Title: Results and recommendations from a national public health workforce development systems assessment conducted in the United States

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Abstract

Multiple public health workforce development assessments report individual worker knowledge and skill-based training needs. These assessments do not capture practitioners' in-depth perceptions of complex public health challenges and whether workforce development approaches address these issues. To address this gap, the Public Health Learning Network (PHLN) – a national coalition of 10 Regional Public Health Training Centers located at United States accredited schools of public health, their partners, and the National Network of Public Health Institutes -- conducted a public health workforce development assessment using a two-phased mixed-method design to explore systems-level gaps and opportunities for improving workforce development effectiveness. Phase I included a content analysis of major public health workforce development reports and peer-reviewed literature. Phase II included primary qualitative data collection of key informant interviews and focus groups via conference call with 43 participants representing 41 public health organizations at the local, state, and national levels. Results included a wide range of challenges with an emphasis on major systems changes, the shift in public health's role to more effectively build community collective capacity, limited staff capacity and capability, and the need for more flexible and integrated training funding. Public health workforce development approaches recommended to address these challenges include improving pedagogical approaches toward more integrated, multi-modal training delivered over time; increasing workforce capacity to address complex challenges such as racism and housing; and greater public health workforce development system coordination and alignment. PHLN's workforce assessment also identified opportunities for conceptualizing the definition and delivery of training toward on-going learning.

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The public health workforce has been called the most critical resource for improving population health and advancing health equity in the United States (Honoré, 2014; Institute of Medicine, 2012). Assessing public health workforce development needs is vital to determining pedagogical approaches and training content to address how workers might effectively address public health problems. Most public health workforce development assessments identify gaps in individual worker knowledge, skills, and related competencies (Joly et al., 2018; Sellers et al., 2015). However, understanding individual competency alone may be insufficient for creating workforce development strategies that address complex challenges, which require multi-level changes at organizational-, community-, and system-levels (Resnick et al., 2018; Plough, 2014; Chehimi & Cohen, 2013; and Golden & Earp, 2012).

The Public Health Learning Network (PHLN) is a collective of United States (U.S.) public health educators, experts, and thought leaders organized to meet national public health workforce development needs. Initiated in 2014 with funding from the U.S Health Resources and Services Administration (HRSA), the PHLN is facilitated by the National Coordinating Center for Public Health Training (NCCPHT) at the National Network of Public Health Institutes (NNPHI) and includes 10 Regional Public Health Training Centers (RPHTCs) at accredited schools of public health and their partners across all states, Puerto Rico, and the Virgin Islands.

From 2014-2018, the PHLN provided training to over 630,000 public health practitioners (NNPHI, 2018).

The PHLN began planning in 2015 to establish its vision and approach to improve public health workforce development. The initial process of reviewing existing reports revealed numerous workforce challenges, including but not limited to reductions of workforce capacity due to retirements and funding cuts; a call for new skills to address public health's role in population health and health equity; and a seemingly nonexistent national workforce development strategy around issues like training quality and delivery systems (NACCHO, 2012; Honoré, 2014; Plough, 2015; Kaufman et al, 2014). However, existing reports lacked an in-depth understanding of contextual issues practitioners face. To address this gap and identify how to collectively address workforce development, the PHLN conducted a public health workforce development systems assessment with public health practitioners and workforce development organizations from local, state, and national organizations across the United States. This article describes results of the assessment and its implications for broadening pedagogical approaches within workforce development.

Methods

Research Design

The workforce assessment questions were: 1) what are the major public health systems challenges and issues; and 2) how are current workforce development approaches addressing these challenges. PHLN employed a two-phased mixed-method design. Phase I included a content analysis of workforce development articles and reports to identify: 1) public health system challenges; and 2) workforce development approaches that may be addressing these

challenges. Phase II involved primary qualitative data collection based on themes identified in Phase 1 for a more in-depth inquiry into practitioner and partner perspectives.

