Pilot implementation of HIV self-testing delivery in private pharmacies combined to a Respondent Driven Sampling method to improve HIV testing for MSM and TGW in Phnom Penh – ANRS 0100s: a prospective feasibility study

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Abstract

Background: Regular testing is recognized as a key strategy for HIV control. The 2023 Integrated Biological and Behavioral Survey (IBBS) in Cambodia revealed that nearly one third of men who have sex with men (MSM) and one fourth of transgender women (TGW) were never tested for HIV or since more than 12 months. The majority of MSM and TGW were tested at Community-based organizations (CBO) facilities and by CBO outreach workers while private facilities are poorly used for HIV testing (6% for MSM and 9% for TGW). Private pharmacies could be able to deliver HIV self-testing (HIVST) kits giving the advantage of confidentiality, anonymity and time-saving, in particular for those reluctant to visit CBOs. The recruitment of participants by respondent driven sampling (RDS) method could give the opportunity to reach MSM and TGW outside the network of CBOs.

Objective: This pilot study aims to evaluate the feasibility of HIVST delivery by a private pharmacy combined with RDS method to improve HIV testing among MSM and TGW in Phnom Penh, Cambodia.

Methods: The study design is a mixed qualitative and quantitative approaches. MSM and TGW aged more than 18 years old will be recruited via a Respondent Driven Sampling (RDS) method with seeds recruited at hotspots and on social networks. The seeds will then distribute electronic and paper coupons to their networks physically and via social media, messaging and calling applications. Each recruited peer will bring the coupon to receive direct and free access to one HIVST kit at partner pharmacies as well as the 10 additional coupons to recruit the members of their networks. After 6 months, a qualitative assessment will be conducted among users to evaluate the acceptability and appropriateness of the strategy and among pharmacists to identify the barriers and facilitators.

Results: Data collection will be conducted between September 2024 and December 2025. The initial results are expected to be published in February, 2026.

Conclusions: This public-private partnership intervention could allow to reach and test hidden population of MSM and TGW in Phnom Penh. Clinical Trial: ClinicalTrials.gov NCT05745168; https://clinicaltrials.gov/study/NCT05745168

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Trial registration:
ClinicalTrials.gov NCT05745168; https://clinicaltrials.gov/study/NCT05745168
KEYWORDS
Feasibility study; HIV self-test; MSM; TGW; respondent driven sampling; private pharmacies; Cambodia

Introduction

Regular testing is acknowledged as a critical approach in HIV management. Knowing one's HIV-positive status leads to a decrease in high-risk sexual behaviors, prompt connection to healthcare services, early commencement of antiretroviral treatment, and a significant decrease in the likelihood of transmitting HIV to sexual partners. Over the last ten years, HIV testing services have experienced considerable expansion [1].

The sharp rise in the number of new HIV infections among men who have sex with men (MSM) has continued in Asia, and sexual activity between men remains stigmatized and frequently hidden. HIV prevalence among MSM was 5% or higher in 10 of the 24 countries that reported these statistics to UNAIDS in 2019 [2]. About 30% of all new infections in Asia are in MSM and HIV incidence is high among young (15-24 years old) MSM [2]. In Southeast Asia, HIV prevalence and incidence continue to be elevated, especially among younger MSM [3]. For instance, a recent publication reported an HIV incidence of 7.4 per 100 person-years in Bangkok in this population [4]. Consensus was that no reduction in HIV prevalence and incidence has been observed among TGW in the region [3, 5]. The implementation of preventive antiretroviral treatment and HIV pre-exposure prophylaxis should have led to a reduction. Nonetheless, HIV prevalence and incidence remain high, with no indications of a downturn among young MSM and TGW in Southeast Asia [6]. Given the current rate of new HIV infections among MSM and TGW, the region is unlikely to achieve the target of eradicating AIDS by 2030.

A number of studies have been reported regarding HIV surveillance, HIV and STI prevalence, population size estimations, or behavior patterns for either transgender women or transgender men in Asia Pacific region. The data shows disturbing HIV infection rates throughout the region: Delhi 49%, Mumbai 42%, Phnom Penh 37%, Jakarta 34%, Surabaya 25%, Bandung 14%, Chiang Mai 18%, Phuket 12%, Bangkok 11%, Lahore 0.5% [7].

