Journal of Public Health Student Capstones

Original Research 1(1), 2022

# Engagement and Barriers to Implementation of Biomedical Human Immunodeficiency Virus (HIV) Prevention Strategies in New York State Local Health Departments

Steven J. Gabriel, MBA, MPH, MA[1], Kennethea Wilson, MPH[1], Jacob Bleasdale, MS[1], Sarahmona Przybyla, PhD, MPH[1]

[1]*Department of Community Health and Health Behavior, School of Public Health & Health Professions, University at Buffalo*

## Articleinfo

*Author for correspondence*:
Steven J. Gabriel
gabriel5@buffalo.edu

*DOI*: https://doi.org/10.15586/jphsc.v1i1.55

*Published: 18 August 2022*

## Abstract

*Objective:* An important strategy to decrease transmission of human immunodeficiency virus (HIV) in the United States involves expanding access to pre-exposure (PrEP) and post-exposure prophylaxes (PEP). With their ability to reach populations across various socioeconomic and geographic backgrounds, local health departments (LHDs) are ideal settings to provide PrEP- and PEP-related services to their communities. This cross-sectional study assesses PrEP and PEP knowledge, engagement, and barriers to implementation within LHDs across New York State (NYS).

*Methods:* A web-based survey was distributed to senior-level staff at NYS LHDs from August 2020–February 2021 to assess current engagement in PrEP- and PEP-related activities, desired resources to support future PrEP and PEP implementation, and impact of the COVID-19 pandemic on the ability of LHDs to provide these services.

*Results:* Of the 58 LHDs in NYS, 20 (34%) completed the survey. Of responding LHDs, 40% reported PrEP engagement for adults, 35% reported PrEP engagement for adolescents, and 45% reported PEP engagement. The most frequently requested resources to support PrEP and PEP implementation were protocols for PrEP referral and training to assist with identifying PEP candidates. LHDs expressed a need for educational materials related to PrEP and PEP for clients and the community.

*Conclusion:* The high levels of interest in PrEP- and PEP-related training and outreach suggest a potential avenue to expand these services within LHDs across NYS. Study findings may help to characterize the role of LHDs in the provision of PrEP and PEP and provide an approach to improving uptake among NYS residents through expanded access.

**Keywords:** HIV; local health departments; pre-exposure prophylaxis; post-exposure prophylaxis; New York

## Introduction

Human immunodeficiency virus (HIV) remains a significant public health concern in the United States, with approximately 36,400 new infections occurring in 2018.[1] Approximately 6.5% of incident infections in the United States occurred in New York State (NYS), primarily among men who have sex with men (MSM), Hispanics, and Black individuals.[2] Specifically, MSM account for more than half of all the people living with HIV in NYS, and the rate of new HIV diagnoses among non-Hispanic Blacks and Hispanics is 9.7 and 6.3 times higher, respectively, than among non-Hispanic Whites.[2] These disparities highlight an immediate public health need to implement HIV prevention strategies targeted toward populations bearing the greatest burden of the disease.

Pre-exposure (PrEP) and post-exposure prophylaxes (PEP) are widely accepted as safe and highly effective HIV prevention tools.[3,4] PrEP is a daily oral medication intended to decrease HIV acquisition by preventing HIV seroconversion in HIV-uninfected persons who have a high risk of exposure to the virus. On the other hand, PEP is a 28-day course of antiretroviral medications administered within 72 h of exposure to potentially infectious bodily fluids such as blood or genital secretions.[5] Although both PrEP and PEP have the potential to drastically lower incidence of HIV among individuals whose risk profiles indicate a high probability of exposure, some healthcare providers are hesitant to prescribe PrEP because of concerns regarding its efficacy, perceived unintended consequences of its use, and uncertainty on who should prescribe it.[6–9] In addition, some racial and sexual minority populations may face barriers to initiating PrEP because of stigma, medical mistrust, and structural racism.[10] Thus, it has been suggested that health departments train providers on how to deliver affirming and culturally competent care

as a way to overcome the barriers that limit engagement in the PrEP care continuum.[10]

