Addressing the Workforce Shortage at Local Health Departments: Is Compensation a Factor?

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Abstract

Issues with adequate staffing have been hindering both private and public workforces. However, the public health workforce shortage must be more noticed when determining ways to combat employee shortages. Community members rely on their local health departments to provide essential public health services and fill gaps in access to clinical care. Best practices must be established to increase the recruitment and retention of qualified public health employees nationwide. This report examines factors that may contribute to inadequate staffing levels of front-line, field-based staff at local health departments. Data collected through research and review of the current literature is utilized to produce policy actions to help local health departments address critical staffing needs. Using Environmental Health Specialists as a broad classification of front-line, field-based health department staff, the following factors were determined to significantly influence maintaining a competent and qualified workforce: funding, training, and shifting public health priorities. The Covid-19 pandemic brought challenges that resulted from increased strain on public health resources to the forefront of concern. The significance of public health workforce development at local health departments must be noticed. Maintaining a competent and qualified workforce allows health departments to continue ensuring the delivery of needed public health services.

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1.0 Introduction

A powerful and well-built public health workforce is critical to maintaining and protecting the health of local communities. However, the public health workforce is decreasing (National Association of County and City Health Officials, 2020). By examining literature regarding workforce shortages, one can gather information to make assumptions and predict the future of the public health workforce as the nation turns to a post-pandemic stage. Workforce development and retention in public health practice are essential for local health departments. Findings in reports and peer-reviewed literature suggest a workforce shortage exists, and this may be due to compensation and burnout from shifting priorities due to the Covid-19 pandemic.

The public health field is primarily field-based and reactive, meaning that waves of public health funding come after a public health emergency and are often incident-specific (Lang et al., 2018). However, funding again becomes stagnant after resolving the emergency (Lang et al., 2018). Data is analyzed in this report to draw comparisons for further research on salary, training, and education. In addition, the impact that these variations have on public health practice is addressed. Finally, potential solutions and recommendations will be offered for health departments to take in order to maintain a competent and qualified workforce.

1.1 Demographics of the Public Health Workforce

The 2021 Public Health Workforce Interests and Needs Survey (Public Health WINS) outlines workforce demographics for state and local governmental health employees (de Beaumont

Foundation & Association of State and Territorial Health Officials, 2021). The following demographics were outlined on the interactive dashboard published by Public Health WINS, describing the personal characteristics of the current public health workforce. 79% of the public health workforce identify as "woman," (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). Most public health workers (54%) identify as "white," (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). Nearly two-thirds (63%) of the public health workforce are 40 or older, with just 13% of the workforce reported to be between the ages of 21 and 30 (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). The vast majority (86%) of the public health workforce do not hold a public health degree (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021).

1.2 National Standards for Public Health Practice

There are at least three frameworks to guide local health departments' workforce development: The Ten Essential Public Health Services, The Core Competencies for Public Health Professionals, and Public Health Accreditation Standards. The Ten Essential Public Health Services (EPHS), defined by the CDC, describe the public health activities that all governmental health agencies should undertake in the context of the public health core functions (CDC -10 Essential Services). Essential Service Number 8 focuses on "building and supporting a diverse and skilled public health workforce" (CDC – 10 Essential Services). The EPHS are important, as these national standards hold local health departments to specific workforce development metrics.

The accreditation process for health departments places a similar emphasis on workforce development. The Public Health Accreditation Board (PHAB) sets forth a series of standards and measures that demonstrate the ability of local health departments to recruit and retain a qualified workforce. The PHAB's accreditation domains align with the EPHS.

Because public health practice is an interdisciplinary field, professionals across multiple disciplines collaborate within the workforce. The interdisciplinary approach to public health can provide insights and understanding across public health practice but can also create differences in operations across public health professions (Foster et al., 2018). Public health professionals, given their magnitude of disciplines, must have a common set of skills. The core competencies for public health professions aligns values and goals across all disciplines (Foster et al., 2018). As public health evolves, the standards by which the professions are sanctioned develop accordingly to best align all public health professionals with the same goals (Foster et al., 2018).

The Core Competencies for Public Health Practice (Core Competencies) ,developed by the Council on Linkages Between Academia and Public Health Practice, provide a ubiquitous knowledge and skill set for public health professionals, as defined by the 10 Essential Public Health Services. The Core Competencies provide a framework for workforce development as it applies to public health. Core Competencies indicate foundational skills for professionals who participate in public health practice, education, or research. Core Competencies act as a "starting point" for public health professionals and organizations to understand workforce development needs, improve performance, and strengthen the communities serviced (Core Competencies, 2021). There are eight domains of Core Competencies.

1. *Data Analytics and Assessment Skills*
2. *Policy Development and Program Planning Skills*

3. *Communication Skills*
4. *Health Equity Skills*
5. *Community Partnership Skills*
6. *Public Health Sciences Skills*
7. *Management and Finance Skills*
8. *Leadership and Systems Thinking Skills*

Each Domain contains Competency Standards which include three tiers of subcompetencies (Core Competencies, 2021). The tiers describe the variety of responsibilities within public health agencies and are utilized to organize the subcompanies within each Domain (Core Competencies, 2021). Tier 1 represents front line and program support responsibilities (Core Competencies, 2021). Tier 2 represents program management and supervisory responsibilities (Core Competencies, 2021). Tier 3 represents senior management and executive leadership responsibilities (Core Competencies, 2021). The Competency Standards aim to apply the same quality across the entire public health workforce for necessary skills and knowledge. In addition, public health agencies utilize the Core Competencies to develop job descriptions (Core Competencies, 2021).