Late diagnosis is a serious barrier to tackling HIV. Around 69% of people living with HIV in the Asia and the Pacific region were aware of their status in 2018, up from 58% in 2015. However, this means around 1.9 million people did not know they were HIV positive. Progress on testing varies greatly between countries. In Thailand, 94% of people living with HIV were aware of their status in 2018, as were 86% of people living with HIV in Malaysia and 82% in Cambodia. Stigma, discrimination and punitive legal environments prevent many people from key populations from accessing testing services [8]. Indeed, in Malaysia and Sri Lanka, the HIV testing and awareness among MSM account for 43.3% and 40.3%, respectively while the HIV testing and awareness for TGW people are 43% and 36.9%, respectively [9].

Although Cambodia has admirably achieved the 90-90-90 targets by 2020, there is still cause for concern regarding the HIV epidemic among key populations and unidentified priority populations. Comparing with data 2019 Integrated HIV Bio-behavioral surveillance (IBBS) survey, the 2023 IBBS key population data show HIV prevalence increased from 4% to 5.5% among MSM and from 9.6% to 13.5% among TGW [10, 11]. Despite this high prevalence rate, remains low the uptake of HIV testing among men who have sex with men (MSM<50%) and transgender women (TGW=39%). Moreover, consistent condom use for anal sex is on optimal 69% in MSM and 38% for TGW with

non-commercial sexual partners [12]. Although the Pre-Exposure Prophylaxis (PrEP) has been found to protect against HIV infection in risk population, the country has difficult to reach the target of PrEP enrollment rate (10000 users by 2023) among MSM and TGW [13]. The 2023 IBBS report highlighted that about nearly half of MSM and one fourth of TGW did not report any HIV testing or since more than 12 months. This suggests that undiagnosed HIV infection may persist in hard-to-reach MSM and TGW and new modality of HIV-testing approaches are hence needed to improve the uptake of HIV testing among these key populations. In addition, of those who reported HIV testing, the majority of MSM and TGW were tested at Community-based organization (CBO) facilities (70.1% for MSM and 74.1% for TGW) and by CBO outreach workers (9% for MSM and 6% for TGW) while private facilities are poorly used for HIV [14].

From the perspective of the general population as well as some users from “hidden” or “marginalized groups” such as MSM and TGW, HIV self-test (HIVST) results should be interpreted in a private setting to ensure complete anonymity. HIVST is a process in which a person performs an HIV rapid diagnostic test (RDT) and interprets the result in private. Lay users can perform HIVST reliably and accurately and achieve, achieving performance comparable to that of trained medical professionals [15]. HIV self-testing has the potential to increase the number of people living with HIV who have access to testing, know their status, are diagnosed and initiate treatment. HIV self-testing shares many characteristics with current HIV testing and counselling approaches, including products, accuracy issues, linkage to care, potential benefits and risks and regulatory policies and frameworks [16]. Of some key populations, HIV self-testing increased testing frequency among high-risk MSM and could increase HIV diagnose in the trans community [17, 18]. In 2016, WHO recommended HIV self-testing (HIVST) as a safe, accurate and effective way to reach people who may not test otherwise, including people from key populations, men and young people [15]. Representatives from 13 countries across Asia and the Pacific gathered to develop road maps to implement and and HIV self-testing in the region [19].

In 2017, Cambodia developed national consolidated guidelines on HIV testing services in which many approaches including HIV self-testing (HIVST) are recommended to increase the HIV test uptake, especially among hard-to-reach and key populations [20]. Recent evaluation of the B-IACM in Cambodia revealed that 66.5% who received assisted HIVST want to confirm their HIV status [21]. Even though MSM and TGW had not heard about HIVST, all of them expressed willingness to try it [22].

While HIVST kits are distributed primarily from public health facilities, the HIVST is also available through private ways and channels. Some studies including the one conducted in Cambodia by Pal et al. (2016) suggested that men who have sex with men, transgender women wish or prefer HIVST to be available over-the-counter at pharmacies and other locations or through the Internet [22, 23]. HIVST is already formally and informally available, and it will likely become increasingly available. Indeed, HIVST kits are authorised to be dispensed from pharmacies in some countries such as USA and France [24, 25]. In addition, HIVST were reported informally on sale through the Internet and in pharmacies in many countries – with specific reports on this from Australia, China, Namibia, Peru, South Africa, Philippines and Malaysia [26].

Recent studies have also shown that the take-up rate for HIV testing was high, with most participants preferring oral fluid testing to finger prick testing. Many people (72%) who had never accessed HIV testing services took part in the test, with high reactivity rates case [27].

