

Barriers to social health insurance enrollment for accessing antiretroviral therapy among people living with HIV/AIDS at early stages of shifting to insurance-based systems: a narrative literature review

Phuong Le Mai[#], Phuong The Nguyen^{1,2#}

¹Graduate School of Public Health, St. Luke's International University, Tokyo, Japan

²National Cancer Center Institute for Cancer Control, Tokyo, Japan

[#]These authors contributed equally to this paper.

Abstract

Introduction: Global funding for human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome (AIDS) responses in low- and middle-income countries is decreasing, and becomes unpredictable in the future due to co-existing pandemic of COVID-19. Therefore, lessons learned from a developing country that successfully shifted HIV/AIDS programs to insurance-based systems are in need. Aim of the study was to identify the barriers to enrollment and the use of health insurance (HI) for antiretroviral therapy (ART) in Vietnam.

Material and methods: This study is a narrative literature assessment of peer-reviewed publications on HI for accessing ART in Vietnam. Conceptual framework was developed based on the study's objectives with related factors analyzed from user's perspective, provider's perspective, and socio-economic and cultural factors considered.

Results: From user's perspective, the barriers to HI enrollment and the use of HI included awareness of the benefits from HI, affordability for enrollment into HI, fear of stigma and discrimination, fear of responsibility to pay for co-payment, and pre-conception of services provided by HI. From provider's perspective, the barriers were health workers' attitudes, quality of care and treatment services as well as inconsistent and insufficient guidance on social health insurance coverage of care and treatment for people living with HIV (PLHIV).

Conclusions: A comprehensive information package on HI and the benefits of HIV/AIDS services integrated into HIV programs should be considered to improve the enrollment into and the use of HI among PLHIV. Additionally, it is very important to encourage the government and local authorities to secure adequate funds for co-payment of ART.

HIV AIDS Rev 2022; 21, 4: 261-269

DOI: <https://doi.org/10.5114/hivar.2022.119412>

Key words: health insurance, barriers, reducing funds, HIV treatment, ART, COVID-19.

Address for correspondence: Phuong The Nguyen, Graduate School of Public Health, St. Luke's International University, Tokyo, Japan, e-mail: nguyenthephuong.hmu@gmail.com

Article history:
Received: 07.03.2022
Revised: 04.04.2022
Accepted: 04.04.2022
Published: 2022



Introduction

Human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) remain a considerable burden on low- and middle-income countries (LMICs) since its' first appearance 40 years ago [1]. According to global treatment guidelines provided by the World Health Organization (WHO), all people living with HIV/AIDS (PLHIV) are eligible for being supplied with highly active antiretroviral therapy (ART) regardless of their CD4+ cell counts [2, 3]. This will require enormous financial and human resources to maintain a sustainable national ART program with free access to HIV/AIDS services in LMICs [4]. Previously, services were mainly supported by international donors. However, since the globe is experiencing COVID-19 pandemic [5, 6], future global funding for HIV/AIDS responses becomes unpredictable [7]. Health insurance (HI) is a financing mechanism that helps reduce out-of-pocket payments and financial disaster for healthcare, ensuring the achievement of universal health coverage (UHC) [8] towards the ultimate target of health for all [9]. However, many LMICs are still in early stages of developing HI schemes, and are not able to expand coverage and benefits package of HIV/AIDS services. Therefore, lessons learned from a developing country, which successfully shifted HIV/AIDS programs to insurance-based systems are needed.

Vietnam, a Southeast Asian country, has an estimated 250,000 people living with HIV (PLHIV), with 6,100 newly infected people and 3,800 HIV/AIDS-related deaths in 2020 [10]. Specifically, this country has been experienced a concentrated epidemic focusing on high-risk populations defined by HIV transmission risk behaviors, including people who inject drugs (PWID), female sex workers (FSWs), and men who have sex with men (MSM) [11]. Like other member states of the United Nations, Vietnam is also committed to achieving the ambitious targets 90-90-90 of the Joint United Nations Program on AIDS (UNAIDS), with the requirement of achieving 90% of PLHIV to be on ART by 2020 (in addition to coverage of diagnosed PLHIV and PLHIV on ART achieving sustained virologic suppression), and up to 95% by 2030 [12]. However, as a low/middle-income country, Vietnam has been facing challenges of insufficient resources for HIV/AIDS programs due to cutting out funding from international aid [7]. As a countermeasure, the Vietnamese government has included HIV/AIDS services (i.e., test and treatment) into its' HI scheme since 2016.