RPHTC Principal Investigators provided project oversight primarily led by a four-person PHLN team, including two RPHTC Principal Investigators, one staff person from the NCCPHT, and an evaluator that had previously worked with an RPHTC. This evaluator served as the Project Team Lead in data collection and analysis. The project was deemed exempt by the Institutional Review Board at the University XXXX (#2017-0753). The data, summarized by phase, are presented in Table 1.

Table 1. Public Health Workforce Development Systems Assessment Data Sources and Use

Workforce Systems Assessment Phase	Data Source	Total Number
Phase I: Content analysis of major reports and literature to identify themes around governmental public health systems challenges and workforce development approaches to address these challenges	Fifteen national level documents related to public health workforce development	N= 15
Phase II: Primary qualitative data collection to explore Phase 1 themes more in depth regarding public health system challenges and assess whether and how workforce development approaches address identified challenges	Two focus groups with Regional Public Health Training Center (RPHTC) staff	N = 11
	Two focus groups with state and local public health partners	N = 18
	Key informant interviews with National Public Health Organizations	N = 14
	Total primary data collection participants	N = 43 individuals from 41 organizations

Procedures

Phase I: Content Analysis of Documents

The RPHTC Principal Investigators and staff of the 10 RPHTCs recommended 15 major public health workforce development reports and related peer-reviewed literature to analyze that addressed national issues on public health workforce development from the last 15 years. The PHLN Project Team developed a thematic codebook based on workforce development constructs described in the literature (e.g. Beck et al., 2013), including workforce development challenges such as workforce capacity, perceived gaps in training content, or limitations of training delivery methods. The Project Team Lead conducted a content analysis of the identified documents using the Framework Method (Gale et al., 2013). Findings illuminated specific areas to explore in the Phase II data collection process, such as depth and breadth of challenges faced by practitioners, as well as some early ideas about training gaps (e.g. learner engagement). Table 2 crosswalks major themes from the analysis aligned with the 15 documents reviewed.

Table 2. Phase I Content Analysis Themes Cross-Walked with References

Major Content Analysis Themes	Conclusions and Aligned References
Challenges facing the public health system	*Public health is faced with population health challenges* (Joly et al. 2018; National Workforce Consortium/de Beaumont Foundation, 2017; Department of Health and Human Services, 2016; Council on Linkages, 2016; Beitsch et al. 2015; National Network of Public Health Institutes, 2015; Robert Wood Johnson Foundation, 2014; Chehimi & Cohen 2013; Centers for Disease Control and Prevention, 2013; Institute of Medicine, 2012; Institute of Medicine, 2003 *The role of public health should expand to facilitate more multi-sectoral partnerships* (National Workforce Consortium/de Beaumont Foundation, 2017; Department of Health and Human Services, 2016; Council on Linkages, 2016; Association of State and Territorial Health Officials/ The de Beaumont Foundation, 2015; Robert Wood Johnson Foundation, 2014; Chehimi & Cohen 2013; Institute of Medicine, 2012)

