

# Understanding Available Data Sources to Estimate the Size and Distribution of Community Health Workers in the United States



*Brianna Lombardi, PhD MSW; Brooke Lombardi, PhD MSW; Evan Galloway, MPS; Lisa de Saxe Zerden, PhD MSW*  
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## Background

Community health workers (CHWs) are an important workforce and growing evidence demonstrates the effectiveness of including CHWs in interventions to reduce health disparities in vulnerable populations (1, 2). As the role of CHWs expands and the importance of their contributions is further understood, more states are seeking to train and deploy this workforce (3). However, because CHWs are a non-licensed workforce who work across system settings with various job titles, it is difficult to estimate and characterize the workforce, and accurately identify policies to support CHWs nationally and at the state-level (1, 2, 4). Researchers and policymakers can typically estimate the size and scope of various health workforces (e.g., nursing and physicians) across the U.S. through licensure, certification, and/or reimbursement. Yet, estimating the size and scope of CHWs without uniform certification requirements and state variability in how CHWs can be reimbursed and for what types of services is challenging. Understanding the current size of CHW workforce, as well as the factors that predict CHW workforce growth, helps policy makers harness ways to expand and support CHWs in settings where their contributions may not be fully utilized.

## Research Aims

This study had two aims: 1) Estimate the size of the CHW workforce and state distribution of CHWs in the U.S. by comparing three national data sources; and 2) Understand the influence of state reimbursement and certification on the number of CHWs per 100,000 people in each state.

## Methods

Three data sources were used to identify CHWs: the National Plan and Provider Enumeration System (NPPES), the Bureau of Labor Statistics (BLS) Occupational Employment and Wage Statistics (OEWS) (hereinafter referred to as "BLS"), and the American Community Survey (ACS). The NPPES is a database of providers who are eligible to bill the Centers for Medicare and Medicaid Services (CMS) linked through a national provider identifier (NPI). When providers register for an NPI number they select a primary taxonomy code and up to 14 taxonomy codes, which characterize their specialty or area of practice. The NPPES includes a practice state and address for each provider. For this study, all individuals with a primary taxonomy code of "Community Health Worker" (code 17200000X) from the September 2022 version of the NPPES file were selected (5).

The BLS uses the Standard Occupational Classification (SOC) system to classify workers into occupational categories according to their occupation's definition. For this study, the SOC code specifically for CHWs (code 211094) was used and data were drawn from the 2021 BLS file (6). To identify CHWs in the ACS, the occupation

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code “Miscellaneous Community and Social Service Specialists, including health educators and community health workers” (code 21-1090) was used.

The status of each state’s certification requirements (e.g., public, private, or none) were identified by the National Academy for State Health Policy (NASHP) (3) and the Association of State and Territorial Health Officials (ASTHO) (7). Discrepancies in certification requirements were reconciled by using other state-level data sources such as policy briefs and press releases. Across the U.S., 26 states offer a CHW certification program. Of these programs 16 are state operated and 10 are privately operated. State reimbursement (e.g., yes, no, and type) of CHWs was determined from NASHP (3) (2021), the Medicaid and CHIP Payment and Access Commission (MACPAC) (8), and ASTHO (6) (2018). Discrepancies were reconciled through other state-level data sources such as Medicaid fee schedules. In relation to reimbursement for CHWs, 31 states accessed funding streams, of which nine states utilized more than one source of funding for CHW reimbursement. State CHW funding sources included Managed Care Organizations (n=16), 1115 Medicaid waiver demonstrations (n=9), state health plans (n=8), fee for service models (n=5), Affordable Care Organizations (n=2), and a per member/month plan (n=1).

Descriptive analyses were to examine the total number of CHWs in the U.S., the rate of CHWs per 100,000 people in each state and compared across the three data sources. State population estimates were drawn from the U.S. Census Bureau for 2021 (9). A series of one-way ANOVAs were modeled to determine if there were significant differences in the rate of CHWs across the three data sources among states that had reimbursement mechanisms and/or CHW specific certification. Maps were generated to show variation of CHWs per population across the three data sources (Figure 1).