Social health insurance (SHI) has been established in 1992, and become the main method of public financing for healthcare in Vietnam. The scheme includes compulsory HI, including six participants' categories, and voluntary HI including participants other than compulsory HI. Vietnamese government provides subsidies (from 100% to 30%) to vulnerable groups (e.g., elderly above 80, children under 6, poor, and ethnic minorities) based on their tax revenues. HI participants are covered from 80% to 100% cost of healthcare expenses, including medical examinations and treatments at regulated facilities [13]. Since 2016, PLHIV who has HI

can access key HIV/AIDS services (i.e., HIV testing, ART, opportunistic infections drug, CD4+ cell count test, preventive treatment for HIV-infected pregnant women), with a maximum co-payment of 20% fee for the services [14]. This country has become one of the first developing countries to successfully fund HIV/AIDS programs through government subsidies and premium payments. Although legal framework for HI reimbursement for ART was adequately developed, there were several barriers in early stages of implementation, such as low coverage of HI among PLHIV, and other challenges in accessing ART among PLHIV with HI.

This study aimed to identify the barriers that affected the enrollment into HI among PLHIV for using ART services in Vietnam. It provided some information for policymakers to encourage reimbursement of HI funds for ART in other low- and middle-income countries.

Material and methods

Study design

This study was a narrative literature review on HI for HIV/AIDS services in Vietnam at early stages of implementation in 2016. Specifically, we searched and reviewed all related publications and literature in 2016 and earlier years.

Search procedure

Search strategy included a search engine (Google Scholar), peer-reviewed articles (PubMed, Medline, and Vrije University Library) for publications studies, and literature related to HI for HIV treatment. To meet these objectives, data were summarized from different websites, articles, and international organizations, including World Health Organization (WHO), Joint United Nations on HIV/AIDS Programs (UNAIDS), United Nations Population Fund (UNFPA). Also, from international non-governmental organizations, such as Family Health International (FHI360) and local non-governmental organizations, including Center for Community Health Research and Development (CCRD) websites; from governmental agencies, such as National Geographic Statistical Office (GSO), Ministry of Health (MOH), Ministry of Finance (MOF), Vietnam Authority of HIV/AIDS Control (VAAC) as well as from international governmental agencies, including U.S. Agency for International Development (USAID). Data sources included literature and studies from 2008 to 2016 in both English and Vietnamese languages.

Search terms

Key search terms are presented in Table 1. Search term No. 1 was to review international experiences on the use of HI for ART and national studies on HI for ART to obtain a comprehensive picture of HI. Search term No. 2 was to explore related factors to the enrollment and the use of HI for ART in Vietnam from user's perspective. Search term No. 3

was to investigate related factors to the enrollment and the use of HI for ART in Vietnam from provider’s perspective. Search term No. 4 was to explore socio-economic and political factors associated with the enrollment and the use of HI for ART in Vietnam.

Conceptual framework

Conceptual framework was developed based on the real context in Vietnam (Figure 1) to identify relating factors, which may affect the enrollment and use of HI for ART in Vietnam, and to provide some recommendations for policy-makers to promote the use of HI as sustainable source for HIV treatment in Vietnam. It also provided relating factors from a user’s perspective and provider’s perspective, and from socio-economic and political viewpoints. The study had clarified two main issues that needed to be explored, such as what were the barriers to the HI enrollment of PLHIV and to the use of HI for accessing the ART program. According to our framework, perception of HI and decision to enroll into HI were investigated from user’s perspective. Other factors related to enrolling into and using HI for ART programs from user’s and provider’s perspectives were also identified and summarized. These factors were reviewed as to whether they were affected by socio-economic and political enablers.

Ethical statement

This study used widely available data without identical information. Thus, no ethical approval was required.

Results

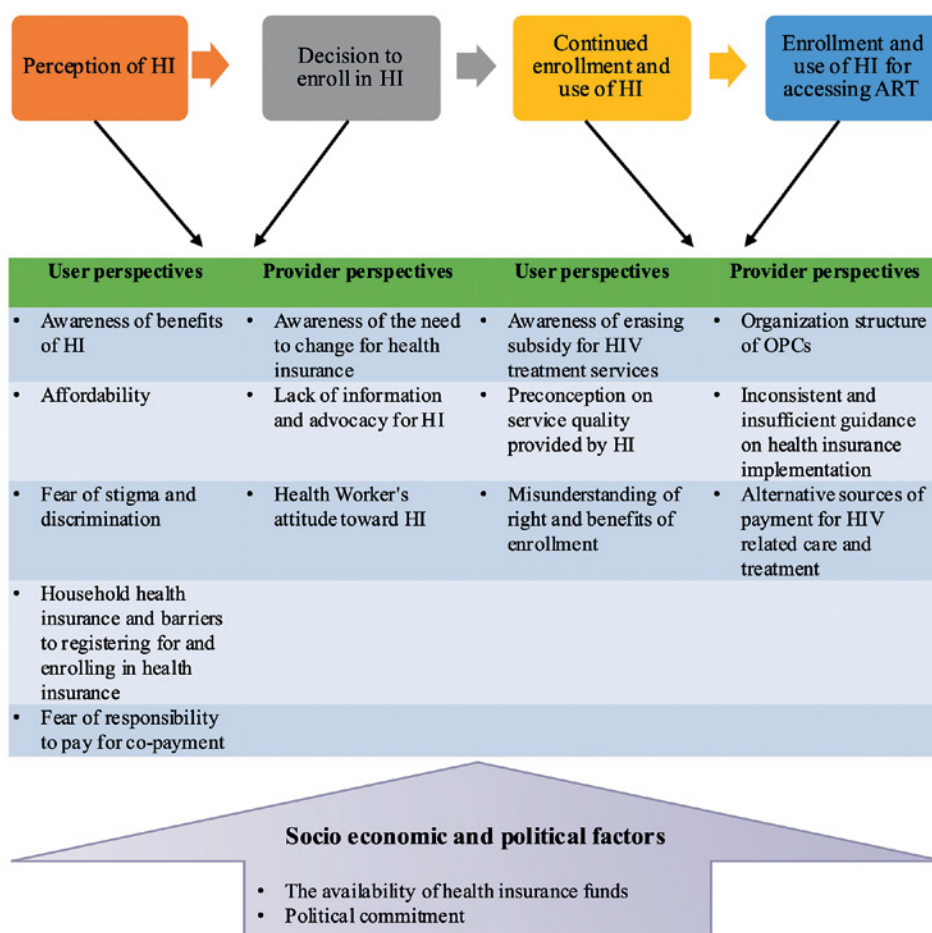
Summary of studies on health insurance for using ART in Vietnam

