HHS Public Access

Author manuscript

J Public Health Manag Pract. Author manuscript; available in PMC 2022 January 01.

Published in final edited form as:

J Public Health Manag Pract. 2021 ; 27(1): 20–29. doi:10.1097/PHH.0000000000001071.

Core Competency Gaps among Governmental Public Health Employees With and Without A Formal Public Health Degree

Heather L. Taylor, MPH, LDH, **Valerie A. Yeager, DrPH**

Department of Health Policy and Management at the Indiana University Richard M. Fairbanks School of Public Health.

Abstract

Objectives—To examine the role of a formal public health degree as it relates to core competency needs among governmental public health employees.

Design—This cross-sectional study utilizes the 2017 Public Health Workforce Interests and Needs Survey (PH WINS). Bivariate relationships were analyzed by conducting chi-square tests of respondents' supervisory level and reported skill gaps. Multivariate logistic regressions of reported skill gaps were performed holding gender, age, race/ethnicity, highest degree attained, current employer, role type, tenure in current agency, and public health certificate attainment constant.

Setting—Nationally representative sample of government public health employees

Participants—30,276 governmental public health employees

Main outcome measure—Self-reported competency skills gaps

Results—Among non-supervisors, those with a public health degree had significantly lower odds of reporting a competency gap for 8 of the 21 skills assessed. Among supervisors/managers, those who had a formal public health degree had significantly lower odds of reporting a competency gap in 3 of the 22 skills assessed. Having a degree in public health was not significantly related to an executive's likelihood of reporting a skill gap across any of the 22 skills assessed. Regardless of supervisory level, having a public health degree was not associated with a reduced likelihood of reporting skill gaps in effective communication, budgeting and financial management, or change management competency domains.

Conclusions—Possessing a formal public health degree appears to have greater value for skills required at the non-supervisor and supervisor/manager level than for skills needed at the executive level. Future work should focus on longitudinal evaluations of skill gaps reported among the public health workforce as changes in public health curricula may shift over time in response to newly revised accreditation standards. Additionally, public health education should increase emphasis on communication, budgeting, systems thinking, and other management skills among their graduates.

Corresponding Author: Valerie A. Yeager, DrPH.

Conflicts of Interest: The authors declare they have no conflicts of interest.

Financial Disclosure: Both authors have no financial relationships related to this work to disclose.

Keywords

PH WINS; workforce development; public health competencies; government public health workforce; public health education

Introduction

A qualified and competent public health workforce is essential to addressing existing and emerging population health threats, chronic diseases, and natural disasters. The growing variability and breadth of these challenges emphasizes the need for adequate training and education of public health workers.[1] In response to several national calls over the last three decades,[2–5] there has been an increase in the number of secondary educational programs contributing to the labor force of public health professionals.[6–8] However, despite these increases, only a minority (14%) of government public health workers possess a formal degree in public health and its core competencies.[2,9–11]

Competencies are measurable skills pertinent to a worker's responsibilities, roles, and capabilities.[12,13] In 2014, the Council on Linkages Between Academia and Public Health Practice, defined the most important competencies needed to develop a well-trained public health workforce.[12] Within academia and health departments, these measurable skills serve as benchmarks for assessing and improving the workforce.[13–17] It is important to identify low proficiency in core competency skills among the public health workforce for two reasons: to address employee training needs and to continually adapt formal public health education and continuing education for practitioners. A recent national analysis by Bogeart and colleagues[18] identified skill gaps reported in 2017 among governmental public health workers, including those in local, large city, and state health departments. They called for public health schools and programs to focus more on the "development of cross-cutting strategic skills" to address these gaps. Previous studies have examined skill gaps reported by state health agency workers,[10,19] specifically epidemiologists,[20] injury prevention workers,[21] and informatics and IT specialists.[22,23] Higher educational attainment among these workers was associated with being proficient in policy related skills[19] and among state epidemiologists it was associated with reporting fewer skill gaps.[20] To date, no peer-reviewed studies have examined the relationship between formal public health degree (e.g., having a bachelor, master degree, or doctoral degree in public health) and perceived skill gaps among governmental public health workers. Thus, it remains unknown whether having a higher degree specifically in public health is associated with reduced skill gaps. As far back as 2001, core competencies for public health were developed to increase the applicability of formal public health degree to practice.[12] Despite wide acceptance of these competencies within public health degree programs,[24] experts still suggest that public health graduates lack adequate preparation to handle the demands of "real world" public health practice.[14,25,26] The current study will contribute more insight into this issue by exploring the relationship between governmental employee skills and having a formal degree in public health.

The purpose of this study is to examine core competency needs and differences among all governmental public health employees with or without formal public health degree. This study employs the Public Health Workforce and Interest Needs Survey (PH WINS) data from 2017 which included responses from governmental public health employees at the state and local level. Findings from this work may provide insight for public health academic programs regarding gaps in knowledge and skills among graduates. Additionally, leaders and managers in public health agencies may use this information to inform workforce development and continuing education programs for their current employees. Finally, this study contributes to the ongoing discussion about core competency measures as it relates to the public health workforce.