New York State has implemented several strategies to combat the spread of HIV through expanded access to PrEP and PEP. One such strategy is the Ending the Epidemic (ETE) Initiative, which aims to accomplish this mission via HIV testing, treatment, and prevention.[11] In addition, the New York State Prevention Agenda for 2019–2024 contains a specific focus to decrease new HIV diagnoses, including targets for reductions in health disparities among particular racial/ethnic groups and by socioeconomic status.[12] Despite these promising efforts, NYS has a higher rate of new HIV diagnoses than the national average, with 15 cases occurring per 100,000 population in 2018 (compared to 13 new diagnoses per 100,000 people in the general United States population in 2018).[1,13] As a result, there is increased interest in leveraging existing PrEP delivery infrastructure within NYS across a multitude of healthcare and community settings.

Given that the most significant PrEP implementation efforts began relatively recently in NYS through the ETE Initiative, little data are available regarding the extent to which public health practitioners are incorporating this clinical intervention into HIV prevention programs. Local health departments (LHDs) are critical partners in accomplishing the goals of the ETE Initiative, but the specific role of LHDs in the provision of PrEP and PEP has yet to be fully characterized. LHDs are uniquely positioned to address HIV disparities among MSM and racial/ethnic groups by increasing availability of PrEP and PEP; however, LHDs must have the capacity to identify HIV-uninfected individuals who could benefit most from HIV prevention interventions. To do this effectively, LHDs have to increase their capacity for facilitating PrEP and PEP uptake as well as determine their expanding role in HIV prevention efforts.[14]

This study aims to document characteristics of existing HIV prevention services, resources, and capabilities within the context of community needs in order to facilitate PrEP and PEP uptake in NYS LHDs. To the present knowledge of authors, there are only two studies that have explored implementation of PrEP in LHDs, including one that utilized a randomly selected national sample of 500 LHDs[15] and a second that focused exclusively on LHDs in the state of North Carolina.[16] These studies elucidated a relatively low level of implementation of PrEP in LHDs, and provided no comprehensive view of the extent to which NYS LHDs are engaged in PrEP activities. In addition, these studies were conducted prior to the COVID-19 pandemic, and thus did not analyze how recent events have shaped the trajectory of HIV prevention efforts in LHD settings. The present research builds upon previous work by collecting data on PrEP and PEP engagement for adults and adolescents, as well as the impact of the COVID-19 pandemic on the ability of NYS LHDs to offer PrEP- and PEP-related services.

## Methods

### *Study Design*

New York State is divided into 62 counties containing 58 LHDs that operate at the county or multi-county level. Beginning in August 2020, the research team invited the directors of all 58 LHDs in NYS to complete a web-based, cross-sectional survey through email. The primary objective of the survey was to determine the scope of engagement and services offered around PrEP and PEP for adults and adolescents in LHDs, including the facilitators and barriers that influence their engagement and services offered. The secondary objective of this study was to assess the impact of the COVID-19 pandemic on HIV programs and service provision at NYS LHDs. We modeled survey questions from prior studies exploring the extent of PrEP engagement among LHDs.[15,16] Original survey questions that assessed PEP engagement and the impact of the COVID-19 pandemic on the ability of LHDs to offer HIV prevention services were created and included in the survey.

Directors were requested to complete the survey but were not explicitly prevented from forwarding the survey to another LHD employee to provide information on behalf of the LHD (e.g., a sexual health clinic director). In the event that a director could not be reached via phone or email during study recruitment, the most senior LHD official below the director was contacted. Survey data were collected for a period of approximately 6 months using REDCap, an online survey distribution platform. All participants were offered a $25 Amazon gift card in exchange for their participation. Study procedures were approved by the University at Buffalo Institutional Review Board (IRB Approval #00004327).

### *Data Analysis*

The survey consisted of multiple-choice and open-ended questions that collected information about participant demographics, LHD characteristics, details surrounding PrEP and PEP engagement and services offered, and impact of the COVID-19 pandemic on the ability of LHDs to offer these services. No inferential analyses were performed; however, descriptive statistics describing the extent of PrEP- and PEP-related activities are provided in Tables 1–5.

