

UCLA

UCLA Previously Published Works

Title

Acceptability and Appropriateness of Digital PrEP Interventions for Black and Latina Cisgender Women: Perspectives From Service Providers in Los Angeles County.

Permalink

<https://escholarship.org/uc/item/6v92x9n5>

Journal

Journal of Acquired Immune Deficiency Syndromes, 90(S1)

Authors

Üsküp, Dilara

Nieto, Omar

Rosenberg-Carlson, Elena

et al.

Publication Date

2022-07-01

DOI

10.1097/QAI.0000000000002973

Peer reviewed



HHS Public Access

Author manuscript

J Acquir Immune Defic Syndr. Author manuscript; available in PMC 2023 July 01.

Published in final edited form as:

J Acquir Immune Defic Syndr. 2022 July 01; 90(Suppl 1): S134–S140. doi:10.1097/QAI.0000000000002973.

Acceptability and Appropriateness of Digital PrEP Interventions for Black and Latina Cisgender Women: Perspectives from Service Providers in Los Angeles County

Dilara K. Üsküp^{a,b},

Omar Nieto^a,

Elena Rosenberg-Carlson^{a,b},

Sung-Jae Lee^{b,c},

Norweeta G. Milburn^{b,c},

Ronald A. Brooks^{a,b,*}

^aDepartment of Family Medicine, University of California, Los Angeles

^bCenter for HIV Identification, Prevention, and Treatment Services (CHIPTS), University of California, Los Angeles

^cDepartment of Psychiatry and Biobehavioral Sciences, University of California Los Angeles

Abstract

Background: Black and Latina cisgender women (BLCW) experience disproportionately high rates of HIV infection compared to White women. BLCW also experience disparities in uptake of Pre-Exposure Prophylaxis (PrEP), a highly effective HIV prevention strategy. Digital technology interventions may help to improve PrEP accessibility among BLCW and address barriers to receiving PrEP services in clinical settings.

Methods: We conducted a formative implementation research project with service providers to explore the use of digital technology interventions to improve PrEP care continuum outcomes among priority populations in Los Angeles County. A thematic analysis approach was then used to assess the perceived acceptability and appropriateness of digital PrEP interventions for BLCW.

Results: Of the five technology products presented, service providers viewed the stand-alone telemedicine platforms as the most acceptable intervention type for BLCW. Service providers also noted perceived benefits and barriers that BLCW may experience in utilizing stand-alone telemedicine platforms, and offered recommendations for tailoring the products to meet the individual needs of BLCW.

Conclusions: Digital PrEP interventions may help address barriers BLCW experience accessing PrEP in clinical settings. We offer suggestions of implementation strategies to optimize the use of digital PrEP interventions among BLCW.

*Corresponding author: Ronald A. Brooks, UCLA Department of Family Medicine, 10880 Wilshire Blvd, Suite 1800, Los Angeles, CA, 90024, USA; Phone: 310-794-0773; FAX: 310-794-2808; rabrooks@mednet.ucla.edu.

Keywords

Black women; Latina women; Pre-Exposure Prophylaxis; digital technology; telemedicine

INTRODUCTION

In the United States (US), Black and Latina cisgender women (BLCW) experience disproportionately high rates of HIV infection compared to White women. In 2019, the rate of HIV diagnoses among Hispanic/Latina women (5.3 per 100,000) was 3 times higher than that of White women (1.7 per 100,000).¹ Black/African American women faced an even greater disparity with a rate of HIV diagnoses (21.3 per 100,000) that was nearly 13 times more than that of White women.¹ In Los Angeles County (LAC), HIV epidemiological data reflect similar disparities.² Based on local HIV trends, the LAC Department of Public Health, Division of HIV/STD Programs (DHSP) identified BLCW as priority populations for HIV prevention and determined an urgent need to expand the use of Pre-Exposure Prophylaxis (PrEP) among these populations.²

PrEP is a highly efficacious biomedical HIV prevention strategy.^{3–6} However, PrEP uptake is currently low among cisgender women (CW) who present with clear indications based on reported sexual risk behaviors.^{7,8} In 2019, only 9.7% of women with an indication for PrEP in the US were using it.⁹

BLCW experience social, systemic, and individual barriers to PrEP use.^{10–12} These barriers include lack of PrEP knowledge and awareness, medication/lab costs, stigma experienced during in-person medical visits, concerns about side effects, challenges with daily medication adherence, low self-perceived HIV risk, and interpersonal violence.^{13–19} In healthcare settings, women may also experience provider bias when trying to access PrEP. This can include the belief that patients will participate in high risk behavior using PrEP (i.e., risk compensation), concerns about costs associated with PrEP, a reluctance to introduce “toxic drugs” into healthy persons, the preference for other prevention methods (e.g., condoms), and personal ideologies associated with PrEP (e.g., moral issues).²⁰ BLCW may also experience barriers to PrEP use at family planning clinics, which are key access points for women who want to start PrEP. In one study of family planning clinics, 73% family planning providers reported that HIV prevention education was an essential part of family planning, but only 22.4% believed that PrEP education was essential.²¹ Among Black women, medical mistrust operates as an additional barrier to PrEP use, contributing to a lack of communication with medical providers about sexual behaviors.^{13,15} Unfortunately, the existing literature does not explore the unique barriers to PrEP use among Latina women, suggesting a need for greater research with this population.