Respondent driven sampling (RDS), a form of peer referral-based sampling, has become a popular strategy to recruit “hidden” or “marginalized populations” such as MSM and TGW [28]. In Cambodia, this type of method is widely used and highly effective in reaching these populations [29, 30]. To mitigate some of the challenges of implementing the methodology, notably slow recruitment rates, innovation around conventional RDS can be helpful [31]. Indeed, since there has been rise of using the Internet and online communities of gay and bisexual men in a few decades to facilitate new connections for the purpose of information seeking, socializing and seeking sex, several studies have

reported innovative internet- and application-based RDS strategies in different aspects of AIDS/HIV research such as improving uptake of HIV self-testing among MSM, providing technical support, counselling and referrals for further HIV testing services, HIV prevention, care and treatment and other services [32-37].
The main hypothesis of this study is that private pharmacies could be able to deliver HIV self-testing kits giving the advantage of confidentiality, anonymity and time-saving, which could be an effective intervention to improve HIV testing coverage for MSM/TGW. The second hypothesis is that a RDS method with a diversity of seeds recruited at hotspots and on social networks could help to identify a new network of hidden key population.
Given the persistence of high HIV prevalence and incidence rates among MSM and TGW in Southeast Asia, despite advancements in preventive treatments and pre-exposure prophylaxis, there is an urgent need to re-evaluate and innovate our strategies towards HIV testing and awareness. The complexities inherent in the socio-cultural fabric of this region, alongside logistical challenges, underscore the necessity for localized, community-driven interventions that are sensitive to the unique needs and challenges faced by these key populations.

Primary objective

Evaluate the feasibility of HIV self-testing (HIVST) delivery by a private pharmacy network among men who have sex with men (MSM) and transgender women (TGW) recruited through a classic and digital Respondent Driven Sampling method to improve HIV testing in Phnom Penh, Cambodia

Secondary objectives

- Evaluate the acceptability and appropriateness of the strategy
- Identify barriers and facilitators
- Estimate the linkage to confirmatory testing for those with a reactive test and linkage to HIV care and ART for those with a positive confirmatory HIV test
- Estimate linkage to pre-exposure prophylaxis (PrEP) services for negative participants
- Estimate the characteristics of participants and compare to those reported in Integrated Biological and Behavioral Survey (IBBS 2019) for MSM and TGW in Cambodia
- Evaluate the adherence of participants to a 6-monthly repeated HIV testing

Methods

Ethic approval

The National Ethics Committee for Health Research in Cambodia has approved for this ANRS-0100s study for ethical research (N^0 351 NECHR).
This study emphasizes voluntary patient participation, with a comprehensive briefing by the research team on the study's objectives, procedures, timeline, potential risks and benefits, and any associated discomforts. Information is conveyed both orally and in written form, provided in Cambodian. Consent encompasses various aspects, including overall participation, financial compensation, potential recontact via phone, and involvement in focus group discussions, necessitating prior informed consent before any study-related assessments. Participants also have the option to retain a copy of the consent form post-signature. Additionally, the study integrates peer mediators and community organizations to ensure a non-stigmatizing, high-quality, and participant-tailored reception.

Study design

A pilot study using a mixed qualitative and quantitative approach will be carried out to assess the uptake of HIV self-testing (HIVST) delivery by a private pharmacy network among men who have

sex with men (MSM) and transgender women (TGW) recruited through a Respondent Driven Sampling (RDS) method to improve HIV testing in Phnom Penh, Cambodia.
The participant recruitment method will be designed as a Respondent Driven Sampling (RDS) by recruiting diverse seeds both at hotspots and on social networks.
After 6 months, a qualitative assessment by focus groups discussion (FGD) will be conducted among MSM, TGW and pharmacists to evaluate feasibility, acceptability and appropriateness of the intervention and to identify barriers and facilitators.

Study site

The study site is located in Phnom Penh at three to five private pharmacies selected based on factors such as working hours, availability of dedicated space, and geographical balance. Furthermore, antiretroviral therapy (ART), voluntary HIV counseling and testing (VCCT), and pre-exposure prophylaxis (PrEP) sites in Phnom Penh will serve as the study participants' follow-up contacts after they have self-tested for HIV. (Figure 1).
Figure 1. Study sites consist of three to five private pharmacies with their respective ART, VCCT and PrEP sites in Phnom Penh that support the follow-up among study participants who report HIV self-test results. ART=Antiretroviral therapy, VCCT=voluntary HIV counseling and testing and PrEP=pre-exposure prophylaxis.