The survey asked participants to describe the optimal role of LHDs in PrEP and PEP provision in NYS, whether the LHD had received PrEP and/or PEP inquiries from healthcare providers and/or community members, and the extent to which the LHD is engaged in PrEP and PEP promotion- and administration-related activities. Participants working for LHDs not engaged in these activities were asked to identify the reasons for their non-engagement. Participants working for LHDs engaged in these activities were asked to designate how these activities were funded as well as describe any successes and challenges related to implementation . Regardless of the level of LHD PrEP and PEP involvement, participants were asked to identify PrEP- and PEP-related resources that would be helpful to support the provision of these services to the public, and how additional funding would be utilized to support PrEP and PEP implementation as an HIV prevention strategy.

## Results

### *Participant and LHD Characteristics*

Of the 58 LHDs in NYS, 20 (34%) directors or their designated representatives completed the survey on behalf of their respective departments. One participant noted that they were affiliated

with two different health departments and confirmed that survey responses reflected the characteristics of both LHDs; therefore, responses from this participant were duplicated to reflect PrEP and PEP activities in both LHDs. Among the sample, all 20 departments (100%) reported being aware of PrEP and 18 (90%) reported being aware of PEP; however, only 8 respondents (40%) reported being aware of long-acting injectable forms of PrEP. In addition, 15 LHDs (75%) reported experience with serving at least one of the populations identified by the United States Department of Health & Human Services as having a heightened risk for HIV acquisition (MSM, African Americans, Latino/a (Hispanic) individuals, people who inject drugs, and transgender individuals).[1] Regarding provision of PrEP and PEP, most LHDs believed that their optimal role in NYS is to educate the community and public, and refer clients to providers. Additional characteristics of participants and LHDs are presented in Tables 1 and 2.

## *PEP Engagement, Services Offered, and Barriers to Implementation*

Among responding LHDs, nine (45%) reported current PEP engagement, and two (10%) reported previous PEP engagement (Table 3). Six (30%) LHDs reported being contacted by healthcare providers in their community with questions about PEP and eight (40%) LHDs reported being contacted by community members with questions about PEP. Six (30%) LHDs reported experiencing barriers to implementation of PEP. The three most frequently cited barriers to implementation were lack of staff (n= department count, sample percentage)(n = 4, 67%), few patient referrals (n = 3, 50%), and limited funding (n = 3, 50%). LHDs expressed a desire for additional PEP training materials, including webinars (n = 15, 75%), in-person training events (n = 7, 35%), the ability to visit other clinics engaged in PEP (n = 4, 20%), and involvement in peer networks (n = 3, 15%).

**Table 1.** Participants' characteristics (n = 20).

| | n (%) |
|---|---|
| Age (years) [M (SD)] | 46.7 (11.3) |
| Gender | |
| Male | 4 (20) |
| Female | 16 (80) |
| Race | |
| Asian | 2 (10) |
| Black/African American | 1 (5) |
| White | 17 (85) |
| Educational Attainment* | |
| Doctor of Medicine (MD) | 2 (10) |
| Doctor of Nurse Practitioner (DNP) | 1 (5) |
| Master of Public Health (MPH) | 8 (40) |
| Master of Science (MS) | 3 (15) |
| Master of Business Administration (MBA) | 1 (5) |
| Master of Social Work (MSW) | 1 (5) |
| Other (Bachelor's degree) | 8 (40) |
| Years of Public Health Experience [M(SD)] | 13.6 (9.0) |
| PrEP awareness | 20 (100) |
| PEP awareness | 18 (90) |
| Long-acting injectable PrEP awareness | 8 (40) |

*Totals do not sum to 100% because of participants obtaining multiple degrees or refusing to answer.

**Table 2.** Characteristics of local health departments (LHD; n = 20).

| | n (%) |
|---|---|
| Experiences with populations at heightened risk for HIV acquisition* | |
| Gay/bisexual men | 13 (65) |
| Black/African-American individuals | 14 (70) |
| Latino/a individuals | 14 (70) |
| People who inject drugs | 15 (75) |
| Transgender individuals | 11 (55) |
| HIV/*sexually transmitted infection* (STI) services offered* | |
| Combined HIV/STI services | 13 (65) |
| Independent HIV/STI services | 4 (20) |
| HIV services only | 1 (5) |
| Onsite pharmacy | 4 (20) |
| HIV services | |
| HIV screening and testing | |
| Provided directly | 12 (60) |
| Contracted out | 8 (40) |
| HIV prevention counseling | |
| Provided directly | 13 (65) |
| Contracted out | 7 (35) |
| STI services | |
| STI screening and testing | |
| Provided directly | 9 (45) |
| Contracted out | 10 (50) |
| Not applicable | 1 (5) |
| STI prevention counseling | |
| Provided directly | 13 (65) |
| Contracted out | 7 (35) |