To address the low uptake of PrEP among BLCW, it is important to explore innovative PrEP delivery interventions. Interventions that utilize digital technology, such as telemedicine,^{23,24} may improve PrEP accessibility and help eliminate potential barriers associated with receiving PrEP in clinical settings. Prior research has identified telemedicine platforms as acceptable, feasible, and successful interventions to scale up PrEP delivery efforts among gender and sexual minority groups, including Black and Latino/a men who

have sex with men (MSM) and transgender women (TW).^{25–27} However, a gap in the research exists regarding the use of telemedicine to support BLCW along the PrEP care continuum (e.g., uptake and access). Despite not being PrEP-specific, telemedicine services have been used to address other gender-specific needs of cisgender women including maternal care, lactation support, family planning, pelvic floor therapy, intimate partner violence, and breast cancer assessment.^{28–32} Therefore, as part of our Ending the HIV Epidemic (EHE) planning grant, we conducted a formative implementation research project to explore service providers' perspectives on the perceived acceptability and appropriateness of technology products to improve PrEP uptake and access for BLCW.³³ We draw upon the Expert Recommendations for Implementing Change (ERIC) to suggest potential implementation strategies that may support the goal of improving PrEP outcomes for BLCW using available technology products.³⁴

METHODS

Ending the HIV Epidemic (EHE): A Plan for America Initiative Community Consultation

As part of a National Institute of Mental Health (NIMH) EHE planning grant, the University of California, Los Angeles in collaboration with LAC DHSP, convened an all-day community consultation on February 10, 2020. The goal of the consultation was to engage local HIV service providers in a dialogue about the use of digital interventions to improve PrEP care continuum outcomes (e.g., uptake and access) among priority populations in LAC. Participants included HIV service providers identified from listservs of local agencies that provide HIV prevention services to LAC's priority populations (i.e., racial/ethnic, gender, and sexual minority groups). Attendees completed a registration survey and were asked to provide their title/role and agency type. At the start of the meeting, participants received an Information Sheet detailing the research objectives, which was approved by the University of California, Los Angeles Institutional Review Board.

In the morning, participants were introduced to five technology products that support the delivery and maintenance of PrEP. Each product was selected because of its unique potential to contribute to the overall goal of optimizing PrEP outcomes for priority populations in LAC (Table 1). For the purposes of our planning project, we sorted the five available technology products into three broad categories. These included (1) stand-alone telemedicine platforms that exclusively provide virtual/remote delivery of clinical services, (2) clinically-integrated telemedicine platforms designed to provide virtual/remote services that support the delivery of PrEP care at brick-and-mortar clinics and community-based organizations (CBOs), and (3) an evidence-based text-messaging service that offers tailored messaging to improve PrEP adherence and persistence. Representatives from each technology product delivered a brief presentation describing various functions or features, and messaging content. A question-and-answer session followed each presentation.

In the afternoon, seven separate breakout groups were conducted to assess the acceptability and appropriateness of digital PrEP interventions for LAC's priority populations. These different priority populations included Black CW, Latina CW, Black MSM, Latino MSM, Black TW, Latina TW, and persons who inject drugs. Breakout sessions were conducted in

two rounds, and participants self-selected which group to attend during each round. Each group was facilitated by a member of the research team.

The Proctor conceptual framework for implementation outcomes was used to inform the development of a semi-structured interview guide for the afternoon breakout groups.³⁵ To assess Proctor's acceptability and appropriateness implementation outcomes, participants in each group were asked to describe: 1) the technology product(s) [the population] would most likely use to initiate PrEP; 2) potential benefits of the technology products, 3) potential barriers to using the technology products, and 4) recommendations for tailoring the technology products to better suit the needs of [the population]. Breakout groups lasted 1.5 hours and were audio recorded and transcribed verbatim for analysis.

Data Analysis

Data analysis was an iterative process that began with creation of an initial codebook using the interview guide, line-by-line review of the transcripts, and memos noted during the review process. A formal test of intercoder reliability was not conducted for this pilot study given the noted difficulty in creating codes that are objective in thematic analysis.³⁶ Instead, two members of the research team (O.N. and E.R.C.) met weekly to review the six breakout group transcripts for the purpose of refining the codebook. Once a consensus was reached on the codebook, O.N. and E.R.C. uploaded the transcripts into ATLAS.ti (version 8.4.24.0) and coded the interviews using the finalized coding scheme. During this stage of the coding process, O.N. and E.R.C. met as needed to make final coding determinations when any ambiguity occurred, particularly to ensure consistent distinctions were made between the conceptually similar acceptability and appropriateness outcomes.³⁵

