

# Stakeholders' recommendations for implementing HIV self-testing and secondary distribution of HIV self-testing for male partners of Option B+ clients in Haiti as an assisted partner service strategy: a qualitative study

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## Research article

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# Abstract

**Background** Despite significant public health efforts, HIV testing remains low among men in Haiti. HIV self-testing (HIVST), which allows people to test in private, is an effective strategy for increasing HIV testing among men. Secondary distribution of HIVST to male partners of women living with HIV (WLWH) is one promising assisted partner services strategy to address the low HIV testing rate among men in Haiti. However, little research has been conducted on how to implement HIVST in the Caribbean. The purpose of this study was to assess stakeholders' perspectives towards HIVST and to obtain their recommendations for how to implementing HIVST in Haiti to reach male partners of Option B+ clients.

**Methods** Sixteen key informant interviews and nine focus groups with 44 healthcare workers (HCWs), 31 Option B+ clients, and 13 men were carried out in Haiti. Key informants were representatives of the Ministry of Health and of a non-governmental agency involved in HIV partner services. HCWs included program leads and staff members from the HIV care and treatment program, the Option B+ program, the community health service program, and the HIV counseling and testing services from 2 hospitals.

**Results** Perceived HIVST advantages included an increase in the number of people who would learn their HIV status and start treatment. Perceived disadvantages were lack of support to ensure self-testers initiate treatment, uncertainty about male partner's reaction, risk of violence towards a woman by a man after having received an HIVST kit from her, and the inability of a woman to counsel a man in case his self-test result is positive.

**Recommendations** for implementing HIVST and secondary distribution of HIVST included coupling HIVST distribution with public information, education, and communication through media and social marketing; relying on community health workers to mediate the use of HIVST and ensure linkage to care; and piloting HIVST programs on a small scale.

**Conclusions** HIVST is an appropriate and feasible HIV prevention strategy for men and women. Our findings indicate that more research is needed to determine and pilot how best to implement HIVST and secondary distribution of HIVST by Option B+ clients in Haiti.

## Introduction

In 2017, 60% of women compared to 41% of men reported to have ever tested for human immunodeficiency virus (HIV) in Haiti (1). The disparity in HIV testing between men and women remains a major concern among healthcare professionals working toward an increase in HIV testing and initiation of antiretroviral therapy (ART) (2). In order to increase HIV testing rates and facilitate early access to treatment, the Haitian Ministry of Health, Ministère de la Santé Publique et de la Population (MSPP), has prioritized implementing novel approaches to expand HIV testing and linkage to care, especially among men. HIV testing among women is a well-established part of antenatal care (ANC) services; as of 2016, more than 90% of pregnant and post-partum women were tested for HIV as part of the MSPP's efforts to prevent mother-to-child transmission of HIV (3). MSPP expanded access to lifelong ART for all pregnant and postpartum women, regardless of the level of HIV disease progression, via the Option B+ program. In July 2016, the MSPP extended universal treatment for HIV to all persons living with HIV (PLWH). Retention on ART at 12 months after starting treatment is estimated at 73.1%, short of the level required

for viral suppression (3), and there is evidence that Option B+ clients starting ART during the perinatal period are at elevated risk of loss-to-follow up (2, 4).

Lack of couples HIV testing and disclosure of HIV status between partners is a frequently cited reason for the high rates of ART attrition among Option B+ clients (5). In this context, implementing novel strategies to increase HIV testing among male partners of Option B+ clients to support disclosure of status between partners is needed for progress toward achieving the Joint United Nations Programme on HIV/AIDS (UNAIDS) 90-90-90 targets (6). One promising strategy to reach the first 90 target (7, 8), which has been endorsed by the World Health Organization (WHO) and scaled up incrementally in Haiti since 2017, is Assisted Partner Services (APS) (9). APS is a voluntary public health service whereby healthcare workers (HCWs) work with newly-diagnosed index clients to identify their sexual partners and close contacts, inform them that they may have been exposed to HIV, and link them to HIV testing services (10, 11). Other strategies to reach men through their female partners include providing written invitation letters to clinic-based testing services, which are delivered by women to their partners, and using community health workers (CHWs) to trace male partners (12-14). A second innovative and effective strategy to increase HIV testing is the use of HIV self-testing (HIVST), which allows people to test for HIV in private (15-20). In 2016, WHO recommended HIVST as a complementary HIV testing approach to reach people (i.e., men) who are not accessing current testing services (9), and WHO recently released guidelines for planning, introducing, and scaling up HIVST (21).