Methods

Data

PH WINS is a nationally representative survey of U.S. state and local governmental public health workers. This study uses cross-sectional data obtained from the 2017 iteration of PH WINS, which was administered and supported by the Association of State and Territorial Health Officials (ASTHO) and the de Beaumont Foundation. Detailed survey design and sampling methods have been previously described by Leider et al.[27] Overall, the survey focuses on governmental public health workplace environment, training needs, emerging concepts in public health, and demographics.[27] This current study specifically draws on the questions related to training needs. Each respondent was asked approximately 21 to 22 questions regarding strategic, actionable skills specific to their supervisory level (non-supervisor, supervisor/manager, or executive). These skills align with the Core Competencies for Public Health Professionals[12] and cover eight domains: *effective communication; data for decision-making; cultural competency/competence; budgeting and financial management; change management; systems and strategic thinking; vision for a healthy community; and cross-sectoral partnerships*.[27]

Inclusion/Exclusion Criteria

This current study is focused on full-time governmental public health workers whose position would require the use of public health core competencies. Therefore, we excluded respondents who reported that their role in the local or state public health department was “other” (n=5,426), “clerical” (n = 5,351), or “custodian” (n=84), and those who reported they were employed part-time (n = 2,310). Similar to the study conducted by Balio et al.,[28] individuals who responded that their role in their current job was director (e.g. “deputy director”) but reported that they were also in a “non-supervisor” role, were removed from this analysis, as this suggested a potential misclassification of the respondent’s role or supervisory level (n = 222).

Dependent Variables

Respondents of PH WINS were asked 21 to 22 questions (tailored to their level of supervisory status) regarding their perception of a specific skill’s importance to their current position (4 point Likert scale ranging from “not important” to “very important”) and their perceived proficiency in that specific skill (“unable to perform”, “beginner”, “proficient”,

"expert", or "not applicable"). To identify a skill or competency gap, we created a dichotomous variable that indicated whether the respondent reported the skill to be "somewhat important" or "very important" to their current job *and* also reported they were "unable to perform" the skill or were at a "beginner" level of proficiency for that skill. This method of determining competency gaps has been used previously in other studies.[18,19,21,23,29]

Independent Variables

The main explanatory variable of interest in this study was a binary indicator of whether or not the respondent had a formal public health degree (yes or no). Other independent variables of interest included supervisory status (non-supervisory, supervisor/manager, or executive), female (yes or no), race/ethnicity (White, Black/African American, or other), age (35 and below, 36–45, 46–55, 56 or above), educational level (less than a bachelors, bachelors, masters, doctoral), employer (local government, state government), role type (administrative, public health sciences, clinical and laboratory, and social sciences/other),[30] tenure within their current agency (0–5, 6–15, 16 or more years), and a binary indicator of whether or not the individual had ever obtained a certificate in public health (yes or no).

Analysis

Unweighted and weighted descriptive statistics were calculated for all respondents included in this current study. Bivariate relationships were analyzed by conducting chi-square tests of respondents' supervisory level and reported skill gaps (data presented in the Supplemental Digital Content Appendices B–D). Multivariate logistic regressions of reported skill gaps were performed holding gender, age, race/ethnicity, highest degree attained, current employer, role type, tenure in current agency, and public health certificate attainment constant. Due to the low number of executives in the U.S. governmental public health workforce who reported having a public health certificate (unweighted n = 19), we did not control for public health certificate attainment in our multivariate logistic regressions of skill gaps reported among executives. Since there was a small number of executives who were in clinical and laboratory roles or social services and "other" roles, we combined these two groups of executive respondents into one "other" role category. Therefore, role type was represented in 3 categories (administrative, public health sciences, other) for the executive level regressions only.

We accounted for the complex sampling design of PH WINS by using the survey and balanced repeated replication weights provided by ASTHO. Because of the large number of comparisons in our study, our alpha value of significance was adjusted according to the Bonferroni correction and set at 0.0167 for all bivariate and multivariate analyses. Findings were considered marginally significant if p-values were between 0.05 and 0.0167. All data were analyzed using Stata, Version 15 (College Station, Texas).

Results

Demographics

This study describes reported skill gap differences among governmental public health workers with and without formal public health degrees. Our analysis included 30,276 respondents to the 2017 iteration of PH WINS. Demographic characteristics of this sample are displayed in Supplemental Digital Content Appendix A. Approximately 18% of respondents had a formal public health degree. Table 1 displays bivariate analyses of demographic characteristics by supervisory status. An estimated 15% of non-supervisors, 21% of supervisors/managers, and 35% of executives have formal public health degrees.

Key Findings

Among non-supervisors, those with a formal degree in public health had significantly lower odds of reporting a competency gap for 8 of the 21 skills assessed (See Table 2). Specifically, non-supervisors with a formal public health degree were significantly less likely to report any skill gap within the domain of *data for decision-making* (all p-values ≤ 0.011) and *cross-cutting partnerships* (all p-values ≤ 0.004) than non-supervisors without a public health degree. Non-supervisors were also significantly less likely to report a gap in describing: “the value of a diverse public health workforce” (p=0.004; Domain: *cultural competency*); “how social determinants of health impact the health of individuals, families, and the overall community” (p<0.0001; Domain: *systems and strategic thinking*); and “the importance of engaging community members in the design and implementation of programs to improve health in a community” (p=0.011); Domain: *vision for healthy community*), compared to non-supervisors without a public health degree. Possessing a formal public health degree was not found to increase the odds of reporting any skill gap at the non-supervisor level.

