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ORIGINAL PAPER

Beyond the Barefoot Doctors: Using Community Health Workers to Translate HIV Research to Service

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Abstract
Miami-Dade leads the nation in new HIV infections, and its Black communities experience the greatest disparities in outcomes. Our prior research found that street-based HIV testing facilitated by community health workers improved access to testing and care among Black adults in a controlled trial setting. Herein, we describe our efforts translating this CHW-led intervention into a community service for diverse Blacks in Miami. From December 2016 through August 2017, CHWs educated 1672 individuals about HIV transmission, prevention methods, and risk factor modification; 529 received HIV testing and/or linkage to care services. Approximately 5% of participants ($n=26$) had rapid reactive results. This efficacious and culturally-acceptable model represents a powerful change in the delivery of HIV care and demonstrates how public health leaders can foster community engagement in the transition from research to service.

Keywords Community health workers · HIV disparities · Home-based HIV rapid testing · Translational research

Background and Rationale

Miami-Dade is the leading epicenter for new HIV infections in the U.S. and experiences some of the greatest racial disparities in HIV outcomes. Despite widespread availability of testing and treatment opportunities, HIV/AIDS persists as a leading cause of death among Blacks and African Americans in Miami [1]. While comprising only 17% of the county population, African Americans account for nearly half of new HIV infections and 64% of all AIDS-related deaths every year [2–4]. Additionally, as home to the largest population of Black immigrants in the U.S., Miami faces unique challenges to combatting HIV within its culturally-distinct Black communities.

A major contributor to these disparities are systemic challenges in accessing HIV testing/treatment and adhering to HIV medications. Several barriers limit the number of Blacks who complete clinic-based HIV testing [5], including limited awareness of the risk of transmission, poor knowledge of the improvements to HIV treatment, the perceived cost of HIV testing and treatment, and limited access to testing and treatment centers [5, 6]. However, recent advancements in HIV screening allow for accurate testing to be completed in non-clinical settings. One such modality is FDA-approved home-based HIV rapid testing (HBHRT) [7]. In our prior randomized controlled trial (RCT), we examined whether HBHRT facilitated by community health workers (CHWs) would be more effective than HBHRT without CHW support [8–11]. We found that participants randomized to the CHW support group were significantly more likely to complete an HIV test compared to those without support. Further, participants who tested positive were significantly more likely to be linked to care if they had CHW assistance [11].

Many prior studies have also shown the CHW paradigm can improve wellness by bringing healthcare services, culturally-relevant support, and peer education to hard-to-reach populations. Under the Patient Protection and Affordable Care Act, CHWs play a crucial role in helping people with

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their HIV healthcare coverage, including providing testing opportunities for community members, linking them to care, accompanying them to clinic appointments, providing psychosocial support, and making referrals to other services [12]. When provided with supportive supervision, respect from the community, and locally supportive health and social policies, CHWs have been shown to improve uptake of HIV services and treatment adherence in diverse settings [12]. These findings highlight the potential of CHWs to improve HIV outcomes by bringing healthcare services, culturally-relevant support, and peer education to Miami's hard-to-reach minority populations.

Building upon these findings, we sought to translate this CHW model to an expanded service-based program that provides assistance to Black people in Miami seeking HIV testing, education, or support services. With funding from the Elton John AIDS Foundation, our current project, "Community-Based HIV Awareness for Minority Populations" (CHAMP) bridges the divide from evidence to practice. This manuscript describes how CHAMP is translating our research into an effective service for diverse Blacks in Miami-Dade and surrounding areas.

Methods

CHAMP procedures are based on the methods and conceptual design developed in our earlier HBHRT RCT [11]. Our theoretical approach for that program was informed by the Consolidated Framework for Implementation Research (CFIR), a comprehensive design that allows the specific constructs of a program to be consistently used across multiple settings and easily modified based on the unique characteristics of the target population [13]. The study design shown in Fig. 1 maps components of CHW strategies based on the CFIR constructs, with the ultimate goal of increasing generalizability and intervention consistency in other settings (Table 1).