In the context of higher rates of HIV testing among women, secondary distribution of HIVST kits to men by their female partners is recognized as a specific HIVST implementation strategy (17, 22, 23). This strategy can be applied via ANC clients (24) and potentially with women living with HIV (WLWH) in conjunction with APS. Several studies have also demonstrated that HIVST kits delivered by HIV-negative women to male partners is acceptable, feasible, and effective in increasing HIV testing among men (22, 23, 25-27). However, little is known about the acceptability and feasibility of secondary distribution to male partners of Option B+ clients. Option B+ clients (WLWH) may face different risk than HIV-negative women when delivering HIVST kits to their partners but there is a lack of studies describing if this strategy is acceptable, feasible, and how to implement this approach safely for male partners of Option B+ clients. Based on the effectiveness of HIVST on HIV testing among men and couples (18, 28) and the interest of Haiti's MSPP to increase HIV testing among men in Haiti through APS, we conducted formative research with stakeholders to assess perceptions and recommendations for implementing HIVST, including via secondary distribution for male partners of Option B+ clients. This article builds on previous quantitative research assessing factors associated with HIV testing among men (29) and HIV status disclosure to sexual partners among adult men and WLWH in Haiti (30). The findings will help to inform future implementation and scaling up of HIVST and distribution for male partners of Option B+ clients in Haiti.

## Methods

### Study sampling, design, and participants

Purposive sampling was used to recruit key informants (n=16), including representatives of the MSPP at national and regional levels, a non-governmental agency involved in HIV partner services, and hospital leaders in Cap-Haitien and Port-au-Prince, Haiti by phone calls and e-mails throughout fall 2017. Similarly, focus group (n= 9) participants were recruited using purposive sampling in collaboration with the medical director and health workers at two Departmental hospitals in Port-au-Prince and Cap-Haitien. Focus group participants were HCWs (n=44), Option B+ clients (women) (n=31), and male partners (n=13) of pregnant or post-partum women living with or without HIV. The aim of the interviews and focus groups was to elicit opinions from a range of stakeholders about potential strategies for increasing the uptake of HIV testing among male partners of Option B+ clients. The focus groups consisted of participants aged 30 years and older ranging from 9-12 members per focus group. The consolidated criteria for reporting qualitative research (COREQ) checklist was used to ensure the reporting of the study procedures and findings are consistent with the guideline (see Additional file 1) (31). Participants provided written informed consent and received an incentive payment of \$15 to offset time and transportation costs associated with their participation.

### **Research team and reflexivity**

Interviews were conducted by authors and professor Dr. Joseph Demes, MD, and psychologist Jean Marxcime, MA. Research investigators and global health assistant professors (Dr. Donaldson Conserve, MS, PhD and Dr. Nancy Puttkammer, MPH, PhD) observed the first focus group, and Dr. Puttkammer observed the first 4 key informant interviews. Both Drs. Conserve and Puttkammer helped coach Dr. Demes and Mr. Marxcime after the sessions based on the discussion. All authors are trained as medical professionals, social scientists, or public health professionals, and have taken part and published peer-reviewed primary literature in the health sciences. Participants in patient focus group participants were not known to the investigators prior to the study. However, some of the participants in the HCWs focus groups and key informant interviews were known to some of the study team members prior to the study. All participants had the opportunity to ask questions and express concerns during the consent-signing process. The motivations and background of the study team members were made clear to the participants in the consent form as well as the interview guides.

### **Data collection**

The interviews followed a semi-structured topic guide that covered themes of HIV testing, disclosure of HIV status to sexual partners, and strategies for partner notification, including HIVST. The topic guide had a particular focus on strategies for HIV testing of male partners of women who are diagnosed with HIV during pregnancy or during breastfeeding. The interviews were conducted at a convenient location for the key informants, while the focus groups were held at the two hospitals. Before beginning the HIVST section of the interview, the interviewer provided key informants, HCWs, Option B+ clients, and men with information about HIVST and about the research that has been conducted on HIVST in other countries and showed them clips from a short HIVST video that was developed by WHO. After providing information on HIVST, the interviewer continued with the following questions: *What do you think about*

