

Community-Based HIV Self-Testing Among MSM in Kenya: *How does it impact HIV diagnosis and linkage to services?*



Kenya has the joint, fourth-largest HIV epidemic globally, alongside Mozambique and Uganda, with the national adult HIV prevalence estimated at 4.9% in 2018¹. A disproportionate number of infections in Kenya occur in key populations (KPs), including men who have sex with men (MSM). HIV prevalence among MSM in Kenya is 18.2%. Many MSM remain unaware of their HIV status and thus do not benefit from accessing treatment or prevention services.

This brief discusses the findings from the evaluation of a programme that introduced HIVST interventions within existing HIV programmes for MSM. The study hypothesised that HIV self-testing (HIVST) will increase coverage, frequency, and early uptake of HIV testing among MSM leading to a decrease in undiagnosed HIV and their early entry into HIV prevention and treatment programmes.

HIVST Intervention among MSM in Kenya

The HIVST interventions targeted all MSM above the age of 15 years in Kisumu, Kiambu, and Mombasa counties. The intervention focused on creating demand for self-testing among MSM making the testing kits available through multiple delivery mechanisms and establishing linkages to post-test services. The interventions were implemented in partnership with MSM-led organisations in the three counties.

¹ National AIDS and STI Control Programme (NASCOP). Preliminary KENPHIA 2018 Report. Nairobi: NASCOP; 2020.



Scope of Study

The study evaluated an intervention to increase coverage, frequency and early use of HIV testing through introduction of HIVST.

Evaluation Domains



HIV testing



Linkage to treatment and prevention

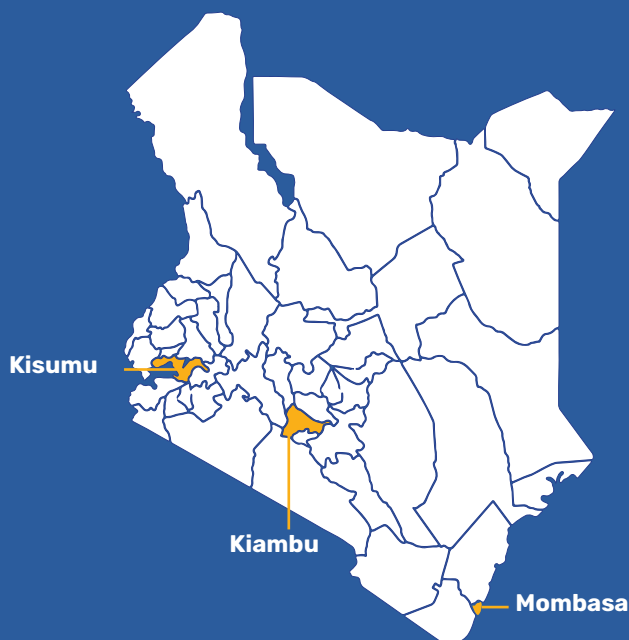


Delivery mechanisms



Impact on population

Study Sites



Duration



12 months

August 2019 – July 2020

Respondents Eligibility

The eligibility criteria for respondents included those who:



Identify as male



Engaged in anal or oral sex with another male in the previous 12 months



Aged 15 years and above for quantitative survey, 18 years and above for qualitative assessment and network mapping

