, and most LPHAs provided in all of the areas.

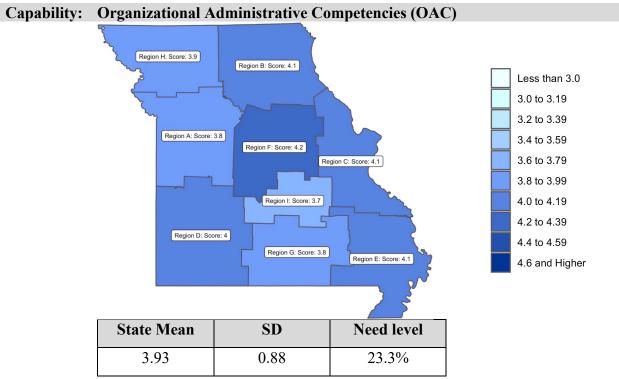
**Greatest needs:** Hiring (50.4%) and training (33.6%)



Successful public health outcomes depend on an agency's ability to clearly communicate proactive health education and disease prevention messages. Communication involves sharing, receiving, and interpreting messages through a number of different techniques and pathways. Agencies should assure information is accessible, understandable, and actionable for all audiences. At the regional level, this capability appears robust, with over four-fifths being able to communicate about public health in written (91.5%), spoken (85.3%, or electronic (84.4%) format.

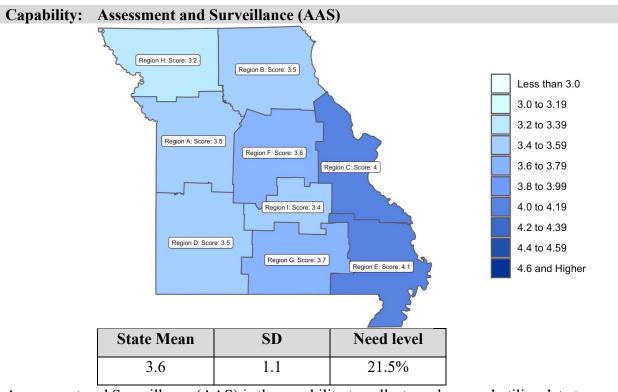
**Greatest needs:** 

Hiring (50.7%) and training (29.8%) and most of the LPHAs with communication needs (72.8%) are in the *Not Assuring* cluster.



The Organizational Administrative Competencies (OAC) capability reflects the ability to demonstrate competence in cross-cutting skills such as leadership and governance, information technology, human resources services, legal services, financial management, contract and procurement services, and facilities and operations management. This capability was ranked generally strong. Fiscal management was ranked above 90% in all sections. Other areas averaged around 75%. The lowest service was to voluntarily pursue public health agency accreditation (27.7%).

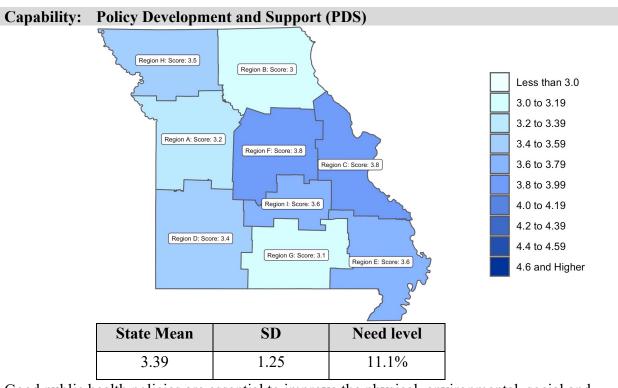
Greatest needs: Hiring (46.3%), training (27.6%), and technology (12.6%)



Assessment and Surveillance (AAS) is the capability to collect, analyze, and utilize data to guide public health planning and decision making. The AAS capability includes the ability to prioritize and respond to data requests, translate data into understandable reports, consider data through the lens of health equity and social determinants of health, and use data to identify local, regional and state public health priorities.

