EFFECTS OF HIV/AIDS PREVENTION OUTREACH ACTIVITIES ON HIV/AIDS KNOWLEDGE AND RISK BEHAVIORS OF YOUNG MALE IDUS IN KYSON NGHEAN VIETNAM

NGO THI THANH HUONG

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Ngo Thi Thanh Huong
.....
Ms. Ngo Thi Thanh Huong
Candidate

.....
Assoc. Prof. Yothin Sawangdee, Ph.D.
Major Advisor

.....
Assoc. Prof. Chai Podhisita , Ph.D.
Co-Advisor

A. Mutchimwong
.....
Asst. Prof. Auemphorn Mutchimwong, Ph.D
Acting Dean
Faculty of Graduate Studies

Panee Vong-ek
.....
Asst. Prof. Panee Vong-ek, Ph.D.
Chair
Master of Arts Program in Population and Reproductive Health Research
Institute for Population and Social Research

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on
August 26, 2008

Ngo Thi Thanh Huong
.....
Ms. Ngo Thi Thanh Huong
Candidate

.....
Asst. Prof. Pimonpan Isarabhakdi, Ph.D.
Chair

.....
Assoc. Prof. Yothin Sawangdee, Ph.D.
Member

.....
Mr. Anthony Pramualratana, Ph.D.
Member

.....
Assoc. Prof. Chai Podhisita , Ph.D.
Member

A. Mutchimwong
.....
Asst. Prof. Auemphorn Mutchimwong, Ph.D
Acting Dean
Faculty of Graduate Studies
Mahidol University

S. Punpuing
.....
Assoc. Prof. Sureeporn Punpuing, Ph.D.
Director
Institute for Population and Social Research
Mahidol University

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NGO THI THANH HUONG 5038605 PRRH/M

M.A. (POPULATION AND REPRODUCTIVE HEALTH RESEARCH)

THESIS ADVISORS: YOTHIN SAWANGDEE, Ph.D., CHAI PODHISITA, Ph.D.

ABSTRACT

This study examines the effects of outreach activities in an HIV/AIDS prevention program conducted from 2005 to 2007 by the STDs/HIV/AIDS Prevention Centre and funded by the Rockefeller Foundation on HIV/AIDS knowledge and risk behaviors of young male injecting drug users (IDUs) in Kyson, Nghean, Vietnam. Data were collected from 326 IDUs aged 15-30 years in the hotspots in Kyson. Logistic regression was employed to analyze the relationship between program activities and HIV/AIDS knowledge and risk behaviors of IDUs taking into account their demographic characteristics. The major results show that IDUs who were exposed to the program, which provided information and free needles, were 3-7 times more likely to have good HIV/AIDS knowledge than IDUs who were not ($p<0.001$). Additionally, these IDUs were also 3.2 times more likely to use condoms in sexual intercourse and 97% less likely to share needles for drug injection than others who were not ($p<0.001$). Furthermore, the research results also show the significant difference in HIV/AIDS knowledge and risk behaviors (sharing needles and condom use) between people who were exposed to the component which provided only HIV/AIDS information by IEC materials and people who were exposed to the component which provided free needles and condoms by peer educators ($p<0.01$). Overall, outreach activities of the program had a strong effect on enhancing HIV/AIDS knowledge and decreasing risk behaviors among young male IDUs in Kyson, which contributed to the mitigation of HIV risk for this group.

KEY WORDS: HIV/AIDS/ IDUS/ PREVENTION PROGRAM/ EVALUATION/ KYSON

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AIDS	Acquired Immune Deficiency Syndrome
BCC	Behavior Change Communication
CSWs/SWs	Commercial Sex Workers
HIV	Human Immune-deficiency Virus
IDUs	Injecting Drug Users /Intravenous Drug Users
IEC	Information, Education and Communication
KAP	Knowledge, Attitude, Practice
MOH	Ministry of Health
MSM	Men who have sex with men
NGO	Non-Governmental Organization
STD/ STIs	Sexually Transmitted Disease/Infections
VCT	Voluntary Counseling and Testing

CHAPTER I
INTRODUCTION

1.1 Background.

The HIV/AIDS pandemic forms an unpredicted global crisis, and HIV continues to widen worldwide. According to epidemic update for UNAIDS, up to 2006, there are about 39.5 million people living with HIV (UNAIDS, 2006). In many regions of the world, new HIV infections are the highest rate among young people (15–24 years of age). Among adults 15 years and older, young people accounted for 40% of new HIV infections in 2006 (UNAIDS/WHO, 2006). The spreading of HIV/AIDS epidemic has been challenging the global development. The effects of the HIV epidemic actually put pressure on communities, nations and the international community: a challenge to human survival and human development (UNAIDS, 2006). Especially, in developing countries, the impact of the HIV epidemic must be understood in the context of the critical social and economic problems in these countries: poverty, illiteracy, and inadequate health care (Gorbach et al, 2002). These factors really contribute to the growth of the epidemic and magnify the risk of HIV transmission.

Transmission of HIV through the injection of drugs and the consequences of HIV-related illness in injecting drug users contribute significantly to increased morbidity, premature mortality, health care costs, economic losses and social development (UNODC, 2007. In some countries, injecting drug use accounts for over half of all HIV transmissions. Worldwide, an estimated 20% of HIV/AIDS is attributed to injecting drug use, and this proportion is progressively increasing (UNAIDS, 2006), particularly in Asia. In this continent, the intervention among IDUs plays a pivotal role in the prevention of HIV spreading to the general population (Nararin, 2004; Brown, 2003). Until now, many different intervention programs to reduce the impacts of HIV/AIDS among injecting drug use are implemented over the world, including “providing information, education and communication aimed at

reducing risk-taking behavior; expanded access to essential commodities including male and female condoms and sterile injecting equipment; and harm reduction efforts related to drug use" (UNGRASS, 2001). It is no doubt that the achievements have effectively responded HIV/AIDS situation in general, and among IDUS in particular.

1.2 Rationale and statement of research.

HIV/AIDS is threatening human society and locating countries at a devastating development. In Vietnam as well as other Asia countries, the highest HIV prevalence mainly focused on injecting drug users (IDUs). The estimated among injecting drug users in Viet Nam, prevalence increased from 9% in 1996 to about 34% in 2005 (Ministry of Health Viet Nam, 2005&2006). The main risk factors associated with HIV infection are the use of contaminated injecting equipment and unprotected sex with non-regular partners or sex workers (Tuang et al., 2007). As the epidemic evolves, it led to increasing numbers of women acquiring HIV from males who were infected during unsafe paid sex and injecting drug use (UNAIDS, 2007). Therefore, it is necessary to conduct prevention programs targeted at IDU group.

However, the basic challenge for the prevention of HIV in drug use population is to provide information and encourage them changing their unsafe behavior. Furthermore, for IDUs, providing specialized services also plays an important role in prevention program which facilitates for changes in their existing risky behaviors, especially sharing injecting equipments. Additionally, there are many IDUs who are particularly vulnerable because of their circumstances; ethnic minorities with poor participation in the community. In order to address these needs, a range of program options should harmony with the detail socio-cultural context of community.

Kyson – a border district in the Western of Vietnam with many minor ethic group living. HIV/AIDS has been known later than others by low education and poverty. In recent years, HIV prevalence is increasing, whereas, there are a few research and project conducted in this area. The project implemented by SHAPC (STI/HIV/AIDS prevention center) and donated by Rockefeller is considered a pilot intervention project aimed at high risk groups included sex workers, drug users and homeless youth. Therefore, this research will play a crucial role in evaluating effects of intervention project activities. Whether or not this project has positive effects on

targeted group in terms of HIV/AIDS knowledge and risk behaviors? Which components of projects are more effective? Moreover, it will provide useful information and basic database for stakeholders such as local authorities, national programs and other agencies in order to draft policies, intervention programs as well as further studies in the future. In contrast, if this research were not conducted, it would be impossible to know how the project to affect on community, resources (funding, personnel, and others) would be waste and lessons and experiences from program would be invaluable.

1.3 Research question.

How do outreach activities of the HIV/AIDS preventive project affect on HIV/AIDS knowledge and risk behaviors (sharing needles and condom use) of young male IDUS in Kyson, Nghean, Vietnam?

1.4 Research objectives.

General objective: To examine effects of outreach activities in the HIV/AIDS preventive program on HIV/AIDS knowledge and risk behaviors young male IDUS in Kyson, Nghean, Vietnam.

Specific objectives:

1. To examine effects of outreach intervention activities on HIV/AIDS knowledge and risk behaviors of young male IDUs in Kyson.
2. To determine effects of different program components on HIV/AIDS knowledge and risk behaviors of young male IDUs in Kyson.

1.5 Research hypothesis.

The research hypothesis is that IDUs who are more exposed to prevention activities (HIV/AIDS information, syringe/ needle and condom), will be more likely to have good knowledge and engage in safe behaviors (non- sharing needles and condom use) than those who are not.

1.6 Scopes and limitations.

This is a pilot project conducted from 2005 to 2007. This research based on endline data of project to assess effects of prevention activities in one point of time on one high risk group included IDUs who were exposed to program and those who were not. The main objective of research is to assess HIV/AIDS preventive activities on young male IDUS in outreach, which included main activities of behavior change communication and harm reduction by examining their knowledge and practices in HIV/AIDS. Importantly, the research answers the question whether or not those preventive activities positively affect on HIV/AIDS knowledge and risk behaviors of young male IDUs. Furthermore, because of being a pilot project, this research plays an important role in providing information for expanding scale of project and being foundation for next projects. Thus, this research would also assess outreach components of project, which one could be more effective? Overall, the research will look at outreach activities in HIV/AIDS prevention program on HIV/AIDS knowledge and risk behaviors of young male IDUs.

In fact, this research had some limitations. This research was conducted on open IDUs in hotspots, thus it was not able to analyze whether or not the program has any effects on hidden group. On the other hand, this research did not have enough data to examine other risk groups such as sex workers or homeless youths in order to compare with IDUs which could help stakeholders find out special characteristics of each group. Moreover, this research did not have chance to compare baseline data and endline data to see changes of knowledge and behaviors of IDUs. Additionally, this research was a cross sectional study; it might not follow up subject. Therefore, it would be very difficult to separate effects of SHAPC projects or others on knowledge and behaviors of targeted subjects. Simultaneously, the research could not determine related factors which could facilitate or prevent implementation of intervention activities effectively. Finally, due to purposive study site and non-random sampling, the study sample is not representative of all IDUs in Kyson who could be beneficiaries of this project.