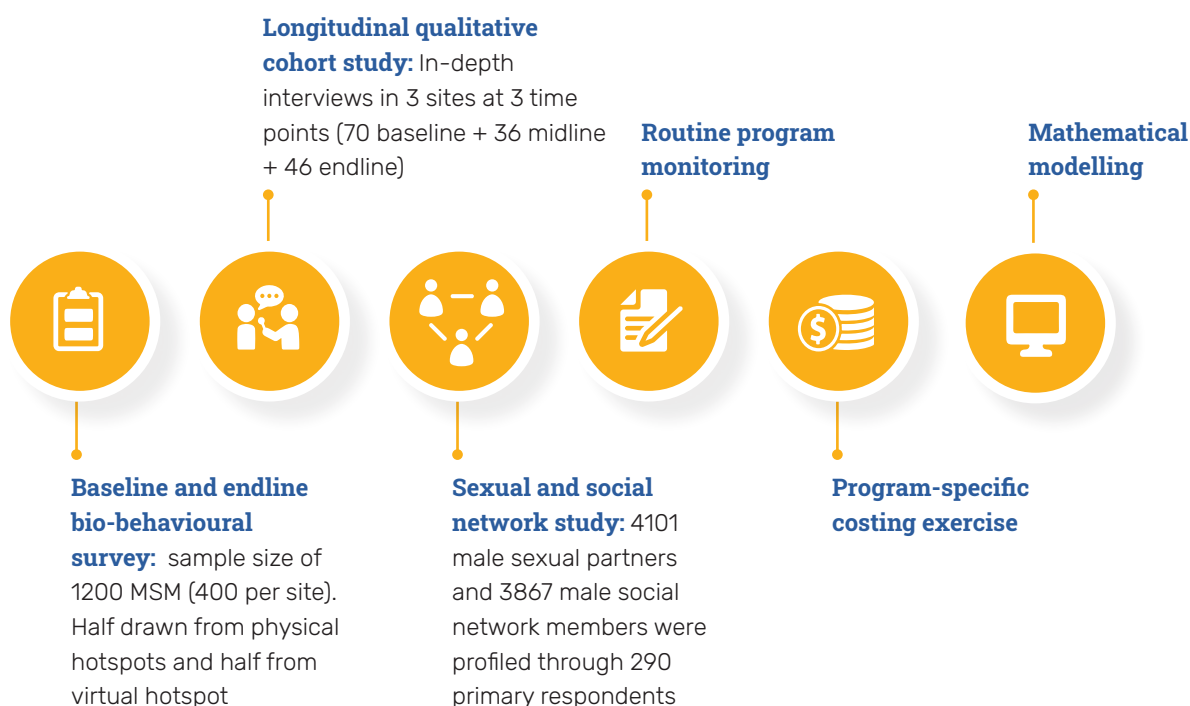
Study Partners

- University of Manitoba (UoM)
- Partners for Health and Development in Africa (PHDA)
- National AIDS and STI Control Programme (NASCOP)
- Mamboleo Peer Empowerment Group (MPEG), Kisumu
- Men Against AIDS Youth Group (MAAYGO), Kiambu
- HIV & AIDS People's Alliance of Kenya (HAPA Kenya), Mombasa

The study was embedded within existing community-based HIV prevention and treatment programmes among MSM in Kisumu, Kiambu, and Mombasa counties in Kenya. In each assessment site, the study partnered with the MSM-led CBOs, MAAYGO, MPEG, HAPA Kenya, implementing HIV prevention and care programmes for MSM in these counties.

Methods

The evaluation used a mixed method design and included six methods listed and described below.



(i) Baseline and endline bio-behavioural survey with 1200+ MSM

The baseline and endline bio-behavioural survey primarily assessed the intervention outcomes on increasing coverage, frequency, and early uptake of HIV testing among MSM. The sample size for the study was arrived at using the prevalence and change of known HIV status among those MSM who are HIV-positive in the three counties. The sample (1200 at the baseline and 1220 at the endline) was distributed equally in each county. The study further allocated the sample in equal proportions, within the categories of physical site 'hotspots' and virtual site-based MSM. All selected study participants were administered a questionnaire, face-to-face, by a trained researcher in Kiswahili or English and blood samples were collected by trained clinicians.

(ii) Socio-sexual network study with 290 MSM

The network study helped to characterise and identify patterns of connection between the different types of service used (or avoided) by MSM in each site and develop a sampling frame for the longitudinal qualitative study. Four trained MSM community researchers (CRs) from each site selected nine seed respondents (N=27): 3 MSM registered in the CBO programmes; 3 young MSM (18–24 years) not registered with the CBO programmes and not accessed services; and 3, older MSM (25 years and above) not registered with the CBO programme and not accessed services. For each of the seed MSM, the study completed a demographic form and short network surveys of each of their 7-day sexual partners, regular partners, and cell phone-based friends. A pre-tested questionnaire, administered face-to-face, collected data from the seeds and their immediate contacts (network members), resulting in data from 290 individuals. Through them, the study profiled 178 female sexual partners, 4101 male sexual partners, and 3867 male social network members.

