Using *ENGAGED for CHANGE* to Develop a Multicultural Intervention to Reduce Disparities among Sexual and Gender Minorities in Appalachia

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ABSTRACT:

Background: Gay, bisexual, queer, and other men who have sex with men (GBQMSM) and transgender persons in Appalachia are at an increased risk for HIV, sexually transmitted infections (STIs), hepatitis C virus (HCV), mpox (formerly known as monkeypox) and are less likely to use prevention and care services.

Objectives: Our community-based participatory research (CBPR) partnership sought to develop an intervention to increase use of HIV, STI, HCV, and mpox prevention and care services among diverse GBQMSM and transgender and nonbinary persons living in rural Appalachia.

Methods: We used *ENGAGED for CHANGE*, a novel community-engaged participatory intervention development process, to integrate two evidence-based strategies – community-based peer navigation and mHealth – into a multicultural intervention.

Results: The developed *Appalachian Access Project* intervention contains five modules to train GBQMSM and transgender and nonbinary persons to serve as peer navigators (known as "community health leaders") within their social networks. The modules are designed to increase awareness of HIV, STIs, HCV, and mpox and their prevention and care; provide guidance on how to promote use of services, including pre-exposure prophylaxis (PrEP), syringe services, and medically supervised gender-affirming hormone therapy (GAHT); improve understanding of social determinants of health; and increase ability to effectively communicate and apply social support strategies in person and through mHealth social media.

Conclusions: The *Appalachian Access Project* intervention builds on the strong, preexisting social networks of GBQMSM and transgender and nonbinary persons. It is designed to meet the needs and priorities of underserved and minoritized communities in rural Appalachia through

community-based peer navigation and mHealth.

INTRODUCTION

Gay, bisexual, queer, and other men who have sex with men (GBQMSM) and transgender persons of all races/ethnicities are at an increased risk for HIV, sexually transmitted infections (STIs), hepatitis C virus (HCV), and mpox (formerly known as monkeypox).[1-7] While HIV, STIs, and HCV have historically been concentrated in urban areas and overall rates are relatively lower in Appalachia compared to some other regions of the United States, HIV, STI, HCV, and mpox rates among GBQMSM and transgender persons in Appalachia are higher than among non-GBQMSM and cisgender persons. Furthermore, rates are increasing in parts of the region, including rural areas and areas with high rates of poverty.[2,8-11] Many of the US counties most at risk for outbreaks of HIV, for example, are in Appalachia.[10,12,13] HCV is also concentrated in Appalachia. Five of the nine states containing over 51% of all persons living with HCV are within Appalachia, and the rural opioid epidemic continues to fuel much of the HCV crisis.[14,15] These geographic shifts in disease risk and burden present new public health challenges in an area with a highly fragmented service infrastructure.[8,10]

GBQMSM and transgender and nonbinary persons in Appalachia face barriers in accessing necessary prevention and care services for HIV, STI, HCV, and mpox. This includes testing, prevention services like pre-exposure prophylaxis (PrEP), mpox vaccination, and syringe services programs, and care services such as HIV care and STI/HCV treatment, as well as medically supervised gender-affirming care. Limited use of these services is influenced by social, environmental, and economic factors including poverty, medical mistrust, and structural barriers such as insufficient transportation infrastructure.[8,16] Limited use of services may be due to this population being particularly affected by stigma related to HIV, STIs, HCV, sexual

orientation, gender identity, and behaviors (e.g., sexual and injection-drug use behaviors).[17-19] Additionally, the close-knit nature and small size of rural Appalachian communities make GBQMSM and transgender and nonbinary persons hesitant to seek HIV, STI, and HCV prevention and care services because of confidentiality and privacy concerns.[16,17,20]

Natural Helping and mHealth as Strategies to Improve the Health of GBQMSM and Transgender and Nonbinary Persons in Appalachia