Study population and sample size

MSM and TGW who are residing in Phnom Penh at the time of enrollment and meet the eligible criteria below are the study population:

- To be aged from 18 years old (legal age in Cambodia)
- For MSM, to have at least one oral or anal intercourse with another man in the past 12 months
- For TGW, to be biologically a male at birth and self-identified as a woman or third gender and have at least one oral, anal or vaginal intercourse with another man in the past 12 months

We will use a pragmatic approach with the objective to recruit the maximum of MSM and TGW. According to the IBBS 2019, the estimated number of MSM in Phnom Penh is 6300 and the estimated number of TGW is 1400. With 1500 participants (1000 MSM and 500 TGW), we will be able to estimate an HIV self-test uptake of 70% to within a 95% confidence interval of +/- 2 – 2.5% (width of the confidence interval (in %) = $1.96 \times \sqrt{(p \times (1-p) / n)}$

Procedure

RDS implementation

RDS implementation resembles snowball sampling with several critical caveats. Initial participants are purposefully recruited to be “seeds” as long as they fit the study’s eligibility criteria. After completing the study procedures, seeds are offered a limited number of vouchers to recruit their peers to participate. In thi study, two categories of vouchers will be used: paper and electronic vouchers; the latter was adopted for the main advantage that they could be passed electronically to the social networks of respondents regardless of geographical coverage [38]. When vouchers are redeemed, eligible participants also complete the same study procedures and are asked to recruit their peers, and this continues until recruitment goals are met. Using specially formulated statistical programs, sampling weights are developed and applied to estimate population parameters. For the purpose of RDS, effective seeds generate large recruitment chains and samples, which has been shown to be associated with motivation and a commitment to the research goals [27].
Three to five outlets of private pharmacy in Phnom Penh with a proper dedicated room/space securing privacy and secrecy are the study sites. Pharmacists will be trained by research teams about

study objectives, study procedure, communication with MSM and TGW, and counseiling. Fifteen diverse seeds selected will be recruited both at hotspots and on social networks based on optimized criteria obtained from involvement meeting with stakeholders and community-based organizations (CBOs). Once consent to the study, at partner pharmacies the seed is provided with a free HIVST kit and two types of coupons : 5 electronic coupons (e-coupons) and 5 paper coupons to distribute them to their networks either physically or via social media, messaging and calling applications such as Twitter, WhatsApp and Telegram (e-coupons). Each recruited participant, so-called peers, will bring the coupon to be scanned at partner pharmacies to receive direct and free access to one HIVST kit. There, trained community worker/research team who get notified by pharmacist at each visit of participant will do the study visit including informed consent process, explaining how to fill the questionnaire in the tablet and provide a link of an external website to send the HIV test results and to obtain necessary supports like tutorials, follow-up after HIV results. These recruited individuals will be considered as wave 1 of recruitment and will each receive 10 additional coupons to recruit the members of their networks. The next round of individuals recruited and enrolled will be considered as wave 2, and so on. To return the HIVST results, participant with unique username and password will upload the picture of results labeled with their corresponding username to the external website that they received from community worker/research team during their visits at pharmacy. A token or incentives is granted to those who return the result of HIVST kit taken. Each non-reactive participant will be provided another new coupon (paper or electronic format upon their preference) with a reminder to perform a 6-monthly HIV testing during 18 months. The study flow is represented in Figure 2.