*secondary distribution of HIVST to reach men in Haiti? How do you see the implementation of such a strategy in Haiti? How should cases of men with positive self-test results be managed? How do you think a man will respond to a partner who offers him an HIVST kit? Do you think that HIVST would work in Haiti for men? Why or why not? What obstacles will men have to face in doing HIVST in Haiti? What recommendations do you have for implementing HIVST and secondary HIVST for men?* Interviews were conducted in French and Haitian Kreyòl, transcribed into French, and then translated into English. The interviews were audio-taped with permission from participants and lasted 60-90 minutes. Field notes were made after the focus groups and interviews. The sample of interviews and focus groups was pre-determined and limited by available budget and human resources. Data saturation was achieved via iterative analysis and coding of transcripts.

## **Data analysis**

To ensure reliability and validity, the primary author, (DFC) and two of the co-authors (JM NHP) independently reviewed the transcripts, focusing specifically on the HIVST section in the transcripts (32). The research team developed a formal codebook for the deductive codes, based on previous qualitative research on HIVST (16, 22), with primary and secondary code definitions and quotes supporting these codes (33). The main codes from previous research included reasons for willing to self-test (perceived HIVST advantages), potential concerns with HIVST (perceived HIVST disadvantages), and recommendations for addressing HIVST concerns (34). A directed content analysis approach was used by applying topical codes that described the stakeholders' perceptions and recommendations related to HIVST and secondary distribution of HIVST for male partners of Option B+ clients in Haiti (35). A systematic classification process was used to code and identify emerging themes from the transcripts (35).

## **Results**

Overall, stakeholders had mixed responses about implementing HIVST as a potential HIV testing strategy in Haiti to reach men. There was consistency between the data presented and the findings. Some of the stakeholders reported that it would be beneficial to have HIVST as an HIV testing strategy, while others were not in favor of the strategy due to the lack counseling and resources to support potential self-testers. Most reported that users would prefer the oral versus the blood HIVST kit: *"The oral test would be more easily acceptable and usable by everyone more than the blood test."* Among the stakeholders who were not in favor of HIVST, they preferred testing at an institution: *"I am for the person to go to test in an institution, we would avoid more damage, because he/she will be able to find professionals available for follow up."* Similarly, several stakeholders had concerns about secondary distribution of HIVST by Option B+ clients to their male partners due to their positive HIV status and potential negative reactions and physical abuse by male partners in case their self-test results are positive. To address the low awareness of HIVST since it is not yet available in the country, a few stakeholders recommended that campaigns be developed to raise awareness about HIVST before piloting different strategies to determine the delivery approach that works best for each group. Instead of Option B+ clients delivering HIVST kits, stakeholders

recommended that CHWs deliver HIVST kits to male partners of Option B+ clients to provide the necessary follow-up support and prevent potential harm to the women. Stakeholders also recommended working with the formal health sector to prevent non-disclosure of HIVST results and designating a separate section in the hospital for HIVST.

### **Perceived HIV Self-Testing Advantages**

Although some of the stakeholders were in favor of HIVST, others reported several perceived disadvantages of HIVST. The perceived benefits mentioned for HIVST were related to its potential to increase the number of people who *learn their HIV status*, allowing them *to test in private* and *start treatment* as demonstrated in the following two quotes:

*As I said it's not a bad thing, maybe already many people would be interested in practicing self-screening, now they have time to self manage before having any discussion with anyone... It would increase the number of people to get tested and knows their status and to have more people to be able to follow the treatment. (Departmental Health Directorate Representative, Cap Haitien)*

*I see it's a good method, in case the house is full of people, we could find a remote place to do it even when it's not at home to prevent other people from being suspicious or aware and even publishing you on social media. (Male participant, Port-au-Prince)*

### **Perceived HIV Self-Testing Disadvantages**

The perceived disadvantages for HIVST focused on the potential negative reactions a self-tester may have in case of a positive result. Some stakeholders mentioned lack of counseling, potential transmission to others, suicidal ideation, HIV nondisclosure due to stigma, and the risk of losing people after testing as disadvantages for HIVST.

