

HIV and AIDS Publications 2005-2011

Quick Reference Guide for National Research Agenda



ORGANIZATIONAL INVOLVEMENT

Vietnam Authority of HIV/AIDS Control (VAAC)

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HIV and AIDS Publications

2005-2011

**Quick Reference Guide for
National Research Agenda**

Foreword

After more than 20 years since the first HIV case was detected in Vietnam in 1990, we can say that HIV and AIDS prevention and control efforts in Vietnam have achieved many encouraging results. With the expansion of HIV and AIDS prevention, care and treatment intervention programs, Vietnam has basically restrained the pandemic growth, keeping the HIV prevalence in the community under 0.3 percent. This success has been achieved under the leadership of Party committees and through the efforts of health workers, with the active engagement of other sectors and the whole society, and with the significant efforts of HIV and AIDS researchers.

From 2005 through 2011, numerous research projects on HIV and AIDS were carried out in Viet Nam at national, ministerial, sectoral and local levels. Research findings from these studies have generated an evidence base for planning prevention, care and treatment interventions. These findings have also been presented at various scientific conferences and published in journals locally and internationally.

To update and optimize the use of research results, the Vietnam Authority of HIV/AIDS Control, Ministry of Health, in collaboration with FHI 360, has reviewed results from HIV and AIDS studies conducted in Vietnam in this *Quick Reference Guide for a National Research Agenda: HIV/AIDS Publications, 2005–2011*. We developed this publication to provide researchers with a simple reference tool for HIV and AIDS research and to facilitate the dissemination of study results. We hope that this guide will prove useful for researchers and programmers involved in HIV and AIDS related work.

While developing the guide, we have tried to retrieve and review all relevant studies in Vietnam. Due to many constraints, however, we are well aware that the mission is, as yet, by no means accomplished. We welcome comments and suggestions from readers.

The authors would like to thank FHI 360 and the researchers and experts who have provided significant support to complete this guide.

On behalf of the Editorial Board



**NGUYEN THANH LONG MD, PhD, Associate Professor
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Quick user guide

1. Purpose of the publication

This *Quick Reference Guide* on HIV and AIDS publications from Vietnam during 2005 to 2011 is designed to help researchers and those interested in HIV and AIDS research quickly find relevant studies and associated findings in this field.

2. Targeted users

The *Quick Reference Guide* is designed primarily for these users:

- Researchers involved in HIV and AIDS research
- Health staff working in the HIV and AIDS prevention and control system
- Others who are interested in current knowledge regarding HIV and AIDS research activities in Vietnam

3. Using the Guide

The guide is mainly for researchers working on HIV and AIDS research projects. Health management staffs in the HIV and AIDS prevention and control system can also refer to this guide in order to inform program planning, policy development and implementation of HIV and AIDS prevention and control activities.

All relevant peer-reviewed articles, abstracts, technical reports and evaluations about Vietnam published from 2005 through 2011 were reviewed, entered into an EndNote database and categorized into one of the following four main categories:

- Basic science, including the epidemiology and behavior of HIV and AIDS
- Prevention
- Treatment, care and support
- Leadership and management

For further details on the electronic database, contact the Vietnam Authority for HIV/AIDS Control (Department of Scientific Research and International Cooperation), 135/3 Nui Truc, Ba Dinh District, Hanoi, Vietnam.

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Acronyms

ART	Antiretroviral Therapy
AIDS	Acquired Immunodeficiency Syndrome
ARV	Antiretroviral Drugs
CDC	U.S. Center for Disease Control and Prevention
FSW	Female Sex Worker
HAIVN	Harvard Medical School Aids Initiative in Vietnam
HIV	Human Immunodeficiency Virus
IDUs	Injecting Drug Users
MMT	Methadone Maintenance Therapy
MODS	Microscopic Observation Drug Susceptibility Assay
MOH	Ministry of Health
MSM	Men Who Have Sex With Men
NGO	Non Governmental Organization
NNRTI	Non-Nucleoside Reverse Transcriptase Inhibitor
NRTI	Nucleoside Reverse Transcriptase Inhibitors
PEPFAR	U.S. President's Emergency Plan for Aids Relief
PLHIV	People Living With HIV
PSI	Population Services International
SHAPC	STDs/HIV/AIDS Prevention Center
UNAIDS	Joint United Nations Programme on HIV/AIDS
USAID	U.S. Agency for International Development
VAAC	Vietnam Authority of HIV/AIDS Control
VCT	Voluntary Counseling And Testing
WHO	World Health Organization



I. Introduction

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In 2010 an estimated 311,000 people in Vietnam were living with HIV, with the highest prevalence concentrated among injecting drug users (IDUs), female sex workers (FSWs) and men who have sex with men (MSM). An increasing number of new cases have been found in other lower risk populations.¹

Over the last 20 years, the Vietnamese government has cooperated with local agencies and international organizations to lead a coordinated effort in the fight against the HIV epidemic. The scale-up of the antiretroviral therapy (ART) program started in 2005 and the rapid expansion of harm reduction programs, especially the 2008 methadone maintenance therapy (MMT) pilot project, illustrate national level efforts and commitment to preventing the spread of HIV. In this context, HIV and AIDS research has demonstrated its importance in providing the data and evidence about the epidemic needed to inform prevention strategies.

In line with the national HIV strategic plan, the objective of the *Quick Reference Guide* is to review the existing HIV and AIDS research in Vietnam and thus identify research priorities in the next stage of prevention and control.

¹ Vietnam Authority of HIV/AIDS Control, Vietnam HIV/AIDS estimates and projections 2007-2012. Available at <http://www.unaids.org.vn/images/stories/EPP%20report%20EN.pdf>



II. Methodology

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The *Quick Reference Guide* focuses on all literature about research on HIV and AIDS in Vietnam published both internationally and nationally between 2005 and 2011. This review includes journal articles, conference papers, reports and evaluations. Ongoing studies were not included, except those that have reported preliminary findings. Research was gathered through three different sources:

- We conducted database queries by searching the following electronic databases: (1) PubMed; (2) International AIDS Conference, 2008 and 2010; and (3) International Congress on AIDS in Asia and the Pacific, 2007 and 2009. The search strategy was varied and adapted as necessary to suit each database. Broad search terms, such as “HIV and Vietnam” in PubMed and “Vietnam” for international conference databases were used to capture as many citations as possible.
- We included all abstracts appearing on the proceedings of the Fourth National Scientific Conference on HIV/AIDS in Hanoi, December 2010. This is the largest conference on HIV and AIDS in Vietnam, organized every five years.
- A call for contributions to the *Quick Reference Guide* to HIV and AIDS research in Vietnam was sent out to a nongovernmental organizations (NGOs) network. The call invited organizations and individuals to submit their grey literature that had not been published in any of the sources mentioned above but would make a significant contribution to our understanding of HIV and AIDS in Vietnam. Grey literature includes technical reports, evaluations or working papers on HIV, AIDS or both from 2005 through 2011.

All relevant peer-reviewed articles, abstracts, technical reports and evaluations published from 2005 through 2011 were included. Once collected, all studies were entered into an EndNote database and categorized into one of the four main categories, which correspond to four sections of the Fourth National Scientific Conference on HIV/AIDS as follows:

- Basic science, including epidemiology and behavior of HIV/AIDS
- Prevention
- Treatment, care and support
- Leadership and management

If an article met criteria for more than one category, we placed it in the category that most closely resembled the article's overall objective. Data extracted from each abstract included study type, author, research question, surveyed population, methodology, key findings and conclusion.

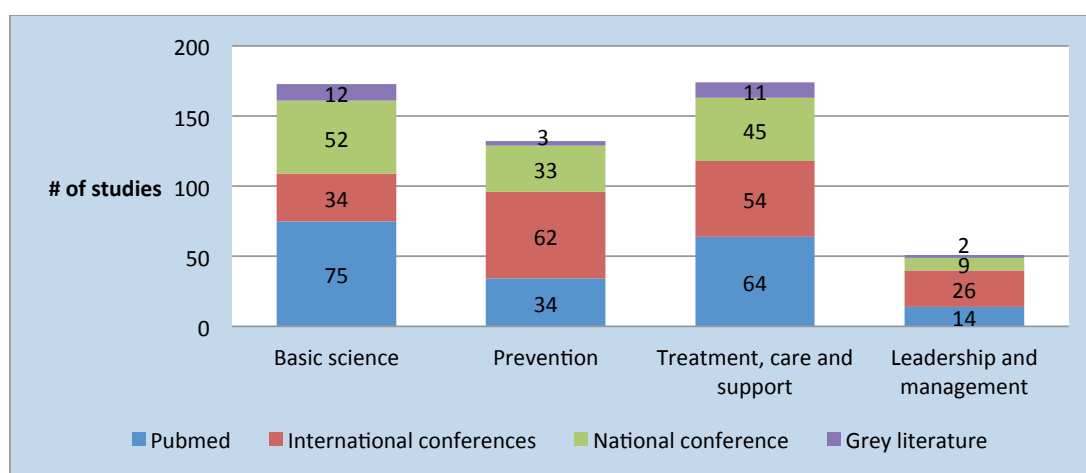
Within each category, the articles are listed in the following order: journal articles from PubMed, presentations at international conferences, presentations at national conferences and grey literature from organizations.

III. Distribution of HIV/AIDS research in Vietnam

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We found a total of 530 studies. The distribution of studies by type of publication and content is presented in Figure 1.

Figure 1: The distribution of HIV and AIDS research by type of publication and category.



Most of the research has been conducted in basic science and care and treatment. Similarly, basic science and treatment also have significantly higher number of peer-reviewed journal articles.

To better understand the risk groups and prevention-related activities being studied in Vietnam, we created a research matrix based on the methodology developed by Anstee et al.² The research matrix aims to identify gaps among HIV studies. The matrix contains 15 columns, equivalent to 15 different prevention activities, and 16 rows, representing both high- and low-risk population groups.

Of the total 530 studies included in the *Quick Reference Guide*, we excluded 35 studies from the research matrix that dealt with treatment of TB, sexually transmitted infections (STIs) and other co-infections and 18 articles on health economics and impacts of HIV and AIDS on socioeconomic development. The remaining 477 studies were screened and classified into the appropriate cells.

² Anstee S, Price A, Young A, Barnard K, Coates B, Fraser S, Moran R. Developing a matrix to identify and prioritise research recommendations in HIV prevention. BMC Public Health. 2011;11:381

The matrix provides a visual representation of topics, such as the epidemiology of HIV and risk behaviors that are well-covered across the different populations. The matrix also highlights some important gaps that future research could fulfill, such as these topics:

- Prevention among MSM. This group is experiencing increasing prevalence of HIV, but represents a hard-to-reach population. Ongoing studies are currently investigating different methodologies for accessing this hidden population, such as using the Internet.
- HIV transmission and risk behaviors of mobile populations, minorities and clients of FSWs. Ongoing research is just starting to examine these groups, and this may be an area for future research.
- Research in low-risk populations. Existing research is limited to general education as prevention, with few studies pertaining to other intervention areas, such as HIV counseling and testing.

Figure 2: The HIV prevention matrix, total of 477 studies

Risk groups	Prevention	HIV Epi	STIs, TB Epi	Genetics	Behaviors	Education & BCC	Needles & Syringes	Condom	Testing	MMT	Combination of prevention	ARV treatment	Health care services	Law, ethics /policy	Stigma	Others	Total
HIV positive			8	8	4				1			74	33		31		159
IDUs	14		1		29	4	4		2	10	11			1		5	81
FSWs	3		6		22	2		1	1		1		2	2		1	41
MSM	7				15	1					2				1	2	28
Combination of high risk groups	7					2		1	6		1		1			2	20
Antenatal/ MCT					8				10		6	4				5	33
Spouses of PLHIV	2																2
Mobile population					4	1			1		1			4			11
Clients of FSWs	1				3												4
Spouses of IDUs					6						3						9
Minority	2															1	3
Young people					12	7			1							5	25
Clients of Health care services	4				4												8
Government health officials						4								4		2	10
The general population	3		8		7	6			2		2			14		4	46
Others					1												1
Total	43		23	8	115	27	4	2	24	10	27	78	36	25	32	27	477

4.1 Basic science of HIV and AIDS

Genetic aspects of HIV and AIDS in Vietnam were investigated in nine studies, which demonstrated the dominance of HIV-1 circulating in Vietnam and the dissemination of HIV-1 CRF01_AE [1-9].

1. Nouhin J, Donchai T, Hoang KT, Ken S, Kamkorn J, Tran T, et al. Natural polymorphisms of HIV-1 CRF01_AE integrase coding region in ARV-naive individuals in Cambodia, Thailand and Vietnam: an ANRS AC12 working group study. *Infect Genet Evol.* 2011;11(1):38-43. ([Abstract](#))
2. Trinh QD, Pham NT, Lam BQ, Le TP, Truong KH, Le TQ, et al. Subtyping and env C2/V3 sequence analysis of HIV-1 isolated from HIV-infected children hospitalized in Children Hospital 1, Vietnam during 2004-2005. *J Trop Pediatr.* 2009;55(6):399-401. ([Abstract](#))
3. Liao H, Tee KK, Hase S, Uenishi R, Li XJ, Kusaqawa S, et al. Phylodynamic analysis of the dissemination of HIV-1 CRF01_AE in Vietnam. *Virology.* 2009;391(1):51-6. ([Abstract](#))
4. Lazaro E, Theodorou I, Legrand E, recordon-Pinson P, Boucher S, et al. Sequences of clustered epitopes in Gag and Nef potentially presented by predominant class I human leukocyte antigen (HLA) alleles A and B expressed by human immunodeficiency virus type 1 (HIV-1)-infected patients in Vietnam. *AIDS Res Hum Retroviruses.* 2005;21(6):586-91. ([Abstract](#))
5. Li L, Liang S, Chen L, Liu W, Li H, Liu Y, et al. Genetic characterization of 13 subtype CRF01_AE near full-length genomes in Guangxi, China. *AIDS Res Hum Retroviruses.* 2010; 26(6):699-704. ([Abstract](#))
6. Phan TT, Ishizaki A, Phung DC, Bi X, Oka S, Ichimura H. Characterization of HIV type 1 genotypes and drug resistance mutations among drug-naive HIV type 1-infected patients in Northern Vietnam. *AIDS Res Hum Retroviruses.* 2010;26(2):233-5. ([Abstract](#))
7. Tran TTH. HIV-1 genotypes in northern Viet Nam during 2002-2007 and the phylogenetic relation to HIV-1 in neighboring counties. *J Pract Med.* 2010;742,743:50-53.
8. Nguyen TL, et al. Development of in-house realtime RT PCR for HIV-1 viral load. *J Pract Med.* 2010;742,743:7-11.
9. Phan TTC, et al. Characteristics of HIV-1 genotype and drug resistance in untreated HIV patients in the North of Vietnam. *J Pract Med.* 2010;742,743:40-44.

4.2 Epidemiology of HIV and AIDS

The AIDS epidemic in Vietnam is still in the concentrated stage, with the highest prevalence found in injecting drug users (IDUs), female sex workers (FSWs) and men who have sex with men (MSM). The epidemic may have started to stabilize, as indicated by trends in HIV prevalence among IDUs and FSWs in recent years. Surveys among all high-risk populations demonstrated these trends [10-16].

10. Tuan NA, Knut F, Bui DT, Nguyen TH, Nguyen TL, Nguyen VK, et al. Human immunodeficiency virus (HIV) infection patterns and risk behaviours in different population groups and provinces in Viet Nam. Bull WHO. 2007;85(1):35-41. [\(Abstract\)](#)[\(Full text\)](#)
11. UNAIDS report focuses on Asia and cites growing epidemic in the East, particularly China, Indonesia, Vietnam. HIV has spread to all 31 China provinces. AIDS Alert. 2005; 20(8):suppl 1-3. [\(Abstract\)](#)
12. Herington J, Securitization of infectious diseases in Vietnam: the cases of HIV and avian influenza. Health Policy Plan. 2010;25(6):467-75. [\(Abstract\)](#)[\(Full text\)](#)
13. Tran VH, Mills SJ, Nguyen TA, Nguyen TD, Nguyen HT, Bui TD. Community-based HIV, STI risk behavior estimates from 2006 Biological-Behavioral Survey in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug. 19-23; Colombo, Sri Lanka.
14. Tran VH, Nguyen TD, Le TTL, Mills SJ, Brown T. HIV epidemic in Ho Chi Minh City, Vietnam: an estimation and projection to 2010. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug. 19-23; Colombo, Sri Lanka.
15. Nguyen DC, Tran TBT. HIV prevalence among high risk populations in Ha Noi during 10 years period (1996-2005). J Pract Med. 2010;742,743:26-29.
16. Truong TM, Tran VT, Nguyen VQB. Characteristics of the HIV/AIDS epidemic in Khanh Hoa province, 1993-2009. J Pract Med. 2010;742,743:11-18.