Innovative approaches are needed to increase access to prevention and care services among GBQMSM and transgender and nonbinary persons in general and within Appalachia in particular. Evidence suggests that natural helping can effectively address health issues within underserved and minoritized rural communities.[21,22] Natural helping through community-based peer navigation harnesses one-on-one relationships to support individuals as they move through a prevention and/or care continuum. Peer navigators can more readily reach those considered "hard-to-reach" by community outsiders (e.g., researchers, clinicians, and practitioners). As trusted community members, peer navigators are often the first people turned to for advice or assistance, and they have a critical advantage over other intervention strategies because they can personalize support. For those who have traditionally lacked access to services, they also link community members and providers. Important features of peer-navigation interventions are that navigators can strengthen existing social networks and ties and reflect the ways members naturally interact, problem solve, and get needs met. Effective peer navigators are part of the networks in which they work, in terms of self-identity (including race, ethnicity, gender identity, and sexual orientation), socioeconomic status, and lived experience; possess an understanding of community strengths, needs, and what is meaningful; and integrate culture to promote positive

health behaviors. Peer navigation strategies tend to be sustainable, and peer navigators often continue their work after interventions, programs, and funding end.[21]

mHealth, a portmanteau of "mobile health" describing medical and public health practice supported by mobile devices, such as smartphones and tablets, may also be a powerful tool to reach GBQMSM and transgender and nonbinary persons in rural communities. Evidence is emerging that highlights the potential successes of implementing mHealth through existing social media platforms such as WhatsApp, Facebook, Instagram, apps for social and sexual networking (e.g., Adam4adam and Grindr), and texting.[23,24] mHealth may be especially critical for GBQMSM and transgender and nonbinary persons living in rural communities because these populations can be both geographically and socially isolated, and social media can reduce isolation among community members through efficient communications.

While 18.1% of rural Appalachian households reported not having a device to access the internet (e.g., computer or smartphone),[25] GBQMSM and transgender and nonbinary persons have increased rates of smartphone ownership, and of GBQMSM and transgender and nonbinary persons living in NC, more than 94% report having a smartphone. Furthermore, while broadband access can be limited in rural areas, there is evidence that broadband access is expanding, and many individuals with unreliable or no broadband at home access the internet through public and free networks.[26] Thus, social media platforms can be powerful and effective health promotion tools because they are widely available, inexpensive, and instantaneous.[24,27-30]

Purpose

We describe the development of the *Appalachian Access Project* intervention using *ENGAGED for CHANGE*, a systematic intervention development process aligned with

community-based participatory research (CBPR) that our partnership developed.[31,32] The goal of the intervention is to increase use of needed HIV, STI, HCV, and mpox prevention and care services among GBQMSM and transgender and nonbinary persons and support access to medically supervised gender-affirming hormone therapy (GAHT) among transgender persons desiring such care. The intervention integrates community-based peer navigation and mHealth and is currently being implemented and evaluated in rural South Central Appalachia.

METHODS

The *Appalachian Access Project* Intervention Development

The CBPR Partnership

The *Appalachian Access Project* builds on the ongoing research of the North Carolina Community Research Partnership, a longstanding and well-established CBPR partnership comprised of community members; representatives from HIV service organizations (including Western North Carolina AIDS Project [WNCAP]), four public health departments, and other community organizations (including free community clinics); and academic researchers from several universities and the federal government.[33-36] Our partnership has a two-decade history of using CBPR to blend perspectives of multi-sectoral partners and shareholders* to increase community trust and buy-in and contribute to the development of research that is more likely to be culturally congruent, feasible, and meaningful. We use established partnership principles to ensure equitable voice throughout the research process, from research priority establishment

* "Stakeholder" has negative connotations for some tribal and indigenous communities, and it is recommended that other terms be used in its place (https://www.cdc.gov/healthcommunication/Preferred_Terms.html).

through dissemination of findings.[36,37] Partners are actively involved in dissemination activities, including manuscript preparation (e.g., this paper); they conceptualized and approved the paper topic, drafted sections, and reviewed and edited the paper. In 2020, our partnership obtained funding from the National Institute of Nursing Research (NINR) to develop, implement, and evaluate the *Appalachian Access Project* intervention, using *ENGAGED for CHANGE* (R01NR019512).

The Wake Forest University School of Medicine Institutional Review Board approved this study and provides ongoing oversight.

ENGAGED for CHANGE

We used *ENGAGED for CHANGE* (Table 1) to guide the integration of two evidence-based strategies – community-based peer navigation and mHealth – into a comprehensive culturally congruent, bilingual (Spanish and English) intervention designed to increase access to available HIV, STI, HCV, and mpox prevention and care services and medically supervised GAHT among racially/ethnically diverse GBQMSM and transgender and nonbinary persons living in rural South Central Appalachia.