Briefly, in the framework of research, it was expected that this research could identify effects or non-effects of intervention activities on knowledge and behaviors of IDUs in the project site.

CHAPTER II
LITERATURE REVIEW

2.1 Overview of HIV/AIDS and drug use.

2.1.1 HIV/AIDS in the world and Asia.

The HIV/AIDS epidemic is spreading in many parts of the world. From 1981 until the end of 2006, 25.3 million people throughout the world have died of AIDS (UNAIDS/WHO, 2006). It was estimated that, by the end of the year 2010, 40-50 million would have been infected with HIV worldwide. In South East Asia, 25 million people were expected to be infected with the virus (UNAIDS, 2001). The HIV/AIDS epidemic began relatively late in Asia, but now HIV infections have reached the high levels observed in this continent (WHO, 2001). Attentively, behavioral patterns that increase the risk of HIV transmission—such as unprotected sex with multiple partners and needle sharing among IDUS—are common in many Asian societies (Brown, 2003). The beginning of the epidemic was reported that 75 % of HIV infections were drug users. Without interventions to modify high-risk behavior, current infection levels may rise rapidly over the next years.

In reality, drug users in Asia are highly vulnerable to HIV transmission because of the political, socio-economic and cultural situations in which they live (Bazant et al, 2002). In most Southeast Asian countries, “national drug laws prescribe severe punishments for drug-related offences such as injecting drug, the possession of drugs and drug use paraphernalia, including needles and syringes” (UNODC, 2007). Under these laws, drug use is considered an illegal action; consequently, this made drug users possible to engage in unsafe behaviors such as sharing syringes and needles. Furthermore, HIV transmission by sex also constitutes a high risk for this group because they may contract with unprotected sex after using drug (WHO, 2001). On the other hand, low education, unemployment and harsh social environment are structural determinants made drug users infected HIV (UNAIDS/WHO, 2006). In fact,

experiences and lessons from many countries show that drug use is related directly to HIV/AIDS and community health; moreover, it impacted indirectly on labor resource and national economic.

2.1.2 HIV/AIDS in Vietnam.

The first case of HIV infection diagnosed in Vietnam was a drug user in 1990. Until now, HIV has been detected in all 64 provinces and cities. The number of PLWHA has doubled since 2000, and reached 260,000 in 2005, the vast majority of whom are injecting drug users and people who buy or sell sex. Some 40,000 people are infected with HIV each year (Ministry of Health Viet Nam, 2005) within this, drug users accounted for 80 % among HIV infection cases. In recent years, HIV prevalence among IDUs keeps soaring. This has resulted to drug users comprised one of the highest risk groups and need to concern from public and stakeholders.

One other reality is a strong overlap between sexual risk-taking and injecting drug use is evident in several Vietnamese cities. Large proportions of male IDUs engage in unprotected sex, including paid sex (40% in Quangninh, for example). Additional evidence of injecting drug use among young male migrant workers (16–26 years of age) in Hanoi confirmed the need for prevention programs that target drug-related risk and sex among migrants. In addition, significant percentages of female sex workers also inject drugs (UNAIDS, 2006). It is clear that HIV prevention attempts in Vietnam need to concentrate on drug use, sex work and migration.

Currently, the HIV/AIDS trends in Vietnam mostly come from a combination of unprotected commercial sex and unsafe drug injecting practices (UNAIDS/WHO, 2006). Though, behavioral change programs have been conducted effectively, government need to pay more attention in enabling policy and institutional environment for prevention activities, particularly, a strong harmony between HIV policies, the legal context and policing approaches (Ministry of Health, 2006) to minimize negative effects of HIV/AIDS which has challenged seriously national socio-economic development and cultural values in this East country.

2.1.3 HIV/AIDS in Nghean and Kyson.

Nghean is the western border province in Viet Nam. In Nghean, the first HIV/AIDS infection in the province was reported in 1996. As of March 1997, there were 300 cases found that seemed a sign of the spreading epidemic in this province. Most of sero-positive people were men who were IDUs. According to report of MOH in 2006, Nghean is one of ten provinces, which have the highest number of HIV/AIDS cases per 100,000 people in the entire country. Furthermore, within this most severely affected province, HIV prevalence in Kyson is second after Vinh, approximately 37% of the provincial total (Centre of HIV/AIDs prevention, 2005).

In December 2007, in Nghean there were 3,946 people who have been infected HIV and HIV prevalence among IDUs averaged the highest of all population groups measured, for example, Vinh (38%) and Kyson (13%) (MOH, 2006). The data also showed evidence of rapid HIV transmission among new and young injecting population. For instance, almost half of IDUs in Nghean (45%) were under 29 years old and about one-quarter (23%) had been injecting less than one year. However, HIV sharply spreads among both of these groups, with 28% and 22%, respectively, already HIV-infected (Hien et al, 2002). It is clear that HIV among IDUs really needs serious concerns from stakeholders.

In recent years, local government has been struggling to address HIV problem by a traditional method that has included a punitive response to drug use involving arrest and isolation for re-education (UNODC, 2007). However, these activities are really ineffective; the government should separate this campaign from HIV prevention programs and provide accurate information on HIV prevalence and risk behavior as well as support services to encourage changing behavior, and ensure the active involvement of communities (Measure, 2003).

2.2 HIV/AIDS risks among drug user population.

As mentioned, drug user has been really considered a most at risk group in terms of HIV/AIDS. According to latest statistical data, drug users are major in newly HIV cases over the world. This fact has challenges stakeholder and prevention programs. Until now, there are many researches conducted to study this group and

their behaviors as well as their HIV/AIDS risks. Nowadays, the youth is put in the priority of HIV/AIDS prevention strategy. The reality shows that young people are high vulnerable group, especially male youth (Ralph, 1995). Many researches among drug users population in Southeast Asia indicated that drug users are mostly male young people, their main range of age is 15-30 years old (Brown, 2003; UNODC, 2007). In Malaysia, 30 % male youth at 15-24 years was drug users (Singh and Crofts, 1993). This number is higher in Thailand with 43 % in the upland area (Gray, 1995). In Vietnam, 54 % of drug users at hotspots were men at age 15 to 29 (Nguyen HT et al, 2004). Therefore, youths need to consider a key group in the HIV/AIDS epidemic.

Furthermore, low income and unemployment are considered contributors of HIV/AIDS. Manny studies showed relationship between income and HIV/AIDS status of drug users. There is one reality is that drug users who are unemployment and earn a little income are more likely to contract with HIV/AIDS than others (UNAIDS/WHO, 2006). It is proved that lack of money enables for IDUs engage in risk behaviors such as injecting drug and sharing needle and syringe, because they have not got enough money to buy drug and injecting equipments. In Yunnan, China, 82 % of drug users reported that they were intravenous drug users because they lacked of money to buy drug for smoking (Zheng et al, 1994). In Haiphong, Vietnam, 74 % male youth reported injecting drug, in which 68 % have ever shared syringe and needle because no money to bought them (Nguyen TA et al, 2001). In India, 47 % of drug user said they changed from smoking to injecting because of no money (Mohsen**,** 2005).Thus, it is no doubt that occupation and income played a crucial role in mitigating HIV/AIDS impacts among drug users.

Additionally, lack of HIV/AIDS knowledge and safe injection among IDUs increases their risk to HIV/AIDS. There was only 30 % IDUs in Malaysia understood that safe injection could prevent HIV infection (Singh and Crofts, 1993). In Philippine, 69 % IDUs thought that one time of sharing needles could not make them get HIV (Brown, 2003). In Vietnam, the result of an assessment showed 65 % drug users have never heard about how to clean injecting equipments (Nguyen HT, 2002). Particularly, among ethnic minority group, low education created more HIV/AIDS risks for drug users. 75 % youth in ethnic minority group in Laos believed that HIV/AIDS could be transmitted by mosquitoes (Phimphachanh, 2004). Therefore, UNAIDS reckoned that

low education and lack of knowledge still are main issues in HIV/AIDS prevention among IDUs in Asia. Clearly, individual demographic factors such as age, gender, occupation and education are contributors to HIV/AIDS infection among IDUs.

Dangerously, drug users normally engage in other risk behaviors including unsafe sex which increased their risks to HIV/AIDS. Unsafe or unprotected sexuality is defined to be having sex with many sex partners without condom included sex workers. Among Malaysian IDU population, 69 % have ever practiced unprotected sex with sex workers (Singh and Crofts, 1993). Many results showed that IDUs who had unsafe sex behaviors are more likely to have HIV positive test than others who has safe sex (Zheng et al, 1994). Surprisingly, after using drug, IDUs are in trend to look for sex; consequently, many IDUs have sex with sex workers during the time of get high; this itself makes them impossible to control their behavior. Thus, 72 % of IDUs have ever had sex with sex workers after using drug (Nguyen HT, 2002); 43 % of IDUs did not remember whether or not they used condom at that time (Kulsudjarit, 2004). Especially, many IDUs shared syringe and needle with their sex mates; they themselves did not think that this behavior could harm those (Min Zhao et al, 2005). Therefore, unprotected sexuality and unsafe injecting behaviors are considered going hand in hand to increase HIV/AIDS risks among IDUs. Overall, HIV/AIDS prevention program have to pay more attention into minimize harms of this couple.

2.3 HIV/AIDS prevention programs on IDUs.

2.3.1 HIV/AIDS prevention programs among IDUs.

Nowadays, two main programs which are considered effective HIV/AIDS prevention programs included Behavior Change Communication (BCC) and Harm Reduction. Those programs have been applied widely over the world and gained the achievements in HIV/AIDS prevention. Certainly, these programs seemed foundations for intervention activities in HIV/AIDS prevention program in Kyson, Nghean. Firstly, BCC is a multi - level tool for promoting voluntary, positive behavior change aimed at reducing risks using messages in a variety of communication channels. The process should be one that "*Interventions must take into account sex, race/ethnicity, sexual orientation, and/or risky behaviors, and the social context in which the individual*

behaviors occur, the ultimate goal of which should be to empower people better able to make safer and healthier decisions" (FHI, 2006). HIV/AIDS results from personal behaviors which were affected by cultural norms and social network. Therefore, in order to get success from HIV/AIDS prevention programs, stakeholders must be aware and sensitive to the socio-cultural -political realities affecting individual behavior and design interventions accordingly. BCC's approach is rights-based interventions by giving power to the individual to change his/her behavior to be safer and healthier (FHI, 2006). The results in reality from many countries showed that BCC gained many huge achievements in HIV/AIDS prevention.