*Totals do not sum to 100% because of participants reporting multiple answers or refusing to answer.
STI: *sexually transmitted infection.*

## *PrEP Engagement, Services Offered, and Barriers to Implementation for Adults*

Table 4 presents PrEP engagement, services offered and barriers to implementation for adults. Among responding LHDs, eight (40%) reported PrEP engagement for adults, seven (35%) reported no PrEP engagement, two (10%) reported that they were preparing to engage in PrEP, and two (10%) reported previous PrEP engagement. Eight (40%) LHDs reported being contacted by healthcare providers with questions about PrEP for adults and five (25%) reported being contacted by community members with questions about PrEP for adults.

**Table 3.** Post-exposure prophylaxis (PEP) engagement and barriers to implementation (n = 20).

| | n (%) |
|---|---|
| PEP engagement | |
| Currently provide services | 9 (45) |
| Previously provided services | 2 (10) |
| Do not provide services | 9 (45) |
| PEP services offered (n = 9)* | |
| Community education and outreach | 5 (56) |
| Healthcare provider education and outreach | 3 (33) |
| Conducting staff training | 3 (33) |
| Conducting eligibility assessments | 6 (67) |
| Participating in local/state PEP working group | 1 (11) |
| Tracking local healthcare providers who provide PEP | 3 (33) |
| Referring patients to PEP providers/programs | 8 (89) |
| Prescribing PEP to patients | 4 (44) |
| Scheduling follow-up PEP appointments | 3 (33) |
| Collaborating with local healthcare providers to support PEP delivery | 3 (33) |
| Monitoring PEP uptake | 1 (11) |
| PEP funding mechanisms* (n = 9) | |
| Local health department funding | 4 (44) |
| State health department funding for HIV services | 4 (44) |
| General state health department funding | 5 (56) |
| Centers for Disease Control and Prevention funding | 1 (11) |
| Foundation grants | 1 (11) |
| Funding not provided | 1 (11) |
| Barriers to PEP implementation | 6 (30) |
| PEP implementation barriers* (n = 6) | |
| Lack of staff | 3 (50) |
| Few patient referrals | 3 (50) |
| Limited funding | 3 (50) |
| Limited supply | 1 (17) |
| Follow-up with patients | 1 (17) |
| Patient compliance | 2 (33) |
| Other (providers unwilling to prescribe) | 1 (17) |
| PEP training needs* | |
| In-person training events | 7 (35) |
| Webinars | 15 (75) |
| Visit clinics engaged in PEP | 6 (30) |
| Peer network | 3 (15) |
| Other | 1 (5) |

*Totals do not sum to 100% because of participants reporting multiple answers.

