Generation Public Health: Fixing the Broken Bridge Between Public Health Education and the Governmental Workforce

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With more than 600 000 lives lost and counting, the COVID-19 pandemic in the United States has resulted in the loss of tens of millions of jobs and gravely disrupted children's education. The pandemic has laid bare long-term underinvestment in the public health workforce, including staff losses and underfunding for public health education. The American Rescue Plan Act of 2021 will invest $7.4 billion to recruit, hire, and train individuals in health departments and related entities.[1] For this effort to succeed, however, we must assess workforce needs, increase access to education for future public health professionals, alleviate the burden of high student loan debt, improve and expand hiring programs for public health graduates, and invest in the existing public health workforce.

THE ROLE OF PUBLIC HEALTH PROFESSIONALS

Public health professionals work to keep whole communities healthy. Public health is a diverse field and employs professionals in numerous job functions within government agencies, research institutes, universities, hospitals, nonprofit organizations, and corporations. Government agencies, including the federal government, local health departments (LHDs), state health departments (SHDs), and tribal and territorial health departments, play unique roles in the public health system, including disease surveillance, reporting, screening, treatment, and counseling; laboratory testing; vaccine inventory and distribution; food safety; behavioral health; regulatory inspection and licensing; emergency response; maternal and child health and newborn screening; HIV and substance use disorder prevention; and nutrition.

Beyond preventing and controlling infectious diseases like COVID-19, public health professionals prevent chronic diseases like cancer, diabetes, and heart disease, and promote the opportunity for health. It has been estimated that for every dollar spent on public health, we save $14.30 on health care and other costs.[2] However, without ongoing investment, a public health workforce cannot be sustained.

THE PUBLIC HEALTH WORKFORCE: DECADES OF UNDERINVESTMENT

The public health workforce is a critical element of the public health system and infrastructure, but a reduction in the number of public health workers in the core government public health workforce is well documented. In 2000, the workforce was estimated to be just under 500 000 workers, or 160 workers per 100 000, which represents a decline from 219 per 100 000 in 1979.[3] In the most recent formal enumeration, in 2014, the number had decreased further to an estimated 290 988 (range = 231 464–341 053).[4] Recent estimates indicate a loss of more than 20% of SHD and LHD workers since the Great Recession.[5] Funding has followed a crisis-and-neglect pattern, with investments increasing temporarily after emergencies such as the World Trade Center attacks, and then again shrinking, resulting in an inability to sustain a highly trained public health workforce as a basis for a vibrant public health system.[6] Lack of funding means that SHDs and LHDs cannot fully provide the Foundational Public Health Services, a "minimum package" of public health services.[7]

Workforce losses are expected to worsen. A 2017 survey found that 22% of the government public health workforce was planning to retire by 2023 and 24% was considering leaving for other reasons.[8] According to recent media reports, harassment related to COVID-19 has led at least 190 senior health officials to leave the field,[9] but the overall workforce crisis has been

documented for decades.[10,11] Additionally, the current workforce does not represent the demographics of the communities they serve, likely rendering them less effective.[8]

Public health challenges are becoming more complex because of increased availability of large-scale data, the "infodemic," climate change, and the aging of the population. Responding to these challenges can require strategic decision-making, an understanding of scientific evidence for prevention and health promotion, collaboration across sectors, data analytics, financial management, and systems thinking. Rebuilding the US public health system requires a new generation of highly trained, diverse public health professionals to create a healthier America.

