Feasibility and acceptability of HIV self-testing among female sex workers and men who have sex with men in YAOUNDÉ, CAMEROON

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Acknowledgements

This study was made possible through the support of the U.S. President's Emergency Plan for AIDS Relief (PEPFAR) through the U.S. Agency for Development (USAID). The contents are the responsibility of the LINKAGES, Johns Hopkins University and Metabiota and do not necessarily reflect the views of USAID, PEPFAR, or the U.S. Government.

The authors would like to thank the Cameroon Government, and in particular the Minister of Public Health, the Permanent Secretary of National AIDS Control Committee (NACC), and their collaborators.

The authors also express their gratitude to partner community-based organizations, Horizons Femmes and Humanity First, and the CHAMP program for contributing to the implementation of HIV self- testing and for sharing their experience, expertise and insights into the process.

In addition to all study team members and advisors, listed below, we further extend our gratitude to study participants for their time and contributions.

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Recommended citation: Johns Hopkins School of Public Health and Metabiota Cameroon. Feasibility and acceptability of HIV self-testing among female sex workers and men who have sex with men in Yaoundé, Cameroon. Washington, DC: LINKAGES; 2018.

Aim

The aim of this study was to characterize the feasibility and acceptability of HIV self-testing (HIVST) among key populations at risk of HIV infection and transmission in Cameroon and pilot HIVST as a means of reducing undiagnosed HIV in key populations.

Specific study objectives were to:

1. Characterize the acceptability, ease of use, and barriers to HIVST among key populations in Cameroon
2. Determine the uptake of self-testing among key populations in Cameroon
3. Increase the proportion of naïve and infrequent HIV testers who are tested for HIV using self-testing compared to other testing and outreach strategies
4. Increase the number of HIV positive people who know their status
5. Estimate linkage to care among key populations receiving HIVST kit
6. Determine if the promotion of HIVST increases the number of newly diagnosed people living with HIV (PLHIV) seen in clinic settings using routinely collected data

Rationale

An estimated 620,000 people have been diagnosed and are living with HIV in Cameroon, corresponding to about 4.5% of the adult population 15-49 years [1]. Female sex workers (FSW) and men who have sex with men (MSM) are disproportionately affected by HIV, with the latest prevalence estimates suggesting that 24.3% of FSW and 20.6% of MSM are living with HIV (unpublished data, 2016 IBBS). There are strong regional disparities, and prevalence is considerably higher in some cities; in Yaoundé, for example, prevalence is estimated at 23.3% among FSW and 45.1% among MSM. The Cameroonian National AIDS Control Committee has identified FSW, MSM, and the clients of FSW as key populations for HIV prevention and control.

Despite heightened HIV acquisition and transmission risks, HIV testing remains well below targets in key populations. For example, among FSW surveyed in 2016, 90% reported ever testing but only 59% reported being tested in the previous 12 months. Among MSM surveyed, 73% reported ever testing but only 55% reported being tested in the previous 12 months (IBBS 2016). Because of infrequent HIV testing, undiagnosed HIV infection is of great concern in these groups; in the 2016 IBBS, 48% of FSW and 58% of MSM testing HIV positive were previously undiagnosed. More frequent HIV testing is essential to reducing undiagnosed HIV infection and improving access to HIV treatment and care.

HIVST is emerging as an important tool to promote HIV screening and, potentially, to increase frequency of HIV testing in at-risk populations for whom more frequent testing is recommended [2]. In many places, there is stigma associated with seeking HIV testing. Undergoing HIV testing regularly, for key populations, may be perceived by clients or healthcare providers as disclosing a stigmatized behavioral risk. Self-testing can potentially overcome these barriers to HIV testing uptake by placing the locus of control on testing on the individual, increasing confidentiality, and allowing members of stigmatized groups to test in settings of privacy, safety, and with dignity. Self-testing has become possible as HIV rapid tests have grown more sensitive and devices have become less complex, enabling interpretation by lay people without medical training. While the majority of research has taken place in higher income settings [3], emerging work from low and middle income countries has shown similar acceptability and comprehension of the materials, supporting the use of self-testing.

Although HIVST has not been formally promoted by the Cameroonian government, the Ministry of Health (MOH) is interested in evaluating the potential of HIVST to boost numbers of HIV positive people who know their status, thus reducing undiagnosed HIV.

Methods

This study of the feasibility and acceptability of HIV self-testing among FSW and MSM was conducted in Yaoundé, Cameroon between 27 January—31 March 2018. The study had three main components: 1) a formative phase, which included focus group discussions (FGD) with both MSM and FSW, 2) HIVST kits distribution, which included both drop-in center-based and outreach-based distribution, and 3) a qualitative post-testing phase. Details for each of these phases in specified below. Participants in each phase were recruited in collaboration with two community organizations, Humanity First Cameroon and Horizons Femmes, providing services respectively to MSM and FSW in Yaoundé.