(iii) Longitudinal qualitative cohort study with 70 MSM

The longitudinal study assessed the effectiveness of different delivery mechanisms on improving the coverage and frequency of HIV testing in different subpopulations of MSM. It facilitated a deeper probe into the social and sexual network that lies beyond the reach of programmes. The community researchers (CRs) conducted in-depth qualitative interviews with 38 registered and 32 unregistered MSM participants at the baseline. Over a 12-month period, the CRs followed up with these individuals at the midline (36) and endline (46). They captured the MSM experiences around health-seeking behaviour (especially HIV self-testing), stigma and discrimination, and meeting up with other MSM for sex and socialising.

(iv) Routine programme monitoring in three sites

Routine monitoring was done using monthly reporting of programme coverage and polling booth surveys (PBS). Monthly reporting included quantitative reports from community and facility programmes, and qualitative insights from intervention team meetings. The PBS was conducted in each of the sites twice, at the baseline and endline, to understand the progress towards the objectives and to undertake any necessary mid-course correction. The PBS questionnaire collected information on the coverage and frequency of HIV testing and HIVST, the use of different delivery mechanisms, and linkage to prevention and treatment after testing.

(v) Programme-specific costing exercise

The study collected data on financial (representing expenditure on goods and services) and economic (including items for which there is no expenditure, such as donated goods) costs for all the activities related to the different service delivery mechanisms at the three CBOs. Timesheets and other resources, such as peer calendars, were used to estimate staff costs related to direct and secondary distribution of HIVST kits. The study collected data on costs associated with the promotion and distribution of HIVST through different channels of delivery.

(vi) Mathematical modelling

Mathematical modelling helped understand how the HIV epidemic will be affected by introducing HIVST among MSM in each county over the next ten years. The study used a compartmental model, where the population was subdivided into groups with different key epidemiological characteristics such as age, HIV infection status, and frequency of HIV testing. The model was parameterised using data from the bio-behavioural surveys. The model was calibrated to HIV prevalence data from the baseline bio-behavioural survey. Around 100 calibrated runs were used in each county to capture the range of possible epidemic trajectories compatible with HIV prevalence. A counterfactual scenario was also modelled, representing a situation where HIVST was not introduced, using the calibrated runs but with HIV testing rates kept at pre-intervention levels. The impact of HIVST was calculated as the difference between the HIVST and counterfactual scenarios. An additional optimal testing scenario was also considered to examine the impact of HIV self-testing for a theoretical scenario where all individuals are tested every three months.



Coverage and Respondent Profile

The profiles of the respondents were similar at both the baseline and endline. This section presents findings from the endline (with additions from baseline where significantly different).



7200 MSM reached through the programme in three counties in 12 months of intervention



Mean age of MSM respondents was 24.7 years. Kiambu had younger respondents



46% respondents had tertiary education and above at the endline compared to 31% at the baseline. More respondents in Kiambu had tertiary education.



89% of respondents were single and 49% lived alone



40% lived with own family or other family members



A lower proportion of participants at the endline self-reported their sexual orientation as gay (32% vs. 40%) and bisexual (36% vs. 46%) as compared to the baseline.



Mean age at first sex was 16.8 years, 2 years higher in Kiambu compared to other sites



29% respondents had 3+ sexual partners in the last one month at endline compared to 37% at baseline.



Mean age at first sex with a man was 1.7 years later than age at first sex



Mean number of male sexual partner was 2.7 in the last one month, higher among respondents in Mombasa.



20% of MSM sought partners only in virtual sites and 11% only in physical sites while 69% sought partners in both physical and virtual sites



Bar and restaurant were the common physical sites while Facebook was the most common virtual sites for seeking male partners

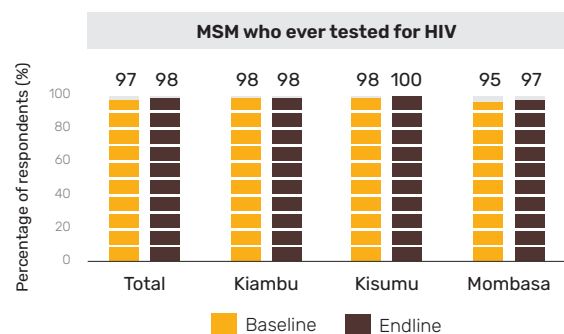
Study Findings

A. Coverage, Frequency of Testing, Early Testing

The programme period witnessed an increase of 55% in the registration of MSM in three sites. From August 2019 to July 2020, the programme registered 7192 MSM out of an estimated 8764 MSM. The monthly contact increased from 43% to 61% of the estimated MSM during this time. On average, the programme distributed 1000 HIVST kits per month targeting infrequent HIV testers and non-testers.

