

COVID-19 & the HCH Community: Calculating Vaccination Rates

September 2022

In December 2021, the CDC issued [Notes from the Field: COVID-19 Vaccination Coverage Among Persons Experiencing Homelessness – Six U.S. Jurisdictions, December 2020-August 2021](#). This report analyzed the COVID-19 vaccination rate among people experiencing homelessness (PEH) in six jurisdictions and compared it to the vaccination rate of the general population (Table 1). In each of the six communities, the vaccination rate for PEH was significantly lower than the general population. Calculating an estimated vaccination status of at-risk groups better informs communities about the appropriate public health interventions that need to be created (or remain in place), and to advocate for necessary resource to implement these interventions. Unfortunately, many communities are still unable to estimate a vaccination rate for PEH due to the inability to merge health care data systems with homeless services data systems.

This issue brief describes how to calculate vaccination rates among PEH, provides methodology examples from six major cities, and outlines action steps to better document vaccination rates among PEH and better inform ongoing public health policies and practices.

Table 1: Vaccination Data from December 2021 CDC Report

	Chicago	Detroit	Fairfax, VA	Los Angeles	Minneapolis	DC
Vax eligibility date	Jan 2021	Jan 2021	Jan 2021	March 2021	Jan 2021	Jan 2021
Fully vaxxed PEH	44.5%	18.6%	25.0%	35.2%	22.4%	19.8%
Fully vaxxed general pop	55.7%	43.6%	59.8%	53.5%	59.6%	54.8%
Partial vaxxed PEH	52.0%	26.1%	30.0%	44.3%	28.6%	22.0%
Partial vaxxed general pop	61.0%	46.5%	65.7%	62.0%	64.8%	61.3%
# PEH	4,477	5,118	1,859	66,436	7,635	6,381

Note: Table data are drawn from the above-cited CDC publication on vaccination rates among PEH.

Why Calculate a Vaccination Rate for PEH?

- **Data informs intervention strategies.** Public health guidelines and interventions are determined based on the vaccination rate within the community.
- **Data determines funding.** Local and state governments use vaccination rate data to allocate financial resources for interventions such as non-congregate isolation & quarantine spaces.
- **Data informs federal guidance.** The pandemic highlighted how data is used to inform guidance such as masking, testing, quarantine, and isolation needs.
- **Data demonstrates health disparities.** The health disparities between PEH and their housed counterparts are well-documented; but data is required in order to determine the scope of the problem and the type of intervention needed.

Methodologies for Calculating a Vaccination Rate Among PEH

Vaccination data is collected at the state level, and each state has an immunization record system, known as Immunization Information Systems (IIS). As part of having access to COVID-19 vaccines, providers who administer the vaccine were required to enter this data within the state database, however the accuracy and timeliness of this data vary greatly. In addition, states' immunization record systems do not automatically interface with one another, so someone who was vaccinated in a different state would not have a vaccination report unless it was manually entered.

To determine the numerator (# vaccinated):

- Use data matching with state immunization record systems
- Use vaccination data of individual health system/provider

To determine the denominator (# PEH):

- Use the annual HUD point-in-time (PIT) census count
- Query the homeless management information system (HMIS) for client contacts within a certain time frame
- Identify those receiving a vaccination at an event that was specifically for PEH
- Document homeless status at a health center or other safety net health care provider
- Maintain a resident list of a particular shelter or housing program
- Combine numerous sources of data if possible and run an analysis to deduplicate

See Table 2 for examples from six major cities that calculated vaccination status for PEH.