These professionals will need a public health education. The current governmental public health workforce has not only lost staff, but it is also likely undertrained. Public health degrees are uniquely designed to meet the needs of the public health workforce, yet only 14% of governmental public health professionals today have formal education in public health.[12] At the nonsupervisory and manager levels, workers with public health degrees reported fewer competency gaps.[13] Public health graduates develop competencies not integral to other disciplines, such as epidemiology, biostatistics, health systems and policy analysis, health program planning and evaluation, and health communication. Although not every employee of a health department needs a public health degree, a 2021 study matching public health workforce taxonomies with US Department of Labor Standard Occupational Classifications (SOC) codes identified 56 SOC-matched occupations in government public health agencies, of which 34 were found in a data set of job postings requiring or preferring master's-level public health graduates.[14] Several occupations listed in the American Rescue Plan, including epidemiologists, program managers, communication and policy experts, social support specialists, and disease intervention specialists,[1] either require public health degrees or are particularly suited for public health graduates.

GRADUATES' LOAN DEBTS CAN PRECLUDE GOVERNMENT CAREERS

According to the National Center for Education Statistics, in 2019, the median debt of public health graduates nationally was $52 263, but first-destination earnings were approximately $48 866.[15] Although the Public Service Loan Forgiveness program was designed to encourage graduates to consider lower-paying jobs in the public or nonprofit sector, it has provided loan forgiveness to only 1% of those who applied.[16]

Degree programs in medicine, nursing, mental health, veterinary medicine, education, and law have scholarship and loan repayment programs like the National Health Service Corps, encouraging students to consider lower-paying careers in underserved communities. PhD programs often offer funding or loan repayment; however, few if any such programs exist for public health graduates. Therefore, the student debt burden makes salary a significant factor in career decision-making for public health students,[17] especially for students from lower-income backgrounds. This ultimately reduces diversity and talent in the public health workforce, weakening its effectiveness.[8]

Lower salaries, in the absence of functioning loan forgiveness programs, may also deter students from public service. In a recent study, government positions for 666 master's-level public health graduates from 2018 to 2019 paid a median of $55 000 and an average of $58 000, whereas 2578 graduates in all other sectors received a median of $60 001 and an average of $68 332 (C. Plepys, Association of Schools and Programs of Public Health Data Center, written communication, March 4, 2021). Additionally, the better benefits or job security that once attracted students to government employment have declined through reductions in traditional benefits such as pension plans, government shutdowns and furloughs, and negative media coverage of government. Loan repayment programs for new federal workers are now rarer. Meanwhile, the for-profit sector is increasingly hiring public health graduates,[18] and new research shows that younger staff are more likely to leave the government public health workforce in search of higher-paying jobs.[19] An analysis of the employment outcomes of 53 463 public health graduates over four years (2015–2018) conducted by the Association of Schools and Programs of Public Health found that only 17% entered into government as their first post-graduate employment, in contrast to health care (27%), corporations (24%), academia (19%), nonprofits (12%), and other sectors (1%).[20] An analysis of 33 563 jobs posted from July 2019 to June 2020 for public health master's graduates found labor market competition, especially from pharmaceutical and insurance firms.[14] Even with increased enrollments in public

health degree programs, it is unlikely that enough public health graduates are entering government to address unmet needs.

GRADUATES FACE BARRIERS TO ENTRY INTO GOVERNMENT

Although many public health students are motivated to work in government, they encounter barriers to entry beyond lower salaries, including concerns about career paths, employee empowerment, and opportunities for innovation within government.[17] The hiring process for many government agencies is lengthier than in other sectors, averaging 98.3 days in the federal government in 2018,[21] whereas the national average was only 35 to 41 days[22] in 2019; further, it often requires candidates to use different application procedures, such as specialized resume formats or civil service examinations.[23] Unless hiring processes are streamlined, significant efforts are needed to educate students about the government recruitment process, yet many schools and programs of public health lack staff to provide this guidance.

RECOMMENDATIONS

The loss of public health workers combined with the mismatch with new graduates' career choices have a direct impact on the health and lives of all Americans. To ensure a highly trained, diverse public health workforce and replace retiring workers while adding to the capacity to handle the COVID-19 pandemic and other public health challenges, we offer several recommendations.