[Table 1 about here]

Step 1: Expand the partnership. The first step of the process is to expand the partnership if warranted. While our partnership has a history of conducting CBPR in parts of more urban Appalachia with GBQMSM,[30,38] we expanded our partnership to include representatives from rural regions of Appalachia, Native American communities, and nonbinary communities. We networked with community leaders and members to identify those who might be interested in participating in the partnership. Networking helped to identify a core group who joined the

partnership.

Step 2: iNtervention team established. A study-specific steering committee was established to direct the project and initiate the intervention development process. Members represent the broad spectrum of identities the intervention is designed for (i.e., GBQMSM and transgender and nonbinary persons); organizations that provide services to those with these identities and/or prevention and care services for HIV, STI, HCV, and/or medically supervised gender-affirming care within the catchment area; and universities. The steering committee has the full support of the larger CBPR partnership and engages members in the process.

Step 3: Gather extant literature and data. The steering committee examined the limited number of published and unpublished papers and reports to explore what was known about HIV, STI, HCV, and medically supervised gender-affirming care among GBQMSM and transgender and nonbinary persons in Appalachia. This step initiated creative thinking about the intervention to build on the state of the science and practice of prevention and care among GBQMSM and transgender and nonbinary persons in Appalachia.

During this process two evidence-based strategies – community-based peer navigation[21] and mHealth[39] – were identified as culturally congruent, assets-based strategies that could be harnessed to promote the use of HIV, STI, HCV, and mpox prevention and care services among GBQMSM and transgender and nonbinary persons living in rural Appalachia. The underlying evidence for these strategies is currently emerging, and to our knowledge, they have not been evaluated in combination in rural communities.

Step 4: Assess community needs, priorities, and assets. We conducted qualitative in-depth interviews with GBQMSM and transgender and nonbinary persons to better understand

their experiences and whether and how much they identify as Appalachian and feel a part of LGBTQ+ communities. Our research began as an intervention for gay, bisexual, and other MSM, and transgender women, but through our process, we learned that communities within our catchment area have nuanced ways of identifying, and many expressed a broader spectrum of identities that intersect across race/ethnicity, sexual orientation, gender identity, and rurality.[40] Our steering committee advised that broadening our inclusion criteria would establish trust and harness the strengths of existing social networks while reaching those at risk. Thus, we refined our inclusion criteria to include persons who identify with one of a spectrum of identities, including gay, bisexual and queer men and other men whose sexual partners include cisgender men and/or transgender persons, and transgender persons, including transgender women and men and nonbinary persons, whose sexual partners include cisgender men and/or transgender persons. We also assessed facilitators and barriers to prevention and care for a spectrum of identities and the ways in which peer navigators would function within the contexts of rural Appalachia and the COVID-19 pandemic (which was ongoing during the intervention development process).

Step 5: Generate and refine intervention priorities. The steering committee participated in an iterative process to develop and refine original intervention priorities (i.e., HIV, STI, and HCV prevention and care services and medically supervised gender-affirming care). However, because of the onset of the global mpox outbreak in May 2022, we amended these priorities to include information about mpox and vaccination. The steering committee knew that the community of GBQMSM and transgender and nonbinary persons would ask about mpox, and if peer navigators did not have sufficient knowledge about this emerging threat and were not able to provide referrals, their reputations and the success of the intervention would be jeopardized.

The finalized and amended priorities of the *Appalachia Access Project* intervention included:

1. Increase awareness and knowledge about risk and prevention of HIV, STIs, HCV, and mpox, and about medically supervised GAHT
2. Increase knowledge of how to access prevention and care services: eligibility requirements for accessing these services and "what to expect" when accessing services
3. Reduce barriers and increase self-efficacy to overcome barriers to using prevention and care services
4. Increase skills and self-efficacy to communicate effectively with providers
5. Reduce stigma about being a racial/ethnic, sexual, and/or gender minority in rural Appalachia; about sex and sexual behavior; and about injection-drug use
6. Reduce internalized homophobia and transphobia
7. Increase social support, community attachment, and sense of belonging