The analysis presented in this manuscript used combined data from the separate breakout groups focused on BLCW. In reviewing the data, we began by identifying which product(s) among those presented during the morning session participants perceived BLCW would find most acceptable for accessing PrEP. We then used a thematic analysis approach to assess the appropriateness of the selected product(s) by identifying perceived benefits and barriers BLCW may experience in using the product(s), and recommendations for tailoring.³⁷

RESULTS

A total of 23 participants attended the breakout sessions focused on Black (N=15) and Latina cisgender women (N=8). Participants represented various agencies and groups involved in HIV prevention efforts in LAC, including community-based organizations (CBOs), federally qualified health centers, networks of HIV prevention providers, LAC's HIV planning body, and public health departments. Participants included program managers (N=7), program staff (N=5), PrEP navigators (N=4), HIV health educators (N=3), outreach and HIV testing specialists (N=1), senior leadership (N=1), and other stakeholders (N=2).

Broader Context for Understanding the Lack of PrEP Uptake among BLCW

In discussing the use of digital interventions to improve PrEP delivery to BLCW, participants noted several underlying challenges that BLCW experience in accessing HIV prevention services in general. A prominent concern expressed in the breakout groups was

that BLCW were not a priority in local HIV prevention efforts, as noted by this provider, “*Our programs for PrEP, or what have you, are embedded in larger prevention programs that center gay men.*” Participants also described a general lack of PrEP awareness among BLCW that greatly differed from gay men:

“My interaction with cisgender Black females, lots of them have said that they have not been informed about PrEP as an option... It’s very different from the Black gay males I deal with who have a lot of awareness or who have those conversations more frequently with the provider.”

In addition, participants reported BLCW may experience difficulty justifying their need for PrEP to medical providers, due in part to the perceived bias providers have toward prescribing PrEP to cisgender women. Because of this bias, providers may discourage cisgender women from using PrEP and suggest they practice other methods for reducing their HIV risk:

“For the Latina women that we work with, if their partner is positive, when we try referring them out to their providers, their primary care providers will many times just communicate, ‘Well, don’t have sex with him’ or ‘use a condom.’”

Taken together, these perspectives provide a greater social context for understanding the lack of PrEP uptake and access among these two populations.

Identification of Acceptable Digital Technology Option

Among the five digital technology products presented, participants in both breakout groups perceived that BLCW would most likely use the stand-alone telemedicine applications to access PrEP. These platforms were thought to be acceptable to BLCW because they are easy to use and accessible, can seamlessly facilitate enrollment in financial assistance programs, and offer information to assist potential users in selecting an appropriate medical provider (e.g., detailed biographies, language[s] spoken). In addition, participants identified several prospective benefits of stand-alone telemedicine platforms that make them acceptable and appropriate for BLCW who are interested in accessing PrEP.

Appropriateness of Stand-Alone Telemedicine Platforms: Perceived Benefits for BLCW

Participants generally perceived stand-alone telemedicine platforms to be an appropriate option for BLCW to access PrEP. They described how these platforms could be a good fit for BLCW because they offer a timesaving and convenient way to access PrEP services. This was especially true for the many BLCW women who struggle with managing multiple responsibilities, as noted by this provider, “*They may be juggling multiple jobs, some women are parenting... And the idea of being able to access something from wherever they are at any given time, if they feel it’s beneficial.*” Participants noted that these platforms may also be appropriate and beneficial for BLCW who experience barriers to attending routine medical appointments and/or seeking services in traditional clinical care settings. For example, one participant described the limited timeframe women have to return for the required HIV screening:

“A lot of cisgender women only have a little window of time to go get tested, to go get screened for PrEP and that’s usually when the partner is at work, and if she has kids, the kids aren’t [home], right? It’s that little window of time.”

These platforms could help facilitate easier access to PrEP for BLCW by offering features like virtual medical visits with physicians (in both English and Spanish) and at-home HIV/STI testing.

Participants also noted that stand-alone telemedicine platforms offer BLCW improved access to and communication with service providers on their care team. In particular, they shared that having the ability to send service providers a secure message through a personal mobile device may provide BLCW a useful opportunity to ask questions about PrEP they might not be comfortable asking during in-person medical visits:

“Either when they go in for a session [in-person medical appointment], they may not want to ask questions, or something comes up later... I have this happen about symptoms that happens while someone is either taking PEP or PrEP.”

Additionally, participants believed that stand-alone telemedicine platforms that deliver PrEP care had the potential to mitigate the bias BLCW who are interested in PrEP may experience in traditional clinic settings. As one participant noted, “*I think just for the informed Latina who wants to access PrEP, NURX would probably be the easiest versus the back-and-forth dialogue with a provider who doesn’t believe I [they] need it.*” Therefore, stand-alone telemedicine platforms might be an optimal method for connecting BLCW to providers who are prepared to link women to PrEP.