Figure 2 describes the national system of HIV/AIDS service delivery in Vietnam, with administration levels, and health and non-health systems. In 2010, in a sample of 1,200 PLHIV in 17 provinces, there were only 30% of those with HI, with 64% of being health-insured due to poor household (free of charge services provided by the government). It presented the initial information for developing HI policies for PLHIV, including estimation and projections on budgeting for HIV program [15]. Another project funded by the World Bank conducted a study in Hanoi, Hai Phong, and Ho Chi Minh city (HCMC), reporting a similar 30% coverage of HI among PLHIV [16]. In 2012, VAAC conducted a nationwide survey on HI coverage among PLHIV, and reported a national coverage rate of only 15%. In 2015, USAID performed research in seven provinces (Binh Thuan, Dien Bien, Ho Chi Minh City, Ha Noi, Lai Chau, Long An, and Thanh Hoa). Catastrophic health expenditure due to out-of-pocket payment for HIV/ AIDS services was reported as 2.5%, and would increase to 8% and 24% of patients who had to pay 20% and 100% costs of ART, respectively [17].

Table 1. Search strategy details

Literature	Search databases	Search terms for general information	Search terms No. 1	Search terms No. 2	Search terms No. 3	Search terms No. 4
Peer-reviewed publications	PubMed, Google Scholar	Health insurance in Vietnam, coverage of health insurance, paying for healthcare, financial burden of out-of-pocket payments, health expenditures, cost of antiretroviral therapy in Vietnam, HIV treatment gap	HIV, factors contributing to enrollment in health insurance, use of health insurance, stigma, discrimination, self-stigma	HIV, factors related to enrollment in health insurance, stigma, discrimination	Health insurance in Vietnam, access to universal health coverage, solutions	Social factors, policy factors related to using health insurance
Other literature	WHO, UNAIDS, USAID, MOH, MOF, VAAC	HIV, manuals, Vietnam	HIV, annual reports, Vietnam	HIV, annual reports, Vietnam	HIV, annual reports, briefs, Vietnam	HIV, annual reports, Vietnam

Search terms were translated into Vietnamese for searching Vietnamese publications and literature. WHO – World Health Organization, UNAIDS – Joint United Nations on HIV/AIDS Programs, USAID – U.S. Agency for International Development, MOH – Ministry of Health, MOF – Ministry of Finance, VAAC – Vietnam Authority of HIV/AIDS Control



HI – health insurance, ART – antiretroviral therapy, OPC – out-patient clinic

Figure 1. Conceptual framework of data summary

In 2016, to develop the procurement plan for ART using the national HI fund by 2017, VAAC continued to collect data on the number of PLHIV having HI in all provinces, with more detailed information at individual levels, such as the card number, validity period, name of the registered healthcare facility, and type of insurance (Figure 3). The results showed a low coverages of HI among PLHIV at the national level (40%) compared to the general population (nearly 90%), with no difference between mountainous provinces (40% in Dien Bien, 50% in Son La) and big cities (30% in Hanoi and HCMC) [18].