Among supervisors/managers (See Table 3), those who had a formal public health degree had significantly lower odds of reporting a competency gap in 3 skills and marginally significant lower odds of reporting a competency gap in 5 of the 22 skills assessed. Supervisors/managers with a public health degree were significantly less likely to report a skill gap in the following areas when compared to those without a public health degree: “identify appropriate source of data and information to assess the health of a community” (p=0.004; Domain: *data for decision making*); “use valid data to drive decision making” (p=0.010; Domain: *data for decision making*); and “integrate current and projected trends into strategic planning for programs and services” (p=0.015; Domain: *systems and strategic thinking*). Findings were marginally significant for reduced odds of reporting the following skill gaps among supervisors/managers with a public health degree compared to those without a public health degree: “apply evidence-based approaches to address public health issues” (p=0.040; Domain: *data for decision-making*); “build cross-sector partnerships to address social determinants of health” (p=0.018; Domain: *systems and strategic thinking*); “implement an organizational strategic plan” (p=0.025; Domain: *systems and strategic thinking*); “engage community members in the design and implementation of programs to improve health in a community” (p=0.033; Domain: *vision for healthy community*); and “identify and engage assets and resources that can be used to improve health in a

community" (p=0.019; Domain: *cross-sectoral partnerships*). Similar to non-supervisors, possessing a public health degree as a supervisor or manager was not found to increase the odds of reporting any skill gap.

At the executive level (See Table 4), those with a public health degree were marginally less likely to report a skill gap in "ensur[ing] the successful implementation of an organizational strategic plan" (p=0.035; Domain: *systems and strategic thinking*). Unlike the non-supervisor and supervisor/manager levels, at the executive level, findings indicate that those with a formal public health degree were marginally more likely to report a skill gap in " communicat[ing] in a way that persuades other to act" (p=0.044: Domain: *effective communication*) For the remaining 20 of the 22 skills assessed, no differences in reported skill gaps were found at the executive level.

Secondary Findings

Three control variables (tenure within agency, education level, and race) were associated with decreased likelihood of reporting a skill gap among governmental public health workers (data not shown). More specifically, increased tenure within an agency was associated with lower odds of reporting 9 skill gaps at the non-supervisor level and 1 skill at the supervisor/manager level. Additionally, while having a bachelors degree was not associated with decreased odds of reporting a skill gap, respondents who had any graduate degree were significantly less likely to report gaps in 10 of the 21 skills assessed at the non-supervisor level, 6 of the 22 skills assessed at the supervisor/manager level, and 1 of the 22 skills assessed at the executive level. Last, being Black or African American was associated with a decreased likelihood of reporting gaps in *Cultural competency/competence* domain skills at both the non-supervisor and supervisor levels.

Discussion

Employees of the governmental public health workforce have been evaluated on a number of competencies or skills considered important to their jobs. Previous studies provide evidence that public health governmental employees with higher education report fewer skill gaps compared to their counterparts.[19,20] However, it is unknown whether having a higher degree specifically in public health is associated with reduced skill gaps in employees. Therefore, this study set out to examine self-reported core competency gaps among all governmental public health employees with or without formal public health degree. We summarize our findings below.

Having a public health degree was significantly associated with reduced odds of reporting a skill gap for almost half of the competency skills assessed among non-supervisors (8 of the 21 skills). Among supervisors/managers, having a public health degree was significantly associated with reduced odds of reporting a skill gap for only 3 of the 22 competency skills assessed, although it was marginally significant for 5 other skills. Having a public health degree did not make a difference in reported skill gaps among executive respondents. In summary, possessing a formal public health degree appears to have greater value for skills required at the non-supervisor and supervisor/manager level than for skills needed at the executive level.

Interestingly, regardless of supervisory level, having a public health degree was not associated with a reduced likelihood of reporting skill gaps in *effective communication*, *budgeting and financial management*, or *change management* domains. Some of these gaps may be addressed by the implementation of the 2016 revised Council on Education for Public Health (CEPH) accreditation criteria.[31] Many of these changes arose from ongoing criticism that there is a divide between public health practice and public health academia, with students acquiring technical knowledge but lacking the competencies to translate such knowledge into effective everyday practice.[31] Under the revised CEPH guidelines, master of public health graduates are now expected to be able to "explain basic principles and tools of budget and resource management," "select communication strategies for different audiences and sectors," "communicate audience-appropriate public health content," "describe the importance of cultural competence in communicating public health content," and "apply systems thinking tools to a public health issue." [32] The revamped accreditation requirements ultimately shifted the focus from general public health curricula to 22 specific public health core competencies.[31]