Table 1. Study phases

Phase	Activity	Participants
Formative Phase	Focus group discussions (FGD)	MSM (2 FGD), FSW (2 FGD)
HIVST distribution Phase	DIC-based distribution	MSM (500 direct, 1000 indirect), FSW (500 direct, 1000 indirect)
	Outreach-based distribution	
	Network-based distribution	
Qualitative Post-Testing Phase	In-depth interviews (IDI)	20 in-depth interviews with FSW (10) and MSM (10) regarding experience with HIVST kits

Eligibility criteria

Inclusion criteria:

- 18 years of age or older; and
- Assigned female biological sex at birth, and reports having exchanged sex for money as a main source of income for the last 12 months, or
- Assigned male sex at birth and reports having had anal sex with another man in the past 12 months.

Exclusion criteria:

- Demonstrates mental incapacity or any other illness preventing comprehension of the study procedures or informed consent.

Formative Phase

A total of four FGDs, two with FSW and two with MSM, were conducted to assess the acceptability of HIV self-testing among key populations in Cameroon and to gather information to tailor the HIVST distribution approach. Participants were recruited through recommendations from local community groups and partners. Participants were selected to ensure a diversity of lived experience (younger/older, different types of sex work venues frequented, different neighborhoods, etc.). FGDs were guided by a discussion guide and took approximately 1-2 hours. Participants were informed that their contributions would inform the refinement of the study and recruitment design of the HIVST distribution study. Study staff trained in study methods and human subjects research lead the FGDs.

HIVST Distribution Phase

Distribution Pathways

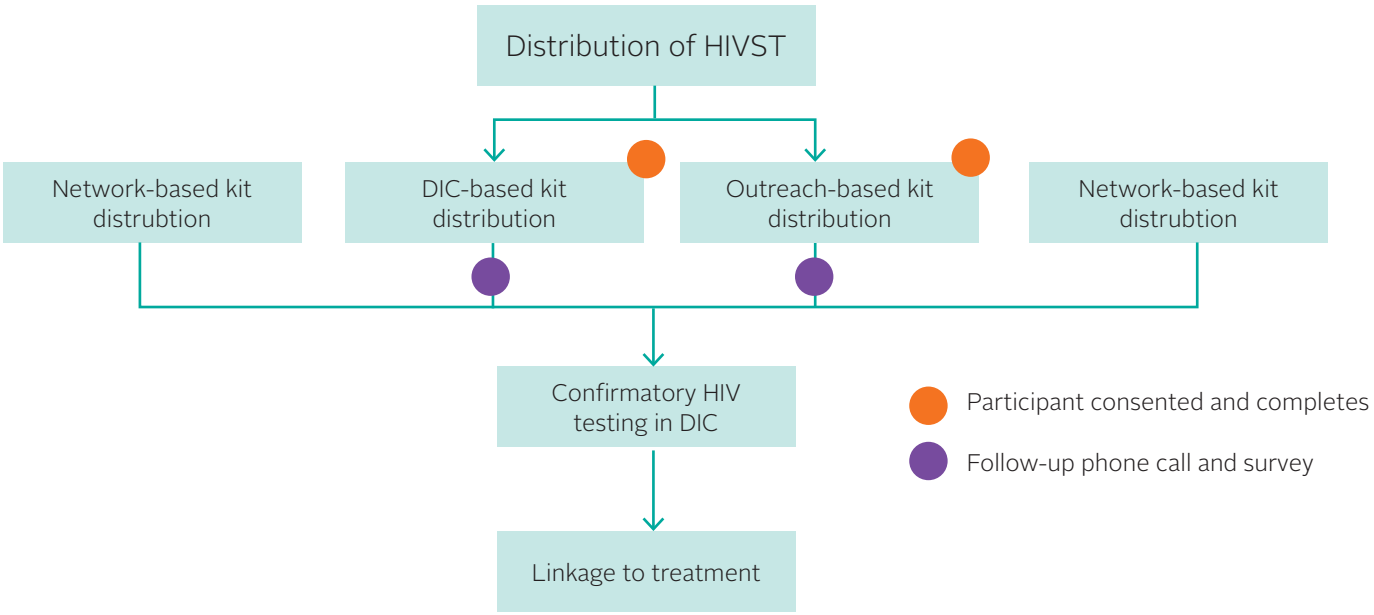
HIVST kits were distributed, with the aim of increasing HIV testing among key populations and reducing undiagnosed HIV. To facilitate distribution of test kits, the study team utilized the community network and outreach mechanisms of the Continuum of Prevention, Care and Treatment (CoPCT) of HIV/AIDS with Most At-risk Populations (CHAMP) Program, as well as subsequent referrals for confirmatory testing and HIV care. This study leveraged three means of distributing HIVST kits: drop-in-center (DIC)-based distribution, outreach-based distribution and network-based distribution (**Figure 1**). DIC and outreach-based distribution were implemented through peer educators at partner organizations, Horizons Femmes and Humanity First. Each setting was also used to initiate peer-to-peer, network-based distribution by providing participants recruited through DIC- and outreach-based services additional HIVST kits for distribution through their own networks.