**Table 4.** Pre-exposure prophylaxis (PrEP) engagement and barriers to implementation for adults (n = 20).

| | n (%) |
|---|---|
| PrEP engagement for adults | |
| Currently engaged | 8 (40) |
| Preparing to engage | 2 (10) |
| Considering engagement | 1 (5) |
| Previously engaged | 2 (10) |
| Not engaged | 7 (35) |
| PrEP services offered for adults* (n = 8) | |
| Community education and outreach | 6 (75) |
| Healthcare provider education and outreach | 4 (50) |
| Conducting staff training | 3 (38) |
| Conducting eligibility assessments | 6 (75) |
| Participating in local/state PrEP working group | 1 (13) |
| Tracking local healthcare providers who provide PrEP | 3 (38) |
| Referring patients to PrEP providers/programs | 4 (50) |
| Prescribing PrEP to patients | 4 (50) |
| Scheduling follow-up PrEP appointments | 5 (63) |
| Collaborating with local healthcare providers to support PrEP delivery | 2 (25) |
| Monitoring PrEP uptake | 2 (25) |
| Participating in PrEP pilot studies | 1 (13) |
| Other (contract PrEP services out to community agencies) | 1 (13) |
| PrEP funding mechanisms* (n = 8) | |
| Local health department funding | 3 (38) |
| State health department funding for HIV services | 5 (63) |
| General state health department funding | 5 (63) |
| Centers for Disease Control and Prevention funding | 1 (13) |
| Foundation grants | 1 (13) |
| Funding not provided | 1 (13) |
| Barriers to PrEP implementation for adults | 4 (25) |
| PrEP implementation barriers for adults* (n = 4) | |
| Lack of providers who can prescribe PrEP | 1 (25) |
| Laboratory tests and medical appointment costs | 2 (50) |
| Cost of PrEP | 2 (50) |
| Concerns about patient adherence | 3 (75) |
| Concerns about patient follow-up | 3 (75) |
| PrEP training needs for adults* | |
| In-person training events | 6 (30) |
| Webinars | 16 (80) |
| Visit clinics engaged in PrEP | 5 (25) |
| Peer network | 3 (15) |
| Other | 1 (5) |
| Not interested in PrEP training for adults | 1 (5) |

*Totals do not sum to 100% because of participants reporting multiple answers.

Four (25%) LHDs reported experiencing barriers to implementing PrEP for adults, with the two most frequently cited barriers being concerns about the need for patient follow-up (n = 3, 75%) and concerns related to medication adherence (n = 3, 75%). LHDs expressed a desire for additional training materials regarding PrEP for adults, including webinars (n = 16, 80%), in-person events (n = 6, 30%), peer networks (n = 3, 15%), and the ability to visit other clinics providing PrEP to adults (n = 3, 15%).

### *PrEP Engagement, Services Offered, and Barriers to Implementation for Adolescents*

Among responding LHDs, 7 (35%) reported current PrEP engagement and 12 (60%) reported no PrEP engagement for adolescents (Table 5). Two (10%) LHDs reported being contacted by healthcare providers with questions about PrEP for adolescents and 3 (15%) reported being contacted by community members with inquiries about PrEP for adolescents. Five (25%) LHDs reported experiencing barriers to implementing PrEP for adolescents, with the most frequently cited barrier being concerns about confidentiality (n = 2, 40%). LHDs expressed a desire for additional training materials regarding PrEP for adolescents, including webinars (n = 16, 80%), in-person trainings (n = 6, 30%), peer networks (n = 4, 20%), and visiting a clinic that provides PrEP to adolescents (n = 4, 20%).

**Table 5.** Pre-exposure prophylaxis (PrEP) engagement and barriers to implementation for adolescents (n = 20).

| | n (%) |
|---|---|
| PrEP engagement for adolescents | |
| Currently engaged | 7 (35) |
| Not engaged | 12 (60) |
| Refused to answer | 1 (5) |
| PrEP services offered for adolescents* (n = 7) | |
| Community education and outreach | 5 (71) |
| Healthcare provider education and outreach | 3 (43) |
| Conducting staff training | 2 (29) |
| Conducting eligibility assessments | 4 (57) |
| Participating in local/state PrEP working group | 1 (14) |
| Tracking local healthcare providers who provide PrEP | 3 (43) |
| Referring patients to PrEP providers/programs | 5 (71) |
| Prescribing PrEP to adolescents | 2 (29) |
| Scheduling follow-up PrEP appointments | 2 (29) |
| Collaborating with local healthcare providers to support PrEP delivery | 2 (29) |
| Monitoring PrEP uptake | 1 (14) |
| Participating in PrEP pilot studies | 1 (14) |
| PrEP funding mechanisms* (n = 7) | |
| Local health department funding | 4 (57) |
| State health department funding for HIV services | 3 (43) |
| General state health department funding | 4 (57) |
| Centers for Disease Control and Prevention funding | 1 (14) |
| Foundation grants | 1 (14) |
| Funding not provided | 1 (14) |
| Barriers to PrEP implementation for adolescents | 5 (25) |
| PrEP implementation barriers for adolescents* (n = 5) | |
| Confidentiality issues | 2 (40) |
| Unequal access | 1 (20) |
| Patient willingness to engage with PrEP | 1 (20) |
| Concerns about patient adherence | 1 (20) |
| PrEP training needs for adolescents* | |
| In-person training events | 6 (30) |
| Webinars | 16 (80) |
| Visit clinics engaged in PrEP | 6 (30) |
| Peer network | 4 (20) |
| Other | 1 (5) |

*Totals do not sum to 100% because of participants reporting multiple answers.