Specifically, the IDU population in Vietnam has been heavily affected by HIV and AIDS, mostly due to their injecting and sexual behaviors. Surveillance data from among IDUs found that HIV prevalence ranges from 20 to 46 percent, depending on the survey location and the sampling methods used [17-28]. The majority of these studies used a cross-sectional design. Research also examined IDU communities in border regions and highland areas, locations where drug use and sales are concentrated.

17. Des Jarlais DC, Johnston P, Friedmann P, Kling R, Liu W, Ngu D, et al., Patterns of HIV prevalence among injecting drug users in the cross-border area of Lang Son Province, Vietnam, and Ning Ming County, Guangxi Province, China. BMC Public Health. 2005;5:89. [\(Abstract\)](#)[\(Full text\)](#)

18. Higgs P, Yohannes K, Hellard M, Maher L. Factors influencing a self-limiting HIV outbreak among ethnic Vietnamese injecting drug users in Melbourne, Australia. *Qual Health Res.* 2009;19(12):1690-701. [\(Abstract\)\(Full text\)](#)
19. Hellard ME, Nguyen OK, Guy RJ, Jaradine D, Mijch A, Higgs PG. The prevalence and risk behaviours associated with the transmission of blood-borne viruses among ethnic-Vietnamese injecting drug users. *Aust NZ J Public Health.* 2006;30(6):519-25. [\(Abstract\)\(Full text\)](#)
20. Tran TM, Nguyen HT, Yatsuya H, Hamajima N, Nishimura A, Ito K. HIV prevalence and factors associated with HIV infection among male injection drug users under 30: a cross-sectional study in Long An, Vietnam. *BMC Public Health.* 2006;6:248. [\(Abstract\)\(Full text\)](#)
21. Higgs P, Kefle Y, Hellard M, Maher L. Self-limiting HIV outbreak among ethnic Vietnamese injecting drug users in Australia: a qualitative study. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
22. Quan VM, Go VG, Ngoc NP, Ha TV, Celentano DD, Mo TT, et al. Premature deaths among Vietnamese injection drug users: predictors and prevention. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
23. Natalie KLR, Tran LG, Weinbauer K. Addressing the dual epidemic of HIV and drug use in Lang Son, Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
24. Hoang HP. HIV prevalence and knowledge, attitudes and risk behaviors of HIV transmission among IDUs in Ninh Binh in 2009. *J Pract Med.* 2010;742,743:127-131.
25. Tran VH, et al. HIV infection trends among injecting drug users in Vietnam: considerations from the results of HIV/STI Integrated Biological and Behavioral Surveillance 2006-2009. *J Pract Med.* 2010;742,743:277-281.
26. Pham TD, HIV infections among injecting drug users in 05/06 center in Da Nang city. *J Pract Med.* 2010;742,743:87-91.
27. Nguyen TL, et al. HIV prevalence and risk behaviors among IDUs in areas receiving supports from World Bank in Cao Bang province in 2010. *J Pract Med.* 2010;742,743:200-203.
28. Phan TTH, Nguyen TL. HIV prevalence and risk behaviors of HIV transmission among minority ethnic IDUs in Quan Hoa, Thanh Hoa. *J Pract Med.* 2010;742,743:266-271

Estimates of HIV prevalence among commercial sex workers ranges from 2 percent to 29 percent [29-31]. Research distinguished street-based and venue-based sex workers, of which venue-sex workers normally had lower estimated HIV prevalence. Drug use has been identified as a significant risk factor for HIV infection among this population [29-31].

29. Tran TN, Detels R, Long HT, Van Phung L, Lan HP. HIV infection and risk characteristics among female sex workers in Hanoi, Vietnam. *J Acquir Immun Defic Syndr.* 2005;39(5):581-6. [\(Abstract\)\(Full text\)](#)

30. Thuong, NV, Nhung VT, Nghia KV, Tram LT, O'Farrell N. HIV in female sex workers in five border provinces of Vietnam. *Sex Transm Infect.* 2005;81(6):477-9. [\(Abstract\)](#)[\(Full text\)](#)
31. Lai KA, et al. Behavioral research and biological indicators of HIV/STIs in FSWs groups in Can Tho, 2006-2007. *J Pract Med.* 2010;742,743:214-223.

MSM in Vietnam are classified according to their sexual orientation or their own identification. Sexual orientation groups MSM into three different categories: homosexual, bisexual and heterosexual. The majority of MSM in Vietnam are homosexual, or in other words, are likely to have sex with men rather than women (43 to 92 percent). MSM self-identify themselves as "Bong lo," "Bong kin" or straight. Less than 20 percent reported that they tend to be "Bong lo," and most of them identify as "Bong kin" or straight. The HIV prevalence among the MSM population in Vietnam ranges from 0 to almost 20 percent [32-37].

32. de Lind van Wijngaarden JW, Brown T, Girault P, Sarkar S, van Griensven F. The epidemiology of human immunodeficiency virus infection, sexually transmitted infections, and associated risk behaviors among men who have sex with men in the Mekong Subregion and China: implications for policy and programming. *Sex Transm Dis.* 2009;36(5):319-24.
33. Nguyen TA, Nguyen HT, Le GT, Detels R. Prevalence and risk factors associated with HIV infection among men having sex with men in Ho Chi Minh City, Vietnam. *AIDS Behav.* 2008;12(3):476-82.
34. Colby D, Minh TT, Toan TT. Down on the farm: homosexual behaviour, HIV risk and HIV prevalence in rural communities in Khanh Hoa province, Vietnam. *Sex Transm Infect.* 2008;84(6):439-43.
35. Ton TT, Nguyen VH. HIV prevalence among MSM in Khanh Hoa Province, Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
36. Nguyen AT, et al. HIV prevalence increased among MSM population: Results from HIV/STI Integrated Biological and Behavioral Surveillance (IBBS) in Vietnam in 2009. *J Pract Med.* 2010;742,743:281-285.
37. Harvard Medical School Aids Initiative in Vietnam (HAIVN). Results of research on MSW in Ho Chi Minh City. 2010; Brookline (MA): HAIVN.

Recently, surveillance studies have shifted their focus to bridging populations, such as regular partners of HIV-infected people, male clients of FSWs and their spouses, and mobile populations (truckers, border traders and fisherman). The prevalence of HIV ranged from 0 to 2.5 percent among mobile groups and 0.3 to 0.7 percent among the general population (based on a household survey) [38-49].

38. Nguyen NT, Nguyen HT, Trinh HQ, Mills SJ, Detels R. Clients of female sex workers as a bridging population in Vietnam. *AIDS Behav.* 2009;13(5):881-91. [\(Abstract\)](#)[\(Full text\)](#)

39. Nguyen TA, Oosterhoff P, Hardon A, Tran HN, Coutinho RA, Wright P. A hidden HIV epidemic among women in Vietnam. BMC Public Health. 2008;8:37. [\(Abstract\)](#)[\(Full text\)](#)
40. Tuan NA, Ha NT, Diep VT, Thang PH, Long NT, Huong PT, et al. Household survey in two provinces in Viet Nam estimates HIV prevalence in an urban and a rural population. AIDS Res Hum Retroviruses. 2008 Aug;24(8):1017-26. [\(Abstract\)](#)
41. Nguyen B. HIV prevalence among spouses and regular partners of HIV-positive pregnant women who seek antenatal care and delivery services at Tu Du Obstetric Hospital, HCMC, Vietnam between 2008 and 2009. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria. [\(Abstract\)](#)
42. Nguyen AT, et al. The prevalence of HIV and syphilis infection and sexual behavior among ethnic minority group aged 15-49 in 11 provinces—Vietnam. J Pract Med. 2010;742,743:29-39.
43. Nguyen AT, Bach KH, Chu TH. HIV prevalence among blood donors in the Central Hematology and Blood Transfusion Hospital in 2003-2009. J Pract Med. 2010;742,743:23-25.
44. Tran TKD, et al. Study on prevalence of HIV infection between husband/wife and children of people living with HIV in Khanh Hoa province. J Pract Med. 2010;742,743:19-22.
45. Nguyen TH. HIV prevalence among patients received surgery at Viet Duc hospital from 2005-2009. J Pract Med. 2010;742,743:450-453.
46. Vu TMH. HIV transmission in Vietnam—Laos border areas: current status and solutions. J Pract Med. 2010;742,743:543-546.
47. Phan TTH, Nguyen TL, Nguyen BC, The prevalence of HIV and syphilis infection and sexual behavior among Thai people in Thanh Hoa, Vietnam. J Pract Med. 2010;742,743:271-277.
48. Tran HG, et al. HIV/AIDS infection on in-patients and out-patients at NHDV from 2006 to 2010. J Pract Med. 2010;742,743:53-60.
49. Luc DL, et al. HIV/AIDS prevalence among clients at counseling office, Thu Dau Mot town, Binh Duong province in 2009. J Pract Med. 2010;742,743:224-225.

Though prevalence information is available for both high- and low-risk populations, information on HIV incidence or new infections is lacking. Only two studies addressed this issue. One study reported an HIV incidence of 5.2 new cases per 100 person-years among IDUs [50]. Another study among IDUs in cross-border regions found significant decline in HIV incidence (from 46 to 23 percent in Lang Son, Vietnam and from 17 to 11 percent in Ning Ming, China) after exposure to HIV prevention interventions [51].

50. Quan VM, Minh NL, HaTV, Ngoc NP, Vu PT, Celentano DD, et al. Mortality and HIV transmission among male Vietnamese injection drug users. Addiction. 2011 Mar;106(3):583-9.
51. Hammett TM, Des Jarlais, DC, Kling R, Kieu B, Doan N, et al. Seven years of cross-border HIV prevention interventions, Vietnam and China: two estimation methods reveal sharp declines in HIV incidence among injection drug users. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.

Similarly, there is very limited information on the size of high-risk populations in Vietnam. Estimating the size of targeted populations (such as FSWs, IDUs or MSM) by province is extremely important for planning and estimating coverage of prevention activities. Only one study addressed the issue with an estimate of 9,800 MSM living in Hanoi [52].

52. Nguyen Q, Schoenback V, Bennett T, Kalsbeek W, Miller W, Huynh P, et al. Estimating the number of men who have sex with men in Ha Noi, Viet Nam by the capture-recapture method. XVII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.

4.3. Epidemiology of STIs and Tuberculosis

The available data on STIs included data on chlamydia, gonorrhea, syphilis, herpes simplex type 2 (HSV-2), mycoplasma genitalium, trichomoniasis, candidiasis or general sexual transmitted infections. Most studies explored the occurrence of STIs among FSWs, while few studies looked at male clients, MSM, IDUs, pregnant women and married women of reproductive age.

The prevalence of STIs among FSWs was highest: ranging from 8 to 48 percent for chlamydia, 11 to 30 percent for gonorrhea, 2 to 4 percent for syphilis and about 5 to 33 percent positive for HSV-2 antibodies [53-58]. In one study HPV DNA was detected in 85 percent of female sex workers, and oncogenic types were detected in half of them.

53. Nguyen TV, Van Khuu N, Thi Le TT, Nguyen AP, Cao V, Tham DC, et al. Sexually transmitted infections and risk factors for gonorrhea and chlamydia in female sex workers in Soc Trang, Vietnam. Sex Transm Dis. 2008 Nov;35(11):935-40. [\(Abstract\)](#)[\(Full text\)](#)
54. Nguyen VT, Nguyen TL, Nguyen DH, Le TT, Vo TT, Cao TB, et al. Sexually transmitted infections in female sex workers in five border provinces of Vietnam. Sex Transm Dis. 2005;32(9):550-6. [\(Abstract\)](#)[\(Full text\)](#)
55. Hernandez BY, Vu Nguyen T. Cervical human papillomavirus infection among female sex workers in southern Vietnam. Infect Agent Cancer. 2008 Apr 23;3:7. [\(Abstract\)](#)[\(Full text\)](#)
56. O'Farrell N, Thuong NV, Nghia KV, Tram LT, Long NT. HSV-2 antibodies in female sex workers in Vietnam. Int J STD AIDS. 2006 Nov;17(11):755-8. [\(Abstract\)](#)[\(Full text\)](#)
57. Nguyen TV, Khuu NV, Nguyen AP, Truong LXT, Detels R. Correlates of asymptomatic chlamydial and/or gonorrheal cervical infection among Vietnamese female sex workers. XVII AIDS International Conference; 2008 Aug 3-8; Mexico City.
58. Ly VS, et al. STIs prevalence among female staffs in entertainment facilities in Hue City in 2009. J Pract Med. 2010;742,743:62-66.

Data available from one study among IDUs found lower prevalence of STIs: 9 percent for chlamydia, 0 percent for gonorrhea, 1 percent for syphilis and 22 percent for HSV-2 [59] . Among married women of reproductive age, about 37 percent had some kind of STI infection [61]. HSV-2 prevalence was high even among low-risk groups: 9 to 33 percent among clients of FSWs, 18.5 percent among pregnant women [62].

59. Go VF, Frangakis C, Nam le V, Bergenstrom A, Sripaipan T, Zenilman JM, et al. High HIV sexual risk behaviors and sexually transmitted disease prevalence among injection drug users in Northern Vietnam: implications for a generalized HIV epidemic. *J Acquir Immune Defic Syndr*. 2006 May;42(1):108-15. ([Abstract](#)) ([Full text](#))
60. Olsen B, et al. Population-based assessment of *Mycoplasma genitalium* in Vietnam—low prevalence among married women of reproductive age in a rural area. *J Eur Acad Dermatol Venereol*. 2009 May;23(5):533-7. ([Abstract](#)) ([Full text](#))
61. Lan PT, Lundborg CS, Phuc HD, Sihavong A, Unemo M, Chuc NT, et al. Reproductive tract infections including sexually transmitted infections: a population-based study of women of reproductive age in a rural district of Vietnam. *Sex Transm Infect*. 2008;84(2):126-32. ([Abstract](#))
62. Nguyen VT, et al. HSV-2 in pregnant women in one Mekong Delta area of Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.

Other HIV co-infections, including cryptococcal meningitis, enterocytozoon bieneusi, *Giardia lamblia*, dermatological diseases and hepatitis infections were also investigated [63-68].

63. Nguyen VT. Hepatitis B infection in Vietnam: Current issues and future challenges. *Asia Pac J Public Health*. 2010 Mar; 24(2):361-73. ([Abstract](#))
64. Day JN, et al., Most cases of cryptococcal meningitis in HIV-uninfected patients in Vietnam are due to a distinct amplified fragment length polymorphism-defined cluster of *Cryptococcus neoformans* var. *grubii* VN1. *J Clin Microbiol*. 2011 Feb;49(2):658-64. ([Abstract](#))
65. Lejeune A, Espern A, Phung DC, Nguyen TC, Miegerville M. Presentation of the first *Enterocytozoon bieneusi* intestinal microsporidia case in an HIV patient, Hanoi, Vietnam. *Med Mal Infect*. 2005; 35(7-8):425-6. ([Abstract](#))([Full text](#))
66. Dib HH, Lu SQ, Wen SF. Prevalence of *Giardia lamblia* with or without diarrhea in South East, South East Asia and the Far East. *Parasitol Res*. 2008 Jul;103(2):239-51. ([Abstract](#))
67. Espern A, Morio F, Miegerville M, Illa H, Abdoulaye M, Meyssonier V, et al. Molecular study of microsporidiosis due to *Enterocytozoon bieneusi* and *Encephalitozoon intestinalis* among human immunodeficiency virus-infected patients from two geographical areas: Niamey, Niger, and Hanoi, Vietnam. *J Clin Microbiol*. 2007 Sep;45(9):2999-3002. ([Abstract](#))([Full text](#))

68. Dao MK. Clinical characteristics of dermatological diseases among HIV/AIDS and STIs infected patients in Hai Phong from 7/2008 to 8/2010. *J Pract Med.* 2010;742,743:453-458.

