

5-10-2020

## Developing a QI Culture in Accredited Local Health Departments: Use of Normalization Process Theory

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# Developing a QI Culture in Accredited Local Health Departments: Use of Normalization Process Theory

Lina Elise Smith

B.A., Wheaton College, 2012

A Thesis

Submitted in Partial Fulfillment of the

Requirements for the Degree of

Master of Public Health

at the

University of Connecticut

2020

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# APPROVAL PAGE

Master of Public Health Thesis

## Developing a QI Culture in Accredited Local Health Departments: Use of Normalization Process Theory

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## ACKNOWLEDGEMENTS

I would like to extend a sincere thank you to **Bonnie McRee** for guiding me through this thesis and for her kind and thoughtful comments and suggestions throughout the process. I would also like to thank my additional thesis advisors, **Karen Spargo** and **David Gregorio**, for their valuable insight and support throughout the development of my project. Additional thanks to **Joe Burleson**, **Janice Vendetti**, **Deb Paturzo**, and **Scott Wetstone** for helping me to brainstorm, refine my methodology, and develop the skills needed to carry out my analysis. I would like to thank **Jess Kronstadt** at the Public Health Accreditation Board for her assistance in obtaining the PHAB dataset and reviewing my methodology. Thank you also to the remainder of the **public health faculty** who have guided me through the program, my **staff and faculty colleagues at UConn Health** for their support, as well as my **classmates** for their camaraderie throughout this educational endeavor.

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## ABSTRACT

Background: Accreditation can benefit local health departments (LHDs) through the promotion of a culture of quality improvement (QI); yet LHDs tend not to perform well on QI-related measures (*Domain 9 – Evaluate and Continuously Improve Processes, Programs, and Interventions*). Methods: This study evaluated whether small/medium LHDs' performance on Domain 9 impacts their accreditation results or performance on other domains. The qualitative analysis utilized Normalization Process Theory to reveal factors that guide LHDs in accreditation preparations. Results: Small/medium LHDs not required to submit an action plan scored higher on Domain 9. Performance on four domains exhibited a moderately strong correlation with performance on Domain 9 ( $.40 \leq r \leq .70$ ). Discussion: LHD staff play a pivotal role in accreditation goals, like the development of a culture of QI. Growth of staff commitment can increase QI comprehension, engagement in QI, stimulated action, and feedback loops that move LHDs towards institutional cultures of QI.

## **FOUNDATIONAL AND CONCENTRATION COMPETENCIES**

This thesis addressed several Foundational and Concentration Competencies (Table I). Using a dataset provided by the Public Health Accreditation Board (PHAB), this project called for the use of suitable software to analyze quantitative and qualitative data (Foundational Competency 3), as well as interpret the results of those analyses (Foundational Competency 4) to answer the identified research questions. By addressing these two foundational competencies, Concentration Competency 2 is also addressed. The PHAB dataset used in this project included data on the performance of health departments during accreditation, which allowed the researcher to compare the function of public health departments on a national level (Foundational Competency 5). By providing foundational standards which all health departments should aim to achieve, accreditation intends to improve the public health infrastructure throughout the United States through the lens of a systems-thinking framework (Foundational Competency 22, Concentration Competency 5), which is further detailed in the following section. Finally, through the preparation of this research report and the presentation of a poster, this project also satisfies Foundational Competency 19.

Table 1: Foundational and Concentration Competencies Addressed

<b>Foundational Competencies</b>
1. Apply epidemiological methods to the breadth of settings and situations in public health practice
2. Select quantitative and qualitative data collection methods appropriate for a given public health context
<b>3. Analyze quantitative and qualitative data using biostatistics, informatics, computer-based programming and software, as appropriate</b>
<b>4. Interpret results of data analysis for public health research, policy or practice</b>
<b>5. Compare the organization, structure and function of health care, public health and regulatory systems across national and international settings</b>
6. Discuss the means by which structural bias, social inequities and racism undermine health and create challenges to achieving health equity at organizational, community and societal levels
7. Assess population needs, assets and capacities that affect communities' health
8. Apply awareness of cultural values and practices to the design or implementation of public health policies or programs
9. Design a population-based policy, program, project or intervention
10. Explain basic principles and tools of budget and resource management
11. Select methods to evaluate public health programs
12. Discuss multiple dimensions of the policy-making process, including the roles of ethics and evidence
13. Propose strategies to identify stakeholders and build coalitions and partnerships for influencing public health outcomes
14. Advocate for political, social or economic policies and programs that will improve health in diverse populations
15. Evaluate policies for their impact on public health and health equity
16. Apply principles of leadership, governance and management, which include creating a vision, empowering others, fostering collaboration and guiding decision-making
17. Apply negotiation and mediation skills to address organizational or community challenges
18. Select communication strategies for different audiences and sectors
<b>19. Communicate audience-appropriate public health content, both in writing and through oral presentation</b>
20. Describe the importance of cultural competence in communicating public health content
21. Perform effectively on interprofessional teams
<b>22. Apply systems thinking tools to a public health issue</b>
<b>Concentration Competencies</b>
1. Apply principles of Community-based Participatory Research (CBPR) in designing, collecting, and utilizing data to address public health problems.
<b>2. Use mixed method for data collection and analysis in producing comprehensive answers to public health questions.</b>
3. Demonstrate high personal and professional ethical conduct in contributing to team-based activities.
4. Employ legal-ethical reasoning to advance interprofessional public health policy and practices.
<b>5. Demonstrate use of Systems Thinking (ST) in promoting effective public health programs and policies.</b>

## SYSTEMS-THINKING FRAMEWORK

Public health, in the United States, is a system, defined by one author as follows:

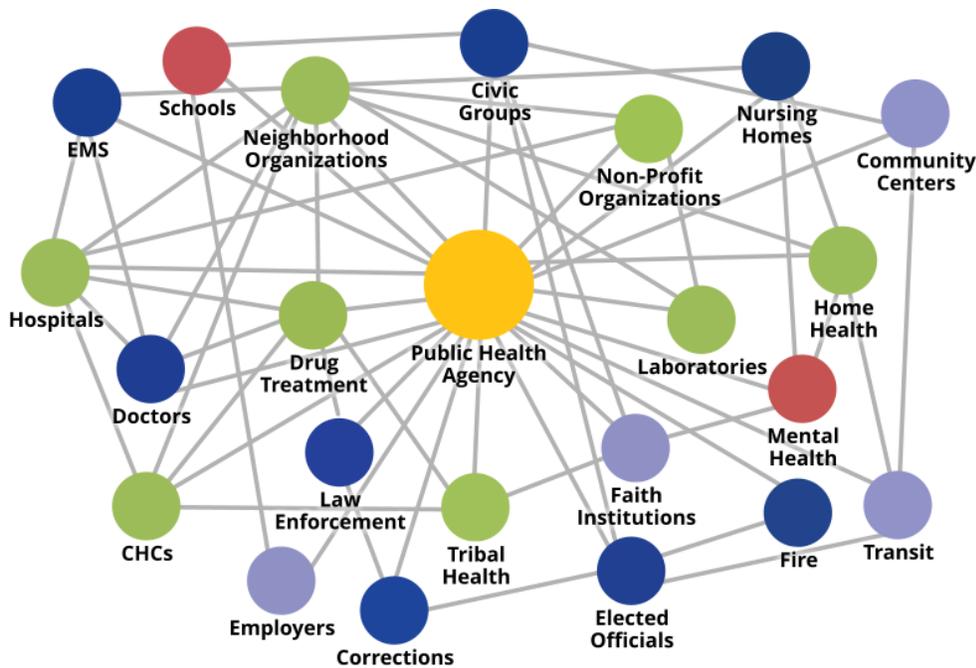
- Systems have purpose.
- All parts must be present for a system to carry out its purpose optimally.
- The order in which the parts are arranged affects the performance of a system.
- Systems attempt to maintain stability through feedback.<sup>1</sup>

The U.S. public health system certainly has a *purpose*, set forth in the 1988 Institute of Medicine report as fulfilling “society's interest in assuring the conditions in which people can be healthy.”<sup>2</sup> Health departments spread throughout the country make up the national public health system's *parts*. Particularly the *structural arrangement* of health departments impacts their performance in carrying out public health's mission. Health departments monitor the health of their communities and will take action to mitigate any health threats, acute or chronic, as they arise to *maintain stability* across the health of communities throughout the nation. By these characteristics, the U.S. public health structure constitutes a system.

While by definition a system, public health in the U.S. does not “carry out its purpose optimally.”<sup>1</sup> The ways in which its parts “are arranged affects the performance,” often detrimentally.<sup>1</sup> Furthermore, the system could more effectively “maintain stability” by improving the collection, review of, and response to data and feedback.<sup>1</sup> The recognition of these facts and a willingness to prompt the necessary structural changes led to the development of the voluntary public health accreditation process.

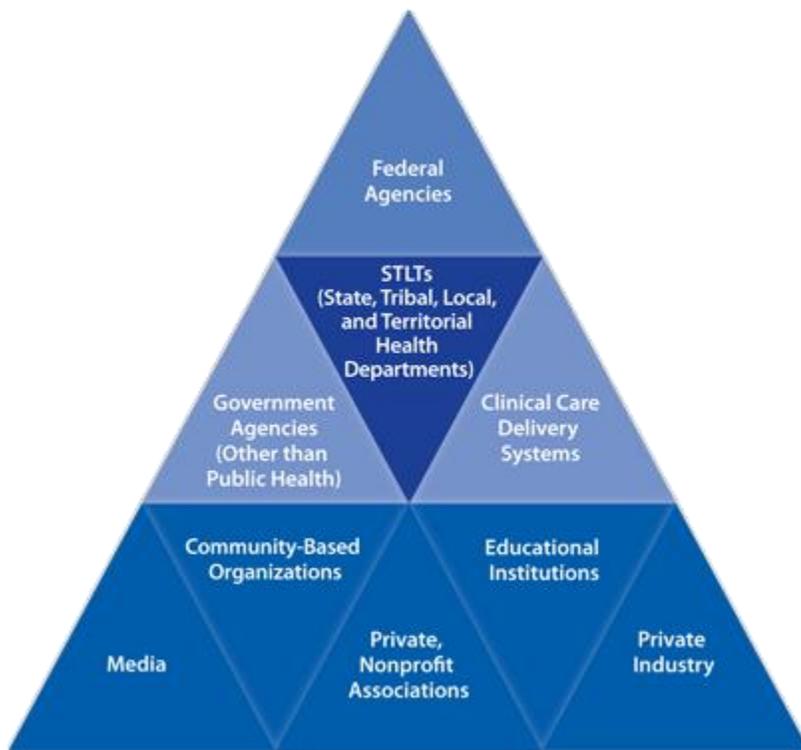
The accreditation process itself was developed to instigate system change. Public health accreditation ensures that health departments seeking accreditation offer the ten essential services and that their services and functions meet a standardized level of quality. By instituting accountability for health departments, PHAB anticipates that both the individual health department's community health system, as well as the broader public health infrastructure will concurrently improve.

Many community health issues are caused and/or perpetuated by system-level factors that result from an “interconnected set of circular relationships.”<sup>1</sup> The public health system is similarly composed of diverse relationships and myriad factors that determine the strength and function of the system.<sup>1</sup> Within its own community, a health department maintains relationships with numerous institutions and individuals, from non-profit organizations to doctors to government officials (Figure I). The number, health, and strength of these relationships can impact any number of functions of a single health department and consequently, the health of its community.



*Figure I: The Public Health System<sup>3</sup>*

Beyond its community, a health department must function within a broader national public health system whereby both state and federal agencies provide directives that guide health department actions, alongside influential grantors, who steer funding opportunities and consequently, health department priorities (Figure II).