Table 2: Methodology for Calculating Vaccination Rate Among PEH

	Chicago, IL	Durham, NC	Hennepin Co, Minnesota	San Diego County, CA	Seattle, WA	Washington, DC
Number of People Vaccinated (numerator)	Compares PIT data to vaccination records at 4 partner sites of vaccinations they administered	Compares HMIS contacts list against the state vaccination database	Uses multiple data sources to establish an identified list of PEH population, then crosses that list with the state vaccine database	Uses multiple data sources to establish an identified list of PEH population, then crosses that list with the state vaccine database	Uses multiple data sources to establish an identified list of PEH population, then crosses that list with the state vaccine database	Daily vaccination reports from large FQHC that tracks housing status and monthly comparison of HMIS data to Department of Health vaccination database
Total People Experiencing Homelessness (denominator)	2021 PIT Count	HMIS contact in the past 2 years	In the last 3 months has client used homeless services that was targeted by vaccine efforts– single site supported housing, shelters, hotels or motels. 12-month lookback at people who accessed homeless services. Also, able to get demographic data from 12 other health care systems.	HMIS bed assignments for individual shelters, known shelter and transitional addresses, address listed as “Homeless,” address listed as Isolation and Quarantine hotels or known homeless rosters from safety net providers	HMIS enrolled in any program in previous 12-months, Public Health's safety net clinic's EHR homeless status in previous 12-months, HCH Network of King County any contact in previous 12-months, identified homeless status in Immunization Information System	HMIS enrollment
Frequency of data run	Monthly	Monthly	Bi-weekly and updated monthly	2x per month	Plan to run monthly, but not currently on that schedule	Data is shared at different rates. It is run daily, weekly, and monthly from different sources.
Is data published	Not currently	Shared monthly at stakeholder meetings	Dashboard will be made public 4 th quarter 2022	Vaccination rates provided directly to facilities, used for internal planning and policy, and published on the County's COVID-19 Homeless Sector webpage	Homelessness data was previously available on separate dashboard. Publication on data analysis available in Resources Section.	Dashboard updated daily at COVID-19 Storymap

Note: Methodologies described in this chart were accurate as of August 2022. As community responses to COVID-19 have evolved since then, frequencies of data runs or other practices may have changed.

Challenges of Data Collection and Why it Matters

Communities have long struggled to get an accurate count of the number of PEH. This data is important to be able to provide appropriate and adequate resources to meet the needs of the community, and often is used to determine funding and resource allocation. Many communities rely on annual [Homeless PIT Counts](#) or use the data collected through their [Homeless Management Information System \(HMIS\)](#) to get a baseline for the number of PEH at any given time. These methods are always an undercount for many reasons, and historically undercount (or exclude altogether) those who are most severely ill, people who are undocumented, those in geographic regions without service providers, and people intentionally trying to avoid public health and homeless service providers.

Despite the limitations of the data, the importance of collecting and analyzing vaccination rates – and other data related to homelessness – cannot be overstated. Most communities make decisions about reducing or removing public health requirements based on the vaccination rate of that community. It is known that PEH are at [higher risk of contracting COVID-19](#) and are [more likely to suffer from severe COVID](#) due to the prevalence of chronic health conditions among PEH. In addition, congregate housing and lack of access to adequate resources to engage in preventive measures (hand washing, social distancing, etc.) contribute to the likelihood of contracting and spreading COVID-19. **Without an accurate assessment of the vaccination rate among PEH in a community, decisions are being made based on the general population's vaccination rate, which is likely to put the PEH community at higher risk for more severe outcomes related to COVID-19.**

In addition to the undercount of the population, the systems necessary to calculate this data rarely interface seamlessly. While all [HUD Continuums of Care \(CoC\)](#) operate an HMIS, not all service providers that interact with PEH use the HMIS. In addition, the HMIS is not a health care database and thus does not always comply with privacy laws, such as HIPAA (Health Insurance Portability and Accountability Act) requirements, making it unlikely that an HMIS will have complete or reliable health information.