A.1. HIV testing among MSM is almost universal

The programme led to a further decline in gaps in testing. 98% MSM ever tested for HIV at the endline compared to 97% at the baseline. 98% and 100% of respondents in Kiambu and Kisumu respectively, reported testing for HIV.

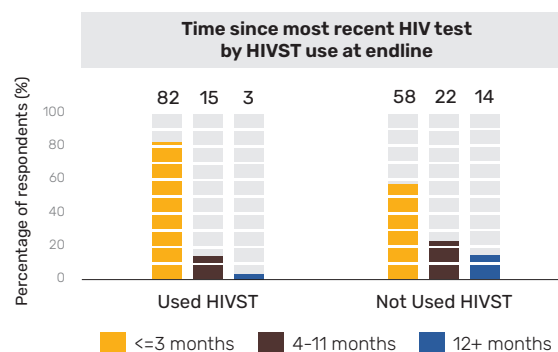


A.2. Frequency of HIV testing among MSM increased at the endline

MSM reported testing for HIV more frequently at the endline than at the baseline (3.2 vs. 2.5 times a year). The proportion of MSM who reported testing for HIV in the last three months increased from 60% at the baseline to 74% at the endline.

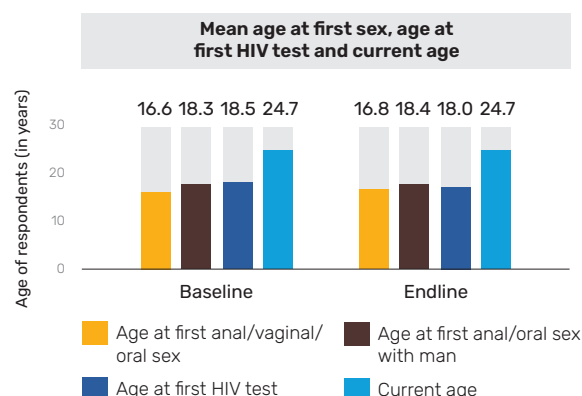
A higher proportion of MSM had ever used HIVST at the endline (53%) than at the baseline (21%). MSM who used HIVST tested for HIV more frequently than those who did not use it at the endline. The frequency of testing, using HIVST, in every quarter varied from 52% in Kisumu and 38% in Kiambu to 25% in Mombasa.

A higher proportion of HIVST users were also more likely to have recently tested for HIV. For instance, 82% of HIVST users tested for HIV in the past three months as compared to 58% of those who did not self-test.