Secondly, based on principles of BCC, harm reduction is a specific program which implies approaches, programs, strategies and policies which aimed at reducing harms of risk behaviors such unsafe injecting and unprotected sexuality on individual drug users. Basic principle of harm reduction is that "*Stop or never start using drugs. If you use, do not inject. If you inject, use new materials and do not share needles, syringes, spoons, water, and drugs. If you need to re-use equipment, clean and use your own. If you must share, clean or disinfect before using"* (ARHN, 2004). Therefore, harm reduction among IDUs have many different forms including abstinence, IEC programs, counseling, drug substitution, needle exchange and so on. In reality, it is recognized that drug abstinence sounds infeasibility; however, the alternative approaches of this program target to save drug users living healthy and productive. Clearly, the fact proved that harm reduction has contributed strongly to reducing HIV infection among IDUs Until now; these programs have paid many efforts into wiping out harms of HIV/AIDS on targeted groups and communities. Better awareness about HIV/AIDS and its negative impacts among general population and specific groups, safer behaviors among high risk groups, reduced HIV prevalence among those groups are successes of BCC and harm reduction in Asia (UNAIDS/WHO, 2006).

The IEC campaign in Philippine, Indonesia and other SEA countries reached on at risks group included SWs, IDUs and migrants, improved their knowledge and behaviors. Number of people who have good knowledge about HIV/AIDS is increasing 68 % compare with 2000 in Indonesia (Riono and Jazant, 2004) , 85 % IDUs used condom when having sex in Philippine, higher 2.5 times than 2000 (Mateo

et al, 2004). Especially in Laos, number of IDUS know how to clean sterile equipments increased 30 % compare with under 10 % in 1998 (Phimphachanh and Sayabounthavong, 2004). Moreover, mass media communication covered all of countries in SEA with various and fit information facilitated for vulnerable groups to access accurate knowledge about HIV/AIDS, even people in remote areas in hill tribe (Gray, 1998). Furthermore, condom and sterile exchange programs enabled for IDUs practicing safe behaviors (Ngo AD et al, 2008). In China, BCC were strongly successful in increasing awareness about HIV/AIDS among IDUs, particularly needle and syringe exchange encouraged IDUs contract with safe injecting behaviors (Wu et al, 2007). Additionally, peer educators showed their numerous advantages in implementing outreach activities of these programs. In Vietnam, several programs have found out utilizing SW or IDU as peer educators to be effective in syringe and needle exchange program among IDUS (Ngo AD et al, 2008; Walsh et al, 2008). Obviously, it is no doubt that BCC and harm reduction play essential roles in the HIV/AIDS epidemic in Asia and SEA countries.

2.3.2 Monitoring and evaluation research of HIV/AIDS prevention program.

As we know that monitoring and evaluation (M&E) program activities provides stakeholders with better means for learning from past experiences and lessons, strengthening program design, improving implementation and planning and allocating resources and identifying individual, community and programmatic factors. M&E research is one of the most crucial parts of program designs, particularly prevention programs. Specifically, M&E research will provide baseline information on the status of communities before the implementation of the programs, and monitor the full impact of the program as it develops. Moreover, M&E research improved management and more informed planning decisions. It helps identify the need to adjust desired conditions, goals, objectives, activities (input, process, output and outcome). Additionally, M&E research will help identify both successes and problems of prevention programs. In terms of HIV/AIDS prevention programs, ME research is considered a prerequisite key of success of intervention program (FHI, 2006).

In Viet Nam, the number of AIDS cases reported has risen sharply since 1990, when the first case was detected. The number of new infections reported continues to rise. Some M&E systems were in place, such as behavioral surveillance surveys (BSSs) and sero-prevalence surveillance among special groups. Viet Nam is just starting to implement national M&E systems and has identified several areas where assistance could be provided. These areas entail improving technical skills, seeking ways to implement an M&E system through the health system, and broadening behavioral and sero-prevalence surveillance. Viet Nam's current M&E system was less established than that of the other countries. The challenges identified are to align the system to meet the requirements of the national strategic plan, establish a framework for M&E that coordinates the existing independent systems, and coordinate the governmental and non-governmental agencies involved with M&E. The proposed plan includes many activities to strengthen and develop the system, including coordinating at the central and provincial levels, developing an M&E framework, building M&E capacity, and incorporating technical assistance and training. Overall, it is necessary to conduct M&E research in prevention program and establish M&E system from community level to national level in order to strengthen effectiveness of HIV/AIDS prevention programs.

2.4 Conceptual framework.

After reviewing the above literatures, this research set up conceptual framework. Due to purpose of study which wants to measure effects of program prevention on HIV/AIDS knowledge and behaviors of IDUs, it is important for conceptual framework to show fundamental of relationship among those factors. Program effects (*program variables*) were observed from HIV/AIDS knowledge (good or poor) and risks behaviors included sharing syringes/needles and condom use (*independent variables*). However, in order to receive specific evidences whether the program has effects on knowledge and behaviors, individual characteristics were considered *control variables* in analysis (figure 2-1).

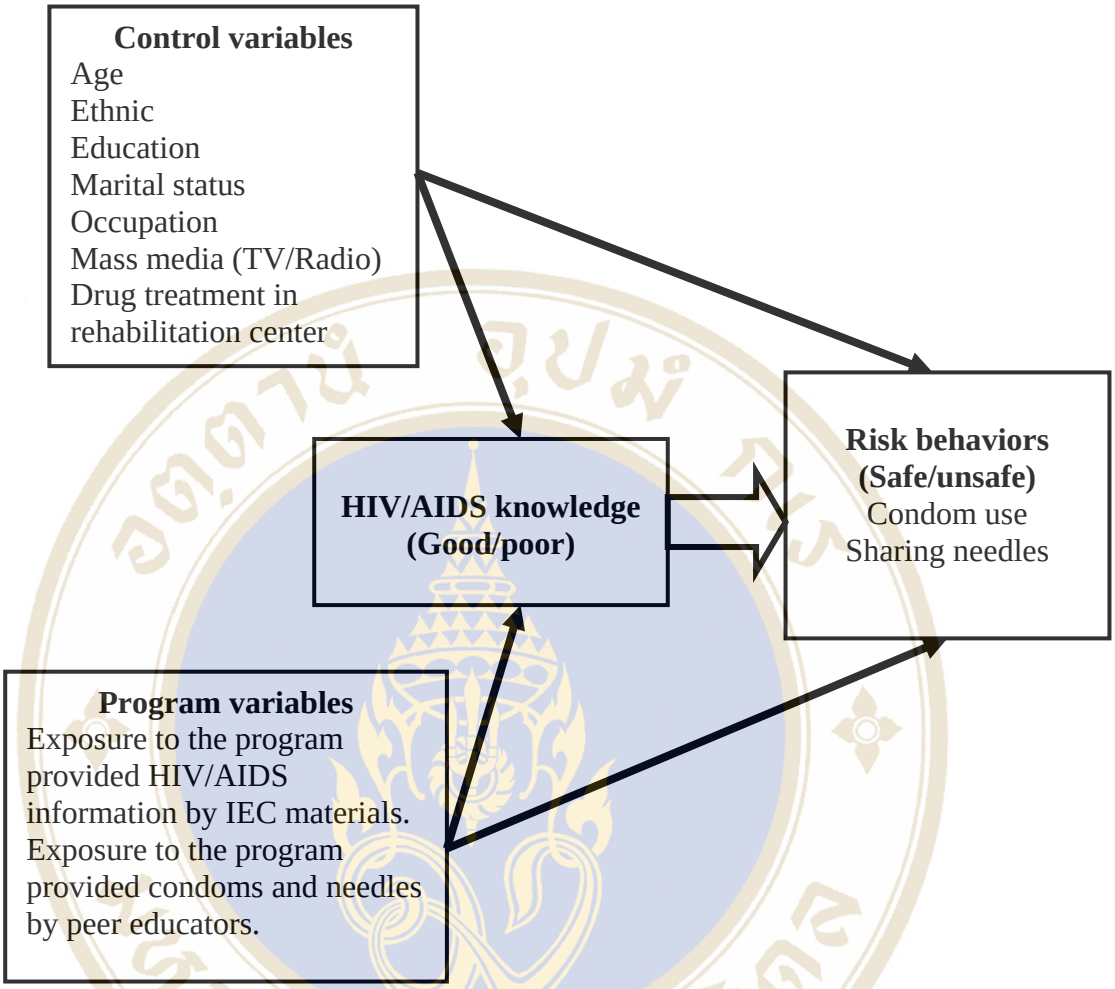

Figure 2-1: Conceptual framework

CHAPTER III
METHODOLOGY

3.1 Study area.

Vietnam, officially the Socialist Republic of Vietnam, is the eastern country in Southeast Asia. Its neighbor countries include China in the north, Lao in the northwest, Cambodia in the southwest and in its east to be Pacific Ocean. Up to July 2005, Vietnam is the 13th most populous country in the world with a population of 83,689,518 and 1.3 % of population growth rate. In 2007, total fertility rate is 1.89 children born/woman and life expectancy at birth was 67.86 years in male and 73.02 years in female. Sex ratio at birth was 1.08 and it is estimated that in next 20 years, number of men will be higher than women because boy preference is still very popular in Vietnam now. In recent years, both of birth rate and death rate in Vietnam have been gradually reducing at 19.58 births and 6.14 deaths/1,000 population in 2004. However, infant mortality rate was high at 29.88 deaths/1,000 live births. Age structure is divided into 3 groups including 0-14 years, 15-64 years, and 65 years and over accounted for 29.4 %, 65 % and 5.6 % respectively.

The economic in Vietnam has been developing strongly since government applied Doi Moi policy and open door in 1986. The economic development has supported to human development such as improving quality of life, strengthening social welfares and reinforcing human valuation. However, the economic development has also raised many challenges and difficulties to this country. In this period, the HIV epidemic resulted from the spread of social evils in society such as drug use and sex work which was created by poverty, low education and unstable economic development. Annually, increasing HIV infected cases and death of AIDS has frightened human quality and labor force of Vietnam. Furthermore, HIV/AIDS has alarmed ethical valuation, traditional culture and social ideology, which are performed typically in this East country.

Nghean is the largest province in the North Central Coastal of Vietnam. Its population was 3.003.200 people, in that there were 1.474.600 men in 2004. Nghean is one of the provinces in which population is young, 0-14 years population accounted for 40 %, 54 % in 15-59 years and only 6 % of people at 60 years and over. In terms of administrative units, this province is divided into one city, one town and 17 districts. The economic development bases on tourism, sea exploration and forestry. However, poverty and low education are very common in Nghean, particularly in ethnic groups in rural and remote area. Those problems have dangerously challenged the development in this province.