As we see it, our findings provide evidence that aligns with the ongoing concerns. Perhaps most important to note is that there was no difference in reported gaps between those with a public health degree and those without for many of the competency skills. Additionally, there were no differences for any of the competency skills within three particular domains: communication, budgeting and financing, and change management. If competencies within these three domains are crucial to public health workers, public health degree programs need to focus greater energy preparing their graduates for this work. Perhaps the updated 2016 CEPH accreditation requirements and revised competencies will eventually translate into improved skills self-assessment, but as of 2017 there were no differences between those with formal public health degrees and those without. More time is needed to adequately assess the impact of CEPH's accreditation revisions on the skills graduates obtain from revised curricula. Perhaps, this study can serve as a baseline of reported skill gaps among graduates of public health programs who work within the governmental public health workforce. Future research should evaluate how the newly revised CEPH accreditation requirements influence training needs and skill gaps among recent graduates who are employed in state and local public health agencies. We hypothesize that as more graduates of the newly revised CEPH accreditation standards enter the public health workforce, we may see an increased number of workers with formal public health degrees who are less likely to report gaps in domains such as communication, budgeting, management, and systems thinking. In the interim, it may be important for public health agencies to address these specific competency gaps within their workforce.

Notably, having a degree in public health made no significant difference in an executive's likelihood of reporting a skill gap in any of the 22 skills assessed. Being an executive with a public health degree was marginally associated with a decreased likelihood of reporting a skill gap in ensuring "the successful implementation of an organizational strategic plan" and an increased likelihood of reporting a skill gap in communicating "in a way that persuades others" at the executive level. Many of the skills assessed at the executive level require management training and abilities. As mentioned previously, the 2016 revised CEPH competencies now require more specific training in public health practice management.[32]

Whether or not these skill areas are taught at a level considered useful for executive governmental public health employees remains to be seen, and is likely to take several years to assess. Moreover, it is highly probable that executive level skills are not provided solely through education, but are experientially acquired.

Secondary findings indicate, as noted in other studies,[19,20] that those with higher educational attainment report fewer gaps in key competencies. More specifically, the current study found that having a higher degree holds more value in terms of meeting key competencies needs at the non-supervisor and supervisor/manager level. At the executive level, possessing a higher degree was significantly associated with a reduced likelihood of reporting a skill gap in one competency domain (*cultural competency/competence*), but was marginally significant in the *cross-sectoral partnerships* domain and in the *data for decision making* domain. Further, being Black or African American was associated with lower odds of reporting a gap within the *cultural competency* domain areas. Somewhat related, a recent study by Balio et al.[28] also reported that Black or African American public health workers were more supportive of their agencies endeavors in Public Health 3.0 activities. It remains unclear as to why these differences exist and may be an area for further inquiry. Future work is needed to understand how racial perspectives influence the training needs and perceptions of those in the public health workforce.

Strengths and Limitations

This study has a number of strengths and weaknesses to consider. First, to date no other empirical studies have examined the role of a public health degree specifically in relation to competencies among governmental public health employees. Additionally, this work employed a representative national sample of governmental public health employees across large and mid-size agencies at state and local levels. It should be noted that since data were self-reported, we cannot ignore that social desirability bias may have played a role in respondents' perceptions of their own skill gaps. This study was also unable to account for each respondent's level of professional development or public health training outside of a formal degree or certificate, a relationship that may confound our results. While this cross-sectional study provides valuable new insights, it is unable to draw causal linkages between formal degrees in public health and self-reported skill gaps among workers. Further, we conducted a high number of comparisons in our analysis which may increase our chances of finding differences when differences may not be present. To address this, we employed a more conservative significance level by utilizing the Bonferroni correction, meaning it is possible we understated differences that may in fact be present.

Conclusions

This study presents new evidence on the relationship between having a public health degree and competency gaps reported among public health workers. As additional data is collected from governmental workers, longitudinal evaluations will add to this baseline data. Over time greater value may emerge as the likelihood of reporting skill gaps among public health graduates may shift over time as public health schools alter their curricula to cover the newly revised accreditation standards. Future work should closely examine communication,

budgeting, systems thinking, and other management skills among the workforce with a formal public health degree.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgement

The lead author of this work was supported by the National Library of Medicine of the National Institutes of Health under award number T15LM012502. The content of this manuscript is solely the responsibility of the authors and does not represent the official views of the National Institutes of Health or the National Library of Medicine.

Funding: This study was not funded.