*I think that the person can become aggressive if he/she sees himself/herself as positive and can infect many other people, especially she is not going to have anybody to talk to her, to moralize her, to educate her, raise awareness about treatment or counseling. (HCW, Port-au-Prince).*

*The problem is that the person would tend to keep the result for her in case it is positive, personally I would do the same. (Male focus group participant, Port-au-Prince)*

*The other case is if the man actually does it and finds himself positive, he can say that he will end his life or that he will spread the disease. He will not find psychologists to counsel him and many things could happen. (Option B+ client, Port-au-Prince)*

Another HCW described the experience of working with patients who were diagnosed with HIV and did not want to seek care for fear of being seen at the clinic. The participant continued to describe how self-testers may also choose not to seek care and that even people who are working in HIV programs have reported that they may react similarly due to the stigma associated with HIV:

*There are patients who are tested and they say they do not intend to continue coming to the site for follow-up to prevent someone from seeing them and they tell you that they prefer to be killed by a bullet instead of someone being aware that they are sick with AIDS. So even when the person who will have to do the self-test might not intend to distribute the virus, however, he would have preferred to stay at home instead of disclosing his status... I have often heard even from trained people working in the [HIV] program that if they were to become infected by someone, they would kill that person and then they would distribute the virus. So it's not a question of education but rather of stigmatization.*

## **Perceptions towards HIVST secondary distribution**

### ***Secondary distribution preference over invitation to test at a clinic***

When participants were asked about their perceptions towards secondary distribution of HIVST kits to men by female partners (either HIV-positive or negative), there were a mixed number of responses, with a few Option B+ clients and male partners participants reporting that this strategy would be preferred by some men as demonstrated in the quotes below. One woman even asked if the HIVST kit was available for her to bring to her partner.

*I will not have any problem with my husband and I think he would have preferred that than to come to the hospital because when I talk to him about coming to take the test, he still hesitates and I think it's because that he is stressed. (Option B+ client, Cap Haitien)*

*Do you have the present test with you to give me to bring to my husband and then how can we do it? (Option B+ client, Cap Haitien)*

*In my opinion, it would be better if it were so. The person who would only need to go to a health center to take the medication in case it would be positive in addition to the whole family would have the opportunity to do the test and it would stay between them. (Male participant, Cap Haitien)*

In contrast, several HCWs, key informants, and Option B+ clients were concerned about how the male partner may react upon receiving the kit from an Option B+ client, especially if his self-test result is

positive. They reported the following challenges and perceived disadvantages: *uncertainty about reaction of Option B+ clients' male partners, the risk for Option B+ clients' male partners to hit and abandon them, and whether Option B+ clients will be able to counsel their partners in case of a negative reaction.*

### ***Uncertainty of men's reaction***

Some stakeholders reported that it might be challenging for Option B+ clients to ask their partners to self-test. In addition, they mentioned that the uncertainty of how a man may react after receiving the HIVST kit from his partner is a concern that is not limited to Haiti:

*So I imagine that it is not easy for them to ask their partner to do the test even at home, besides we will not know what the reaction of the man is because the person who is tested positive before (Option B+ clients) would be blamed by the other. (Healthcare worker, Cap Haitien)*

*The woman would have a lot of trouble getting the test to her partner. (Option B+ client, Port-au-Prince)*

*Yes it is the right concern because the man could be in a depressing situation and he can make a reactive reaction of violence ... But the man is the same everywhere, that is to say one (male partners of WLWH) can have the same reactions in France, in Africa, in the United States [...] everything depends on the context in which the individual evolves. (Healthcare program director, Cap Haitien)*

### ***Risk of violence towards Option B+ clients and abandonment***

Related to the uncertainty of a man's reaction, some stakeholders reported that women may be at risk of being physically abused and abandoned if the man's self-test result is positive. These risks are higher for Option B+ clients whose male partners are not aware of their own and their partners' positive HIV status but may find out before or after self-testing that his partner was already living with HIV. These concerns were supported by the experience HCWs had with other men, including a police officer, who tested positive and had a negative reaction:

*In case it is the woman (Option B+ clients) who will have to take the test [to the man] and is already positive, the partner could ask her to do it first, and in case this will confirm her positivity, she could be brutalized and even abandoned. (Option B+ HCW, Port-au-Prince)*

*There are men in the counseling room who say after receiving their result "Oh well it's positive, I'll deal with her " so we do not know what he's going to do to the other being under shock. Once it was the case of a policeman who after receiving his test and was positive believed that it was the woman who*

*transmitted the virus to him and threatened to beat her when he arrived home. You imagine a policeman carrying a gun who was talking like that". (Healthcare Unit director, Cap Haitien)*