**Greatest needs:** 

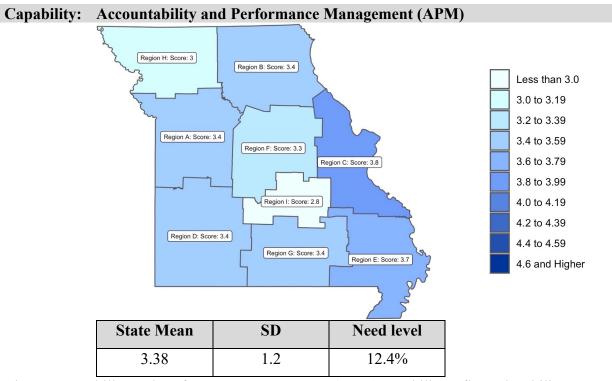
Hiring (34.5%), training (33.0%), and technology (19.3%); AAS is the second highest area of need among the capabilities



Good public health policies are essential to improve the physical, environmental, social and economic conditions that affect health. The Policy Development and Support (PDS) capability reflects the ability for every public health agency to serve as an expert resource for establishing, maintaining and developing basic public health policy recommendations that are evidence-based, grounded in law and legally defendable. All regions report the ability to provide this capability. Nearly 80% of LPHAs report being able to include the needs of vulnerable populations within recommendations for public health policies but over half are unable to research, analyze, cost out, and articulate the impact of public health policy recommendations.

**Greatest needs:** 

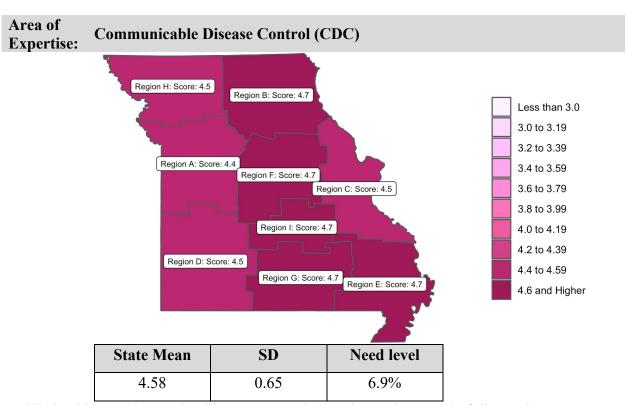
Hiring (50.5%), training (42.6%) and most of the LPHAs indicating these needs (81.8%) are in the *Not Assuring* cluster.



The Accountability and Performance Management (APM) capability reflects the ability to follow accepted business standards, integrate evidence-based practices, and maintain an organizational culture of continuous quality improvement. APM capability focuses on continuous quality improvement in the public health system. This capability was one of the lower ranked in the model. Other than the *ability to uphold accepted business standards* (90.2%) half or fewer of LPHAs were able to provide in the remaining sections. Overall low scores for APM suggest the need for systemic training on establishing a strategic plan, how to conduct a community health assessment, how to convene partners and collaboratively develop policies and then communicate those to the public.