Appropriateness of Stand-Alone Telemedicine Platforms: Perceived Barriers for BLCW

While generally perceived as an appropriate option for BLCW to access PrEP, participants also described barriers that make these platforms less compatible with the lives of some BLCW. One barrier was the potential out-of-pocket costs not covered by insurance, such as the reoccurring consultation fees/co-pays, lab work, and medication prescriptions. Despite the option for at-home delivery of PrEP prescriptions, BLCW who experience housing instability may also encounter challenges engaging with these platforms. As one provider suggests, “*Where do transient people go to have medications delivered that is accessible within a space, [and] that is available to them at their leisure and convenience?*” In addition, participants noted that Latina women who are undocumented may not be able to access services like PlushCare or NURX due to a lack of health insurance. Finally, some participants viewed virtual visits with service providers as potentially being too impersonal for BLCW, as illustrated in this quote, “*I wonder if the personalized care that you can actually interact with the person is a plus. I’m thinking that Latina women like personal interaction as opposed to just something on an app.*”

Recommendations for Tailoring Stand-Alone Telemedicine Platforms for BLCW

Participants offered recommendations for tailoring the stand-alone telemedicine platforms to improve their acceptability and appropriateness among BLCW. This included customizing the platforms to meet the individual needs of the client:

“I thought of texting every day around the same time, that could be a little too much for me, but if I’m able to tell you like, ‘Hey, just text me once,’ ‘text me how I want to be texted,’ or ‘this is how I want to be contacted.’ I think that will be really helpful in regards to using these apps.”

Participants also believed BLCW should have the ability to connect virtually with other women on these platforms through personalized chat messages or online community forums. As one provider suggested, this would allow BLCW the opportunity to “*be unedited so that individuals can have real conversations and talk about issues that might come up.*”

DISCUSSION

Participants who attended the community consultation believed that stand-alone telemedicine platforms would be the most acceptable type of digital PrEP intervention for BLCW. They suggested that the stand-alone platforms are easy-to-use and offer accessible services that may provide a relative advantage for BLCW over the other digital technology interventions presented during the consultation, best meeting the “agreeable, palatable, or satisfactory” definition of acceptability described by Proctor.³⁵ Participants also discussed several benefits that make the stand-alone platforms an appropriate fit for these populations. Prospective benefits include the efficiency and convenience of using an app versus seeking in-person PrEP care at traditional brick-and-mortar healthcare facilities. This alternative approach to accessing PrEP care might be particularly useful for BLCW who struggle with managing multiple responsibilities, such as work and childcare. In addition, stand-alone telemedicine platforms might mitigate provider bias cisgender women often experience in traditional primary care settings by offering care from medical staff experienced with providing PrEP services to all eligible populations, including BLCW. Reflecting Proctor’s definition of appropriateness, the overall “perceived fit, relevance, or compatibility” of the stand-alone platforms for BLCW was considered favorable.³⁵

Participants also highlighted several barriers that may limit the appropriateness of stand-alone telemedicine platforms for some BLCW. Implementation strategies identified in the ERIC project can be considered to help address these barriers and optimize the implementation, uptake, and sustainability of stand-alone telemedicine interventions for PrEP service delivery to BLCW. While not unique to stand-alone telemedicine platforms, costs associated with accessing PrEP were a prominent concern, particularly for BLCW who are undocumented and may be ineligible for insurance. To address this barrier, the “access new/existing funding” and “alter patient/consumer fees” ERIC implementation strategies may be used to link BLCW to the multiple government- and industry-funded financial assistance programs that can help cover costs of accessing PrEP through these platforms. Some examples include the Federal Ready, Set, PrEP Program³⁸ and Gilead’s Advancing Access and Copay Coupon Programs.^{39,40} Fortunately for undocumented women, legal resident status is not an eligibility requirement for many of the available financial assistance programs (e.g., California’s PrEP Assistance Program⁴¹). Participants also highlighted that women experiencing housing instability and homelessness may face barriers to safely receiving and storing PrEP medications. In these circumstances, trusted CBOs that BLCW use for services may be able support the implementation of stand-alone telemedicine

platforms by employing the “change physical structure and equipment” ERIC strategy to establish a system that would allow women using stand-alone telemedicine platforms to receive mailed prescriptions from pharmacies and/or safely store their medications at their facilities.

To enhance the PrEP care provided to BLCW, participants offered various recommendations for tailoring stand-alone telemedicine interventions. For instance, some BLCW might need frequent medication reminders when first initiating PrEP, particularly those who struggle with daily adherence to medications. However, it will be important for women to have the ability to modify the frequency and/or content of reminders over time. Additionally, BLCW might benefit from connecting virtually with other women using PrEP, which has previously been shown to facilitate information exchange and peer support among individuals facing a broad array of health issues.^{42–46} In accordance with the “tailor strategies” and “promote adaptability” implementation strategies identified in the ERIC project, stand-alone telemedicine interventions may consider adopting these recommendations and working to identify additional ways their interventions may be tailored to meet the needs of BLCW.