*In case it is the woman who took the test and it is already positive, the partner could ask her to do it first, and in case this will confirm her positivity. She could be brutalized and even abandoned by the latter. (Option B+ Client, Port-au-Prince)*

### ***Inability of Option B+ clients to counsel male partner***

In case the male partner has a negative reaction due to a positive self-test result, a couple of HCWs mentioned that the woman may not be able to provide the man with any post-test counseling and support as another disadvantage of secondary distribution of HIVST kits:

*In addition one has to wonder if the woman would be able to support a negative behavior of her spouse after having made the self-test because that can even lead to losing a life for a test. (HCW, Cap Haitien)*

*After the woman brings the test to her husband, she should be able to handle the post-test phase, talking about counseling and caring that is the exclusively reserved for a professional [to do]. (HCW, Cap Haitien)*

## **Recommendations for implementing HIVST and secondary distribution**

### ***Provide HIVST education and promotion***

A number of stakeholders made recommendations on how to implement HIVST as well as secondary distribution of HIVST for male partners of Option B+ clients. Some stakeholders reported strongly that broad education about HIVST would be needed to promote and raise awareness about HIVST in order to create "fertile territory" for how HIVST should be used and kits disposed of, and to describe the steps to follow in the case of a positive self-test result. Awareness-raising should not only happen with targeted HIVST users, but with the broader public as well.

*I see that it's [HIVST] very good too, but there needs to be a lot of awareness given the people who live in very isolated areas who do not have access to information because they do not have any device TV or radio, they should be informed that there is a new way to do the test. (Male focus group participant, Cap Haitien)*

*For the self-test there must be a lot of education sessions on the waste of the self-test, how to manage it,*

*especially in case there are children at home [...]. I think we have to think about it. (Option B+ client, Port-au-Prince)*

*There should be some kind of awareness that is through the media, in schools, churches. (HCW, Cap Haitien)*

*I think it would be good to do a mass awareness for this kind of approach so that they know that this method exists, if the person cannot come to be screened by a third person, he/she can have the possibility of having this method at home. (HIV program coordinator, Port-au-Prince)*

### ***Pilot different strategies***

A few stakeholders also recommended piloting different strategies with different groups of individuals for a long period of time in order to provide the evidence needed to inform future implementation and to determine which strategy works for each person instead of offering one option.

*I would advise that, instead, when we want to go to the programs, we start with small acceptable strategies, and we try to take several categories of different people, whether poor, married or unmarried [...] and see what types of institution that the person attends etc. and try several small strategies to see what can work better, with that we can come out better with evidence [...], but it's not something short, to give a result to a health program, the study for example must last [long]. (HIV Regional Director, Cap Haitien)*

*We will have to do a test in a certain community and even if it is sampling by cluster to see what it will give, and after, depending on the result obtained, we will be able to extrapolate, if it happens to bear fruit... So I think this strategy is not bad, but we will have to do it really as a pilot before the extrapolate. (Program coordinator, Port-au-Prince)*

### ***Engage community health workers and formal health sector***

The other main recommendation was to have CHWs assist with delivering the HIVST kits because they will be able to provide the follow-up counseling that may be needed if the self-test result is positive. In particular, a CHW should be involved for delivering HIVST kit to male partners of Option B+ clients in order to prevent the man from harming the woman and support the man with the outcome of the self-test result.

*So for HIV-negative women it would be interesting to have the woman go with the kit for the men to be screened, but for the women who are infected, we can do this approach with the field agents, that the agents go to offer the test to the man, knowing that the man does not have enough time to come to the level of the institution, because automatically I am tested positive, the man will ask questions, why she came with this kit so that I can do the test? And at that moment the man will investigate the woman. So I think this self-screening strategy would be better to do it with officers who have counseling training to help that person accept the outcome, the person could get stung but in front of the field officer who could be a support for this person after. (Partner services director, Port-au-Prince).*

In addition to assisting self-testers with the necessary follow-up services, some stakeholders reported that having a CHW or another healthcare provider present during the self-testing process can help prevent non-disclosure of HIVST results. They also mentioned the idea of having an HIVST station within the clinic where a trained person could assist self-testers.