Up to December 2007, there were 3,946 HIV infected people in Nghean, and it still is one of 10 highest HIV prevalence provinces in Vietnam. In terms of gender, number of infected men is higher than women and mostly, they are IDUs. Attentively, HIV prevalence is speedily increasing in the mountain districts such as Quychau, Doluong, and Kyson. Furthermore, number of sero-positive people who belong to ethnical groups is higher than Kinh. It is documented that combination of poverty and lack of knowledge about HIV/AIDS caused high HIV/AIDS infection in those communities. Nowadays, local government has cooperates with many local and international NGOs to mitigate HIV/AIDS impacts on those areas.

Kyson is one of the Western districts of Nghean which located at the border with Huaphan, Xiengkhoang and Polykhamxay of Laos. Its population is 58.000 people living on 2094 km^2. There are many ethnic minority groups living in this area included Kinh, Thai, H'mong, and Khome. Terrain of Kyson is very difficult for transportation. Thus, this created many obstacles for economic activities, health care services, schools and communication stations. In the 1990s, opium tree was planted commonly in here; hence there were many opium abusers in community. Moreover, poverty and low education go hand in hand with migrant culture made society more unstable and disordered. Those conditions created "social evil" such as drug use and sex workers and HIV risks which have been frightening life of ethnic communities in this district. Therefore, HIV/AIDS prevention programs bring a huge significance for targeted group and general population as well.

3.2 Prevention project and evaluation research in Kyson.

3.2.1 Outreach activities in HIV/AIDS prevention program.

The prevention project was conducted by SHAPC (STDs/HIV/AIDS prevention centre) and donated by Rockfeller Foundation from 2005 to 2007 in Kyson-Nghean in coorperation with Nghean Department of Health. The general objectives of project was to increase knowledge about HIV/AIDS and safe behaviors among high risk population and build capacity for local stakeholders in HIV/AIDs prevention programs. The specific objectives of this two year projects were to increase support and participation of local government and unions in HIV/AIDS prevention program; provide accurate HIV/AIDS knowledge included HIV transmission and prevention; increase accessibility and availability of clean sterile equipments and encourage safe injecting behaviours among high risk group.

In order to meet those objectives, the projects conducted a lots activities in harmony with cultural socioeconomic contexts of this area. Those activities focused on changing and improving knowledge and practice in HIV/AIDS of high risk group. In this research, I would like to look at only outreach activities which separated into two groups: behavioral change communication and harm reduction. In terms of activities in BCC included delivering IEC material such as leaflet, brochures, and posters, implementing mobile communication and local communication in community, organizing perfomance to communicate HIV/AIDs prevention . In harm reduction program, the project provided free clean sretile equipments for IDUs, carried out exchanging syringe and needle and counseling HIV testing and HIV information. Especially, this project recruited a team of peer educators who worked as approacher in the hotspots to access subjects and convey information about programs.

3.2.2 Evaluation research method.

In reality, in order to monitor and evaluate intervention activities, this project collected data at 3 phrases: baseline, midleline and endline. In the endline evaluation, data was collected in January 2007. This evaluation focused on 3 main objectives including evaluation the process of project implementation and accessibility project activities, the participation of local government and local people organization in the project and the effectiveness of project activities in increasing correct HIV/AIDS

knowledge and safe behaviors among high risk groups who were targeted groups of project. The indicators which were used to evaluate includes 3 groups of indicators which centered on 3 main objectives of this evaluation research. Firstly, the indicators for first objective answered questions: whether or not the implemented activities could meet project objectives? How did targeted group know about the project implemented activities? How did they participate in those activities? And how did they think of this project? Secondly, the indicators to evaluate the second objective included whether or not local government and community leader know about this project? How did they participate in project activities? And how were their ideas about this project? Finally, the indicator group which evaluated the impacts of project on HIV/AIDS knowledge and behaviors of high risk groups, were percentage of targeted subjects who know accurately about main ways of HIV transmission and basic methods of HIV prevention, percentage of people who understand well about safe sex and safe injecting, percentage of people who use frequently clean syringe and needle when injecting and condom when having sex. These indicators would be compared with data in baseline to see impacts and changes.

The main subjects of this evaluation research focused on high risk groups including SWs, IDUs and homeless youths. Furthermore, the research also interviewed key informants and participants of the project such as health workers, representative of local government, community leaders, and peer educators as well. The research area was hotspots which were defined to be the place in which had high concentration of IDUs and many activities of exchanging, using and injecting drug, at Muongxen town and Chieuluu commune in Kyson, where were considered representative for the cultural, social and economic contexts of Kyson. Snowball was the sampling method applied to approach subjects and interview them in hotspots.

Methods of data collection included survey interviewed research subjects by structured questionnaire which was designed and pre-tested by researcher, in depth interview and focus group discussion also were used to get information. The research approached and interviewed 326 IDUS, 50 SWS and 121 homeless youths by questionnaire, 20 in depth interviews and 7 focus group discussions. In addition, 15 key informant interviews were conducted. Furthermore, observation was also applied by research team to observe activities of peer educators in hotspot how they talk with

subjects, how IEC materials, condom and syringe/needle have been provided, how public and individual attitude was shown on their face. On the other hand, this evaluation research also used data from reports and records of projects such as monthly report, training report, and other related documents. Eventually, the research used two methods: qualitative and quantitative to collect data for evaluation.

In order to guarantee the validity and reliability of data, before collecting data in the field, investigators were trained; questionnaire was pre-tested with the same subjects. During the time of data collection, investigators gathered together, exchanged their experiences and checked their completed questionnaires. Moreover, field supervisors also rechecked to make sure that questionnaires were finished properly, if there were any questionnaires lacked of information, investigators would have to re-interview. In this evaluation research, ethic issue was an interest of researchers. Thus, the researcher first gained the trust of the participants by ensuring the confidentiality of the information. Moreover, interviewees would be anonymous and their address was not disclosed.

This paper based on data set from 326 cases of IDUS to analyze effects of outreach intervention activities from the program on their HIV/AIDS knowledge and behaviors. In reality, this sample size is not big enough to represent for IDU population in Kyson and Vietnam. However, the researcher hoped that basic characteristics of the research site were similar to commune's in other hill areas in Vietnam; thus findings from this evaluation paper could be applied for other areas having same context. Importantly, this paper may help stakeholder get understanding about their project and expand their intervention activities into other community.

3.3 Data analytical process.

This process will be divided into 2 steps: first uses descriptive statistic and second step uses multivariate analysis with logistic regression and adjust proportional probability technique, which are specifically described in the following:

3.3.1 Descriptive statistics.

In order to meet objectives of research, in data analysis, descriptive statistics with frequencies and cross tabulation were applied to explore distribution of sample

and describe basic demographic characteristics such as age, education, occupation, marital status and ethnicity of young male IDUs as well as their duration of drug use. Furthermore, those techniques could help researcher see the current status of mass media exposure, drug treatment in rehabilitation center, knowledge of HIV/AIDS, safe or unsafe behaviors, particularly project activities assessment of those respondents in Kyson district. On the other hand, through examining central tendency with mean and standard division, those results would help researcher see the distribution of data which is very useful for regression analysis.

3.3.2 Multivariate analysis.

Bivariate analysis was used to identify the relationship and impact of each independent variable on the dependent variable, specifically the impact of lacking of HIV knowledge on unsafe behaviors of male IDUs (not using condom for sexual intercourse with female sex partners and sharing syringes and needles among IDUs) after controlling for age, education level, ethnic, occupation marital status, mass media and drug use duration in Kyson district, especially project activities exposition. Answering these questions is very necessary for research to suggest recommendation for subjects as well as activities of expanding project or new project in this area.

Additionally, because majority of variables in this research are dichotomous variables, binary logistic regression was employed to estimate probability of occurring unsafe and safe behaviors. This estimation saw complemented impacts of factors on knowledge and then behaviors of respondent. Afterward, based on this result, researcher could identify effects of project activities on its targeted group. Furthermore, this also allowed research to determine which component should be better in this intervention program. In order to get those results, two following models were be run by data analysis software. The effects between independent variables and dependent variables were considered based on significant level of the results of logistic regression. For non-significant variables, LR (log likelihood ratio) test was employed to examine their explanatory power in the logistic model in order to decide keep or drop those variables in the model.

In the below table, model 1A, 1B and 1C considered respectively program variables and HIV/ AIDS knowledge, sharing needles behavior and condom use. In

model 2A and 2B, the researcher examined effects of HIV/AIDS knowledge on behaviors included needles share and condom use.

Table 3-1: Models of multivariate analysis

Independent variables	Model 1			Model 2	
	Dependents variables				
	HIV/AIDS knowledge	Sharing needles	Condom use	Sharing needles	Condom use
	A	**B**	**C**	**A**	**B**
Age	x	x	x	x	x
Education	x	x	x	x	x
Occupation	x	x	x	x	x
Ethnicity	x	x	x	x	x
Marital status	x	x	x	x	x
Mass media exposure	x	x	x	x	x
Rehabilitation	x	x	x	x	x
Exposed the program provided information	x	x	x	x	x
Exposed the program provided condoms, needles and syringes	x	x	x	x	x
Knowledge of HIV/AIDS				x	x

In addition, the researcher employed adjust proportional probability technique to make clearly and specifically the effects of program activities on dependent variables included knowledge and risk behaviors. This examination simultaneously allowed researcher define exactly program components, which strongly affected on knowledge and behaviors of respondents.

Briefly, data analytical process in this research used techniques of descriptive statistic such as frequencies and cross tabulation to describe characteristics of respondents, bivariate analysis was also employed to examine relationship among independents and dependents variable. Finally, logistic regression was applied to estimate probability of occurring safe and unsafe behaviors of respondents through control factors and program factors. Simultaneously, LR test was taken advantage to drop unmeaning factors in regression model. Finally, adjust proportional probability technique was used to see clearly the effects from the program components.

3.4 Operational definition of variables.

In this part, the researcher would mention dependent variables included HIV/AIDS knowledge and risk behaviors such as sharing syringe and needles during injecting drug and non-condom use in sexual intercourse that were considered unsafe behaviors among male IDUs who has used drug by injecting during the last 1 month.