Participants in the pilot RCT were evenly randomized among two study conditions: those in the control group were instructed to complete the rapid test independently, while participants in the experimental condition completed the screening with the assistance of a CHW. As a community service initiative, CHAMP participants are not randomized or allocated into intervention groups. All resources and linkage support services are provided to any who request them, regardless of their intent to participate in HIV screening. Accordingly, review by the University of Miami Institutional Review Board concluded that CHAMP is a service initiative [14], and our evaluation of the services provided through this program does not constitute research involving human subjects based on DHHS regulations.

Community Setting

Miami-Dade is the ideal setting to provide services focused on reducing racial disparities in HIV. Nearly 20% of Miami residents identify as Black and roughly one-third of which (34%) are foreign-born [15, 16]. Liberty City, Overtown, and Little Haiti are among the Miami neighborhoods with the highest number of people living with HIV/AIDS (PLWHA) [15, 16]. Liberty City currently ranks first in the county, with 20% of all PLWH in Miami residing in this district [16]. The community is characterized by poverty, gun violence, poor food access, and limited opportunity for educational attainment. These barriers attribute to HIV risk by increasing exposure to trauma, chronic stress, and poor mental and physical health outcomes, including depression, high blood

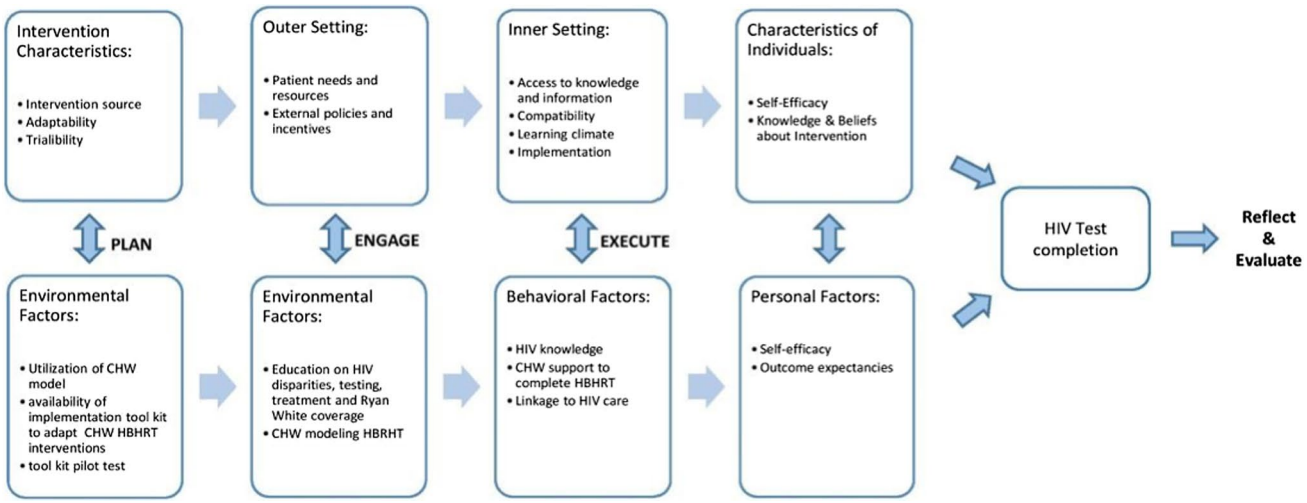

Fig. 1 Conceptual framework of the CHAMP program based on the consolidated framework for implementation research (CFIR) model

Table 1 Summary of demographic characteristics and risk factors of participants in the CHAMP service program in Miami, FL from December 2016 to August 2017 (n = 529)