**Greatest needs:** Hiring (47.4%), and training (37.7%)

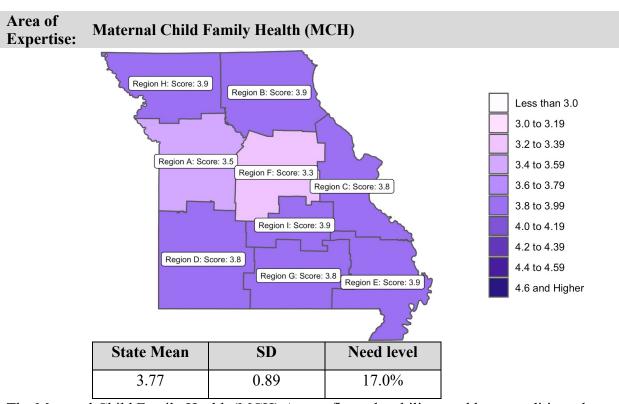
**FPHS** Areas



Public health agencies work with partners to slow and stop the spread of disease in a community. The highest skillset across the state was for Communicable Disease Control, which has proven vital in the public health response to the COVID-19 pandemic. The Communicable Disease Control (CDC) Area reflects the ability to prevent and stop the spread of disease through strategies such surveillance to quickly identify diseases that pose a threat to public health, isolating their cause, and preventing their spread using a variety of methods. Immunizations, community education, and non-pharmaceutical interventions like social distancing play a significant role in communicable disease control. Communicable Disease Control is the strongest Area of provision with almost all categories above 90%. The only notable exception is for *Seeking funding for communicable disease control initiatives* (58.7%), which is not an outward-facing activity. *Enforcement of emergency health orders* (87.4%) was a significant issue with COVID-19. Although the LPHAs have the authority to issue orders, they depend on the voluntary good will of people to follow the orders.

**Greatest needs:** 

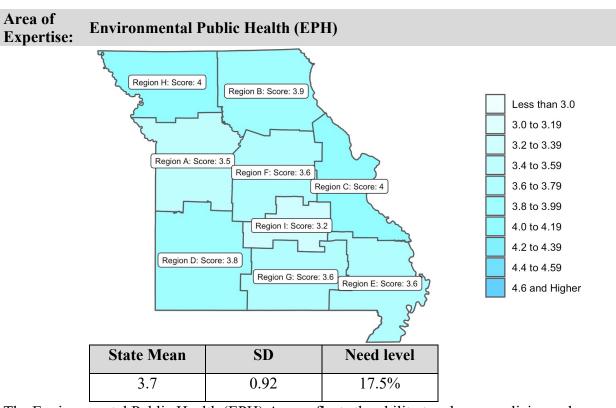
Hiring (55.2%), training (21.0%), and support (11.9%). Note the increased need for support in the areas compared to the capabilities. Communicable disease control is the area most taxed by responding to the COVID-19 outbreak.



The Maternal Child Family Health (MCH) Area reflects the ability to address conditions that affect health behaviors and improve wellness indicators for women, children, and families across the lifespan. None of the regions reported average capacity above 4.0, although average capacity is consistently at 3.8 or 3.9, except in the center of the state.

**Greatest needs:** 

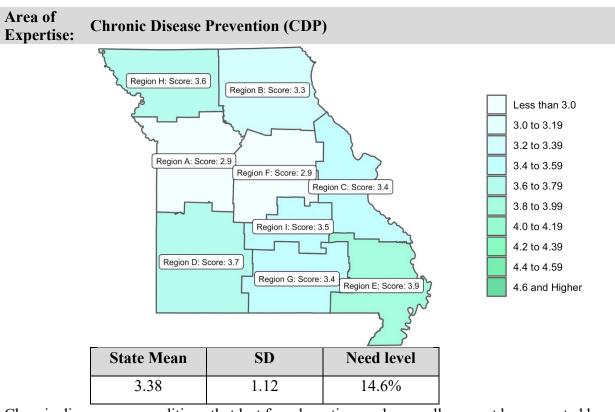
Hiring (55.7%), training (23.0%), and support (15.1%). MCH may be one of the easiest areas in which to find additional funding if the LPHA has a clear objective and program outline ready for grant applications that arise.



The Environmental Public Health (EPH) Area reflects the ability to advance policies and programs to reduce chemical and other environmental exposures in air, water, soil and food to protect people and provide communities with healthier environments. This area showed moderate levels of provision and great consistency across regions, with all regions reporting an average capacity between 3.2 and 4.0.