Factors contributing to the enrollment and the use of health insurance for HIV treatment from user’s perspectives

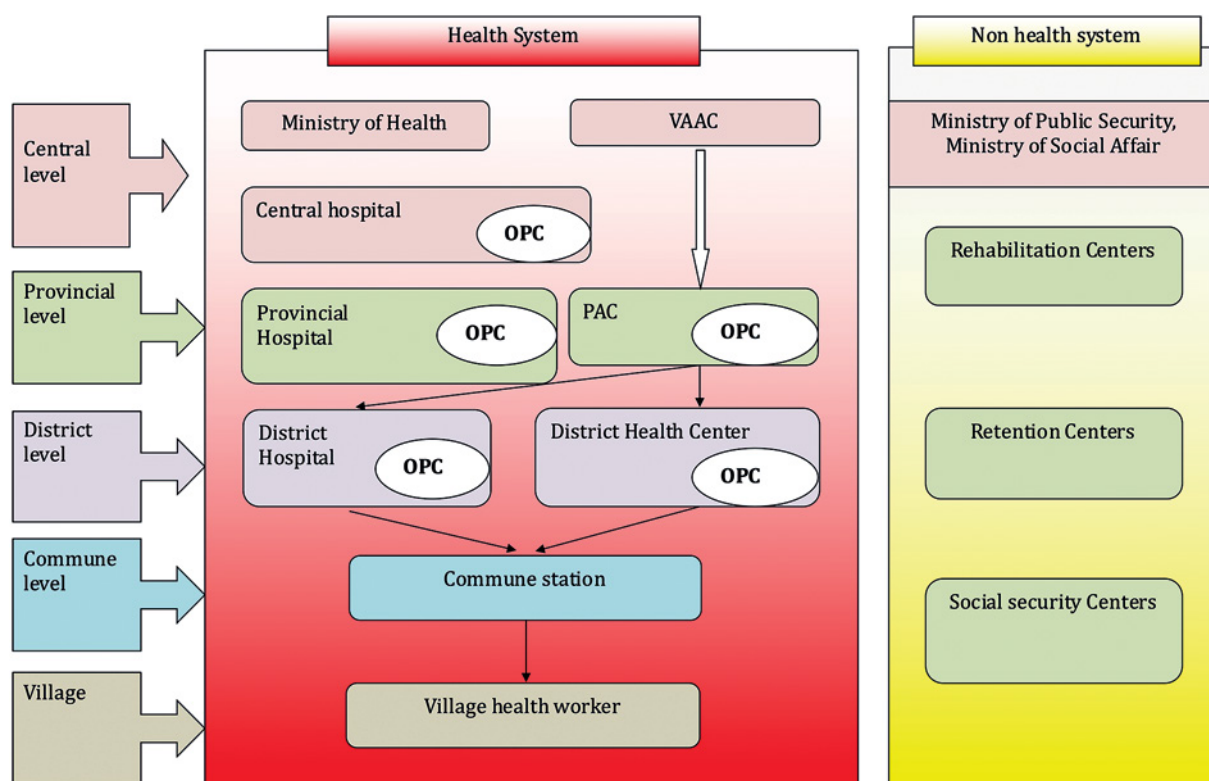
Awareness of the benefits of HI

Patients on ART had a certain demand for medical services, including ART, associated monitoring tests, and treatment for opportunistic infections. Some PLHIV expressed their awareness of the benefits of HI coverage to certain ex-

tent; other PLHIV responded that they had never heard about HI for PLHIV [17]. In addition, those interviewees who had infrequently used healthcare services did not understand the need for HI. They believed that if they were healthy, they did not need healthcare services, also for buying HI. About 20% of PLHIV found that they did not need HI [19].

Affordability for enrollment into health insurance

Many PLHIV faced economic difficulties, particularly those who were unemployed (possibly due to disclosure of their HIV status), or low-income and/or unstable jobs [20]. The premium for enrollment in one year was only 600,000 VND (~ 30 USD); however, if comparing this cost with unstable income of PLHIV, it was a significant expense (accounting for 30% of their monthly income). An estimated 27% of PLHIV in a study by USAID in 7 provinces reported that they did not have HI for reasons related to affordability of the premium, and 13% of the participants cited reasons related to difficulties involved in obtaining or keeping HI.



VAAC – Vietnam Authority of HIV/AIDS Control, OPC – out-patient clinic

Figure 2. National HIV/ AIDS system organizations in Vietnam.

The reasons included not knowing where to procure HI and difficulty with filling paperwork [21].

Fear of stigma and discrimination

Stigma, self-stigma, and fear of being stigmatized and discriminated were common among PLHIV who were willing to enroll into HI. Respondents mentioned their feeling of being stigmatized by their families, health facilities, and workplaces. Stigma and discrimination also affected families of PLHIV. If people discovered that a household had a HIV-positive person, no one would visit them [17]. Therefore, PLHIV also experienced self-stigma and great fear of being stigmatized by others [22]. For those reasons, PLHIV were afraid of using HI for receiving ART because they had to present their personal information and worry about disclosure. Stigma and discrimination affected PLHIV to enroll and use HI, and their accessibility to health services [17].

