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Public Health Workforce 3.0: Recent Progress and What's on the Horizon to Achieve the 21st-Century Workforce

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Twenty-five years ago, the 10 essential public health services were defined and disseminated[1] and public health was charged with ensuring that our workforce had mastery of the competencies to deliver these services.[2,3] Although these essential services remain a useful framework for the practice of public health, the concept of an effective public health worker has evolved in the intervening decades. The necessary skills and aptitudes now extend beyond the traditional competencies (eg, epidemiology) to focus on strategic and systems thinking, communication, and translating science to policy, along with the public health practitioner's role as chief health strategist.[4-8] A subcommittee of the Public Health Functions Project Steering Committee laid out an agenda in 1994 to realize the vision of "Healthy People in Healthy Communities" and recommended actions in 5 main areas (national leadership, state and local leadership, workforce composition, curriculum development, and distance learning).[1] Progress in each of these 5 areas has been documented,[9-11] with particularly substantial advances observed in the last 5 years.[12-16] From a federal perspective, we believe that the recent, increasing rate of these advances can be attributed to a few main factors. Collaboration among federal and other partners working at the national level has provided the necessary leadership. Partners have built upon each other's work rather than working in isolation. Accreditation of health departments has provided a consistent approach for strengthening state and local health agencies. Researchers have taken action and are building evidence that informs practice at the federal, state, tribal, local, and territorial levels. Nonetheless, gaps remain. Using the areas for action as a framework and a federal perspective, we highlight recent accomplishments and important areas for future attention to continue the path toward the public health workforce of the 21st century—a public heath workforce 3.0.

Leadership and Collaboration

The subcommittee emphasized the importance of *national leadership* to provide oversight and planning for public health workforce development as well as the need for *training to help public health leaders* address emerging challenges. In recent years, national leaders have proposed a major shift in approach. Federal officials challenged the public health community to upgrade to Public Health 3.0,[4] with an emphasis on cross-sector collaboration and systems approaches for health strategies. The National Consortium for Public Health Workforce Development,[8] organized by the de Beaumont Foundation, has provided a platform for collaboration among 34 national public health membership associations, peer networks, and federal agencies, particularly in the area of training needs assessment. The de Beaumont Foundation and the Association of State and Territorial Health Officials convened public health leaders and conducted key informant interviews to assess training needs and priorities,[8,17]

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which led to the Public Health Workforce Interests and Needs Survey (PH WINS), the first nationally representative survey of state public health agency workers.[18] Complementing the efforts addressing individual worker knowledge and skills, public health departments now have national standards to assess and improve their organizational quality and performance. Since 2011, more than 230 health departments have achieved accreditation from the Public Health Accreditation Board (PHAB).[19] Standards for maintaining a competent public health workforce include developing a sufficient number of qualified workers and ensuring competence through assessment, training, professional development, and a supportive work environment. Documentation of development activities for leadership and management staff is one of the requirements. Building a strong public health workforce pipeline was also identified as a critical need in Public Health 3.0,[20] with a particular need to develop leadership and management skills in systems thinking and coalition building.[21]

Ongoing national leadership is needed to ensure further progress. Through effective collaboration, leaders can build on recent successes and take opportunities to complement the work of others so that limited workforce development funding is used efficiently and focuses on areas of common interest. Furthermore, public health leaders can promote the integration of workforce development into planning for all programs and initiatives.[22] Incorporating training and workforce needs into program planning can enhance the effectiveness of the public health workers in program implementation and also build the workforce capacity for future public health challenges.

Data Driving Action

Fundamentally, public health services are only as good as the workforce that delivers them. Understanding the composition of the public health workforce—disciplines, demographics, and training, among other characteristics—is important to determine whether the workforce is up to the task. The public health community needs evidence to direct workforce planning and development, drive recruitment and retention strategies, understand and address training gaps, and assess effectiveness of service delivery. Enumeration and characterization of the more discrete governmental workforce have been done,[23-25] although the complexities and shortcomings of conducting these studies have been well described.[26] As we enter 2019, public health has gained a deeper understanding of workforce composition, with an increasing number of new studies over the past 5 years.[18,27-29] Implementation of a standard taxonomy to characterize public health agency staff has supported more effective comparisons across different jurisdictions,[30,31] and surveys of different populations within the governmental public health workforce have provided a richer understanding of its composition, gaps, and training needs.[18,32,33] Surveys are both resource-intensive and susceptible to poor or biased response rates,[34] which endanger the ongoing ability to collect meaningful information. As we look to designing and implementing future surveys that advance the collaborative work that has been done with PH WINS, careful attention will be needed to ensure that any such surveys are focused on collecting information not available elsewhere. The public health community will have to take greater advantage of administrative and other existing data sources such as human resources databases and learning management systems. Information obtained from these systems could then be used to complement fewer, targeted surveys. In addition to gathering more information on workforce composition and needs, public health agencies have begun using collected data for action; for example, PHAB endorses the use of workforce needs survey data collected through PH WINS to strengthen workforce development plans for health department accreditation.[35,36] Transitioning into the next 5 years and beyond, the time is right for public health to further embrace this opportunity, finding creative and valid data sources and using the wealth of information at our disposal as the evidence base to drive workforce development programs.