### *Impact of the COVID-19 Pandemic and Resource Utilization*

Of responding LHDs, six (30%) reported that the COVID-19 pandemic has affected their ability to offer PrEP services, and seven (35%) reported disruptions in PEP services. Reasons for disruptions included the diversion of staff toward COVID-19 response efforts and the closure of clinics operated by the LHD. The most commonly requested resources to support the implementation of PrEP and PEP were protocols for PrEP referral (n = 10, 50%) and training on how to identify PEP candidates (n = 11, 55%). When asked which strategies LHDs would pursue with additional funding to support PrEP and PEP implementation, the most common responses were expanding healthcare provider education (n = 12, 60%), developing educational materials (n = 10, 50%), and communication activities for community members (n = 10, 50%).

## Discussion

Expanded access to PrEP and PEP plays an important role in reducing the burden of HIV among at-risk populations in NYS. The implementation of PrEP and PEP across a wide range of public health settings is especially important to achieve the goals of the ETE Initiative, which aims to address disproportionately high rates of new HIV diagnoses in NYS compared to other regions of the United States. Although facilitating access to PrEP and PEP remains a challenge for local health departments because of prohibitive cost barriers, LHDs are key partners in reducing HIV transmission given their ability to reach diverse patient populations across a range of geographies. As such, it is important to understand the barriers and facilitators to implementation of PrEP and PEP in LHDs as well as desirable resources to support implementation. This knowledge can help promote the strategic utilization of finite financial resources based on how LHDs perceive their optimal role in the implementation of PrEP and PEP.

Study findings suggest that implementation of PrEP and PEP in NYS LHDs remains limited, with fewer than half of responding LHDs reporting engagement. These results indicate a need for additional resources to support PrEP and PEP delivery infrastructure within LHDs. Given that limited staffing was reported as both a barrier to implementation and driver for termination of PrEP- and PEP-related activities, findings indicate that creating new positions may support these activities specifically. Additionally, inquiries from healthcare providers and the public likely indicates an important role for LHDs to educate community stakeholders about PrEP and PEP.

Not surprisingly, funding to support implementation of PrEP and PEP was reported as a barrier by LHDs. Of those engaged in PrEP and PEP, 25% or fewer reported billing public or commercial insurance.

LHDs are unique settings because they have the ability to reach all public stakeholders at risk of HIV regardless of income or insurance status, but significant questions remain regarding how to finance PrEP and PEP care for these populations without drawing from an already limited funding pool. Clinical PrEP-prescribing guidelines have associated medical costs for recurring clinic visits, screening tests, laboratory tests, and the daily medication itself.[17] Although PrEP financial assistance programs exist through New York State and Gilead Sciences Inc.,[18,19] a very low proportion of LHDs reported utilizing these programs to finance PrEP care. In order to expand and sustain PrEP-related activities, LHDs should leverage these funding mechanisms and develop strategic approaches to funding distribution with a lens toward equity. Funding is allocated to LHDs, county hospitals, nonprofit organizations, and community health clinics through the Title X National Family Planning Program to support sexual health and preventative services; however, policies on provision of PrEP under Title X remain unclear.[20] While not specifically evaluated, there may be value in training LHDs on effective strategies to access Title X funding streams to support PrEP provision.

Local health departments perceived their optimal role in PrEP and PEP provision to be engagement in activities related to education and referrals. Specifically, LHDs reported a preference toward referring PrEP and PEP candidates to providers in the community rather than offering prescriptions on-site. Given that prior research documented high LHD engagement in PrEP referrals,[15] it is surprising that most LHDs in this study did not report engagement in referrals despite a perceived importance. This finding suggests that the role of LHDs could be improved by creating and maintaining databases with local PrEP and PEP providers to better facilitate patient linkage to care. However, access to health care services for medically underserved populations at high risk of acquiring HIV may still pose a challenge to uptake efforts. Thus, these databases must contain clinics that are financially accessible in order for LHDs to fulfill critical roles in the PrEP continuum of care, including identification of PrEP candidates and linkage to care.