References

1. Apathy NC, Yeager VA. Examining Training Motivations Among Public Health Workers. J Public Health Manag Pract. 2019;25 Suppl 2, Public Health Workforce Interests and Needs Surey 2017:S157–S165. [PubMed: 30720628]
2. Institute of Medicine Committee on Educating Public Health Professionals for the 21st C. Who Will Keep the Public Healthy? Educating Public Health Professionals for the 21st Century. Washington (DC): National Academies Press (US); 2014.
3. Institute of Medicine Committee on Identifying Priority Areas for Quality I, Adams K, Corrigan JM. Priority Areas for Quality Improvement. National Academies Press (US); 2003.
4. Walker B Jr. The Future of Public Health: the Institute of Medicine's 1988 report. J Public Health Policy. 1989;10(1):19–31. [PubMed: 2715336]
5. Grimm BL, Johansson P, Nayar P, Apenteng BA, Opoku S, Nguyen A. Assessing the Education and Training Needs of Nebraska's Public Health Workforce. Front Public Health. 2015;3:161. [PubMed: 26157789]
6. Draper DA, Hurley RE, Lauer JR. Public health workforce shortages imperil nation's health. Res Brief. 2008(4):1–8.
7. Leider JP, Harper E, Bharthapudi K, Castrucci BC. Educational Attainment of the Public Health Workforce and Its Implications for Workforce Development. J Public Health Manag Pract. 2015;21 Suppl 6:S56–68.
8. Yeager VA, Beitsch LM, Hasbrouck L. A Mismatch Between the Educational Pipeline and Public Health Workforce: Can It Be Reconciled? Public Health Rep. 2016;131(3):507–509. [PubMed: 27252573]
9. Robin N, Castrucci BC, McGinty MD, Edmiston A, Bogaert K. The First Nationally Representative Benchmark of the Local Governmental Public Health Workforce: Findings From the 2017 Public Health Workforce Interests and Needs Survey. J Public Health Manag Pract. 2019;25 Suppl 2, Public Health Workforce Interests and Needs Surey 2017:S26–S37. [PubMed: 30720615]
10. Bogaert K, Castrucci BC, Gould E, et al. The Public Health Workforce Interests and Needs Survey (PH WINS 2017): An Expanded Perspective on the State Health Agency Workforce. J Public Health Manag Pract. 2019;25 Suppl 2, Public Health Workforce Interests and Needs Surey 2017:S16–S25. [PubMed: 30720614]
11. Sellers K, Leider JP, Gould E, et al. The State of the US Governmental Public Health Workforce, 2014–2017. Am J Public Health. 2019:e1–e7.
12. Core Competencies for Public Health Professionals.
13. Mumford K, Young AC, Nawaz S. Federal Public Health Workforce Development: An Evidence-Based Approach for Defining Competencies. J Public Health Manag Pract. 2016;22(3):290–297. [PubMed: 25575378]
14. Gebbie KM, Turnock BJ. The public health workforce, 2006: new challenges. Health Aff. 2006;25(4):923–933.

15. Stewart KE, Halverson PK, Rose AV, Walker SK. Public health workforce training: application of the Council on Linkages' core competencies. J Public Health Manag Pract. 2010;16(5):465–469. [PubMed: 20689397]
16. Ye J, Leep C, Robin N, Newman S. Perception of Workforce Skills Needed Among Public Health Professionals in Local Health Departments: Staff Versus Top Executives. J Public Health Manag Pract. 2015;21 Suppl 6:S151–158. [PubMed: 26422485]
17. Kaufman NJ, Castrucci BC, Pearsol J, et al. Thinking beyond the silos: emerging priorities in workforce development for state and local government public health agencies. J Public Health Manag Pract. 2014;20(6):557–565. [PubMed: 24667228]
18. Bogaert K, Castrucci BC, Gould E, Rider N, Whang C, Corcoran E. Top Training Needs of the Governmental Public Health Workforce. J Public Health Manag Pract. 2019;25 Suppl 2, Public Health Workforce Interests and Needs Surey 2017:S134–S144. [PubMed: 30720626]
19. Castrucci BC, Leider JP, Sellers K. Perceptions Regarding Importance and Skill at Policy Development Among Public Health Staff. J Public Health Manag Pract. 2015;21 Suppl 6:S141–150. [PubMed: 26422484]
20. Chapple-McGruder T, Leider JP, Beck AJ, et al. Examining state health agency epidemiologists and their training needs. Ann Epidemiol. 2017;27(2):83–88. [PubMed: 27993481]
21. Liller KD, Chapple-McGruder T, Castrucci B, et al. An Examination of the Perceived Importance and Skills Related to Policies and Policy Making Among State Public Health Injury Prevention Staff. J Public Health Manag Pract. 2018;24(1):75–80. [PubMed: 28885320]
22. Dixon BE, McFarlane TD, Dearth S, Grannis SJ, Gibson PJ. Characterizing Informatics Roles and Needs of Public Health Workers: Results From the Public Health Workforce Interests and Needs Survey. J Public Health Manag Pract. 2015;21 Suppl 6:S130–140. [PubMed: 26422483]
23. McFarlane TD, Dixon BE, Grannis SJ, Gibson PJ. Public Health Informatics in Local and State Health Agencies: An Update From the Public Health Workforce Interests and Needs Survey. J Public Health Manag Pract. 2019;25 Suppl 2, Public Health Workforce Interests and Needs Surey 2017:S67–S77. [PubMed: 30720619]
24. Leider JP, Bharthapudi K, Pineau V, Liu L, Harper E. The Methods Behind PH WINS. J Public Health Manag Pract. 2015;21 Suppl 6:S28–35. [PubMed: 26422490]
25. Calhoun JG, Ramiah K, Weist EM, Shortell SM. Development of a core competency model for the master of public health degree. Am J Public Health. 2008;98(9):1598–1607. [PubMed: 18633093]
26. Hemans-Henry C, Blake J, Parton H, Koppaka R, Greene CM. Preparing Master of Public Health Graduates to Work in Local Health Departments. J Public Health Manag Pract. 2016;22(2):194–199. [PubMed: 25734653]
27. Leider JP, Pineau V, Bogaert K, Ma Q, Sellers K. The Methods of PH WINS 2017: Approaches to Refreshing Nationally Representative State-Level Estimates and Creating Nationally Representative Local-Level Estimates of Public Health Workforce Interests and Needs. J Public Health Manag Pract. 2019;25 Suppl 2, Public Health Workforce Interests and Needs Surey 2017:S49–S57. [PubMed: 30720617]
28. Balio CP, Yeager VA, Beitsch LM. Perceptions of Public Health 3.0: Concordance Between Public Health Agency Leaders and Employees. J Public Health Manag Pract. 2019;25 Suppl 2, Public Health Workforce Interests and Needs Surey 2017:S103–S112. [PubMed: 30720623]
29. Yeager VA, Balio CP, Kronstadt J, Beitsch LM. The Relationship Between Health Department Accreditation and Workforce Satisfaction, Retention, and Training Needs. J Public Health Manag Pract. 2019;25 Suppl 2, Public Health Workforce Interests and Needs Surey 2017:S113–S123. [PubMed: 30720624]
30. Beck AJ, Coronado F, Boulton ML, Merrill JA, Public Health Enumeration Working G. The Public Health Workforce Taxonomy: Revisions and Recommendations for Implementation. J Public Health Manag Pract. 2018;24(5):E1–E11.
31. Krisberg K New criteria for accreditation to chart updated course for public health education: Bolstering students. Nations Health. 2017;46(10):1–10.
32. Council on Education for Public H. Accreditation Criteria - Schools of Public Health and Public health programs. 2016.