In this dataset, 3 new variables were created: using condoms for sexual intercourse, sharing needles and knowledge level. Related to the variable of condom use, there are 3 questions asked to male IDUs as follows: During the past 12 months, have you used condoms when you had sex with your spouse? When you had sex with a female sex worker? When you had sex with a casual sex partner? In each question, those who answered that they used condoms *every time* were coded as *using condom* because it is interpreted as a safe behavior, meanwhile other cases such as used condom *almost every time, half of the time, sometimes and never* that should be coded as *not use condom* because although they are different level in condom use, their inconsistent behavior is possible to situate them in HIV risk. Four variables were combined into one variable of *condom use* for sexual intercourse.

For the *sharing needles* variable, there are two risk behaviors for sharing in this study. One is receiving needles and the other is giving needles. For each question, those who answered that they *never* receive/give needles were coded as *not sharing needles* because it is safe behavior, meanwhile other cases that respond *every time, almost of time, half of the time, sometimes* should be coded as *sharing needles* because they are at different levels risk behavior. Two variables were combined into one variable of *sharing needles*.

In the case of knowledge score, there are 17 questions asked for knowledge about HIV/AIDS. If male IDUs answered one question correctly, it was scored as 1 point; the highest score possible is 17 points and the lowest is 0 point. Afterward, good or poor knowledge was based on their score to give them.

Table 3-2: Operational Definition of Variables

Variable Name	Operational Definition	Level of Measurement
Independent variables		
Age	Age of male IDUs at time of survey. It is used as a continuous variable with values from 15 to 30.	Ratio
Education level	Highest level of education of male IDUs at time of baseline survey	Ordinal 0 = Illiterate 1 = Primary school 2 = Secondary school 3 = High school or higher
Marital status	Marital status of IDUs at time of baseline survey	Nominal 1 = Single 2 = Married 3 = Divorced or separated
Ethnicity	The ethnic group which respondent belong to	Nominal 1 = Kinh 2 = Thai 3 = Khome 4 = H'mong
Occupation	Work/job which can help respondents earn money for their life	Nominal 1= Stationary employment 2= Mobile employment 3= Attend school 4= Unemployment 5= Others.
Mass media exposition	Frequency of getting information from newspaper, radio, and TV of IDUs during the last 4 weeks	Ordinal 1 = Everyday 2 = At least once a week 3 = Less than once a week 4 = No access
Drug treatment in rehabilitation center	Drug users who have ever stayed compulsorily or voluntarily in rehabilitation center for drug treatment	Nominal 0 = No 1 = Yes
HIV information exposition	Information of HIV that IDUs can get from IEC material provided by the program	Nominal 0 = No 1 = Yes
HIV prevention exposition	Condoms and clean syringes and needles which IDUs freely get from peer educators of the program	Nominal 0 = No 1 = Yes

Table 3-2: Operational Definition of Variables (Cont.)

Variable Name	Operational Definition	Level of Measurement
Dependent variables		
Knowledge of HIV/AIDS	It is knowledge level of HIV/AIDS prevention among male IDUs at the time of interview and will be calculated by total score of 17 questions. Given knowledge would be based on their score.	Nominal 0= Poor 1= Good
Sharing needles with other IDUs in drug injection	Action of an injecting drug user who is receiving or giving needles with other IDUs during the last 1 month.	Nominal 0 = No sharing 1 = Sharing
Using condom for sexual intercourse	Action of an injecting drug user who has sexual intercourse with using condom with sexual partners during the last 12 months.	Nominal 0 = Not use condom 1 = Use condom

CHAPTER IV
RESULTS AND DISCUSSION

4.1 Descriptive analysis.

The results of descriptive analysis with frequency showed basic demographic characteristics of respondents including age, education, ethnic group, martial status and occupation in Kyson. Furthermore, the researcher also summarized characteristics of drug use among IDUs and risk behaviors as well as factors which related to their risk behaviors such as assessing mass media and experiencing rehabilitation center in this area. Finally, the results also marked basic information about prevention program. Those results drew a comprehensive picture about IDU population in the research area. First of all, Table 4-1 shows demographic characteristics of respondents.

Table 4-1: Demographic characteristics of respondents (N=326)

Information		Frequency	Percentage
Age	Under 15	11	3.4
	15-19	118	36.2
	20-24	147	**45.1**
	25 and over	50	15.3
Ethnic group	Kinh	161	**49.4**
	Thai	73	22.4
	Khome	66	20.3
	H'mong	26	8.0
Education	Illiterate	22	**6.8**
	Primary school	129	39.6
	Secondary school	161	49.4
	High school and higher	14	**4.3**
Occupation	Stationary employment	52	16.0
	Mobile employment	95	29.0
	Attend school	37	11.4
	Unemployed	142	**43.6**
Marital status	Single	197	**60.4**
	Married	99	30.4
	Others (divorced, widowed)	30	9.2

This research focused on young male IDUS who are 15-30 years old, age average is 25, but in reality there are 3.37% of IDUS at age under 15 years old participated in the interviews in hotspots, and major age group is 20-24 years which accounted 45.1%. In terms of ethnic group, although Kinh is a main ethnic in Vietnam, in this area only 49.4% respondents are Kinh, other groups included 22.4% Thai, 20.2% Khome and 6.8% H'mong. About education of respondents, there are still 6.7% IDUS illiterate and only 4.3% IDUS who have experienced at high school or higher education level. This affected strongly on accessibility of information and HIV/AIDS knowledge of respondents. Regarding occupation and marital status, 43.6% IDUS are unemployment, only 16% of them have a stationary job with monthly salary. There are only 30.4% IDUS got married, major are still single with 60.4%. Those figures are not much different from statistical data of IDU population in Vietnam. Importantly, in this research, demographic characteristics of IDUs have been considered control factors in model to examine effects of HIV/AIDS intervention activities on this population. Continuously, drug use characteristics of IDUS are shown in table 4-2.

Table 4-2: Characteristics of drug use among IDUS (N=326)

Information		Frequency	Percentage
Duration of drug use	Under 3 years	43	16.4
	3-7 years	172	**52.8**
	Over 7 years	101	31.0
Duration of drug injection	Under 3 years	110	33.7
	3-7 years	192	**58.9**
	Over 7 years	24	7.4
Duration of changing from smoking to injecting	Under 1 year	85	**26.1**
	1-3 years	178	54.6
	Over 3 years	63	19.3
Frequency of injection	High	201	**61.7**
	Medium	96	29.5
	Low	29	8.9
Kinds of drugs	Opium	95	29.1
	Heroin	277	**85.0**
	Tranquilizer	149	45.7

The above table of research results indicated that 52.7% IDUS have used drug 3-7 years, time average of drug use is 5 years. Attentively, 16.4% respondents have used drug for under 3 years. This is special group need more concern in their knowledge

and behaviors because many researches emphasized that in the early years of using drug, drug users usually lack of knowledge about drugs, drug usage which easily led to contracting with risky behaviors. Furthermore, duration of drug injection is mainly 3-7 years (58.9%) with averagely 3 years and 26.7% respondents changed from smoking to injecting within 1 year. Surprisingly, 61.6% IDUS injected drug 3 or more than 3 times per day (high level). Those data are quite high comparing with other researches because on the one hand, this research focused on IDUs who usually gathered in the hotspots, on the other hand, opium had been used for a long time in this area before heroin was appeared; this made it possible to change opium use to heroin use. Thus, it is not doubt that although heroin is major drug to be used (85%), opium and tranquilizer were also used widely with 29.1% and 45.7% respectively in this population. In reality, examining characteristics of drug use will help researcher as well as intervention programs define correctly subjects who need to be concerned and implement effectively intervention activities. Therefore, the researchers explored characteristics of those behaviors among IDUs in table 4-3.

Table 4-3: Characteristics of risk behaviors among IDUS (N=326)

Information		Frequency	Percentage
Condom use	Yes	186	57.4
	No	114	**34.6**
	No sex	26	8.0
Sharing syringes and needles	Yes	77	**23.6**
	No	249	76.4
HIV/AIDS Knowledge	Good	207	63.5
	Poor	119	**36.5**
Mass media exposition (TV/radio)	Everyday	92	28.2
	At least once a week	165	50.6
	Less than once a week	48	14.7
	Never	21	6.4
Rehabilitation center	Yes	86	**26.2**
	No	240	73.9

The results from the above table expressed that there is still a numerous of IDUs who not used condom in sexual intercourse and specially, high percentage of IDUs who shared condom in drug injection, these percentage are respectively 34.6% and 23.6%. Those figures are really much higher than other researches from different

areas such as in Longan (32.5% and 18.6%), in Haiphong (35.7% and 13.4%). Clearly, these data alarmingly raised concerns for this area. In addition, the limitation of IDUs's knowledge about HIV/AIDS (63.5% people who have good HIV/AIDS knowledge) easily put them on high risk situation to HIV/AIDS. Understandingly, from the research results, only 28.2% respondent exposed mass media such TV or radio usually (everyday) and 26.15% people who have ever experienced in drug treatment or rehabilitation center. Thus, it is necessary to concern on IDUs in Kyson. In reality, there were prevention activities implemented such behavior change communication and harm reduction. This table showed characteristics of basic activities from SHAPC project.

Table 4-4: Frequency of IDUS by intervention activities (N=326)

Activities		Frequency	Percentage
Know about the program provided clean syringes and needles	Yes	225	**69.0**
	No	101	31.1
Know about the program provided condoms	Yes	220	**67.5**
	No	106	32.5
Know about the performance for communicating about HIV/AIDS prevention	Yes	234	**71.7**
	No	92	28.3
Receive IEC material from the program	Yes	245	**75.2**
	No	81	24.8
Receive syringes and needles from peer educators of the program	Usually	118	52.5
	Sometime	85	37.8
	Never	22	9.8
Receive condoms from peer educators of the program	Usually	132	60.0
	Sometime	60	27.3
	Never	28	12.7
Exposure with the program provided information by IEC materials	Yes	213	**65.3**
	No	113	34.7
Exposure with the program provided condoms/syringes and needles by peer educators	Yes	201	**61.8**
	No	125	38.3

The research results revealed that percentage of respondents knew about the program provide syringe/needle and condom are respectively 69% and 67.5%. Furthermore, there are 75.1% people who have ever received IEC materials provided by the program and 71.7% who have ever experienced in participation in performance

of HIV/AIDS communication of program. Moreover, percentages of people who exposed with the programs provided condom, syringe, needle and information are respectively 65.3% and 61.7%. Although those numbers are not high comparing with results of other programs, it is really a great attempt of program in this remote area.