Stand-alone telemedicine platforms may also optimize PrEP service delivery to BLCW by using the “start/identify a dissemination organization” ERIC strategy to establish collaborative partnerships with CBOs that serve BLCW. Because of their connectedness to the community, CBOs can provide valuable insights to improve the care offered to BLCW and help link BLCW to these digital interventions. In addition to linking BLCW to these platforms, CBOs can provide education to increase awareness and understanding of telemedicine platforms themselves (e.g., how to register, install, use), and also provide general HIV and sexual health education (e.g., risk perception and biomedical HIV prevention). Stand-alone telemedicine platforms may also use the “conduct educational meetings” ERIC strategy to increase knowledge and awareness of their PrEP services among both CBO staff and potential BLCW consumers. Finally, for stand-alone telemedicine platforms to sustainably serve BLCW, it will be important to use the “obtain and use patients/consumers and family feedback” ERIC strategy to collect direct input from BLCW consumers regarding their satisfaction and suggestions for future improvements.

Limitations

While our findings suggest that stand-alone telemedicine platforms may be acceptable and appropriate for BLCW, some methodological limitations should be noted. First, the community consultation was reserved exclusively for providers that directly serve priority populations in LAC, including BLCW. Additional research is needed with BLCW consumers to assess the acceptability and appropriateness of digital PrEP interventions in improving access to PrEP. In addition, breakout sessions for BLCW were conducted concurrently; thus, participants who serve both populations were not able to attend both breakout sessions. Next, many participants were unfamiliar with the digital technology products discussed during the consultation, which could have limited the opinions offered during the breakout groups. This could explain, in part, why the anticipated barriers to using digital PrEP interventions were very similar to those an individual might experience when trying to access PrEP through traditional means (e.g., cost, lack of insurance). Because a

formal test of intercoder reliability was not conducted, this may have also led to some bias in data analysis. We describe additional steps taken in the methods section to compensate for this limitation. Finally, breakout sessions were conducted in English and may not reflect the experiences of service providers who are primarily Spanish speaking and serve monolingual Spanish-speaking clients.

CONCLUSION

BLCW are underserved by current PrEP promotion and delivery models. In the midst of the ongoing global COVID-19 pandemic, it is especially critical to consider alternative ways to support BLCW through the PrEP care continuum to prevent further health disparities (e.g., use of stand-alone telemedicine services). This will be important as opportunities for in-person care continue to remain limited. Digital PrEP interventions offer one strategy for addressing the barriers to PrEP care that many BLCW experience in trying to access PrEP through traditional healthcare facilities. Future research should examine implementation strategies to optimize the use of digital PrEP interventions among BLCW.

ACKNOWLEDGMENTS

The authors are grateful to LAC DHSP for their support and collaboration throughout this study, with special thanks to Mario J. Pérez, Wendy Garland, and Dr. Sonali P. Kulkarni. We greatly appreciate the valuable contributions of all study participants and the digital PrEP services that presented at the community consultation – PlushCare, NURX, e2PrEP, Healthvana, and iTAB. We also thank the UCLA Center for HIV Identification, Prevention, and Treatment Services Community Advisory Board and the Northwestern University Implementation Science Coordination, Consultation, and Collaboration Initiative (ISC3I) for their guidance and consultation. We are grateful to Oluwadamilola Jolayemi and Adenike Omomukuyo for their essential logistical assistance and coordination during the community consultation. Finally, our utmost thanks go to Dr. Steven Shoptaw, Dr. Raphael Landovitz, and Uyen Kao for their committed leadership and support.

Conflicts of Interest and Funding Source:

This work was supported by the Center for HIV Identification, Prevention, and Treatment Services (CHIPTS) under National Institutes of Mental Health (NIMH) grant # P30 MH058107-23S. Dr. Üsküp is supported by the National Institute of Neurological Disorders and Stroke (NINDS) under grant # R25NS094093 and NIMH under grant # 5T32MH109205-03. The content is solely the responsibility of the authors and does not necessarily represent the official views of NIH. The authors have no relevant financial or non-financial interests to disclose.

REFERENCES

- Centers for Disease Control and Prevention. NCHHSTP AtlasPlus. Published September 29, 2021. Accessed September 23, 2021. Available at: <https://www.cdc.gov/nchhstp/atlas/index.htm>
- Los Angeles County Department of Public Health Division of HIV and STD Programs. Los Angeles County HIV/AIDS Strategy for 2020 and Beyond. Published November 29, 2018. Available at: <https://www.lacounty.hiv/wp-content/uploads/2018/11/LACHAS2018-English.pdf>
- Baeten JM, Donnell D, Ndase P, et al. Antiretroviral Prophylaxis for HIV Prevention in Heterosexual Men and Women. *N Engl J Med.* 2012;367(5):399–410. doi:10.1056/NEJMoa1108524 [PubMed: 22784037]
- Grant RM, Lama JR, Anderson PL, et al. Preexposure Chemoprophylaxis for HIV Prevention in Men Who Have Sex with Men. *N Engl J Med.* 2010;363(27):2587–2599. doi:10.1056/NEJMoa1011205 [PubMed: 21091279]
- Thigpen MC, Kebaabetswe PM, Paxton LA, et al. Antiretroviral Preexposure Prophylaxis for Heterosexual HIV Transmission in Botswana. *N Engl J Med.* 2012;367(5):423–434. doi:10.1056/NEJMoa1110711 [PubMed: 22784038]