1.3 Current State of the Workforce

The National Profile of Local Health Departments (Profile study) is conducted every three years as a census of local health departments (National Association of County and City Health Officials, 2020). The Profile study presents relevant data on local health departments. The Profile study included a total of 2,459 local health departments (National Association of County and City

Health Officials, 2020). The study outlines "funding, staffing, governance, and activities of local health departments" (National Association of County and City Health Officials, 2020). According to the 2019 Profile study published by the National Association of County and City Health Officials (NACCHO), the estimated size of the workforce is decreasing (National Association of County and City Health Officials, 2020). From 2008 to 2019, there was a 17% decrease in local health department employees (National Association of County and City Health Officials, 2020). This accounts for jobs lost, retirement, and those who leave the position to pursue work elsewhere (National Association of County and City Health Officials, 2020).

A new report from the University of Minnesota School of Public Health, published in the Annual Review of Public Health, provides an overview of the current state of the public health workforce. The report discusses the ongoing challenges affecting workforce development. The study found that the public health workforce has lost more than 40,000 staff positions in state and local government since the 2000s, and that the public health workforce has historically been decreasing, and it continues to decrease (Leider et al., 2023). Both recruitment and retention act as barriers to staffing the workforce. The report states that there is a misalignment between those who have proper public health knowledge and the choice to not work in public health agencies due to lower wages, poor working conditions, lack of advancement opportunities, and challenges in the hiring process (Leider et al., 2023). The misalignment of job seekers could affect the recruitment efforts of local health departments. Low retention rates have been an issue in public health practice for years.

1.3.1 Performance Management in Public Health Practice

In 2018, the National Association of County and City Health Officials (NACCHO) published a guide to performance management titled “Measuring What Matters in Public Health.” The purpose of the report was to offer guidance for the improvement of performance management within local health departments. Performance Management is defined as “the practice of actively using performance data to improve the public’s health through the strategic use of performance standards and measures, progress reports, and ongoing quality improvement” (NACCHO PM System Guide, 2018, p.4). Performance management links to performance improvement, specifically the Workforce Development Plan, which states that every employee has a part in achieving an agency’s mission (NACCHO PM System Guide, 2018). A health department’s Workforce Development Plan must identify specific objectives and measures to track and refine the competencies and capabilities of the workforce to deliver services to the community. In order to draw up a plan for performance management, health departments need to assess knowledge, skills, and abilities (KSAs) among staff and face gaps through workforce development to create and maintain a competent workforce (NACCHO PM System Guide, 2018).

1.3.2 Findings in Surveys of Public Health Employment Needs

In 2021 (through January 2022), the de Beaumont Foundation and the Association of State and Territorial Health Officials (ASTHO) conducted the Public Health WINS study, repeating surveys previously fielded in 2014 and 2017. Public Health WINS aims to encapsulate individual public health employees' opinions on critical issues in the workforce. Public Health WINS collects information on on demographics, job characteristics, training, intent to stay or leave, professional

engagement, and job satisfaction. Public Health WINS provides a snapshot of the public health workforce as it currently stands. Public Health WINS was distributed to 137,447 state and local public health workers across 159 local health departments with 44,732 respondents (a 35% response rate) (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). Of the respondents, 73% of staff work in a non-supervisory role, and 43% of staff work in a public health sciences job role (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). Half of the workforce (50%) have been in employed at their agency for 5 years or less (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). According to the Public Health WINS dashboard, 32% or one-third of state and local public health officials say they are considering leaving their health agency, with only 5% planning to retire (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). Of those employees who are planning to leave without retiring, 49% credit their decision to "pay," while 41% cite "work overload and burnout" as their reason for departure from the public health workforce (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). According to the data provided, this is a statistically significant figure (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). Public Health WINS also finds that the majority of public health workers report having symptoms of Post-Traumatic Stress Disorder (PTSD), and 20% report their mental health as "below satisfactory" (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). Evidence in the Public Health WINS suggests that those with jobs in the public health field intend to leave, and their mental health suffers due to stress and burnout (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). The information in Public Health WINS is a valuable tool

for gathering data on the workforce. It can be utilized to improve the public health workforce, as it provides a snapshot of individual employees' contentment with their work.

A study published in the American Journal of Public Health, titled "State Health Agency and Local Health Department Workforce: Identifying Top Development Needs," surveyed 112 local health departments and asked respondents to identify needs for 29 different occupations within public health (Beck et al., 2017). The following categories were assessed: more positions, more candidates, more competitive salaries for recruitment and retention, and new or different staff skills (Beck et al., 2017). The following needs were identified based on the responses from the local health departments. Local health departments needed staff in numerous positions, frequently citing a desire for more positions and competitive salaries (Beck et al., 2017). Respondents at local health departments wanted to improve compensation to recruit and retain a qualified and competent workforce (Beck et al., 2017). While the current salaries of workers were not included in this assessment, this provides qualitative insight into what respondents from local health departments wanted in their workplace. Although researchers understand that increasing salaries may not always be feasible, "enhancing recruitment pools and practices, identifying and addressing training needs, providing workforce development resources, and identifying best practices in workforce development" could assist with workforce gaps to counter lower wages (Beck et al., 2017).