Demographics	*n* (%)[a]		χ^2
	Total	HIV-positive	
Gender	529	24	**< 0.0001**
Male	277 (52.4)	18 (75.0)	
Female	252 (47.6)	6 (25.0)	
Age (*x*, SD)	42.8 (13.12)	48.7 (10.45)	**< 0.0001**
13–17	11 (2.1)	–	
18–24	43 (8.1)	–	
25–44	248 (46.9)	6 (25.0)	
45–64	207 (39.1)	17 (70.8)	
65 +	20 (3.8)	1 (4.2)	
Race	529	24	**< 0.0001**
Black/African American	499 (94.3)	1 (4.2)	
White	30 (5.7)	23 (95.8)	
Ethnicity	529	0	**< 0.0001**
Hispanic	39 (7.4)	–	
Non-Hispanic	490 (92.6)	–	
Country of origin	461	24	1.00
US and territories	413 (89.8)	24 (100.0)	
Haiti	21 (4.6)	–	
Caribbean	20 (4.3)	–	
Latin/South America	5 (1.1)	–	
Other	1 (0.2)	–	
County	525	24	**0.001**
Miami-Dade	497 (94.7)	24 (100.0)	
Homeless	*93 (17.7)*	*12 (50.0)*	
Broward	23 (4.4)	–	
Other	5 (1.0)	–	
Insurance status	388	21	**0.041**
Insured	239 (61.6)	8 (38.1)	
Private	*51 (13.1)*	*1 (4.2)*	
Medicaid/Medicare	*140 (36.1)*	*6 (25.0)*	
Other	*48 (12.4)*	*1 (4.2)*	
Uninsured	149 (38.4)	13 (61.9)	
Risk factors	*n** (%)		
Orientation	27 (7.0)	3 (12.5)	0.342
Anonymous partner	80 (18.3)	13 (54.2)	–
Sex for drugs/money	45 (10.3)	7 (29.2)	–
STD	15 (3.4)	0 (0)	–
IDU	23 (5.3)	4 (16.7)	**0.026**
Sexual assault	53 (12.1)	3 (12.5)	**0.024**
Jail/incarceration	189 (43.2)	15 (62.5)	**0.013**
Previously tested	348 (81.7)	18 (78.3)	0.245
Previously diagnosed	–	*10 (55.6)*	–
In care	–	*5 (20.8)*	–
Linked to care	–	*4 (16.7)*	–
	(x, SD)		
Drug use	1.61 (0.749)	1.79 (0.802)	0.531
# of partners	3.81 (8.83)	6.94 (7.46)	0.386
Total risk	2.63 (1.56)	3.70 (2.01)	**0.038**

Bold values significant at $p < 0.05$

Italics used to indicate subcategories (e.g. types of insurance - Private, Medicaid/Medicare, Other - among Insured participants)

[a]Percentages based on number of respondents

pressure, and substance abuse [17]. Other factors hindering the community include high rates of underinsurance, limited access to primary care providers with flexible office hours, and a lack of public transportation. The majority of PLWH identify as African-American or as Caribbean Black, including 72% of PLWH in Liberty City and 61% in Little Haiti [16]. Given this severe disparity in HIV prevalence among diverse Blacks, CHAMP targets historically Black communities in Miami-Dade.

Although CHAMP was initially funded to serve adults in Miami-Dade County, demand for our services increased rapidly as more people became aware of our program, especially among persons under 18 years old. In alignment with CDC guidelines that recommend everyone between the ages of 13 and 64 get tested for HIV as part of their routine healthcare, we requested and received permission from our funder to serve adolescents aged 13 years and above [18]. Additionally, in response to requests outside our target area, we also increased our geographic area to include Broward County, currently ranked second in the nation for new HIV infections [16].

Selection and Training of Community Health Workers

CHAMP relies heavily on CHWs for program implementation. The formal use of community members to deliver basic health care has existed for decades. Well-known examples of early programs include the Chinese barefoot doctors and Thailand village health volunteers, who provided health and advocate services for rural communities [8, 17]. Likewise, CHWs are respected members of their community that are trained to support the health needs of their neighborhood through HIV education and support services [18, 19]. Consistent with the barefoot doctor model, CHAMP hires CHWs from within the community, as this helps to solidify community trust and foster participant interactions that reflect the cultural norms of that region. For example, CHWs are able to connect with community members on a colloquial level and speak fluently in their language of preference, such as Haitian Kreyol in Little Haiti.