Fear of responsibility to pay for co-payment

One of the factors that affected the enrollment into HI was the fear of responsibility to pay for co-payment. Nearly 67% of PLHIV who were not exempted from co-payment incurred catastrophic expenditures if they had to pay the full ART cost. This was due to 1. Some respondents in the exempt from co-payments category were reported to incur

catastrophic expenditures in this survey at this level, and 2. Vast majority of remainder of patients would incur catastrophic expenditures under this metric, if they had to pay the full costs of ART [21].

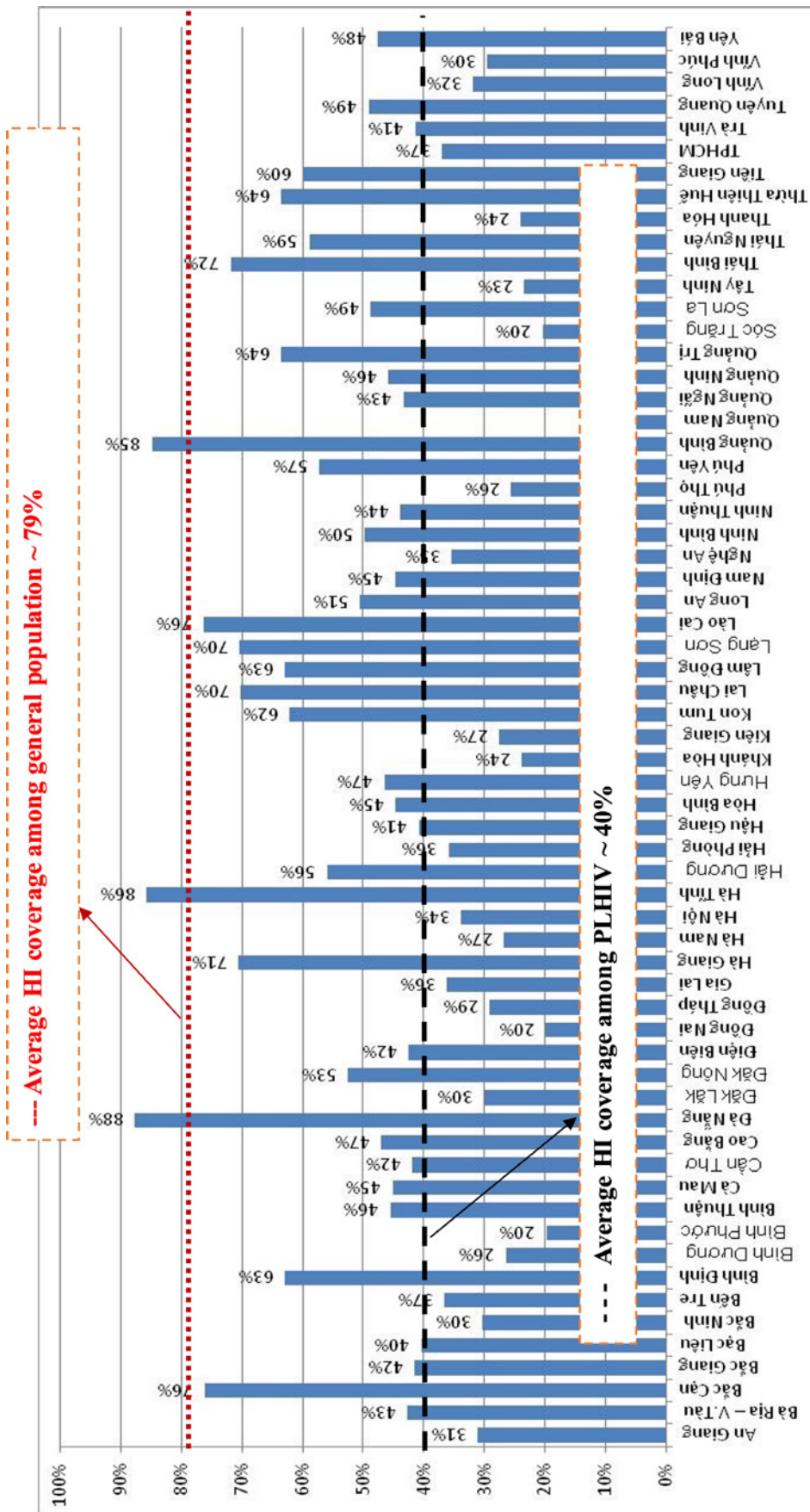
Pre-conception on services provided by health insurance

The process of actually using HI could be both inconvenient and time-consuming. A lot of procedures had to be completed at every visit before care and treatment, which was time-consuming. It means that they were likely to have negative perceptions of HI enrollment. The whole process from filling out registration form to providing needed documents in order to receive HI card would take one to two months [23, 24].