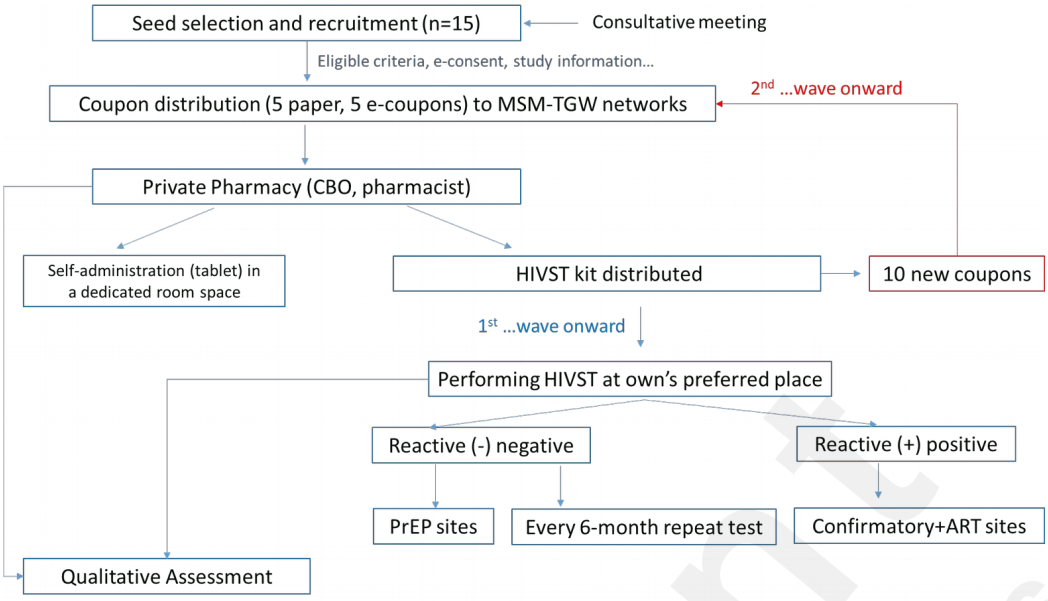
Qualitative assessment

After 6 months, a qualitative assessment via focus group discussion among users (MSM and TGW) and providers (pharmacists) will be conducted to evaluate feasibility, acceptability and appropriateness of the intervention and to identify barriers and facilitators of this pilot intervention.
Grids for focus groups among MSM and TGW emphasizes on their perception, acceptability and appropriateness, HIVST use and experience including facilitators and barriers, intention to promote and retake HIVST. As for the focus group with pharmacists, the guide covers the following topics: perception, acceptability and appropriateness, improvement, and willingness to sustain the strategy of HIV self-test distribution from private pharmacies. Regarding in-depth interview with policymakers or key stakeholders involving with HIV programs, the interview guide aims to explore perception and improvement of the strategy, willingness to sustain and scale it up.

Health care pathway and support from CBOs

At every stage of study, The National Centre for HIV/AIDS Dermatology and STDs (NCHADS) and community-based organizations (CBOs) who are closely working with MSM and TGWs will help define selected criteria, identify the seeds, localise their hotspots, and promote the study. NCHADS will also help review the tutorials of HIVST device, promotional messages and organize consultative meetings with stakeholders. The CBOs through the community health workers will coordinate the work between pharmacists and participants, and counseil the participants to necessary follow-up after returning HIV results.
According to the results, they will propose the participants with a support for linkage to confirmatory test or ART clinics in case of positive reaction or to PrEP services in case of negative reaction.

Figure 2. Study flow depicts participant recruitment by respondent-driven sampling, follow-up for HIVST results, willingness to repeat the test every 6 months, and qualitative study.



Samples collection and tests

The HIV Self-test used in the study is OraQuick® which is a private and rapid HIV tests using oral fluid with safe, accurate, and quick results.
The OraQuick ® HIV Self-Test uses oral fluid to check for HIV-1 and HIV-2 antibodies. It gives you results in about 20 minutes, and can detect the virus in over 99% percent of people who are infected with HIV. Because the test is a "screening" test, it is always advised to have a second test to confirm the results and participants will be referred for that purpose in case of reactive HIVST.

Loss to follow-up

When a participant who has not explicitly withdrawn consent does not return the HIVST result after one week, the research team will reach them by phone. Also, 1 week after returning positive HIVST results, if there is no information confirming the linkage to one of the partner ART sites or participant does not show up after receiving the reminder for 6-month HIVST, the research team will reach them by phone.

A participant who does not show up for a given schedule and the study team failed to reach by phone will be considered lost-to-follow-up.

Analysis

Primary outcome

The percentage, and its 95% confidence interval of HIV self-tests delivered among the total number of coupons distributed will be given and stratified by gender (MSM or TGW) and by type of coupons (paper or electronic).

Secondary outcomes

In addition, the data collected from the study enable to estimate:

- The percentage and its 95% confidence interval of HIVST results recorded among the total number of HIVST delivered will be given and stratified by gender (MSM or TGW)
- For those accepting to be contacted by phone, the percentage and its 95% confidence interval of HIVST realized among the number of HIV tests results non recorded will be given

- The percentage and its 95% confidence interval of participants with positive HIV self-tests linked to an ART site will be given and stratified by gender (MSM or TGW)
- The percentage and its 95% confidence interval of participants with negative HIV self-tests linked to PrEP services will be given and stratified by gender (MSM or TGW)
- The percentage and its 95% confidence interval of participants with 6-monthly repeated HIV testing during the 18 months (so 4 HIVSTs during the total duration of the study) will be given
- The probability of discontinuation of HIV testing and its 95% confidence interval, as well as the median time to the occurrence of HIV testing discontinuation, will be determined using a Kaplan Meier analysis, to take into account censored data due to loss of follow-up.