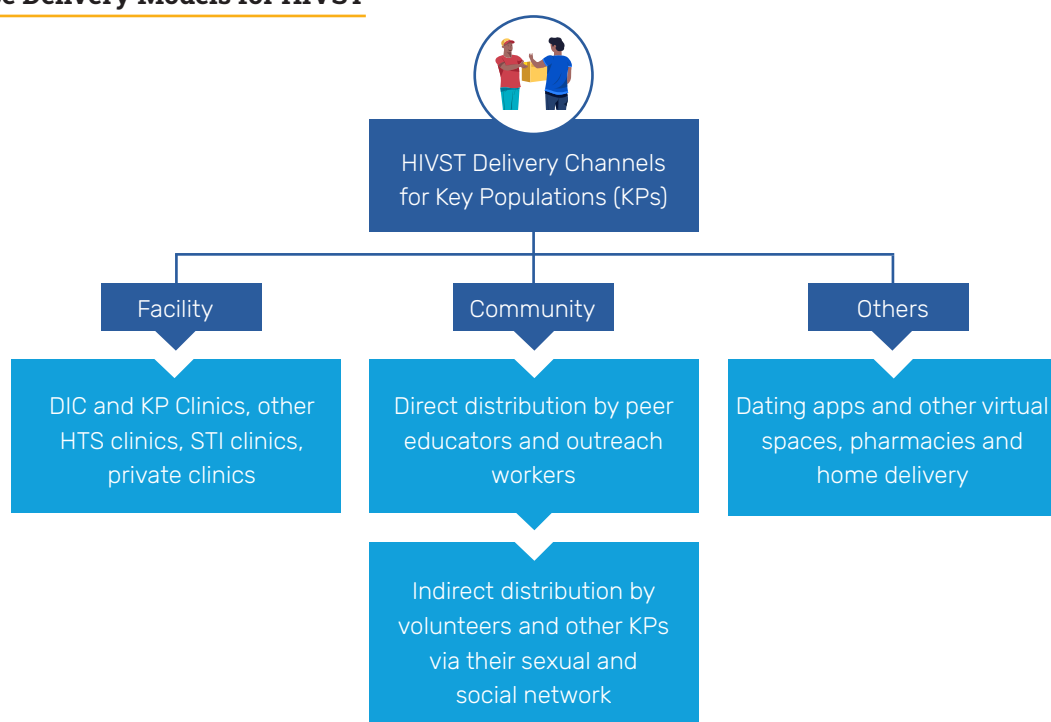


A.3. MSM underwent their first HIV test at a younger age at endline

MSM respondents took their first HIV test six months earlier at the endline than the baseline, 18 years vs. 18.5 years. Close to 50% of the MSM tested for HIV in the past two months at the endline as compared to 30% at the baseline. The study found a decrease, in the time since the most recent test, between the endline and baseline, 5.4 vs. 6.2 months.



B. Service Delivery Models for HIVST



The programme distributed HIVST using different channels.

- Through facilities like Drop-In-Centres (DICEs) or clinics
- Community channels for direct distribution through peer educators (PEs) and outreach workers (ORWs)
- Community channels for indirect distribution through volunteers or sexual and social network of key populations (KPs)
- Through community events like DJ nights, parties
- Other modes like pharmacies or home delivery

B.1. MSM preferred to get HIVST from drop-in-centres, clinics or peer educators

MSM preferred to get the self-testing kits from the DICEs (58.9%), PEs or ORWs (42.8%), or government HIV Testing Services (HTS) clinics (17.5%). Those who lived far from a CBO clinic or were less connected to the programme preferred home delivery of kits. MSM who lived in remote locations with no CBO clinic preferred to get the HIVST kits from a health facility closer to where they lived. The respondents also took kits for their partners.

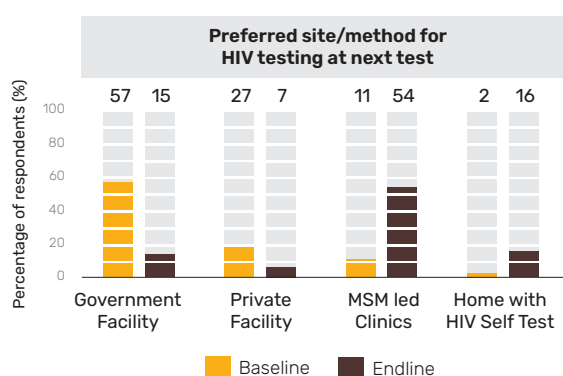


"I always like when taking the self-test kit. I always like it is so that I will always take two, so that the time I am testing myself, my partner is also testing."
- Makenzi, Kisumu, Midline

B.2. MSM expressed comfort in HIVST as the programme progressed

Although many participants initially expressed fear in using the kits, most grew comfortable using them over time. Over one-third of the MSM preferred to use HIVST when they tested next time at the endline. A higher proportion, 15.9% of MSM at the endline compared to 2.3% at the baseline, reported that they would choose to test for HIV at home with the self-testing kit for their next test.

MSM preferred HIVST as it allowed them privacy, safety from stigmatization, or the option to link to a health facility of their choice. Many participants felt that access to the kits was important to their good health during the COVID-19 related lockdown. The peer educators maintained their product supply and emotional support through in-person visits, cell phone calls, and text messages.