Broadening the Curriculum

The public health field's approach to service delivery and curriculum development has rapidly evolved as workers contend with evolving public health practice—transitions in the workforce, increasing demands to address chronic diseases, dynamic economic forces, and a changing policy environment—challenging them to become more adaptable and innovative.[4] Progress has included ongoing development and revision both of core competencies[7] and a curriculum to advance those competencies among the public health workforce. Organizations have sought modern ways to keep their staff adequately trained, by moving beyond discipline-specific core competencies developed in earlier decades to including training models that provide the crosscutting skills necessary to combat the ever-changing public health landscape, as they increase their organizational capacity. PH WINS identified gaps in public health training and substantiated the need for a crosscutting training curriculum,[18] and the Consortium broadly endorsed the identified strategic skills.[8] The Council on Education for Public Health, PHAB, and the National

Board of Public Health Examiners have integrated the evolved competencies into public health education, health department accreditation, and public health practitioner certification, respectively.[13,37,38] The Health Resources and Services Administration (HRSA) explicitly integrated requirements to develop training addressing these strategic skills into their most recent iterations of behavioral and public health notices of funding opportunities for the Regional Public Health Training Center (PHTC)[39] and Behavioral Health Workforce Education and Training Programs. Combined, these programs encourage engaging community stakeholders and developing training to support interprofessional and team-based care models. Consistent use of quality training standards disseminated by the Centers for Disease Control and Prevention (CDC) throughout workforce development efforts is a final component[22,40] to enhance the effectiveness of all training efforts in this broadened curriculum.

Access to Quality Training

Distance-based learning has been pivotal in expanding access for public health professionals to a broader range of training topics. Federal agencies and public health organizations recognizing the importance and impact of distance learning have worked to fortify its expansion and innovation. Since 2014, the HRSA PHTC program[39] has offered more than 1800 courses to more than 500 000 learners. Similarly, the Public Health Foundation and its partners using the TRAIN platform have provided training for more than 1.75 million registered learners, who in 2017 completed 1.4 million courses.[13,41] These tools are welcomed resources for the public health workforce, but progress is still needed in the coordination between learning management systems and the difficulty identifying the highest-quality training that best meets the learner's needs. Innovative approaches to distance learning employing technology and learning standards[42] will need to continue to assess, adapt to, or adopt rapidly evolving technologies that include cloud-based learning, virtual reality, micro-learning, just-in-time training, e-learning software and ecosystems, and increasingly sophisticated mobile devices to best meet learners needs. In the last 5 years, CDC and HRSA, in collaboration with partners, have increased efforts to support the development of effective distance learning[43] and help learners recognize quality learning products.[41,44] As we move forward, federal agencies and other partners will need to take the next step and consistently evaluate quality, content, and learning outcomes to continue to advance the 21st-century agenda.

Closing in on Public Health Workforce 3.0

The unprecedented collaboration among federal agencies and national-level organizations in recent years has bolstered progress in public health workforce development and afforded us more information than ever about the workforce, its composition, and training gaps. Consensus among these national partners has produced stronger information (such as that collected through PH WINS) and greater cross-cutting work integrated into their portfolios, vastly expanding the reach of each organization's individual work. However, presenting conclusions and guidance nationally is only part of the story. Federal partners must continue efforts such as those detailed earlier to facilitate the implementation in local and state health departments, where the program-level work of public health is executed. The true promise of Public Health 3.0 will occur where we have a well-rounded public health workforce—a workforce that has the skills and aptitudes to address infectious diseases along with chronic disease, social determinants of health, and combine the traditional disciplines of public health with strategic skills. This will be the beginning of public health workforce 3.0. This workforce will take on the challenges outlined in Public Health 3.0, embracing the intersectoral collaboration that will allow us to realize the full promise of practicing population health.

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