DIC-based distribution took place at existing DICs located in the community and targeted FSW (Horizons Femmes) and MSM (Humanity First Cameroon). Outreach-based distribution utilized existing outreach and peer education programs at sex work venues, hot spots, and other community locations where key populations gather. This means of distribution was intended to target key population members who are not accessing existing HIV testing and prevention services. In each of these settings, peer educators identified, sensitized and referred potential participants to trained interviewers. Interviewers screened potential participants for eligibility, obtained informed consent, provided instructions on using the HIVST with optional pre-test counseling, and administered a short questionnaire. Participants had the option of completing the HIVST on-site or later. All participants, regardless of result, were recommended to seek confirmatory HIV testing at a DIC, and participants with a confirmed HIV positive result were referred to CHAMP or associated DIC for ongoing HIV management and treatment.

Network-based distribution was initiated through both clinic and outreach settings. Participants reached through clinic- and outreach-based distribution received one HIVST kit for themselves and up to two additional test kits for distribution to someone within their personal networks. The individual who received the HIVST kits directly was encouraged to distribute the additional test kits to sexual partners, friends or associates who are also members of key populations. Individuals reached through network-based distribution were provided a HIVST kit including written instructions, information about HIV and testing, and a referral card for confirmatory testing. They did not provide consent or contribute survey data, and thus are not considered study participants.

Confirmatory HIV testing for all participants or other recipients of HIVST consisted of dual rapid HIV testing, as per national guidelines. The HIVST was not considered in the confirmatory diagnostic algorithm.

Figure 1: Distribution of HIVST Kits



Distribution phase procedures

Peer educators identified and sensitized potential participants and introduced briefly HIVST during usual activities as an alternative to traditional testing. Potential participants who expressed initial interest in HIVST were referred to an accompanying interviewer who assessed eligibility, obtained informed consent, provided pre-test instructions and assigned participants with a unique identification code (UIC). The UIC was recorded on the consent document and questionnaire.

Pre-test instructions included education on proper HIVST kit use and the importance for confirmatory testing, irrespective of HIV positive result. The participant was informed that the HIVST is considered a screening test, and not meant to be used as a replacement for HIV testing at the health clinic. A study staff member showed participants how to use the tests to facilitate correct use, including the opening of the test kits, collection of oral fluid samples, and the reading of results after a wait of 20 minutes. Participants also received information about the window period during which antibodies to HIV cannot be detected. In addition, participants were also offered optional pre-test counseling, separate from the pre-test instruction information.

In addition to their personal HIVST kit, participants had the option of receiving two additional HIVST kits for distribution to people that they know to be members of key populations. Participants were counseled about assessing who to provide the HIVST kits to, and to consider any potential risk of intimate partner violence.

Following pre-test instructions, participants were administered a short electronic questionnaire. The questionnaire confirmed eligibility to participate and assessed HIV testing history and engagement in risk behaviors. The questionnaire took about 8–10 minutes to complete.

After pre-test instructions, optional pre-test counseling and questionnaire completion, the participant was given the choice to perform their own test in a private space on-site or to take their HIVST kit away with them to test themselves later. Upon completion of testing, participants chose whether to disclose the result to the study team and had the option to receive post-test counseling if desired.

Participants who chose to disclose their result were again counseled on the importance of confirmatory testing and directed to the referral card packaged with the test kit. If participants did not want post-test counseling, they were followed up via phone two weeks later, following organizational protocols for follow-up on individuals who access drop-in center or service-point services.

Qualitative Post-Testing Phase

A total of 20 in-depth interviews were with enrolled study participants (10 FSW, 10 MSM) to understand their experiences in the study, including clarity of instructions for HIVST kit use, ease of use, and barriers.

Triangulation of HIV testing services

Routine program data collected from 1 January 2016–21 April 2017 were extracted from participating community-based organizations, Humanity First and Horizons Femmes Yaounde, using the Dimagi CommCare electronic client tracking database. Program beneficiaries are identified using a UIC constructed in the same manner as the study UIC, allowing records to be merged between study distribution phase and program databases. Collected program data include HIV testing, HIV result, initiation and retention on antiretroviral therapy (ART). Historical and confirmatory HIV testing at CHAMP were assessed among study participants.

Ethical considerations

Ethical approval was obtained from the National Research Ethics Committee in Cameroon (No. 2017/10/943/CE/CNERSH/SP) and Johns Hopkins University Institutional Review Board (IRB# 00008012). Administrative clearance was received through the Ministry of Public Health.