Implications for Policy and Practice

- Findings from this study suggest that having formal public health degree holds greater value for skills required at the non-supervisor and supervisor/manager level than for skills needed at the executive level.
- From a practice perspective, public health graduates have a strong foundation for work at the non-supervisor level. Therefore, recruiting graduates may be strategic, especially in terms of graduates from bachelors of public health programs as these graduates may be more inclined to take entry level positions.
- There were no significant differences for any of the competency skills within three particular domains: communication, budgeting and financing, and change management regardless of supervisory level. Public health agencies may need to address these gaps among their workers who are former graduates until the newly revised core competencies become more integrated into formal public health curricula and these graduates enter the workforce.

J Public Health Manag Pract. Author manuscript; available in PMC 2022 January 01.

Table 1:

Bivariate relationship between sample characteristics and supervisory level (n = 122,134)

Characteristic	Non-supervisor (n = 82,215; 67.3%)	Supervisor/Manager (n = 36,138; 29.6%)	Executive (n = 3,781; 3.1%)	p-value
	N (%)	N (%)	N (%)	
PH Degree				
No	69,731 (84.8)	28,484 (78.8)	2,441 (64.6)	<0.0001
Yes	12,484 (15.2)	7,654 (21.2)	1340 (35.4)	
Female				
Yes	60,880 (75.1)	25,934 (72.3)	2,381 (63.7)	=0.006
No	20,183 (24.9)	9,914 (27.7)	1,255 (36.3)	
Age				
35 years or less	19,618 (24.9)	3,837 (10.9)	236 (6.4)	
36–45	18,150 (23.0)	7,922 (22.5)	665 (18.0)	<0.0001
46–55	20,673 (26.2)	12,435 (35.4)	1,311 (35.5)	
56 years or older	20,407 (25.9)	10,968 (31.2)	1,483 (40.1)	
Race/Ethnicity				
White	49,876 (58.5)	23,045 (65.1)	2,587 (70.2)	
Black/African American	12,852 (16.0)	5,335 (15.1)	527 (14.3)	=0.0001
Other	20,403 (25.5)	7,035 (19.9)	573 (15.5)	
Education Level				
Less than Bachelors	21,698 (26.9)	5,524 (15.4)	221 (5.9)	
Bachelors	36,028 (44.6)	12,810 (35.8)	812 (21.8)	<0.0001
Masters	20,099 (24.9)	14,607 (40.8)	1,745 (46.9)	
Doctoral	2,872 (3.6)	2,864 (8.0)	943 (25.3)	
Employer				
Local government	50,051 (63.4)	21,965 (64.3)	2,068 (56.4)	=0.067
State government	28,876 (36.6)	12,175 (35.7)	1,596 (43.6)	
Role				
Administrative	14,627 (17.8)	5,596 (15.5)	1,312 (34.7)	<0.0001
Clinical and Laboratory	28,385 (34.5)	9.341 (25.8)	307 (8.1)	

Characteristic	Non-supervisor (n = 82,215; 67.3%)	Supervisor/Manager (n = 36,138; 29.6%)	Executive (n = 3,781; 3.1%)	p-value
	N (%)	N (%)	N (%)	
Public Health Services	31,478 (38.3)	19,419 (53.7)	2,019 (53.4)	
Social Services	7,725 (9.4)	1,782 (4.9)	142 (3.8)	
Tenure in Current Agency				<0.0001
0–5 years	37,847 (48.2)	10,180 (28.6)	1,124 (30.2)	
6–15 years	22,848 (29.1)	12,657 (35.6)	1,116 (30.0)	
16 years or more	17,774 (22.7)	12,760 (35.8)	1,484 (39.8)	
PH certificate				=0.254
Yes	2,614 (4.1)	876 (31.1)	168 (5.8)	
No	60,811 (95.9)	27,119 (96.9)	2,737 (94.2)	

Source: Public Workforce Interests and Needs Survey, 2017

Notes: Counts presented represent weighted counts. Differences by supervisory level were calculated using chi-square tests.