*The person who would have to do his self-test should let you know that he/she is going to do it and do it under your eyes to prevent him/her from lying to you about the test result; they even lie to you when they're giving you their address, their number, their name, so you see giving you their self-test result would be difficult... (CHW, Port-au-Prince)*

*For the good side of self-test I think we could reserve a space in the hospital called Auto Depistage (Self-Testing) where someone who is trained for this would be there to take care of people who come for the self test... The person comes to do his test, then we show him to the person in charge of the section who would have to verify with him the result. (CHW, Port-au-Prince)*

*I would encourage the man to go to test in a health institution where he would find a multidisciplinary team to take care of him, because by doing the test alone at home and the result would be positive, this could lead to a lot of damage. (Option B+ client, Port-au-Prince)*

The recommendations to engage CHWs and have a designated HIVST station in the hospital are potential strategies to ensure that self-testers receive the necessary follow-up services such as counseling, confirmatory testing, and linkage to care, if needed.

## **Discussion**

This paper highlights the perceptions and recommendations of stakeholders for implementing HIVST, including secondary distribution of HIVST, in Haiti. Stakeholders' views on this topic are both important and timely, since the President's Emergency Plan for AIDS Relief (PEPFAR)—a key source of external

funding for Haiti's national HIV prevention, testing, care, and treatment program—has embraced HIVST as a core programmatic pillar for achieving the 90-90-90 targets (36). Similar to other studies (37, 38), our findings revealed that while some stakeholders had favorable views towards HIVST as a potential strategy to reach men, others were skeptical. Reasons for stakeholders' concerns about HIVST and secondary distribution were related to the lack of follow-up services for self-testers, potential harm for Option B+ clients if they deliver HIVST kits to their male partners, non-disclosure, and linkage to care among self-testers who receive a positive self-test result. In order to address these concerns, stakeholders recommended several strategies and cited the need to raise awareness about HIVST and conduct pilot studies of different HIVST delivery methods.

Regarding the perceived advantages of HIVST, a few stakeholders mentioned that HIVST would allow men to test in private, increasing the number of people who learn their HIV status and initiate treatment. Our findings revealed that secondary distribution of HIVST to men by their female partners was preferred over testing at a clinic by some Option B+ clients and men for different reasons, including the removal of the stress associated with facility-based testing and the ability to keep the test result private. This study also revealed that a few of the Option B+ clients were willing to deliver HIVST kits to their partners, which may be influenced by the fact that the male partners of those Option B+ clients already knew their women's positive HIV status. While studies in other low-resource settings have reported similar perceived advantages towards HIVST in general (20), the acceptance of secondary distribution of HIVST by women to their male partners appeared to be higher in other studies than we found in Haiti (39, 40). One major reason for this difference in acceptability of secondary distribution of HIVST is that our study recruited Option B+ clients, while other studies included HIV-negative women (39, 40). Thus, the findings from these trials are not necessarily applicable to Option B+ clients. Additional studies are needed globally to examine the acceptability and feasibility of secondary distribution of HIVST to male partners of Option B+ clients.

Concerning the perception that HIVST can increase the number of people who test for HIV, this finding is supported by a systematic review and meta-analysis that showed that HIVST doubled the uptake of testing among men (18). However, linkage to care among self-testers has not been examined in most studies, and more data are needed to support our finding that more people will start treatment if they learn their HIV status through self-testing. One study conducted with men in Malawi found that men who self-tested were more likely to attend the clinic for linkage to care or prevention if they received a financial incentive compared to men receiving standard services without an incentive (41). The likelihood of self-testers not linking to care in case of a positive result was raised as a perceived disadvantage in our study and is supported by evidence from other studies that have demonstrated that self-testers are less likely to link to care without additional interventions such as financial incentive or home initiation of ART (41, 42). Future research in Haiti should implement strategies to objectively measure HIVST use and linkage to care among self-testers. Other concerns raised by a number of stakeholders about HIVST and secondary distribution of HIVST by Option B+ clients included, but were not limited to, lack of counseling, suicidal ideation, HIV nondisclosure, and the risk for a man to be verbally and physically abusive. While the concerns about HIVST in general are consistent with the literature (20), less has been published on

secondary distribution of HIVST by Option B+ clients to their male partners. Therefore, more research is needed to determine how best to implement such a strategy in Haiti and elsewhere, especially for men who are unaware that their female partners are living with HIV.