HIV Self-Test Kits

OraQuick HIV Self-Test Kits, involving a non-invasive oral swab, was used for the HIVST in this study. OraQuick is manufactured by Orasure Technologies, Inc (www.OraSure.com). Clinical studies have estimated that the sensitivity of the OraQuick In-Home HIV Test is 92%, demonstrating that 92% of the results will be positive when HIV is present. Clinical studies have also shown that OraQuick In-Home HIV Test has a specificity of 99.98%, representing the percentage of results that will be negative when HIV is not present. The United States Food and Drug Administration has issued a premarket approval for Oraquick In-Home HIV test: http://www.fda.gov/BiologicsBloodVaccines/BloodBloodProducts/ApprovedProducts/PremarketApprovalsPMAs/ucm311895.htm. The test used for the Oraquick HIV Self-Test (http://www.orasure.com/products-infectious/products-infectious-oraquick-self-test-edit.asp)

Packaging

The HIVST kits included:

- Written, step-by-step instructions on the correct use of the self-test;
- An oral swab test stick and tube with solution;
- Information booklets on HIV and testing;
- Informational information about the test;

- Phone number for further information;
- Referral cards to an HIV health clinic for confirmatory testing.

The instructions included in the kit were provided in French and English, and adapted to the Cameroonian context. For those who test positive with the HIVST kits, the referral provided inside the kit directed the individual to a study site to facilitate confirmatory testing. Referral cards had a telephone number where participants could send a "please call me" or an SMS to a peer educator for additional information on use of the test kits, referrals for confirmatory testing, or other questions.

Results

Formative Phase

In total 20 FSW and 20 MSM participated in the formative phase over four FGD. All FGD participants noted the importance of knowing their serological status.

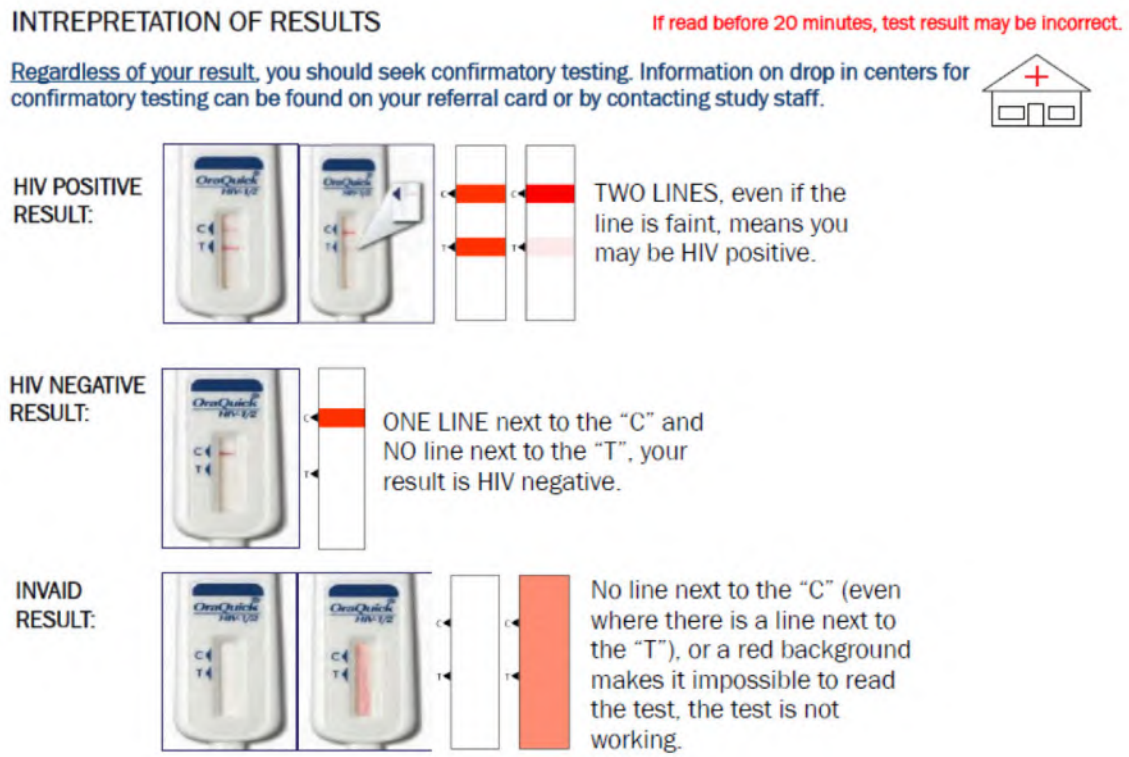
During the discussions, some participants were reluctant about using this innovative approach of self-testing, worrying about the lack of post-test counseling and major risk of self-inflicted harm in case of positive result. In the FSW FGD, some participants then used the example of widespread availability of pregnancy and diabetes tests done privately to normalize and put into context the use of self-testing for HIV.

Many participants in both groups (MSM and FSW) expressed concern over the effectiveness of the HIVST given that saliva does not contain virus. After debate on the issue, participants asked for better explanations on the test to be provided to beneficiaries during implementation, and for emphasis on how this test will be different from the routine HIV testing. They also mentioned the need of building beneficiaries' confidence in HIVST so that they can trust the result of the test and be motivated to self-link to services.