Table 2:

Multivariate relationship of a formal public health degree and reported skill gaps among non-supervisor governmental public health workers.

Focus Area - Skill Gap	Formal Public Health Degree		
	AOR[a]	CI (lower) - CI (upper)	p-value[b]
Effective Communication			
Effectively target communications to different audiences	1.142	0.919 – 1.418	0.224
Communicate in a way that persuades others to act	1.215	0.945 – 1.562	0.186
Data for decision making			
Identify appropriate sources of data and information to assess the health of a community	0.650	0.509 – 0.831	0.001**
Collect valid data for use in decision making	0.649	0.467 – 0.902	0.011**
Identify evidence-based approaches to address public health issues	0.616	0.490 – 0.774	0.0001**
Cultural competency/competence			
Describe the value of a diverse public health workforce	0.664	0.506 – 0.871	0.004**
Support inclusion of health equity and social justice principles into planning for program and service delivery	1.076	0.717 – 1.614	0.717
Deliver socially, culturally, and linguistically appropriate programs and customer service	1.096	0.918 – 1.310	0.302
Budgeting and financial management			
Describe financial analysis methods applicable to program and service delivery	0.993	0.696 – 1.418	0.969
Describe how public health funding mechanisms support agency programs and services	0.890	0.635 – 1.247	0.488
Describe the value of an agency business plan	0.881	0.650 – 1.195	0.407
Change management			
Describe the influence of internal changes on organizational practices	0.863	0.694 – 1.073	0.178
Assess the external drivers in your environment that may influence your work	0.984	0.806 – 1.201	0.871
Systems and strategic thinking			
Describe how social determinants of health impact the health of individuals, families, and the overall community	0.555	0.437 – 0.704	<0.0001**
Participate in quality improvement processes	0.976	0.736 – 1.294	0.864
Describe your agency's strategic priorities, mission, and vision	0.786	0.574 – 1.076	0.130

Focus Area - Skill Gap	Formal Public Health Degree		
	AOR[a]	CI (lower) - CI (upper)	p-value[b]
Vision for healthy community			
Describe the value of community strategic planning that results in a community health assessment or community health improvement plan	0.917	0.621 – 1.355	0.657
Describe the importance of engaging community members in the design and implementation of programs to improve health in a community	0.709	0.547 – 0.920	0.011**
Describe your role in improving the health of the community served by the agency	0.842	0.645 – 1.101	0.202
Cross-sectoral partnerships			
Engage community assets and resources to improve health in a community	0.708	0.565 – 0.888	0.004**
Collaborate with public health personnel across the agency to improve the health of the community	0.595	0.439 – 0.807	0.001**

Source: Public Workforce Interests and Needs Survey, 2017

Notes: Results are individual logistic regressions for each skill gap, holding constant gender, race/ethnicity, age, education level, employer, role type, tenure within current agency, and public health certificate attainment.

National survey and replication weights provided by ASTHO.

[a]AOR: Adjusted Odds Ratio

[b]Bonferroni Correction Adjustment (Level of significance set at p≤0.0167

*indicates marginal significance p≤0.05

**indicates significance p≤0.0167)

Table 3:

Multivariate relationship of a formal public health degree and reported skill gaps among supervisor/manager governmental public health workers.

Focus Area - Skill Gap	Formal Public Health Degree		
	AOR[a]	CI (lower) - CI (upper)	p-value[b]
Effective Communication			
Communicate in a way that different audiences can understand	0.954	0.725 – 1.254	0.729
Communicate in a way that persuades others to act	1.144	0.769 – 1.700	0.498
Data for decision making			
Identify appropriate sources of data and information to assess the health of a community	0.582	0.408 – 0.830	0.004**
Use valid data to drive decision making	0.571	0.375 – 0.869	0.010**
Apply evidence-based approaches to address public health issues	0.632	0.409 – 0.978	0.040*
Cultural competency/competence			
Support development of a diverse public health workforce	0.912	0.692 – 1.203	0.506
Incorporate health equity and social justice principles into planning for programs and services	0.938	0.734 – 1.198	0.599
Implement socially, culturally, and linguistically appropriate policies, programs, and services that reflect the diversity of individuals and populations in a community	0.851	0.679 – 1.068	0.158
Budgeting and financial management			
Use financial analysis methods in managing programs and services	1.038	0.831 – 1.296	0.737
Identify funding mechanisms and procedures to develop sustainable funding models for programs and services	0.834	0.689 – 1.010	0.062
Implement a business plan for agency programs and services	1.031	0.788 – 1.348	0.820
Change management			
Modify programmatic practices in consideration of internal and external changes	0.884	0.617 – 1.266	0.492
Assess the drivers of your environment that may influence public health programs and services	0.906	0.734 – 1.118	0.350
Systems and strategic thinking			
Integrate current and projected trends into strategic planning for programs and services	0.756	0.605 – 0.944	0.015**
Build cross-sector partnerships to address social determinants of health	0.749	0.591 – 0.948	0.018*
Apply quality improvement processes to improve agency programs and services	0.915	0.730 – 1.147	0.432