Vietnam has experienced an extremely high prevalence of tuberculosis. HIV and tuberculosis co-infection presents challenges for care and treatment of both diseases, representing an important research focus [69-75].

69. Tran NB, Houben RM, Hoang TQ, Nguyen TN, Borqdorff MW, Cobelens FG. HIV and tuberculosis in Ho Chi Minh City, Vietnam, 1997-2002. *Emerg Infect Dis.* 2007 Oct;13(10):1463-9. [\(Abstract\)](#)[\(Full text\)](#)
70. van Soolingen D, Kremer K. Findings and ongoing research in the molecular epidemiology of tuberculosis. *Kekkaku.* 2009;84(2):83-9. [\(Abstract\)](#)
71. van Maaren PJ. Fighting the tuberculosis epidemic in the Western Pacific region: current situation and challenges ahead. *Kekkaku.* 2010;85(1):9-16. [\(Abstract\)](#)
72. Thanh DH, Sy DN, Linh ND, Hoan TM, Dien HT, Thuy TB, et al. HIV infection among tuberculosis patients in Vietnam: prevalence and impact on tuberculosis notification rates. *Int J Tuberc Lung Dis.* 2010 Aug;14(8):986-93. [\(Abstract\)](#)
73. Varma JK, McCarthy KD, Tasaneeyapan T, Monkongdee P, Kimerling ME, Buntheoun E, et al. Bloodstream infections among HIV-infected outpatients, Southeast Asia. *Emerg Infect Dis.* 2010 Oct;16(10):1569-75. [\(Abstract\)](#)
74. Torok ME, Chau TT, Mai PP, Phong ND, Dung NT, Chuong LV, et al. Clinical and microbiological features of HIV-associated tuberculous meningitis in Vietnamese adults. *PLoS One.* 2008 Mar 19;3(3):e1772. [\(Abstract\)](#)[\(Full text\)](#)
75. Thuy TT, Shah NS, Anh MH, Nqhia do T, Thom D, Linh T, et al. HIV-associated TB in An Giang Province, Vietnam, 2001-2004: epidemiology and TB treatment outcomes. *PLoS One.* 2007 Jun 6;2(6):e507. [\(Abstract\)](#)[\(Full text\)](#)

4.4. Behavioral science related to HIV/AIDS transmission

We identified 99 studies that evaluated the risk factors associated with HIV, AIDS and STIs. Research in this domain focused heavily on injecting and sexual behaviors among high-risk populations, who have been considered the major driving force of HIV transmission in Vietnam.

IDU populations

Research shows that sharing needles or syringes and engaging in high risk sexual behaviors are the main determinants of HIV transmission among IDUs in Vietnam [76-92]. The findings suggest that increasing the accessibility of clean syringes and condoms may substantially reduce HIV among this population.

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76. Schumacher CM, Go VF, Nam le V, Latkin CA, Bergenstrom A, Celentano DD, et al. Social injecting and other correlates of high-risk sexual activity among injecting drug users in northern Vietnam. *Int J Drug Policy*. 2009;20(4):352-6. [\(Abstract\)](#)[\(Full text\)](#)
 77. Thao le TL, Lindan CP, Brickley DB, Giang le T. Changes in high-risk behaviors over time among young drug users in South Vietnam: a three-province study. *AIDS Behav*. 2006 Jul;10(4 Suppl):S47-56. [\(Abstract\)](#)
 78. Miller ER, Hellard ME, Bowden S, Bharadwai M, Aitken CK. Markers and risk factors for HCV, HBV and HIV in a network of injecting drug users in Melbourne, Australia. *J Infect*. 2009 May;58(5):375-82. [\(Abstract\)](#)
 79. Nguyen OK, Higgs PG, Hellard ME. Limits to relying on expert information: the Delphi technique in a study of ethnic Vietnamese injection drug users in Melbourne, Australia. *Soc Work Public Health*. 2009 Sep-Oct;24(5):371-9. [\(Abstract\)](#)
 80. Hammett TM, Kling R, Johnston P, Liu W, Ngu D, Friedmann P, et al. Patterns of HIV prevalence and HIV risk behaviors among injection drug users prior to and 24 months following implementation of cross-border HIV prevention interventions in northern Vietnam and southern China. *AIDS Educ Prev*. 2006 Apr;18(2):97-115. [\(Abstract\)](#)
 81. Aitken CK, Higgs P, Bowden S. Differences in the social networks of ethnic Vietnamese and non-Vietnamese injecting drug users and their implications for blood-borne virus transmission. *Epidemiol Infect*. 2008 Mar;136(3):410-6. [\(Abstract\)](#)[\(Full text\)](#)
 82. Clatts MC, Giang le M, Goldsamt LA, Yi H. Male sex work and HIV risk among young heroin users in Hanoi, Vietnam. *Sex Health*. 2007 Dec;4(4):261-7. [\(Abstract\)](#)[\(Full text\)](#)
 83. Khuu VN, et al. Environmental Factors Affecting Risk Behaviors among Injecting Drug Users in Vinh Long Province. *J Pract Med*. 2010;742,743:245.
 84. Vu VC and TMT Nguyen Factors associated with unsafe sex behaviors among injecting drug users (IDUs) in Vietnam. *J Pract Med*. 2010;742,743:189-194.
 85. Bui TT, et al. HIV/AIDS related risk behaviors among male injecting drug users (IDUs) in Son La province, Viet Nam. *J Pract Med*. 2010;742,743:313-317.
 86. Truong TM, et al. Knowledge, attitudes and behaviors related to HIV transmission and HIV prevalence among IDUs in Khanh Hoa. *J Pract Med*. 2010;742,743:72-79.
 87. Nguyen TL, et al. Knowledge, attitudes and behaviors towards HIV/AIDS transmission of IDUs in 7 provinces / cities in Vietnam after 5 year launching intervention programs. *J Pract Med*. 2010;742,743:171-174.
 88. Nguyen TL, et al. Risk behaviors and HIV prevalence among injecting drug users in rural and mountain areas northern Bac Giang in 2010. *J Pract Med*. 2010;742,743:197-200.
 89. Dinh TN, et al. Survey on knowledge, attitudes and behaviors of HIV/AIDS transmission among injecting drug users in Lam Dong in 2009. *J Pract Med*. 2010;742,743:164-168.

90. Population Services International (PSI) Research Team. Baseline survey on injecting drug use, needle sharing, and sexual behaviors and condom use among male IDUs in Quang Ninh, Thai Nguyen, 2005. Hanoi: PSI/Vietnam; 2005.
91. PSI Research Team. Endline survey on injecting drug use, needle sharing, and sexual behaviors and condom use among male IDUs in Quang Ninh, Thai Nguyen, 2006. Hanoi: PSI/Vietnam; 2006.
92. PSI Research Team. Behavioral survey of injecting drug users in 7 PEPFAR provinces, Vietnam, 2010. Hanoi: PSI/Vietnam; 2010.

Several studies used case-control design by identifying HIV-positive and HIV-negative IDUs and comparing their behaviors [93-97]. In addition to their sexual and drug use behaviors, not knowing their HIV status has been identified as another factor possibly contributing to the rapid transmission of HIV among this population.

93. Go VF, Frangakis C, Van Nam L, Sripaipan T, Bergenstrom A, Li F, et al. Characteristics of high-risk HIV-positive IDUs in Vietnam: implications for future interventions. *Subst Use Misuse*. 2011;46(4):381-9. [\(Abstract\)\(Full text\)](#)
94. Hammett TM, Johnston P, Kling R, Liu W, Ngu D, Tung ND, et al. Correlates of HIV status among injection drug users in a border region of southern China and northern Vietnam. *J Acquir Immune Defic Syndr*. 2005 Feb 1;38(2):228-35. [\(Abstract\)](#)
95. Thanh DC, Moland KM, Fylkesnes K. The context of HIV risk behaviours among HIV-positive injection drug users in Viet Nam: moving toward effective harm reduction. *BMC Public Health*. 2009 Apr 6;9:98. [\(Abstract\)\(Full text\)](#)
96. Quan VM, Go VF, Nam le V, Bergenstrom A, Thuoc NP, Zenilman J, Latkin C, et al. Risks for HIV, HBV, and HCV infections among male injection drug users in northern Vietnam: a case-control study. *AIDS Care*. 2009 Jan;21(1):7-16. [\(Abstract\)\(Full text\)](#)
97. Duong CT, Moland MK, Fylkesnes K. The context of HIV risk behaviours among HIV-positive injection drug users in Viet Nam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.

Five studies investigated the prevention of HIV transmission between IDUs and their sexual partners [98-102]. The fact that IDU men rarely use condoms with their main partners and are unaware of their HIV status make HIV prevention more challenging.

98. Lam NT. Drugs, sex and AIDS: sexual relationships among injecting drug users and their sexual partners in Vietnam. *Cult Health Sex*. 2008 Jun;10 Suppl:S123-37. [\(Abstract\)](#)
99. Go VF, Quan VM, Voytek C, Celentano D, Nam le V. Intra-couple communication dynamics of HIV risk behavior among injecting drug users and their sexual partners in Northern Vietnam. *Drug Alcohol Depend*. 2006 Sep 1;84(1):69-76. [\(Abstract\)](#)

100. Van NTH. Sexual partners of IDUs in Vietnam—baseline findings on a NEGLECTED risk group for HIV. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
101. Nguyen TL, et al. Risk behaviors of HIV transmission among wives and sexual partners of IDUs in Lau Chau in 2010. J Pract Med. 2010;742,743:203-207.
102. Trang, NNN. Formative research on sex partners of IDUs in Ho Chi Minh City. 2011

Overall, a meta-analysis emphasized that illicit drug abuse is rising sharply in Vitenam, predominantly in rural mountainous areas and spreading into urban areas. Heroin has replaced opium as the most preferred drug in the market, and injecting is now the major route of drug administration [104]. “Who are drug users, and how did they start using illicit drugs?” are the types of questions that behavioral researchers are examining [103-108].

103. Nguyen VT, Scannapieco M. Drug abuse in Vietnam: a critical review of the literature and implications for future research. Addiction. 2008 Apr;103(4):535-43. ([Abstract](#))
104. Clatts MC, Giang le M, Goldsamt LA, Yi H. Novel heroin injection practices: implications for transmission of HIV and other bloodborne pathogens. Am J Prev Med. 2007;32(6 Suppl):S226-33. ([Abstract](#))([Full text](#))
105. Hue. Usage of multiple illegal drugs among IDUs in Ho Chi Minh City. J Pract Med. 2010;742,743:245-251.
106. Vu NK, et al. The initiation into injecting drug use and the role of male injecting drug users (IDU), a behavioral study among IDU in the 7 provinces in Viet Nam. J Pract Med. 2010;742,743:297-301.
107. Tran KP. Characteristics of drug users in Quang Tri in 2008. J Pract Med. 2010;742,743:102-105.
108. PSI Research Team. Formative study on the role of male IDUs in initiating others into injecting drug use (Break the Cycle), among male IDUs in Hai Phong and Quang Ninh, 2009. Hanoi: PSI/Vietnam; 2009.

FSW population

Among FSWs in Vietnam, major behaviors significantly associated with HIV infections include injecting drugs and inconsistent condom use, especially with regular sex partners [109-127]. More specifically, about 27 to 46 percent of surveyed FSWs reported using drugs, and there were strong relationships between drug-using FSWs and male drug-using partners. The findings suggest the expanding of harm reduction programs among drug-using FSWs.

109. Grayman JH, Nhan DT, Huong PT, Jenkins RA, Carey JW, West GR, et al. Factors associated with HIV testing, condom use, and sexually transmitted infections among female sex workers in Nha Trang, Vietnam. AIDS Behav. 2005 Mar;9(1):41-51. ([Abstract](#))

110. Nguyen TV, Khuu NV, Truong PH, Nguyen AP, Truong LX, Detels R. Correlation between HIV and sexual behavior, drug use, trichomoniasis and candidiasis among female sex workers in a Mekong Delta province of Vietnam. *AIDS Behav.* 2009 Oct;13(5):873-80. ([Abstract](#))([Full text](#))
111. Nemoto T, Iwamoto M, Colby D, Witt S, Pishori A, Le MN, et al. HIV-related risk behaviors among female sex workers in Ho Chi Minh City, Vietnam. *AIDS Educ Prev.* 2008 Oct;20(5):435-53. ([Abstract](#))
112. Le MN, D'Onofrio CN, Rogers JD. HIV risk behaviors among three classes of female sex workers in Vietnam. *J Sex Res.* 2010 Jan;47(1):38-48. ([Abstract](#))
113. Tran TT, Le CL, Nguyen TL. Factors associated with inconsistent condom use among female sex workers in Nha Trang, Vietnam. *Asia Pac J Public Health.* 2008;20(4):370-8. ([Abstract](#))
114. Tran TN, Detels R, Lan HP. Condom use and its correlates among female sex workers in Hanoi, Vietnam. *AIDS Behav.* 2006 Mar;10(2):159-67. ([Abstract](#))
115. Tran TN, Detels R, Long HT, Lan HP. Drug use among female sex workers in Hanoi, Vietnam. *Addiction.* 2005 May;100(5):619-25. ([Abstract](#))
116. Rosenthal D, Oanha TT, Listening to female sex workers in Vietnam: influences on safe-sex practices with clients and partners. *Sex Health.* 2006 Mar;3(1):21-32. ([Abstract](#))
117. Choi SY. Heterogeneous and vulnerable: the health risks facing transnational female sex workers. *Sociol Health Illn.* 2011 Jan;33(1):33-49. ([Abstract](#))
118. NguyenTV,Khuu NV,Nguyen AP,Truong LXT,Detels R. High association between drug use and HIV among female sex workers in a Mekong Delta province of Vietnam, in XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
119. Nemoto T, et al. HIV risk behaviors among female sex workers in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 August 19-23; Colombo, Sri Lanka.
120. Pham H, Hagen K, del Rio C, Chu A, Vu H, Le T, et al. HIV risk behaviors and barriers to HIV service access among female returnees from 05/06 center in Hanoi, Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
121. Duong LQ, et al. Behavioral survey on condom use and HIV voluntary counseling and testing uptake among male clients of female sex workers in 2009 in Viet Nam. *J Pract Med.* 2010;742,743:293-296.
122. Nguyen TMT, et al. Knowledge, attitude and behaviors related to HIV/AIDS transmission among female sex workers in 7 provinces/ cities of Vietnam. *J Pract Med.* 2010;742,743:658-661.
123. Hoang A, TS Hoang, and HH Pham, Risk behaviors and HIV prevalence among injecting drug users and female sex workers in 5 districts in Thai Nguyen in 2010. *J Pract Med.* 2010;742,743:139-143.
124. Hoang TXL, et al. Risk of HIV infection and access to prevention program among female sex workers in Ho Chi Minh City, Vietnam. *J Pract Med.* 2010;742,743:242-243.
125. Truong TM, et al. Knowledge, attitudes and sexual behaviours of HIV/AIDS transmission and HIV prevalence among female sex workers in Khanh Hoa. *J Pract Med.* 2010;742,743:79-86.

126. PSI Research Team. HIV behavioral survey evaluation risk behaviors and determinants among female sex workers in 6 PEPFAR provinces, Vietnam, 2008. Hanoi: PSI/Vietnam; 2008.
127. PSI Research Team. Qualitative study on female condom use among sex workers in Quang Ninh and Hai Phong, Vietnam, 2010. Hanoi: PSI/Vietnam; 2008.

MSM population

The major HIV risk factor among the MSM population is unprotected sex [128-134]. Though there are a significant number of studies on MSM, the behavioral research available is limited. A systematic and large-scale survey among the MSM population has yet to be conducted. A qualitative study recognized the potential link between sexual identity and sexual behaviors among MSM in Vietnam and the need for different behavioral prevention strategies for different subgroups of MSM [128]. Multiple sexual partners, unprotected anal sex, male sex work and lack of knowledge about HIV risk are factors associated with increased risk of HIV infection among this hidden population [131].