The Journal of Public Health Management and Practice published an article evaluating potential reasons undergraduates and graduate degree holders are underrepresented in the governmental public health workforce. The study intended to identify strategies for improved recruitment of qualified individuals in the future (Locke et al., 2022). Because the success of public health departments depends on the competent and qualified staff employed there, communities

rely on recruiting a diverse and skilled workforce. The study outcomes capture students' perspectives of health departments and provide insight into decisions on postgraduate employment (Locke et al., 2022). Findings show that public health students perceive health departments as "bureaucratic and under-resourced," which are cited as the top reasons for choosing not to work in the governmental public health workforce (Locke et al., 2022). These findings regarding the education level of public health employees could be valuable for local health departments to consider when recruiting staff to fill gaps in the workforce.

1.3.3 Staffing Shortages

As demonstrated in the Profile study and supported by other literature, health departments are understaffed and facing increasing challenges in staffing. The current staff shortage has prevented the nation from providing adequate public health protections, leaving communities vulnerable and susceptible to gaps in public health needs (McKillop et al., 2022). State and local health departments need an 80% increase in their workforce in the upcoming years to continue providing essential public health services (de Beaumont Foundation, 2022). The Profile study describes inadequate infrastructure and practice within local health departments (National Association of County and City Health Officials, 2020).

1.4 Return on Investment

In contrast to the reports of the growing need for public health staff, there is evidence to show the impact of investment in public health interventions. For example, a systematic review of

high-income countries published in the Journal of Epidemiology and Community Health concludes that the median return on investment (ROI) for public health interventions was 14:1, demonstrating that local public health interventions are "cost-saving" and effective (Masters et al., 2017). The review also concluded that budget cuts affecting public health funding represent a “false economy” and indicate larger costs needed for health services in the future (Masters et al., 2017). Additionally, a study conducted in 2018 concluded that "each dollar invested in public health often returns more than one dollar in terms of health and financial benefits" (McCullough, 2018). These studies both demonstrate the financial benefit of increasing the public health workforce.

According to a Network for Public Health Law Article, while public health interventions yield a high return on investment, many interventions take years to see the effects on communities (Schell, 2022). For example, ROIs for tobacco early intervention in children can only be measured when the youth become adults (Schell, 2022). The extended timeframe to see the ROI means policymakers often hesitate to fund public health interventions, as they may be difficult to predict (Schell, 2022). Nevertheless, there is strong evidence linking public health investment and improved community health, as public health professionals focus on prevention and intervention methods (Narain, 2019). Trust for America’s Health outlines specific examples of successful community-based public health interventions by local health departments. Examples include the Philadelphia Department of Public Health's successful Childhood Lead Poisoning Prevention Program. The program helped drop the prevalence rates of lead poisoning from 80% in 1989 to less than 4% in 2008 by implementing primary interventions, outreach, and education programs throughout the city. It continues to be successful today (Trust for America's Health, 2009). In addition, the return on investment for public health services demonstrates the importance of maintaining a qualified workforce to match community needs.

1.5 Covid-19 Pandemic and Implications

The Covid-19 response has increased stress and burnout for local health department employees due to priority shifts. Additionally, the Covid-19 pandemic created changes to funding for local health departments. 72% of all public health employees, regardless of job role, participated in response to the Covid-19 pandemic in some aspect (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). Stress and burnout have plagued public health in recent years with added roles to combat the spread of Covid-19.

The Prevention and Public Health Fund (PPHF) is established under Section 4002 of the Patient Protection and Affordable Care Act of 2010 (ACA). The PPHF allocates funds at the local, state, and federal levels. In the 2021 Fiscal Year (FY), Congress allocated $856 million to the CDC for programs and activities to address critical public health priorities, including Covid-19 (McKillop et al., 2022). As the nation battled through the Covid-19 pandemic, public health funds increased, but assistance for all domains of public health remained stagnant (McKillop et al., 2022). Federal agencies received several compensation packages to combat the Covid-19 pandemic and transferred much of the funds to local and state governments. These funds were allocated for the intended use of Covid-19 relief only, creating several caveats. Funds distributed to states and localities could not overcompensate for current public health infrastructure and workforce flaws.

1.6 Environmental Health Specialists

The position of Environmental Health Specialist (EHS), and other titles with similar duties, can be seen as protypical, field-based, public health department workers. For this paper, Environmental Health Specialist will be used as a broad term to describe field-based staff who share similar environmental health duties at local health departments. Seventy-five percent of local health departments have staff employed in environmental health programs (National Association of County and City Health Officials, 2020). **Table 1.1** outlines the duties of Environmental Health Specialists. In addition, the EHS position is a component of regulatory enforcement within health departments. The Society for Human Resource Management provides information on typical duties and responsibilities of Environmental Health Specialists for job summaries. These duties were cross examined against the Core Competencies to determine which competencies corresponded with the job description.