Qualitative study

For qualitative assessment, bilingual research staff will transcribe all interviews verbatim and translatethem into English. We will use both inductive and deductive approaches when analyzing the data. Inductive analysis we will use in the early stage to explore the ideas and meanings contained in the raw data and to identify concepts, patterns and themes. Similar codes are collated to form initial themes. Once patterns, themes and subthemes are established by open coding, deductive content analysis is used to validate these in an iterative process. We will report the results in participant-based, and provider-based issues. QSR NVivo V.14 for Windows will be used to manage the data.

Results

In this research project, we anticipate that the implementation of HIV self-testing (HIVST) through private pharmacy networks, coupled with a respondent-driven sampling (RDS) recruitment strategy, will significantly enhance HIV testing uptake among men who have sex with men (MSM) and transgender women (TGW) in Phnom Penh, Cambodia. By providing a confidential, anonymous, and convenient testing option, we expect an increase in the number of individuals who know their HIV status, thereby facilitating early diagnosis and linkage to care. Additionally, we aim to estimate the uptake of HIV self-testing among MSM and TGW. Thanks to RDS and selection criteria that diversify the seeds, the study may lead us to identify new profiles or characteristics of MSM/TGW at risk of HIV acquisition compared with those described in the latest IBBS report. Furthermore, the self-stigma among MSM/TGW and their willingness to repeat the HIVST every 6 months will be evaluated. Through focus group discussions, we will obtain insights into the perception of the appropriateness, acceptability, barriers, and facilitators of free HIVST distribution at private pharmacies via the respondent-driven sampling technique from both pharmacists (providers) and MSM/TGW (users). The innovative use of RDS is predicted to reach previously unidentified networks within key populations, potentially uncovering new cases and further broadening the impact of the intervention. The expected outcomes of this project align with the broader goals of reducing HIV transmission rates and improving health outcomes for MSM and TGW in Southeast Asia, contributing to the global effort to curb the HIV/AIDS epidemic.

Discussions

Routine HIV testing is the cornerstone of efficient HIV management. This is particularly relevant in light of the persistently high HIV incidence among TGW and MSM in Asian countries, where stigma and discrimination can be significant barriers to accessing HIV services. Despite the expansion of testing services and the introduction of innovative strategies like PrEP, the ongoing stigmatization of sexual activity among men and the concealed nature of such interactions exacerbate the challenge of curbing new infections [6]. To reduce new infection (11,000 PLHIBV are unware of their status in cambodia in 2022), screening programs must achieve the broadest possible coverage. The screening coverage remain insufficient for MSM and TGW. For exemple, in the global Fund Funding Cycle 2024-2026, the target of 93,985 MSM is fair for the progra's reach of 50,000 (GFATM Funding request 2024-2026). Furthermore, HIV and AIDS awareness among 15-24 age group is critically low, at only 23% to 27%. This higights the urgent need for expanded education and screening about HIV for young people. Therefore, the top priorities are maximizing MSMS program coverage to achieve the first 95 targets as quick as possible. This situation underscores the necessity for new privacy-centric and stigma-reducing approaches.

This study's investigation into the deployment of HIVST via private pharmacies and RDS presents a viable path to enhance testing uptake within hard-to-reach cohorts. Utilizing private pharmacies aims to offer a discreet and accessible option for HIV testing, potentially navigating around the stigma and discrimination barriers. Furthermore, employing RDS aims to leverage the social networks of MSM and TGW, reaching individuals less likely to utilize conventional health services, including those who do not self-identify as gay, thereby extending the reach to bridge populations [39, 40].

This approach's success hinges on various factors, including pharmacy participation, HIVST's acceptability within target groups, and RDS's capacity to yield representative samples. Should this model prove efficacious, its scalability could facilitate broader implementation within Cambodia and regions with similar epidemiological contexts.

In the MSM and TGW communities, community-based testing is promoted and well-accepted. Indeed, screening conducted by Community-Based Organizations (CBOs) has proven to be the most effective method for identifying new infections within these communities [5, 41].A critical aspect of this project is to assess the acceptability of pharmacy-based testing among key populations and to understand how these communities embrace and potentially promote this testing approach.

Moreover, the study seeks to shed light on contemporary risk factors like chemsex, which is increasingly relevant in discussions surrounding HIV transmission among MSM [5]. By exploring these new dimensions, the research could contribute valuable insights into the complex interplay of social behaviors and HIV risk, further enhancing our understanding of the epidemic's dynamics.