## Key Findings

Across the three data sources, there were between 24,708 and 117,638 CHWs working in the U.S. The ACS data estimated the highest number of CHWs (117,638), followed by the BLS (60,980), and NPPES (24,708). Nationally, this translates to 36.44 CHWs per 100,000 people in the ACS, 18.37 per 100,000 in the BLS, and 7.44 per 100,000 in the NPPES.

Although the total number of CHWs per the U.S. population was highest in the ACS, state variations in the proportion of CHWs per population across the three data sources were evident. For example, per 100,000 people in the state, NPPES estimated the highest number of CHWs in West Virginia (163.66) and Wyoming (220.24), while the ACS estimated these states (20.81 and 13.3, respectively) as having the lowest number of CHWs per the population. The state average of CHWs per 100,000 was 40.17 in the ACS, 20.62 in the BLS, and 17.20 in the NPPES. Figure 1 provides an estimate of CHWs per 100,000 for each state across the three data sources. To observe variation in the data sources by state, CHWs rate per population were divided into quintiles for each data source and maps were generated (Figure 2). States in the lowest quintile had as few as 0.31 CHWs per 100,000 people, whereas the states in the highest quintile had as high as 216 CHWs per 100,000 people. While state variations existed across each dataset, overall, these maps suggest a trend of the lowest ratio of CHWs clustered throughout the southeast, and the highest ratio of CHWs clustered in the western U.S.

The state average rates of CHWs per 100,000 people were compared across the three data sources in states with certification and reimbursement as compared to states without certification and reimbursement. Across states with CHW certification ( $n=26$ ), the mean number of CHWs per 100,000 people was 13.96 in the NPPES, 21.6 in the BLS, and 38.62 in the ACS. Yet, on average in states without CHW certification, the mean number of CHWs per 100,000 people was 20.58 in the NPPES, 19.60 in the BLS, and 41.79 in the ACS. A one-way ANOVA revealed no significant differences in the mean number of CHWs in NPPES ( $F = 0.26$ ,  $p = 0.61$ ), BLS ( $F = 0.33$ ,  $p = 0.57$ ), or ACS ( $F = 0.01$ ,  $p = 0.91$ ). In states with reimbursement for CHWs ( $n=31$ ), the mean number of CHWs per 100,000 people was 13.05 in the NPPES, 20.16 in the BLS, and 39.78 in the ACS. Whereas in states without reimbursement, the mean number of CHWs per 100,000 people was higher among all data sources (23.63 in the NPPES, 21.32 in the BLS, and 41.79 in the ACS). A one-way ANOVA revealed no significant differences in the mean number of CHWs in NPPES ( $F = 0.64$ ,  $p = 0.43$ ), BLS ( $F = 0.10$ ,  $p = 0.75$ ), or ACS ( $F = 0.01$ ,  $p = 0.91$ ).

The NPPES data provides both primary and secondary taxonomy codes that CHWs may select, as well as the year a NPI number was received. Among those who selected “Community Health Worker” ( $n=24,708$ ) as their primary taxonomy code, only four taxonomy codes were selected at least 100 times or more by the same CHWs (see Appendix A for secondary taxonomy codes). Additionally, Appendix A provides an image and corresponding link to visualize new CHW enumeration dates (e.g., new NPI assignments) across all 51 states from 2008 to 2022. Notably, the largest increase in new NPIs for CHWs was in 2021 during the COVID-19 pandemic.

## Policy Implications

The following considerations are necessary for advancement of research on the CHW workforce:

1. **Difficulty enumerating the CHW workforce with current data sources:** A lack of reliable data sources for the health workforce makes it difficult to discern workforce supply and demand alignment (10). This issue is most apparent in non-licensed and emerging health workforces like CHWs. Based on the differences in how each of the data sources collects and classifies CHWs, it is not surprising that differences were found in this study. However, the magnitude and variability of these differences by data sources and the proportion of CHWs across the population, highlight precisely why estimating the size and distribution of CHWs in the U.S. is no complex.
2. **Variability in state CHW certification, payment, and CHW workforce size:** Though many states have adopted policies to grow the CHW workforce through certification ( $n= 26$ ) and reimbursement ( $n=31$ ), no evidence was found that these policies result in an increase of the CHW workforce. Further, because of limitations within each data source, it is difficult to test the effectiveness of certification standards and the impact they might have on supporting the current and future CHW workforce in their roles.