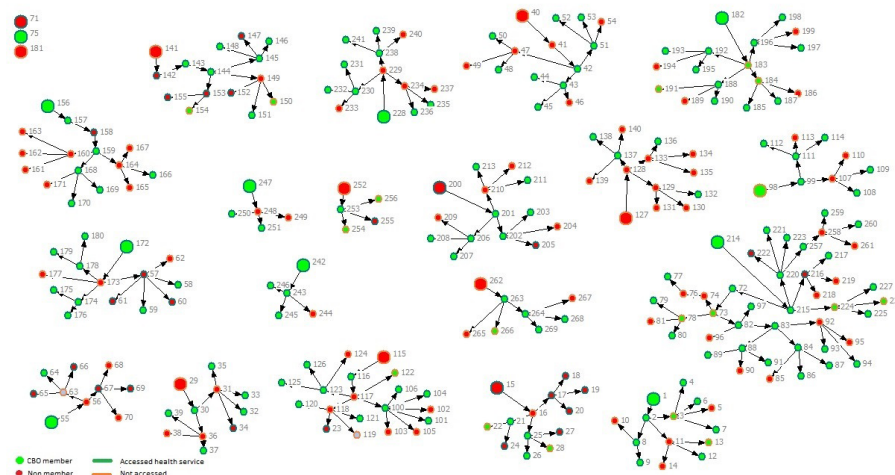
"It [HIVST] is very private which makes someone very comfortable, it even takes away some of your fears. You know there are some people who cannot go for HIV testing, yeah, not because ... they do not want; they are just afraid of the person on the other side of the table, someone can tell you that I am positive... And it is your status. You have to deal with it. Maybe the clinical officer is your, is the guy you have been fighting over with for another sexual partner ... or maybe he is a relative, or maybe he is something close to you, maybe your neighbour, so that privacy really matters a lot."

- Willy, Kisumu, Endline

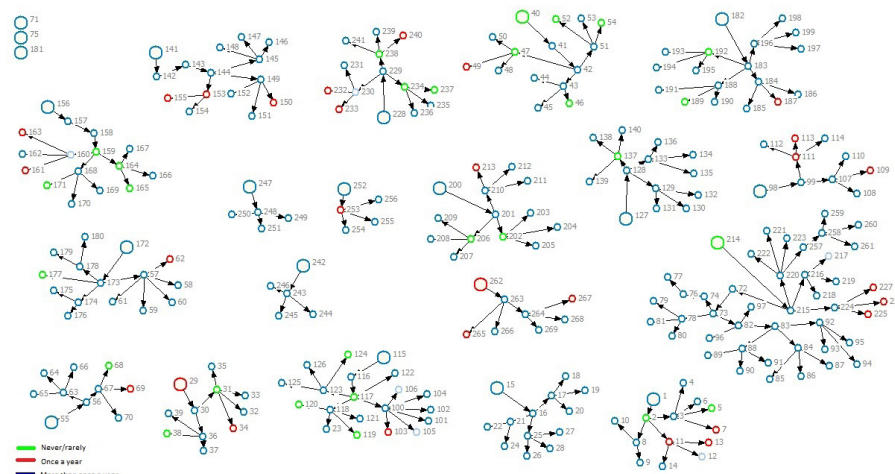
B.3. Interconnectedness of MSM networks can be leveraged to promote and distribute HIVST

Findings from the social network study, conducted only at the baseline, illustrated the interconnectedness of the MSM community, especially those who were registered in the MSM CBO-led HIV interventions and those who were not. MSM registered in the CBO led programme had better contacts with the programme and were more likely to have accessed health services. Larger networks had more HIV testing. Seeds with frequent testing had a positive influence with their network members also being tested frequently. Few networks tried HIVST. Willingness to use HIVST was nearly universal, pointing to the importance of networks for reaching individuals unconnected to programmes and services. Network analysis helped understand the type of networks with higher testing and how network-based approaches can promote HIVST in specific contexts.