The potential challenges of late diagnosis and testing service underutilization by key demographics, highlighted by the disparate levels of HIV awareness and testing engagement across various countries, are also addressed. The strategy aims to bridge these gaps, providing a pathway to bolster the initial stage of the HIV care continuum.

Acknowledging the study's limitations, including the potential biases inherent in self-reported data and concerns regarding the findings' generalizability, is essential. Nevertheless, the outcomes of this research hold the promise of informing future public health initiatives, proposing a framework for incorporating HIVST into a broader HIV prevention and care strategy focused on privacy, accessibility, and community involvement. This could notably contribute to the identification and engagement of bridge populations and the examination of emerging risk factors within the context of HIV transmission.

Limitations

Our study faces specific limitations as well. The use of respondent-driven sampling method based on paper and electronic vouchers, although innovative, might not capture the full diversity of the MSM and TGW populations, possibly resulting in skewed data. The stigma surrounding HIV and marginalized groups may also impact participation rates and individuals' willingness to disclose sensitive information. Moreover, distributing HIVST kits through private pharmacies, despite its convenience and guaranteed privacy and anonymity, might not reach individuals who are geographically, economically, or socially distanced from these facilities. Furthermore, the recruitment will focus on hotspots and social networks in Phnom Penh, excluding, unfortunately, for legal reasons, younger MSM/TGW below 18 years of age. Preferences for these platforms may shift over time. Consultative meetings with CBOs and stakeholders, who are working closedly with these communities, will aid in refining our outreach strategies.

These challenges call for a careful interpretation of our findings and highlight the need for additional investigation to achieve a more comprehensive understanding of HIV testing behaviors within these key populations.

Conclusion

This research project seeks to tackle the high HIV rates among MSM and TGW in Southeast Asia by introducing HIV self-testing (HIVST) through private pharmacies and employing respondent-driven sampling (RDS) to reach marginalized groups. The study aims to assess the feasibility and effectiveness of this approach in increasing HIV testing uptake, detecting new infections, and enhancing the initial step of the HIV care cascade. Positive findings could lead to scaling up this model to more pharmacies across the country, setting a precedent for future interventions and research in similar contexts.

The project also emphasizes a collaborative effort with community organizations and peer mediators to ensure a respectful, high-quality, and customized testing experience, thereby overcoming traditional barriers to HIV testing such as stigma and discrimination. The insights gained from this study are expected to contribute to the broader public health strategy against HIV/AIDS, offering evidence-based recommendations for policy and practice not only in Cambodia but potentially in other regions with analogous epidemiological and social landscapes.

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Data Availability

Data sharing is not applicable to this manuscript since no data sets were generated or analyzed during the development of the study protocol described herein. Once the data collection begins, all investigators will have access to anonymized patient-level data.

Conflicts of Interest

None declared.

Trial registration

NCT05745168

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Multimedia Appendix 1

Print version of the tablet-based questionnaire.
[PDF File (Adobe PDF File), 345 KB-Multimedia Appendix 1]

Multimedia Appendix 2

Topic guides for focus group discussion with MSM and TGW.
[PDF File (Adobe PDF File), 225 KB-Multimedia Appendix 2]

Multimedia Appendix 3

Topic guides for focus group discussion with pharmacists.
[PDF File (Adobe PDF File), 205 KB-Multimedia Appendix 3]

Multimedia Appendix 3

Topic guide for key informant interviews.
[PDF File (Adobe PDF File), 211 KB-Multimedia Appendix 4]