*Figure II: Components of the Public Health System<sup>4</sup>*

Operating and navigating within these complex community-level and national systems can be a challenge for health departments. Although the players within these systems can impede the work of health departments and further the decentralization of the public health system, by providing an accountability threshold for health departments within both their community-level systems and the national public health infrastructure, PHAB is attempting to build and strengthen positive relationships within these embedded systems.

Ultimately, public health accreditation seeks to improve the public health system, while helping health departments better function and control the systems in which they reside. By investigating the public health accreditation process to help guide health departments seeking accreditation, this project is using the systems-thinking framework to promote the infrastructural evolution that PHAB set forth through the establishment of public health accreditation.

## **LITERATURE REVIEW**

### **Introduction**

Given pervasive threats to the health and safety of its citizens, the U.S. requires a “high-performing public health system.”<sup>5</sup> Yet the U.S. public health system is consistently expected to “do more with less.”<sup>6</sup> That is, public health departments are routinely given access to less resources while being expected to take on more responsibilities.<sup>6</sup> While public health accreditation can benefit health departments in a variety of ways, it is arguably the program’s focus on quality improvement (QI) that will help health departments keep up with increasing pressures. Significant emphasis is placed on continuous quality improvement throughout the public health accreditation process; yet, the QI-related measures are commonly identified as areas in need of improvement for health departments undergoing accreditation.<sup>7</sup>

Embracing quality improvement tools and frameworks can allow public health departments to improve their efficiency, their services, and conceivably, health outcomes in their community.<sup>8</sup> Improved operational capacity and efficiency is needed in public health, particularly in Connecticut, where many small municipal or district health departments have few staff and resources to draw on. While currently only three local health departments (LHDs) have been accredited in Connecticut (in addition to the state health department), LHDs are encouraged to prepare for the accreditation process, in an effort to improve Connecticut’s public health infrastructure.<sup>9</sup> To support accreditation preparedness of Connecticut and comparable LHDs, this study will evaluate whether small and medium LHDs’ performance on the QI-focused domain impacts the health departments’ accreditation results or their performance on other domains. The additional qualitative analysis reveals factors that may guide small and medium LHDs in their QI-related accreditation preparations.

## **Background and Significance**

### *Overview of Public Health Accreditation*

Although many other local and state government agencies (including schools, police departments, etc.) have a process in place to hold them accountable to the mission which they aim to achieve, prior to the implementation of the public health accreditation program, public health departments had no such process.<sup>10</sup> Yet, public health departments in the U.S. are “part of the first line of defense” in protecting the health and safety of the public.<sup>11</sup> Establishing a system by which public health departments could be held accountable for the responsibilities bestowed on them, thus became a priority.

In 2003, the Institute of Medicine charged the Department of Health and Human Services (DHHS) with the challenge of exploring the accreditation of public health departments as a means of strengthening the public health infrastructure within the U.S.<sup>12</sup> DHHS’s positive findings<sup>13</sup> prompted the establishment of the Public Health Accreditation Board (PHAB) by 2007.<sup>14</sup> PHAB, subsequently, began developing the public health accreditation process, which eventually encompassed seven steps:

- 1) submission of a pre-application
- 2) submission of an application
- 3) document selection and submission
- 4) a site visit
- 5) an accreditation decision
- 6) annual reports
- 7) reaccreditation<sup>15</sup>

Using the ten essential services as a foundation, PHAB developed a comprehensive list of domains, standards, and measures that guide the preparation and assessment of each health department throughout the accreditation process.<sup>16</sup> Figure 1 illustrates the structural framework of PHAB domains, standards, and measures.

<b>Domain</b>	<i>(example – Domain 5)</i>
<b>Standard</b>	<i>(example – Standard 5.3)</i>
<b>Measure</b>	<i>(example – Measure 5.3.2)</i>

Figure 1: Structure of PHAB Domains, Standards, and Measures<sup>16</sup>

Broadly, the domains set forth the aim to demonstrate that accredited health departments assess the community and the system of which they are a part [Domain 1], as well as investigate any emerging health concerns [Domain 2]. Accredited health departments should work to positively change the system by informing and educating the community [Domain 3], participating in community engagement efforts [Domain 4], improving access to care [Domain 7], and implementing evidence-based practices [Domain 10]. Accredited health departments should demonstrate that they are helping to maintain stability through developing policies and plans [Domain 5], enforcing public health laws [Domain 6], maintaining a competent public health workforce [Domain 8], as well as maintaining balance through quality improvement [Domain 9] and a stable administration and governing entity [Domains 11,12] (see *Appendix, Table A* for a complete list of all domains and standards).<sup>16</sup> Version 1.0 of PHAB's Standards and Measures was adopted in May 2011.<sup>17</sup> To improve clarity and specificity of the requirements, a revised Version 1.5 was adopted in December 2013.<sup>16</sup>

A health department's conformity with each measure is assessed during the site visit and contributes to the final accreditation decision.<sup>18</sup> If not accredited, a health department can submit an action plan including documentation on specified measures, which upon approval and successful implementation, can elicit a positive accreditation result.<sup>18</sup> Once accredited, the health department submits annual reports until they undergo reaccreditation five years following the initial accreditation.<sup>18</sup>

Voluntary accreditation of public health departments was ultimately implemented in 2011.<sup>14</sup> By March 2013, the first 11 public health departments had achieved accreditation and

more were underway.<sup>14</sup> As of August 30, 2019, of the 2,800 local health departments in the U.S.,<sup>19</sup> 235 local health departments were fully accredited.<sup>15</sup>

### *Defining Quality Improvement in Public Health*

During the early years, public health accreditation lacked a consistent definition of quality improvement. PHAB has since adopted the following:

Quality improvement in public health is the use of a deliberate and defined improvement process, such as Plan-Do-Check-Act, which is focused on activities that are responsive to community needs and improving population health. It refers to a continuous and ongoing effort to achieve measurable improvements in the efficiency, effectiveness, performance, accountability, outcomes, and other indicators of quality in services or processes which achieve equity and improve the health of the community.<sup>16</sup>

There are often two kinds of quality improvement recognized within public health. One describes the implementation of QI efforts at a micro- or project-level; the other represents macro QI efforts that transform an organization's culture.<sup>11,20</sup> Generally, health departments begin with micro QI projects that might focus on improving an aspect of an existing program, like increasing participation in an initiative, increasing immunization rates of a population, or improving the efficiency of an administrative task.<sup>11,20,21</sup> Micro QI might also involve the implementation of QI tools in a public health agency, like the plan-do-study-act cycle, a process map, or a control chart.<sup>22</sup>

Macro QI, on the other hand, involves more ambitious goals, including the development of a culture of QI throughout an organization.<sup>20</sup> One article describes a QI culture as “a comprehensive focus on the quality of products, services, people, processes, and environments.”<sup>11</sup> Establishing a QI culture has two general requirements: the commitment of leadership to developing a work environment that “considers QI to be ‘business as usual,’”<sup>11</sup> as well as a QI framework that can help model the necessary change.<sup>6,11</sup> Common frameworks used in public health, include Lean, the Baldrige Method, the Turning Point Model, Six Sigma, and Balanced Scorecard, among others.<sup>6,11,22</sup> Additionally, the National Association of County and City Health Officials (NACCHO) developed a “Roadmap to a Culture of Quality

Improvement.” The Roadmap is a self-assessment tool that can guide institutions seeking to integrate QI practices in a comprehensive, organization-wide transition.<sup>20,23</sup> A QI culture creates an environment in which continuous QI is a natural outcome.<sup>11</sup>

*Threading of Quality Improvement through Public Health Accreditation*

Given the dynamic and vital nature of public health, continuous quality improvement became a “cornerstone” of the public health accreditation process.<sup>10,24</sup> Quality improvement (QI) is embedded in a number of the steps comprising public health accreditation. When preparing to submit a pre-application, health departments assess their institution against the PHAB domains, standards, and measures, which hold health departments accountable to a level of quality that may not have been required of them previously. While completing the accreditation documentation, health departments report their status regarding the domains required by the PHAB Standards and Measures. Although quality improvement is threaded throughout many of the domains, there is one in particular that focuses exclusively on QI—*Domain 9: Evaluate and Continuously Improve Processes, Programs, and Interventions*.<sup>16</sup> Domain 9 is composed of two standards, which are made up of 6 and 2 measures, respectively (Table 1).

*Table 1: Standards and Measures in Domain 9<sup>16</sup>*

<b>Domain 9</b>	
<b>Standards</b>	<b>Measures</b>
Standard 9.1: Use a Performance Management System to Monitor Achievement of Organizational Objectives	Measure 9.1.1 Staff at all organizational levels engaged in establishing and/or updating a performance management system
	Measure 9.1.2 Performance management policy/system
	Measure 9.1.3 Implemented performance management system
	Measure 9.1.4 Implemented systematic process for assessing customer satisfaction with health department services
	Measure 9.1.5 Opportunities provided to staff for involvement in the department’s performance management
	Measure 9.1.6 Technical assistance and/or training provided on performance management to Tribal and local health departments
Standard 9.2: Develop and Implement Quality Improvement Processes Integrated into Organizational Practice, Programs, Processes, and Interventions	Measure 9.2.1 Established quality improvement program based on organizational policies and direction
	Measure 9.2.2 Implemented quality improvement activities

Following the submission of their documentation and the subsequent site visit, a site visit report, which contains feedback from the PHAB-trained site visitors, recommends areas of improvement to the health departments. Finally, in order to maintain their accreditation status, accredited health departments must submit annual reports composed of two sections, where a significant portion of Section II centers on quality improvement and performance management. Upon the expiration of its five-year accreditation status, the health department must apply for reaccreditation, thus cementing the “continuous QI system” throughout the accreditation process.<sup>24</sup> Ultimately, as Beitsch et al. eloquently described, “the multilayered reinforcing linkages between QI and accreditation are a synergistic design that integrates QI into accreditation at every level.”<sup>24</sup>

### **Pertinent Theory and Prior Research**

#### *Advancement of Quality Improvement in Public Health Departments*

Implementing institution-wide quality improvement and performance management (PM) systems does not come without its challenges. Research conducted with health departments undergoing accreditation has identified a number of barriers to implementing QI in health departments. The most significant barriers identified include: leadership support, staff training in QI, and competing priorities.<sup>25–29</sup> It is seemingly imperative that health department leaders act as “QI champion[s]” on the path to accreditation, since health department leaders not only have significant influence on staff but they also have the “authority to dedicate staff time, resources, and funding.”<sup>25,27</sup> Staff training in QI can help not only increase the understanding and implementation of QI practices, but it can also decrease staff resistance, improve QI-related communication, and allow staff to share successes both internally and across institutions.<sup>25,28</sup> Understandably, when emergent public health crises arise, it can be difficult to maintain focus on institutional QI or PM efforts.<sup>25,30</sup> While these are the most significant barriers to implementing QI within a health department, they can, conversely, also be the biggest “drivers toward a culture of quality improvement.”<sup>25</sup>

Evidence has shown that QI practices and PM systems formalize, strengthen, and/or increase throughout and after the accreditation process.<sup>31,32</sup> It seems a health department that works to implement QI practices prior to applying for accreditation both increases the health department's "desire to seek accreditation" and "enhances its perceived readiness" to pursue accreditation.<sup>29</sup> Inversely, accredited health departments have shown to be more likely to "engage in formal QI activities" over nonapplicants, as well as have more "capacity to undertake these QI initiatives."<sup>33</sup> Beginning the implementation of QI practices long before seeking accreditation is seemingly an advantageous strategy for embedding QI within the agency's work culture throughout and after the accreditation process.<sup>27,29</sup>

As mentioned, the focus on QI and PM throughout accreditation is ultimately meant to "strengthen the public health system."<sup>26</sup> To its credit, the accreditation process has successfully "expedited the historically slow adoption of QI and PM" within public health.<sup>26</sup> PHAB recognizes that the development and maintenance of a culture of QI is an idealistic aim for many health departments,<sup>24</sup> but with the understanding that QI, in any form, is "an essential activity for all health departments."<sup>29</sup> While more research is needed to quantify the return on investment of implementing QI and PM practices within health departments,<sup>26</sup> PHAB accreditation, with its roots deeply embedded in QI, is increasingly identified as a positive pursuit for health departments, with the potential benefit of improving community health outcomes<sup>32</sup>—"the Holy Grail of public health."<sup>24</sup>

#### *Standard 9.2 and Normalization Process Theory*

Although the accreditation process as a whole stimulates QI in health departments, Standard 9.2 initiates the establishment of a culture of QI. Normalization Process Theory (NPT) can be used to illustrate how the requirements of Standard 9.2 thread QI into the culture of health departments that undergo accreditation.