4.2 Bivariate analysis.

As mentioned, bivariate analysis is employed in this research to aim at exploring relationship between dependent variables included HIV/AIDS knowledge, condom use and sharing needle and independents variables as exposure to the program. Those variables will be also used to estimate detail probability of event. Yet, before looking at the results of that analysis, examining this following table of research results which showed distribution of those dependent variables by independent variables including demographic characteristics (table 4-5), accessing mass media, drug treatment in rehabilitation center and program variables such as exposing to the program providing information and freely clean syringe/needle and condom (table 4-6), will understand more about distribution of knowledge and risk behaviors among IDUs in the sample.

Table 4-5 presented percentage of distribution of knowledge and risk behaviors by demographic characteristics including age, ethnic group, education, marital status, and occupation of IDUs. In terms of age, high percentage of poor HIV/AIDS knowledge at age group under 15 and over 25 are 54.4% and 48.0% respectively. This led to high percentage of IDUs who shared syringe and needle in those age groups (27.3% and 30.0%). Non-use condom at group age of 20-24 and age less than 15 accounted highly percentages with 40.4% and 66.7%. The difference is clearer among ethnic groups, high percentage in poor knowledge and risk behaviors were distributed among groups of Thai, Khome, H'mong. Those percentages at Kinh group are much lower with 29.2% poor knowledge, 24.8% sharing needle and 37.2% non-use condom. In contrast, low and lower percentage of poor knowledge and risk behaviors of IDUs who were at high and higher education level; specially highest percentage of poor knowledge and risk behavior of those who were at illiterate (45.4% poor knowledge, 40.9% sharing needle and 40.8% non-use condom in sexual intercourse). From the aspect of occupation, there are not any differences among groups of occupation in knowledge and risk behaviors. However, from the aspect of marital status, high

percentage of poor knowledge was distributed at single group and this group also got high percentage of non condom use (41.1% poor knowledge and 39.8% non-use condom). Continuously, table 4-6 revealed number and percentage distribution of poor knowledge and risk behaviors by program variables.

Table 4-5: Percentage distribution of HIV/AIDS knowledge and risk behaviors of IDUS by demographic characteristics

Independent Variables		HIV/AIDS knowledge			Sharing syringes/needles			Condom Use		
		Poor	*Good*	*Total*	*Yes*	*No*	*Total*	*Yes*	*No*	*Total*
Age	Under 15	54.5	45.5	100	27.3	72.7	100	33.3	66.7	100
	15-19	34.0	66.0	100	21.2	78.8	100	63.0	37.0	100
	20-24	33.3	66.7	100	23.8	76.2	100	59.6	40.4	100
	25 and over	48.0	52.0	100	30.0	70.0	100	72.0	28.0	100
Ethnic group	Kinh	29.2	70.8	100	24.8	75.2	100	62.8	37.2	100
	Thai	53.4	46.6	100	23.3	76.7	100	67.7	32.3	100
	Khome	31.8	68.2	100	24.2	75.8	100	62.7	37.3	100
	H'mong	46.2	53.8	100	19.3	80.7	100	46.2	53.8	100
Education	Illiterate	45.4	54.6	100	40.9	59.1	100	57.2	42.8	100
	Primary school	33.3	66.7	100	24.8	75.2	100	60.2	39.8	100
	Secondary school	39.2	60.8	100	21.7	78.3	100	62.2	37.8	100
	High school / higher	21.4	78.6	100	14.3	85.7	100	92.3	7.7	100
Occupation	Stationary employment	32.7	67.3	100	23.1	76.9	100	67.4	32.6	100
	Mobile employment	39.0	61.0	100	24.2	75.8	100	61.4	38.6	100
	Attend school	29.7	70.3	100	21.6	78.4	100	69.7	30.3	100
	Unemployed	38.0	62.0	100	24.6	75.4	100	59.2	40.8	100
Marital status	Single	41.1	58.9	100	24.4	75.6	100	60.2	39.8	100
	Married	26.3	73.7	100	24.2	75.8	100	64.7	35.3	100
	Others (divorced, separated, widowed)	40.0	60.0	100	20.0	80.0	100	66.7	33.3	100

In table 4-6, the results of distribution of IDUs by accessing mass media, high percentage of poor knowledge located at groups who were less exposed to TV and radio such as 54.4% at group who accessed mass media less than once a week and 42.8% at group who never accessed. However, percentage of sharing needle and condom non-use are not different among those groups. Regarding to mass media, experience of drug treatment at rehabilitation centre is also a factor which affected knowledge and behaviors of IDUs. In this research, it is clear that percentage of poor knowledge at group who has ever treated in rehabilitation was lower than group who has not (46.0% and 33.0% respectively). Yet, the results have shown great difference in behavior of sharing needle and condom use between two groups. Importantly, high percentages of poor knowledge and risk behaviors were distributed at groups who were not exposed to the program which provided information and freely syringes/needles and condoms. Furthermore, the results of Chi square were shown in table 4-6 to prove clearly the difference.

The results indicated that there are statistical significant differences in knowledge of people who exposed with the prevention program and those who did not ($p<0.001$). In table 4-6, 64.8% poor knowledge was distributed at group who did not expose to the program while there is only 19.0% poor knowledge in group who exposed to the program. Similarly, their behaviors in sharing needle and condom use, high percentage in group who did not expose the program were also shown. Interestingly, the results of Chi square showed the statistical significant differences in behaviors of sharing needle and condom use between those exposed and did not expose activities ($p<0.001$ and $p<0.01$). Briefly, those results play important roles in analyzing logistic regression. Certainly, they partly presented effects of prevention program on HIV/AIDS knowledge and risk behaviors among IDU population in this area.

Table 4-6: Percentage distribution of HIV/AIDS knowledge and risk behaviors of IDUS by independent variables

Independent Variables		HIV/AIDS knowledge			Sharing syringes/needles			Condom Use		
		Poor	*Good*	*Total*	*Yes*	*No*	*Total*	*No*	*Yes*	*Total*
Mass media exposition TV/radio	Everyday	28.3	71.7	100	27.2	72.8	100	37.8	62.2	100
	At least once a week	35.1	64.9	100	25.4	74.6	100	38.3	61.7	100
	Less than once a week	54.2	45.8	100	16.7	83.3	100	28.6	71.4	100
	Never	42.8	57.2	100	14.3	85.7	100	47.6	52.4	100
Rehabilitation center	Yes	46.0	54.0	100	20.0	80.0	100	39.4	60.6	100
	No	33.0	67.0	100	25.0	75.0	100	36.8	63.2	100
Exposure with the program provided information	Yes	21.6	78.4	100	19.7	80.3	100	30.7	69.3	100
	No	64.6	35.4	100	31.8	68.2	100	54.0	46.0	100
	Chi square	58.91***			5.98**			12.81***		
Exposure with the program provided condom/syringe and needle	Yes	19.0	81.0	100	15.4	84.6	100	28.4	71.6	100
	No	64.8	35.2	100	37.6	62.4	100	53.6	46.4	100
	Chi square	70.04***			20.82***			18.86***		
HIV/AIDS Knowledge	Poor				44.5	55.5	100	54.4	45.6	100
	Good				12.1	87.9	100	29.0	71.0	100
	Chi square				43.74***			18.64***		

Note: *** Significant at 0.01 level* *** Significant at 0.01 level*

4.3 Effects of program on HIV/AIDS knowledge and behaviors of IDUs.

4.3.1 Results of binary logistic regression.

In this research, the researcher employed logistic regression to estimate effects of prevention activities on knowledge and behaviors of IDUs. Because dependent variables are mostly dichotomous variables, binary logistic regression has been used. Furthermore, those relationships were considered with controlling of demographic characteristic of IDUs including age, ethnic group, education, occupation, material status and other related factors such as accessing mass media and drug treatment in rehabilitation center. In addition, LR test was also employed to examine explanatory power on the model. Finally, adjust proportional probability was also used to see specific effects of each component of program on dependent variables.

Regarding to analysis, there were two models to be applied in this research. The first model considered knowledge and behaviors of IDUs with control factors and program activities (model 1A, 1B, and 1C). The second model was added knowledge about HIV/AIDS of respondents to see effects on behaviors (model 2A and 2B). Based on these results, estimation of occurring behavioral event among IDUs would be conducted, so that the researcher could examine the effects of prevention activities on IDU population. Those results were considered at significant levels of 0.01, 0.05 and 0.1. Results of Odd Ratio have been shown in the following table 4-8:

Table 4-7: The results of binary logistic regression

Independent variables	Model 1			Model 2	
	Dependent variables				
	Good knowledge	Sharing needles	Condom use	Sharing needles	Condom use
	A Exp (B)	B Exp (B)	C Exp (B)	A Exp (B)	B Exp (B)
Age					
< 15 (ref)					
15-19	1.935*	1.498	3.090*	2.452*	2.202*
20-24	1.472*	1.520	3.178*	2.265*	2.365*
>=25	0.930	1.972*	6.610**	2.283*	5.748**
Ethnic group					
Kinh (ref)					
Thai	1.025	0.848	1.563*	0.846	1.549
Khome	1.311	1.127*	1.023	1.238*	1.008
H'mong	1.493	0.412	0.320	0.626	0.266

Table 4-7: The results of binary logistic regression (Cont.)

Independent variables	Model 1			Model 2	
	Dependent variables				
Education					
Illiterate (ref)					
Primary	1.615*	0.452	0.958	0.393	0.938
Secondary	1.382	0.341	1.033	0.258*	1.066
>= High school	1.995**	0.332**	6.077***	0.238**	6.827***
Occupation					
Unemployment (ref)					
Stationary job	1.255	0.847*	1.425*	0.417*	1.353
Mobile job	1.167	0.880	1.099	0.978	1.052
Attend school	1.487	1.391	1.317	1.765*	1.282
Marital status					
Single (ref)					
Married	1.559	0.480*	0.179*	0.315*	0.148**
Divorced or separated	0.851	0.546	1.399*	0.379	1.507**
Mass media exposure					
Never (ref)					
Everyday	4.188**	0.342*	1.444*	0.162**	3.272**
At least once a week	4.067*	0.660	0.485	0.341	1.204
Less than once a week	2.944*	0.757	1.300	0.436	1.116
Rehabilitation centre					
No(ref)					
Yes	1.347*	1.821*	1.051	1.789*	1.006
Exposure with the program provided information by IEC materials					
No (ref)					
Yes	3.285**	0.125**	2.419**	0.207***	1.910**
Exposure with the program provided needles and condoms by peer educators					
No(ref)					
Yes	7.528***	0.025***	4.692**	0.031***	3.190**
Knowledge HIV/AIDS					
Poor (ref)					
Good				0.150***	2.513**
LR chi2	81.62	46.32	43.14	78.60	52.49
P value	p<0.001	p<0.001	p<0.01	p<0.001	p<0.001
R square	0.190	0.129	0.108	0.219	0.132

*Note: * Significant at 0.10 level ** Significant at 0.05 level *** Significant at 0.01 level*

Table 4-7 revealed that in all models, independent variables have totally significant effects on probability of occurring events which are dependent variables including HIV/AIDS knowledge, sharing needle and condom use ($p<0.1$, $p<0.05$ and $p<0.01$), excepted three independent variables in model 1A (ethnic group, occupation and marital status) and model 2B (ethnic group, occupation and mass media). The results did not show significant effects of those variables on HIV/AIDS knowledge and behavior of condom use among IDUs.