Knowing the MSM and FSW communities, participants highly recommended peer leads and community leaders as means of effectively reaching and recruiting potential participants.

Results from pre-testing the standard information leaflet contained with the Orasure HIVST indicated that the instructions were readable and understandable for everyone. Participants also indicated that the additional verbal information provided by the research team, as well as supplementary diagrams (**Figure 2**), would make information on the leaflet and interpretation of the results even more comprehensible.

Figure 2. Example of supplementary information pre-tested in the formative FGD and included in HIVST distribution phase



HIVST distribution phase

Uptake of HIVST

During the study period, a total of 601 MSM and 870 FSW were approached for HIVST, of whom 549 (91.3%) MSM and 650 (74.7%) FSW were assessed as eligible for the study. Uptake of HIVST through direct distribution was 90% (495/549) and 87% (568/650) respectively among those who were assessed as eligible, and 82% (495/301) and 65% (568/870) respectively among all MSM and FSW approached for HIVST. In total 495 MSM and 568 FSW were enrolled and received an HIVST directly.

Participant description and risk profile

The median age was 24 years (IQR: 22-28) among MSM and 32 years (IQR 26-38) among FSW. Nearly all participants were recruited from outreach sites (95%).

The majority of MSM (77%) reported up to five male sex partners in the past year. In addition, most MSM reported one (28%) or multiple (36%) female sex partners in the past year. The majority of FSW (77%) reported more than 50 male sex partners in the past year.

Testing history could be assessed for 494 MSM and 562 FSW. Overall 67 (13.6%) MSM and 108 (19.2%) FSW had last been tested for HIV more than 12 months prior or never. Among participants who had ever been tested for HIV (n=983), the most common setting of last test was a hospital or clinic (42%) followed by a community organization (38%) and outreach testing in the community (15%). Awareness of HIVST was higher among MSM (26%) than FSW (6%).

In both populations, the most common reason reported for taking an HIVST was desire to know their status or curiosity (MSM: 38%; FSW: 26%), which was recoded from other responses. Among MSM, other common reasons were someone suggested they get tested (19%), part of regular testing pattern (14%) and engaged in risky behavior (13%). Among FSW other common reasons were engaged in risky behavior (21%), part of regular testing pattern (20%) and to confirm another result (15%). In addition to given responses, 3% of participants reported a reason specifically related to one of the benefits of HIVST, such as greater confidentiality and more practical.

Follow-up outcomes

At two-week follow-up, 875 (82%) participants were successfully reached, 152 (14%) could not be reached, and 36 (3%) refused to participate at follow-up.

Use of HIVST

Among participants responded to the follow-up questionnaire, nearly all (97%; 843/870) participants reported using their HIVST. Of these individuals 117 (29%) MSM and 42 (9%) FSW reported using multiple HIVST on themselves. Most participants reported using the HIVST at home (90%) and within two days (63%) of receiving it.

Among MSM who reported using their HIVST, 354 (87.4%) reported a non-reactive HIVST, 11 (2.7%) reported a reactive HIVST, 26 (6.4%) refused to disclose, and 14 (3.5%) did not know their HIVST result. Among FSW who reported using their HIVST where result was asked (missing in 7 participants), 395 (91.6%) reported a non-reactive HIVST, 11 (2.6%) reported a reactive HIVST, 16 (3.7%) refused to disclose, and 9 (2.1%) did not know their HIVST result. Where reported, 356 (43%) participants requested post-test counselling.

Overall 59 (15%) MSM and 162 (38%) FSW reported seeking another HIV test to confirm their result. Report of confirmatory testing was highest among those reporting a reactive HIVST (48%) followed by a non-reactive HIVST (27%); 12% of those who refused to disclose and 13% of those who did not know their result sought confirmatory testing.

Experience and acceptability of HIVST

Nearly all participants found the HIVST instructions easy to follow (95%). More FSW (89%) than MSM (78%) felt comfortable doing the HIVST. A similar proportion of MSM (92%) and FSW (95%) found the HIVST kits easy to use. Most (95%) participants said they would recommend HIVST to others.

Peer distribution

At enrolment, 461 (93%) MSM and 410 (72%) FSW took 1,402 HIVST kits for indirect distribution. More MSM (68%) than FSW (34%) took both of the two extra HIVST kits available.

During the follow-up interview, 334 (89%) MSM and 307 (92%) FSW reported distributing any of the intended HIVST kits. Overall, it was confirmed that 945 HIVST kits were distributed indirectly, of which participants reported knowledge that 571 (60%) had been used by the recipient.

MSM most commonly distributed tests to a friend (67%) or regular sex partner (28%). FSW most commonly distributed tests to a regular sex partner (33%), another FSW (29%), friend (27%) or family member (24%). More FSW (92%) than MSM (78%) reported feeling comfortable distributing HIVST.

Where participants reported knowing that at least one of their contacts used the HIVST, 90 (47%) MSM and 165 (67%) FSW were present during use.