6. Choopanya K, Martin M, Suntharasamai P, et al. Antiretroviral prophylaxis for HIV infection in injecting drug users in Bangkok, Thailand (the Bangkok Tenofovir Study): a randomised, double-blind, placebo-controlled phase 3 trial. *The Lancet*. 2013;381(9883):2083–2090. doi:10.1016/S0140-6736(13)61127-7
7. Wu H, Mendoza MCB, Huang Y lin A, et al. Uptake of HIV Preexposure Prophylaxis Among Commercially Insured Persons—United States, 2010–2014. *Clin Infect Dis*. 2017;64(2):144–149. doi:10.1093/cid/ciw701 [PubMed: 27986691]
8. Sullivan PS, Giler RM, Mouhanna F, et al. Trends in the use of oral emtricitabine/tenofovir disoproxil fumarate for pre-exposure prophylaxis against HIV infection, United States, 2012–2017. *Ann Epidemiol*. 2018;28(12):833–840. doi:10.1016/j.annepidem.2018.06.009 [PubMed: 30037634]
9. America’s HIV Epidemic Analysis Dashboard (AHEAD). PrEP Coverage: Female (sex at birth). Published 2021. Accessed June 10, 2021. <https://ahead.hiv.gov/data/prep-coverage>
10. Nydegger LA, Dickson-Gomez J, Ko TK. Structural and syndemic barriers to PrEP adoption among Black women at high risk for HIV: a qualitative exploration. *Cult Health Sex*. Published online March 26, 2020:1–15. doi:10.1080/13691058.2020.1720297
11. Chapman Lambert C, Marrazzo J, Amico KR, et al. PrEParing Women to Prevent HIV: An Integrated Theoretical Framework to PrEP Black Women in the United States. *J Assoc Nurses AIDS Care*. 2018;29(6):835–848. doi:10.1016/j.jana.2018.03.005 [PubMed: 29685648]
12. Nakasone SE, Young I, Estcourt CS, et al. Risk perception, safer sex practices and PrEP enthusiasm: barriers and facilitators to oral HIV pre-exposure prophylaxis in Black African and Black Caribbean women in the UK. *Sex Transm Infect*. 2020;96(5):349–354. doi:10.1136/sextrans-2020-054457 [PubMed: 32532928]
13. Auerbach JD, Kinsky S, Brown G, Charles V. Knowledge, Attitudes, and Likelihood of Pre-Exposure Prophylaxis (PrEP) Use Among US Women at Risk of Acquiring HIV. *AIDS Patient Care STDs*. 2014;29(2):102–110. doi:10.1089/apc.2014.0142 [PubMed: 25513954]
14. Koren DE, Nichols JS, Simoncini GM. HIV Pre-Exposure Prophylaxis and Women: Survey of the Knowledge, Attitudes, and Beliefs in an Urban Obstetrics/Gynecology Clinic. *AIDS Patient Care STDs*. 2018;32(12):490–494. doi:10.1089/apc.2018.0030 [PubMed: 30036080]
15. Bond KT, Gunn AJ. Perceived Advantages and Disadvantages of Using Pre-Exposure Prophylaxis (PrEP) among Sexually Active Black Women. *J Black Sex Relatsh*. 2016;3(1):1–24. doi:10.1353/bsr.2016.0019 [PubMed: 28725660]
16. Ojikutu BO, Bogart LM, Higgins-Biddle M, et al. Facilitators and Barriers to Pre-Exposure Prophylaxis (PrEP) Use Among Black Individuals in the United States: Results from the National Survey on HIV in the Black Community (NSHBC). *AIDS Behav*. 2018;22(11):3576–3587. doi:10.1007/s10461-018-2067-8 [PubMed: 29468493]
17. Collier KL, Colarossi LG, Sanders K. Raising Awareness of Pre-Exposure Prophylaxis (PrEP) among Women in New York City: Community and Provider Perspectives. *J Health Commun*. 2017;22(3):183–189. doi:10.1080/10810730.2016.1261969 [PubMed: 28248625]
18. Theall KP, Elifson KW, Sterk CE, et al. Perceived Susceptibility to HIV among Women: Differences According to Age. *Res Aging*. 2003;25(4):405–432. doi:10.1177/0164027503025004004
19. Raifman JR, Schwartz SR, Sosnowy CD, et al. Pre-exposure prophylaxis awareness and use among cisgender women at a sexually transmitted disease clinic. *J Acquir Immune Defic Syndr* 1999. 2019;80(1):36–39. doi:10.1097/QAI.0000000000001879
20. Karris MY, Beekmann SE, Mehta SR, et al. Are We Prepped for Preexposure Prophylaxis (PrEP)? Provider Opinions on the Real-World Use of PrEP in the United States and Canada. *Clin Infect Dis*. 2014;58(5):704–712. doi:10.1093/cid/cit796 [PubMed: 24319083]
21. Seidman D, Weber S, Carlson K, Witt J. Family planning providers’ role in offering PrEP to women. *Contraception*. 2018;97(6):467–470. doi:10.1016/j.contraception.2018.01.007 [PubMed: 29408284]
22. Bazargan M, Cobb S, Assari S. Discrimination and Medical Mistrust in a Racially and Ethnically Diverse Sample of California Adults. *Ann Fam Med*. 2021;19(1):4–15. doi:10.1370/afm.2632 [PubMed: 33431385]