CHAMP has four CHWs managed by a Masters-level program manager, who reports directly to the program director. CHWs were initially identified through their voluntary participation in local community-based HIV events. For example, two of our CHWs were identified as potential candidates through their volunteer work at our first World AIDS Day celebration in Liberty City. The other two CHWs (in Overtown and Little Haiti) also began as CHAMP volunteers before becoming official hires on the team. Our Overtown CHW was identified by his outreach and recruitment support during our annual National Black HIV Testing Day event; similarly, our CHW representative for Little Haiti was first identified through her participation in our community workshop for National Women and Girls HIV Awareness Day. Our experience with CHW-facilitated interventions has shown that effective and dedicated health workers are often those willing to devote their personal time to HIV prevention efforts. Thus, while volunteerism is not a prerequisite for hiring, CHAMP makes a concerted effort to evaluate volunteers for their potential as local health educators.

CHWs were selected based on their (1) familiarity with cultural norms in the target areas, (2) interest in HIV testing, and (3) level of participation in community activities. All CHWs were either born and raised or currently reside in our target communities. As in our earlier studies [10, 11], CHWs receive specialized training in HIV disparities and accessing public health HIV services.

Prior to implementation, CHWs completed the Florida Department of Health's HIV/AIDS 500/501 courses for testing counselors; these courses introduce participants to standardized information regarding the basics of HIV and AIDS as it pertains to counseling, testing and linkage [20, 21]. CHWs also completed a certification course in rapid HIV testing provided by OraSure Technologies, the developers of the test kits used in this program. This includes an in-person training session led by an OraSure Technologies representative, as well as a 30-min e-training explaining the OraQuick ADVANCE testing procedure, the infection "window period" and the importance of routine rapid testing, and appropriate OraQuick reporting protocols [11, 7]. CHWs also received didactic HIV education from the UHealth Promote-2-Prevent STD Outreach Program.

As part of the startup process, CHWs introduced themselves and the CHAMP program to local HIV clinics, where they discussed the possibility of connecting participants to these care agencies for confirmatory testing and care. By establishing connections with multiple agencies—including the AIDS Healthcare Foundation, Care Resource, and Pridelines—CHWs are able to provide participants with several options for follow-up care.

Participants

CHAMP services are community-oriented and accommodate all interested parties, notwithstanding their race, ethnicity, or prior test history. Exclusion from the program is limited only to persons under the age of 13, who by Florida law are required to obtain parental consent for HIV testing and treatment.

Recruitment

Participants are recruited by CHWs who canvas community centers, neighborhood events, churches, and other well-populated areas within each neighborhood. These venues

are primarily identified by referral or based on the CHWs personal experience with the organization. For example, a member of a local church may see CHAMP participating at local community event and request to have CHW visit their congregation. During outreach, CHWs provide community members with flyers that include the CHAMP program intention, information on HIV testing, and a phone number to schedule home-based HIV rapid testing.

CHWs also establish partnerships with community leaders and local vendors who broadcast the project within our target neighborhoods, helping to fortify community engagement and establish a sustainable model for future interventions.

Community CHAMPIONS

In addition to the outreach conducted by CHWs, CHAMP's recruitment efforts are supported by local residents in our Community CHAMPION Program. In general, CHAMPIONS are respected leaders in their community who have difficulty completing university hiring requirements due to extenuating circumstances, such as marginal formal education or a criminal record. The CHAMPION Rewards Program compensates these community partners in exchange for their time spent referring participants for HIV testing. Specifically, we provide a $25 prepaid card to anyone who refers five people who complete HIV testing with CHAMP. This economic empowerment strategy incentivizes community members to increase local testing behaviors and fosters program sustainability. For example, regular rewards program contributors work closely with CHWs to schedule participants and discuss outreach efforts. Herein, CHAMPIONS are equipped with HIV prevention and treatment knowledge to support their recruitment efforts, including information on recent prevention advances, such as pre- and post-exposure prophylaxis. This aspect of the CHAMP program has produced a cadre of peer educators who are empowered to spread HIV education and advocacy throughout their communities.