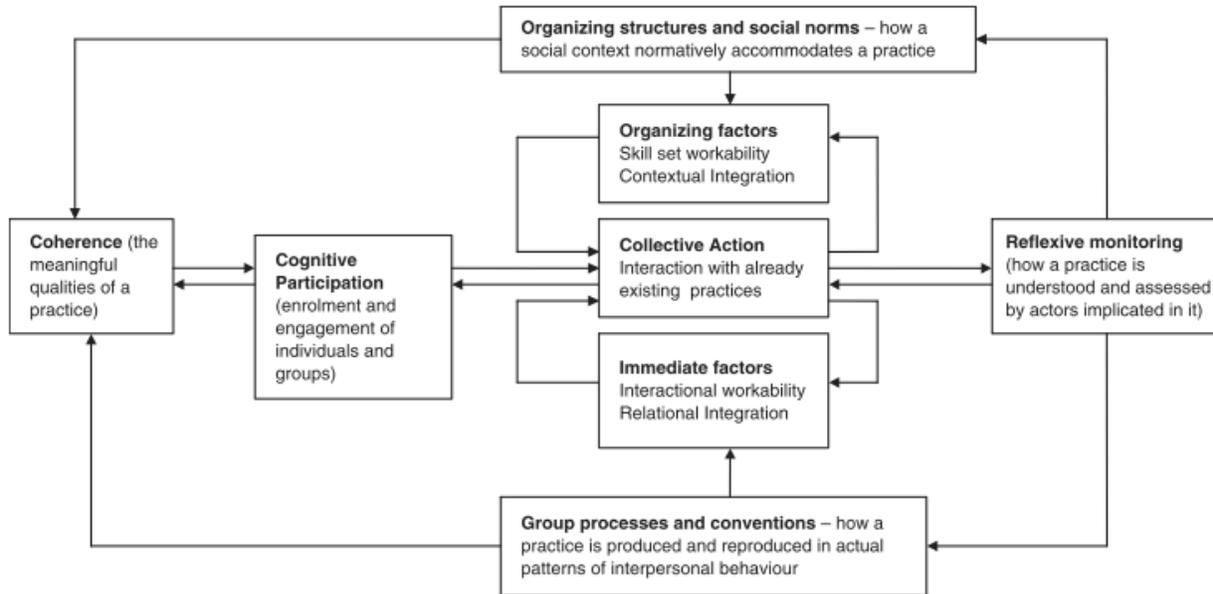


Figure 2: Normalization Process Theory<sup>34</sup>

NPT is a sociological framework used to explain the implementation, embedding, and integration of a new practice or intervention (Figure 2).<sup>34–36</sup> The theory is comprised of four primary components—coherence, cognitive participation, collective action, and reflexive monitoring—that through dynamic relationships with each other, illustrate how a new practice solidifies itself within the culture of an organization.<sup>34–36</sup> *Coherence* characterizes how an organization makes sense of or conceptualizes a new practice.<sup>34</sup> *Cognitive participation* denotes enrollment in and legitimation of the new practice among participants who become engaged in and committed to the integration of the practice.<sup>34</sup> *Collective action* embodies the ways in which the new practice is enacted in the organization, and *reflexive monitoring* signifies the continuous evaluation of the new practice and its outcomes in the organization.<sup>34</sup> Table 2, adapted from May & Finch<sup>34</sup>, summarizes each component of NPT, including how factors influence the components, as well as questions related to each component that explore the integration of a new practice into an organization’s culture. The following section describes the requirements of Standard 9.2 and how they map to the components of NPT.

Table 2: Operationalizing Normalization Process Theory<sup>34</sup>

COHERENCE	COGNITIVE PARTICIPATION	COLLECTIVE ACTION	REFLEXIVE MONITORING
<i>What is the practice?</i>	<i>Who does the practice?</i>	<i>How does the practice get done?</i>	<i>How is the practice understood?</i>
Consider factors that promote or inhibit the mobilization of the practice	Consider factors that promote or inhibit participation in the practice	Consider factors that promote or inhibit enacting the practice	Consider factors that promote or inhibit the appraisal of the practice
<i>How is a practice conceptualized by participants? How does it hold together in action?</i>	<i>How do participants come to engage with a practice? How do they decide on engagement and the purposes that it serves?</i>	<i>How do participants enact a practice? How are their activities structured and constrained?</i>	<i>How do participants appraise a practice? What are its effects of appraisal? How are they mediated?</i>

As demonstrated in Table 1, Standard 9.2 is comprised of two measures, Measure 9.2.1 and Measure 9.2.2. Measure 9.2.1 requires an “established quality improvement program based on organization policies and direction” for the purpose of integrating quality improvement “into all programmatic and operational aspects” of the health department.<sup>16</sup> The written documentation required for this measure includes a written quality improvement plan, dated within five years, that addresses all of the items listed in Table 3.

Table 3: Required Documentation for Measure 9.2.1<sup>\*16,17</sup>

Written Quality Improvement Plan
Req 1. Key <b>quality terms</b> to create a common vocabulary and a clear, consistent message
Req 2. Culture of quality and the <b>desired future state</b> of quality in the organization
Req 3. Key elements of the <b>quality improvement effort’s structure</b> (Version 1.5); Key elements of the quality improvement plan’s governance structure (Version 1.0)
Req 4. Types of <b>quality improvement training</b> available and conducted within the organization
Req 5. <b>Project identification</b> , alignment with strategic plan and initiation process
Req 6. <b>Quality improvement goals, objectives</b> , and measures with time-framed targets (Version 1.5); Goals, objectives, and measures with time-framed targets (Version 1.0)
Req 7. The health department’s approach to <b>how the quality improvement plan is monitored</b> : data are collected and analyzed, progress reported toward achieving stated goals and objectives, and actions taken to make improvements based on progress reports and ongoing data monitoring and analysis.
Req 8. Regular <b>communication of quality improvement activities</b> conducted in the health department
Req 9. Process to <b>assess the effectiveness of the quality improvement plan</b> and activities

Measure 9.2.2 requires “implemented quality improvement activities” for the purpose of assessing “the health department’s use of quality improvement to improve processes,

\* Both requirements were provided, if there were significant differences in the wording of Version 1.0 and 1.5.

programs, and interventions.”<sup>16</sup> The written documentation required for this measure includes two quality improvement activities based on the QI plan (one administrative and one programmatic), dated within five years, as well as demonstration of “staff participation in quality improvement activities.”<sup>16</sup> Measure 9.2.2 requirements are provided in Table 4.

Table 4: Required Documentation for Measure 9.2.2<sup>†16,17</sup>

Quality Improvement Activity Examples
<p>Req 1. The health department must provide <b>2 examples; one example must be from a program area and the other from an administrative area.</b> Examples must demonstrate:</p> <ul style="list-style-type: none"> <li>○ How staff problem-solved and planned the improvement</li> <li>○ How staff selected the problem/process to address and described the improvement opportunity</li> <li>○ How staff described the current process surrounding the identified improvement opportunity</li> <li>○ How staff determined all possible causes of the problem and agreed on contributing factors and root cause(s) (Version 1.5); how staff determined all possible causes of the problem and agreed on root cause(s) (Version 1.0)</li> <li>○ How they developed a solution and action plan, including time-framed targets for improvement</li> <li>○ What the staff did to implement the solution or process change</li> <li>○ How staff reviewed and evaluated the result of the change, and how they reflected and acted on what they learned</li> <li>○ Ongoing use of an improvement model, including showing the tools and techniques used during application of the process improvement model</li> <li>○ Documentation must also describe: actions taken, improvement practices and interventions, data collection tools and analysis, progress reports, evaluation methods, and other activities and products that resulted from implementation of the plan</li> </ul>
Staff Participation in Quality Improvement Activities
<p>Req 2. The health department must provide 2 examples dated within 5 years (Version 1.5); examples of documentation include minutes, memos, reports, or committee or project responsibilities listings. The health department must <b>document how staff were involved</b> in the implementation of the plan, worked on improvement interventions or projects, and/or served on a quality team that oversees the health department’s improvement efforts</p>

Desveaux et al. utilized NPT to illustrate accreditation’s impact on quality within an organization. The model created by Desveaux et al.<sup>36</sup> has been integrated with NPT and adapted to illustrate the way in which the PHAB accreditation requirements in Standard 9.2 guide health departments towards the development of a culture of QI (Figure 3). Requirements 1-4 of Measure 9.2.1, including defining key QI terms, describing a desired future state of QI, providing a QI governance structure, and QI training, establish *coherence* in health

<sup>†</sup> Both requirements were provided, if there were significant differences in the wording of Version 1.0 and 1.5.

departments. These requirements encompass what the integration of a QI culture means for the health department. Requirements 5-6 of Measure 9.2.1—project selection and QI goals/objectives—establish *cognitive participation*, by defining how QI activities are chosen and for what purpose. All requirements of Measure 9.2.2 fall under the *collective action* component of NPT, as they demonstrate how staff enact QI activities within the organization. Lastly, requirements 7-10 of Measure 9.2.1 establish how health departments *reflexively monitor* and assess their QI plan and communicate QI activities, which ultimately, allows the health department to appraise their QI progress.

