

# Acceptability, feasibility, and effectiveness of hepatitis C virus self-testing in Vietnam

## Background

Despite significant advancements in hepatitis C virus (HCV) treatment, nearly 74% of the total estimated population living with chronic HCV do not know their status due to limited awareness and access to testing services. In Vietnam, where approximately one million people are affected by chronic HCV, the majority remain undiagnosed and untreated. With support from Unitaid's HIV Self-Testing Africa project, PATH and the Center for Creative Initiatives in Health and Population, in collaboration with the provincial health departments and Center for Disease Control of Hanoi and Ho Chi Minh City (HCMC), conducted an implementation science study to introduce and scale up HCV self-testing (HCVST) in Vietnam.

Vietnam has committed to diagnosing 90% of HCV-infected individuals by 2030, necessitating the expansion of HCV testing services, particularly in high-burden provinces such as Hanoi and HCMC. The introduction of HCVST is important in achieving this goal by increasing testing accessibility and uptake.

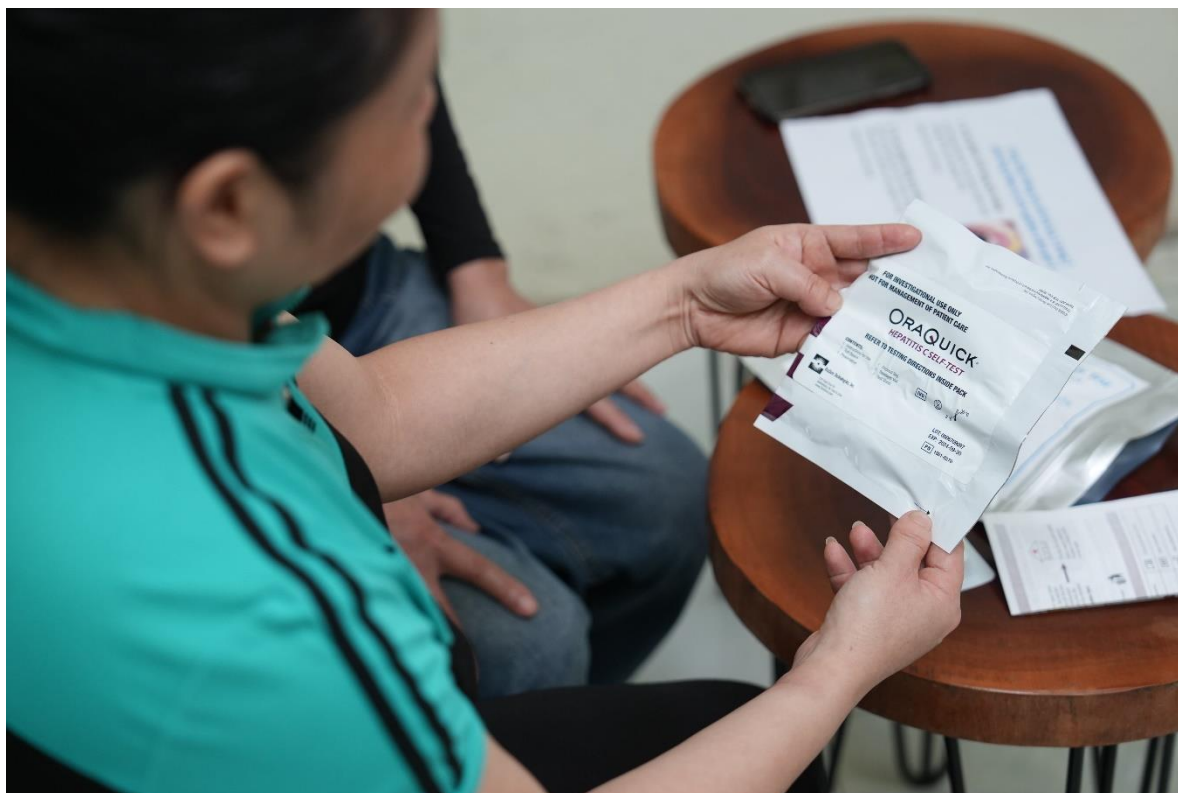
## Objectives

The “Acceptability, Feasibility, and Effectiveness of Hepatitis C Virus Self-Testing in Vietnam” study focused on implementing and evaluating four HCVST service delivery models (i.e., community-based, facility-based, secondary distribution, and online distribution) to inform national and global guidelines on HCVST implementation. Specifically, the objectives were to:

- Measure the effectiveness of HCVST models compared to routine HCV rapid testing provided by community-based organizations (CBOs) and clinics (provider-led HCV testing [PL-HCVT]).
- Assess the acceptability, preferences, and willingness to pay for HCVST.
- Assess the feasibility of integrated approaches to HCVST.
- Conduct cost analysis of HCVST models.

## Methods

From September 2023 to February 2024, a two-phase mixed-methods observational implementation science study was conducted to evaluate four different HCVST distribution models (facility-based, community-based, secondary distribution, and online distribution) among key populations (KPs), people living with HIV (PLHIV), and their sexual partners compared to routine HCV testing by CBOs and clinics (PL-HCVT) for KPs and PLHIV in Hanoi and HCMC.



Study participant preparing for the OraQuick™ HCVST. Photo: PATH/Manh Ngo

A total of 20 sites (eight CBOs, six antiretroviral therapy and methadone maintenance treatment [MMT] public clinics, four KP-led private clinics, and two online sites) were engaged to implement the four different service delivery models. Clients could choose oral fluid-based HCVST or PL-HCVT at CBOs and clinics and received HCVST through secondary distribution or online. Individuals with reactive tests were referred for confirmatory testing and treatment initiation.