Recommendation 1: New Workforce Research

Existing public health workforce research primarily focuses on enumeration and training of the existing workforce. The National Center for Health Workforce Analysis within the Health Resources and Services Administration's Bureau of Health Workforce funds a network of Health Workforce Research Centers; however, they focus on a range of health professions but not on public health disciplines specifically. The last formal enumeration study was in 2014.[4] Large-scale surveys[8] and assessment of the Foundational Public Health Services [7] should be complemented with research on the number and types of workers needed in specific public health occupations to provide the Foundational Public Health Services, the educational or training requirements for these occupations, analysis of labor market competition for public health graduates and related occupations,[14] and the impact of unpaid internships and student debt on career choice. New research, like the "Staffing Up" study being conducted by the Public Health National Center for Innovations and the de Beaumont Foundation, should be supported, and the National Center for Health Workforce Analysis or a similar agency should fund new Public Health Workforce Research Centers, housed in academic institutions with research infrastructure, which should collaborate with public health practice organizations and produce annual reports.

Recommendation 2: Loan Repayment

The proposed Public Health Workforce Loan Repayment Act (HR 6578)[24] would provide loan repayment for approximately 1000 public health students entering into government employment each year. This is far less than is needed even to replace retirees, without accounting for new hires needed to handle COVID-19. The National Association of County and City Health Officials leads an informal coalition of public health, health care, and labor groups that support initiatives like HR 6578, and other organizations recommend reforms to public service loan forgiveness. Existing loan forgiveness or repayment for clinicians should also encourage work in public health.

Recommendation 3: Recruitment and Reform

Recruitment pipelines and partnerships. Some recruitment pipelines exist that facilitate students' entry into government, such as the Presidential Management Fellowship, the CDC's Epidemic Intelligence Service and Public Health Associate Program, and the Council of State and Territorial Epidemiologists' Fellowship Program. However, each of these programs only hires approximately 30 to 200 graduates per year into public health agencies. Such programs should be reviewed to ensure that they attract diverse candidates, and they should be significantly expanded and connected more directly with LHDs and SHDs.

In the corporate world, paid internships—field experiences designed to provide real-world applications of academic training for currently enrolled students—are a mainstay of college recruitment and are often designed to convert students to full-time hires. In contrast, internships or practica in government public health are frequently

unpaid, excluding students who are eager to work in public service but cannot afford to do so. Additionally, the Council on Linkages Between Academia and Public Health Practice encourages Academic Health Department partnerships to connect academia with governmental public health agencies to enhance the capacity of the organizations and improve the pipeline into governmental public health, and these partnerships should be supported further. Investment in partnerships between public health degree programs and local, state, or federal health departments (as part of the Rescue Plan), expanded internship-to-job recruitment pipelines, and new programs to encourage diverse and previously untapped populations to join the public health workforce will help alleviate the workforce gap. The Biden administration's proposed US Public Health Job Corps or Public Health AmeriCorps could fund public health interns, support service learning, and create a hiring pathway into government that keeps equity and inclusion at the center.

Hiring reforms or hiring exemptions. In addition to investing in new pipelines, the slow, complicated hiring process in government agencies should be streamlined, or public health hires should be provided an exemption to typical hiring protocols—a critical hiring authority. An analysis of civil service hiring policy should be conducted, including assessment of possible disparate impacts on diverse candidates. The newly relaunched National Consortium for Public Health Workforce Development, with its emphasis on governmental public health pipeline and recruitment improvements, can advocate for reforms.

Recruitment marketing campaigns and career guidance. A recruitment marketing campaign, implemented by a new partnership between academia and government, can improve student perceptions of government careers. This campaign should focus on the meaningfulness of public service and benchmark with other successful college recruitment programs like the Peace Corps, Teach for America, or private-sector talent acquisition programs. Career advisors who guide public health students should be key partners in this effort. Currently, a career guidance Web site is being developed by the Kennedy Krieger Institute, to guide potential students toward public health careers and raise awareness of the field.