Firstly, we will look at the results of model 1 which considered knowledge and behaviors of respondents and program variables with controlling of individual factors. In the model 1A, the results showed control variables including age, education, mass media and rehabilitation had significant effects on the model ($p<0.10$). Emphatically, accessing mass media increased probability of good knowledge 4.2 times at people who usually access TV or radio comparing with those who do not ($p<0.05$). Similarly, IDUs who have ever experienced drug treatment in rehabilitation center were 1.4 times more likely to have good knowledge than those who have not ($p<0.10$). Furthermore, the results presented that people who were exposed the program providing information and freely syringe/needle and condom are respectively 3.3 times and 7.5 times more likely to have good HIV/AIDS knowledge than those who were not ($p<0.01$). However, there was not enough evidence to conclude effects of independent variables namely ethnic group, occupation and marital status on probability of good knowledge in model 1A. Thus, LR test has been employed to examine their explanatory power on this model (table 4-8) and to decide whether or not drop those variables from the model. Generally, model 1A presented significant effects of the program on knowledge of IDUs ($p<0.001$). It is no doubt that exposure to activities of the program are more likely to increase HIV/AIDS knowledge of IDUs.

In the model 1B, behavior of sharing syringes and needles is also different among IDU group. People who were exposed the program providing information is 87.5% less likely to share syringes and needles when injected drug than those who were not. Effectively, people who were exposed the program provided syringes and needles are 97.5% less likely to share syringe and needled than those who were not ($p<0.01$). Clearly, receiving freely clean syringes and needles from this program facilitated IDUs practice safe behavior. Similarly, in the model 1C, behavior of

condom use is also more likely to occur among people who were exposed the program than those who were not. Particularly, people who received freely condom are 4.7 times more likely to use condom in sexual intercourse than others who did not ($p<0.01$). In addition, in the model 1B and 1C, all other control factors significantly impacted on risk behaviors of IDUs such as education. From the result, IDUs who experienced at high school or higher education level are 66.8% less likely to share syringe/needles and 6 times more likely to use condom than those who were not ($p<0.01$). Attentively, in model 1B, the result showed that IDUs who have ever experienced drug treatment in rehabilitation center are 1.8 times more likely to share needle in drug injection. In order to explain for this result, some researches said that sharing needle after drug treatment in rehabilitation resulted from either sharing drug reduces dose of drug to prevent "shock" after long time non-use drug or habit of sharing drug and needle in center made IDUs feel unnecessary to keep themselves and easily to share with others after leaving center (Bazant, 2002; Des Jarlais, 2007). Regarding to model 1B, the result in model 1C showed age of respondent also strongly affecting on condom use behavior of respondents. People who are at age 25 and over are 6.6 times more likely to use condom than others who are less years. This was partly explained by frequency of having sex in this age group which is higher than other groups. Totally, the results from model 1A, 1B and 1C proved that program activities have strong effects on HIV/AIDS knowledge and risk behaviors of IDUs in Kyson.

Secondly, we will see the results of model 2 in which HIV/AIDS knowledge was added to see its effects on risk behaviors of research subjects. In the model 2A which considered behavior of sharing needles, demographic characteristics and other related factors, the results indicated that IDUs who had good knowledge are 85% less likely to share syringe and needles in drug injection. Similarly, IDUs who were exposed the program providing information and free needles are respectively 76.3% and 97% less likely to share syringes and needles during drug injection ($p<0.001$). This significant difference presented that outreach intervention activities from the program reduced chance to engage in sharing needle behavior of IDUs. Again, in the model 2B which analyzed condom use behavior and knowledge and program factors with control variables, the results also showed difference in probability of using condom in sexual intercourse among IDUs. It is indicated that people who had high knowledge and

exposed the information program are twice as likely to use condom than others who did not, and people who received free condom from program are 3.2 times more likely to use condom than those who did not ($p<0.01$). Conclusively, program activities such as providing IEC material, free needle, syringe and condom really have positive effects on behavioral changing of IDUs who exposed to those activities.

In the model 2A, the results showed significant effects of demographic characteristics, mass media exposure, and drug treatment in rehabilitation center on the behavior of sharing needles. From the result, IDUs who were exposed mass media everyday are 83.8% less likely to share needles than those who were never exposure ($p<0.01$). In contrast, IDUs who have ever treated drug in rehabilitation center are 1.8 times more likely to share needles in drug injection more than those who have not ($p<0.05$) similar to the result in model 1B. It is no doubt that mass media exposition and drug treatment have some effects on sharing needle behavior of IDUs. Additionally, demographic characteristics namely age, ethnic group, education, occupation, and marital status also significantly affected on sharing needles behavior of IDUs ($p<0.05$ and $p<0.01$). Specifically, in terms of education, the results revealed that IDUs who were at high education level such secondary and high school are 74% to 78.5% less likely to share syringe and needles than others who were at illiterate level ($p<0.01$). From the aspects of occupation, IDUs who had stationary job are 28.3% less likely to share syringes and needles than those who were unemployment ($p<0.05$). This is understandably explained by knowledge and financial issue. It is believed that IDUS who had good job and stable salary will care their safety in drug; as well as they can afford for buying clean syringes and needles in any context (Hien, 2002; Kulsudjarit, 2004). Interestingly, this would explain why component of providing freely clean syringes and needles by peer educators have more effects on changing behaviors of IDUs than providing only information by IEC material. Many opinions from IDUs said that they were not only receiving free clean syringe and needles but also getting information and instruction directly from peer educators which made them trust on the program and try to change their risk behaviors. Moreover, the program providing clean needles met their demands of sterile instruments and made them possible to practice safe behavior. Clearly, using peer educator to consult and provide free needles for IDUs run really well in this program.

The results in the model 2B indicated some other factors which have effects on behavior of condom use of IDUs including marital status, education, and age. Similar to model 1C, once again, high education and high age increased probability of condom use among IDUs at significant level 0.01. Additionally, IDUs's marital status also affected on their condom use behavior. The results showed that people who are married are 85.2% less likely to use condom than those who are single, and people who are at other marital status such as divorced, separated or widowed are 1.5 times more likely to use condom than those who are single ($p<0.05$). In order to explain these, it is reckoned that married people did not usually use condom with their wives because of cultural meaning of condom use. In terms of people who were divorced, separated or widowed, they used condom more often because their sexual demand at their age (under 30) made them possible to have sex with irregular partners or multiple sex partners (Hien, 2002; Minh, 2006). Attentively, in this model, there are three variables which did not show their significant effects on condom use behavior including ethnic group, occupation and drug treatment in rehabilitation center. Thus, those variables would be examined explanatory power in table 4-8. Finally, the results also indicated goodness of the model at significant level of $p<0.01$. Briefly, under controlling of individual factors, the results showed meaningful effects of program factors on the knowledge and behaviors of IDUs in the research area.

4.3.2 Explanatory power of variables on the model.

According to results of logistic regression, 3 variables (ethnic group, occupation and marital status) in model 1A and 3 variables (ethnic group, occupation and rehabilitation) in model 2B did not significantly affect on dependent variables (knowledge and risk behaviors). Therefore, the researcher explored explanatory power of variables on the model to decide whether or not drop those variables. In other words, to examine "newly variable into equation whether it has increased explanatory power to the model or not, otherwise we need to drop because it does not have any influence on Y (independent variables)", LR (log likelihood ratio) test was calculated by log Lu (log likelihood function of larger model) and log Lr (log likelihood function of smaller model). Value of LR calculate would be compared with Value of Chi square in statistical table which equals 3.84 at df=1. In the following table, the results of LR test which were shown included results of examining three variables in model 1A (ethnic group, occupation and marital status) and other three variables in model 2B

(ethnic group, occupation and drug treatment in rehabilitation center). It is noted that variables in small model 1A included age, education, mass media, rehabilitation center, and program variables. In small model 2B, there were age, education, occupation, marital status mass media, and rehabilitation center and program variables.

Table 4-8: The results of LR test to examine explanatory power of variables

Dependent variables	Model	LR calculation	Chi -table
HIV/AIDS knowledge (Model 1)	***Small model1***		3.84
	1.1 Add Ethnic group in small model 1	0.458	
	1.2 Add Occupation in small model 1.1	**4.792**	
	1.3 Add Marital status in small model 1.2	2.162	
Condom use (Model 2)	***Small model 2***		3.84
	2.1 Add Ethnic group in small model 2	1.332	
	2.2 Add Occupation in small model 2.1	**4.408**	
	2.3 Add Rehabilitation in small model 2.2	**6.698**	

The table of calculation indicated that in the model 1A, occupation is only variable had result of LR calculation higher than Chi table (3.84). It means that although this variable did not have significant impacts on dependent variable (HIV/AIDS knowledge) in logistic model, it still has explanatory power on the model. Thus, it is impossible to drop this variable from the model. Keeping this variable in model would make the model stronger; simultaneously, logistic model may also catch up all related factors. In reality, occupation could not directly affect on HIV/AIDS knowledge of IDUs, but it might increase accessibility of mass media of respondent. Consequently, it increased explanatory power of the model. In contrast, the LR calculation of ethnic group and marital status were much lower than Chi table; thus we can drop those variables in the model 1A without concern about their effect on the model.

Regarding model 2B, there were two variables to be occupation and drug treatment in rehabilitation center which had LR calculation much higher than Chi table, 4.40 and 6.70 respectively. Therefore, it is necessary to put those variables in the model to examine condom use behavior of respondent because of their explanatory power. In reality, some researches said that stable and good salary from stationary job

will pave the way for user to access condom. Finally, those variables should not be dropped from the model 2B. However, LR calculation of ethnic group is lower than Chi table; this allowed to run logistic model without that variable and removed concerns about its effects on the model. Overall, the model 1A will drop two variables as ethnic group and marital status because of their less explanatory power in the model. In terms of model 2B, variables of occupation and rehabilitation will be kept in the model to analyze their effects on other variables.