	The public health workforce is shrinking due to retirements and position losses. Succession planning should be a high priority (National Workforce Consortium/de Beaumont Foundation, 2017; Beck, Boulton, & Coronado, 2014; National Association of City and County Health Officials, 2012) *Additional workforce development funding is needed* (Joly et al. 2018; National Workforce Consortium/de Beaumont Foundation, 2017; Department of Health and Human Services, 2016; Richards, Mayer, Lorenzo & Watson, 2016; National Network of Public Health Institutes, 2015; Robert Wood Johnson Foundation, 2014; Chehimi & Cohen 2013; Centers for Disease Control and Prevention, 2013; Institute of Medicine, 2012; Institute of Medicine, 2003
Workforce development approaches needed to address identified challenges	*Public health workforce training should include strategic skills development alongside specialized skills development to address population health* (Joly et al. 2018; National Workforce Consortium/de Beaumont Foundation, 2017; Association of State and Territorial Health Officials/The de Beaumont Foundation, 2015; National Network of Public Health Institutes, 2015; Robert Wood Johnson Foundation, 2014; Chehimi & Cohen, 2013) *Training need to be more engaging* (Joly et al. 2018; National Workforce Consortium/de Beaumont Foundation, 2017; National Network of Public Health Institutes, 2015; Council on Linkages, 2016; Centers for Disease Control and Prevention, 2013; Richards, Mayer, Lorenzo & Watson, 2016 *A stronger foundational infrastructure system is needed to sustain and coordinate workforce development, e.g. regular and increased funding for workforce development* (Department of Health and Human Services, 2016; Council on Linkages, 2016; Beitsch et al. 2015; Robert Wood Johnson Foundation, 2014; Chehimi & Cohen 2013; Centers for Disease Control and Prevention, 2013; Institute of Medicine, 2012; Institute of Medicine, 2003) *Define training quality* (Joly et al. 2018; National Workforce Consortium/de Beaumont Foundation, 2017; Council on Linkages, 2016; Richards, Mayer, Lorenzo & Watson, 2016; National Network of Public Health Institutes, 2015; Centers for Disease Control and Prevention, 2013)

Phase II Primary Qualitative Collection and Analysis

Qualitative data were collected through focus groups and key informant interviews. Focus group participants included state and local workforce development leaders across the U. S. identified by the RPHTC Principal Investigators. Key informants were also identified by RPHTC Principal Investigators and included national public health workforce development experts. The Project Team developed focus group and interview guides based on themes identified in Phase I. Example questions included asking for specific workforce development challenges and perceptions of the quality of training and learning approaches. Focus groups and interviews were conducted via conference call to reduce costs and increase participation and were completed by the Project Team Lead and another Project Team member.

Study Participation

Forty-three individuals participated (Table 1). A total of 29 organizational representatives participated in one of four focus groups. Two focus groups included RPHTC faculty, coordinators, evaluators, and instructional designers (n=11). The remaining two focus groups included regional, state, and local public health partners (n=18). These public health partners included representatives from urban, rural, large and small local health departments; state health departments; public health institutes; state public health associations; academic partners; and a territorial health organization. Fourteen representatives from national public health workforce development organizations participated in key informant interviews.

Focus groups and interviews were recorded (with permission) and transcribed. The Project Team Lead revised the codebook based on Phase I results and preliminary reviews of transcripts. Three Project Team members coded the same transcripts for coding agreement and a percentage was calculated regarding shared codes applied over the total excerpts coded. Once an

80% agreement rate in coding had been reached, the codebook was finalized and the Project Team Lead coded the remaining transcripts.

Results

Table 3 displays key themes from the document content analysis aligned with findings from the focus groups and interviews. A short summary was made public in 2018 to guide workforce development strategies among public health organizations, leaders, and the PHLN (PHLN, 2018). An in-depth description and discussion of the findings follows.

Table 3. Phase I Content Analysis Themes Cross-walked with Phase II Primary Qualitative Data Results

Phase I: Content Analysis Themes	**Phase II: In-depth primary qualitative data findings and revised themes based on the data analysis**
Public Health System Challenges	
Public health is faced with population health challenges.	A wide-range of challenges persist with an emphasis on *"big system changes"* • The depth and breadth of population health challenges are overwhelming to the public health workforce. • Challenges included technical issues, like conducting environmental health inspections or quality improvement processes, to more emergent issues like Zika. • "Big systems changes" were most challenging, defined as addressing health care transformation, shifting from service delivery to a population health approach, and impacting healthy equity and racism.
The role of public health should expand to facilitate more multi-sectoral partnerships.	A shifting role of public health to focus on partnerships, community-engagement, and community development • The role and responsibility of public health agency practitioners was described as conveners and facilitators of intersectoral work to address community health priorities and health inequities. • The potential for public health agencies to engage with the public and with partners in a way that builds constituency and community momentum is underdeveloped.