Table 2. Recruitment and participant description by key population

	MSW		FSW		Total		
	n	%	n	%	N	n	%
RECRUITMENT							
HIVST directly distributed							
Recruitment site							
DIC	57	11.5	0	0.0	1,063	57	5.4
Outreach	438	88.5	568	100.0	1,063	1006	94.6
PARTICIPANT DESCRIPTION AND RISK PROFILE							
Median age (IQR)	24 (22-28)	32 (26-38)	1,050	27 (23-34)			
Number of male sex partners past year							
One	94	19.3	1	0.2	997	95	9.5
2-5	279	57.4	5	1.0	997	284	28.5
6-10	72	14.8	9	1.8	997	81	8.1
11-50	33	6.8	103	20.2	997	136	13.6
50+	8	1.6	393	76.9	997	401	40.2
Multiple female partners in past year							
None	177	36.0	NA	NA	491	177	36.0
One	136	27.7	NA	NA	491	136	27.7
2+	178	36.3	NA	NA	491	178	36.3
Received money/goods in exchange for sex #	82	16.9	568	100.0	1,053	650	61.7
Given money/goods in exchange for sex #	49	10.1	77	13.6	1,052	126	12.0

 # In past year; NA-not applicable

	MSW		FSW		Total		
	n	%	n	%	N	n	%
PARTICIPANT DESCRIPTION AND RISK PROFILE							
Testing history							
Never	38	7.7	35	6.2	1,056	73	6.9
Tested more than year ago	29	5.9	73	13.0	1,056	102	9.7
Tested past year	427	86.4	454	80.8	1,056	881	83.4
Previously heard of HIV self-testing	131	26.5	34	6.0	1,063	165	15.5
> Ever taken an HIV self-test	3	2.3	3	8.8	166	6	3.6
Reason for HIVST							
Engaged in risky behavior	64	13.3	120	21.2	1,049	184	17.5
Sex partner engaged in risk behavior	16	3.3	16	2.8	1,049	32	3.1
Sex with PLHIV	2	0.4	17	3.0	1,049	19	1.8
Condom slipped or broke	19	3.9	38	6.7	1,049	57	5.4
Someone suggest I get tested	90	18.7	22	3.9	1,049	112	10.7
Part of my regular testing pattern	67	13.9	113	19.9	1,049	180	17.2
To confirm another positive test result	10	2.1	83	14.6	1,049	93	8.9
Know status/curiosity	181	37.6	146	25.8	1,049	327	31.2
Prefer HIVST	22	4.6	10	1.8	1,049	32	3.1
FOLLOW-UP							
Questionnaire administered	415	83.8	460	81.0	1,063	875	82.3
Refused follow-up questionnaire	19	3.8	17	3.0	1,063	36	3.4
Could not be reached	61	12.3	91	16.0	1,063	152	14.3
HIVST USE							
Used HIVST	405	97.6	438	96.3	870	843	96.9
> Used multiple	117	28.2	42	9.3	869	159	18.3
Where used HIVST							
Home	364	89.9	387	89.8	836	751	89.8
At the site I received the test	20	4.9	41	9.5	836	61	7.3
Other	21	5.2	3	0.7	836	24	2.9
When used HIVST							
Immediately	43	10.6	41	9.5	836	84	10.0
Within 2 days	197	48.6	248	57.5	836	445	53.2
Between 2 days and 1 week	118	29.1	99	23.0	836	217	26.0
Between 1 week and 2 weeks	41	10.1	32	7.4	836	73	8.7
Over 2 weeks	6	1.5	11	2.6	836	17	2.0
Self-reported result of HIVST							
Negative	354	87.4	395	91.6	836	749	89.6
Positive	11	2.7	11	2.6	836	22	2.6
Refusal	26	6.4	16	3.7	836	42	5.0
Don't know	14	3.5	9	2.1	836	23	2.8
Wish to receive post-test counselling	189	47.3	167	39.0	828	356	43.0
Took confirmatory HIV test	59	14.6	162	38.2	829	221	26.7

Table 2. Recruitment and participant description by key population ***cont.***

	MSW		FSW		Total		
	n	%	n	%	N	n	%
EXPERIENCE AND ACCEPTABILITY							
Found instructions easy to follow	380	93.8	412	95.8	835	792	94.9
Comfortable doing HIVST	312	78.0	381	89.2	827	693	83.8
Found HIVST easy to use	374	92.3	410	95.3	835	784	93.9
Would recommend HIVST to others	394	97.3	399	93.2	833	793	95.2
PEER DISTRIBUTION							
Additional HIVST kits taken at enrolment							
None	34	6.9	158	27.8	1,063	192	18.1
One	124	25.1	216	38.0	1,063	340	32.0
Two	337	68.1	194	34.2	1,063	531	50.0
Distributed any of intended HIVST kits							
None	40	10.7	27	8.1	708	67	9.5
Some	78	20.9	21	6.3	708	99	14.0
All	256	68.4	286	85.6	708	542	76.6
Comfortable distributing tests	257	77.9	279	91.8	634	536	84.5
Who distributed to:							
Regular sex partner	93	27.8	102	33.2	641	195	30.4
Casual sex partner	5	1.5	1	0.3	641	6	0.9
FSW	0	0.0	89	29.0	641	89	13.9
Client	6	1.8	8	2.6	641	14	2.2
Friend	222	66.5	84	27.4	641	306	47.7
Family member	64	19.2	72	23.5	641	136	21.2
Acquaintance	35	10.5	5	1.6	641	40	6.2
Stranger	3	0.9	0	0.0	641	3	0.5