128. Ngo DA, Ross MW, Phan H, Ratliff EA, Trinh T, Sherburne L. Male homosexual identities, relationships, and practices among young men who have sex with men in Vietnam: implications for HIV prevention. *AIDS Educ Prev*. 2009 Jun;21(3): 251-65. ([Abstract](#))([Full text](#))
129. Vu BN, Girault P, Do BV, Colby D, Tran LT. Male sexuality in Vietnam: the case of male-to-male sex. *Sex Health*. 2008 Mar;5(1):83-8. ([Abstract](#))
130. Colby D, Trang NNN, Lan HTX, Thien DD. HIV risk and access to prevention services among male sex workers in Ho Chi Minh City, Vietnam. XVIII International AIDS Conference 2010; 18-23 Jul 2010; Vienna, Austria.
131. Nguyen Q, Schoenback V, Bennett T, Kalsbeek W, Miller W, Huynh P, et al. Sexual risk behaviors of men who have sex with men Internet-users in Viet Nam. XVIII International AIDS Conference 2010; 2010 Jul 18-23; Vienna, Austria.
132. Ton T, Colby D, Truong M. Homosexual behavior in rural districts of Khanh Hoa province, Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
133. PSI Research Team., Formative study on knowledge, use, barrier and motivation for water-based lubricant among MSMs and SWs in Ho Chi Minh City, 2008. Hanoi: PSI/Vietnam; 2008.
134. STDs/HIV/AIDS Prevention Center (SHAPC). MSM sex-workers in Hanoi: High risk behaviors and barriers to HIV prevention. Hanoi: SHAPC;2010.

As with other high risk populations, illicit drug use remains a major risk for HIV transmission among MSM [135-137].

135. Tou BP, et al. IDU a major risk factor for HIV infection among MSM attending an outpatient clinic in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.

136. Vu NB, Girault P, Mulvey K, Thanh SN, Thi UP, Tran L, et al. Drug use among men who have sex with men in Vietnam: implications for HIV prevention. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
137. Vu NB, et al. Drug use and HIV risk among men who have sex with men, male sex workers and transgenders in Ha Noi and Ho Chi Minh City. J Pract Med. 2010;742,743:168-171.

Social and cultural factors, such as social isolation, consequence of discrimination and partnerships of MSM have also been studied [138-142]. The stigma associated with MSM sexual behaviors may inhibit many MSM from accessing prevention programs

138. Do T, Santos M, Neilands T, Colby D, Truong M, Ton T. Marriage, social isolation and sexual risk among Vietnamese MSM. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
139. Ton TT, Nguyen VH, and Nguyen TTD. Homosexual behavior and sex work among migrant male workers in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
140. Nguyen CQ, et al., Partnership patterns and condom use of Vietnamese married men who have sex with men. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
141. Ton TT, Colby DJ, Truong MT. Homosexual behavioral and HIV Risk among a rural population in Khanh Hoa province, Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Colombia, Sri Lanka.
142. Vu ML, Tran TN. MSM in Vietnam—stigma and social consequences. J Pract Med. 2010;742,743:156-164.

People living with HIV (PLHIV)

Some other studies examined risk behaviors among PLHIV [143-146]. HIV transmission risks among this population include multiple sex partners, sex work and inconsistent condom use, and the widespread use of drugs and equipment sharing. The sexual and reproductive health needs among PLHIV and their serodiscordant partners were also investigated.

143. Thanh DC, Hien NT, Tuan NA, Thang BD, Long NT, Fylkesnes K. HIV risk behaviours and determinants among people living with HIV/AIDS in Vietnam. AIDS Behav. 2009 Dec;13(6):1151-9. ([Abstract](#))
144. Khuat O, Ont T, Vu T, Morch E, Takia A, Le H. Condoms or no condoms? Dilemma of discordant couples. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
145. Tran QH, Nguyen TL, High risk for spreading HIV among PLHIV in three Vietnam provinces. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
146. Duong CT, et al. High HIV risk taking among people living with HIV/AIDS in Vietnam. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.

General population

Research also has examined the risk behaviors for HIV transmission among general population groups. Having sex with sex workers is very common among Vietnamese young men and highly correlated with drinking behaviors. Though condom use with FSWs is high, consistent condom use with regular partners is very low. HIV infections are highly associated with young age, history of STIs, being unemployed and low knowledge and practical skills in practicing safe sex. This evidence suggests the need to encourage young people to practice safer sexual behaviors [147-167].

147. Tho le H, Singhasivanon P, Khaewkungwal J, Kaljee LM, Charoenkul C. Sexual behaviors of alcohol drinkers and non-drinkers among adolescents and young adults in Nha Trang, Vietnam. *Southeast Asian J Trop Med Public Health*. 2007 Jan; 38(1):152-60. ([Abstract](#))
148. Duong CT, Nguyen TH, Hoang TT, Nguyen W, Do TM, Pham VH, et al. Sexual risk and bridging behaviors among young people in Hai Phong, Vietnam. *AIDS Behav*. 2008 Jul;12(4):643-51. ([Abstract](#))([Full text](#))
149. Tran TT, Mulhall BP, Macaskill P, Nguyen TQ. Risk factors for HIV infection in a gynaeco-obstetric population in Vietnam—a case-control study. *Sex Health*. 2005;2(2):71-5. ([Abstract](#))
150. Kaljee LM, Green M, Riel R, Lerdboon P, Tho le H, Thoa le TK, et al. Sexual stigma, sexual behaviors, and abstinence among Vietnamese adolescents: implications for risk and protective behaviors for HIV, sexually transmitted infections, and unwanted pregnancy. *J Assoc Nurses AIDS Care*. 2007 Mar-Apr;18(2):48-59. ([Abstract](#))([Full text](#))
151. Kaljee LM, Genberg BL, Minh TT, Tho LH, Thoa LT, Stanton B. Alcohol use and HIV risk behaviors among rural adolescents in Khanh Hoa Province Viet Nam. *Health Educ Res*. 2005 Feb;20(1):71-80. ([Abstract](#))([Full text](#))
152. Ghuman S, Loi VM, Huy VT, Knodel J. Continuity and change in premarital sex in Vietnam. *Int Fam Plan Perspect*, 2006 Dec;32(4):166-74. ([Abstract](#))
153. Thuy Duong LT, Vu ML, Do KN, Sherburne L. Quantifying young men's gender norms and sexual risk-taking in Vietnam. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
154. Nguyen HT, Nguyen T. Knowledge, attitude and practice on sexuality and HIV/AIDS of Vietnamese hearing impaired students. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
155. Truong TM, Tran VT, Nguyen VQB. Evaluation of knowledge, attitude, and behaviors of HIV/AIDS transmission among people aged 15-49 in Khanh Hoa. *J Pract Med*. 2010;742,743:66-71.
156. Hoang XC. HIV prevalence and knowledge, attitudes and risk behaviors of HIV infection among prisoners in Dien Bien in 2009. *J Pract Med*. 2010;742,743:208-210.
157. Nguyen HS, Nguyen TH, Tran VA. Knowledge and behaviors associated with HIV transmission among male adults aged 15-24 in Quang Ninh province in 2008. *J Pract Med*. 2010;742,743:261-266.

158. Tran DH, et al. Behind the pleasure: an analysis of sexual decision making among high-risk urban men in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombia, Sri Lanka.
159. Le HT, Charoenkul C. Alcohol consumption and sexual risk behaviors among adolescents and young adults in Nha Trang city. 9th International Congress on AIDS in Asia and the Pacific. 2009; August 19-23; Bali, Indonesia.
160. Ha VS, Silence toward violence and the risk of HIV infections: a case study of a Vietnamese coastal area, in 9th International Congress on AIDS in Asia and the Pacific. 2009; August 9-13, 2009, Bali, Indonesia.
161. Doan CH, et al. Study on knowledge and risk factors of HIV infection among clients of voluntary counseling and testing, Hue PAC. J Pract Med. 2010;742,743:147-152.
162. Ngo MQ, et al. Current situation of awareness, attitudes and behaviours of HIV/AIDS prevention among blood donors in the Central Hematology and Blood Transfusion Hospital in 2008. J Pract Med. 2010;742,743:92-96.
163. Nguyen HS, Nguyen TH, Tran VA. Illegal drug use among male adults aged 15-24 in Quang Ninh in 2008. J Pract Med. 2010;742,743:256-261.
164. Hoang HP, Le HN, Ta TLP. Knowledge, attitudes and practice of HIV/AIDS prevention among people aged 15-49 in Hoa Lu and Ninh Binh, 2009. J Pract Med. 2010;742,743:124-127.
165. Luc DL, et al. Evaluate HIV prevalence and associated risk factors among people tested for HIV at counseling office at Di An commune, Binh Duong province in 2010. J Pract Med. 2010;742,743:226-227.
166. Pham VH. Risk factors for HIV transmission among VCT clients at Binh Dinh PAC. J Pract Med. 2010;742,743:144-147.
167. Salvaggio K, Nguyen TML, Hoang TA. HIV transmission from men to woman in intimate partner relationships in Viet Nam. J Pract Med. 2010;742,743:286-288.

Mobile populations and male clients of FSWs are the two new groups that may face a high risk of HIV infection and also contribute to transmitting HIV to other low-risk populations [168-174].

168. Van Tuan T. Meanings of sex, concepts of risk and sexual practices among migrant coal miners in Quang Ninh, Vietnam. Cult Health Sex. 2010 Aug;12 Suppl 1:S31-40. ([Abstract](#))
169. Nguyen HD, Dang NA. Making HIV prevention work for mobile groups in Vietnam. 8th International Conference on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
170. Nguyen TQL, Nguyen VH. Mobile male fishermen in Vietnam have poor knowledge and high-risk behaviors for HIV. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
171. Nguyen TT. Survey of practical knowledge, attitudes and behaviours of off-shore fishermen in Binh Dinh province. J Pract Med. 2010;742,743:120-124.

172. Duong LQ, et al. Behavioral survey on condom use and HIV voluntary counseling and testing uptake among male clients of female sex workers in 2009 in Viet Nam. *J Pract Med*. 2010;742,743:293-296.
173. PSI Research Team. Baseline survey on consistent condom use and VCT use among male clients of SWs, in Hanoi and Ho Chi Minh city, 2008. Hanoi: PSI/Vietnam; 2008.
174. PSI Research Team. Evaluation survey on consistent condom use and VCT use among male clients of SWs, in the 7 PEPFAR provinces, 2009. Hanoi: PSI/Vietnam; 2009.

5.1 Prevention programs for injecting drug users

Interventions among IDUs vary and include integrated voluntary counseling and testing (VCT) services in rehabilitation centers, community-based peer education for IDUs and their partners, harm reduction and supports for recovering IDUs, and the distribution of needles, syringes and condoms. In addition to community interventions, articles in this section also investigated attitudes toward HIV prevention among IDUs and interviewed key informants regarding advocacy and policy [175-205].

175. Walsh N, Gibbie TM, Higgs P. The development of peer educator-based harm reduction programmes in Northern Vietnam. *Drug Alcohol Rev.* 2008 Mar;27(2):200-3. [\(Abstract\)](#)
176. Reid G, Higgs P. Vietnam moves forward with harm reduction: an assessment of progress. *Glob Public Health.* 2011;6(2):168-80. [\(Abstract\)](#)
177. Ngo AD, Schmich L, Higgs P, Fischer A. Qualitative evaluation of a peer-based needle syringe programme in Vietnam. *Int J Drug Policy.* 2009;20(2):179-82. [\(Abstract\)](#)
178. Hammett TM, Des Jarlais D, Johnston P, Kling R, Ngu D, Liu W, et al. HIV prevention for injection drug users in China and Vietnam: policy and research considerations. *Glob Public Health.* 2007;2(2):125-39. [\(Abstract\)](#)
179. Hammett TM, Norton GD, Kling R, Liu W, Chen Y, Ngu D, et al. Community attitudes toward HIV prevention for injection drug users: findings from a cross-border project in southern China and northern Vietnam. *J Urban Health.* 2005 Sep;82(3 Suppl 4):iv34-42. [\(Abstract\)](#)
180. Pankonin CA, Higgs P, Reid G, Aitken C. Selling syringes to injecting drug users: a study of five pharmacies in Hanoi, Vietnam. *J Infect Dev Ctries.* 2008 Feb 1;2(1):51-8. [\(Abstract\)](#)
181. Des Jarlais DC, Kling R, Hammett TM, Ngu D, Liu W, Chen Y, et al. Reducing HIV infection among new injecting drug users in the China-Vietnam Cross Border Project. *AIDS.* 2007 Dec;21 Suppl 8:S109-14. [\(Abstract\)](#)
182. Hammett TM, Van NT, Kling R, Binkh KT, Oanh KT. Female sexual partners of injection drug users in Vietnam: an at-risk population in urgent need of HIV prevention services. *AIDS Care.* 2010 Dec;22(12):1466-72. [\(Abstract\)](#)
183. Hammett T, Kling R, Ngu D, Binh KT, Quyen HN, Tren HV, et al. HIV prevention for sexual partners of injection drug users (IDUs), Ha Giang province, Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
184. Tran D, Dao V, Vu H, Vo H, Nguyen T, White K, et al. Integration of voluntary HIV counseling and testing (VCT) services in rehabilitation centers for drug users in Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.

185. Le H, Hoang T, Vu V, Le G, Le T, Nguyen H, et al. Adaptation of community-based outreach model for peer education program in closed setting: initial results in a rehabilitation center in Ho Chi Minh City, Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
186. Nguyen H, Nguyen HTT, Vu V, Le H, Nguyen T, Ha D, et al. Community-based peer education and support for recovering injecting drug users in Ho Chi Minh City, Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
187. Hoang VK. The three ones—coordinating the provincial response to strengthen harm reduction best practice. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
188. Lai KA, et al. Behavioral research and biological indicators of HIV/STIs in IDUs groups in Can Tho, 2006 -2007. *J Pract Med.* 2010;742,743:210-214.
189. Nguyen TL, et al. Report on an investigation to assess the availability and accessibility of Harm Reduction intervention models for injecting drug users in 5 provinces in Vietnam. *J Pract Med.* 2010;742,743:175-179.
190. Trinh HV, et al. Attitudes of beneficiaries and service providers towards harm reduction program for IDUs. *J Pract Med.* 2010;742,743:179-184.
191. Hammett TM, et al. Controlling HIV epidemics among injection drug users: seven years of cross-border HIV prevention interventions, Viet Nam and China. *J Pract Med.* 2010;742,743:662-665.
192. Bergenstrom A, Go V, Nam LV, Thuy BT, Celentano DD, Frangakis C, et al. Return to post-test counselling by out-of-treatment injecting drug users participating in a cross-sectional survey in north Vietnam. *AIDS Care.* 2007 Aug;19(7):935-9. [\(Abstract\)](#)
193. Hammett TM, Van NT, Kling R, Binkh KT, Oanh KT. Female sexual partners of injection drug users in Vietnam: an at-risk population in urgent need of HIV prevention services. *AIDS Care.* 2010 Dec;22(12):1466-72. [\(Abstract\)](#)
194. Khuat THO, et al. Working with the forgotten—HIV prevention among primary sexual partners of drug users in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
195. Nguyen TTT. HIV mainstreaming in health facilities in 7 districts of Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
196. David J, Masami F. Activities of positive IDU in HIV prevention and used needle/ syringe collection in Tu Liem, Hanoi. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
197. Mesquita F, Jacka D, Shaw G, Hu Y, Ricard D, Salva M, et al. Accelerating harm reduction interventions to change the course of the epidemic in Western Pacific and Asia, the role of WHO (WPRO). XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
198. Crofts N. Engaging with police in prevention of HIV among and from injecting drug users. *J Pract Med.* 2010;742,743:310-312.
199. Vo HS, et al. Risk behaviors among male injecting drug users (IDUS) in and effect of harm reduction project on IDUs in Thanh Hoa province, Viet Nam. *J Pract Med.* 2010;742,743:318-325.