Table 1: Environmental Health Specialist Job Duties and Corresponding Core Competencies (Socitey for Human Resource Management, 2022)

Duties/Responsibilities	***Core Competency***
Conducts scheduled and surprise inspections of businesses, homes, schools, and other establishments for assessment	*Domain 2: Policy Development and Program Planning Skills – 2.2, 2.3, 2.7* *Domain 3: Communication Skills – 3.3* *Domain 4: Health Equity Skills: 4.7* *Domain 6: Public Health Sciences Skills- 6.1 – 6.4*

Enforces applicable health, safety, and environmental regulations	*Domain 2: Policy Development and Program Planning Skills- 2.2, 2.3, 2.4, 2.5, 2.7*
Monitors air and water quality and the presence of hazardous pollutants	*Domain 1: Data Analytics and Assessment Skills- 1.1- 1.8*
Investigates food poisoning and similar community health outbreaks to determine probable origins, causes, and available mitigating or corrective actions	*Domain 1: Data Analytics and Assessment Skills- 1.1, 1.2, 1.3, 1.4, 1.6, 1.8* *Domain 5: Community Partnership Skills- 5.1, 5.4*
Implements environmental protection regulations and health standards for business, public, and residential areas	*Domain 6: Public Health Science Skills – 6.1 - 6.4*
Drafts inspection reports to document inspection findings	*Domain 1: Data Analytics and Assessment Skills 1.1 – 1.8* *Domain 3: Communication Skills: 3.2, 3.3,3.4*

Table 1 represents the variety of core public health competencies duties of Environmental Health Specialists cover. Environmental Health Specialists subcompetencies fall under Tier 1 in the Core Competency framework. In addition, Environmental Health Specialists provide cross-sectional support across domains of public health practice. Typical duties of an Environmental Health Specialist can include conducting inspections of facilities to ensure regulations are being met, code enforcement, monitoring pollutants, and implementing regulations (Society for Human Resource Management, 2022).

1.7 Aims

This report aims to review the literature describing reasons for public health workforce shortages and describe salary levels across a sample of environmental health specialist positions at local health departments to understand variations in compensation across health departments in the United States. Current practice-based and scholarly literature mentions several factors contributing to local health department workforce development. This report will examine current initiatives related to workforce development in public health practice at the local level and address challenges after the Covid-19 pandemic related to staffing. For this essay, "Environmental Health Specialist" represents a broad set of skills, abilities, and duties shared by front-line, field-based staff at local health departments and thus is used as a case-study to help understand the state of workforce compensation – a key component in workforce staffing shortages.

2.0 Methods

The author collected data on the Environmental Health Specialist position at local health departments as part of her MPH practicum project. For this paper, the EHS title is used as a general grouping of job titles across local health departments, whose duties include those listed in Table 1. For the purposes of this paper, the EHS title was selected by the author because of its ubiquity within health departments and its cross-sectional duties. Minimum qualifications, skills, and abilities for the EHS position were compared across jurisdictions in order to better understand geographic differences in base salaries.

In December 2022, according to the "Government Jobs" website, there were 34,952 open Environmental Health Specialist positions nationally (Government Jobs, 2022). The author used population and county demographics to narrow the search to seventy-five health departments most comparable with vacancies to those in the middle-sized urban area where she was working. The seventy-five most comparable health departments are in mid and large-sized counties with populations greater than 1 million. Data were readily available because of laws and policies under the Freedom of Information Act. For this paper, the primary means of data collection included making phone calls to health departments' Human Resources departments and reviewing public job postings. Additional data were gathered by emailing Human Resources and utilizing front-facing information on county websites. The priorities of data collection were to obtain salary information and education requirements of Environmental Health Specialists to act as a starting point for further research on the effect of salary in local health departments. The Public Health WINS inspired gathering salary information, as pay is the top indicator of intent to leave the public health profession (de Beaumont & Association of State and Territorial Health Officials, 2021).

Local health departments operate under different governmental structures. They are as follows:

1. Centralized: State employees primarily lead local health departments (CDC Health Departments, 2020).
2. *Decentralized:* Local government employees primarily lead local health departments (CDC Health Departments, 2020).
3. *Mixed*: Neither single structure dominates. Instead, local health departments are led by a mixture of local and state employees (CDC- Health Departments, 2020).
4. *Shared*: State or local government employees can lead local health departments. When led by the state, local governments have specific authority over financial decisions and public health orders. However, when led by local governments, the state possesses the same authority over finances and public health orders (CDC - Health Departments, 2020).