Step 6: Evaluate and incorporate theory. Discussions of theory allowed the steering committee to understand the process of behavior change and identify how theory fit within the lived experiences of GBQMSM and transgender and nonbinary persons. Three theories aligned with our desired approach to support access to prevention and care services among GBQMSM and transgender and nonbinary persons: social cognitive,[41] empowerment education,[42] and social support.[21]

Step 7: Design an intervention logic model. Designing a logic model helped our partnership visually depict the links among determinants of HIV, STI, HCV, and mpox prevention and care service and medically supervised gender-affirming care access among

GBQMSM and transgender and nonbinary persons in Appalachia (Table 2). This process allowed partners to think through and "see" the logic in their thinking, discuss assumptions, and blend perspectives and experiences with science. During this process, community members evaluated what might and might not work to improve outcomes among members of their communities; providers and practitioners gave insights based on their experiences in service provision; and academic partners synthesized the literature and provided expertise in theory.

[Table 2 About Here]

Step 8: Create intervention objectives, activities, and materials. Based on the developed logic model, we created intervention objectives, activities, and materials and designed an intervention logo (Figure 1) in partnership with a local graphic design business based in rural South Central Appalachia. Intervention activities and materials developed include:

(1) A *CHL Training Manual* to guide the interactive training of the peer navigators (referred to as "community health leaders" [CHLs] in this intervention). The training includes presentations, interactive activities (e.g., games, role plays, and condom demonstrations), and videos developed by the partnership (e.g., how syringe services programs [SSPs] can be accessed)

(2) A *CHL Resource Guide* to provide details about HIV, STI, HCV, and mpox prevention and care and gender-affirming care; local providers and services, eligibility, and costs; and a message library of sample messages organized by prevention and care needs and theoretical constructs that can be adapted for use in social media communications to meet specific needs of social network members during implementation (after training)

(3) Bilingual, easy-to-read print materials providing information in lay language about

prevention and local resources to distribute within each CHL's social network

(4) A small pocket-sized brochure to remind CHLs how to effectively provide support to members within their social networks. The brochure applies an adapted version of the "ask-advise-assess-assist-arrange" model[43] known as "*IMPACT*" (or "*IMPACTO*" in Spanish); each letter of the acronym represents a step in the natural helping process (Figure 2)

(5) An *Activity Log* to be completed monthly by CHLs to document activities they conducted

Figure 1. Appalachia Access Project Logo

This process included discussion about whether the intervention would be implemented in person or virtually. Because the COVID-19 pandemic was ongoing when the intervention was being developed, we designed the CHL training to be conducted virtually using the web-conferencing platform Zoom. However, how the CHLs worked with their social networks was designed to be accomplished using both in-person and mHealth strategies.

Our partnership also worked with a small group of community members to develop a brief Spanish-language informational video to teach community members about mpox

(https://www.youtube.com/watch?v=55RYzCqWyS0). It serves as a resource that *Appalachian Access Project* CHLs can share with other community members to teach them about mpox.