200. Ho TH, Tran HB, Stephen K. "Water injection": heroin overdose management among IDUs in Chi Linh, Hai Duong province. *J Pract Med*. 2010;742,743:96-102.
201. Nguyen VT, et al. Effectiveness of clean syringes and needles program in reducing HIV transmission among IDUs in Soc Trang, 2003-2005. *J Pract Med*. 2010;742,743:244.
202. Nguyen TL, et al. Evaluation of HIV prevention program in Vietnam. *J Pract Med*. 2010;742,743:184-188.
203. PengFei Z., High coverage of condom use and increased distribution of needle & syringe in Can Tho, Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
204. Thu VTH, Mulvey K. An evidence-based and client-informed employment model for HIV-infected drug users in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
205. Pham, DK, Moore T, Crofts N. Drug users in Viet Nam: How are they seen? *J Pract Med*. 2010;742,743:302-305.

5.2. Methadone maintenance therapy

The pilot MMT program started in Hai Phong and Ho Chi Minh City in 2008 and has since expanded with MMT clinics established nationwide. Preliminary evaluations show that MMT is a very promising HIV and AIDS prevention approach with significant reduction in heroin use and other sexual and injecting risk behaviors [206-215]. In fact, the rate of illicit opioid use (determined by urine testing) declined from 100 percent at baseline to 18 percent at nine months, and quality of life was reported to significantly improve in the first three months on MMT and then remained constant over the next six to nine months [212].

206. Nguyen TN, Ngoc TM. Preliminary outcome of Vietnam's pilot methadone maintenance therapy program. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
207. Giang TL, Thinh T, Tieu VTT, Chinh D. Methadone assisted therapy outcomes and clinical characteristics of patients in the pilot program in Ho Chi Minh City, Vietnam. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
208. Mulvey KP. Patient satisfaction in an integrated community-based methadone maintenance program in Ho Chi Minh. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
209. Nougier M. The impact of compulsory drug treatment centres on the human rights of people who use drugs and the HIV epidemic in Southeast Asia. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
210. Nguyen TN. Changes in sexual and drug taking risk behavior in Vietnam's methadone pilot program. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
211. Leigh J. Methadone maintenance therapy: lesson from China. *J Pract Med*. 2010;742,743:306-309.

212. Nguyen TL, et al. Summary of the major finding from evaluation of the pilot methadone maintenance therapy program in Viet Nam. *J Pract Med.* 2010;742,743:332-334.
213. Cao KV, et al. Results of methadone maintenance treatment at out-patient clinic in District 4, Ho Chi Minh City. *J Pract Med.* 2010;742,743:243-244.
214. Nguyen TN, et al. Factors associated with illicit drug use patients on methadone maintenance therapy in Viet Nam. *J Pract Med.* 2010;742,743:347-350.
215. Nguyen TH, et al. Impact of methadone on the mental health, quality of life and social integration of injecting drug users in Viet Nam. *J Pract Med.* 2010;742,743:364-367.

5.3. Prevention of mother-to-child transmission

Prevention of mother-to-child transmission of HIV and AIDS in Vietnam included establishment of routine prenatal HIV testing, post-test counseling, social support and self-help groups for HIV-positive mothers. Multiple aspects of this topic, such as prevention coverage, accessibility and targeted population have been investigated [216-248].

216. Dinh TH, Detels R, Nguyen MA. Factors associated with declining HIV testing and failure to return for results among pregnant women in Vietnam. *AIDS.* 2005 Jul 22;19(11):1234-6. ([Abstract](#))
217. Hanh NT, Gammeltoft T, Rasch V. Early uptake of HIV counseling and testing among pregnant women at different levels of health facilities—experiences from a community-based study in Northern Vietnam. *BMC Health Serv Res.* 2011 Feb 7;11(1):29. ([Abstract](#))([Full text](#))
218. Hanh NT, Rasch V, Chi BK, Gammeltoft T. Post-test counseling and social support from health staff caring for HIV-infected pregnant women in Vietnam. *J Assoc Nurses AIDS Care.* 2009 May-June;20(3):193-202. ([Abstract](#))
219. Hardon AP, Oosterhoff P, Imedla JD, Anh NT, Hidayana I. Preventing mother-to-child transmission of HIV in Vietnam and Indonesia: diverging care dynamics. *Soc Sci Med.* 2009 Sep;69(6):838-45. ([Abstract](#))
220. Le CT, Vu TT, Luu MC, Do TN, Dinh TH, Kamb ML. Preventing mother-to-child transmission of HIV in Vietnam: an assessment of progress and future directions. *J Trop Pediatr.* 2008 Aug;54(4):225-32. ([Abstract](#))
221. Nguyen TA, Oosterhoff P, Ngoc YP, Wright P, Hardon A. Self-help groups can improve utilization of postnatal care by HIV-infected mothers. *J Assoc Nurses AIDS Care.* 2009 Mar-Apr;20(2):141-52. ([Abstract](#))
222. Nguyen TA, Oosterhoff P, Ngoc YP, Wright P, Hardon A. Barriers to access prevention of mother-to-child transmission for HIV positive women in a well-resourced setting in Vietnam. *AIDS Res Ther.* 2008 Apr 17;5:7. ([Abstract](#))([Full text](#))

223. Oosterhoff P, Anh NT, Yen PN, Wright P, Hardon A. HIV-positive mothers in Viet Nam: using their status to build support groups and access essential services. *Reprod Health Matters*. 2008 Nov;16(32):162-70. ([Abstract](#))
224. Oosterhoff P, Hardon AP, Nguyen TA, Pham NY, Wright P. Dealing with a positive result: routine HIV testing of pregnant women in Vietnam. *AIDS Care*. 2008 Jul;20(6):654-9. ([Abstract](#))
225. Oosterhoff P, Anh NT, Hanh NT, Yen PN, Wright P, Hardon A. Holding the line: family responses to pregnancy and the desire for a child in the context of HIV in Vietnam. *Cult Health Sex*. 2008 May;10(4):403-16. ([Abstract](#))
226. Brickley DB, Le Dung Hanh D, Nguyet LT, Mandel JS, Giang le T, Sohn AH. Community, family, and partner-related stigma experienced by pregnant and postpartum women with HIV in Ho Chi Minh City, Vietnam. *AIDS Behav*. 2009 Dec;13(6):1197-204. ([Abstract](#))([Full text](#))
227. Chi BK, Hanh NT, Rasch V, Gammeltoft T. Induced abortion among HIV-positive women in Northern Vietnam: exploring reproductive dilemmas. *Cult Health Sex*. 2010 Aug;12 Suppl 1:S41-54. ([Abstract](#))
228. Sohn AH, Thanh TC, Thinh le Q, Khanh TH, Thu HK, Giang le T, et al. Failure of human immunodeficiency virus enzyme immunoassay to rule out infection among polymerase chain reaction-negative Vietnamese infants at 12 months of age. *Pediatr Infect Dis J*. 2009 Apr; 28(4):273-6. ([Abstract](#))([Full text](#))
229. Pharris A, Nguyen TK, Tishelman C, Brugha R, Nguyen PH, Thorson A. Expanding HIV testing efforts in concentrated epidemic settings: a population-based survey from rural Vietnam. *PLoS One*. 2011 Jan 11;6(1):e16017. ([Abstract](#))([Full text](#))
230. Bui KC, Gammeltoft T, Nguyen TT, Rasch V. Induced abortion among HIV-positive women in Quang Ninh and Hai Phong, Vietnam. *Trop Med Int Health*. 2010 Oct;15(10):1172-8. ([Abstract](#))
231. Nguyen LT, Christoffersen SV, Rasch V. Uptake of prenatal HIV testing in Hai Phong Province, Vietnam. *Asia Pac J Public Health*. 2010 Oct;22(4):451-9. ([Abstract](#))
232. Almroth S, Arts M, Quang ND, Hoa PT, Williams C. Exclusive breastfeeding in Vietnam: an attainable goal. *Acta Paediatr*. 2008;97(8):1066-9. ([Abstract](#))
233. de Lind van Wijngaarden JW, et al. Assessment of HIV prevention, care and support needs of children. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
234. Burdon MR, et al. An effective model for providing PMTCT services in a concentrated HIV epidemic. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
235. Phan TP, et al. Strengthening HIV-nutrition and infant feeding programs in the Asia-Pacific Region: lessons learned from Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
236. Nguyen KB, et al. Developing Peds C&T in Vietnam: lessons Learned from a collaborative approach to implementation and scale-up. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.

237. Nguyen VT, et al. HIV infection among pregnant women and prevention of mother to child transmission in some obstetrical facilities in Northern Vietnam from 2006-2009. *J Pract Med.* 2010;742,743:408-413.
238. Nguyen TH, et al. Prevention of mother to child transmission: successes and obstacles—learning from program evaluation in three provinces/cities and national hospital in Vietnam, 2004-2009. *J Pract Med.* 2010;742,743:495-498.
239. Truong TH, et al. Knowledge, attitudes and behaviors of pregnant women and women of childbearing age towards prevention of mother to child transmission in Ho Chi Minh city in 2009. *J Pract Med.* 2010;742,743:231-234.
240. Nguyen TH, et al. Prevention of mother to child transmission of HIV in Viet Nam, achievements and difficulties—lessons learned from program evaluation in three provinces and national hospital. *J Pract Med.* 2010;742,743:531-532.
241. Tran T, et al. Early infant diagnosis for children under 18 months of age born to HIV positive mothers in Southern Vietnam. *J Pract Med.* 2010;742,743:477-480.
242. Vu TN, Evaluating the program of preventing HIV transmission from mothers to children in Hung Vuong hospital, 2005-2008. *J Pract Med.* 2010;742,743:377-380.
243. Lert F, et al. HIV infected children in Vietnam: social factors associated with their access to health services. *J Pract Med.* 2010;742,743:584-586.
244. Nguyen TTT, Nguyen TTT. Factors associated with voluntary HIV testing among pregnant women in Dong Ha and Quang Tri towns, Quang Tri province, 2009. *J Pract Med.* 2010;742,743:394-401.
245. Nguyen TLP, Le TV. Observation on management of women HIV+ in labor and delivery in the National Gynecologic and Obstetric hospital in 2008. *J Pract Med.* 2010;742,743:458-462.
246. Tran TTH, et al. HIV-1 mother to child transmission in northern Viet Nam. *J Pract Med.* 2010;742,743:523-525.
247. PSI Research Team. Formative study on barriers to and motivations for accessing PMTCT services among pregnant women in Quang Ninh, Hai Phong and Hanoi, 2008. Hanoi: PSI/Vietnam; 2008.
248. PSI Research Team. PMTCT quantitative survey – early HIV testing during pregnancy among women in Hanoi, Hai Phong and Quang Ninh, 2010. Hanoi: PSI/Vietnam; 2010.

5.4. Prevention of sexual transmission: MSM and FSWs

Only one article reviewed a behavioral intervention among MSM. This program took place in Hanoi and included counseling for behavior change and distributing condoms, lubricants and referral cards to STI and VCT services. After two years of implementation, the program reached more than 10,000 MSM [249]. Other studies are examining different methodological approaches for reaching this hidden population, stressing the importance of the internet [249-252]. Although the prevalence of HIV among MSM is increasing, prevention programs among MSM exist only in a small number of provinces. And where programs do exist, coverage has been insufficient to halt the increase in HIV cases [252].

249. Tran TN, Le TH. Male sexual health intervention in Hanoi. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
250. Colby D, Ton TT, Truong TTM. Internet use among rural and urban MSM in Vietnam: an opportunity for reaching hidden populations. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
251. Pham VT. Support MSM to work with media by using the Internet. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
252. Nguyen TMT, et al. Rapid situation and response assessment of HIV programs for man who have sex with men. J Pract Med. 2010;742,743:344-346.

Prevention among FSWs has focused on promoting safe sex practices through condom provision, increasing risk perception through peer education, providing service referrals and linkages to job and training opportunities [253-269]. Research has also studied efficient methods for reaching and engaging these hidden populations, especially through the use of respondent driven sampling.

253. Johnston LG, Savin K, Mai TH, Pham TH. Assessment of respondent driven sampling for recruiting female sex workers in two Vietnamese cities: reaching the unseen sex worker. J Urban Health. 2006 Nov;83(6 Suppl):i16-28. ([Abstract](#)) ([Full text](#))
254. Vu Thuong N, Van Nghia K, Phuc Hau T, Thanh Long N, Thi Bao Van C, Hoang Duc B, et al. Impact of a community sexually transmitted infection/HIV intervention project on female sex workers in five border provinces of Vietnam. Sex Transm Infect. 2007 Aug;83(5):376-82. ([Abstract](#)) ([Full text](#))
255. Do LH, Ng LS. Integrating HIV/STI services into SRH services of Vietnam, Family Planning Association (VINAFA). 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
256. Le Quang N. "Don't call me a sex worker": reaching female youth who sell sex on the streets in Vietnam. XVII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
257. Nguyen TS, Merrigan M. The recall method: An effective means of reporting numbers of people reached by prevention outreach. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
258. Dinh MN, et al. Comprehensive HIV care and prevention: an integration approach of Le Chan District, Hai Phong City. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
259. Nguyen TMT, et al. Expanding "no condom, no sex" approach by using current sex workers as peer educators in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
260. Tran TD, et al. Outreach counseling and testing services for sex workers in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.

261. Mulvey KP. Strategic prevention framework: a multi-sectoral approach to prevention. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
262. Ngo Van H, Xuan TP, Thanh ML, van der Velden T. Using block curricula: a new approach to improve HIV and AIDS pre-service training in Hai Phong, Viet Nam. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
263. Do TH. Improved sexual and health seeking behavior and reduced HIV prevalence among sex workers in Nha Trang. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
264. Fujita M. First pilot 100% condom use program expanded and sustained via entertainment establishment, Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
265. de Lind van Wijngaarden JW, Arayawongchai J. Developing standardised guidelines on knowledge, attitude and skills of peer/outreach workers involved in HIV prevention for MSM in Southeast Asia. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
266. Kunanusont C. Sexual and reproductive health services and HIV prevention for sex workers. *J Pract Med.* 2010;742,743:342-343.
267. Nguyen TV, Truong HA, Manda Y. Unique identifier code in outreach intervention targeting sex workers who are drug users in Viet Nam. *J Pract Med.* 2010;742,743:326-331.
268. Hoang TXL, et al. Risk of HIV infection and access to prevention program among female sex workers in Ho Chi Minh City, Vietnam. *J Pract Med.* 2010;742,743:242-243.
269. Cuong ND, et al. Qualitative assessment of 100% condom use program in An Giang. Hanoi: Institute of Population, Health and Development; 2011.

HIV voluntary counseling and testing (VCT) services were piloted in 2002 and have since expanded nationwide, especially in provinces with high HIV prevalence. VCT has successfully targeted HIV care and prevention services to high risk and HIV-infected people. A research focus on standardized training, quality assurance, referral services and data utilization are in place to improve program efficacy [270-275].

270. Dao QV. Initiation of provider-initiated HIV testing and counseling in sexually transmitted infection clinic. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
271. Tran TD, Chu QA. Application of information system to improve HIV counseling and testing services in Viet Nam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
272. Greenberg S, et al. Utilizing counseling and testing data for program improvement. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.

- 273. Nguyen H, Vu C, Phung V, Chu T, Le H, Ha D, et al. Referrals to HIV-testing services: coordinating peer outreach programs sponsored by different donors in Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
- 274. Nguyen HTT, Nguyen H, Koester S, Greenberg S, Tran D, Nguyen S. Maintaining effective referrals from peer outreach program to HIV voluntary counseling and testing. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
- 275. Sarath C, et al. Mass testing is more effective than individual volunteer counseling and testing at indentifying HIV-infected individuals with advance HIV disease in a resource-limited setting. J Pract Med. 2010;742,743:61

5.5. Prevention in other low-risk populations

HIV prevention activities such as HIV education and HIV testing have also been conducted in low-risk populations, including secondary school students, young women, adolescents in urban and rural areas, and mobile populations [276-300].