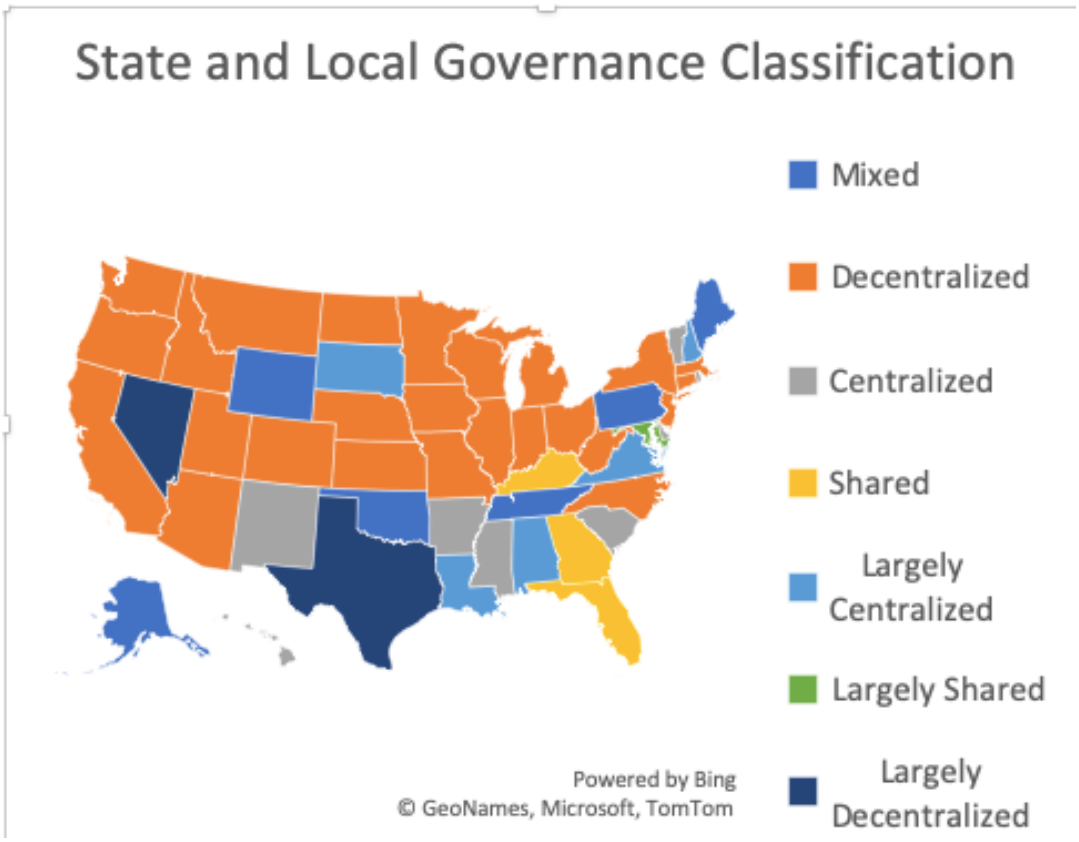

Figure 1: State and Local Governance Class Classification

Health departments were only contacted if they are part of a "decentralized," "mixed," or "shared" government structure, as the purpose of data collection was local health department specific. **Figure 1** exemplifies the diverse classification in local health department governance across the United States. The structural differences among health departments have necessary implications for the delivery of public health services (CDC – Health Departments, 2020).

3.0 Key Indicators

After a comparison between the local health departments, key indicators are salary and educational requirements.

3.1 Salaries

Environmental Health Specialists have a range of starting salaries for entry-level positions.

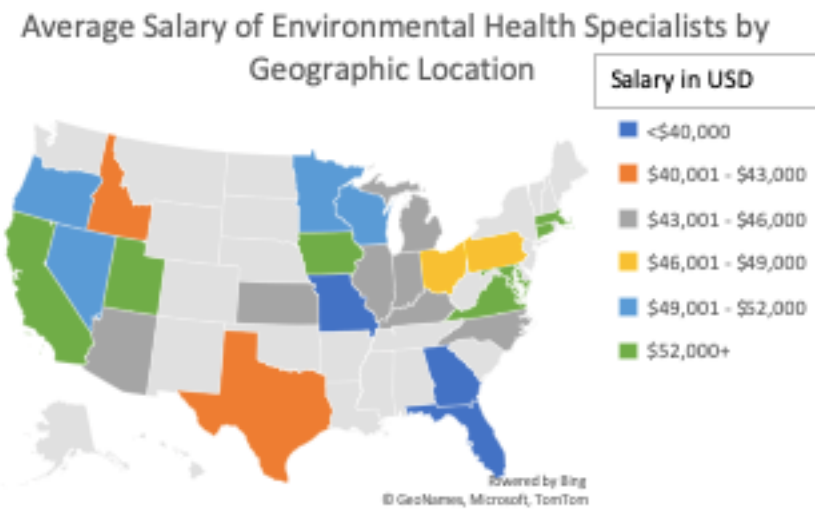

Figure 2: Average Salary of Environmental Health Specialists by Geographic Location

Figure 2 demonstrates the average salary distribution for Environmental Health Specialist job listings. Posted salaries ranged from $72,550 in Connecticut to $32,220 in Georgia (Government Jobs, 2022). To make equitable comparisons, cost-of-living adjustments must be

made to compare salaries and determine if differences in cost-of-living indexes account for salary differences.