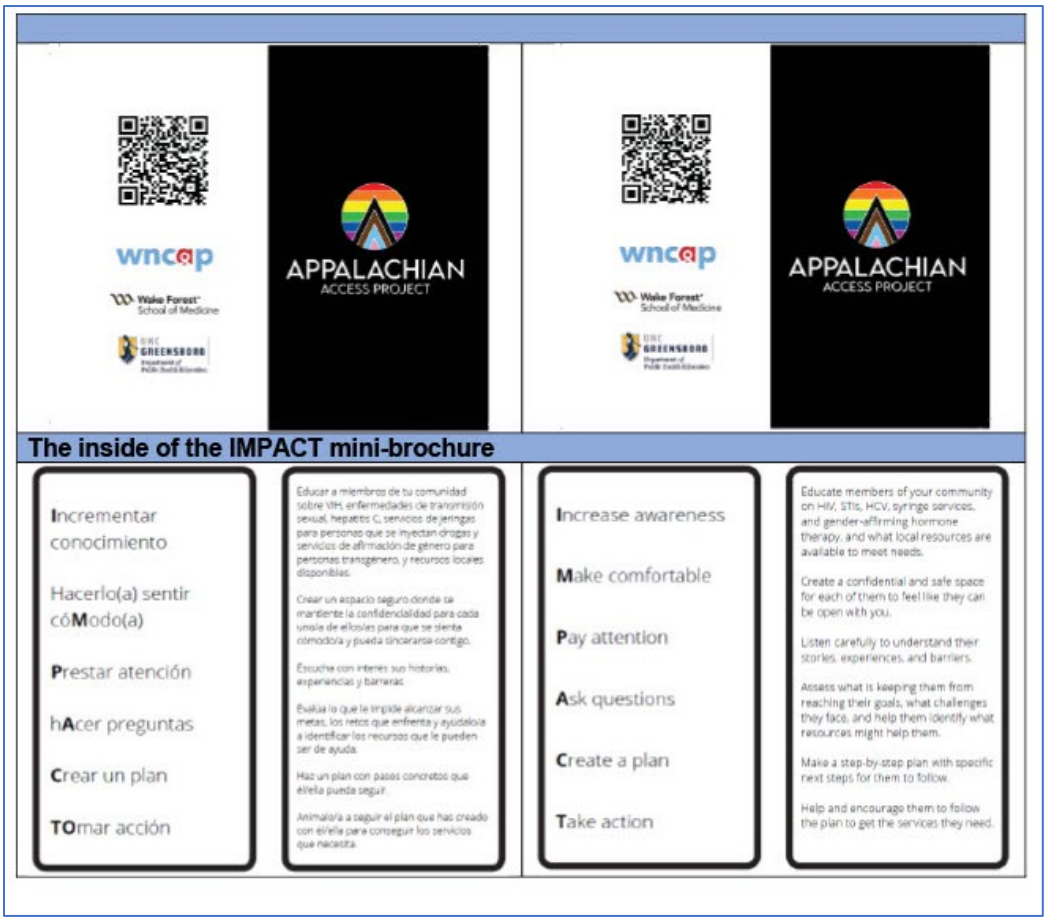

Figure 2. Back and front of the IMPACT mini-brochure in Spanish and English.

We also developed process and outcome evaluation materials to document the impact of the intervention, including: an observer's guide to document CHL training implementation fidelity; a training satisfaction survey for CHLs; a monthly activity log to access the activities of CHLs as they work in the community; baseline, post-intervention, and 12-month follow-up quantitative assessments to assess intervention efficacy among CHLs and their social networks

members; and qualitative in-depth interview guides to collect data from CHLs, social network members, and providers/staff providing prevention and/or care services within the catchment area to explore intervention strengths and weaknesses.

The process to create intervention objectives, activities, and materials was iterative with multiple opportunities for members of the steering committee and CBPR partnership to provide feedback. This process was designed to ensure that the intervention was based on the real-world experiences of GBQMSM and transgender and nonbinary persons living in Appalachia, the practice-based experiences working with these communities, and intervention and prevention science.

Step 9: Hone and pretest all activities and materials. Activities were reviewed and pretested to determine relevance and meaningfulness of intervention activities and materials among GBQMSM and transgender and nonbinary persons in South Central Appalachia.

Steps 10-13. *ENGAGED for CHANGE* includes steps to pilot the intervention, learn from the pilot, and edit the intervention based on findings from the pilot. In this case, however, our steering committee and partners chose not to pilot the intervention based on: a tight timeline resulting from a delayed start due to the COVID-19 pandemic, challenges related to testing the intervention during the pandemic, and the past experiences of the partnership successfully implementing both peer navigation[33,44] and mHealth social media[23,24] interventions.

RESULTS

After one year of using *ENGAGED for CHANGE*, we developed the *Appalachian Access Project* intervention, which includes the training and ongoing support of CHLs who work with enrolled social network members for 12 months. The training is comprised of five two-hour

interactive sessions designed to be implemented sequentially over five weeks (Table 2).

After training, CHLs serve as health advisors, opinion leaders, and community advocates. As health advisors, they raise awareness of HIV, STIs, HCV, mpox, local prevention and care services, and gender-affirming care, and help social network members access services. As opinion leaders, CHLs reframe health-compromising and bolster health-promoting norms and expectations about testing and use of other prevention and care services. They are taught the concept of reciprocal determinism from social cognitive theory[41] to illustrate how attitudes and behaviors are influenced by and influence one's environment and how one can positively influence one's environment and others. As community advocates, CHLs bring the voices of GBQMSM and transgender persons to providers. CHLs participate in tours of local HIV, STI, HCV, mpox, and gender-affirming care service providers. Tours provide CHLs with direct experiences accessing services that will: help them support their social network members in accessing services, build relationships with providers, and provide opportunities for them to share feedback for process improvement with providers over time.