23. [Medicaid.gov](https://www.medicaid.gov/medicaid/benefits/telemedicine/index.html). Telemedicine. Published 2020. Accessed November 23, 2020. Available at: <https://www.medicaid.gov/medicaid/benefits/telemedicine/index.html>
24. Voran D. Telemedicine and Beyond. *Mo Med*. 2015;112(2):129–135. [PubMed: 25958658]
25. Touger R, Wood BR. A Review of Telehealth Innovations for HIV Pre-Exposure Prophylaxis (PrEP). *Curr HIV/AIDS Rep*. 2019;16(1):113–119. doi:10.1007/s11904-019-00430-z [PubMed: 30701404]
26. Sun CJ, Anderson KM, Kuhn T, et al. A Sexual Health Promotion App for Transgender Women (Trans Women Connected): Development and Usability Study. *JMIR MHealth UHealth*. 2020;8(5):e15888. doi:10.2196/15888 [PubMed: 32396131]
27. Wong KYK, Stafylis C, Klausner JD. Telemedicine: a solution to disparities in human immunodeficiency virus prevention and pre-exposure prophylaxis uptake, and a framework to scalability and equity. *mHealth*. 2020;6. doi:10.21037/mhealth.2019.12.06 [PubMed: 32190617]
28. Lund S, Hemed M, Nielsen BB, et al. Mobile phones as a health communication tool to improve skilled attendance at delivery in Zanzibar: a cluster-randomised controlled trial. *BJOG Int J Obstet Gynaecol*. 2012;119(10):1256–1264. doi:10.1111/j.1471-0528.2012.03413.x
29. Takeuchi S, Horiuchi S. Randomised controlled trial using smartphone website vs leaflet to support antenatal perineal massage practice for pregnant women. *Women Birth J Aust Coll Midwives*. 2016;29(5):430–435. doi:10.1016/j.wombi.2016.01.010
30. da Mata KRU, Costa RCM, Carbone É dos SM, et al. Telehealth in the rehabilitation of female pelvic floor dysfunction: a systematic literature review. *Int Urogynecology J*. Published online November 11, 2020:1–11. doi:10.1007/s00192-020-04588-8
31. Stevens J, Scribano PV, Marshall J, et al. A Trial of Telephone Support Services to Prevent Further Intimate Partner Violence. *Violence Women*. 2015;21(12):1528–1547. doi:10.1177/1077801215596849
32. Bloom JR, Stewart SL, Chang S, et al. Effects of a telephone counseling intervention on sisters of young women with breast cancer. *Prev Med*. 2006;43(5):379–384. doi:10.1016/j.ypmed.2006.07.002 [PubMed: 16916540]
33. Nunn AS, Brinkley-Rubinstein L, Oldenburg CE, et al. Defining the HIV pre-exposure prophylaxis care continuum. *AIDS Lond Engl*. 2017;31(5):731–734. doi:10.1097/QAD.0000000000001385
34. Powell BJ, Waltz TJ, Chinman MJ, et al. A refined compilation of implementation strategies: results from the Expert Recommendations for Implementing Change (ERIC) project. *Implement Sci*. 2015;10(1):21. doi:10.1186/s13012-015-0209-1 [PubMed: 25889199]
35. Proctor E, Silmere H, Raghavan R, et al. Outcomes for Implementation Research: Conceptual Distinctions, Measurement Challenges, and Research Agenda. *Adm Policy Ment Health*. 2011;38(2):65–76. doi:10.1007/s10488-010-0319-7 [PubMed: 20957426]
36. Vaismoradi M, Turunen H, Bondas T. Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. *Nurs Health Sci*. 2013;15(3):398–405. doi:10.1111/nhs.12048 [PubMed: 23480423]
37. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol*. 2006;3(2):77–101. doi:10.1191/1478088706qp063oa
38. GetYourPrEP.Com. Ready, Set, PrEP. Published 2020. Accessed November 23, 2020. Available at: <https://www.getyourprep.com/>
39. Advancing Access. Gilead’s Advancing Access Program. Published 2020. Accessed November 23, 2020. Available at: <https://www.gileadadvancingaccess.com/>
40. Advancing Access. The Gilead Advancing Access Co-Pay Program. Published 2020. Accessed November 23, 2020. Available at: <https://www.gileadadvancingaccess.com/copay-coupon-card>
41. PleasePrEPMe. Helping People Access Pre-Exposure Prophylaxis: A frontline provider manual on PrEP research, care, and navigation. Published June 2020. Accessed September 29, 2020. Available at: https://www.pleaseprepme.org/sites/default/files/file-attachments/PleasePrEPMe%20PrEP%20Navigation%20Manual%20EN_JUNE2020.pdf
42. Brooks RA, Nieto O, Swendeman D, et al. Qualitative Evaluation of Social Media and Mobile Technology Interventions Designed to Improve HIV Health Outcomes for Youth and Young Adults Living With HIV: A HRSA SPNS Initiative. *Health Promot Pract*. 2020;21(5):693–704. doi:10.1177/1524839920938704 [PubMed: 32757839]