Though the certification of unlicensed workforces could aid in more precise enumeration data for CHWs, this is not a reason to require certification. Moreover, requiring certification of unlicensed workforces has been met with mixed reactions. For example, proponents of certification among unlicensed workforces have cited enhanced credibility for workers, improved quality of the services provided, and established core competencies (11). However, opposition to certification has been primarily attributed to the concern that certification standardizations create barriers for those from marginalized and historically oppressed populations (11-13).

## Conclusions

Findings highlight the current ways in which the CHW workforce is enumerated and distributed across the country. Given the variability in the data sources and the wide range of classifying CHWs, understanding which data source is being used, and for what purpose, will be important when attempting to understand how policy related changes, like certification and reimbursement, impact CHW growth. Further, the lack of uniform reimbursement mechanisms and certification requirements highlights the nuances of the CHW workforce, which must be considered when trying to assess the deployment and efficacy of CHWs across health settings and population groups. As the role of CHWs continues to grow, it is increasingly important to have data sources that allow the CHW workforce, employers, educators, researchers, and policy makers to accurately assess CHWs trends over time, and to use this information in workforce planning and access to increased service delivery efforts.

Figure 1. Average Rate of Community Health Worker per 100,000 State Population Comparison Across Data Sources

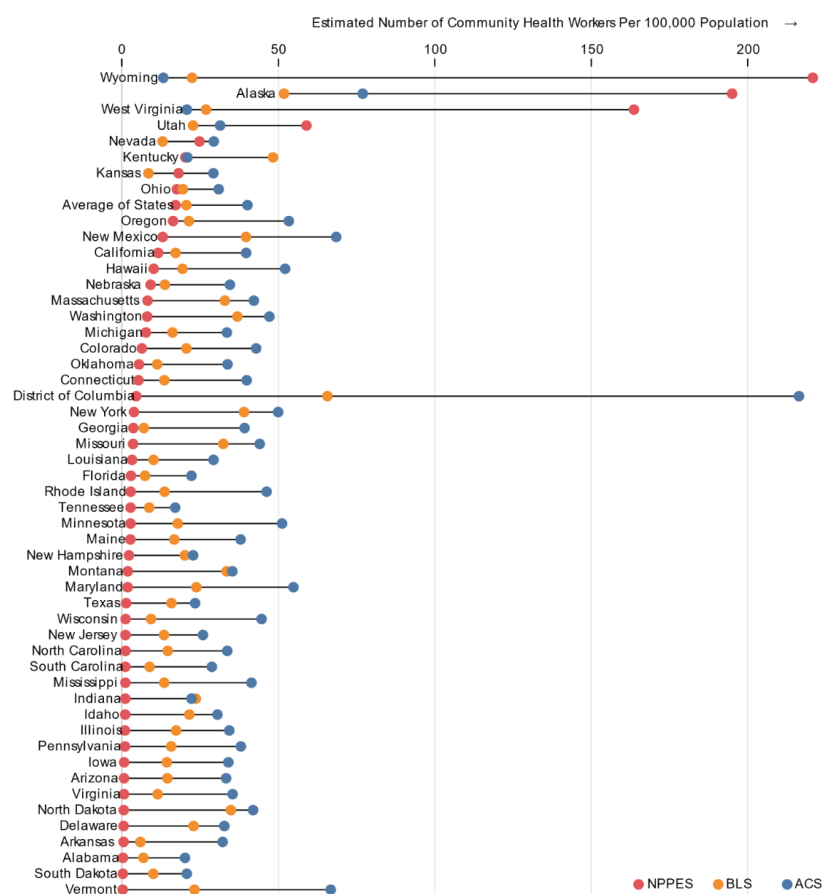
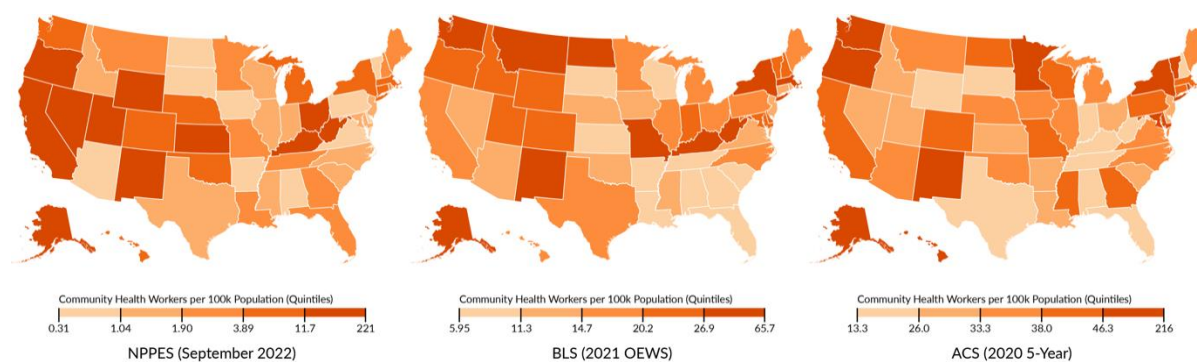