Clinician and specialist training in public health. New training and recruitment programs must also be established for clinical and other professionals to enter public health careers. Part of the recruitment campaign described here should include efforts to entice nurses, physicians, veterinarians, laboratory professionals, informaticists, and other relevant professionals to obtain education or training in public health, in exchange for graduates' commitment to working in government public health for a specified period.

Recommendation 4: Workforce Investment

After assessment of the training needed in specific public health occupations, new training requirements can be implemented for the current workforce. Partnerships with existing training entities, combined with expanded, funded partnerships with academia (including funding for subsidized master's-level education or other credentialing through formats for working professionals) will help the current workforce gain the skills needed to tackle the greatest public health crisis in a hundred years and to develop healthier communities. Barriers to training, such as staff not being permitted to take time away from regular tasks to take part in training, should be addressed. There should also be new investments by the Health Resources and Services Administration or related agencies to support public health faculty to design curricula that best match governmental workforce needs.

To improve retention, salaries in SHDs and LHDs must be benchmarked with competing sectors and increased. Morale must be improved via leadership training, clearer career pathways, mentoring programs, and policies encouraging innovation.[19] Collaboration between organizations such as the National Association of County and City Health Officials, the Association of State and Territorial Health Officials, and the Association of Schools and Programs of Public Health is essential for creating a unified public health workforce recruitment and training plan. Most importantly, expanded funding for the public health workforce must become permanent.

CONCLUSION

Public health is at a critical inflection point in the United States. A trained, qualified public health workforce is a crucial element of the health of Americans. We can no longer rely on "emergency"-based, short-term, earmarked funding that disappears when a crisis ends. Without long-term investment in education for new public

health professionals and programs easing entry into government careers, a recovery from COVID-19 and improvements in the public's health will be impossible. The time has come for unified action to leverage the power, passion, and public service motivation of public health students and the current public health workforce. The health of our nation depends on it. AJPH

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CONFLICTS OF INTEREST

The authors have no conflicts of interest to report.