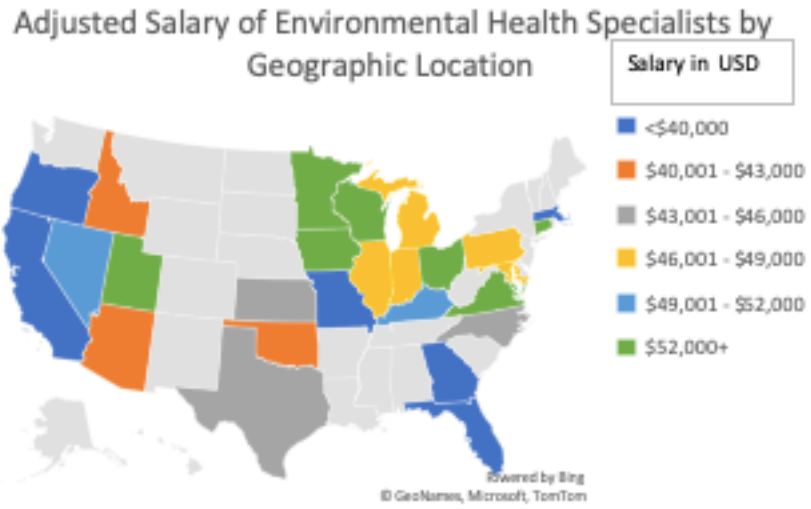

Figure 3: Adjusted Salary of Environmental Health Specialists by Geographic Location

Figure 3 reflects average adjusted salaries per state. The national cost-of-living index is 100 (Missouri Economic Research and Information Center, 2022). In addition, each state's 2022 cost of living indexes were found on Missouri's Economic Research and Information Center Website. The indexes were then used to calculate a salary increase or decrease percentage. For example, California has an index of 138.7 (Missouri Economic Research and Information Center, 2022). This means that the cost of living in California is 38.7% higher than the national average for cost of living. By taking 38.7% and inserting it into a percent decrease equation, with an unadjusted salary of $57,467, we receive an outcome of $35,227. The equation is as follows.

% Decrease = - 100 x (final – initial) / (|initial|)

38.7% = -100 x (35,227.3 – 57,467) / (57,467)

The distribution in **Figure 3** can be compared to **Figure 2** to reflect the differences cost of living made to Environmental Health Specialist salaries nationwide. When adjusted for the cost of living, Connecticut remains the highest with an adjusted salary of $61,377, and Massachusetts becomes the lowest with an adjusted salary of $29,100.

3.2 Education

Of the seventy-five local health departments contacted, 97% require Environmental Health Specialists to hold a bachelor's degree in a science-related field. This is a comparable education requirement for many health departments nationwide. The health departments contacted do not require certifications upon hire for entry-level Environmental Health Specialists. Often, career advancement opportunities are offered to Environmental Health Specialists and may be associated with a pay increase. For this report, only entry-level positions were examined. Two of the surveyed jurisdictions offer a "trainee" position, which does not require a bachelor's degree.

3.3 Environmental Health Specialist Conclusions

A comparison of the seventy-five health departments demonstrates that while education levels for Environmental Health Specialists were consistent with those in comparable jurisdictions, salary varied greatly. While many factors contribute to employee recruitment and retention, these factors could play a significant role in the challenges that local health departments face regarding turnover. The range of salary distribution for Environmental Health Specialists demonstrates

variance in salary from $25,127 to $68,494, a significant difference even after adjusting for the cost of living. As this assessment is preliminary, supplementary assessments, such as additional quantitative data collection, should be conducted to understand better why health departments struggle to recruit and retain public health workers.

4.0 Discussion

The preliminary analysis of Environmental Health Specialists conducted in this report indicated diversity in salaries for entry-level public health field staff nationwide. Certain counties pay significantly more than others for the same job, which may affect staffing. As shown in **Appendix A**, the lowest adjusted salary comes from Humboldt County, California, with an adjusted salary of $25,508/year. Five local health departments have an adjusted salary below $30,000/year. The highest adjusted salary comes from Washoe County, Nevada, with an adjusted salary of $68,083/year. In neighboring states, there is a $42,575 difference between salaries when adjusted for the cost of living.

Information from national surveys such as Public Health WINS suggests that salaries are a driving force in employee's job satisfaction and intent to remain in the public health workforce. Low wages could lead to dissatisfaction with pay and higher turnover. As the counties toward the bottom are likely feeling this effect related to undesirable salary more, these counties should explore salary as a reason for dissatisfaction. While salaries are an important piece, Local Health Departments with "average" or "above average" adjusted salaries should also reference Public Health WINS and other reports on employee satisfaction to see what other factors may contribute to workforce gaps. Salary may not be the only factor in the loss of public health employees, but it may play a role in an employee's decision to leave.

The possible effect on staffing may have implications for community health. The public health workforce, especially at the local level, needs to be maintained as the need for public health grows. Environmental service departments are just one of the many essential departments within the public health workforce that contribute toward protecting a community's health. Research

supports that investing in public health practice yields a high return on investment (Masters et al., 2017). Despite the lack of studies showing the effects of a diminishing public health workforce on community health, it is reasonable to project that a gap in the workforce fulfilling these positions will ultimately lead to a decrease in public health outcomes. In order to maximize community health success, retention strategies should be taken from best practices in workforce development, using evidence from other lines of work. Certain factors, such as compensation and burnout, can be addressed to maintain a competent public health workforce.

