

## **The 2012 Integrated Behavior and Biological Surveillance (IBBS) of HIV, Sexually Transmitted Infections and Associated Risk Behaviors**

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The Thai Ministry of Public Health has implemented HIV surveillance by conducting HIV prevalence survey among key populations, including injecting drug users (IDUs) in 14 selected provinces since June 1989 and has subsequently covered all 76 provinces with the aim to monitor trends of HIV epidemic.

HIV surveillance applies a repeated survey method and the 28<sup>th</sup> round was conducted in 2010. Collected data were used to compare with those from the previous rounds to monitor changes of HIV prevalence. Data were collected from IDU rehabilitation clinics of general hospitals, provincial hospitals, and drug rehabilitation centers by collecting all visited IDU cases in June. If the sample size is less than 10, data collection will be extended until the 15<sup>th</sup> of July. Data from the provinces of more than 20 samples will be used to calculate the median of HIV infection at the national level. Past results have indicated that HIV prevalence among IDUs is in trend of increasing. It was found that in 2007, HIV prevalence was at 25.62% and it was higher in 2009 at 52.38%. However, the data cannot well reflect the trend of the problems due to decreasing number of IDU clients visiting the clinics. It was found that there were very few provinces that had had the sample size of more than 20 cases. Out of 76, there were only 9 – 10 provinces. The numbers of IDUs, their associated risk behaviors and HIV prevalence are crucial for HIV prevention and care programming and evaluation. In addition, the data of those who were not in the treatment process has been relatively limited as this population has substantially shifted their drug use pattern in the past 5 – 7 years from the use of heroin to methamphetamine and benzodiazepine<sup>2</sup>, resulting in a lack of data for HIV prevention and care programming in this particular population.

In 2009, the Thailand MOPH – U.S. CDC Collaboration (TUC) conducted a piloted Integrated Biological and Behavioral Surveillance (IBBS) survey among IDUs by applying the respondent-driven sampling (RDS) in 2 selected provinces of Chiang Mai and Bangkok. This was different from the conventional method by collecting the data from IDU treatment clinics of general hospitals, provincial hospitals, and drug treatment and rehabilitation centers, which was in the surveillance system of the Bureau of Epidemiology, which were found to have a decreasing number of clients. Therefore, such the study was applied to estimate the number of IDUs in the field and to forecast HIV infection trends in the future. The study has applied the RDS method which is appropriate for the hard-to-reach IDU population. The study showed that HIV prevalence was found 24% in Bangkok and that 25.3% of the participants in the study never visited drug treatment clinics. In Chiang Mai, it was found that HIV prevalence was 11% and 66.7% of the participants in the study who never visited drug treatment clinics. It can be perceived that the application of RDS sampling can be a tool to reach out hard-to-reach population, especially to IDUs,

who never visit drug treatment clinics for the reasons of disclosure avoidance, for instance.

As mentioned, in 2010 the Bureau of Epidemiology, Department of Disease Control, Ministry of Public Health collaborated with the Global Fund to Fight AIDS, TB and STIs (GFATM) and incorporated the IBBS, applying RDS method with IDUs in 8 selected provinces in Thailand into the routine surveillance systems so that the data could be further used for HIV prevention and control programming among IDUs.

### **Objectives**

1. To understand HIV and STI situations among IDUs
2. To understand HIV and STI risk behaviors and to assess risks associated with HIV prevalence among IDUs
3. To use data for estimating the number of IDU population

### **Study method**

A cross-sectional survey among IDUs together with the RDS method. would be conducted in 4 selected provinces, including Bangkok, Samut Prakan, Songkhla and Chiang Mai.