Enrolment and access to health services in the last three months



Frequency of HIV testing

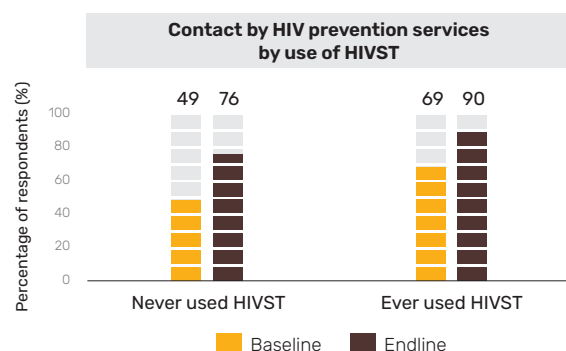


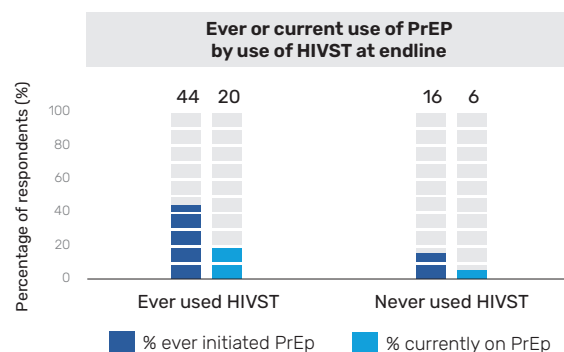
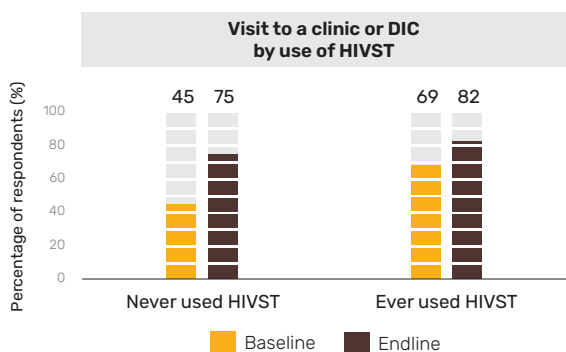
C. Linkage to Prevention and Treatment Services

Evidence indicates that MSM using HIVST were more likely to be linked to HIV prevention and treatment services. During the 12 months of intervention, the average monthly follow-up of those who received kits increased from 29% in the first quarter to 70% in the last quarter.

C.1. MSM who used HIVST are more likely to have been linked to prevention services at the endline

MSM who had ever used HIVST were more likely to have been contacted by prevention services (90% vs. 76%), have visited a clinic/DIC (82% vs. 75%), initiated on PrEP (44% vs. 16%), or be currently on PrEP (20% vs. 6%), as compared to those who have never used the HIVST kits. MSM reported follow-up by peer educators as a vital source of ongoing emotional support and community-based care.



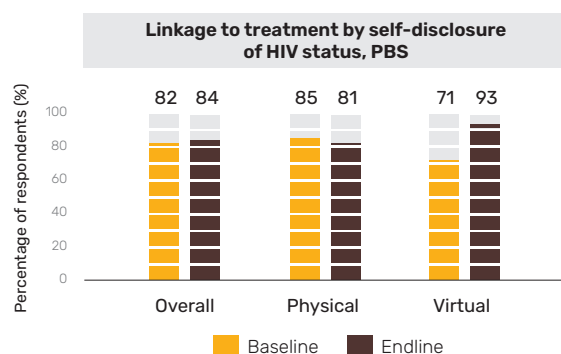


"That follow up makes you feel like, yeah, there are people outside who are caring and they just want to know how you are doing health wise."

- Coach, Mombasa, Endline

C.2. HIVST improved linkage to treatment among MSM from virtual sites

Linkages to treatment were already high at the baseline (82%) among those who know their HIV status, and hence, the study did not expect a considerable increase in linkage to treatment. The Polling Booth Survey (PBS) found that the programme sustained high linkages to treatment, with 84% of MSM who know their status linked to treatment services at the endline. The PBS showed that the linkage to treatment increased from the baseline (71%) to endline (93%) for MSM recruited from virtual sites.



D. Cost of Delivering HIVST

Overall, providing an HIVST kit costed \$8.68 per kit, varying from \$7.85 at Kisumu to \$9.54 at Kiambu. Consumables, primarily the HIVST kits, were the largest cost driver in the different delivery models.

D.1. HIVST delivery cost is lowest through the community outreach distribution model

The distribution of HIVST kits through the facility distribution model was most expensive at \$10.39 per kit. The cost of delivery was the least through the community outreach distribution model at \$7.44 per kit. It costed \$8.23 per kit to deliver through the virtual outreach distribution model.