Additionally, as Public Health WINS suggests public health employees are experiencing burnout related to stress from the Covid-19 pandemic. Many organizations offer guidance on addressing burnout in the workplace. These strategies are typically utilized in healthcare facilities. This review was unable to identify any public health-specific suggestions for dealing with employee burnout. However, it is possible that public health agencies may use best practices identified in healthcare settings to respond to employee burnout. Recognizing feelings of stress is the first step to combating burnout. Building strength and managing stress are essential for those suffering from increased workplace pressures (Biggs, 2021). The suggestions for addressing burnout include creating a culture of compassion, enhancing Employee Assistance Programs, implementing flexible leave policies, and optimizing staffing (Biggs, 2021). By creating a culture of compassion, public health leaders can mimic compassionate leadership styles and organizational roles seen in healthcare leadership (Biggs, 2021). This reiterates the recommendations that employees can recognize and cope with stress before it becomes too much to handle. In addition, Employee Assistance Programs can provide resources for employees to discuss their feelings and give advice to employees on developing skills to manage workloads (Biggs, 2021). Finally, optimizing staffing to ensure spread-out workloads is vital for worker

fatigue. The Covid-19 pandemic increased the workload on almost all staff at local health departments (de Beaumont Foundation & Association of State and Territorial Health Officials, 2021). Encouraging staff to take time away from work-related stressors when possible is vital for combating burnout in the workplace.

However, one identifiable gap in the research is a need for more studies examining the association between understaffed public health departments and declines in population health (Erwin et al., 2011). Such studies would most likely support the conception that investing in long-term public health infrastructure will improve population health.

4.1 Public Health Funding

Before determining recommendations and next steps, discussing how local and state health departments receive funding is beneficial. Funds for local health departments come from a mix of sources. First, the federal government is a state and local health department funding source. Secondly, local public health services receive funding from the state (Moore, Berner & Wall, 2022). Thirdly, local health departments receive funding from local funding sources, including local General Funds, local taxes, and millage levies (Meit et al., 2013). Local revenue is reportedly one of the few flexible funding sources (Meit et al., 2013). Additionally, localities may receive revenue from Medicare and Medicaid, private health insurance, and private foundations (Meit et al., 2013). Finally, local health departments receive their largest percentage of federal revenue from grants. According to the Center for Disease Control and Prevention's 2022 Fiscal Year Budget, an estimated $606 million increase in public health funding were allocated in 2022 (Center for Disease Control and Prevention, Congressional Budget Justification, 2022). It must be noted

that the 2022 FY Budget does not account for the one-time distribution of funds from pandemic relief laws. There are three types of grants. Mandatory grants are required to be awarded if a locality successfully applies and requirements for jurisdiction are met. Competitive grants allow the federal government to select an awardee. Competitive grants serve as additional funding for a local health department. Numerous organizations provide opportunities for local health departments to apply for funding. Some organizations include the United States Department of Agriculture, Substance Abuse and Mental Health Services Administration, CDC and others. Block grants are fixed amounts of money from larger to smaller governments, and the states can determine how funds are allocated. For example, the CDC's Preventative Health Services (PHHS) Block Grant Program provides funding for recipients to address prioritized public health needs in their jurisdictions (CDC- Preventative Health and Health Services Block Grant, 2023). Recipients of these grants can set their own goals and objectives to implements strategies at the local level for addressing public health. The PHHS supports and targets areas of public health, including workforce training (CDC- Preventative Health and Health Services Block Grant, 2023). Given these funding sources, state and local governments have authority over where to allocate funds within a given service area.

4.2 Recommendations

1. *Increase core funding to strengthen infrastructure and grow the public health workforce.* This also includes updating the CDC's base appropriation. Increasing the CDC's allocation level by $2 Billion will allow agencies to strengthen and expand public health programs (McKillop et al., 2022). In areas with uncompetitive salaries,

local health departments may be able to use increased funding to increase employee salaries, which in turn will address workforce retention. In addition, it will allow local and state governments the ability to hire a competent, educated workforce by increasing salaries and making health departments attractive employers.

2. *Increase funding for public health emergency preparedness.* Evidence in the literature demonstrates the need for increased emergency preparedness funding (McKillop et al., 2022). Public Health WINS determined that half (51%) of local health departments needed additional staff capacity to respond to Covid-19 (De Beaumont Foundation and Association of State and Territorial Health Officials, 2021). The one-time funding in response to Covid-19, and other public health emergencies, creates a gap in persistent public health funding (Maani and Galea, 2020). According to experts, there is a $4.5 billion shortcoming in public health funding to set the foundation for other public health emergencies (Maani and Galea, 2020). Furthermore, increasing funding for emergency preparedness will increase opportunities for better emergency training and preparation (McKillop et al., 2022). In addition, with proper funding available, staff in local and state governments will feel prepared to take on a large epidemic like Covid-19 or another public health emergency.
3. *Conduct additional practice-based research on the public health workforce shortages.* While research demonstrates the gaps in the public health workforce, there are no long-term solutions for strengthening the retention of the public health workforce. Congress and state governments should prioritize the development of a large public health workforce (McKillop et al., 2022). Additional research should be conducted on local

health department employees' total compensation. Funding should be invested to rebuild and staff up the public health workforce.

Shifting focus from Covid-19 response to retention and recruitment efforts with the current and incoming public health workforce remains important as the world adapts to a post-pandemic landscape. Encouragement for employees to work and remain in the public health field can include better compensation and a higher focus on work-related stress to combat burnout. This is especially important for those employees who focused on public health efforts during the Covid-19 pandemic in addition to their previous workload. As evidence suggests, the number of employees experiencing burnout is high. Therefore, considering compensation per national standards for occupations within the public health field is essential to combat retention issues in the public health workforce. Even though compensation appears low nationally for field-based staff, additional data collection should be acquired for positions at local health departments to determine if compensation is the cause of gaps in the public health workforce.