In this study, stakeholders recommended a number of broad strategies for implementing both primary and secondary distribution of HIVST, especially for male partners of Option B+ clients. Specifically, stakeholders recommended campaigns to raise awareness and educate people about HIVST, piloting of different strategies, and engaging the CHWs in conjunction with the formal health sector. Different HIVST campaign strategies and distribution models for HIVST, including self-testing with supervision from formal health sector workers (43), have been piloted and evaluated successfully in randomized controlled trials conducted in other countries (17, 44). Volunteer residents, community HIV care providers, women, and peer educators have been engaged to promote HIVST by distributing flyers and HIVST kits to community residents, male partners, and peers (17, 26, 42, 45-48). For example, fishermen living with and without HIV have been recruited and trained to promote HIVST among their peers by distributing leaflets and HIVST kits to other fishermen in their networks in Uganda (15). In Haiti, men from formal and informal employment sectors, such as public transportation drivers, fishermen, and school teachers, can also be trained to promote and distribute HIVST kits to their peers and younger men. CHWs already involved in providing community HIV services in Haiti (49) can also be engaged, as recommended by some stakeholders, to promote HIVST and distribute HIVST kits to community residents, including male partners of Option B+ clients, via either primary distribution or secondary distribution. Other campaign strategies that have been used to promote HIV testing that can be translated to HIVST promotion include social entrepreneurship (50, 51), crowdsourcing (52), and hosting free, star-studded concerts with concurrent HIV testing and education (53). In summary, stakeholders in Haiti endorsed several recommendations that have a solid base of evidence in other settings, suggesting that the MSPP can draw upon WHO guidelines for planning, introducing, and scaling up HIVST (21), while also seeking culturally and contextually appropriate implementation strategies for these recommendations.

Although our findings support other similar studies, we only interviewed stakeholders in two regions, and therefore the findings may not be representative of stakeholders' views in all regions of Haiti. In addition, we only explored opinions towards secondary distribution by Option B+ clients, as opposed to by women in general or male peers. Evidence from our recent male peer-delivered HIVST trial indicates that male peer-delivered HIVST kits, including by men living with HIV, can reach men without putting their female partners at risk and may be more acceptable to clients (15). However, these strategies might not support disclosure of HIV status to partners, which has been shown to be low in Haiti (30). Future studies of HIVST in Haiti should involve stakeholders at different levels and across different regions of the country to ensure that they contribute their expertise for the successful implementation of HIVST in Haiti and other Caribbean countries. Future studies should also explore the feasibility and acceptability of additional implementation strategies for primary and secondary distribution of HIVST.

## Conclusion

In summary, this study indicates that a few stakeholders are supportive of implementing HIVST in Haiti. A prominent concern of HIVST was due to the lack of follow-up services to assist self-testers to receive proper counseling and enroll in treatment in case of a positive self-test result. In addition, many stakeholders reported concerns about secondary distribution of HIVST by Option B+ clients to their male partners. However, stakeholders made several recommendations that can inform the implementation of both primary and secondary distribution of HIVST in order to address these concerns such as potential physical and social harm related to HIVST, especially for Option B+ clients who may engage in secondary distribution of HIVST to their male partners.

## Abbreviations

HIV: Human Immunodeficiency Virus; ART: Antiretroviral Therapy; MSPP: Ministère de la Santé Publique et de la Population (MSPP); ANC: Antenatal Care (ANC); WHO: World Health Organization; APS: Assisted Partner Services; HIVST: HIV Self-Testing; UNAIDS: Joint United Nations Program on HIV/AIDS; HCWs: healthcare workers: CHWs; Community Health Workers; WLWH: Women Living with HIV; COREQ: Consolidated Criteria for Reporting Qualitative Research.

## Declarations

**Ethics approval and consent to participate:** The study protocol was reviewed and approved by the University of Washington Human Subjects Division and the Haiti Ministry of Health National Bioethics Committee. Written informed consent was obtained from all participants prior to data collection.

**Consent for publication:** Not Applicable

**Availability of data and material:** The datasets generated and/or analyzed during the current study are not publicly available as they are individual interviews and focus groups with some people living with HIV that may potentially identify participants and compromise confidentiality, but are available from the corresponding author on reasonable request.

**Competing interests:** The authors declare that there are no competing interests regarding the submission of this manuscript.

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## Additional Files

Additional file 1. COREQ checklist. Completed Consolidated Criteria for Reporting Qualitative Research (COREQ) Checklist for this research study.

## Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [COREQChecklist7619.pdf](#)