The public health workforce is shrinking due to retirements and position losses. Succession planning should be a high priority.	<u>The workforce response capacity is limited</u> • Participants described stories of severe reductions and loss of staff capacity. • Participants noted graduates entering the field of public health were underprepared for today's practice issues. • Participants did not generally mention succession planning.
Additional workforce development funding is needed.	<u>Funding focus on categorical content limits improvement</u> • Funding focuses on topical, content areas and prevents integration of multi-disciplinary work.
Workforce Development Approaches needed to address identified challenges	
Public health workforce training should include strategic skills development alongside specialized skills development to address population health	<u>More diverse, comprehensive types of training are needed</u> • The strategic skills most noted were those focused on how to collaborate with the community and intersectoral partners. • Beyond individual strategic skills, participants described the need to apply, integrate, and adapt skills to different problems, at different points in time, and with different types of training over longer time periods. <u>More training is needed for engaging communities and collaborative approaches</u> • The need for more authentically developing relationships and building capacity with the community and other partners was prominent. • There was frequent mention of more intentional opportunities for learning in collaboration with others, such as peer-to-peer learning, intentional mentorship, or technical assistance to support addressing difficult challenges in real-time. <u>There are a lack of approaches to address health equity and racism</u> • Participants frequently mentioned a lack of training and a strong need to more effectively address the impact of health inequity and racism on health.
Training need to be more engaging.	<u>Training needs to facilitate "connectivity"</u> • Participants frequently mentioned the need to provide more reflective, collaborative, and experiential learning.
A stronger foundational infrastructure system is needed to sustain and coordinate workforce development, e.g.	<u>A coordinated workforce development system is needed</u> • Participants described frustration in duplication of trainings and a lack of national coordination and overall vision. • Coordination was described as potentially occurring through the creation of a national plan and figuring out roles and responsibilities of the plan for workforce delivery organizations.

regular and increased funding for workforce development.	
Define training quality.	<u>Expand definitions of training quality</u> • There is not a definition of training quality that participants felt they could rely upon. • Quality tends to be defined by head counts or participants and not by process, impact, or outcome of training.

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127

128 **Question 1: What were the public health system challenges and issues?**

129 *A wide-range of challenges persist with an emphasis on "big system changes"*

130 Public health system challenges noted by focus group and key informant interview
131 participants were wide-ranging. Examples included difficulty maintaining basic public health
132 functions, like conducting restaurant inspections or undertaking quality improvement, while also
133 addressing urgent issues such as the Zika virus, the opioid epidemic, or other complex issues
134 such as health inequities. The majority of participants suggested their biggest challenge is "*all*
135 *the transitions"* public health agencies are currently going through to be more effective in
136 addressing complex health issues. Participants also noted that they were dealing with *"big*
137 *system changes"* and that the breadth and depth of the work makes it *"very hard for anybody to*
138 *walk in and pick up on everything that's going on because of the complexity of it."* Big systems
139 changes specified included focusing on population health rather than direct service delivery and
140 addressing healthy equity and racism.

141

142 *A shifting role of public health to focus on partnerships, community-engagement, and community*
143 *development*

While traditional public health roles remain (e.g. addressing communicable diseases), participants described the new and expanded role of public health expressed in the "Public Health 3.0" concept of Chief Health Strategist (DeSalvo et al., 2017). One participant indicated *"...we've gone from kind of a service provider organization to more of a health strategist in the community. It's a new role for us, it's a new role for the community."* Participants noted increased collaboration with healthcare systems on population health improvement work. For example, *"the integration across health system work and public health work is also very big for us as well and how we do that [work] together …and also planning for funding challenges."* Participants also described a new role as *"community conveners,"* emphasizing they are *"becoming engaged with the community…working with social determinants of health that we know impacts health in a big way instead of (only) working on communicable diseases."*