Focus Area - Skill Gap	Formal Public Health Degree		
	AOR[a]	CI (lower) - CI (upper)	p-value[b]
Implement an organizational strategic plan	0.671	0.476 – 0.948	0.025 *
Vision for healthy community			
Apply findings from a community health assessment or community health improvement plan to agency programs and services	0.808	0.611 – 1.070	0.133
Engage community members in the design and implementation of programs to improve health in a community	0.740	0.562 – 0.975	0.033 *
Assess how agency policies, programs, and services advance population health	0.946	0.763 – 1.173	0.603
Cross-sectoral partnerships			
Identify and engage assets and resources that can be used to improve health in a community	0.746	0.586 – 0.951	0.019 *
Engage in collaboration within the public health system, including traditional and nontraditional partners to improve the health of a community	0.926	0.775 – 1.106	0.387

Source: Public Workforce Interests and Needs Survey, 2017

Notes: Results are individual logistic regressions for each skill gap, holding constant gender, race/ethnicity, age, education level, employer, role type, tenure within current agency, and public health certificate attainment.

National survey and replication weights provided by ASTHO.

[a] AOR: Adjusted Odds Ratio

[b] Bonferroni Correction Adjustment (Level of significance set at p≤0.0167

* indicates marginal significance p≤0.05

** indicates significance p≤0.0167)

J Public Health Manag Pract. Author manuscript; available in PMC 2022 January 01.

Table 4:

Multivariate relationship of a formal public health degree and reported skill gaps among executive governmental public health workers.

Focus Area - Skill Gap	**Formal Public Health Degree**		
	AOR[a]	**CI (lower) - CI (upper)**	**p-value**[b]
Effective Communication			
Communicate in a way that different audiences can understand	0.995	0.265 – 3.740	0.994
Communicate in a way that persuades others to act	3.962	1.039 – 15.106	0.044*
Data for decision making			
Ensure the use of appropriate sources of data and information to assess the health of a community	1.087	0.404 – 2.927	0.865
Use valid data to drive decision making	0.550	0.194 – 1.564	0.253
Ensure the application of evidence-based approaches to address public health issues	0.696	0.214 – 2.267	0.539
Cultural competency/competence			
Develop a diverse public health workforce	0.780	0.364 – 1.711	0.540
Incorporate health equity and social justice principles into across the agency	1.243	0.715 – 2.161	0.430
Ensure the implementation of socially, culturally, and linguistically appropriate policies, programs, and services that reflect the diversity of individuals and populations in a community	0.893	0.380 – 2.100	0.790
Budgeting and financial management			
Use financial analysis methods in making decisions about programs and services across the agency	1.593	0.951 – 2.667	0.076
Leverage funding mechanisms and procedures to develop sustainable funding models for the agency	0.639	0.351 – 1.163	0.139
Design a business plan for the agency	1.046	0.546 – 2.003	0.889
Change management			
Manage organizational change in response to evolving internal and external circumstances	1.018	0.471 – 2.204	0.962
Assess the drivers of your environment that may influence public health programs and services across the agency	0.742	0.389 – 1.415	0.356
Systems and strategic thinking			
Integrate current and projected trends into organizational strategic planning	0.717	0.351 – 1.463	0.352
Influence policies external to the organization that address social determinants of health	1.177	0.618 – 2.240	0.611
Create a culture of quality improvement at the agency or division level	1.721	0.886 – 3.345	0.106

Focus Area - Skill Gap	Formal Public Health Degree		
	AOR[a]	CI (lower) - CI (upper)	p-value[b]
Ensure the successful implementation of an organizational strategic plan	0.610	0.386 – 0.965	0.035 *
Vision for healthy community			
Ensure health department representation in a collaboration process resulting in a community health assessment or community health improvement plan	0.722	0.343 – 1.520	0.381
Ensure community member engagement in the design and implementation of programs to improve health in a community	0.907	0.451 – 1.822	0.778
Advocate for needed population health services and programs	1.316	0.659 – 2.629	0.427
Cross-sectoral partnerships			
Negotiate with multiple partners for the use of assets and resources to improve health in a community	1.456	0.598 – 3.546	0.399
Build collaborations within the public health system among traditional and nontraditional partners to improve the health of a community	1.614	0.538 – 4.840	0.383

Source: Public Workforce Interests and Needs Survey, 2017

Notes: Results are individual logistic regressions for each skill gap, holding constant gender, race/ethnicity, age, education level, employer, role type, and tenure within current agency. Due to the low number of executive level respondents with a public health certificate (unweighted n=19), we dropped public health certificate attainment as a control variable for all regressions represented in this table.

National survey and replication weights provided by ASTHO.

[a]AOR: Adjusted Odds Ratio

[b]Bonferroni Correction Adjustment (Level of significance set at p≤0.0167

*indicates marginal significance p≤0.05

**indicates significance p≤0.0167)

J Public Health Manag Pract. Author manuscript; available in PMC 2022 January 01.