- 276. Lerdboon P, Pham V, Green M, Riel R, Tho le H, Ha NT, et al. Strategies for developing gender-specific HIV prevention for adolescents in Vietnam. AIDS Educ Prev. 2008 Oct; 20(5):384-98. ([Abstract](#))
- 277. Nhac-Vu HT, Giard M, Phong ND, Vanhems P. Risk factors for delayed HIV diagnosis at the Hospital of Tropical Diseases in Ho Chi Minh City, Vietnam. Int J STD AIDS. 2010 Dec;21(12):802-5. ([Abstract](#))
- 278. Kaljee LM, Genberg B, Riel R, Cole M, Tho le H, Thoa le TK, et al. Effectiveness of a theory-based risk reduction HIV prevention program for rural Vietnamese adolescents. AIDS Educ Prev. 2005 Jun;17(3):185-99. ([Abstract](#))
- 279. O'Farrell N. Program issues in delivering targeted STI services through the public sector in the Greater Mekong region. Southeast Asian J Trop Med Public Health. 2007 Mar;38(2):328-38. ([Abstract](#))
- 280. Pharris A, Nguyen TK, Tishelman C, Brugha R, Nguyen PH, Thorson A. Expanding HIV testing efforts in concentrated epidemic settings: a population-based survey from rural Vietnam. PLoS One. 2011 Jan 11;6(1):e16017. ([Abstract](#))([Full text](#))
- 281. Achari AP. Role of young people in sexual reproductive health and HIV prevention. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
- 282. Pham TTB. The education sector in Vietnam responds to HIV/AIDS: programming school-based HIV education for secondary school students. XVIII Aids International Conference; 2010 Jul 18-23; Vienna, Austria.
- 283. Lambrecht H, Phan HH, Richmond M. Building partnerships in the education sector response to HIV and AIDS: the Vietnam experience. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
- 284. Thuy Duong LT, Sherburne L. Changing gender norms to prevent HIV in Vietnam: young women have something to say. XVIII Aids International Conference; 2010 Jul 18-23; Vienna, Austria.

285. Nguyen HD, Dang NA. Making HIV prevention work for mobile groups in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
286. Le XL. Bring a new opportunity to take HIV information and prevention to truck drivers in Ho Chi Minh City. 9th International Conference on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
287. Burns K. Social and political obstacles to HIV prevention programs for married women in India, Vietnam, China. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
288. Dang HT, Pham KL. Improve awareness on HIV/AIDS prevention for migrant young workers at industrial zones in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
289. Le QN, Sherburne L, Vu CN. The heart of the matter: parents role in the primary prevention of drug use among youth in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
290. Nguyen THH. Anti-trafficking in women and girls and HIV/AIDS prevention among ethnic minority groups. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
291. Le XL. Mobile VCT/STIs: breaking barriers to make VCT/STI services accessible to MARP in Ho Chi Minh City, Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
292. Nguyen THB. Creating connections: preventing HIV by opening up intergenerational dialogues on sex and sexuality. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
293. Nguyen TS. Improving quality of HIV/AIDS prevention services for high risk and vulnerable groups in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
294. Pharris A, Huyen DT, Chuc NTK, Thorson A. Going rural, scaling-up: unmet needs for HIV testing and information in a rural district in Northern Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
295. Jacka D, Suresh K. Transformation of attitudes through RAR training of IDU and SW outreach workers in Hai Duong, Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
296. Ochel K, Panse R, Schwing T. E-learning courses on HIV/AIDS in China and Vietnam: concept–content–didactics. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
297. Nguyen TTT. The link between domestic violence against women and HIV infection in a rural province, Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
298. Vu N, Nguyen N, Do P, Sherburne L, Weissman A. Primary prevention of injecting drug use among young men at risk in Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.

299. Nguyen TT, Luu BN. Knowledge and practice towards HIV/AIDS prevention and other STIs among Vietnamese adults: effectiveness of RHIYA program. *J Pract Med.* 2010;742,743:228-231.
300. Cao DT, Tran TBH. HIV/AIDS prevention programs among mobile population in Chinh Ly commune, Ly Nhan District, Ha Nam province in 2008. *J Pract Med.* 2010;742,743:131-134.

5.6. Behavior change communication

There were few publications on behavior change communication. One used a “Sabido Method” for designing and producing serialized dramas addressing HIV-related behavior change and gender issues [301-302]. Another study ran e-learning courses on HIV and AIDS for different target groups at the global and regional levels [303].

301. Duong D, Luu T, Takai A, Hoang N, Nguyen Q, Vu A, et al. “Sabido method”: re-vitalizing radio drama in Vietnam and triggering nationwide-opinion exchange on HIV and gender issues to stimulate behavior change. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
302. Nguyen VQ, Luu TT. Sabido method re-vitalizing radio drama in Vietnam and triggering nationwide-opinion exchange on HIV. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
303. Tanja S, Tran P, Klemens O. Innovative approaches to capacity building—an HIV/AIDS e-learning course in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
304. Tran VQ, et al. Effectiveness of behavior change communication program for HIV prevention among IDUs in Nam Dinh. *J Pract Med.* 2010;742,743:106-110.
305. Francis C. That extra shot in the arm—using strategic behavioral communications to improve and scale up MARP HIV prevention programming in Cambodia. *J Pract Med.* 2010;742,743:335-336.

VI. Treatment, care and support

40

A total of 174 eligible articles were included in the review, with the majority of studies focusing on ARV drug treatment and care for PLHIV and people with AIDS.

6.1 Antiretroviral (ARV) drug treatment for AIDS patients

Research on the scale-up of antiretroviral therapy (ART) programs at the international level examined effectiveness and coverage of ART. Modeling projections found that increasing the threshold for the initiation of ART (CD4 count less than 350/mm) would increase the need for treatment by a median of 60 percent. Findings also emphasized that continued funding support and political commitment will be essential for program expansion [306-307].

- 306. Srikantiah P, et al. Scale-up of national antiretroviral therapy programs: progress and challenges in the Asia Pacific region. *AIDS*. 2010;24 Suppl 3:S62-71. ([Abstract](#))
- 307. Hamilton, A, et al. Changes in antiretroviral therapy guidelines: implications for public health policy and public purses. *Sex Transm Infect*. 2010;86(5):388-90. ([Abstract](#))

Other studies overviewed the ART scale-up program in Vietnam and various approaches to increase access to ART [308-324].

- 308. Maher L, Coupland H, Musson R. Scaling up HIV treatment, care and support for injecting drug users in Vietnam. *Int J Drug Policy*. 2007 Aug;18(4):296-305. ([Abstract](#))
- 309. Nam NT, Bygbjerg IC, Mogensen HO, Rasch V. Antiretroviral therapy: unmet need and associated socio-demographic characteristics among HIV-positive women in Haiphong, Vietnam. *AIDS Care*. 2011 Jan;23(1):1-9. ([Abstract](#))
- 310. Filler S, Berruti AA, Menzies N, Berzon R, Ellerbrock TV, Ferris R, et al. Characteristics of HIV care and treatment in PEPFAR-supported sites. *J Acquir Immune Defic Syndr*. 2011 May;57(1):e1-6. ([Abstract](#))
- 311. Nguyen NT, Bygbjerg IC, Mogensen HO, Rasch V. Factors associated with the failure to seek HIV care and treatment among HIV-positive women in a northern province of Vietnam. *AIDS Patient Care STDS*. 2010 May;24(5):325-32. ([Abstract](#))
- 312. Wolfe D, Carrieri MP, Shepard D. Treatment and care for injecting drug users with HIV infection: a review of barriers and ways forward. *Lancet*. 2010 Jul 31;376(9738):355-66. ([Abstract](#))([Full text](#))

313. Phi HD, et al. Clinical mentoring and the scale-up of antiretroviral (ARV) therapy in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
314. Hang NT, Thangsing C. Success in access to ART treatment for IDUs through PLHA network and community participation, Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
315. Tran NT, et al. District comprehensive care site as "hub" and "heart" for rapid scale up of ART in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
316. Nguyen TLH, Nguyen K, Nguyen TL. Simplified approach in scaling up ART: an experience of the GFATM project in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
317. Vu NP, et al. Scaling up paediatric ARV therapy at the primary care level in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
318. de Loenzien M, Luu BN. Role of the family in antiretroviral treatment access: a case study in Haiphong. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
319. Lam TN, Tran QT. Scaling up access to AIDS Treatment: the web dynamics of public-private interactions in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
320. Nguyen H, Nguyen HTT, Le H, Nguyen T, Le G, Le T, et al. Improving access to HIV care and treatment among drug users and sex workers through peer outreach program: lessons learned from Ho Chi Minh City, Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
321. Binh Thanh Preventive Medical Center. Survey of care, support and treatment program for HIV/AIDS patients in Binh Thanh District during a three-year period (2007-2009). *J Pract Med.* 2010;742,743:488-495.
322. La TL, et al. Analysis and application of available data for monitoring and improving HIV/AIDS care and treatment program in three districts in Hanoi. *J Pract Med.* 2010;742,743:580-584.
323. Tran VH, Tran TTN. Improve and shorten the waiting time for the ARV patients accessing counseling, consultation and medication in Community Counseling and Support Unit in District 8. *J Pract Med.* 2010;742,743:593-598.
324. Tran TTH. Access to health care services and clinical characteristics of HIV infected people in Tien Giang in 2009. *J Pract Med.* 2010;742,743:430-436.

Recent research has started to evaluate the outcomes of ARV drug treatment by looking at viral suppression, clinical features, survival rates and a patient's quality of life. Clinical and paraclinical characteristics of patients on ART and factors associated with treatment outcomes have also been identified [325-345].

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325. Jordan MR, La H, Nguyen HD, Sheehan H, Lien TT, Duong DV, et al. Correlates of HIV-1 viral suppression in a cohort of HIV-positive drug users receiving antiretroviral therapy in Hanoi, Vietnam. *Int J STD AIDS*. 2009 Jun; 20(6):418-22. [\(Abstract\)](#)[\(Full text\)](#)
326. Klotz SA, Nguyen HC, Van Pham T, Nguyen LT, Ngo DT, Vu SN. Clinical features of HIV/AIDS patients presenting to an inner city clinic in Ho Chi Minh City, Vietnam. *Int J STD AIDS*. 2007 Jul;18(7):482-5. [\(Abstract\)](#)
327. Trinh TT, Montague BT, Flanigan TP, Gerard HM. HIV suppression among patients on treatment in Vietnam: a review of HIV viral load testing in a public urban clinic in Ho Chi Minh City. *AIDS Research and Treatment*. 2011;2011:230953. [\(Abstract\)](#)[\(Full text\)](#)
328. Tran QT, Duchesne B. Evaluation of the effectiveness of the antiretroviral treatment first line regimens (ARV-FLR) for AIDS patients in Hanoi, Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
329. Allison W, Wright E, Schaefer M, Lal L, Law M, Smith J, et al. A survey of paediatric diagnostic, treatment and support services for human immunodeficiency virus (HIV) infection in the Asia Pacific region. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
330. U.S. Agency for International Development (USAID), FHI, Vietnam Authority of HIV/AIDS Control (VAAC). Program evaluation of patients initiating ART in two health facilities in Ho Chi Minh City. Hanoi: FHI; 2009.
331. Vo TTN. Positive predictive values for virological failure in HIV-infected adults in Ho Chi Minh City. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
332. Fujita M, et al. Preliminary findings of nationwide ART facility survey in Viet Nam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
333. Nguyen TMT, et al. Pilot collection of ART outcome data to assist development of treatment monitoring system in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
334. Le DV, et al. Antiretrovirus treatment for HIV infected people in Dak Lak province in 2007-2009. *J Pract Med*. 2010;742,743:422-427.
335. Phan TT. Clinical and paraclinical characteristics of patients on ART in Hue Hospital. *J Pract Med*. 2010;742,743:401-404.
336. Ha, VT. Evaluation of ARV treatment among HIV/AIDS patients in Tan Chau outpatient clinic. *J Pract Med*. 2010;742,743:474-476.
337. Cao DT. Evaluation of ARV treatment at out-patient settings in Ha Nam, 2006-2009. *J Pract Med*. 2010;742,743:442-445.
338. Nguyen TCH, Nguyen HC, Dong THT. Immune reconstitution inflammatory syndrome in HIV/AIDS patients at hospital for tropical diseases from 1/2006 to 12/2009. *J Pract Med*. 2010;742,743:499-502.
339. Nguyen VK, et al. Situation analysis of antiretroviral therapy in some provinces of Vietnam. *J Pract Med*. 2010;742,743:649-653.

340. Tran VH, et al. IDU in Viet Nam experience good clinical and immunological outcomes on ART: finding from longitudinal study in Ho Chi Minh City. J Pract Med. 2010;742,743:510-514.
341. Nguyen AT, Nguyen TH. Risk factors of HIV transmission, access to and use of support, care and treatment among HIV infected people in 20 provinces receiving supports from Global Fund, round 1. J Pract Med. 2010;742,743:235-242.
342. Nguyen DV, Nguyen DC, Nguyen VK. Clinical, paraclinical characteristics and causes of HIV/AIDS patient's deaths in Hanoi HIV/AIDS treatment center No. 09 in 2005-2008 period. J Pract Med. 2010;742,743:374-377.
343. Pham TT. Evaluation of TCD4 among patients on ART at Binh Thuan Provincial Administration for HIV/AIDS control in 2009. J Pract Med. 2010;742,743:445-450.
344. Chinh NT, Quang VM, Tuyet Nhung VT, Colby D. First-line antiretroviral therapy outcomes in HIV-infected adults in Ho Chi Minh City, Viet Nam. 2010. 16th Conference on Retroviruses and Opportunistic Infections; 2009 Feb 8-11; San Francisco, California.
345. Thuy NT, et al. Assessment on HIV/AIDS legal clinics. 2009.

A group of scientists from the University of Toyama, Japan, found HIV-1 inhibitors from natural sources such as the Vietnamese mushroom *Ganoderma colossum* [346-348].

346. El Dine RS, El Halawany AM, Ma CM, Hattori M. Anti-HIV-1 protease activity of lanostane triterpenes from the Vietnamese mushroom *Ganoderma colossum*. J Nat Prod. 2008 Jun;71(6):1022-6. ([Abstract](#))
347. El Dine RS, El Halawany AM, Ma CM, Hattori M. Inhibition of the dimerization and active site of HIV-1 protease by secondary metabolites from the Vietnamese mushroom *Ganoderma colossum*. J Nat Prod. 2009 Nov;72(11):2019-23. ([Abstract](#))
348. Morita A, Kuwahara S. Enantioselective total synthesis of litseaverticillols A and B. Org Lett. 2006 Apr 13;8(8):1613-6. ([Abstract](#))

Research found that approximately 5 to 25 percent of patients in Vietnam do not adhere to their ARV drugs. Numerous factors associated with treatment noncompliance have been investigated [349-356].

349. Van Tam V, Pharris A, Thorson A, Alfven T, Larsson M. "It is not that I forget, it's just that I don't want other people to know": barriers to and strategies for adherence to antiretroviral therapy among HIV patients in Northern Vietnam. AIDS Care. 2011 Feb;23(2):139-45. ([Abstract](#))
350. Colby D, Libman H. A qualitative study of barriers and facilitators to antiretroviral adherence for HIV/AIDS Patients. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.

351. Do HM, Dunne MP, Pham CV, Kato M. Non-adherence to antiretroviral therapy in Vietnam: prevalence and clinical, social and psychological correlates. XVIII Aids International Conference; 2010 Jul 18-23; Vienna, Austria.
352. Burdon MR, et al. Adherence to ARV therapy in a predominantly IDU driven HIV epidemic. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
353. Nguyen VK, et al. Evaluation of treatment adherence and its association with effectiveness of ARV treatment. J Pract Med. 2010;742,743:388-394.
354. Vo TN. Factors associated with ART adherence among HIV/AIDS patients in Can Tho city in 2009. J Pract Med. 2010;742,743:380-385.
355. Ha VT. Survey on ARV treatment adherence of AIDS patients in Binh Thuan in 2008. J Pract Med. 2010;742,743:370-373.
356. Do MH, et al. Treatment adherence among patients on antiretroviral treatment in Ha Noi and Hai Duong: current situation and potential predictors. J Pract Med. 2010;742,743:462-466.

Training programs for physicians and health officers involved in HIV and AIDS care and treatment have been initiated. Studies have assessed the design and implementation of the training curriculum as well as the attitudes and practices of health officers towards HIV and AIDS [357-360].