Consent

All participants who request HIV testing from CHAMP must sign a consent form during pre-test counseling. Consent is obtained by our CHWs in the participant's preferred language (English/Kreyol). Consent is not required to receive HIV education or advocacy; it is only obtained for HIV testing or care linkage services. In cases where a participant states they cannot read, or if a CHW suspects a person's literacy level is insufficient, a CHW reads the consent form aloud. For those with limited literacy, a witness signature is obtained indicating the form was read to the participant.

Health Education

CHAMP utilizes the Positive Prevention curriculum developed by the American Red Cross which has been shown to significantly increase outcome expectancies, self-efficacy, and protective health behaviors [20, 22]. The CHAMP educational model also highlights the importance of antiretroviral medication adherence, information about the Ryan White coverage program and eligibility, and referrals to social services for medical, social, and financial support. Additionally, CHAMP's educational component emphasizes novel medications, such as PrEP and PEP, and discusses how individuals can gain access to these resources.

Community-Level Education

In addition to the culturally-appropriate sex-positive curriculum described above, education sessions and discussions are often created in response to community requests for additional information on HIV risk behaviors specific their neighborhood experiences, such as domestic violence or casual partners. Education sessions occur in well-known neighborhood locations and often include food and refreshments purchased from locally-owned vendors.

Each CHW is required to host or coordinate a minimum of four HIV education or awareness events in each target neighborhood annually to maintain visibility. Examples of awareness events include testing events at community staples; health empowerment workshops for vulnerable groups; and sex education seminars at local schools and colleges. Importantly, we also share our findings with our local communities at least once per year to increase knowledge about HIV prevalence, transmission behaviors, and advances in HIV care. This approach supports recruitment, reduces the stigma associated with HIV/AIDS, and motivates locals to be more proactive about their health concerns.

Personalized Education

Individual HIV education occurs most often before and after testing. Prior to performing the rapid test, CHWs provide counseling to each participant. This includes sex-positive HIV education based on a research-validated prevention curriculum developed by the American Red Cross. CHWs will then follow by developing an individualized preventive plan to reduce future sexual risk behaviors. This action plan may include goals such as enrollment in PrEP treatment; plans for drug detoxification; improving condom negotiation or reducing the number of partners; potential experiences and expectations related to medical treatment; and addressing participant confidence in goal attainment. Importantly, during pretest counseling, all participants are informed that, if their test result is positive, CHWs will (with their permission)

accompany them to a local HIV care agency of their choice for confirmatory testing and follow-up HIV care. Due to the diverse nature of our study population, CHAMP CHWs tailor these educational conversations to meet the sexual health needs of each participant. This is accomplished by assessing each participant's specific risk behaviors, identifying the social determinants that influence their risk engagement, and determining solutions to mitigate these factors. For example, CHWs have helped homeless participants enroll in temporary housing programs, assisted parents and students with college applications, and provided workforce training to help participants increase their employment eligibility.

HIV Testing

CHWs perform rapid HIV testing at public events, inside patient homes or vehicles, and in other non-clinical locations in an "on-call" manner. Often, participants consent to receive testing in settings with limited privacy, such as public transit locations, convenience stores, and community centers.

Participants are tested using the *ADVANCE*® Rapid HIV-1/2 Antibody Test [7], which uses an oral swab to test saliva for the presence of HIV antibodies and delivers results in 20 min or less. Similar to clinic-based HIV tests, a confirmatory test must be conducted for a final diagnosis after obtaining a positive result.