Estimated unit cost for HIVST kits by distribution model



D.2. Distribution model influenced the cost of confirmatory testing

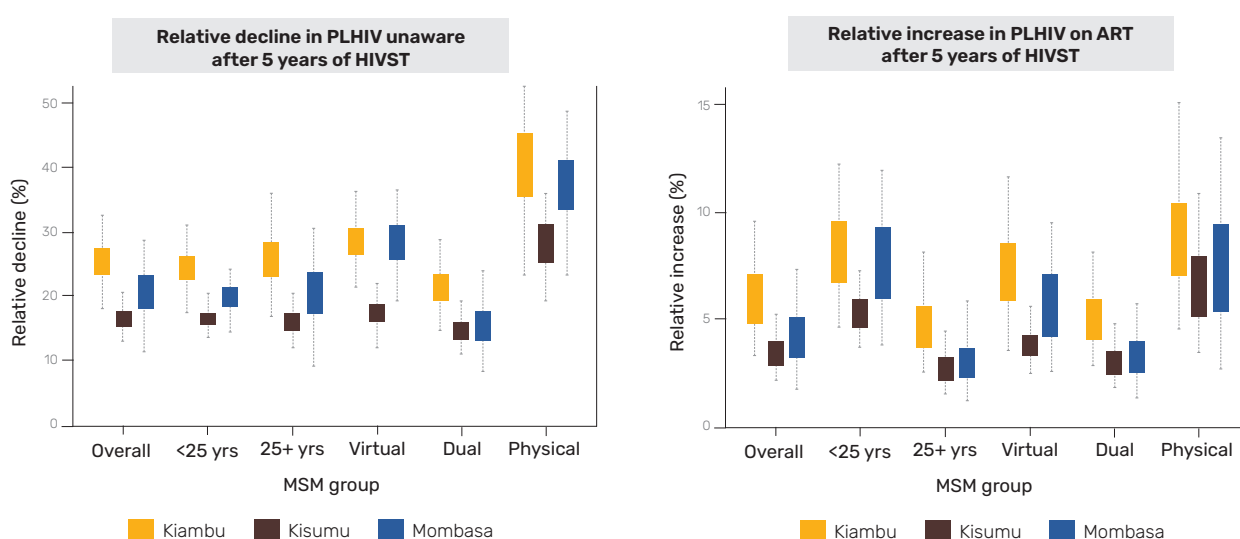
The cost of confirmatory testing for every MSM, who tested positive through HIVST, varied by the distribution model. It costed \$9 for confirmatory testing through the facility distribution model and \$6.45 through the community outreach model.

E. Size of the Undiagnosed Population

Before the introduction of HIVST, at the baseline, around 70–80% of MSM were on ART, and only 13–18% were unaware of their HIV status. Baseline knowledge of HIV status and awareness differed more by age than by type of MSM (virtual, physical or both) or county. HIV incidence was highest in Kiambu (~6%), followed by Mombasa (3%) and Kisumu (2%).

E.1. HIVST may lead to increased awareness of HIV status and ART uptake

After 10 years of HIV self-testing, the model projects that the proportion of people living with HIV who are unaware will decrease by 12–29% across the three counties. There is also an increase in people living with HIV who are on ART over this period, though this is smaller due to the high proportion on ART at baseline. However, after 10 years, declines in HIV prevalence following the introduction of HIV self-testing mean that there are expected to be fewer people being on ART than would occur without the introduction of HIV self-testing.



E.2. HIVST can lead to reduced infections over ten years

The model shows that approximately 2–10 infections would be averted annually by increases in testing rates following the introduction of HIV self-testing in each county (<10% of the infections). With near-optimal testing frequency after ten years, approximately 15–30 infections would be averted per year per county, reducing HIV prevalence, but not enough to eliminate HIV in this population. The cost for HIVST per infection averted, excluding ART costs, is USD 2000–8000.





Summary Observations & Recommendations

- HIVST has high acceptance among the community and might lead to an increase in testing frequency.
- Despite initial concerns, MSM who use HIVST appeared to be more likely to link to other HIV-related prevention and treatment services.
- Even though HIVST increases the frequency of testing overall among MSM, the projected impact on reducing HIV incidence is limited by delays in linkage/treatment initiation.
- To the extent that HIVST can improve primary HIV prevention by earlier linkage to HIV prevention services, it would have more impact via HIV treatment per se.
- Further research should focus on the potential for disproportionate impact of HIV testing among MSM very early in their life course in relation to initiation or prevention of higher risk behaviours.



Acknowledgement

Contributors:

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