Unfortunately, these restrictions often inadvertently lead communities to believe it is not possible to analyze data without being in violation of HIPAA; however, there are several meaningful ways to assess data while remaining HIPAA-compliant:

- Health care providers can use their Electronic Health Records (EHR) to identify who among their patients is identified as homeless. They can then look who has been documented in their EHR as having received a COVID-19 vaccine.
- A more thorough methodology would be to run a list of identified PEH against the state's vaccination system, which would allow for a more comprehensive data analysis because it would include people who were vaccinated outside of the health care provider.
- Alternatively, data can be deidentified so that data systems can be compared without risking violation of HIPAA rules. While this means that only aggregate data analysis will be available, it would allow a community to utilize multiple data sources to obtain a more comprehensive data set of PEH. One method of comparing data from different sources is to use computer encryption often called 'hashing.' This system uses

a complex algorithm to de-identify client information that would allow for the removal of duplicate entries across systems that can then be compared with other data sets using the same de-identifying process. This methodology allows for a more comprehensive analysis of data across multiple systems; however, is time-consuming and can be costly.

Recommended Actions

There are numerous ways to engage in this type of data analysis – each having benefits and limitations. Communities should first identify potential data sources, essential stakeholders, and collaborative partners. Using academic partnerships (or research internships) can be a cost-effective way to conduct data analysis while also ensuring privacy. Identifying a common purpose and shared goals in completing this type of analysis can also build broader collaborations and the potential for additional types of data analysis.

Key takeaways from communities engaging in vaccine rate data analysis:

1. View data as a point-in-time snapshot, not a comprehensive analysis.
2. Acknowledge data limitations, to include undercounts of PEH.
3. De-identify data to allow for an analysis of trends and to address privacy concerns.
4. Hold communities accountable for an equitable distribution of vaccines by tracking the data by race/ethnicity and gender.
5. Observe and respond to trends over time by regularly re-running the data analysis.
6. Establish agreements across systems to pave the way for future analysis on different data sets.
7. Regularly reassess vaccination rates to have a current understanding of community protection, which may inform infection control measures (e.g., need for masking, likelihood of outbreaks).
8. Provide site-specific information to programs, such as shelters or housing projects, to improve their ability to develop policies and procedures specific to that site.
9. Implement housing status as a standard demographic collected in vaccine databases.
10. Refrain from comparing among communities who use different data analysis methodologies.

Going Forward

Even if it is only an estimate based on imperfect data, establishing COVID-19 vaccination rates among PEH is important to guiding ongoing public health responses to COVID-19 infections in the community. Having this information also should guide broader health care and homeless service responses that can be tailored to high-need areas. This methodology can also be used for other vaccination efforts. Finally, engaging in the needed partnerships and establishing the data-sharing agreements required to estimate a vaccination rate will also facilitate other types of data analysis on a vulnerable population that could benefit from a range of community interventions (e.g., housing, outreach, etc.).

Additional Resources

- Housing and Urban Development: [Technical Guidelines for Unduplicating and De-identifying HMIS Client Records](#)
- San Diego County: [COVID-19 Homeless Sector](#)
- North Carolina Department of Health and Human Services: [COVID-19 Vaccination Data for People Experiencing Homelessness + Vaccine Resources and Information on Vaccine Boosters](#)
- Public Health Seattle & King County: [Health Care for the Homeless Network \(HCHN\) Data and Reports](#)
- Shearer RD, Vickery KD, Bodurtha P, et al. COVID-19 Vaccination Of People Experiencing Homelessness And Incarceration In Minnesota. *Health Affairs*. 2022;41(6):846-852. doi:[10.1377/hlthaff.2021.02030](#)
- Meehan, AA, Thomas, I, Horter, L. Incidence of COVID-19 Among Persons Experiencing Homelessness in the US From January 2020 to November 2021. *JAMA Netw Open*. 2022;5(8): e2227248. doi: [10.1001/jamanetworkopen.2022.27248](#)
- Axelrath, S. Challenges Encountered in the Public Health Data Collection of COVID-19 Cases Among People Experiencing Homelessness. *JAMA Netw Open*. 2022;5(8): e2229703. doi: [10.1001/jamamnetworkopen.2022.29703](#)