Each CHL is expected to conduct at least four in-person group activities with their social network members over the course of intervention implementation. These activities include:

(1) An initial meeting to inaugurate their role after training as a resource within their social network

(2) Discussion of common barriers to prevention and care services, including testing, and how these barriers can be overcome

(3) Demystifying the process of seeking testing, prevention, and care services with different provider types

(4) An opportunity for GBQMSM and transgender and nonbinary persons to share life experiences through facilitated dialogue designed to build positive self-images and supportive relationships.

In addition to in-person individual and group activities, CHLs use social media platforms preferred by each social network member (e.g., Facebook, Instagram, texting, and/or existing social and sexual networking mobile apps [e.g., Grindr]) to disseminate information, plan activities, and support use of needed prevention and care services. For example, a CHL may use social media direct messaging to share information about an outreach HIV testing event or to remind social network members about an activity and help them problem solve barriers to attending. A CHL and social network member may also communicate "in-real-time" via a social media platform about the process of participating in a SSP, accessing PrEP, or getting vaccinated against mpox. The CHL may help the social network member navigate a clinic, reminding the network member what forms are required (e.g., to provide financial status). The potential for immediate, efficient, and bidirectional in-real-time communication between a social network member and a CHL is critical to overcoming barriers associated with initiating service use.

Each CHL also uses Facebook and Instagram accounts for indirect communication. In our *weCare* intervention, we learned that project-linked Facebook pages are less effective than Facebook pages that look and are used like a personal Facebook page;[23,24] thus, while the intervention includes project-linked Facebook and Instagram pages, CHLs also use their own Facebook and Instagram pages to post both information about prevention and care services and events and non-project related information. Their posts are meant to be engaging and informative. For example, graphics that illustrate the rates of PrEP use compared to those for

whom PrEP can be beneficial can raise awareness of the importance of taking action. CHLs also may post informal and welcoming pictures and videos (using smartphones) of prevention and care services staff and facilities within the catchment area to demystify what it is like to access services and to increase self-efficacy among social network members to use them. Because social network members may opt for different social media platforms, they all may not see Facebook and Instagram posts. However, given the current use of Facebook and Instagram, and their potential as low burden resources, they are beneficial because they also reach others who are not enrolled in this study. All posted information is correct, consistent, linked to the intervention's theoretical underpinnings, and members of the CBPR partnership, study-specific steering committee, and the study team help CHLs design messaging.

DISCUSSION

GBQMSM and transgender persons Appalachia are disproportionately at risk for HIV, STIs, HCV, and mpox[1-7] and are less likely to use needed prevention and care services, including HIV, STI, and HCV testing; PrEP and syringe services; HIV care and STI and HCV treatment; and gender-affirming care.[8,16] The *Appalachian Access Project* intervention, which was developed using *ENGAGED for CHANGE*, has potential to improve access to and use of prevention and care services among GBQMSM and transgender and nonbinary persons. The *ENGAGED for CHANGE* process builds on our partnership's ongoing commitment to and experiences in developing interventions based on the lived experiences of community members, the experiences of providers based in ongoing service delivery, and sound science.

While theory based, the intervention is also designed to be targeted, tailored, and personalized.[33,45] It targets racially/ethnically diverse GBQMSM men and transgender and

nonbinary persons. It is tailored to the local context in terms of services, their availability, how they are accessed, etc., and the communication strategies used by GBQMSM men and transgender and nonbinary persons (e.g., peer navigation and mHealth). Finally, it is personalized to the unique health-related needs and priorities and communication preferences (e.g., preferred social media platforms) of each social network member through rapport building, messaging content, and flexibility.

The Impact of the COVID-19 Pandemic

COVID-19 slowed the development of the *Appalachian Access Project* intervention. We used Zoom to convene partners and engage the steering committee; however, it was challenging to engage in an authentic participatory process. Partners had more competing priorities than they would have had otherwise; some community partners were especially vulnerable with more precarious employment and living situations and increased family obligations; and organization representatives had more work responsibilities and pressure to not "take on" anything else despite their interest. Academic partners often felt isolated from the other partners and "out of touch." The synergy that comes from working in-person was difficult to reproduce and sustain when working exclusively virtually.

