

Undergraduate and graduate public health programs need changes to teach the public health workforce of the future

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The past two decades have been a time of great change for the public health system, including the workforce. Following the September 11, 2001 attacks on the World Trade Center and the use of the U.S. Postal Service to send Anthrax spores, the public health workforce grew rapidly, sustained largely through public health and emergency preparedness funding.¹ By 2005, the focus on emergency preparedness began to wane, and federal funding for state and local health departments from the Centers for Disease Control and Prevention (CDC) was reduced by nearly 40% by 2012.^{2,3} Data collected by the National Association of County and City Health Officials (NACCHO) between 2008 and 2012 found that many local health departments had experienced budget cuts, loss of staff, and service reductions.⁴ By 2011, nearly a quarter of local health departments surveyed by NACCHO reported they had reduced or eliminated programs, including emergency preparedness and clinical health services.⁴

Adding to the rapid change of the public health landscape, during a similar period of time, the number of accredited schools and programs of public health rapidly increased in response to calls from groups like the Institute of Medicine, the CDC and the U.S. Governmental Accountability Office.^{5,6} These groups had recognized that the state and local public health workforce, in addition to public health emergency preparedness and response, was also essential for disease prevention, health promotion, and partnership building with other sectors to advance health and was facing a crisis that included severe worker shortages, especially among certain concentrations like epidemiology and environmental health,^{7,8} a lack of access to competency based training,^{9,10} and no pipeline from academic public health programs to employment in traditional public health agencies.¹¹⁻¹³ In 1995, there were 27 Council on Education for Public Health (CEPH) accredited schools of public health; in 2005, there were 37.¹⁴ The number of accredited programs increased from 21 to 63 during the same time period. Currently, there are 65 schools, 126 programs, and 16 stand-alone baccalaureate programs.¹⁵ Even with this growth, according to the Association of State and Territorial Health Officers, by 2017, only 14% of the public health workforce had formal education in public health.^{16,17} For epidemiology specifically, functions such as disease surveillance, study design, data collection and analysis, and implementing disease control were still being carried out by public health nurses or environmental health specialists.¹⁸ One-third of epidemiology staff in small and medium jurisdictions (i.e., those serving populations less than 100,000) lacked formal academic training in epidemiology, limiting the overall epidemiologic capacity of the public health system.¹⁹

Therefore, it seems the “if you build it, they will come” approach to graduate-level public health education as the pipeline for building the state and local public health workforce in the U.S. has not worked. Students completing a Master of Public Health degree are considered unprepared by health departments in areas including data management and analysis, leadership, and ability to effectively respond to requests for proposals for funding.²⁰ There are several approaches to consider to potentially address these continued shortfalls beyond growing the number of graduate public health programs. One approach is to develop graduate programs in public health with

more explicit linkages to the work of applied public health partners. For example, globally, the CDC has attempted to address the challenge of retaining applied public health staff in low-resource counties through the Field Epidemiology Training Program, which is an applied program jointly developed and delivered by local ministries of health and universities.²¹ In one evaluation of the programs, 85% of graduates remain in their county of training; 56% report working in Ministries of Health or non-governmental public health agencies.²² Domestically, graduate programs that explicitly integrate service-learning – a type of experiential learning that has been shown to enhance course relevance and change student attitudes towards community initiatives – with local public health partners can provide students with firsthand experience in the areas necessary to join the public health workforce upon graduation and provide needed surge capacity for public health agencies.^{23–26}

Another approach would be to expand and change the focus of undergraduate public health programs.²⁷ Undergraduate public health education has primarily been seen as a way to pique student's interest in graduate public health education or as pre-professional education for students interested in medical or dental school.^{27,28} However, more recently, based on the findings of the Consensus Conference on Undergraduate Public Health Education, there have been calls to change public health undergraduate education to focus more on the professional skills needed for entry-level public health careers, so that a graduate degree is not immediately required to successfully enter the workforce.²⁹ If undergraduate programs are successful in meeting this call, graduate programs will need to make changes to further differentiate their curriculum – particularly their core curriculum in biostatistics, environmental health, epidemiology, health behavior, and health policy – from undergraduate introductory courses.

In our opinion, a renewed emphasis on service-learning programs in the Master of Public Health curriculum could be one way to effectively differentiate these programs from undergraduate education in public health and demonstrate value to both students and the public health agencies that will employ them. Service-learning builds a clear bridge between in-class learning and the application of learning in the workplace, making the future public health workforce more likely to be life-long learners.³⁰ It encourages reciprocity between universities, local agencies, and the individuals and communities they serve, fostering civic responsibility and leadership among graduate students who go onto careers in applied public health.³¹ While the value of service-learning and its explicit linkages with choosing an applied, public service career has been made in medicine³² and nursing,³³ as well as in fields like journalism,³⁴ urban planning,³⁵ and geography,³⁶ a better understanding of how service-learning in graduate public health education is linked to entering the public health workforce is needed. This will require Master of Public Health Programs to focus more attention on developing and maintaining strong community connections, sustaining programs and partnerships, and building an evidence base beyond traditional practica or short-term field placements. The growth of undergraduate public health programs that provide students the classroom skills and content needed to enter the workforce may provide graduate programs in public health with the incentive needed to do just this.

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