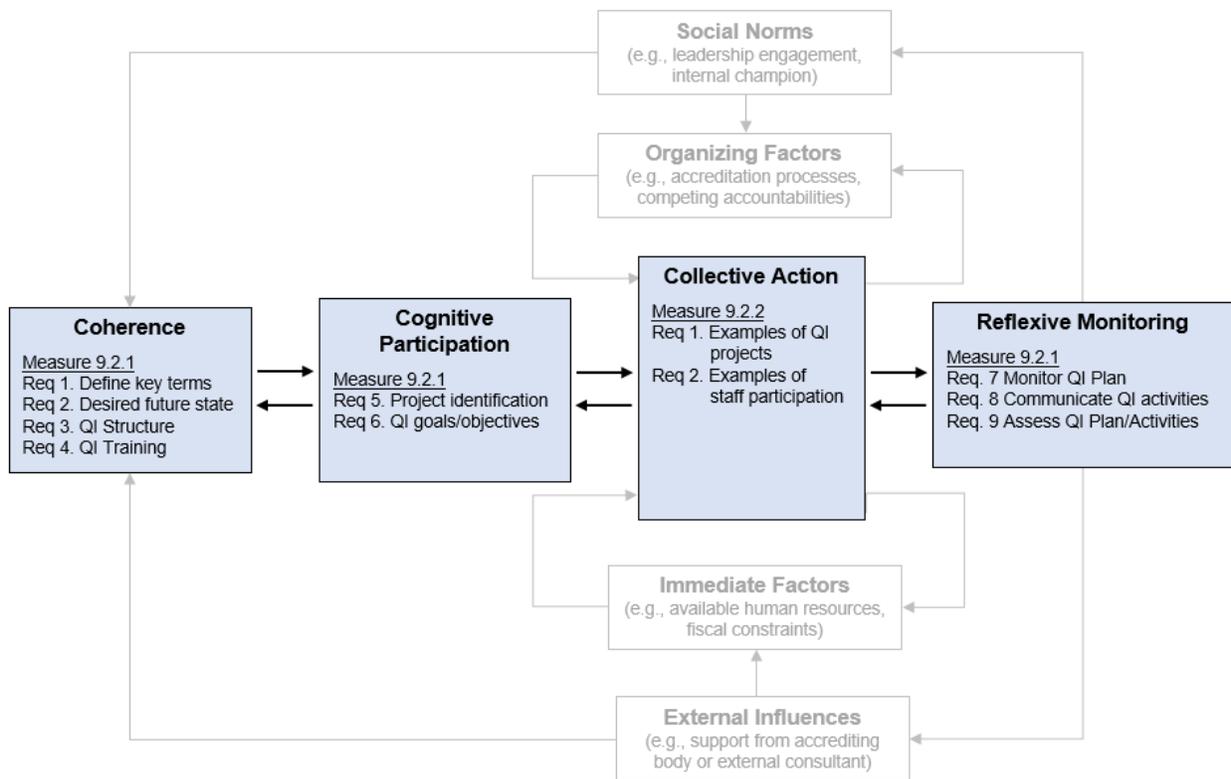


Figure 3: Illustrating the Development of a QI Culture through PHAB Standard 9.2 and NPT

The remaining aspects of Figure 3 have been included but grayed out. While some of these factors, structures, and influences are touched on throughout this study, due to the limitations of its scope, this project will focus on the four main components of NPT bolded in Figure 3. The alignment of health departments' Standard 9.2 documentation with the four components of NPT

will be explored through site visitor comments in the qualitative analysis, which aims to identify critical factors in the institutionalization of culture change and the normalization of QI practices.

## METHODOLOGY

### Study Design and Research Questions

This study was a non-experimental, secondary analysis of cross-sectional data obtained from PHAB. The study used an embedded mixed methods design (Figure 4). The qualitative analysis explored the institutionalization of QI practices through the lens of NPT. Additional quantitative analyses explored health departments' accreditation performance on the QI domain and in relation to the other domains. The results of the quantitative analyses informed the qualitative results, thereby effectuating the embedded mixed methods framework.

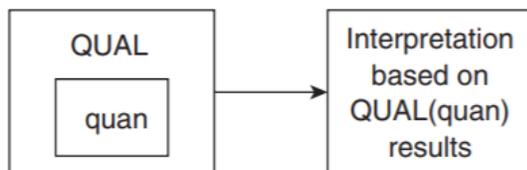


Figure 4: Embedded Mixed Methods Design<sup>37</sup>

Given that the measures in Domain 9 were found to be among the measures most often required to be included in action plans<sup>7</sup>, as well as the aforementioned importance of quality improvement regarding LHD operational capacity, the quantitative analyses explored Domain 9 performance in relation to action plans and other domains. The author hypothesized that LHDs that performed higher on Domain 9, and are likely to have a robust QI system, may not have as many significant deficiencies in other areas and were therefore generally not required to submit an action plan. The author also hypothesized that a strong correlation of performance on Domain 9 with other domains may identify potential aspects of LHD operations that are critical to QI development. For instance, QI activities have shown to benefit from leadership support, so Domain 9 performance may correlate strongly with performance on Domains 11 or 12 regarding Administration & Management or Governance, respectively.

To explore these hypotheses, the quantitative analyses examined the following research questions:

- RQ1. To validate previous findings<sup>7</sup>, what are the most frequent measures required to be included in action plans for small and medium LHDs?
- RQ2. Is there a statistically significant difference in performance on Domain 9 for small and medium LHDs that were required to submit an action plan and those that were not?
- RQ3. Does small and medium LHDs' performance on Domain 9 correlate with their performance on other domains? Scores on which domains correlate most closely with scores on Domain 9?

While the quantitative analyses looked towards other domains for insight on Domain 9 performance, the qualitative analysis more closely examined LHD performance on Domain 9 through site visitor comments for tangible examples of QI-related successes and the development of a culture of QI through each component of NPT. The qualitative analysis sought to address the following:

- RQ4. For the measures of Standard 9.2 on which small and medium LHDs scored a 4 (Fully Demonstrated), are there notable comments that could inform other small and medium LHDs' accreditation preparations?
- RQ5. Using the framework of Normalization Process Theory, do site visitor comments on Standard 9.2 provide any insight regarding the development of a culture of QI in small and medium LHDs?

Through both the quantitative and qualitative analyses, the author aimed to begin exploring the complex factors that influence Domain 9 performance, accreditation results, and ultimately, health department operational effectiveness.

### **Dataset, Sampling Frame, and Measures**

The dataset utilized for the quantitative analyses was comprised of select profile information about 235 local health departments that were accredited through August 2019. The dataset included the health departments' scores on PHAB measures assigned during the accreditation site visit and, when one was required, also indicated which measures were required to be included in an action plan. Several variables were added to the dataset by the researcher including version of the PHAB Standards and Measures, domain score (described in detail below), and accreditation year.

The dataset used for the qualitative analysis included narrative comments made by the PHAB site visitors for each measure in Standard 9.2<sup>‡</sup> (*Standard 9.2: Develop and Implement Quality Improvement Processes Integrated Into Organizational Practice, Programs, Processes, and Interventions*) on which health departments received a maximum score of 4 (Fully Demonstrated). Narrative comments included one summative comment about the health department’s performance on the measure, as well as optional comments about ‘Areas of Excellence’ or ‘Opportunities for Improvement’ made by the site visitors.

The sampling frame for this study included only local health departments (LHDs), excluding other department types, such as state, tribal, territorial, centralized state integrated system, as well as multi-jurisdictional health departments. The study focused primarily on “small” and “medium” LHDs. The size of the health departments in this study was determined based on population served<sup>7</sup>, a variable assessed by PHAB using eight population categories:

[1] less than 25,000	}	Small LHDs
[2] 25,000 to 49,999		
[3] 50,000 to 99,999	}	Medium LHDs
[4] 100,000 to 249,999		
[5] 250,000 to 499,999		
[6] 500,000 to 999,999	}	Large LHDs
[7] 1,000,000 to 2,999,999		
[8] greater than 3,000,000		

Small LHDs were defined as those assigned population categories 1-2, and medium LHDs were defined as population categories 3-5.<sup>7</sup> Population categories 6-9 were defined as large LHDs. This analysis focused on small and medium LHDs since health departments of these sizes tend to have more comparable capacity to implement quality improvement efforts, as compared to large LHDs.<sup>6</sup> Additionally, although the findings from this study may not be directly representative of LHDs in Connecticut, the sizes of the populations served are similar.

<sup>‡</sup>The qualitative analysis was limited to Standard 9.2 to limit the scope of this project. Analysis of the comments made by site visitors for health departments who scored a 4 on the measures in Standard 9.1 should be considered to further explore these research questions.

During accreditation site visits, performance on each measure is assessed using a four-point scale:

- [1] Not Demonstrated
- [2] Slightly Demonstrated
- [3] Largely Demonstrated
- [4] Fully Demonstrated

A composite domain score was calculated for each health department and each domain by summing the score (1-4) received on each measure in the domain and dividing by the total number of measures in the domain for each health department:

$$\text{Domain score} = \frac{\text{sum of score received on each measure in domain}}{\text{total number of measures in domain}}$$

The formula for each domain was adjusted for health departments reviewed under Version 1.0 versus Version 1.5 of the PHAB Standards and Measures, since the number of measures per domain varied.

The requirement of an action plan following the site visit was documented as:

- [0] No Action Plan
- [1] Action Plan Required

The final accreditation outcome was the same for each health department in the sample, since the sample included only accredited LHDs.

### **Statistical Analyses**

The data were analyzed by use of descriptive and inferential statistics. Quantitative statistical analyses were performed using SAS® 9.4 and SPSS® Statistics 26. Frequency tables of several key variables were generated to determine the composition of the sample. To validate previous findings<sup>7</sup> (RQ1), descriptive statistics were conducted to determine the frequency of measures included in action plans.

To determine whether there was a statistically significant difference in performance on Domain 9 for small and medium local health departments that were required to submit an action plan and those that were not (RQ2), the Domain 9 scores were calculated for each health

department in the sample according to the method described above. Before performing analyses on these two independent samples, the normality of the data was determined. Since the data were skewed, a Mann-Whitney U test was utilized.

To determine whether small and medium local health departments' performance on Domain 9 was correlated with their performance on other domains (RQ3), the domain score for each health department on each domain was calculated according to the method described above. Histograms of the domain scores were reviewed for normality. Because these discrete interval data were not normally distributed, a Spearman's Coefficient of Correlation was conducted, by pairing the Domain 9 scores with the scores on every other domain. The results of this analysis also determined performance on which domains correlated most closely with performance on Domain 9 (RQ3).

Using NVivo 11, the qualitative analysis was conducted on site visitor comments for measures in Standard 9.2 on which the health departments scored a 4 (Fully Demonstrated). The summative comment, as well as the optional comments indicating 'Areas of Excellence' or 'Opportunities for Improvement' were included in the analysis. In some cases, the summative comment consisted of only a brief statement indicating that the health department fully demonstrated the requirements of the measure; more often, the summative comment was fairly structured, identifying each of the measure requirements, citing whether or not and in some cases how the requirement was met.

The qualitative analysis was deductive in nature. Comment text was, first, coded by requirement; the comments within each requirement code were reviewed for notable observations (RQ4). The collection of text coded to each requirement was then associated with the appropriate component of NPT (RQ5). The comments were reviewed to identify notable efforts health departments have made to integrate quality improvement practices into their operations, as well as areas on which even high scoring health departments needed to improve.

Comments are subjective to the site visitors and do not indicate every detail of the documentation submitted for accreditation. The qualitative data have, consequently, not been quantified in most cases. Some counts have been provided to indicate the number of comments citing an observation, but these counts do not reflect the number of health departments in the sample participating in the action or activity. The qualitative analysis explores the observations made by site visitors, but cannot accurately quantify the observed actions or activities.

## RESEARCH RESULTS

### Quantitative Analysis Results

Of the 183 small and medium LHDs in the sample, 117 were accredited under Version 1.0 of the PHAB Standards and Measures; the remaining 66 were accredited under Version 1.5. Sixty-four of the LHDs in the sample were required to submit action plans. The LHDs in the sample were accredited between February 2013 and August 2019. As concluded by Roberts<sup>7</sup>, descriptive statistics (RQ1) showed that the measures in Domains 5 and 9 were most frequently required to be included in action plans (Table 8). Although measures in Domain 5 were required more frequently in action plans (158 times), as compared to Domain 9 (148 times), Domain 5 (12 measures) is composed of 5 more measures than Domain 9 (7 measures).

*Table 5: Number of Times Measures in Domain Required in Action Plan*

Domain	Total Measures in Domain	Total
Domain 01	11	109
Domain 02	15	80
Domain 03	7 (v1.0)   9 (v1.5)	53
Domain 04	4	28
Domain 05	12	158
Domain 06	10	54
Domain 07	6	60
Domain 08	3 (v1.0)   5 (v1.5)	20
Domain 09	7	148
Domain 10	4	18
Domain 11	11 (v1.0)   12 (v1.5)	19
Domain 12	7 (v1.0)   6 (v1.5)	36

Since the domain scores are skewed, non-parametric tests were utilized for RQ2 and RQ3 analyses. A Mann-Whitney U test was used to determine the difference between small and medium LHDs scores on Domain 9 and whether they were required to submit an action plan (RQ2). A Spearman Coefficient of Correlation analysis was utilized to determine the relationship of performance on Domain 9 with the performance on each of the other domains (RQ3).