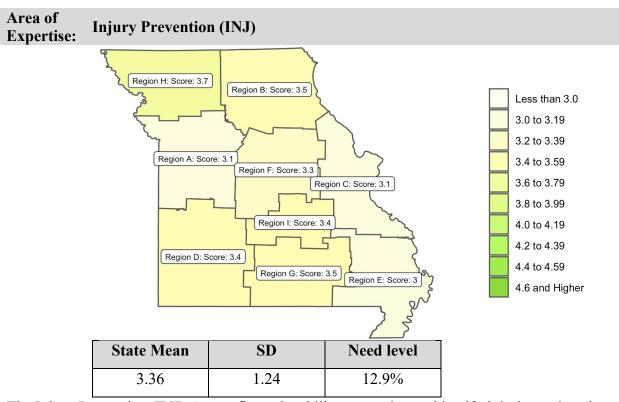
**Greatest needs:** 

By far, the greatest need for effective provision in this area is hiring additional staff (55.9%), followed by training existing staff (20.9%) and support (14.0%). The highest priority needs for training are for *provide* information on environmental public health issues (81.1%), environmental health disease investigations (73.5%), develop an environmental public health plan (67.0%) and retail food training (59.0%).



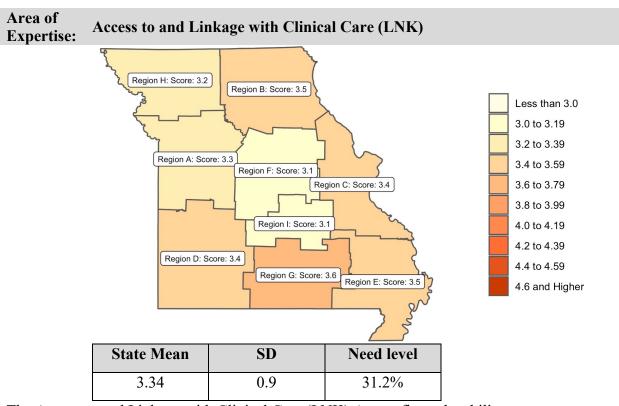
Chronic diseases are conditions that last for a long time and generally cannot be prevented by vaccines or cured by medicine. The Chronic Disease Prevention (CDP) Area reflects the ability to work with partners to share information, develop policies, and create environments that support activities to prevent chronic disease – activities like smoking cessation, healthy eating, and exercising.

**Greatest needs:** Hiring (66.0%), and training (19.1%)



The Injury Prevention (INJ) Area reflects the ability to use data to identify injuries and study trends in how injuries are changing over time and the impact of injury prevention programs. Average scores were generally low in this Area with no region reporting over 4.0, and most scores averaging around 3.0. Only a handful of LPHAs reported robust capacity in this area.

**Greatest needs:** Hiring (64.2%), and training (20.9%)



The Access to and Linkage with Clinical Care (LNK) Area reflects the ability to connect individuals with local, regional, and state resources for medical care and behavioral health care. This area was moderate in its provision with very few LPHAs excelling, but most LPHAs being able to provide at least a minimal level of service. *Licensing, monitoring, and discipline health care providers* (12%) has not historically been a public health role in Missouri, which likely accounts for the very low scores.

**Greatest needs:** Hiring (62.6%), training (15.8%), and support (11.6%).

The table below ranks the number of below-3 responses showing the relative number of needs. Services at the top of the rankings indicate the greatest levels of need, the leader being *Linkage to Medical, Behavioral, and Community Resources*.

FPHS needs for Effective Response by Magnitude of Need

FPHS	Section	Mean	SD	Needs
Linkage to Medical, Behavioral, and Community Resources	Area	3.34	0.90	647
Organizational Administrative Competencies	Capability	3.93	0.88	428
Assessment and Surveillance	Capability	3.60	1.10	394
Environmental Public Health	Area	3.70	0.92	363
Maternal, Child, and Family Health	Area	3.77	0.89	352
Chronic Disease Prevention	Area	3.38	1.12	303
Communications	Capability	4.17	0.99	276
Injury Prevention	Area	3.36	1.24	268
Accountability and Performance Management	Capability	3.38	1.20	228
Policy Development and Support	Capability	3.39	1.25	203
Emergency Preparedness and Response	Capability	4.42	0.63	175
Communicable Disease Control	Area	4.58	0.65	143
Community Partnership Development	Capability	4.27	1.04	131

*Note*. Means and standard deviations are statewide data.