This study builds upon previous works in a number of ways.[15,16] First, this study assessed PrEP and PEP awareness and engagement among responding LHDs, while the two prior studies focused exclusively on PrEP. In addition, the survey used included separate sections related to implementation of PrEP for adults and adolescents, which allowed us to capture the distinct considerations for providing services to adolescent populations. Given that surveys from the two prior studies were administered in 2015 and 2016, respectively, they were unable to assess the extent to which LHDs utilize recently expanded mechanisms for federal and state funding to support implementation of PrEP.[11,12] Additionally, neither study assessed impact of the COVID-19 pandemic on current PrEP and PEP activities, nor did they evaluate awareness of long-acting injectable forms of PrEP. As a result, the present study is among the first to gauge the capacity of NYS LHDs to meet the need for an equitable scale up of long-acting injectable PrEP delivery infrastructure.[21] Importantly, the proportion of LHDs that reported PrEP engagement in the present study was higher than in prior studies,[15,16] which could be due to the robust ETE Initiative in NYS. In this way, the present study provides an updated account of how recent events have shaped the trajectory of PrEP and PEP implementation across LHDs.

This study is not without limitations. First, the response rate was lower than previous studies exploring implementation of PrEP in LHD settings.[15,16] This was likely due in part to a diversion of LHD staff toward COVID-19 response efforts, which may have limited the ability of LHD representatives to participate in the study. This limitation could have impacted our data due to response bias; that is, responding LHDs may represent those experiencing smaller COVID-19-related burdens or those with limited capabilities to respond to outbreaks of infectious diseases. Second, findings from this study cannot be generalized to other areas of the United States beyond NYS, as this study was exclusively comprised of health departments in one state.

## Conclusion

A relatively low proportion of LHDs reported engagement in PrEP- and/or PEP-related activities, but several LHDs were reported to be considering engagement or preparing to engage in the future. Coupled with high levels of reported interest in PrEP- and PEP-related training materials, LHDs remain a potential setting for the expansion of PrEP and PEP care across NYS. In order to overcome health disparities and serve populations with higher risk of HIV infection in NYS, it will be critical to address the unique implementation challenges related to funding, training, and administrative needs in LHD settings. Overcoming these challenges may help facilitate the accomplishment of state-wide HIV prevention efforts such as the Ending the Epidemic Initiative. Future directions include ongoing engagement with non-responding LHDs and further evaluation of PrEP- and PEP-related activities among LHDs in other states. Doing so may facilitate comprehensive assessments of PrEP and PEP services in LHD settings that evaluate engagement on a broader scale.

## References


1. HIV.gov. *Data and trends: US statistics*. US Department of Health & Human Services. Retrieved from: https://www.hiv.gov/hiv-basics/overview/data-and-trends/statistics. Accessed April 10, 2021.
2. New York State Department of Health. *New York State HIV/AIDS annual surveillance report*. Retrieved from https://www.health.ny.gov/diseases/aids/general/statistics/annual/2018/2018_annual_surveillance_report.pdf. Accessed April 14, 2021.
3. Gilead Sciences Inc. *US Food and Drug Administration approves Gilead's Truvada for reducing the risk of acquiring HIV*. Retrieved fromhttps://www.gilead.com/news-and-press/press-room/press-releases/2012/7/us-food-and-drug-administration-approves-gileads-truvada-for-reducing-the-risk-of-acquiring-hiv. Accessed April 1, 2021.
4. Food and Drug Administration (FDA). *FDA approves second drug to prevent HIV infection as part of ongoing efforts to end the HIV epidemic*. Retrieved from https://www.fda.gov/news-events/press-announcements/fda-approves-second-drug-prevent-hiv-infection-part-ongoing-efforts-end-hiv-epidemic. Accessed May 10, 2021.
5. Department of Health and Human Services. Antiretroviral postexposure prophylaxis after sexual, injection-drug use, or other nonoccupational exposure to HIV in the United States. *Morbidity Mortality Wkly Rep*. 2005;54(RR02):1–20.