Further research must be conducted to understand the reasoning behind workforce gaps. Compensation and burnout may account for many vacancies within the public health field, implying that this is an excellent place to start. When addressing workforce development in a field with limited resources, it is essential to focus on allocating funds for worker compensation to attract competent employees. In order to maintain the need for a growing workforce, local health departments should prioritize recruitment activities and strategies. However, this may require additional compensation support at the national level. This may help local and state health departments attract and keep their workers in the future.

5.0 Limitations

The following limitations serve as an acknowledgment of the need for further analysis. First, as time constraints were present with the primary research in this essay, only Environmental Health Specialist data was gathered. No data for other positions within health departments exist within this report. The findings of this essay are not intended to be nationally representative. Instead, it is intended to serve as an indicator for future research. Therefore, one is unable to conclude what is considered an attractive salary. In addition, because the specifics of benefits were not analyzed for this report, no conclusions can be drawn regarding benefits at local health departments. Additionally, because surveys were conducted on the current public health workforce, one cannot determine the specifics of an individual's decision to choose a different career path. Finally, the cost-of-living adjustment was made at the state level, while the salaries are specific to localities within a state. The difference in cost-of-living adjustment might lead to overestimating the salary after adjustment, depending on the state.

Appendix A

Appendix Table 1

LHD	Salary (USD)	Adjusted Salary (USD)
Allegheny County (PA)	$31,679	$32,249
Austin (TX)	$41,017.60	$44,052
Bethlehem (PA)	$59,620	$60,693
Boston (MA)	$58,084	$29,100
Bucks County (PA)	$48,734	$49,611
Cerro Gordo County (IA)	$44,990	$50,299
Champaign - Urbana Public Health District (IL)	$38,584	$41,709
Chester County (PA)	$50,367	$51,274
Cobb County (GA)	$32,220	$35,796
Coconino County (AZ)	$45,744	$42,084
Columbus County (GA)	$32,220	$35,796
Cook County (IL)	$58,171	$62,883
Cuyahoga County (OH)	$46,991	$51,972
Cumberland County (NC)	$41,109	$42,383
Douglas County (GA)	$32,220	$35,796
DuPage County (IL)	$38,734	$41,871
Erie County (PA)	$44,733	$45,538
Fairfax County (VA)	$57,515	$56,365
Fredrick County (MD)	$46,857	$28,011
Hamilton County (OH)	$47,382	$52,404
Hancock County (GA)	$32,220	$35,796
Harris County (GA)	$32,220	$35,796
Humboldt County (CA)	$43,243	$26,508
Idaho North Central District (ID)	$42,057	$42,520
Johnson County (IA)	$55,515	$62,065
Johnson County (KS)	$38,830	$39,257
Kansas City (MO)	$30,825	$33,877
Lane County (OR)	$39,228	$30,519
Lincoln County (OR)	$62,400	$48,547
Long Beach (CA)	$47,840	$29,326
Los Angeles County (CA)	$50,877	$31,188
Louisville (KY)	$42,307	$45,353

Macomb County (OR)	$63,564	$49,453
Multnomah County (OR)	$63,564	$49,453
Merced County (CA)	$53,622	$32,870
Milwaukee (WI)	$49,344	$52,354
Minnesota DOH (local)	$50,174	$52,633
Mohave County (AZ)	$42,598	$39,190
Montgomery County (MD)	$61,765	$46,941
Montgomery County (PA)	$42,709	$43,478
Norwalk (CT)	$79,620	$67,358
Oklahoma City - County (OK)	$25,127	$28,469
Pasadena County (CA)	$69,195	$42,417
Person County (NC)	$45,980	$47,405
Philadelphia County (PA)	$41,677	$42,427
Polk County (FL)	$31,499	$30,838
Portage County (OH)	$45,760	$50,610
Randolph County (GA)	$32,220	$35,796
Reno (NV)	$35,089	$34,878
Riley County (KS)	$50,024	$50,574
Riverside County (CA)	$55,954	$34,300
Salt Lake County (UT)	$57,541	$56,448
San Bernardino (CA)	$57,533	$35,268
Santa Clara County (CA)	$96,582	$59,205
Sarasota (FL)	$35,106	$34,369
Scoot County (IA)	$56,160	$62,787
St. Louis County (MO)	$41,626	$45,747
Stanislaus County (CA)	$49,899	$30,588
Stanford (CT)	$65,481	$55,397
Talbot County (GA)	$32,220	$35,796
Taylor County (GA)	$32,220	$35,796
Tulare County (CA)	$49,931	$30,608
Tulsa (OK)	$40,084	$45,415
Vanderburgh County (IN)	$37,594	$41,278
Ventura County (CA)	$50,354	$30,867
Washoe County (NV)	$68,494	$68,083
Wayne County (IN)	$48,651	$53,419
Webster County (GA)	$32,220	$35,796
White County (GA)	$32,220	$35,796
Wilkes Barre (PA)	$45,132	$45,944
Winnebago County (IL)	N/A outlier	
Yolo County (CA)	$57,713	$35,378
York County (PA)	$49,879	$49,759

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