The results of the Mann-Whitney U test were statistically significant (Table 11). For LHDs that were not required to submit an action plan ( $n = 119$ ), the mean rank was 116.07,

whereas for LHDs that were required to submit an action plan ( $n = 64$ ), the mean rank was 47.24. With  $U = 943.5$  and  $p < .000$ , there is a statistically significant difference between the ranks of these two independent groups. The small and medium LHDs not required to submit an action plan scored higher on Domain 9 than the LHDs required to submit an action plan.

*Table 6: Mann-Whitney U Test Results*

Action Plan	N	Mean Rank – Domain 9 Performance	$U = 943.5$ $p < .000$
Not required	119	116.07	
Required	64	47.24	

The Spearman Coefficient of Correlation analysis (RQ3) indicated that performance on each domain correlated significantly with performance on Domain 9 ( $p < .0001$  for each correlation). Four domains had a moderately strong correlation ( $.40 \leq r \leq .70$ ) (Table 12), while the other seven domains demonstrated weak correlations ( $r < .40$ ). Performance on Domain 5 correlated most strongly with performance on Domain 9 at  $r = .538$ . Other moderately strong correlations included performance on Domain 9 correlated with performance on Domain 1 ( $r = 0.493$ ), Domain 3 ( $r = 0.466$ ), and Domain 6 ( $r = 0.457$ ).

*Table 7: Results of Spearman Correlation Coefficient Analysis*

Domain Score	$p$	$r$	Strength of Correlation
Domain 1 [Assess]	<.0001	0.49308	moderate
Domain 2 [Investigate]	<.0001	0.33646	weak
Domain 3 [Inform & Educate]	<.0001	0.46624	moderate
Domain 4 [Community Engagement]	<.0001	0.35269	weak
Domain 5 [Policies & Plans]	<.0001	0.53823	moderate
Domain 6 [Public Health Laws]	<.0001	0.45699	moderate
Domain 7 [Access to Care]	<.0001	0.28374	weak
Domain 8 [Workforce]	<.0001	0.34317	weak
Domain 10 [Evidence-Based Practices]	<.0001	0.28053	weak
Domain 11 [Administration & Management]	<.0001	0.33624	weak
Domain 12 [Governance]	<.0001	0.36274	weak

### Qualitative Analysis Results

The summative comment for each Standard 9.2 measure was reviewed, as well as the optional site visitor comments indicating ‘Areas of Excellence’ or ‘Opportunities for Improvement,’ henceforth labeled AOE and OFI comments, respectively. Throughout the comments made on Measures 9.2.1 and 9.2.2 for small and medium LHDs that scored a 4 on

the measure, site visitors submitted 35 and 20 AOE comments, as well as 24 and 13 OFI comments, respectively.

A critical piece of accreditation preparedness involves adhering to the requirements as listed in PHAB’s Standards and Measures, particularly providing documentation to the level of detail requested by the measure. Despite the guidelines provided, a repeated OFI comment was to include more specifics regarding the requirement. A repeated AOE comment noted the readability of the documentation, through its simplicity, design, or the use of visuals.

The primary documentation submitted by health departments to fulfill Measure 9.2.1 was a written QI Plan. In some cases, the QI Plan was combined with the health department’s Performance Management Plan or had varying names, including CQI Plan, Quality Assurance Plan, etc. Some QI Plans were published yearly and others were published on a triennial basis or every five years. In some cases, the plan was indicated as being approved by the health department’s Board of Health.

*Coherence*

Documentation provided for Measure 9.2.1, Requirement 1 included both the definition of quality terms, as well as acronyms related to quality improvement to help create a consistent terminology. Some health departments included the definition of key quality terms as part of the main report, and others included these definitions within an appendix. In some cases, the specificity of the terms was commented on by the site visitors.

*Table 8: Illustrative Quotes – Measure 9.2.1, Requirement 1*

<b>Define Key Terms [9.2.1, Req 1]</b>	
<b>Notable Comments</b>	<b>Illustrative Quotes</b>
<b>Specificity of terms included</b>	<p>“recommend development of a list of key quality terms for the health district, rather than only the definitions provided (copied) from the Turning Point Assessment” [OFI comment]</p> <p>“key quality terms that you expect to see in all plans are defined in Appendix 1 and it includes specific terms like the name of their OpEx Team and their county level performance system”</p>

To satisfy Measure 9.2.1, Requirement 2, some health departments used any combination of narrative language, a pictorial, or a matrix display to describe the current and future states of quality at their institution. Some health departments provided context for their desired future state, used external tools to identify their current state of QI and in some cases listed anticipated results of their desired future state.

*Table 9: Illustrative Quotes – Measure 9.2.1, Requirement 2*

<b>Desired Future State [9.2.1, Req 2]</b>	
<b>Notable Comments</b>	<b>Illustrative Quotes</b>
<b>Context provided for desired future state</b>	<p>“the culture of quality was demonstrated by summarizing the history of QI in the health department and projecting the future of a formalized QI culture through the PM System and QI Plan”</p> <p>“section addresses...it’s current state of QI based on a self-assessment, and planned future QI activities”</p> <p>“annual surveys are conducted to identify the phase that most accurately describes the current culture of quality”</p> <p>“they are currently in the beginning stage of QI with only a few staff trained in QI; however, their future state of QI will consist of training all staff in QI, establishing a QI council and completing a QI project in each service area”</p>
<b>External tools used to identify current state</b>	<p>“used NACCHO’s Roadmap to a Culture of Quality to identify a baseline for QI and improvement strategies for the department”</p> <p>“included in the QI Plan is the results of the staff’s participation in a ten question CQI Maturity Tool...the results paint the picture of the ‘current state’ of quality improvement ...the ‘desired state’ of quality control; 80% of all employees agreeing or strongly agreeing to the questions in the same survey by 2017”</p>
<b>Results of desired future state</b>	<p>“continued growth in QI and Performance management, demonstrated competence by all staff in QI, data driven decisions”</p> <p>“they were working to engage staff across the agency in QI and this work was helping to breakdown a silo effect for the various programs”</p>

Regarding documentation for Measure 9.2.1, Requirement 3, several health departments ( $n = 5$ ) received an AOE comment remarking how well their QI plan and structure were integrated and operationalized within the health department; others did not communicate this integration well. Additionally, there were several health departments ( $n = 6$ ) that received an OFI comment noting their lack of QI-related resources or budget allocation to support the sustainability of QI efforts. The primary aspect of the QI structure within many health departments was some type of QI Council or Team, which serves as the centralized group of

staff concentrating on QI efforts within the organization. Site visitors noted specifics regarding the QI structure and QI team composition.

*Table 10: Illustrative Quotes – Measure 9.2.1, Requirement 3*

<b>QI Structure [9.2.1, Req 3]</b>	
<b>Notable Comments</b>	<b>Illustrative Quotes</b>
<b>Illustration of QI structure</b>	<p>“quality improvement structure includes a Health Board Team, QI Team, Workforce Development Team, Strategic Planning Team, and Project Teams”</p> <p>“the written plan and organizational chart highlight the department’s commitment to ensuring employees from all levels had an opportunity to participate in the process”</p>
<b>Variation of composition of QI teams</b>	<p>“the CQI Council is comprised of senior management, supervisors, professionals, and support staff”</p> <p>“the committee...has members in management and non-management”</p> <p>“the Quality Council consists of the Health Director, Division Managers, members of the management team, and the QI coordinator”</p> <p>“CQI Council consists of representatives from each of the major department divisions”</p>
<b>QI team membership terms</b>	<p>“the membership, rotation and length of service for members are not clearly identified” [OFI comment]</p> <p>“the differentiation of roles and responsibilities carried out... could be more clearly articulated” [OFI comment]</p>
<b>QI team duties</b>	<p>“advanced training for Lead QI staff”</p> <p>“a QI team that is responsible for the oversight of the QI efforts and training staff to participate in the ongoing process of QI”</p> <p>“a quality improvement council, which is charged with the key functions of QI plan oversight, project selection and management, organization support for QI, and organizational culture”</p> <p>“the responsibility of the CQI Council are defined and may include: coordinate, support, guide and define overall QI Program department-wide, provide QI expertise to QI project teams, evaluate completed QI projects, assist with development of the divisional QI activities, etc.”</p>
<b>Impact of QI structure</b>	<p>“initiatives show a deep level of engagement and commitment toward QI” [AOE comment]</p> <p>“leadership, Board of Health, and staff are fully engaged toward improving the performance of health department programs” [AOE comment]</p> <p>“staff at all levels feel empowered to identify opportunities to improve their work and are supported as they work across programs and teams to make improvements” [AOE comment]</p>

The most commonly cited source of staff QI training (Measure 9.2.1, Requirement 4) was in the form of new employee training. While some health departments provide QI training annually or every two or three years, the most common OFI comment regarding QI training ( $n =$

9) was that training was only provided once, rather than continuously and/or at varying levels. One health department, although it received a score of 4, had not yet developed training, but had identified national training resources and a plan to incorporate the training in new hire processes. Site visitors commented on the levels, schedules, and modes of training provided.

*Table 11: Illustrative Quotes – Measure 9.2.1, Requirement 4*

<b>QI Training [9.2.1, Req 4]</b>	
<b>Notable Comments</b>	<b>Illustrative Quotes</b>
<b>Providing levels of QI training</b>	<p>“includes new employee orientation; advanced training for QI, Accreditation Team, and the leadership team”</p> <p>“quality improvement training for new staff, advanced training for QI project teams”</p> <p>“QI training every three years...members of the QI Council received advanced QI training”</p> <p>“trainings are defined as hands-on, program specific, project specific and advanced”</p>
<b>Scheduling regular QI training</b>	<p>“a schedule of monthly QI tool topic specific class that are made available to staff”</p> <p>“curricula and Training Schedule which is part of the Workforce Development Plan was provided which listed continuous quality improvement topics, descriptions of the courses, target audience, competencies addressed, schedule of courses and resources”</p>
<b>Various modes and approaches to QI training</b>	<p>“intensive QI workshop conducted by an outside expert for management and coordinator staff”</p> <p>“an introductory training video”</p> <p>“introductory online quality improvement learning modules for all staff”</p> <p>“new employee orientation materials, online course offerings, provision of advanced training for QI leadership, provision for ongoing training and customized training”</p>
<b>Providing specifics in documentation regarding training</b>	<p>“Commended for including the training schedule for quality improvement in their plan. This schedule includes who needs training, what type of training they need, and how often the training needs to occur” [AOE comment]</p> <p>“further development of a training program based upon an assessment of staff’s needs would further enhance this Plan” [OFI comment]</p> <p>“the QI training plan was limited to a few introductory courses, and though the plan indicated that training would expand as the program grows, it would have been helpful to see a more extensive training plan that includes examples of advanced courses that might be offered and an acknowledgement that some staff in the department might be ready for more advanced course offerings” [OFI comment]</p>

*Cognitive Participation*

In some cases, the project submission and review processes were depicted by a flowchart. Some submission forms for projects request evidence that the project is data driven

and a description of how it aligns with the health department’s mission, vision, and strategic documents. Once projects were chosen, in some health departments, they were assigned project teams with expertise in the area of interest. Site visitors commented on the variety of project submission methods and tools used to prioritize projects.