During the 20-min waiting period, CHWs collect information regarding a participant's sexual history. This data collection tool is based on standard HIV data collection forms used by Florida Department of Health test sites (DH1628) [21]. The form queries sociodemographic information, testing history, and risk factors. In addition to the standard questions, our modified survey also addresses non-drug related needle exposure (tattoos), incarceration, and sexual assault. The CHW reads each question to the participant and records their verbal responses onto the test sheet.

CHWs also use this time to assess the participant's support system, and review or modify the action plan initiated during pretest counseling. When the test is complete, CHWs review the results with the participant, provide posttest counseling, and issue a $5 gift card as compensation for their time. Posttest counseling includes a brief review of HIV transmission and disease prevention strategies, including PrEP and PEP. CHWs further discuss the transmission window period with participants, and schedule those that may have been exposed to HIV within the last 3 months to return for a follow-up screening. Participants are also provided with a community resource pocket-guide, CHAMP contact information, and contraceptive tools including condoms and lubricants.

For participants with a rapid-reactive test result, CHWs explain the results and ask in-depth questions about concerns identified during pre-test counseling and their current support system. CHWs schedule confirmatory testing to occur within 1 week and accompany each participant to this appointment. CHWs also assist reactive participants with any pre-enrollment needs, such as obtaining identification or health insurance enrollment. Once an HIV-positive status is confirmed, CHWs help the participant schedule an initial care appointment within 4 weeks. CHWs attempt to maintain their relationships with all reactive participants by working with their assigned case worker to provide ongoing encouragement focused on medication adherence and support resources. Finally, CHWs reinforce concepts introduced by providers by reviewing any files or reports with the participant, thereby verifying patient comprehension of the steps necessary to prevent disease progression.

Statistical Analyses

Data collected through August 2017 was entered into Microsoft Excel and exported into SPSS for analysis [23]. To determine population demographics, we analyzed frequency data on age, gender, race, ethnicity, immigration status, and place of residence. Frequency data was also used to examine HIV transmission behaviors, prior HIV testing, and acceptability of HBHRT. Chi square analyses were performed to examine potential differences between sub-groups in test completion and HIV care access.

Confidentiality of Data

To maintain participant confidentiality, program specific ID codes are used in all study tracking and analyses. Only the CHWs and the research coordinator have access to the files linking participants with study IDs. Paper surveys are stored in locked filing cabinets within RFID-controlled offices at the University of Miami. Electronic participant records are password-protected and can only be accessed by research staff. Data is stored in a confidential, cloud-based filing system specific to the University of Miami.

Results

From December 2016 through August 2017, CHAMP CHWs and volunteers educated 1672 individuals in Miami-Dade County about HIV testing resources, transmission behaviors, prevention methods, and risk factor modification. Of those encountered, 529 received HIV testing and/or linkage to care services. Approximately 5% of the test population ($n=26$) had positive test results and 92% ($n=24$) were subsequently confirmed to be HIV-positive through confirmatory testing.

Demographics

The majority (94%, $n=498$) of individuals tested self-identified as Black, and 10% were Caribbean-born immigrants,

primarily of Haitian origin. Most (94.4%) lived in Miami-Dade. Over half of participants (53.2%) were male and the average age was 43 years. In addition, 61% of respondents had insurance at the time of testing, and 36% received coverage through Medicare and/or Medicare. One-fifth of those we tested were homeless at the time of testing. Lastly, only 7% reported engaging in non-heterosexual behaviors in the last 12 months.

Risk Assessment

Two-thirds had previously taken an HIV test. Participants reported an average of three sexual partners within the past 12 months and 48% reported having anal or vaginal sex without a condom within the past 12 months. Approximately 15% reported having sex with an anonymous partner within the last 12 months. Half (50.4%, n = 267) of participants agreed to discuss their drug history with CHAMP staff. Among this sub-group, 60% reported drug or alcohol use within the last 12 months.