Factors contributing to the enrollment and the use of health insurance for HIV treatment from provider’s perspective

Health workers’ attitudes, and quality of care and treatment services

Health staff, who currently work at out-patient clinics (OPCs), were reported to be friendly and helpful towards PLHIV. However, among health staff, who worked at other health facilities, non-HIV-related services were reported to



HI - health insurance

Figure 3. Health insurance coverage among people living with HIV/AIDS (PLHIV) by all provinces in Vietnam in 2015 (Source: HIV program report period from 2011 to 2015, with a vision by 2020, Ministry of Health Vietnam [6])

be indifferent, some might show stigma and discrimination of PLHIV. This could prove a barrier to access the treatment, when ART was only provided via HI, and many OPCs combine district and provincial hospitals as PLHIV may have concerns about encountering negative attitudes there [17].

Inconsistent and insufficient guidance on social health insurance coverage of care and treatment for people living with HIV

Circular No. 15/2015/TT-BYT stipulated that PLHIV could register for both HIV-related care and treatment and primary healthcare at either the district or provincial level of health system, and be covered by social health insurance [25]. This removed the need for referral since insured people living with HIV can register for their primary healthcare at the provincial level. Although Circular 15 had been in effect since August 2015, local health officials and social health insurance officials when asked about this issue, maintained that it was very difficult for insured PLHIV to register for primary care and treatment at hospitals higher than the district level. Local health workers and social health insurance officials also emphasized that further guidance on other aspects of the implementation of Circular 15 was needed, in particular regarding the de-centralization of HIV-related medical services covered by social health insurance, lists of drugs covered by social health insurance at the commune, district and provincial levels, and the conditions for inclusion into HIV-related care and treatment services in contracts between Vietnam social security and general hospitals.

Discussion

The present study explored factors contributing to the enrollment and the use of HI among PLHIV in ART programs. For service users, factors that contribute to enrolling and use of HI are: 1. Awareness of the benefits of HI; 2. Affordability for enrollment into HI; 3. Fear of stigma and discrimination; 4. Fear of responsibility to pay for co-payment; and 5. Pre-conception about services provided by HI. For the service provider, factors that may prevent PLHIV from enrollment and use of HI are: 1. Health workers' attitudes, and quality of care and treatment services, and 2. Inconsistent and insufficient guidance on social health insurance coverage of care and treatment for PLHIV. All the above-mentioned factors as well as the need for information about HI are the most important factors determining enrollment and the use of HI from user's perspective. A comprehensive information package on HI and benefits of HIV/AIDS services integrated into HIV programs was seen as a highly effective way to improve HI enrollment. In the context of reducing funding for HIV/AIDS, it is important to encourage the government and local authorities to secure adequate funds for co-payment of ART. It would help patients to adhere to ART and to avoid any potential drug resistance, so they would not need to shift to a more expensive regimen [2].

PLHIV are recognized as one of the vulnerable populations [9], who mainly come from PWID, FSW regarding nearly exhausted economies, and low quality of life [26]. It is estimated that 37% of ART patients had income below the poverty line [19]. Almost all PLHIV know that they are no longer subsidized for free ART and they try to afford HI enrollment to be protected from catastrophic health expenditures. They are aware of the importance of having HI and understand that HI fund is not only paid for medical costs related to HIV, but also paid for other diseases. However, PLHIV living in mountainous provinces had limited understanding of the need of having HI, unless they are already insured in the group with premiums covered by government funds, such as poor, near-poor, and citizen with medium income. Although the policy of household HI is created towards universal health coverage, the payment of premium at one time and co-payment are still challenges for vulnerable groups, who find it hard to earn living expenses [17]. Although the updated law allow people who are enrolled into HI for five consecutive years to have a co-payment rate of 0%, some other conditions (e.g., annual healthcare expenditure must be at least 6 times the base salary) may be complicated and hard to satisfy among PLHIV who are mostly from vulnerable populations with low social-economic status and poor health literacy [13]. When being forced to pay, PLHIV may discontinue ART, which may result in drug resistance and changing to a higher regimen [19]. As stigma and discrimination still exist among health staff, it is very difficult to remove fears from PLHIV [22]. They tend to be treated at an OPC far away from their residence or if possible, they would rather use their out-of-pocket payment than HI [20]. On the other hand, work-related stress among healthcare providers also warranted further investigations [27-29].