Workforce response capacity is limited

Participants described the public health workforce as lacking capacity to take on its new role in two ways. First, participants noted severe reductions in staff capacity. For example, one participant said:

> *"In one year, I lost most of my management team that had been here for 10 to 20 years, through retirement or other reasons. Most of my current management team and supervisory level staff feel like it's just every day they're coming in to deal with a crisis… How do we address an issue that we just don't have enough people to either handle [it] or we don't have educated people to handle [it]?"*

Second, participants noted a disconnect between the way potential workers are being trained and the challenges they face in practice. Some participants indicated "*academia doesn't*

know what the public health system is going through or adapting to" and as a result, is out of touch with practice. To address this gap, participants suggested that academic centers require a residency for graduates and also consider "*standardizing the training of the public health workforce…so that people can be more interchangeable."*

Funding focused on categorical content limits improvement

Participants articulated the need for additional funding to address community-identified needs in collaborative and integrative ways. Participants reported that available workforce development funding addresses specific categorical programs is misaligned with community challenges and does not address issues such as housing or racism. One participant said:

> *"What I know is that the action and that the improvements in practice are in the spaces between the lanes. It's much more difficult to get the funders' attention on training products that fill in the space between the [topical] lanes…between nurses and environmental health, between physicians and environment health, for example. It's the space between the professions where all the action is, but no one owns that."*

Question 2. How are current workforce development approaches addressing these challenges?

More diverse, comprehensive types of training are needed

Participants articulated a need for just-in-time, distance-based, and in-person trainings focused on content-specific or scientific skills. Participants also described overall training approaches as fragmented and inadequate to meet large transformational challenges. As one participant indicated, "*we've been very focused on scientific disciplines and excellence in very*

specific areas but not those broad, organizationally focused adaptive skills." Furthermore, some participants articulated an unmet need to integrate and apply skills to community priorities over time. One participant said:

> *"…whether it's housing insecurities or racial inequities or food access or any of those things. Those are the types of things we're seeing in people's community health improvement plans… [practitioners] need to know how to address those, and how to work across sectors and how to piece funding together to implement interventions and policy changes."*

Participants noted that addressing *"big systems changes"* requires *"so much more multi-sector work and maybe longer-term strategies..."*.

More training is needed for engaging communities and collaborative approaches

Participants described needs for more authentically developing relationships and building capacity with the community and other partners. Participants indicated that*"the big thing that we have found is that public health staff need assistance in how to be a good partner."* There is a need for *"continued emphasis on the building of collaboratives, effective collaboratives, working with people as people and not as scientific data …*[this] *is something that will really advance our work."*

There are a lack of approaches to address health equity and racism

Participants frequently mentioned a strong need to more effectively address health inequity and racism, indicating *"an emphasis on our work in health equity has really focused on racial justice."* This was described as requiring a shift in staff's disease-focused approach to one

of community engagement and addressing root causes of inequity. Several participants noted that because there were not resources to address racism, "*we had to retrain or train staff. This has not been something that most staff have been trained in."*

Training needs to facilitate practitioner "connectivity"

Participants also frequently mentioned the need for more reflective, collaborative, and experience-based learning. One participant said:

> *"One of the major challenges we have is one of connectivity. There are a number of things, all across the country that are popping up, but because they are done in isolation, we don't take advantage of learning from each other."*

Examples of collaborative learning included peer-to-peer learning, learning collaboratives, intentional mentorship, or technical assistance provided over time. These structures support participants in addressing difficult challenges in real-time through sharing examples of strategies for responding to similar challenges.

A coordinated workforce development system is needed

Participants strongly emphasized the need for greater coordination and alignment of a public health workforce development system. Creating a workforce development system is *"...about having this commitment to not designing the same thing, or just better aligning with each other. It's how to create a national-level plan, and figuring out what each of our parts in that plan looks like."* Moreover, workforce development leaders and their organizations should decide *"who is going to do what, and then for each particular organization to take a leadership*

role in one area or another. When I discover two or three associations all doing the same thing, it's really disheartening."