Cost-effectiveness of HCVST distribution models was measured by the ability to reach unreached populations in need of HCV testing, detect new HCV cases, and link those with a reactive result to HCV confirmatory testing and treatment initiation, and the cost per HCV diagnosis.

In Phase 1, the active implementation science study recruited 2,882 study participants (1,834 opted for HCVST and 1,048 opted for PL-HCVT for a cross-sectional survey, 90 participants -- 70 clients, 15 service providers, and 5 program managers or officers -- participated in 15 focus group discussions (FGD) and five in-depth interviews (IDI). In Phase 2, the 20 sites continued to deliver HCVST services for 3,130 clients through four distribution models.

## Key findings

- HCVST effectively reached first-time testers, especially among KPs such as PWID and FSWs, through community-based and secondary distribution models.
- Overall, the HCV seropositivity rate was lower in HCVST than in PL-HCVT (11.2% versus 18.4%); however, it was higher in community-based and facility-based HCVST compared to secondary distribution and online distribution (18.1% and 16.8% versus 3.6% and 1.5%, respectively).

- The proportion of individuals with a reactive test receiving HCV confirmatory testing was higher through facility-based HCVST than community-based HCVST and secondary distribution (98.9% versus 90.5% and 80%, respectively).
- Unreached or first-time testers were more likely to opt for HCVST than PL-HCVT (67.6% versus 59.1%), particularly among PWID and FSWs, and through community-based and secondary distribution of HCVST.
- Community-based and secondary distribution HCVST models saw particularly high rates of first-time testers (91.4% and 83.8%, respectively) compared to online and facility-based HCVST (48.9% and 36.8%, respectively).
- Most clients expressed willingness to use HCVST in the future and to recommend it to others such as a friend or sexual partner, and desired to use HCVST in combination with HIVST.
- KPs and PLHIV showed equal preference for community-based and facility-based HCVST or PL-HCVT. The top five reasons for preferring HCVST included confidence in performing the self-test, quick results, being the first to know the test result, privacy, and confidentiality.
- The top five reasons for preferring PL-HCVT were being offered pretest and posttest counseling, lack of confidence in performing the self-test, quick results, friendly staff, and convenience in accessing other facility services.
- Preference for oral fluid-based HCVST was higher among MMT clients, PLHIV, PWID, and FSWs than among MSM. The top five reasons for their preference were simplicity and ease of performing the test, fear of pain or blood, perceived accuracy similar to the blood-based assay, quick results, and lack of confidence in pricking the finger for blood-based HCVST.
- Preference for assisted HCVST was higher among MMT clients, PWID, PLHIV, and MSM compared to FSWs. The top five reasons for this preference included expecting counseling after testing, support for connecting to further services, willingness of service providers to assist, lack of confidence in performing the self-test, and performing the self-test for the first time.
- The top five reasons for unassisted HCVST preference were confidence in performing the self-test, being the first to know the test result, confidentiality, previous experience with HIVST, and lack of access to a private place to perform the test in the facility.
- Most clients were willing to pay for HCVST at a median price of 2.50 US dollars (USD) per test kit or mean price of 3.10 USD (95% confidence interval: 3.00–3.20 USD) per test kit, which is about half of the market price currently offered by the manufacturers in low- and middle-income countries (LMICs).
- The cost per HCV diagnosis through community-based HCVST was the lowest, followed by facility-based HCVST, secondary distribution, and online distribution (14.5 million Vietnamese dong [VND] versus 15.2 million, 23.6 million, and 87.3 million VND or 604 USD versus 633, 983, and 3,637 USD, respectively).
- In general, the cost of HCVST models was higher than that of PL-HCVT models, with test kit cost as a main driver of the higher cost. The test kit cost accounted for 40% to 59% of the total cost across four HCVST distribution models compared to 14% to 19% in PL-HCVT models.
- The top three places that clients desired to obtain HCVST kits were at a pharmacy, health facility, and CBO.

## Conclusions

Results from this study confirmed that HCVST is an effective, acceptable, and feasible approach to increase access to and uptake of HCV testing and treatment among KPs and PLHIV. The community-based HCVST model was most cost-effective, followed by facility-based HCVST, secondary distribution, and online distribution.

Overall, the integration of HCVST into community-based and facility-based HIV and harm reduction services was highly appreciated due to its advantages, such as saving cost and time for the program, and offering convenient, friendly, and supportive services for clients. Concerns about its disadvantages include an increased workload and complicated data management that need to be addressed properly when implementing and scaling up this program in the future.

## Recommendations

Findings from the study informed strategies for implementing and scaling up HCVST services in LMICs, such as Vietnam. The strategies include, but are not limited to, the following implementation considerations:

- **Target population selection:** Prioritize high-risk, underserved populations for HCVST services to complement existing testing efforts.
- **Service delivery models:** Offer clients the choice between diverse service delivery models considering effectiveness, preference, cost, and feasibility. For example: Community-based HCVST is highly effective for case detection and relatively effective in reaching unreached populations and linking those with a reactive result to care, while facility-based HCVST is efficient in case detection and for linkage to care but not effective in reaching unreached populations.
- **Implementation approaches:** Optimize resources by integrating HCVST with existing services, tailored to target populations' service utilization patterns.
- **Community engagement:** Engage community networks throughout the intervention process to ensure successful HCVST service delivery. In this study we engaged CBOs and networks of PWID, FSWs, and MSM throughout the process of designing, implementing, monitoring, and evaluating the HCVST intervention, particularly community-based and secondary distribution of HCVST as well as online distribution.
- **Linkage to care:** Establishing efficient referral systems and making HCV confirmatory testing and treatment services available, accessible, and affordable are critical to facilitate linkage to care, particularly for community-based, secondary distribution, and online distribution models.