Figure 2. State Variation in Community Health Workers Per 100,000 People by Data Source





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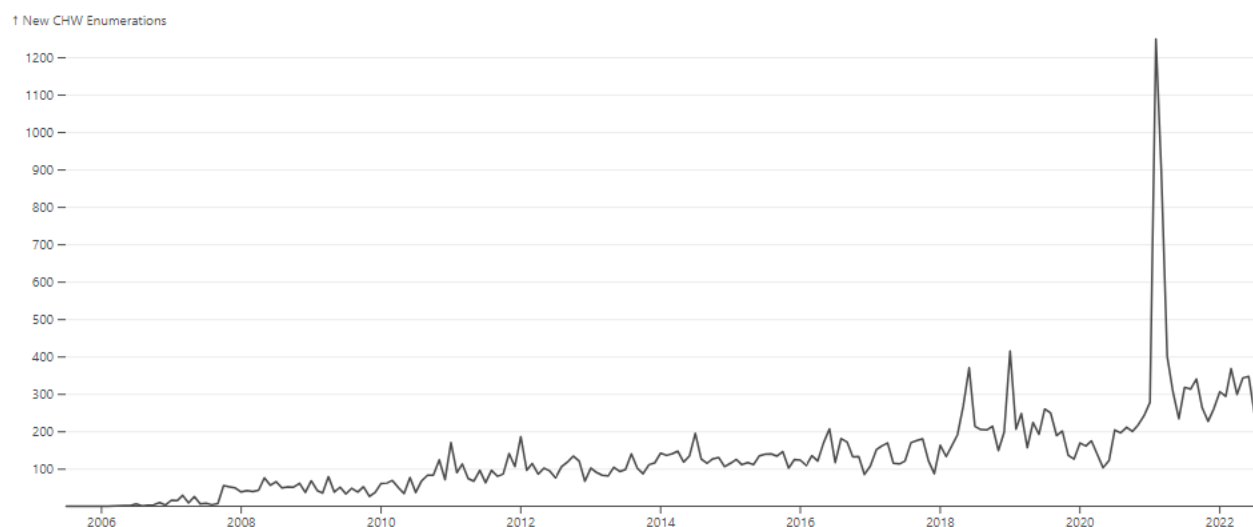
## Appendix A

Appendix A provides researchers and policy makers with additional insights from the NPPEs data set. All four taxonomy codes that were selected at least 100 times by the same providers who selected “Community Health Worker” as their primary taxonomy code (n=24,708) are presented below in Table 1. Additionally, Figure 3 below provides a visualization of new CHW enumeration dates (e.g., new NPI assignments) across all 51 states from 2008 to 2022. The hyperlink below Figure 3 allows for visualizations of each state’s CHW enumeration data by date.

Table 1. Secondary Taxonomy Codes Among Community Health Workers in NPPEs (n=24,708)

Secondary Classification	Count	Percent
Case Manager/Care Coordinator	705	2.85%
General Counselor	272	1.10%
Mental Health Counselor	205	0.83%
Behavior Technician	103	0.42%

Figure 3. New CHW Enumeration across 51 states from 2006-2022



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