Next Steps: Evaluation

We recruited 14 CHLs along with 8 unique members of each CHL's social network, collected baseline data from each of their social network members, randomized CHLs along with their social network members into intervention and delayed-intervention groups using the randomizeR package version 4.2.0,[46] and trained the intervention CHLs using the *Appalachia Access Project* intervention modules.

Data are collected from each CHL and their enrolled social network members at three time points: baseline (prior to randomization and CHL training), immediate post-intervention (12 months after the CHLs in the intervention group are trained), and 12-month follow-up (24 months after the intervention group CHLs are trained), using REDCap in-person or via phone. This final data collection will help determine the sustained effects of the intervention. Data include demographics (e.g., age, gender, and race/ethnicity), variables to assess service needs, variables targeted by the intervention (e.g., knowledge of resources, communication self-efficacy, and provider trust), and use of needed prevention and/or care services (the outcomes of interest).

It is important to note that this intervention will not address the anti-LGBTQ+ rhetoric that is unfortunately increasing throughout the United States. Our community health leaders are trained to work at the community level and are not trained in larger-scale mobilization, organizing, and, political advocacy, which our partnership sees as a limitation but should be a next step in this ongoing partnership.

Conclusions

Our CBPR partnership developed the *Appalachian Access Project* intervention using *ENGAGED for CHANGE*. The systematic process ensured that the intervention was based on the experiences, perspectives, and strengths of all partners, thus meeting community needs and priorities and ensuring that the intervention has the greatest potential to be efficacious. If the intervention is efficacious, it will be an important tool in our efforts to reduce health disparities in a part of the United States and within communities that are severely underserved.

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Table 1. *ENGAGED for CHANGE*: A multistep community-engaged participatory intervention development process

	Step	Objective
E	1. Expand the partnership	Ensure critical partners and perspectives are included in the partnership
N	2. iNtervention team established	Assign responsibility to a subgroup representing the partnership and its diversity to lead the intervention development process
G	3. Gather extant literature and data	Build on extant data, including local, regional, national, and global epidemiologic and qualitative data as warranted
A	4. Assess community needs, priorities, and assets	Ensure that local community needs, priorities, and assets are blended with extant data
G	5. Generate and refine intervention priorities	Establish intervention goals and objectives
E	6. Evaluate and incorporate theory	Ensure the intervention is informed by theory
D	7. Design an intervention conceptual or logic model	Describe the logic of the intervention (what is expected to happen)
for		
C	8. Create intervention objectives, activities, and materials	Develop and refine intervention objectives, activities, and materials, including those used in evaluation
H	9. Hone and pretest all activities and materials	Ensure activities and materials resonate with those for whom they are designed
A	10. Administer intervention pilot	Ensure intervention components fit together

	Step	Objective
		coherently
N	11. Note process of implementation during the pilot	Document challenges, problems, weaknesses, and successes identified throughout the pilot
G	12. Gather feedback and preliminary data from those who conducted and participated in the pilot	Include all perspectives in the intervention editing step and analyze collected data
E	13. Edit the intervention based on feedback and findings	Refine the intervention based on lessons learned from the pilot

Table 2. *Appalachian Access Project* Logic Model.