CHAMP program engagement

Table 4. Engagement in CHAMP program among HIVST participants

	MSW		FSW		Total		
	n	%	n	%	N	n	%
PROGRAM ENGAGEMENT (CHAMP)							
CHAMP status							
Existing client	188	38.0	113	19.9	1063	301	28.3
New client	26	5.3	19	3.3	1063	45	4.2
No matching record	281	56.8	436	76.8	1063	717	67.5
HIV test at CHAMP prior to HIVST	180	36.4	96	16.9	1063	276	26.0
HIV positive	76	42.2	14	14.6	276	90	32.6
HIV negative	102	56.7	81	84.4	276	183	66.3
Indeterminate	2	1.1	1	1.0	276	3	1.1
Confirmatory HIV test following HIVST	34	6.9	36	6.3	1063	70	6.6
Self-reported HIVST result prior to confirmatory test	78	20.9	21	6.3	708	99	14.0
HIVST reactive	1	2.9	1	2.8	70	2	2.9
HIVST nonreactive	29	85.3	30	83.3	70	59	84.3
HIVST result undisclosed	1	2.9	1	2.8	70	2	2.9
HIVST result missing	3	8.8	4	11.1	70	7	10.0
Confirmatory test result							
HIV positive	4	11.8	3	8.3	70	7	10.0
HIV negative	30	88.2	32	88.9	70	62	88.6
Status indeterminate	0	0.0	1	2.8	70	1	1.4

Of 1063 direct recipients of HIVST, 301 (28.3%) were existing clients of CHAMP community services and 45 (4.2%) participants were new to CHAMP following HIVST (Table 4); the majority of HIVST participants (67.5%) had no matching record at CHAMP.

As of 21 April 2018, 70 (7%) direct recipients of HIVST attended CHAMP for a confirmatory HIV test. Of these individuals, the majority (84.3%) had self-reported a non-reactive HIVST. Based on the national algorithm for HIV screening, 7 (10%) individuals were confirmed HIV positive, including four MSM and three FSW. All were new to CHAMP and linked to ART.

From study commencement until 21 April, reason for HIV test at CHAMP was incomplete in 50% of records, and attendance of individuals who received an HIVST through network-based distribution could not be adequately assessed. Three individuals who were not study participants reporting attending CHAMP for HIV testing to follow up an HIVST; all were confirmed HIV negative.

Prior to HIVST, among participants with a previous HIV test record at CHAMP, 33% (90/276) reported a previous HIV positive result, including 77 (85.6%) individuals on ART. Among known individuals living with HIV, 63 reported a nonreactive HIVST and 13 (14.4%) participants sought support following the HIVST.

Qualitative Post-Testing Phase

The age of interview participants ranged between 21-57 years for FSW and 19-34 years for MSM. All participants self-reported a nonreactive HIVST. Participants used their test within 2 days of acquisition and 12/20 participants had sought confirmatory testing. Of those who did not seek confirmatory testing, most suggested the HIVST was just to confirm the test result they did less than three months ago. Participants reported finding the HIVST kit easy to use. They explained that the instructions were readable and easily understandable by all, but they also appreciated the additional explanations provided by the field research team. Some participants particularly appreciated that the HIVST could be done with saliva rather than blood. In contrast, one interview participant doubted their HIVST result saying the test was not reliable since it was done in saliva.

14 of the 20 interview participants reported distributing the extra kits they received. Many participants, both FSW and MSM, distributed extra kits to their family, and particularly their kids, explaining that their kids are at high risk of contracting HIV since some of their friends they are playing with might be HIV positive. Some gave additional kits to their sexual partners or friends, and particularly those they knew were afraid to seek HIV testing at the hospital or CBO given the perceived lack of confidentiality in these institutions. Other participants reported distributing an HIVST to a partner or family member to take advantage of having tests which were free and could be done at home.

Although participants were provided with the HIVST kits free of charge, during the in-depth interviews they were asked about their wiliness to pay. Overall participants responded in the range of 500 FCFA to 2000 FCFA (~$1-$4 USD) for price they would be willing to pay per kit.

Discussion

Overall, 2465/3000 intended HIVST were distributed to FSW and MSM at high risk of HIV acquisition in Yaoundé, Cameroon. Of these, 43% of tests were distributed directly through routine HIV program activities for personal use, and were predominantly distributed during community outreach. The remaining tests were provided to FSW and MSM participants for indirect distribution through their own networks; it was confirmed that two-thirds of these tests were given by participants to recipients. Lower number of tests distributed than intended is due to not all participants taking two additional tests. Nonetheless, results showed that most participants were willing to distribute at least one HIVST, thus highlighting opportunities for peer-to-peer distribution among KP in Cameroon.