The government of Vietnam specifies the need of changing from donor-based treatment to HI-based treatment, with different options to expand HI coverage for HIV treatment by issuing a decision No. 1899/QĐ-TTĐ [30]. It includes a change of organizational structure of outpatient treatment sites, re-arrangement of human resources working for treatment sites, and integrated examination of PLHIV with the current process [31]. When there is a clear roadmap of diminishing donor funds, it is essential to promote HI options, especially advocacy campaigns for HI among PLHIV. PLHIV should be well-educated, with a comprehensive package of HI benefits, rights, and responsibilities of PLHIV enrolled into HI. In contrast, when awareness of health workers changes towards HI promotion, health workers should remove their discrimination against PLHIV in terms of examination and care. On the other hand, the current organizational structure of OPCs is one of the barriers to providing HI for PLHIV. When 50% of current OPCs are preventive-based health facilities, it would be a challenge for them to be eligible for signing contracts with local HI agencies to provide HI-paid HIV treatment services. To solve this issue, an adaptive model of the healthcare setting is necessary [32, 33]. There are two options: 1. Preventive-based health

facilities established HIV and AIDS specialized outpatient clinics, which meet the criteria for a curative treatment site, or 2. Moving patients on ART from a preventive-based OPCs into curative-based OPCs to guarantee that PLHIV would be paid by HI for their HIV treatment services. Additionally, inconsistent and insufficient guidance on HI implementation may affect the continuous enrollment or use of HI. Guidance on the implementation of HI for HIV individuals should be soon promulgated to guarantee the implementation of guidance timely and adequately.

This study has some limitations. Firstly, the data might not be representative of the whole population of PLHIV, because those studies were conducted in some areas, which have high HIV prevalence in Vietnam. Secondly, limited numbers of studies on the use of HI among PLHIV (including a issue of using HI for ART program) in this early stage of implementation, as this study only investigated a period before 2016. Therefore, they may not be able to reflect on the current situation in Vietnam, and needs further studies in the future. Even so, findings from these studies played an important role in helping policy-makers in Vietnam to make critical adjustments in the following time, and provided the lesson learned for other LMICs. Thirdly, by using a conceptual framework based on Vietnam's context, this study may be overfitting to a specific context, and the generalizability of this study may be limited.

Conclusions

Socio-economic status of PLHIV, health literacy, and the government's political commitment to support ART programs are the most significant influencing factors. An integration of a comprehensive information package on HI and its' benefits for HIV/AIDS services in national HIV/AIDS programs is required. Service providers should have adequate consultation skills to encourage PLHIV for HI enrollment and the use for accessing ART program. Additionally, they should be ready for eliminating stigma and discrimination, and creating a positive opinion in PLHIV regarding the quality and benefits of HI for HIV treatment services. In the context of reducing funding for HIV/AIDS programs, it is important to encourage the government and local authorities to secure adequate funds for co-payment of ART. The government's commitment to secure accessibility and affordability of ART will help to reduce AIDS-related deaths and HIV transmission.

Conflict of interest

No conflict of interest to declare.

References

1. Joint United Nations Programme on HIV/AIDS. Confronting inequalities: Lessons for pandemic responses from 40 years of AIDS. Geneva: UNAIDS; 2021.
2. Le PM, Nguyen PT, Nguyen HV, et al. Adherence to highly active antiretroviral therapy among people living with HIV and associated high-risk behaviours and clinical characteristics: a cross-sectional survey in Vietnam. *Int J STD AIDS* 2021; 095646242110024.
3. Nguyen PT, Gilmour S, Le PM, Onishi K, Kato K, Nguyen HV. Progress toward HIV elimination goals: trends in and projections of annual HIV testing and condom use in Africa. *AIDS* 2021; 35: 1253-1262.
4. Dutta A, Barker C, Kallarakal A. The HIV treatment gap: estimates of the Financial resources needed versus available for scale-up of antiretroviral therapy in 97 countries from 2015 to 2020. *PLoS Med* 2015; 12: 1-43.
5. Van Nguyen H, Lan Nguyen H, Thi Minh Dao A, et al. The COVID-19 pandemic in Australia: public health responses, opportunities and challenges. *Int J Health Plann Manage* 2022; 37: 5-13.
6. Nguyen TP, Sy Wong Z, Wang L, Thanh TT, Van Nguyen H, Gilmour S. Rapid impact assessments of COVID-19 control measures against the Delta variant and short-term projections of new confirmed cases in Vietnam. *J Global Health* 2021; 11: 3118.
7. Wexler A, Kates J, Lief E; Joint United Nations Programme on HIV/AIDS (UNAIDS). Donor government funding for HIV in low- and middle-income countries in 2020. San Francisco: Kaiser Family Foundation (KFF); 2021.
8. Nguyen PT, Rahman MS, Le PM, et al. Trends in, projections of, and inequalities in reproductive, maternal, newborn and child health service coverage in Vietnam 2000-2030: a Bayesian analysis at national and sub-national levels. *Lancet Reg Health West Pac* 2021; 15: 100230.
9. Gilmour S, Mai PL, Nguyen P, Dhungel B, Tomizawa M, Nguyen H. Progress towards health for all: time to end discrimination and marginalization. *Int J Environment Res Public Health* 2020; 17: 1696.
10. Joint United Nations Programme on HIV/AIDS. Global HIV & AIDS statistics: 2020 fact sheet. Geneva: UNAIDS; 2020.
11. Nguyen PT, Gilmour S, Le PM, Nguyen TT, Tanuma J, Nguyen HV. Factors associated with high-risk behaviors of people newly diagnosed with HIV/AIDS: results from a cross-sectional study in Vietnam. *AIDS Care* 2021; 13: 1-9.
12. The Joint United Nations Programme on HA. 90-90-90: an ambitious treatment target to help end the AIDS epidemic. Geneva, Switzerland: UNAIDS; 2014.
13. Vietnam National Assembly. Law No. 46/2014/QH13 Amending and Supplementing a Number of Articles of the Health Insurance Law. Hanoi, Vietnam: Vietnam National Assembly; 2015.
14. Vietnam Ministry of Health. Official Letter 9293/BYT-AIDS regarding medical examination and treatment with health insurance for people living with HIV/AIDS. Hanoi, Vietnam: MOH; 2015.
15. Messersmith LJ, Semrau K, Hammett TM, et al. HIV/AIDS-related stigma and discrimination in Vietnam – Legal and policy framework improved but problems remain. 2012.
16. Vietnam Ministry of Health. HIV/AIDS program summary report 2015 and Action plan in 2016. Hanoi: MOH; 2016.
17. Vietnam Administration of HIV/AIDS Control. Social Health Insurance for people living with HIV in Vietnam – An assessment of enrollment in and use of social health insurance for the care and treatment of people living with HIV. Hanoi: VAAC; 2015.
18. Vietnam Ministry of Health. HIV program report period 2011-2015 with vision to 2020. Hanoi: MOH; 2015.
19. Vietnam Authority of HIV/AIDS Control, Health Finance and Governance Project. Model to estimate health insurance liability for treatment of HIV/AIDS in Vietnam (2015-2020): background, methods and results. Hanoi: HFGP; 2015.
20. Center for Community Health Research and Development. Sustainable Financing of HIV/AIDS services for PLHIV in Vietnam – the contribution of Social Health Insurance. Hanoi: CCRD; 2013.
21. Vietnam Authority of HIV/AIDS Control, Health Finance and Governance Project. Sustaining HIV/AIDS treatment services: estimating the health insurance liability for treatment of HIV/AIDS in Vietnam (2015-2020). Hanoi: HFGP; 2015.