4.4 Different effects of program components.

In order to see the detail of probability of occurring risk behaviors among IDUs, the researcher employed adjust proportional probability. Simultaneously, based on the different probabilities of good HIV/AIDS knowledge and safe behaviors in each component, we would define the component which has stronger effects on knowledge and behaviors of IDUs. The results in table 4-9 showed probability of occurring behavioral events among group who were exposed the program.

Table 4-9: Probability of risk behaviors by program variables

Dependent variables		Exposure to the program provided information	LR test	Exposure to the program provided condom, and syringes/needles	LR test
HIV/AIDS knowledge	Good	66.8	9.34**	81.4	11.08***
	Poor	35.8		36.5	
Sharing needles	Yes	3.4	13.82***	6.0	20.5***
	No	38.5		64.2	
Condom use	Yes	67.4	5.07*	83.5	7.91**
	No	43.1		36.7	

*Note: * Significant at 0.10 level ** Significant at 0.05 level *** Significant at 0.01 level*

In terms of HIV/AIDS knowledge of IDUs, the result indicated that among IDUs who were exposed to the component which provided information by IEC materials, there were 66.8% having high knowledge and 35.8% having poor knowledge ($p<0.01$). Those figures are much lower than the ones among IDUs who were exposed the component which provided free condoms and syringes/needles, 81.4% and 36.5% respectively. This different presented stronger effects on HIV/AIDS knowledge of IDUs of the component run by peer educator more than the one run by

IEC materials. Regarding sharing needle behavior, it is very significant difference in LR test between probability of IDUs who shared needles and did not share among IDUs who were exposed to both of components ($p<0.01$). However, when comparing between two program components, the results marked that probability of non-sharing needles among IDUs who were exposed to the component which provided the free syringes/needles is 2 times higher than its among IDUs who were exposed to the component which provided information (64.2% and 38.5% respectively). Similarly, the research results also revealed difference probabilities of condom use behavior between people who were exposed to the component provided information by IEC material and those who were exposed the component provided free condoms. From the aspects of exposure the component which provided information by IEC material, 67.4% IDUs probably used condom and 43.1% improbably use condom ($p<0.1$). Meanwhile, among IDUs who were exposed the component which provided free condoms by peer educators, probability of condom use is 83.5% and non-condom use is 36.7% ($p<0.05$). Clearly, both of risk behaviors were affected strongly by the component which provided free syringes/needles and condoms by peer educators. In other words, the component run by peer educators has more effects on HIV/AIDS knowledge and risk behaviors of IDUs than the one run by IEC materials only. This analysis helped stakeholders come up with their expanding intervention activities which involved in peer educators.

In this research, the researcher also considered relationship between HIV/AIDS knowledge and risk behavior. The results of adjust proportional probability really supported for natural relation between knowledge and behavior which is emphasized that the higher knowledge is, the safer behaviors are. The research results showed that among IDUs who had good knowledge, probability of sharing needles is only 10.3%, meanwhile this number of IDUs who had poor knowledge is 43.2%. Similarly, probability of condom use is 71.4% among good knowledge people but among poor knowledge people, it is 49.7% ($p<0.01$). It is clear that it is necessary to improve awareness about HIV/AIDS for not only high risk group as IDUs but also general population in order to reduce risk behaviors to HIV/AIDS.

CHAPTER V
CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion.

This research examined the effects of outreach activities of HIV/AIDS prevention program on HIV/AIDS knowledge and risk behaviors of young male IDUs in Kyson, Nghean, Vietnam. In this research, dependent variables were HIV/AIDS knowledge, sharing needles and condom use and independent variables are exposure the program provided information and freely clean syringe/needles and condom. Importantly, those relationships would be analyzed with control factors to be demographic characteristics, mass media exposure and experience of drug treatment in rehabilitation center of IDUs. Binary logistic regression has been employed to analyzed and estimate probability of occurring behavioral events.

The major research results showed that IDUs who were exposed to intervention activities of program are from 2 to 7 times more likely to have good HIV/AIDS knowledge and safe behaviors than those who were not ($p<0.001$ and $p<0.01$). Specifically, in model 1A which considered HIV/AIDS knowledge and program activities with control factors revealed that IDUs who were exposed the program is 3.2 to 7.5 times more likely to have high knowledge than those who were not ($p<0.001$). In this model, other factors such as mass media exposition, drug treatment in rehabilitation center and demographic characteristics had statistical significant effects on probability of higher knowledge among IDUs, except three variables to be ethnic group, occupation and marital status. However, the results of LR test indicated that although occupation variable did not significantly affect on independent variables, it increased explanatory power in the model. Therefore, we keep this variable in model and drop ethnic group and marital status from the model. In terms of behavior of sharing needles in model 2A, all of variables in the model have significant effects on the probability of sharing needles. The results marked that people who were exposed the program are 80% to 97% less likely to share syringes and needles than those who

were not ($p<0.01$). Similarly, behavior of using condom in model 2B, people who were exposed to the program are 2.5 to 3 times more likely to use condom than those who were not ($p<0.001$). However, in model 2B, there were three variables which did not significantly affect on condom use behavior included ethnic group, occupation and drug treatment in rehabilitation center. The results of LR test allowed dropping variable of ethnic group and kept occupation and drug treatment in the model because of their increasing explanatory power in the model. Attentively, in model 2 which added HIV/AIDS knowledge of respondent helped the researcher examine the relationship between knowledge and risk behaviors. The result indicated that people who had high knowledge are twice more likely as to contract with safe behaviors than others who had poor knowledge ($p<0.001$). Overall, the research hypothesis which reckoned that young male IDUs who were exposed to prevention program activities (providing HIV/AIDS information, free syringes/ needles and condom), would be more likely to have higher knowledge and engage in safer behaviors than those who were not, was accepted. So, it means that the outreach intervention activities have strong effects on HIV/AIDS knowledge and risk behaviors (sharing needles and condom use) of young male IDUs in Kyson.

In order to see clearly the effects of program activities on HIV/AIDS knowledge and risk behaviors of IDUs and determine different effects of program components, this research employed adjust proportional probability. The results showed that probability of having good knowledge among IDUs who were exposed to the program is 67-82%, and probability of poor knowledge among them are low ($p<0.01$). Similarly, probability of sharing syringe and needles among people who were exposed to the program is 3.4-6.0% that is much lower than 38-64% of them. Certainly, probability of condom use is 84% among people who were exposed and only 36% non use condom among them. However, when comparing between two program components, the results indicated that percentage of IDUs who had good knowledge and engaged in safer behaviors among IDUs who were exposed to the component provided syringes/needles and condoms by peer educators were much higher than those among IDUs who were exposed to the component which provided information by IEC materials. Definitely, this significant difference presented that the component which provided clean syringe/needles and condom by peer educators had stronger

effects on HIV/AIDS knowledge and risk behaviors of young male IDUs than the component which provided only HIV information by IEC materials.

5.2 Recommendations.

5.2.1 For HIV/AIDS programs in Kyson.

Firstly, the results of the study will advocate policy makers and stakeholders in understanding the comprehensive situation of IDUs and providing more effective and practical supports for prevention programs to reduce impacts of HIV/AIDS epidemic among this group in Kyson as well as throughout Vietnam. They can even facilitate to the integration of state program with HIV program in order to increase the effectiveness of these programs.

Secondly, there is a clear significant effect of the program provided information and free syringe/needles on sharing needles among male IDUs. Thus, this program should strengthen those activities to disseminate and encourage IDUs, especially young IDUS to access clean needles and information about not only HIV/AIDS but also this prevention program. Particularly, syringes and needles provide program should be promoted through multi-channel such as newspaper, radio, and TV to gain support and to mobilize all community members to participate in programs of HIV/AIDS intervention. This movement, of course, will reduce stigma and discrimination towards to IDUs and people living with HIV/AIDS also.

Thirdly, from the results, it is known that peer educators play an important role in harm reduction activities of this program, thus networks of Peer Educators should be set up to target IDUs effectively. Harm reduction programs should include the distribution of clean needles and IEC materials with the involvement of Peer Educators networks, which especially focus on young IDUs and people who are newly cases of drug use.

Fourthly, BCC campaign in this program (music show, competition among male IDUs…), IEC activities on harm reduction, HIV/AIDS prevention, delivering IEC materials (leaflet, booklet, flipchart,…) should be conducted but note that IEC materials have to be designed suitably to male IDUs because nearly 6.7% of male IDUs are illiterate and many ethnic groups in this community.

Finally, it is very important to establish an M&E system for projects from the commune to the provincial level to ensure that IDUs can access and use clean needles effectively in project sites as well as to integrate this project with national HIV/AIDS prevention programs as well as other HIV projects to support and share experiences with each other.

5.2.2 For further research.

It is necessary to conduct next researches with bigger sample size to represent for IDU population in Kyson and Vietnam. Additionally, a big sample size may increase usefulness of logistic analysis and results of evaluation are possible to be applied for other program.

Moreover, the next studies should discover more information from respondents and stakeholders in program to analyze further factors which contribute to effectiveness of intervention activities in the program

Finally, it is very important to maintain and follow projects by an M&E system in order to know effects and relationships between risk behavior of sharing needles, using condom and HIV status as well as to assess the impact of projects that may reduce HIV prevalence among male IDUs in Kyson in the future.

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BIOGRAPHY

NAME:	Ngo Thi Thanh Huong
DATE OF BIRTH:	October 5, 1982
PLACE OF BIRTH:	Thaibinh, Vietnam
INSTITUTIONS ATTENDED:	Bachelor of Arts (Public Health), 2000-2004, Hanoi Medical University, Vietnam. Master of Science (Gender and Development Studies) School of Environment Resources and Development, 2006-2008, Asian Institute of Technology, Thailand. Master of Arts (Population and Reproductive Health) Institute for Population and Social Research, 2007-2008, Mahidol University, Thailand.
SCHOLARSHIP:	MEASURE (USAID) Evaluation Project Carolina Population Center (USAID)
HOME ADDRESS:	No 20A, Alley 376, Khuongdinh street, Thanhxuan district, Hanoi, Vietnam Tel: (84-4)-8554803 Email: nh.ytcc@gmail.com
OFFICE & POSITION:	Center of HIV/AIDS Research and Training Hanoi Medical University, Vietnam Researcher Tel: (84-4)-5741596 Email: ttaids@hmu.edu.vn