*Table 12: Illustrative Quotes – Measure 9.2.1, Requirement 5*

<b>Project Identification [9.2.1, Req 5]</b>	
<b>Notable Comments</b>	<b>Illustrative Quotes</b>
<b>Variety of project submission methods</b>	<p>“Projects may be identified through AARs, surveys or the performance management system among others. Individual staff members may also recommend projects”</p> <p>“In addition to PM system analyses, other sources of potential QI project identification may include... Formal or informal referral to the QI Council or leadership staff by any staff member; Feedback from community stakeholders; Internal or external survey or assessment results (e.g., Customer Satisfaction Survey; Performance Management Self-Assessment); and Organization or community plan implementation results and reports”</p> <p>“The health department should be commended on its use of the Interventional Portal. This portal allows employees at all levels to submit quality improvement suggestions to the Quality Oversight Committee...an employee can submit an idea, even if they might not be the right person for that particular QI project” [AOE comment]</p> <p>“all programs areas are required to identify an annual quality improvement project based on data and customer feedback” [AOE comment]</p>
<b>Various tools used to prioritize projects</b>	<p>“a protocol for selecting QI projects is outlined and includes worksheets, prioritization matrix, and scoring system”</p> <p>“the QI team members review the proposals and gives priority to proposals if they are data driven and if they align with the strategic plan, CHIP, customer satisfaction”</p> <p>“[projects] are reviewed by the QI Council for the presence of various selection criteria. This process is done using the QI Project Selection and Prioritization Tool”</p> <p>“a more systematic approach to identifying areas for improvement beyond individual suggestions, such as annual self-studies” [OFI comment]</p>

As specified in the measure requirements, site visitors sought to verify that goals were measurable, quantifiable, time-framed, identified responsible parties, and specified associated activities. For health departments who are beginning their QI journey, goals and objectives focused on understanding QI processes and tools. A range of goals were provided. Site visitors commented on the tracking, alignment, and specificity of the goals and objectives.

Table 13: Illustrative Quotes – Measure 9.2.1, Requirement 6

<b>QI Goals/Objectives [9.2.1, Req 6]</b>	
<b>Notable Comments</b>	<b>Illustrative Quotes</b>
<b>Range of goals provided by LHDs</b>	<p>“the plan includes 2 QI goals: 1) establish a departmental culture of QI and 2) implement QI efforts”</p> <p>“The QI plan includes goals, objectives and measures with time-framed targets. In the table provided, each goal includes objectives/activities, performance measures, timetables, and the person/party responsible for each objective”</p> <p>“The QI Plan incorporates quality goals with measures, timeframes and responsible party. One such example is the goal of reviewing the plan annually and making necessary revisions. The measure for this goal is meeting minutes and the actual revised plan. It is due annually by December 31<sup>st</sup> and the QIC is the responsible for completion”</p>
<b>Alignment and tracking of goals and objectives</b>	<p>“the plan states that progress is monitored during quarterly QI council meetings”</p> <p>“progress toward achieving QI goals and objectives is monitored on the PM system”</p> <p>“Annual Review attachment that detailed progress toward meeting specific objectives, targets, measures, activities and desired performance”</p> <p>“the plan includes QI goals and objectives that are cross-referenced with the performance management plan”</p> <p>“links to and aligns with the health department’s Strategic Plan with templates developed for consistent communication of performance measures across all programs”</p> <p>“The QI Council is responsible for assuring that the QI Plan aligns with the CHIP, Strategic Plan, Performance Management Plan, Communication Plan, and Workforce Development Plan. A visual graphic was provided that depicts how all the plans are connected as well as a written description of how the QI Plan connects to all these other plans”</p> <p>“utilizing QI forms for staff to address specific objectives, goals and measures that are in alignment with the strategic goals of the organization”</p>
<b>Specificity of goals important</b>	<p>“authentic, local, and specific objectives paint a picture of an agency that has a thoughtful plan and process, as captured in this objective: ‘75% of OpEx Team report feeling confident in their ability to provide support to other QI projects’” [AOE comment]</p> <p>“should consider outlining the activities or projects associated with each objective within the QI plan”</p> <p>“strengthen the goals and objectives by including more time-framed targets, budget and resource allocation, and review of the progress toward achieving goals and objectives”</p>

*Collective Action*

In comments provided for Measure 9.2.2, Requirement 1, some site visitors listed the reasons for selecting QI project areas. Projects were chosen because:

- the area had the leading # of cases of the specified disease
- funds were being lost
- the project was the most useful and practical project to accomplish
- the project was identified by the leadership
- it had the biggest return potential and state priority
- it was identified using a QI Decision Making tool
- it was identified by a customer satisfaction survey

A selection of the QI tools used to identify aspects of the problem or to diagram the process used to develop and implement the project are listed (Table 14). Plan-Do-Study/Check-Act was by far the most common QI tool noted in site visitor comments and storyboards were the most cited method of visually depicting the process.

*Table 14: Number of 9.2.2 Summative Comments in which QI Tools/Processes Mentioned*

QI Tools/Processes	Number of Comments
Storyboards	36
PDSA or PDCA	32
Fishbone or Cause/Effect Diagram	21
Surveys	20
Flowchart or Process Map	10
Root Cause Analysis	9
AIM Statement	9
Affinity Diagram	4
SMART Goals/Objectives	3
Other: Posters, QI planning form, QI activity log, QI workbook, QI team charter, external workgroup, new standard operating procedures, decision tree, QI decision making tool, run chart, 5 whys, force field diagram, failure mode and effects analysis, force and effect analysis, SIPOC Diagram, solution and effect diagram, LEAM 6 Sigma, SWOT analysis, Kaizen QI project	

Of the programmatic projects described, seven major categories were identified, including infectious disease, environmental health, emergency preparedness, food programs, family/kids, community outreach, and administrative projects. A selection of programmatic project examples mentioned in site visitor comments is listed (Table 15).

*Table 15: Examples of Programmatic QI Projects [9.2.2, Req 1]*

Infectious Disease
<ul style="list-style-type: none"> <li>• Rabies control (3)</li> <li>• Reporting communicable diseases (3)</li> <li>• Address lag in compliance with school immunization audit</li> <li>• Information availability on open communicable disease cases and lack of secure email system</li> <li>• Improve communication between EH and CD program during overlapping outbreaks</li> <li>• Decrease Shigella cases and length of case investigation</li> </ul>

<ul style="list-style-type: none"> <li>• Increase pneumococcal vaccination rate for 65+</li> <li>• Improve HIV/AIDS case management charting</li> <li>• Improve vaccination rates of children 24-35 months</li> <li>• Improve efficiency and quality of charting expedited enteric disease cases</li> </ul>
<b>Environmental Health</b> <ul style="list-style-type: none"> <li>• Uniform interpretation/enforcement of dwelling and nuisance abatement order</li> <li>• Environment Health complaint procedure</li> <li>• Well disinfection - develop consistent methodology and materials for educating the public</li> <li>• Address shortcomings of inspection and program management processes for conducting compliance inspections of facilities that handle hazardous materials</li> <li>• Timely issuance of septic permits</li> <li>• Reporting well water sample results to state agency</li> <li>• Increase the number of radon kits returned</li> </ul>
<b>Emergency Preparedness</b> <ul style="list-style-type: none"> <li>• Disaster preparedness - personal responsibilities during PH emergency disaster</li> <li>• On-call expectations for EH staff re Emergency Preparedness Response</li> <li>• Assess and improve distribution of emergency preparedness funds</li> <li>• Reduce amount of time to dispense medications at large scale emergency event</li> </ul>
<b>Food Programs</b> <ul style="list-style-type: none"> <li>• Food program and inspection variance from the rest of the state</li> <li>• Increase enrollment in farmers market initiative</li> <li>• Standardizing food establishment inspection reports</li> <li>• Track new food establishments and process updated contact info</li> <li>• Improve customer satisfaction for the Food Handling Course</li> <li>• Streamline application for temporary food vendor license</li> <li>• Appropriately route incoming food complaints and standardize follow-up</li> </ul>
<b>Family/Kids</b> <ul style="list-style-type: none"> <li>• Increase accuracy and efficiency of data entry process for child development screening forms</li> <li>• Prenatal care coordination plan to be filled out with client</li> <li>• Decrease MCH staff time on clerical tasks</li> <li>• Improve cultural appropriateness of the evaluation methods in Latino Childcare Network</li> <li>• Develop feedback surveys for students to provide on quality of health education presentations</li> <li>• First Breath for reduction in smoking in pregnant and post-partum women</li> <li>• Teens Against Tobacco Use – more accurately measure participants change in knowledge</li> <li>• Improve coordination with sheriff dept to conduct Youth Tobacco Purchase survey</li> </ul>
<b>Community Outreach</b> <ul style="list-style-type: none"> <li>• Colorectal cancer screening kit return rates</li> <li>• Cancer screening promotion</li> <li>• Improving class attendance for diabetes self-management education/training</li> <li>• Industry and Community Outreach Program</li> <li>• Increase referrals to health promotion programs from other internal divisions</li> </ul>
<b>Administrative</b> <ul style="list-style-type: none"> <li>• Medical provider communications</li> <li>• Increase HD capacity with limited English proficiency costumers</li> <li>• Reduce Medicaid billing errors and reduce reliance on paper documents</li> </ul>

The list of administrative projects mentioned in site visitor comments is listed in Table

16. The administrative projects can be grouped into six major categories, including

communication/engagement, employees, document management and processing, budget, phone, and customers.

*Table 16: Examples of Administrative QI Projects [9.2.2, Req 1]*

<b>Communication/Engagement</b>
<ul style="list-style-type: none"> <li>• External Communication Improvement Project – increase awareness of HD services</li> <li>• Media engagement</li> <li>• Staff awareness/understanding of HD programs so they can better communicate with public</li> <li>• Increasing community engagement and health improvement planning processes</li> <li>• After hours communication led by preparedness division</li> <li>• Increase HD through branding</li> <li>• Website QI project</li> <li>• Improve community partner participation in the CHA and MAPP process</li> </ul>
<b>Employees</b>
<ul style="list-style-type: none"> <li>• Update new employee orientation/onboarding (7)</li> <li>• Timesheets (3)</li> <li>• Outline specific job categories in relationship to PH performance standards</li> <li>• A tool for staff to document required training as well as individual professional development</li> <li>• Employee wellness program</li> <li>• Improve knowledge, attitude, and skills with regard to CLAS</li> <li>• Develop an application process and screening plan for student interns</li> </ul>
<b>Document Management and Processing</b>
<ul style="list-style-type: none"> <li>• Organizational system for agency policies and system for keeping track of/updating policies</li> <li>• Tracking approval of contracts and MOUs</li> <li>• Improve shared file folders on computer network so staff can access documents in fewer clicks</li> <li>• Update policies and procedures</li> <li>• Improve policy development process</li> <li>• Standardize process and forms for starting a QI project</li> <li>• Reduce time needed to complete food service inspection</li> </ul>
<b>Budget</b>
<ul style="list-style-type: none"> <li>• Improve purchasing process (3)</li> <li>• Cash management process (2)</li> <li>• Federal funds being spent at right time frames so funds not lost</li> <li>• Improve invoice and billing processes, increase revenue by conducting at least monthly audits</li> <li>• Improve staff awareness of purchasing procedures to reduce purchasing errors</li> <li>• Methadone program fee collection improvement</li> </ul>
<b>Phone</b>
<ul style="list-style-type: none"> <li>• Directing phone calls more efficiently (2)</li> <li>• “Operation Talk Around” – process for reserving conference call line to avoid double booking</li> <li>• Answering phones when receptionist was absent</li> <li>• Triage calls to reduce gaps in urgent call staff response</li> <li>• Determine functionality of phone system, develop phone administration process/training for staff</li> </ul>
<b>Customers</b>
<ul style="list-style-type: none"> <li>• Improving client privacy in front desk area</li> <li>• Customer satisfaction survey</li> <li>• Improve content of PH comment card to determine customer satisfaction/identify suggestions</li> </ul>

Regarding Measure 9.2.2, Requirement 2, site visitors noted examples of staff participation provided by the health departments in their comments. The most common and notable examples originated from:

- meetings (e.g., minutes from QI team meetings and/or staff meetings)
- projects (e.g., reports, project meeting minutes/attendance)
- trainings (e.g., staff training sign-in sheets)
- workshops (e.g., attendees for workshops)
- events (e.g., QI event attendance)
- evaluations (e.g., employee involvement in QI is part of employee performance evals)

Some employee engagement efforts were carried out through unique QI events. One health department's QI Café, complete with health department staff dressed as baristas, "provided a 'menu' of QI offerings" and was aptly scheduled during National Public Health Week. The "QI Final Four March Madness" event guided staff teams through the QI process for an improvement topic of their choosing. AOE comments applauded engagement and enthusiasm of all staff ( $n = 6$ ), noted evidence of a QI cultural movement ( $n = 2$ ), as well as the excellence of tools, templates, and formats made available to staff and exceptional storyboards documenting their processes ( $n = 3$ ). OFI comments conversely noted the lack of staff engagement ( $n = 2$ ), the need to strengthen QI documentation ( $n = 5$ ), the recommendation to incorporate QI tools ( $n = 2$ ), and engage key community stakeholders ( $n = 1$ ).