HIV-Positive Participants

All HIV-positive participants were Black, US-born Miami-Dade residents, and the average age was 49 years. A majority (75%) were male, and 12.5% reported non-heterosexual practices. At the time of testing, 38% of HIV-positive participants had health coverage, primarily through Medicaid and/or Medicare. Notably, more than half of participants were previously diagnosed and aware of their HIV status but did not disclose this information to the CHW at the time of testing.

A majority (78%) of HIV-positive participants indicated they had received at least one HIV test in their lifetime. Participants reported an average of seven sexual partners within the past year and 13% had over 20 different sexual partners within the past 12 months. Ten percent were intravenous drug users, and 30% reported having sex in exchange for drugs, money, or other services. Within the past year, a majority of participants ($n = 15$) who tested positive reported having anal or vaginal sex without a condom. Approximately 17% of participants were linked to care through the CHAMP program. Of those who were not linked, 21% were already enrolled in care services, and the remainder refused linkage support or were lost to follow-up. Fifty percent of HIV-positive participants were homeless at the time of testing.

Discussion

To create a comprehensive approach to risk reduction, HIV prevention and HIV care must function as a single continuum [24]. Though several effective HIV testing, prevention, and treatment modalities exist, it is widely acknowledged that utilization of such advances is limited among populations at greatest risk for poor HIV outcomes [25, 26]. Addressing this gap, we sought to translate an effective HIV testing intervention into an expanded service-based program targeting Black communities in Miami that suffer from the worst HIV disparities.

In the first 9 months of operations, CHAMP provided sex-positive prevention education and rapid HIV testing to 529 people in Miami-Dade and surrounding counties. CHAMP has a 4.5% sample positivity rate, and 17% of HIV-positive participants were linked to care through CHAMP services. In translating the CHAMP model to community practice, the scope of our services span beyond standard research methodology to ensure community engagement and retention in all services along the care continuum. For example, several individuals in our sample are PLWH who were unable to successfully navigate the healthcare system alone. Approximately 42% of HIV-positive participants reported prior knowledge of their HIV status during post-test counseling, and many indicated they were seeking CHW assistance accessing HIV care. Through the transition from research to service, we are able to facilitate access to care for groups that would have previously excluded by standard research protocol.

CHAMP's service protocol evolves based on newly identified community needs, and we provide services to anyone seeking HIV support. For instance, while our initial protocol offered participants only one test per 12 months, we have revised this in response to requests from community members seeking repeat HIV testing. In accordance with CDC guidelines for high-risk populations, we now offer repeat HIV testing for interested participants every 3–6 months [20]. Additionally, nearly 6% of our population are people who do not identify as Black but reside in target neighborhoods and face similar socioeconomic barriers as our target population, including limited heath literacy, poverty, and homelessness. In translating our past research intervention to a community service, we are now able to provide not only testing, but HIV education and access to prevention resources to anyone who seeks our assistance.

One of most important aspects of our street-based testing program is that it delivers HIV services directly to the heart of the community, making testing and treatment accessible to the most vulnerable people within our target population. For example, some CHAMP participants are aware of their sero-positive status before seeking our services but have fallen out of care due to competing responsibilities or other social barriers. As seen in our earlier research studies [11], many of these individuals seek out our testing services as a means of obtaining CHW support with their HIV care regimen. CHAMP participants have also indicated that they prefer our culturally-sensitive outreach methods compared

to some of the strategies used by other HIV care agencies, such as mobile clinic testing. As stated by one participant, "I see Jakisha (a CHAMP CHW) out here in Liberty City every day. I know her. We grew up together. She speaks to me and everyone else she passes. I don't know the people inside that van." Other community members have supported this statement, indicating that they rarely see testers engaging the community outside of the mobile clinic. Participants have further expressed their reluctance to approach mobile testing units due to their fear of stigma and judgment by their peers.