Refine definitions of training quality

Participants noted more work needs to be done to clarify what quality training looks like: *"You're looking at training and emails coming in saying this opportunity is available…which is great, but it's hard to know what's quality training and what's good."* In addition, some participants noted that how training is evaluated and what is expected of training should be reconsidered, asking *"What is a training class? What is the outcome of that training?".*

Discussion and Recommendations

Individual public health workforce assessments often result in workforce development models focused on improving individual skills within content-specific disciplines (Joly et al., 2018; Kaufman et al., 2014). PHLN's systems assessment provided more in-depth information about the details and realities of practitioner and partner challenges; and whether and how workforce development approaches were helping to address these issues. The following three recommendations are based on PHLN's assessment results for improving pedagogical approaches to public health workforce development.

Expand learning approaches that facilitate skills integration to address systems changes

Participants noted that they did not have sufficient skills or opportunities to learn how to facilitate systems change and described current teaching and learning approaches as inadequate. Addressing "*big systems changes*" requires going beyond any one person, program, skill set, or

disease at one point in time. Instead, an integrated focus employing multiple skills simultaneously over a longer period of time and learning in action as challenges arise is needed. Further, trainings are often delivered via distance learning and using largely didactic approaches that have limited learner engagement.

Instead, adaptive learning approaches with multiple training modalities packaged together catered to address a practitioner identified problem and offer increased opportunities for learner engagement, such as technical assistance, peer mentoring, and communities of learning, are needed. In addition, consideration should be given to the reconceptualization of workforce needs assessment, development, and evaluation as a process of experiential *learning* rather than one-time, single-skill, or single person training.

Increase skill building on community engagement and capacity building to address health equity

One major systems change identified was to improve health equity by addressing racism and promoting social justice. Participants noted both content and skill gaps to address racism within their organizations and in how to more effectively engage the community and promote community development in equitable ways. In addition, and as noted by Freudenberg et al. (2015), participants noted that addressing health inequity requires new thinking, skills, and partners that may be beyond traditional public health approaches.

Develop a comprehensive workforce development system

Participants described a fragmented U.S. public health workforce development system, lacking coordination and definitions of quality or measurement systems. These findings suggesta

critical need to establish a stronger conceptual framework that defines training and teaching more as a process of learning and training delivery that aligns with specific challenges in the field, not only based on single worker competency gaps. A second need is to identify which organizations are funding and/or delivering training to address challenges based on this framework. Such clarification can help guide next steps in offering more integrative, applied learning. Third is the need to identify creative ways to address training gaps and low staff capacity, such as creating cross-cutting multi-disciplinary positions and a focus on academic curricula that promotes integrative thinking across skills and content areas. More effort is therefore needed to create a vision for the public health workforce development system.

Limitations

The purposeful selection of documents and limited number of key informant and focus group participants does not represent a generalizable sample. Nonetheless, our document selection was vetted by numerous experts in workforce development to assure comprehensive inclusion of related reports and analysts reached saturation through the breadth of participants. In addition, primary data collection focused on major themes found in the content analysis and while new themes emerged in the focus group and key informant interviews, results are thus slanted toward results in the content analysis.

Conclusion

To conduct this public health workforce development assessment, we used a systems approach to gathering in-depth perspectives about how workforce development approaches address today's challenges. Results demonstrate that current training and teaching approaches are

not well-aligned and are too basic to address practitioners' learning needs. Workforce development experts should consider factors of learning together, not as silos, including content, modality, the depth and breadth of knowledge and skill building, and opportunities to apply learning to practice challenges. More comprehensive, coordinated, and relevant teaching approaches that promote learning, rather than just training, are needed to help workforce development experts design and address today's public health challenges.

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