#### *Reflexive Monitoring*

Monitoring QI progress (Measure 9.2.1, Requirement 7) varied quite a bit among health departments. Health departments use a variety of tools to measure QI progress, including pre/post measures, a QI maturity tool, a logic model, a dashboard scorecard, or an annual survey to identify gaps. Some document QI progress through QI worksheets, QI logs, the PM system, periodic reports developed by project teams, or analyses run by the QI coordinator.

Table 17: Illustrative Quotes – Measure 9.2.1, Requirement 7

<b>Monitor QI Plan [9.2.1, Req 7]</b>	
<b>Notable Comments</b>	<b>Illustrative Quotes</b>
<b>Variations in monitoring of QI progress</b>	<p>“The monitoring of the QI Plan and identified projects is conducted using a centralized tracking system and is updated by the QI Coordinator...The CQI Council will also evaluate the completed projects to provide feedback on specific projects that can influence future projects and QI work”</p> <p>“documentation includes a QI project tracking spreadsheet on which data are collected, providing evidence of progress toward stated QI goals and need for further improvement”</p> <p>“monitoring and evaluation of the plan is presented in the performance measurement spreadsheets, which are collected quarterly”</p> <p>“the approach to QI plan monitoring is to include this as a standing discussion item on the monthly agenda and then in the future, develop a dashboard scorecard”</p> <p>“data is collected and monitored using a QI log”</p> <p>“monitors the Quality Improvement plan through the use of its performance management system and determines actions to be taken in order to make improvements in its action plan”</p> <p>“QI evaluation report, which assessed progress on staff QI Maturity and on QI plan goal attainment, including the use of customer service data in goal attainment. The report also discusses QI strengths, improvement opportunities”</p>
<b>Leadership involvement in QI tracking</b>	<p>“the QIC is responsible for recommendation to the leadership team to implement the change or to re-evaluate”</p> <p>“evaluation and monitoring by QI Council, with annual reporting to Board of Health”</p> <p>“QI team and Division Directors are responsible for monitoring all QI projects”</p> <p>“on a quarterly basis, the CQI Council will report data on the progress of the projects to the QI Divisional Teams and Health Officer”</p>

Methods of communicating QI activities (Measure 9.2.1, Requirement 8) ranged in scope and type. Table 18 lists the communication methods noted in site visitor comments. OFI comments noted the importance of regular communication to *and* from the governing body to maintain a feedback loop with leadership.

Table 18: Number of 9.2.1 Summative Comments in which Communication Method Mentioned

Method of Communication	Number of Comments
Staff meetings/presentation	23
BOH meetings	19
Newsletters/email update	19
Storyboards	13
Shared drive/intranet	6
Final report	4
Website	4
Employee recognition	3
Bulletin boards	3
Social media	2
Other: visualization board, lunch and learn sessions, share with partners/stakeholders, press release, evaluation plan to measure overall impact	

Table 19: Illustrative Quotes – Measure 9.2.1, Requirement 8

Communicate QI Activities [9.2.1, Req 8]	
Notable Comments	Illustrative Quotes
<b>Outlining communication methods</b>	“A table that outlines the communication of QI. The table includes the key message, the mode of communication (meetings, storyboards, other visuals), and the target audience. The plan also outlines the use of story boards to display results of QI projects”
	“The QI Communication Plan is a table outlining six key messages, modes of communication (i.e., staff meetings, story boards, branch leadership team). The frequency of the messaging is identified, although the responsible party is not noted”  “responsibilities of the quality improvement team and organizational leadership to communicate knowledge of and updates on quality efforts before, during, and after implementation”
<b>Creative methods of communication</b>	“QI Storyboards posted in conference rooms, project completion celebrations, and a shared electronic drive that contains records that can be reviewed by staff members at any time”
	“a PHABulous Update! Electronic employee newsletter which is published very regularly...highlighting internal and external (evidence-based) QI practices, along with staff incentives for getting involved”  “a 10-15 minute QI update is included in all quarterly staff meetings” [AOE comment]

While some health departments plan to update their QI plan every two, three, or five years (with revisions as needed), most commonly, health departments are reviewing and updating their QI plans annually. Site visitor comments regarding Measure 9.2.1, Requirement 9 are listed below.

Table 20: Illustrative Quotes – Measure 9.2.1, Requirement 9

<b>Assess QI Plan/Activities [9.2.1, Req 9]</b>	
<b>Notable Comments</b>	<b>Illustrative Quotes</b>
<b>Varying methods of assessing effectiveness of plans</b>	<p>“the department identifies a number of evaluation strategies to be used to assess QI effectiveness, including evaluation which may include customer or partner surveys, examination of lessons learned, and review of process and progress to QI goals and objectives”</p> <p>“The evaluation process will include completion of a national assessment tool, discussion of effectiveness of committee meetings, review of effectiveness of the Plan, identify lessons learned and an annual evaluation report with recommendations for changes. Goals will be revised, and corrective actions and revisions made after the annual review”</p> <p>“the QI Council will conduct an evaluation of the QI workplan and activities each July to address progress and achievement of goals and objectives, effectiveness of QI Council meetings, QI Project team meetings and satisfaction surveys”</p>

## DISCUSSION

This study confirmed Roberts' findings that the measures in Domains 5 and 9 are required to be included in action plans more often than measures in other domains for small and medium LHDs. This study further revealed that small and medium LHDs that were not required to submit an action plan tended to score higher on Domain 9. The subsequent correlation analysis exposed potential institutional insights why performance on Domain 9 can impact a health department's accreditation outcome.

The correlation analysis revealed that performance on Domains 2, 4, 7, 8, 10, 11, and 12 correlated weakly with the health department's performance on Domain 9. It could be argued that these domains comprise the types of activities that most health departments are likely to be carrying out, regardless of accreditation requirements, including:

- responding to, containing, documenting, following-up on, and disseminating information about outbreaks in the community (Domain 2),
- engaging partners, the public, and leadership in public health problems (Domain 4),
- assessing access to healthcare and gaps to identify and implement strategies to improve access (Domain 7),
- collaborating with educational programs, promoting career development and supportive work environments; hiring a competent workforce (Domain 8),
- using evidence-based practices; fostering innovation and research collaboration; analyzing and disseminating current research (Domain 10),
- instituting appropriate business practices/documentation, including policies/procedures, organizational chart, ethical decision-making, human resources, information management, clean facilities, financial oversight, written agreements, financial information system, resources to support infrastructure (Domain 11)
- having established authority to conduct public health business, as well as a governing entity (Domain 12)<sup>16,17</sup>

Alternatively, Domain 9, as well as Domains 1 and 5 which correlated most strongly with performance on Domain 9, comprise requirements that involve activities or practices that may not have been considered outside of accreditation preparation, particularly by small and medium LHDs that tend to have limited resources and must prioritize their functions.

Both Domains 5 and 9 require the development, implementation, and monitoring of comprehensive plans, including the Community Health Improvement Plan (CHIP), Strategic

Plan, and QI Plan, that impact health departments institution-wide.<sup>7</sup> These domains “are filled with capacity-building requirements” that public health institutions “were not routinely required to do prior to accreditation.”<sup>7</sup> These plans also take much time to develop, implement, monitor, and evaluate, and in the rush to prepare for all of PHAB’s Standards and Measures within the time pressures of the documentation dating requirements or possibly external pressures to become accredited, health departments may not take the time to fully cultivate those plans.

Performance on Domain 1, which correlated second most strongly with performance on Domain 9 and is comprised of measures third most often required to be included in action plans, similarly incorporated a comprehensive and complex requirement with detailed specifications. Domain 1 requires the development of a Community Health Assessment (CHA) which involves the collaboration and sharing of data with other state agencies, as well as updating, monitoring, and evaluating the assessment. While many health departments do successfully develop the plans or processes required by Domains 1, 5, and 9, it appears that many “lack in the implementation and evaluation of these plans and processes.”<sup>7</sup> This shortcoming may be the result of any number of factors, but is likely to stem from “time constraints, staff bandwidth, and culture development.”<sup>7</sup>

Domain 3 and 6 performance also correlated moderately with Domain 9 performance, but less strongly than Domains 1 and 5. Domain 3 involves an organizational branding strategy, which requires time and potentially external assistance to develop and implement. Domain 3 also requires communication of the health department mission and activities to the public, as well as the incorporation of health promotion strategies to mitigate preventable conditions. Domain 6 discusses the observance and enforcement of public health laws, as well as the documentation and monitoring of agency actions and procedures. Domain 6 also asks health departments to identify and analyze patterns or trends regarding enforcement activities. Both Domains 3 and 6 comprise some requirements which health departments *likely* carry out regardless of accreditation requirements, though perhaps not to the level and detail required in

the accreditation measures; other requirements, namely the organizational branding strategy and the analysis of trends regarding enforcement activities, health departments *likely* do not pursue outside of accreditation preparation. Further research could be done to explore the relationship between performance on Domain 3, 6, and 9.

Performance on Domain 9 appears to be correlated most strongly with Domain 5 and 1 performance because the foundations of Domain 9, Domain 5, and to some extent Domain 1, have to do with impacting institutional culture or infrastructure. As discussed, normalizing new practices within an institution's culture can be mapped using Normalization Process Theory (NPT). The following section will discuss how health departments engender institutional change according to the requirements of Standard 9.2, as described in site visitor comments and analyzed through the lens of NPT, focusing on the four main components of the theory: coherence, cognitive participation, collective action, and reflexive monitoring.

The core aspect of building coherence around QI was the training of staff. While training staff during new employee orientation is considered an excellent introduction to QI, engaging staff in QI training (in any form—online, in person, video, etc.) periodically can help to further staff understanding of the methods and approaches to integrating, and ultimately normalizing the practice of QI into their everyday work. Engaging all staff not only in staff training, but also in organized QI practice, such as QI teams and projects, was also described in the comments as being an excellent method of maintaining QI engagement.