FSW took less additional HIVST for network-based distribution than MSM. This may be related to FSW being encouraged to distribute the tests to other FSW, whereas the qualitative and follow-up survey data indicated that FSW may be more motivated to distribute HIVST to their regular sex partners and family. Higher network-based distribution may have been possible if fewer guidelines had been imposed on distribution.

Among participants of direct HIVST distribution, follow-up at two weeks post-distribution was relatively high (82%), and of these individuals, nearly all reported using their HIVST. A substantial proportion of MSM reported using multiple HIVST on themselves. Acceptability and ease of use of the HIVST kit was very high, with nearly all participants finding the instructions easy to follow (95%) and HIVST easy to use (94%). Although acceptability appeared higher among FSW than MSM, nearly all MSM would recommend HIVST to others, indicating that some level of discomfort may be tolerated and be outweighed by the perceived benefits of HIVST.

Based on the HIV testing history of enrolled participants, direct distribution of HIVST reached a small but meaningful number of individuals who had never tested or test for HIV infrequently. This is attributed to distribution occurring within an ongoing program providing HIV prevention and testing services. Nonetheless, most participants had not previously tested through the CHAMP program, and thus HIVST did succeed in reaching a new group of KP clientele. Although data are not available, there is greater potential for network-based distribution to reach new beneficiaries who never or infrequently test for HIV.

Among participants followed-up and asked about their HIVST result, the majority (95%) were willing to disclose their result to a researcher. Self-report of a reactive result was relatively low (2.6%) given typical HIV positive yield during program activities (12-13% in Yaoundé), but may have been underreported due to stigmatisation of HIV in Cameroon. Nondisclosed results are also more likely to represent a reactive result. Only 3% of participants reported not knowing their HIVST result, which supports acceptability findings that most participants found HIVST easy to use. However, report of confirmatory testing was low among this group, and means to strengthen correct use of HIVST and promote seeking help if in doubt of results should be explored.

Even though the appeal and demand for HIVST often relates to the confidentiality and privacy it provides, request for post-test counselling was high among this group of participants and reiterated in qualitative enquiry. This may be related to the unfamiliarity with HIVST, which is new to this setting, and may decrease over time. This may be a barrier to the rollout of HIVST in these populations, and thus alternative means of providing counselling which support the confidentiality of HIVST, while providing adequate support, should be explored when considering the scale-up of HIVST in this population. Telephone hotline or online consults may be appropriate, and the acceptability and feasibility of these approaches should be further explored.

Following HIVST, confirmatory testing remains an integral entry point into HIV treatment and management. Although confirmatory testing after HIVST is usually only recommended after a reactive HIVST, for our purposes all participants were recommended to get a confirmatory HIV test, regardless of result. Where program data were available, all HIVST participants with a confirmed HIV diagnosis were linked to HIV treatment. However, there were still notable gaps in uptake of confirmatory testing, including among participants self-reporting a reactive HIVST. Self-reported access to confirmatory testing was low (26%), but much higher than the proportion of participants who self-reported a reactive HIVST. This may be indicative of some misreporting of the HIVST result, but also demonstrates that there is some willingness

to still use conventional services after HIVST. The results are encouraging for the scale-up of HIVST in Cameroon, as it shows how HIVST can be used to support and supplement routine programming. Self-report of confirmatory testing was particularly high among FSW whereas based on programmatic data of attendance, confirmatory testing was similar between populations. As only CHAMP program data was captured and compared, this may be indicative of more FSW accessing alternative clinical services for confirmatory testing.

Limitations

There are several limitations in this study. Due to the nature of indirect distribution, there is no data available on individuals who received HIVST indirectly through network-based distribution, and thus further study is needed to fill gaps in knowledge on the use, acceptability, and healthcare seeking among individuals who received an HIVST through their networks.

Programmatic data on conventional HIV testing were only available through CHAMP, and thus triangulation of confirmatory testing and verified HIV result is incomplete. It is feasible that HIVST reached individuals who are less willing to access HIV testing through CHAMP community services.

Next steps

Overall, results indicate that HIVST is a viable approach to expanding access to HIV testing among KP in Cameroon and improving knowledge of HIV status. It can be implemented through existing community-based services, as well as through peer-to-peer distribution. Ongoing analyses will explore linkage between HIVST and community HIV programs. While HIVST was highly acceptable among beneficiaries, ongoing engagement with government and stakeholders is needed to ensure widespread support and to strategize the implementation and scale-up of HIVST in Cameroon. Observed differences between MSM and FSW highlight that there may be differing needs and preferences between these populations, and tailored approaches are required. Additional mechanisms to facilitate and track linkage from HIVST to confirmatory testing are needed.

References

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