357. Quach L, Mayer K, McGarvey ST, Lurie MN, Do P. Knowledge, attitudes, and practices among physicians on HIV/AIDS in Quang Ninh, Vietnam. AIDS Patient Care STDS. 2005 May;19(5):335-46. ([Abstract](#))
358. Krain AB, et al. Training physicians for antiretroviral (ARV) therapy scale-up in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
359. Medland N, Colby D, Gardener B, Do P, Lu D, Dang V, et al. Design, implementation and evaluation of a coordinated training program for physicians in Vietnam on HIV/AIDS clinical care and ARV treatment. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
360. Le S, Williams A, Jane B, Wu C, Duong H, Medland N, et al. Developing a TOT network for a continuing nursing education program in Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City

6.2 Treatment for coinfections: TB, HIV and opportunistic infections

The diagnosis of TB in HIV-infected persons remains challenging when clinical and laboratory parameters for TB diagnosis perform poorly in HIV-positive patients. Over the last five years, researchers have evaluated acid fast bacilli smear, mycobacterium culture, chest X-ray and microscopic observation drug susceptibility assay (MODS) to find out the optimal algorithm for TB diagnosis among HIV-infected patients [361-370].

361. Ha DT, Lan NT, Kiet VS, Wolbers M, Hang HT, Day J, et al. Diagnosis of pulmonary tuberculosis in HIV-positive patients by microscopic observation drug susceptibility assay. *J Clin Microbiol*. 2010 Dec;48(12):4573-9. ([Abstract](#)) ([Full text](#))
362. Cain KP, McCarthy KD, Heilig CM, Monkongdee P, Tasaneeyapan T, Kanara N, et al. An algorithm for tuberculosis screening and diagnosis in people with HIV. *N Engl J Med*. 2010 Feb 25;362(8):707-16. ([Abstract](#)) ([Full text](#))
363. Caws M, Dang TM, Torok E, Campbell J, Do DA, Tran TH, et al. Evaluation of the MODS culture technique for the diagnosis of tuberculous meningitis. *PLoS One*. 2007 Nov 14;2(11):e1173. ([Abstract](#)) ([Full text](#))
364. Simmons CP, Thwaites GE, Quyen NT, Torok E, Hoang DM, Chau TT, et al. Pretreatment intracerebral and peripheral blood immune responses in Vietnamese adults with tuberculous meningitis: diagnostic value and relationship to disease severity and outcome. *J Immunol*. 2006 Feb 1;176(3):2007-14. ([Abstract](#)) ([Full text](#))
365. Shah NS, Anh MH, Thuy TT, Duong Thom BS, Linh T, Nghia DT, et al. Population-based chest X-ray screening for pulmonary tuberculosis in people living with HIV/AIDS, An Giang, Vietnam. *Int J Tuberc Lung Dis*. 2008 Apr;12(4):404-10. ([Abstract](#))
366. Monkongdee P, McCarthy KD, Cain KP, Tasaneeyapan T, Nguyen HD, Nguyen TN, et al. Yield of acid-fast smear and mycobacterial culture for tuberculosis diagnosis in people with human immunodeficiency virus. *Am J Respir Crit Care Med*. 2009 Nov 1;180(9):903-8. ([Abstract](#)) ([Full text](#))
367. Perlman DC, Leung CC, Yew WW. Diagnosing tuberculosis in patients with HIV: do we know enough? *Am J Respir Crit Care Med*. 2009 Nov 1;180(9):800-1. ([Abstract](#)) ([Full text](#))
368. Checkley AM, Njalale Y, Scarborough M, Zijlstra EE. Sensitivity and specificity of an index for the diagnosis of TB meningitis in patients in an urban teaching hospital in Malawi. *Trop Med Int Health*. 2008 Aug;13(8):1042-6. ([Abstract](#)) ([Full text](#))
369. Thorson A, Long NH, Larsson LO. Chest X-ray findings in relation to gender and symptoms: a study of patients with smear positive tuberculosis in Vietnam. *Scand J Infect Dis*. 2007;39(1):33-7. ([Abstract](#))
370. Le HT, Varma JK. Expansion of provider-initiated HIV testing and counseling for TB patients to 14 provinces in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.

TB and HIV co-infection has also been discussed in the context of the recent establishment of the National Tuberculosis Control program. Research in this area focuses on drug resistance, TB treatment outcomes among HIV patients, pathogenesis and management of HIV and TB co-infection [371-385].

371. Quy HT, Cobelens FG, Lan NT, Buu TN, Lambregts CS, Borgdorff MW. Treatment outcomes by drug resistance and HIV status among tuberculosis patients in Ho Chi Minh City, Vietnam. *Int J Tuberc Lung Dis*. 2006 Jan;10(1):45-51. ([Abstract](#))

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372. Thwaites GE, Duc Bang N, Huy Dung N, Thi Quy H, Thi Tuong Oanh D, Thi Cam Thoa N, et al. The influence of HIV infection on clinical presentation, response to treatment, and outcome in adults with Tuberculous meningitis. *J Infect Dis*. 2005 Dec 15;192(12):2134-41. ([Abstract](#))([Full text](#))
373. Goldfeld A, Ellner JJ. Pathogenesis and management of HIV/TB co-infection in Asia. *Tuberculosis (Edinb)*. 2007 Aug;87 Suppl 1:S26-30. ([Abstract](#))
374. Huong NT, Duong BD, Co NV, Quy HT, Tung LB, Bosman M, et al. Establishment and development of the National Tuberculosis Control Programme in Vietnam. *Int J Tuberc Lung Dis*. 2005 Feb;9(2):151-6. ([Abstract](#))
375. Vree M, Huong NT, Duong BD, Co NV, Sy DN, Cobelens FG, et al. High mortality during tuberculosis treatment does not indicate long diagnostic delays in Vietnam: a cohort study. *BMC Public Health*. 2007 Aug 16;7:210. ([Abstract](#))([Full text](#))
376. van Maaren PJ. Fighting the tuberculosis epidemic in the Western Pacific region: current situation and challenges ahead. *Kekkaku*. 2010 Jan;85(1):9-16. ([Abstract](#))
377. Quy HT, Buu TN, Cobelens FG, Lan NT, Lambregts CS, Borgdorff MW, et al. Drug resistance among smear-positive tuberculosis patients in Ho Chi Minh City, Vietnam. *Int J Tuberc Lung Dis*. 2006 Feb;10(2):160-6. ([Abstract](#))
378. Khue PM, Phuc TQ, Hung NV, Jarlier V, Robert J. Drug resistance and HIV co-infection among pulmonary tuberculosis patients in Haiphong City, Vietnam. *Int J Tuberc Lung Dis*. 2008 Jul;12(7):763-8. ([Abstract](#))
379. Ngo AT, Duc NH, Lan NH, Maynard M, Mayaud C, Quy TH. Mechanisms and causes of death in 143 Vietnamese HIV-infected patients hospitalized for tuberculosis. *Rev Pneumol Clin*. 2007 Jun;63(3):139-46. ([Abstract](#))
380. Torok ME, Chau TT, Mai PP, Phong ND, Dung NT, Chuong LV, et al. Clinical and microbiological features of HIV-associated tuberculous meningitis in Vietnamese adults. *PLoS One*. 2008 Mar 19;3(3):e1772. ([Abstract](#))([Full text](#))
381. Jubelt B. Dexamethasone for the treatment of tuberculous meningitis in adolescents and adults. *Curr Neurol Neurosci Rep*. 2006 Nov;6(6):451-2. ([Abstract](#))
382. Thwaites GE, Nguyen DB, Nguyen HD, Hoang TQ, Do TT, Nguyen TC, et al. Dexamethasone for the treatment of tuberculous meningitis in adolescents and adults. *N Engl J Med*. 2004 Oct 21;351(17):1741-51. ([Abstract](#))([Full text](#))
383. Le Minor O, Germaani Y, Chartier L, Lan NH, Lan NT, Duc NH, et al. Predictors of pneumocystosis or tuberculosis in HIV-infected Asian patients with AFB smear-negative sputum pneumonia. *J Acquir Immune Defic Syndr*. 2008 Aug 15;48(5):620-7.
384. Pham DQ, et al. Risk factors of tuberculosis infection among patients receiving ARV drugs. *J Pract Med*. 2010;742,743:481-484.
385. Nguyen NH, Ngo TB, Hoang TQ. A case study of ocular and lung Tuberculosis on HIV infected patient in Pham Ngoc Thach hospital. *J Pract Med*. 2010;742,743:466-470.

Studies have also examined the infection and treatment of other opportunistic infections, such as oral and constitutional manifestations, penicilliosis, anemia and *Cryptococcus neoformans* among HIV patients [386-393]. In addition, two studies looked at the HIV and ART health care seeking behaviors of high-risk populations [387-388].

386. Jensen TO, Tam VV, Mai NT, Ut do Q, Dat DD, Lien NT, et al. Oral and constitutional manifestations of HIV-infected hospital patients in Northern Vietnam. *Southeast Asian J Trop Med Public Health*. 2005 Nov;36(6):1459-68. ([Abstract](#))
387. Thi Thu H, Ziersch A, Hart G. Healthcare-seeking behaviours for sexually transmitted infections among women attending the National Institute of Dermatology and Venereology in Vietnam. *Sex Transm Infect*. 2007 Aug;83(5):406-10. ([Abstract](#))([Full text](#))
388. Ngo AD, Ratliff EA, McCurdy SA, Ross MW, Markham C, Pham HT. Health-seeking behaviour for sexually transmitted infections and HIV testing among female sex workers in Vietnam. *AIDS Care*. 2007 Aug;19(7):878-87. ([Abstract](#))
389. Vu Hai, V, Ngo AT, Ngo VH, Nguyen QH, Massip P, Delmont J, et al. Penicilliosis in Vietnam: a series of 94 patients. *Rev Med Interne*. 2010 Dec;31(12):812-8. ([Abstract](#))
390. Ngo AT, Pasquier C. Research about penicilliosis in HIV infection hospitalized patients at the infectious disease department, Viet-Tiep hospital. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
391. Vu H, Do N, Nguyen L, Tran Q, Sullivan P, del Rio C. Anemia among HIV-infected patients: prevalence, severity, associated factors, and mortality—Vietnam. 2005-2008. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria
392. Nguyen TLH, Nguyen VK. Clinical manifestation of *P. marneffei* infection among AIDS patients treated at the National hospital for Tropical diseases. *J Pract Med*. 2010;742,743:385-388.
393. Le TPT, Nguyen HL, Chu TH. Clinical images and cerebrospinal fluid features of *Cryptococcus neoformans* among HIV infected patients. *J Pract Med*. 2010;742,743:428-430.

6.3 Drug resistance

We found 22 studies that examined drug resistance in Vietnam, most of which characterized and quantified HIV genotypes and drug resistance mutations. Drug resistance mutations were investigated in both untreated patients and patients with treatment failure. Research findings consistently reported that the prevalence of HIV-1 drug resistance mutations among treatment naive HIV patients in Vietnam is low (less than 5 percent). Genotypic testing among patients who experience virologic failure showed that NRTI (nucleoside reverse transcriptase inhibitors) and NNRTI (non-nucleoside reverse transcriptase inhibitor) mutations were prevalent [394-415].

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394. Dean J, Ta Thi TH, Dunford L, Carr MJ, Nguyen LT, Coughlan S, et al. Prevalence of HIV-1 antiretroviral drug resistance mutations in Vietnam—a multicentre study. *AIDS Res Hum Retroviruses*. 2011 Jul; 27(7):797-801. ([Abstract](#))
395. Ishizaki A, Cuong NH, Thuc PV, Trung NV, Saijoh K, Kageyama S, et al. Profile of HIV type 1 infection and genotypic resistance mutations to antiretroviral drugs in treatment-naïve HIV type 1-infected individuals in Hai Phong, Viet Nam. *AIDS Res Hum Retroviruses*. 2009 Feb;25(2):175-82. ([Abstract](#))
396. Phan TT, Ishizaki A, Phung DC, Bi X, Oka S, Ichimura H. Characterization of HIV type 1 genotypes and drug resistance mutations among drug-naïve HIV type 1-infected patients in Northern Vietnam. *AIDS Res Hum Retroviruses*. 2010 Feb;26(2):233-5. ([Abstract](#))
397. Nguyen HT, Duc NB, Shrivastav R, Tran TH, Nguyen TA, Thang PH, et al. HIV drug resistance threshold survey using specimens from voluntary counselling and testing sites in Hanoi, Vietnam. *Antivir Ther*. 2008;13 Suppl 2:115-21. ([Abstract](#))
398. Ayoub A, Lien TT, Nouhin J, Vergne L, Aghokeng AF, Ngo-Giang-Huong N, et al. Low prevalence of HIV type 1 drug resistance mutations in untreated, recently infected patients from Burkina Faso, Côte d'Ivoire, Senegal, Thailand, and Vietnam: the ANRS 12134 study. *AIDS Res Hum Retroviruses*. 2009 Nov;25(11):1193-6. ([Abstract](#))
399. Fleury HJ, Toni T, Lan NT, Hung PV, Deshpande A, Recordon-Pinson P, et al. Susceptibility to antiretroviral drugs of CRF01_AE, CRF02_AG, and subtype C viruses from untreated patients of Africa and Asia: comparative genotypic and phenotypic data. *AIDS Res Hum Retroviruses*. 2006 Apr;22(4):357-66. ([Abstract](#))
400. Pancino G, Saec-Cirion A, Scott-Algara D, Paul P. Natural resistance to HIV infection: lessons learned from HIV-exposed uninfected individuals. *J Infect Dis*. 2010 Nov 1;202 Suppl 3:S345-50. ([Abstract](#))([Full text](#))
401. Tanuma J, Hachiya A, Ishigaki K, Gatanaga H, Lien TT, Hien ND, et al. Impact of CRF01_AE-specific polymorphic mutations G335D and A371V in the connection subdomain of human immunodeficiency virus type 1 (HIV-1) reverse transcriptase (RT) on susceptibility to nucleoside RT inhibitors. *Microbes Infect*. 2010 Dec;12(14-15):1170-7. ([Abstract](#))
402. Tran HK, Chartier L, Troung LX, Nguyen NN, Fontanet A, Barré-Sinoussi FE, et al. Systemic immune activation in HIV-1-exposed uninfected Vietnamese intravascular drug users. *AIDS Res Hum Retroviruses*. 2006 Mar;22(3):255-61. ([Abstract](#))
403. L. Truong Giang, Thuy HT, Nhung VT, Liem NT, Khanh TH, Khanh LV, et al. ARV resistance in patients with treatment failure to first-line regimens in Ho Chi Minh City, Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
404. Nguyen van K, Thi HL, Thi ND, Vinh TL, Thu TH. Viral loads and HIV drug resistance (HIVDR) patterns in ART patients with clinical or immunological failures at outpatient clinics in Ho Chi Minh City, Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.

405. Tanuma J, Ishigaki K, Hachiya A, Gatanaga H, Trung NV, Lien TTM, et al. Drug resistance mutations in patients with CRF01_AE HIV-1 failing antiretroviral therapy in Hanoi, Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
406. Nguyen TMT, Thuy CTT. Pilot surveillance of early warning indicators to monitor risks for HIV drug resistance at ART sites. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
407. Truong TXL, et al. Drug resistance among HIV infected patients in Ho Chi Minh City. J Pract Med. 2010;742,743:418-422.
408. Pham HN, et al. Genotype and HIV drug resistance mutations in HIV infected patients without ARV treatment in Hanoi in 2009. J Pract Med. 2010;742,743:471-474.
409. Pollack MT. A picture of HIV drug resistance in Viet Nam and the region. J Pract Med. 2010;742,743:637-640.
410. Ta TTH, et al. Prevalence of drug resistance mutations in a treatment—naïve cohort of HIV -1 Individuals in Viet Nam. J Pract Med. 2010;742,743:526.
411. Ta TTH, et al. Prevalence of drug resistance mutations in HIV-1 individuals in Vietnam. J Pract Med. 2010;742,743:368-370.
412. Nguyen AT, et al. Threshold of HIV drug resistance using plasma and dry blood spots collected from voluntary counseling and testing centers in Ho Chi Minh City 2007-2008. J Pract Med. 2010;742,743:480.
413. Le VH. Antibiotic resistance of Chlamydia trachomatis from National Hospital of Dermatology and Venereology from 2005-2009. J Pract Med. 2010;742,743:414-417.
414. Do TN, et al. Combining cohort analysis and HIV drug resistance early warning indicators to monitor antiretroviral therapy services in Viet Nam. J Pract Med. 2010;742,743:538-542.
415. Quang VM, Chinh NT, Huy VX, Chau NVV, Chi NH, Nhung VTT, et al. HIV drug resistance and virological response in treatment-naïve HIV patients in a developing country: what is the implication? 6th IAS Conference on HIV Pathogenesis, Treatment and Prevention; 2011 Jul 17-20; Rome, Italy.