To date, CHAMP has provided hundreds of people with HIV education and counseling, irrespective of their intent to test. While the immediate goal of CHAMP is to increase testing behaviors, this program seeks to provide comprehensive HIV services that address each stage of the Status Neutral Continuum [25]. This is accomplished by addressing the specific counseling needs presented by the community, and by providing education and access to preventive resources ranging from PrEP enrollment to linkage to care. To demonstrate, many residents in Liberty City expressed concern over a known HIV-positive male engaging in unprotected sex with multiple neighborhood women. In response to their requests for further guidance, CHAMP worked with local women to host a community education session titled, "Are You the Side-Chick?". This topic attracted curiosity among neighbors who were not a part of the original conversation, and the session prompted both men and women to consider their sexual relationships in terms of HIV risk.

In addition to raising local knowledge and awareness of HIV risks factors, this approach validates the needs of the local residents and builds trust between community members and the CHAMP team [27]. These workshops further reinforce self-efficacy and program sustainability within the community for both negative and positive community members. For example, many of the event attendees were later tested and sought further information on prevention services. Additionally, two community members later shared that they were able to successfully enroll in PrEP treatment at their local DOH clinic due to the information they learned from our workshops and the guidance provided by their CHAMP CHW.

While CHAMP has been effective in targeting a historically-challenging group, we recognize that establishing a trustworthy relationship takes time. Responses gathered from the community lead us to believe that some CHAMP participants were withholding important personal information. Roughly one-third of Black individuals in Miami-Dade County are born outside of the United States [28, 29], but our preliminary data suggest that only 11% of our total population were foreign-born. Furthermore, among our HIV-positive participants, all individuals reported to be born in the United States. We suspect these results may be attributed to participants fear about disclosing their immigration-status at a time when immigration policy is rapidly changing. We anticipate that our recruitment among immigrants will grow as we continue to build trust within immigrant Black communities. As of mid-2018, over 25% of new CHAMP participants identify as immigrant Blacks, and our outreach efforts are continuously expanding.

Limitations

While CHAMP has been effective in increasing local testing behaviors, we have encountered some limitations. For example, we have had limited success linking homeless PLWH to care. While housing is not a criterion for testing, a large portion of positive participants were homeless at the time of testing. As a result, many have provided outdated contact information or false addresses, limiting the success of our CHW follow-up efforts.

Another contributing factor is that rapid gentrification is quickly changing the demographic of our target communities. Some of Miami's historically Black neighborhoods, including Liberty City, are located along the highest point above sea level in the County. Recent and recurring flooding throughout Miami have raised concerns around the rising sea levels and turned this area into prime real estate. Thus, many inner-city residents have been pushed from their communities by developers seeking to capitalize on the location [30, 31]. This can be seen in Little Haiti, where longtime residents and business owners have already been displaced as their property owners sell their estates and evict current tenants [30, 31]. As a result, many have relocated further north in search of more affordable real estate, significantly reducing our access to our target clientele and their access to HIV prevention.

Safety considerations are another limitation our team has faced and discussed frequently. Our CHWs understand the climate of the communities they serve and successfully persist in testing, regardless of fluctuating crime rates. Safety measure we have taken to reduce risk include hosting events during daylight hours only and working in partnership with our local political representatives and police force.

Conclusions

CHAMP is elevating HIV knowledge and utilization of HIV advances among diverse Black people living in South Florida by providing access to HIV education and testing services that are culturally-acceptable among African-American and immigrant Black populations. The CHAMP model utilizes sustainable methods by encouraging community

participation and providing local residents with the resources and economic opportunities to reduce disparities in HIV outcomes.

Public Health Implications

CHAMP represents a powerful change in the delivery of HIV care and demonstrates how public health leaders can foster community engagement and empowerment as we transition our focus from research to service. This "for us, by us" approach, as community members have called it, enables local residents to take an active position in their community health. Future researchers should apply this model on other disparate, research-poor populations to determine the generalizability of this CHW-led HIV screening model in other communities across diverse geographic locations.

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