REFERENCES

1. Yarmuth JA. Text—HR1319—117th Congress (2021–2022): American Rescue Plan Act of 2021. February 27, 2021. Available at: https://www.congress.gov/bill/117th-congress/house-bill/1319/text. Accessed February 28, 2021.
2. Masters R, Anwar E, Collins B, Cookson R, Capewell S. Return on investment of public health interventions: a systematic review. *J Epidemiol Community Health*. 2017;71(8):827–834. https://doi.org/10.1136/jech-2016-208141
3. Tilson H, Gebbie KM. The public health workforce. *Annu Rev Public Health*. 2004;25(1):341–356. https://doi.org/10.1146/annurev.publhealth.25.102802.124357
4. Beck AJ, Boulton ML, Coronado F. Enumeration of the governmental public health workforce, 2014. *Am J Prev Med*. 2014;47(5):S306–S313. https://doi.org/10.1016/j.amepre.2014.07.018
5. Leider JP. New workforce estimates show public health never recovered from the great recession. Then came COVID-19. JPHMP Direct. May 20, 2020. Available at: https://jphmpdirect.com/2020/05/20/new-workforce-estimates-show-public-health-never-recovered-from-the-great-recession-then-came-covid-19. Accessed March 4, 2021.
6. Maani N, Galea S. COVID-19 and underinvestment in the public health infrastructure of the United States. *Milbank Q*. 2020;98(2):250–259. https://doi.org/10.1111/1468-0009.12463
7. Mamaril CBC, Mays GP, Branham DK, Bekemeier B, Marlowe J, Timsina L. Estimating the cost of providing foundational public health services. *Health Serv Res*. 2018;53(suppl 1):2803–2820. https://doi.org/10.1111/1475-6773.12816
8. Sellers K, Leider JP, Gould E, et al. The state of the US governmental public health workforce, 2014–2017. *Am J Public Health*. 2019;109(5):674–680. https://doi.org/10.2105/AJPH.2019.305011
9. Clark C. Insults, threats of violence still imperil public health leaders. MedPage Today. February 25, 2021. Available at: https://www.medpagetoday.com/special-reports/exclusives/91357. Accessed February 27, 2021.
10. Beitsch LM, Yeager VA, Leider JP, Erwin PC. Mass exodus of state health department deputies and senior management threatens institutional stability. *Am J Public Health*. 2019;109(5):681–683. https://doi.org/10.2105/AJPH.2019.305005
11. Draper DA, Hurley RE, Lauer JR. Public health workforce shortages imperil nation's health. *Res Brief*. 2008;(4):8.
12. 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–S68. https://doi.org/10.1097/PHH.0000000000000306
13. Taylor HL, Yeager VA. Core competency gaps among governmental public health employees with and without a formal public health degree. *J Public Health Manag Pract*. 2021;27(1):20–29. https://doi.org/10.1097/PHH.0000000000001071
14. Krasna H, Czabanowska K, Beck A, Cushman L, Leider JP. Labor market competition for public health graduates in the United States: a comparison of workforce taxonomies with job postings before and during the COVID-19 pandemic. *Int J Health Plann Manage*. 2021; Epub ahead of print.
15. Beck AJ, Leider JP, Krasna H, Resnick BA. Monetary and nonmonetary costs and benefits of a public health master's degree in the 21st century. *Am J Public Health*. 2020;110(7):978–985. https://doi.org/10.2105/AJPH.2020.305648
16. Nova A. Education Department is failing to provide public service loan forgiveness, senators allege. CNBC. June 25, 2018. Available at: https://www.cnbc.com/2018/06/25/education-department-is-failing-to-provide-public-service-loan-forgive.html. Accessed September 2, 2020.
17. Yeager VA, Beitsch LM, Johnson SM, Halverson PK. Public health graduates and employment in governmental public health: factors that facilitate and deter working in this setting. *J Public Health Manag Pract*. 2021;27(1)4–11. https://doi.org/10.1097/PHH.0000000000001052
18. Krasna H, Kornfeld J, Cushman L, Ni S, Antoniou P, March D. The new public health workforce: employment outcomes of public health graduate students. *J Public Health Manag Pract*. 2021;27(1)12–19. https://doi.org/10.1097/PHH.0000000000000976
19. Sellers K, Leider JP, Lamprecht L, Liss-Levinson R, Castrucci BC. Using public health workforce surveillance data to prioritize retention efforts for younger staff. *Am J Prev Med*. 2020;59(4):562–569. https://doi.org/10.1016/j.amepre.2020.03.017
20. Plepys C, Krasna H, Leider J, Burke E, Blakely C, Magana L. First-destination outcomes for 2015–2018 public health graduates: focus on employment. *Am J Public Health*. 2021;111(3):475–484.
21. Government Executive. OPM announces adjustments to annual time-to-hire metrics. Available at: https://www.govexec.com/management/2020/02/opm-announces-adjustments-annual-time-hire-metrics/163361. Accessed November 24, 2020.
22. Jobvite. 2019 recruiting benchmark report: your guide to finding top talent. April 3, 2019. Available at: https://www.jobvite.com/blog/jobvite-news-and-reports/2019-recruiting-benchmark-report-your-guide-to-finding-top-talent. Accessed November 24, 2020.
23. Barrett K, Greene R. Can government hiring get out of the stone age? *Governing*. January 29, 2016. Available at: https://www.governing.com/topics/mgmt/gov-government-hiring-best-practices.html. Accessed November 24, 2020.
24. Crow J. HR6578—116th Congress (2019–2020): Public Health Workforce Loan Repayment Act of 2020. April 21, 2020. Available at: https://www.congress.gov/bill/116th-congress/house-bill/6578. Accessed September 2, 2020.