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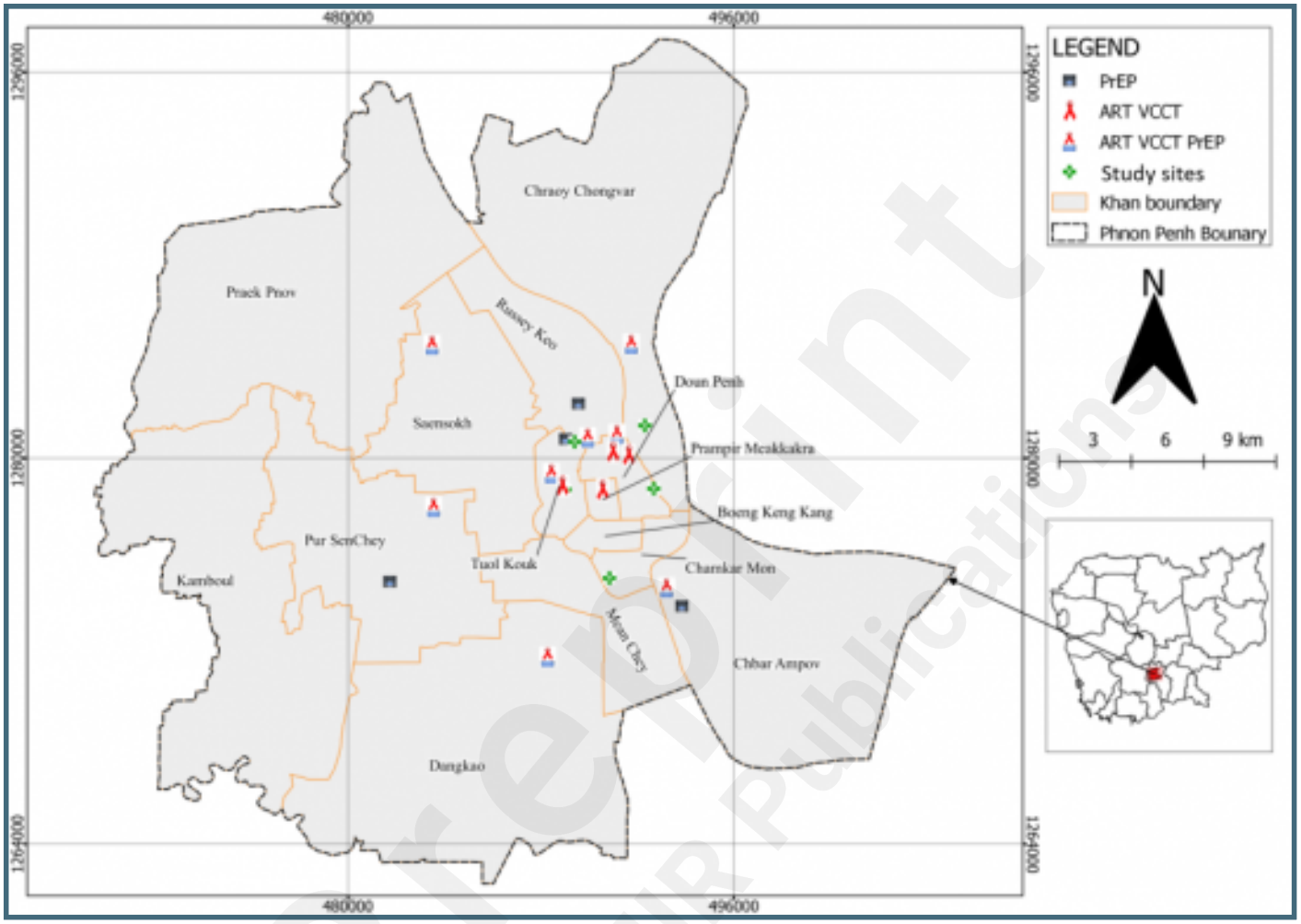
Supplementary Files

Figures

Study sites consist of three to five private pharmacies with their respective ART, VCCT and PrEP sites in Phnom Penh that support the follow-up among study participants who report HIV self-test results. ART=Antiretroviral therapy, VCCT=voluntary HIV counseling and testing and PrEP=pre-exposure prophylaxis.



Multimedia Appendixes

Questionnaire for pilot implementation of Hiv self-testing delivery in private pharmacies combined to a respondent driven sampling method to improve Hiv testing for men who have sex with men (MSM) and transgender women (TGW) in Phnom Penh.
URL: http://asset.jmir.pub/assets/a7b81f8923ea1e66a3325bb0052c108d.pdf

Topic guide for focus group among men who have sex with men and transgender women.
URL: http://asset.jmir.pub/assets/ebc6829e4d24155135344d731d971947.pdf

Topic guide for group discussion with pharmacists.
URL: http://asset.jmir.pub/assets/c090d4358918a07c9bf3ed275157482e.pdf

Interview guide for key informants.
URL: http://asset.jmir.pub/assets/c5b80a20dbaf185188852c111b034c2a.pdf

Existing Peer-Review Reports from Funding Agencies (for protocols/proposals only)s

Peer-review report 1 from ANRS.
URL: http://asset.jmir.pub/assets/9ba6d15c010f390a87b75f061cbaa0d7.pdf

Peer-review report 2 from ANRS.
URL: http://asset.jmir.pub/assets/6f88a4d4a63f2ab421b94755fa2e6ced.pdf

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