43. Flickinger TE, DeBolt C, Xie A, et al. Addressing Stigma Through a Virtual Community for People Living with HIV: A Mixed Methods Study of the PositiveLinks Mobile Health Intervention. *AIDS Behav.* 2018;22(10):3395–3406. doi:10.1007/s10461-018-2174-6 [PubMed: 29882048]
44. Gupta T, Schapira L. Online Communities as Sources of Peer Support for People Living With Cancer: A Commentary. *J Oncol Pract.* Published online October 18, 2018. doi:10.1200/JOP.18.00261
45. Harkin LJ, Beaver K, Dey P, et al. Navigating cancer using online communities: a grounded theory of survivor and family experiences. *J Cancer Surviv.* 2017;11(6):658–669. doi:10.1007/s11764-017-0616-1 [PubMed: 28470506]
46. Step MM, Knight K, Smith JM, et al. Positive Peers Mobile Application Reduces Stigma Perception Among Young People Living With HIV: *Health Promot Pract.* Published online August 6, 2020. doi:10.1177/1524839920936244

- **Evidence-based innovation:** Digital Pre-Exposure Prophylaxis (PrEP) interventions
- **Innovation-recipients:** HIV-negative Black & Latina cisgender women (BLCW)
- **Setting:** HIV service organizations in Los Angeles County
- **Implementation gap:** Prior research has identified digital PrEP interventions as an effective innovation to scale up PrEP delivery efforts among various populations, but the acceptability and appropriateness of these interventions for BLCW is not established.
- **Primary research goal:** Select implementation strategies
- **Implementation strategies:** Adapt and tailor to context (identified recommendations for tailoring innovation to optimize its acceptability and appropriateness for BLCW)

Table 1:

Summary of Digital Technology Interventions for PrEP

Name	Type	Description and Key Features
PlushCare ⁴²	Stand-alone telemedicine service	PlushCare provides virtual PrEP care as well as general primary care and mental health services through video visits and in-app text messaging with medical providers. Providers offer services in multiple languages. PlushCare also works with LabCorp and Quest Diagnostics to offer easy access to HIV/STI testing, and provides medication delivery for prescriptions.
NURX ⁴³	Stand-alone telemedicine service	NURX provides virtual PrEP and other sexual health services in English and Spanish primarily using asynchronous technology to complete health assessments, review lab results, communicate with clients through in-app text messaging, and prescribe medication. They also offer home HIV/STI testing kits and medication delivery.
Healthvana ⁴⁴	Clinically-integrated telemedicine service	Healthvana is a mobile application that supports PrEP/HIV/STI clinics and community-based organizations to manage and communicate with patients, and to help patients adhere to medications. Key features include in-app text messaging, test result delivery, tailored automated messages to assist with adherence and persistence, and educational content in English and Spanish.
e2PrEP ⁴⁵	Clinically-integrated telemedicine service	e2PrEP is a mobile application that supports clinics and community-based organizations to encourage HIV/STI testing, promote adherence to PrEP and antiretroviral medications, and connect clients to services they need. Key features include dosage reminders, collection of information about issues, side effects, and general mood, options for connecting with clients through in-app text messaging or video chat, and gamified goal tracking.
Individualized Texting for Adherence Building (iTAB) ^{46,47}	Text messaging service	iTAB is a text messaging service that supports PrEP adherence. Clients can choose from a wide variety of messages or write their own to receive daily, interactive reminders set to their dosing schedule and other personalized messages to support their health in English or Spanish. Follow-up texts or phone calls can be prompted if clients do not respond for several days in a row.

Table 2:

Breakout Group Participant Demographic Information (N=23)

Characteristic	N (%)
Organization/Agency	
Federally Qualified Health Centers	13 (56.5)
Community-Based Organizations	4 (17.4)
LAC Planning Body	1 (4.4)
Public Health Departments	1 (4.4)
Network of Community Clinics	1 (4.4)
Other ¹	3 (13.0)
Role or Title	
Program Managers	7 (30.4)
Program Staff	5 (21.7)
PrEP Navigators	4 (17.4)
HIV Health Educators	3 (13.0)
Outreach and Testing Specialists	1 (4.4)
Senior Leadership	1 (4.4)
Other ²	2 (8.7)

¹Others included: “Capital & Main” & “UCLA”

²Others included: “Research Assistant” & “Reporter”