6.4. Care, support and prevention of stigma and discrimination against PLHIV

Research on the care of PLHIV consists of a variety of components, including studies of palliative care and continuum of care, as well as community and home-based care [416-448].

416. Green K, Tuan T, Hoang TV, Trang NN, Ha NT, Hung ND. Integrating palliative care into HIV outpatient clinical settings: preliminary findings from an intervention study in Vietnam. J Pain Symptom Manage. 2010 Jul;40(1):31-4. ([Abstract](#))

417. Krakauer EL, Ngoc NT, Green K, Van Kham L, Khue LN. Vietnam: integrating palliative care into HIV/AIDS and cancer care. *J Pain Symptom Manage*. 2007 May;33(5):578-83. ([Abstract](#))
418. Krakauer, E.L, N.T. Cham, and L.N. Khue, Vietnam's palliative care initiative: successes and challenges in the first five years. *J Pain Symptom Manage*. 2010;40(1):27-30. ([Abstract](#))
419. de Loenzien M. Implementation of a continuum of care for people living with HIV/AIDS in Hanoi (Vietnam). *Sante*. 2009 Jul-Sep;19(3):141-8. ([Abstract](#))
420. Green K, Tran T, Vu HT, Nguyen TN, Ngoc PV, Nguyen TH, et al. HIV, pain and drug use: under-treatment and fear of medical opioid use among PLHIV and health care workers in Vietnam. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
421. Luong TT, Pham MT. Community and home based care and support model for PLHIV In Ha Long city, Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
422. Krakauer EL, Cham NTP, Ngoc NTM, Green K, Phuong PT, Thi CP, et al. Integrating palliative care into HIV/AIDS care in Vietnam: a national public health approach. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
423. Vu NP, et al. Palliative care needs of people with HIV in Vietnam: findings from a rapid situational analysis. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
424. Green K. Model for integrating family-centered care into HIV clinical services and the community in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
425. Van PTH. Improve the treatment effectiveness by capacity building for self-help groups of people living with HIV. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
426. Tran QH, Nguyen TL. Efficacy of community-based care, treatment and support for people living with HIV and AIDS in three provinces. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
427. Pham TH. Flamboyant flowers: a group of people living with HIV creating strong and lasting change in Viet Nam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
428. Dinh MN, et al. Comprehensive HIV care and prevention: an integration approach of Le Chan District, Hai Phong City. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
429. Pham DM, van der Velden T, Chien TN, Hoang AM, Ngoc BL, Van HN. Can private sector increase access to STI services of the most at-risk population (MARP)? evidence from Vietnam. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
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442. Nguyen TN, et al. Factors associated with the failure to seek HIV care and treatment among HIV-positive women in Hai Phong. *J Pract Med.* 2010;742,743:518-522.
443. Nguyen TTH, et al. Integrating palliative care into HIV outpatient clinical settings: preliminary findings from a longitudinal study in Viet Nam. *J Pract Med.* 2010;742,743:515-517.
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- 448. FHI, Ministry of Health/VAAC, PEPFAR. The qualitative study on out-of-care PLHIV, 2011.

Discrimination and stigmatization were thoroughly investigated, mostly using qualitative methods. Despite the establishment of stringent legislation protecting PLHIV, research found that PLHIV experienced discrimination in both community and health care settings [449-474].

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- 450. Small D. Love as harm reduction: fighting AIDS and stigma in Vietnam. *Harm Reduct J*. 2009 Dec 3; 6:34. [\(Abstract\)](#)[\(Full text\)](#)
- 451. Gaudine A, Gien L, Thuan TT, Dung do V. Perspectives of HIV-related stigma in a community in Vietnam: a qualitative study. *Int J Nurs Stud*. 2010 Jan;47(1):38-48. [\(Abstract\)](#)
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- 454. Vijayarasa R. The state, the family and language of 'social evils': re-stigmatising victims of trafficking in Vietnam. *Cult Health Sex*. 2010 Aug;12 Suppl 1:S89-102. [\(Abstract\)](#)
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- 459. Gaudine A, Gien L, thuan TT, Dung do V. An action research approach to developing culturally relevant interventions: the stigma of HIV in a Vietnamese community. *Can J Nurs Res*. 2007 Sep;39(3):195-7.
- 460. Nguyen TVA, Hong KT, Nyblad L, Jain A, Thao NTP, Douglas Z, et al. Building partnerships with communities to reduce stigma: results of a two year community-led stigma-reduction program. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.

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462. Khuat THO, Ashburn K, Pulerwitz J, Ogden J, Nyblade L. Improving quality of care for people living with HIV by reducing stigma and discrimination in Vietnamese hospitals. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
463. Pharris A, Tishelman C, Huyen DT, Chuc NTK, Thorson A. The 'infected innocent': gender roles and stigma among women living with HIV in Vietnam. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
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469. Tung ND, Thuy NTT, Tue NT, Hammett TM, Thanh DD. Promote legal services and its accessibility to protect human rights of PLHIV in Vietnam. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
470. Ngo TTT. Providing legal services to address HIV/AIDS-related discrimination in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
471. Murphy E, et al. Hitting the nail on the head: creation of an anti-stigma and discrimination toolkit for MSM. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
472. Messersmith L, Semrau K, Tran LA, Nguyen NT, Dao MH, Eifler K, et al. Contested sexual and reproductive rights of women living with HIV in Vietnam: experience with health care providers and family members in sexual health decision-making. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
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Other studies evaluated the effectiveness of self-help groups, networking activities and empowerment of community in supporting PLHIV [475-479].

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- 476. Messersmith L, Sabin L, Tran LA, Nguyen NT, Dao MH, Eifler K, et al. Addressing gender-based violence and the reproductive health needs of women living with HIV/AIDS in Vietnam: an evaluation of interventions to improve health and social services. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
- 477. Tran Q. Evaluating the impact of self-help clubs for people infected and affected by HIV/AIDS in Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
- 478. Luong TT, Nguyen MK. Empowerment for PLHIV in Vietnam through networking activities. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
- 479. Tran T. Mitigating the impact of HIV/AIDS in Vietnam through the empowerment of the communities. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.

VII. Leadership and management

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7.1 Management science in HIV/AIDS prevention and control

Leadership and management of HIV and AIDS at the national level are very important in establishing a coordinated and effective strategy for the prevention and control of HIV. HIV and AIDS have an impact on the infected individual and also affect the whole society and its economy. Despite this topic's importance, research remains limited.

Topics covered in HIV management vary and include maximizing the international monitoring processes, understanding policy implementation and its barriers, integrating health system and health interventions, analysis of the evolution of HIV policy in Vietnam and strengthening leadership capacity [480-502].

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481. Nguyen Ha P, Phararis A, Huong NT, Chuc NT, Brugha R, Thorson A. The evolution of HIV policy in Vietnam: from punitive control measures to a more rights-based approach. *Glob Health Action*. 2010 Aug 28;3. [\(Abstract\)](#)[\(Full text\)](#)
482. Utyasheva L, Pearshouse R, Betteridge G. Developments in HIV/AIDS legislation. *HIV AIDS Policy Law Rev*. 2006 Dec;11(2-3):35-7. [\(Abstract\)](#)
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484. Vietnam aims to alleviate HIV prevalence. *Expert Rev Anti Infect Ther*. 2007 Apr;5(2):169-70. [\(Abstract\)](#)[\(Full text\)](#)
485. Giang LM, Huong NT. 'New bottle, but old wine': from family planning to HIV/AIDS in post-Doi Moi Vietnam. *Glob Public Health*. 2008;3 Suppl 2:76-91. [\(Abstract\)](#)
486. Ray R. National drug abuse situation in Vietnam—how accurate are the projections? *Addiction*. 2008 Apr; 103(4):544-5. [\(Abstract\)](#)
487. Ross J, Brown T, Young F. The analysis and advocacy (a-squared) project in Bangladesh, China, Thailand and Vietnam: successful evidence-based HIV policy development in varied policy environments. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
488. Gruskin S, Ferguson L, Peersman G, Andreeva V, Fontaine C, Pascom AR, et al. Monitoring the monitoring: maximizing the value at national-level of international monitoring processes. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.

489. Duc TT, Stephens D, Spratt K, Kapadia-Kundu N, Tran HTT. Contrasting the processes of OVC policy development and policy implementation in Vietnam: results from a study on barriers to policy implementation. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
490. Messersmith L, Tran HB, Truong QT, Montagu D, La H, Eifler K, et al. Strengthening multisectoral leadership and engagement on HIV/AIDS in Vietnam: evidence from an evaluation of AIDS policy training in six provinces. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
491. Nguyen TH. Strengthening capacity for the leadership in planning public policy on HIV/AIDS prevention and control. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
492. Nguyen TA, Nguyen HD. Advocacy to enforce the Vietnamese law on HIV/AIDS to protect migrants and mobile populations. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
493. Khuat THO. Coming to the party: civil society participation in drafting the Viet Nam UNGASS report 2008. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
494. Khuat THO. The politics of intellectual property rights: people and corporate interest. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
495. Kakkar R, et al. Rapid scale up of LIS: MOH Vietnam supporting use of open source tools. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
496. Nguyen TPM, Dinh SH, Chu HA. Advocacy workshops for leaders at provincial and district levels in central Viet Nam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
497. Nguyen D, Nguyen L, Do H. Advocacy for a legal framework for cross-border interventions for migrants and mobile populations in Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
498. Nguyen D, Nguyen L, Nguyen S, Vu T. Advocacy for pre-departure training on HIV/AIDS and STIs for Vietnamese migrant workers. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
499. Nguyen HL, Nguyen HD, Ong VT, Trieu TTL. Meaningful involvement of migrants and mobile populations in HIV-related policy development in Vietnam. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
500. Nguyen TL, et al. Situation assessment and solutions to improve the capacity of PACs. *J Pract Med*. 2010;742,743:568-571.
501. Chu TP. Improving data quality to maximize using in program planning and managing, experience from PACT Viet Nam. *J Pract Med*. 2010;742,743:626-628.
502. Arnolda G, et al. Situation analysis—data use for decision making on adoption of HIV/AIDS policies and plans, programming and financing, 2010.

7.2 Community mobilization in HIV/AIDS prevention and control

Several studies have investigated enhancing the community participation in the fight against HIV and AIDS [503-512].

503. Le NB, et al. Public-private partnership in fighting HIV/AIDS in Vietnam: turning assessment findings into action. 8th International Conference on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
504. Le QN, et al. Empowering the most vulnerable adolescents and youth to prevent HIV. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
505. Le TTD, Vu ML. Vietnam's 'gems': Young men becoming more gender equitable to prevent HIV. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
506. Do NK, Le TTD. New leadership: vocational schools and students mobilize to prevent HIV in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
507. Pham HH, Esch VS. Dance4Life: an innovative global youth project creating one million agents of change by 2015. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
508. Tran BT. Community mechanisms for mitigating the impact of HIV/AIDS in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombo, Sri Lanka.
509. Khuat O. Vietnam civil society partnership platform of civil society—an innovative approach for improved accountability and effectiveness of the national response to HIV/AIDS. XVII International AIDS Conference; 2008 Aug 3-8; Mexico City.
510. Chu QA. Assessment on HIV/AIDS prevention situation in Phap Van and Bo De pagodas, Hanoi. J Pract Med. 2010;742,743:546-556.
511. Nguyen TH. Evaluation of HIV/AIDS knowledge among officials and statistical staffs at commune level in Phu Yen in 2009. J Pract Med. 2010;742,743:116-120.
512. Nguyen VH. Solutions for HIV prevention and capacity building for local officials. J Pract Med. 2010;742,743:602-604

7.3 Health economics and HIV/AIDS

Few studies have examined the economic aspects of HIV and AIDS. One evaluated the cost savings of using generic antiretroviral agents [513] and another investigated the cost-effectiveness of the PMTCT program [517]. Both of these studies were international in scope, involving all 15 countries receiving PEPFAR funding from the U.S. government. Studies on the economic aspects of HIV and AIDS at the national level remain scarce [513-520].

513. Holmes CB, Coggin W, Jamieson D, Mihm H, Granich R, Savio P, et al. Use of generic antiretroviral agents and cost savings in PEPFAR treatment programs. *JAMA*. 2010 Jul 21; 304(3):313-20. ([Abstract](#))([Full text](#))
514. Mills S. The political economy of men's HIV risk in Vietnam and intervention choices. *Am J Public Health*. 2008 Oct;98(10):1734-5. ([Abstract](#))([Full text](#))
515. Phinney HM. "Rice is essential but tiresome; you should get some noodles": Doi Moi and the political economy of men's extramarital sexual relations and marital HIV risk in Hanoi, Vietnam. *Am J Public Health*. 2008 Apr;98(4):650-60. ([Abstract](#))([Full text](#))
516. Reynolds HW, Janowitz B, Wilcher R, Cates W. Contraception to prevent HIV-positive births: current contribution and potential cost savings in PEPFAR countries. *Sex Transm Infect*. 2008 Oct;84 Suppl 2:ii49-53. ([Abstract](#))
517. Auld AF, Bolu O, Creek T, Lindegren ML, Rivadeneira E, Dale H, et al. Potential impact and cost-effectiveness of the 2009 "rapid advice" PMTCT guidelines—15 resource-limited countries, 2010. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
518. Tran XB, Duong TA, Nguyen TL. Cost-effectiveness of addiction treatment with methadone for HIV/AIDS prevention, care and treatment in Vietnam. *J Pract Med*. 2010;742,743:604-608.
519. Bui DD, et al. Estimation of the needs and budget for ARVs in Vietnam (2011-2015). *J Pract Med*. 2010;742,743:646-648.
520. Phong NT, et al. Out of pocket health expenditures of people living with HIV/AIDS: preliminary results of a national survey. 4th National Scientific Conference on HIV/AIDS; 2010 Dec 2-3; Hanoi, Vietnam.

7.4. Impacts of HIV/AIDS on socioeconomic development

The socioeconomic impacts of HIV and AIDS were examined by investigating the effects and consequences of HIV and AIDS on infected people and their families, such as abortion among HIV-positive women, employment needs, depression among PLHIV and the impact on older people who gave care for HIV-infected patients [521-530].

521. Chi BK, Hanh NT, Rasch V, Gammeltoft T. Induced abortion among HIV-positive women in Northern Vietnam: exploring reproductive dilemmas. *Cult Health Sex*. 2010 Aug;12 Suppl 1: S41-54. ([Abstract](#))
522. Bui KC, Gammeltoft T, Nguyen TT, Rasch V. Induced abortion among HIV-positive women in Quang Ninh and Hai Phong, Vietnam. *Trop Med Int Health*. 2010 Oct;15(10):1172-8. ([Abstract](#))
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524. Tran T. Research on the impact of HIV/AIDS on older people and the role of older carers in Vietnam. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
 525. Dreezens J. Survive or living with HIV/AIDS in Vietnam – a socio-economical perspective. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
 526. Nguyen TN, Vu SH. Impact of HIV infection on the lives of people living with HIV/AIDS in Vietnam. 9th International Congress on AIDS in Asia and the Pacific; 2009 Aug 9-13; Bali, Indonesia.
 527. Tran NQ. Banking on families affected by HIV/AIDS in Vietnam. 8th International Congress on AIDS in Asia and the Pacific; 2007 Aug 19-23; Colombia, Sri Lanka.
 528. Tran Q. Enhancing the resilience of families affected by HIV/AIDS in Vietnam. XVIII International AIDS Conference; 2010 Jul 18-23; Vienna, Austria.
 529. Luu BN. Coping with HIV/AIDS within the families: a case study in Ha Long, Quang Ninh. *J Pract Med.* 2010;742,743:587-589.
 530. Dam TTH, et al. Survey on employment need and related capacity of people living with HIV and drug users in Hanoi. *J Pract Med.* 2010;742,743:565-567.

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