Participation in QI was often encouraged through the submission of QI projects. Notable site visitor comments indicated that QI project ideas should be able to be submitted in multiple ways (e.g., by the QI Team, through the PM system, surveys, etc.), and by any staff. The staff, who are working 'in the trenches' make remarkable observations and tend to have excellent insight into areas in need of improvement throughout the health department.

Tables 15 and 16 exhibit the scope of projects that can be submitted for Standard 9.2 and Table 14 provides a variety of tools that can be used to implement QI, but what appeared most

crucial based on the site visitor comments is the collective action of staff in QI activities. It was emphasized that staff at all levels should be actively engaged and numerous examples were provided of how staff could get involved whether through QI training, discussion of QI at staff meetings, QI team meetings, QI project meetings, and/or QI workshops and events. Although ideally staff would voluntarily become involved in QI activities, in one case, a health department incorporated QI involvement into staff performance evaluations, further emphasizing the health department's belief in and commitment to the establishment of normative QI practices.

QI plans are monitored and their effectiveness assessed in a variety of ways. Site visitor comments provide few insights into the details of these assessment processes. Critical to this phase of QI implementation was the communication of outcomes, particularly to staff and leadership for continued buy-in and forward movement of the culture of QI. Most health departments discussed QI consistently at staff meetings or sent out regular newsletters that provided updates on the health department's progress both on micro QI projects and macro QI efforts. Storyboards were also commonly used, and posted within health departments, to provide a visual representation of progress, successes, and lessons learned.

The most critical advice for small and medium LHDs seeking accreditation that rang true through site visitor comments is the importance of close adherence to the measure requirements as listed in PHAB guidelines. Much of the site visitor assessment was guided from the details specified in the Standards and Measures. But when reflecting on the more aggressive goals of accreditation requirements that dictate institution-wide normative change in practice and mentality—for example, the development of a culture of QI per Domain 9—a health department's staff plays a pivotal role. *Coherence*, building comprehension of QI, involves the deep engagement of staff and the repeated training in increasingly advanced concepts of QI. *Cognitive participation* uses the experience of staff to suggest and prioritize projects that can help improve the operations of their organization. The execution of the projects, or the *collective action* of staff, uses staff expertise and enthusiasm to work towards a better, more functional

workplace. Finally, *reflexive monitoring* of QI activity and the communication of outcomes to staff not only normalizes QI, but furthers the cycle of continuous QI. The growth of staff enthusiasm can result in increased comprehension, deep-rooted engagement, stimulated action, and feedback loops that move the health department towards achieving an institutional culture of QI.

### **Limitations**

While this study focused primarily on the four major components of NPT within a single health department, health departments do not operate within a vacuum. The work of public health departments is woven together with the work of many other professions and agencies. Local health departments are part of myriad partnerships within their communities, including with community organizations, physicians, and government officials. Furthermore, local health departments function within the larger public health infrastructure guided by state and federal agencies, as well as influential grantors. These interprofessional influences shape both internal and external factors and structures impacting health department's operations that have not been discussed in this paper and make up some of the remaining components of NPT (Figure 3). The application of NPT could be assessed more broadly by accounting for the influence of interprofessional agencies, norms, processes, and staff that impact the normative framework and structural constraints of a health department in pursuit of a culture of QI.

The domain score calculation used in this analysis may also be a limitation of this study. There is currently no standard method of calculating a domain score from public health accreditation results. The method chosen was a simple percentage score calculation, including a health department's scores on all measures in the domain, but there may be other, more nuanced methods that could be utilized to generate domain scores. PHAB, for instance, has methods of calculating domain conformity scores by including only measures on which health departments scored a 3 or 4 (i.e., the health department was 'in conformity' with the measure) that have been used for certain analyses of accreditation results.

Additional limitations of this study include the subjectivity and structure of the summative site visitor comments. Because only the comments were reviewed and not the documentation assessed to generate the comment, there was a lack of detail and a layer of site visitor subjectivity that shrouded the specifics and realities of practices within the health departments. Regarding structure, many of the comments are redundant, simply listing off the requirements that were met. It is recommended that the summative site visitor comment structure be reconsidered. Perhaps the current comment structure could take the form of a checklist to verify that requirements are met, rather than repeating the requirements in each comment.

The scope of the project was also a limitation in the breadth of comments that could be reviewed. The qualitative analysis was limited to comments made on measures in Standard 9.2 only for health departments who scored a 4 on the measures. A larger study could incorporate a review and discussion of the integration of a PM system by reviewing comments on the measures in Standard 9.1. A more expansive study could further review all measures in Domain 9 for all health departments, regardless of scores.

## **FUTURE RESEARCH**

Beyond the expansion of this study to the review of other site visitor comments made on measures in Domain 9, further research on the development of a culture of QI in small and medium LHDs could include a review of the annual reports submitted by accredited health departments. Part 1 of Section 2, in particular, focuses on continuous QI by asking health departments to respond to a series of questions on QI projects that the health department implemented throughout the past year, as well as the following questions regarding the promotion of QI within the health department:

1. How has the health department implemented and/or changed its quality improvement (QI) plan over the past year?
2. Which of the following most accurately characterizes the QI culture in the health department?
3. Has there been a change in the health department's phase of QI culture in the past year? If so, what has changed and why?<sup>38</sup>

The annual report could be compared to initial accreditation feedback to better map out the development of a culture of QI over time within accredited health departments.

Further research could also include an exploration of health departments' performance on Domains 3, 5, and 6, given their correlation with performance on Domain 9. The author is hopeful that this study will help small and medium LHDs seeking accreditation, particularly in preparation for Domain 9, but additional resources and research can help further assist small and medium LHDs, like those in Connecticut, to better prepare for and feel more confident pursuing accreditation, for the benefit of the health department, its constituents, and ultimately, for the improvement of the public health infrastructure throughout the country.

## **CONCLUSION**

As part of the wave of public health accreditation, there is parallel movement towards the development of a culture of QI in health departments. Both movements are progressing slowly within small and medium LHDs, yet are particularly critical to these smaller institutions, given their need to maximize a small staff, limited resources, and handle competing and growing priorities. Small and medium LHDs have less capacity to institute cultural changes which may impact their accreditation outcomes. A critical factor in that process is the engagement of all health department staff at all stages of Normalization Process Theory. Further research is needed to guide health departments in facilitating these normative changes, with hopes that regions like Connecticut, where public health accreditation has been slow to spread, will see more health departments striving for accredited status and a culture of QI that can stimulate myriad positive outcomes for the betterment of the health of our citizens.

## APPENDIX

*Table A: PHAB Domains and Standards, Version 1.5<sup>16</sup>*

<b>ASSESS</b>
<b>DOMAIN 1: Conduct and disseminate assessments focused on population health status and public health issues facing the community</b>
Standard 1.1: Participate in or Lead a Collaborative Process Resulting in a Comprehensive Community Health Assessment
Standard 1.2: Collect and Maintain Reliable, Comparable, and Valid Data that Provide Information on Conditions of Public Health Importance and On the Health Status of the Population
Standard 1.3: Analyze Public Health Data to Identify Trends in Health Problems, Environmental Public Health Hazards, and Social and Economic Factors that Affect the Public's Health
Standard 1.4: Provide and Use the Results of Health Data Analysis to Develop Recommendations Regarding Public Health Policy, Processes, Programs, or Interventions
<b>INVESTIGATE</b>
<b>DOMAIN 2: Investigate health problems and environmental public health hazards to protect the community</b>
Standard 2.1: Conduct Timely Investigations of Health Problems and Environmental Public Health Hazards
Standard 2.2: Contain/Mitigate Health Problems and Environmental Public Health Hazards
Standard 2.3: Ensure Access to Laboratory and Epidemiologic/Environmental Public Health Expertise and Capacity to Investigate and Contain/Mitigate Public Health Problems and Environmental Public Health Hazards
Standard 2.4: Maintain a Plan with Policies and Procedures for Urgent and Non-Urgent Communications
<b>INFORM &amp; EDUCATE</b>
<b>DOMAIN 3: Inform and educate about public health issues and functions</b>
Standard 3.1: Provide Health Education and Health Promotion Policies, Programs, Processes, and Interventions to Support Prevention and Wellness
Standard 3.2: Provide Information on Public Health Issues and Public Health Functions Through Multiple Methods to a Variety of Audiences
<b>COMMUNITY ENGAGEMENT</b>
<b>DOMAIN 4: Engage with the community to identify and address health problems</b>
Standard 4.1: Engage with the Public Health System and the Community in Identifying and Addressing Health Problems through Collaborative Processes
Standard 4.2: Promote the Community's Understanding of and Support for Policies and Strategies that will Improve the Public's Health
<b>POLICIES &amp; PLANS</b>
<b>DOMAIN 5: Develop public health policies and plans</b>
Standard 5.1: Serve as a Primary and Expert Resource for Establishing and Maintaining Public Health Policies, Practices, and Capacity
Standard 5.2: Conduct a Comprehensive Planning Process Resulting in a Tribal/State/Community Health Improvement Plan
Standard 5.3: Develop and Implement a Health Department Organizational Strategic Plan
Standard 5.4: Maintain an All Hazards Emergency Operations Plan

<b>PUBLIC HEALTH LAWS</b>
<b>DOMAIN 6: Enforce public health laws</b>
Standard 6.1: Review Existing Laws and Work with Governing Entities and Elected/Appointed Officials to Update as Needed
Standard 6.2: Educate Individuals and Organizations on the Meaning, Purpose, and Benefit of Public Health Laws and How to Comply
Standard 6.3: Conduct and Monitor Public Health Enforcement Activities and Coordinate Notification of Violations among Appropriate Agencies
<b>ACCESS TO CARE</b>
<b>DOMAIN 7: Promote strategies to improve access to health care</b>
Standard 7.1: Assess Health Care Service Capacity and Access to Health Care Services
Standard 7.2: Identify and Implement Strategies to Improve Access to Health Care Services
<b>WORKFORCE</b>
<b>DOMAIN 8: Maintain a competent public health workforce</b>
Standard 8.1: Encourage the Development of a Sufficient Number of Qualified Public Health Workers
Standard 8.2: Ensure a Competent Workforce through Assessment of Staff Competencies, the Provision of Individual Training and Professional Development, and the Provision of a Supportive Work Environment
<b>QUALITY IMPROVEMENT</b>
<b>DOMAIN 9: Evaluate and continuously improve processes, programs, and interventions</b>
Standard 9.1: Use a Performance Management System to Monitor Achievement of Organizational Objectives
Standard 9.2: Develop and Implement Quality Improvement Processes Integrated Into Organizational Practice, Programs, Processes, and Interventions
<b>EVIDENCE-BASED PRACTICES</b>
<b>DOMAIN 10: Contribute to and apply the evidence base of public health</b>
Standard 10.1: Identify and Use the Best Available Evidence for Making Informed Public Health Practice Decisions
Standard 10.2: Promote Understanding and Use of the Current Body of Research Results, Evaluations, and Evidence-Based Practices with Appropriate Audiences
<b>ADMINISTRATION &amp; MANAGEMENT</b>
<b>DOMAIN 11: Maintain administrative and management capacity</b>
Standard 11.1: Develop and Maintain an Operational Infrastructure to Support the Performance of Public Health Functions
Standard 11.2: Establish Effective Financial Management Systems
<b>GOVERNANCE</b>
<b>DOMAIN 12: Maintain capacity to engage the public health governing entity</b>
Standard 12.1: Maintain Current Operational Definitions and Statements of the Public Health Roles, Responsibilities, and Authorities
Standard 12.2: Provide Information to the Governing Entity Regarding Public Health and the Official Responsibilities of the Health Department and of the Governing Entity
Standard 12.3: Encourage the Governing Entity's Engagement In the Public Health Department's Overall Obligations and Responsibilities

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