22. Viet Nam National Network of People Living with HIV. People living with HIV Stigma Index in 2014 in Viet Nam. Hanoi: VNP+; 2014.
23. Vietnam Ministry of Health. Official Letter No. 3638/BYT-BH regarding simplify procedures for health insurance in household. Hanoi: MOH; 2015.
24. Vu HN, Nguyen SV. Current status of voluntary health insurance of farmers in Thai Binh province. *Vietnam Journal of Science and Development* 2014; 12: 853-861.
25. Vietnam Ministry of Health. Circular No. 15/2015/TT-BYT dated June 26, 2015 of the Ministry of Health guiding the medical examination and treatment by health insurance for HIV-positive people and people using HIV/AIDS related health care services. Hanoi: MOH; 2015.
26. Van Nguyen T, Van Nguyen H, Duc Nguyen T, Van Nguyen T, The Nguyen T. Difference in quality of life and associated factors among the elderly in rural Vietnam. *J Prev Med Hyg* 2017; 58: E63-E71.
27. Nguyen PT, Van Nguyen H, Le PM, et al. Translation, validation and psychometric properties of Effort-Reward Imbalance questionnaire among nurses in Vietnam. *Prev Med Rep* 2021; 25: 101692.
28. Nguyen HV, Dinh ML, Nguyen TV, Nguyen DN, Tran ATN, Nguyen PT. A systematic review of effort-reward imbalance among health workers. *Int J Health Plann Manage* 2018; 33: e674-e695.
29. Nguyen HV, Nguyen TTH, Nguyen ALT, et al. The validation of organisational culture assessment instrument in healthcare setting: results from a cross-sectional study in Vietnam. *BMC Public Health* 2020; 20: 316.
30. Vietnam Prime Minister. Decision 1899/QĐ-TTg in 2013 approving the Project “Financial security for HIV/AIDS prevention and control activities in the period 2013-2020” issued by the Prime Minister. Hanoi: Vietnam Prime Minister; 2013.
31. Nguyen PT, Nguyen VH, Phan HTT, Cao CTH. Situation of human resources and staff training of four provincial HIV/AIDS control centers in Northern Vietnam and some related factors in 2013. *Vietnam Journal of Preventive Medicine* 2015; 7: 75-82.
32. Nguyen HV, Hoang MV, Dao ATM, et al. An adaptive model of health system organization and responses helped Vietnam to successfully halt the Covid-19 pandemic: what lessons can be learned from a resource-constrained country. *Int J Health Plann Manage* 2020; 35: 988-992.
33. Nguyen HV, Debattista J, Pham MD, et al. Vietnam’s healthcare system decentralization: how well does it respond to global health crises such as covid-19 pandemic? *Asia Pac J Health Manag* 2021; 16: 47-51.