Behavioral Determinants *Factors from behavioral theory that impact behavior*	**Activities** *To address behavioral determinants*	**Outcomes** *Expected changes as a result of activities targeting behavioral determinants*	
		Immediate Outcomes	**Intermediate Outcomes**
1) Awareness and knowledge about risk and prevention of HIV, STIs, HCV, and mpox 2) Awareness and knowledge of PrEP and mpox vaccination and their efficacy, side effects, and safety 3) Awareness and knowledge of medically supervised gender affirming care 4) Attitudes about testing, prevention, and care services 5) Intentions and readiness to use testing, prevention, and care services 6) Knowledge of testing, prevention, and care resources 7) Perceived access to available testing, prevention, and care services and self-efficacy to overcome barriers to using these services 8) Perceived barriers to testing, prevention, and care services	**<u>Community health leader (CHL) training:</u>** **Module 1:** General Information about the Project and Relationship Building Across Sexual, Gender, and Racial/Ethnic Identities ***Topics**:* Purpose of the intervention; introduction to the role of CHLs; factors that influence health ***Activities**:* 1. Participant introductions; 2. Introduction to the intervention and CHL roles and responsibilities; 3. Group discussion to establish group norms; 4. "Who in the Zoom has…?" icebreaker to encourage participants to get to know one another; 5. Sharing our experiences related to our sexual, gender, and racial/ethnic identities in Appalachia; 6. Interactive activity on social determinants that affect our health; 7. Homework: ask 2 friends what is most important to them in terms of sexual pleasure **Module 2:** Sexual Wellness and Introduction to HIV/STI/HCV Testing, Prevention, and Care ***Topics**:* Sexual pleasure, health, and rights; magnitude of HIV, STIs, HCV, and mpox; introduction to HIV, STIs, HCV, and mpox; use of condoms ***Activities**:* 1. Group discussion reviewing previous module; 2. Group discussion of interconnections between sexual pleasure, health, and rights; 3. Overview of HIV/STIs/mpox and group discussion; 4. Overview of HCV and group discussion; 5. Learning and practicing correct condom use; 6. Homework: Ask a friend	Increased awareness and knowledge about risk and prevention of HIV, STIs, HCV, and mpox: types of infections, modes of transmission, signs, symptoms, and prevention strategies Increased awareness and knowledge of PrEP and its efficacy, side effects, and safety Increased awareness and knowledge of medically supervised GAHT Improved attitudes about testing, prevention, and care services Increased intentions and readiness to use testing, prevention, and care services Increased knowledge of how to access testing, prevention, and care services: eligibility requirements for accessing these services and "what to expect" when accessing services Increased perceived	Increased HIV/STI/HCV testing Increased use of prevention services (e.g., PrEP and PEP services and syringe services) Increased use of care services (HIV care and STI treatment, HCV treatment) Increased use of medically-supervised gender-affirming care

9) Skills and self-efficacy to communicate effectively with providers 10) Provider trust 11) The socio-cultural environment (e.g., stigma, and internalized homophobia and transphobia) 12) Supportive relationships and sense of community	what makes it hard for them to take care of their sexual health **Module 3:** Supporting Specific Communities ***Topics****:* Use of PrEP and PEP; mpox vaccination; harm reduction for people who use drugs ***Activities****:* 1. Group discussion reviewing previous module; 2. Information about preventing HIV using PrEP; 3. Information about preventing HIV using PEP; 4. Putting PrEP steps in order 5. Information about harm reduction and syringe services programs; 6. Homework: Tell a friend about a local health resource and how to access it **Module 4:** Facilitating Access to Services ***Topics****:* Use of medically supervised gender-affirming care for transgender persons; use of healthcare services; how to overcome socio-cultural barriers to health ***Activities****:* 1. Group discussion reviewing previous module; 2. Information about gender-affirming hormone therapy (GAHT): Effects, benefits, and risks; 3. Review locally available providers of testing, prevention, and care services: eligibility, requirements, and how to access them; 4. Further discussion on overcoming socio-cultural obstacles to accessing testing, prevention, and care services; 5. Learning how to support social network members using the IMPACT/IMPACTO model; 6. Homework: Review a scenario describing a friend who lives in a certain location and needs a specific service and identify where you would recommend that this friend could access the needed service **Module 5:** Putting it all Together ***Topics:*** Practicing roles as CHLs; intervention evaluation; review	access to available testing, prevention, and care services and self-efficacy to overcome barriers to using these services Reduced perceived barriers to prevention and care services Increased skills and self-efficacy to communicate effectively with providers Increased provider trust Reduced stigma about being a racial/ethnic, sexual, and/or gender minority in rural Appalachia; about sex and sexual behavior; and about injection-drug use Reduced fatalism Reduced internalized homophobia and transphobia Increased social support and community attachment	

	Activities: 1. Group discussion reviewing previous module; 2. Brief discussion of mpox testing, prevention, and care; 3. Role plays using the IMPACT/IMPACTO model; 4. Learning to use Activity Logs to track CHL activities; 5. Distribution of materials, discussion of next steps, and training conclusion		