6. Silapaswan A, Krakower D, Mayer KH. Pre-exposure prophylaxis: a narrative review of provider behavior and interventions to increase PrEP implementation in primary care. *J Gen Intern Med*. 2017 Feb;32(2):192–198. https://doi.org/10.1007/s11606-016-3899-4
7. Wilson K, Bleasdale J, Przybyla SM. Provider-patient communication on pre-exposure prophylaxis (prep) for HIV prevention: an exploration of healthcare provider challenges. *Health Commun*. 2021 Nov;36(13):1677–1686. https://doi.org/10.1080/10410236.2020.1787927
8. Przybyla S, LaValley S, St Vil N. Health care provider perspectives on pre-exposure prophylaxis: a qualitative study. *J Assoc Nurses AIDS Care*. 2019 Nov–Dec;30(6):630–638. https://doi.org/10.1097/jnc.0000000000000073
9. Bleasdale J, Wilson K, Aidoo-Frimpong G, Przybyla S. Prescribing HIV pre-exposure prophylaxis: a qualitative analysis of health care provider training needs. *J HIV AIDS Soc Serv*. 2020;19(1):107–123. https://doi.org/10.1080/15381501.2020.1712291
10. Cahill S, Taylor SW, Elsesser SA, Mena L, Hickson D, Mayer KH. Stigma, medical mistrust, and perceived racism may affect PrEP awareness and uptake in black compared to white gay and bisexual men in Jackson, Mississippi and Boston, Massachusetts. *AIDS Care*. 2017 Nov;29(11):1351–1358. https://doi.org/10.1080/09540121.2017.1300633
11. New York State Department of Health. *New York has a plan to end the AIDS epidemic*. Retrieved from https://www.health.ny.gov/diseases/aids/ending_the_epidemic/campaign/. Accessed April 14, 2021.
12. New York State Department of Health. *The New York State prevention agenda 2019–2024: an overview*. Retrieved from https://www.health.ny.gov/prevention/prevention_agenda/2019-2024/docs/ship/overview.pdf. Accessed April 14, 2021.
13. AIDS Vu. *Local data: New York State*. Retrieved from https://aidsvu.org/local-data/united-states/northeast/new-york/. Accessed April 15, 2021.
14. Nunn AS, Brinkley-Rubinstein L, Oldenburg CE, et al. Defining the HIV pre-exposure prophylaxis care continuum. *Aids*. 2017 Mar 13;31(5):731–734. https://doi.org/10.1097/qad.0000000000001385
15. Weiss G, Smith DK, Newman S, Wiener J, Kitlas A, Hoover KW. PrEP implementation by local health departments in US cities and counties: findings from a 2015 assessment of local health departments. *PLoS One*. 2018;13(7):e0200338. https://doi.org/10.1371/journal.pone.0200338
16. Zhang HL, Rhea SK, Hurt CB, et al. HIV preexposure prophylaxis implementation at local health departments: a statewide assessment of activities and barriers. *J Acquir Immune Defic Syndr*. 2018 Jan 1;77(1):72–77. https://doi.org/10.1097/qai.0000000000001546
17. Centers for Disease Control and Prevention. *Preexposure prophylaxis for the prevention of HIV infection in the United States—2017 updated clinical practice guideline*. Retrieved from https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2017.pdf. Accessed July 22, 2021.
18. New York State Department of Health. *Pre-exposure prophylaxis assistance program (PrEP-AP)*. Retrieved from https://health.ny.gov/diseases/aids/general/resources/adap/prep.htm. Accessed July 22, 2021.
19. Gilead Sciences Inc. *Gilead's advancing access program is here to help you*. Retrieved fromhttps://www.gileadadvancingaccess.com/. Accessed July 22, 2021.
20. Tanner MR, Miele P, Carter W, et al. Preexposure prophylaxis for prevention of HIV acquisition among adolescents: clinical considerations, 2020. *MMWR Recomm Rep*. 2020 Apr 24;69(3):1–12. https://doi.org/10.15585/mmwr.rr6903a1
21. Hojilla JC, Gandhi M, Satre DD, Johnson MO, Saberi P. Equity in access to long-acting injectables in the USA. *Lancet HIV*. 2022 Mar;9(3):e145–e147. https://doi.org/10.1016/s2352-3018(22)00031-5