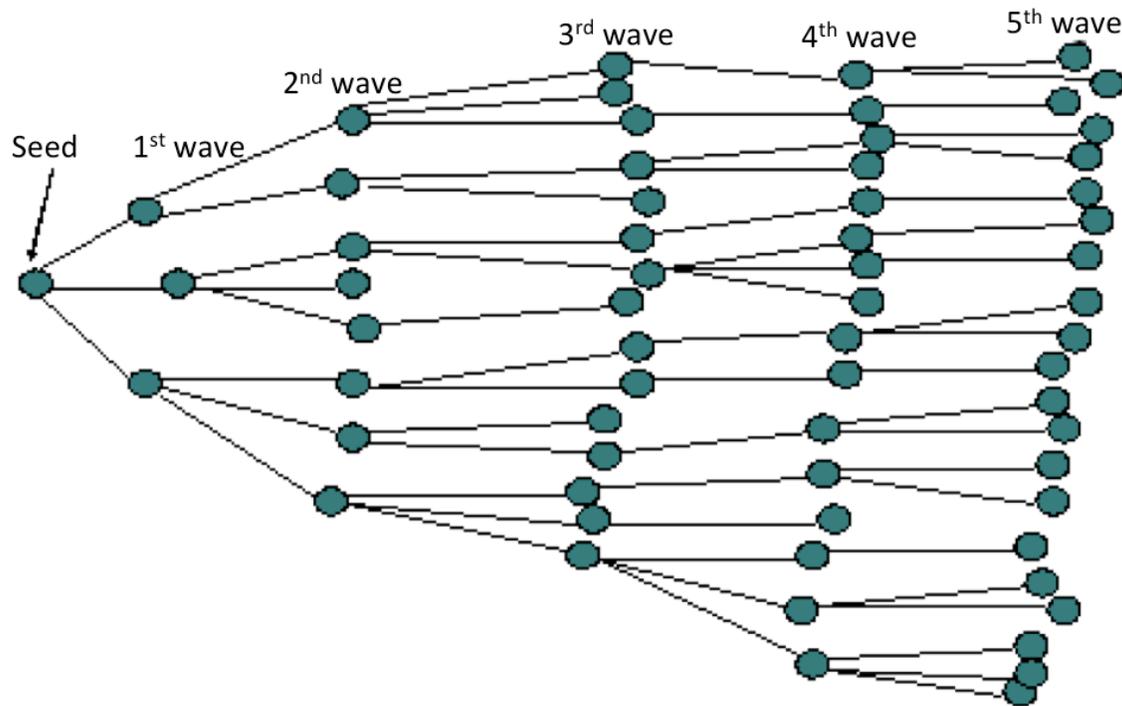
### **Sample size**

According to the estimated HIV prevalence of 38% and the confidence interval of  $\pm 5\%$  ( $\alpha=0.05$ ,  $D_{eff}=2$ ), 270 sampled cases would be needed for each province.

### **Study design**

Participants in this study, namely the injecting drug users were recruited by the Respondent Driven Sampling (RDS) method. The investigator recruited a group of "seeds" from the targeted population. Then, the seeds would recruit their friends using 3 given coupons to pass on to. Only 3 coupons were given to recruited participants so that it is easy to identify the length of the networking chain and the depth of reaching out the target population. When the seeds recruited their peers and then participated in this study project, the first wave would be considered completed. Likewise, the first wave would become the recruiters of their peers for the subsequent waves under this project. (Figure 1)

**Figure 1: Respondent Driven Sampling Method (From seeds to the 5<sup>th</sup> wave)**



### **Qualifications of the participants in data collection**

This study applied the Respondent Driven Sampling (RDS) method as it is difficult to reach and recruit IDUs in participating in this study. 4 IDU participants were therefore recruited as the “seeds” as the 1<sup>st</sup> wave by determining the qualifications to be diversified by sex, age and access to methadone treatment. Detailed qualifications and the number of seeds in each selected site are indicated in Annex 1.

In addition, the qualifications of the participants in the study were determined as follows:

1. 18 years of age and above
2. Self-reported injecting drugs within the past 6 months
3. Have traces of injecting drugs or know about drug injection
4. Reside or work in the sampled sites.

After the completion of data collection, the IDU networks participating in this survey were illustrated in Annex 2.

### **Surveillance Tools**

1. Computer-based screening form was a screening form in which there are questions for potential participants to be recruited in the study
2. A checklist was a recording form for verifying the working steps of researchers at each site. They were requested to sign their names on this checklist to confirm that a participant has undergone through each

particular step of the study, and then it would be filed for final verification by their supervisor.

3. Information sheet about the project and consent form.
4. IT log sheet was a registration form at interviewing site which means that the site researcher is the one who makes a record of the coupon number and the date in this IT log sheet to register the handheld computers and participants in the study on each day.
5. Handheld computers were used for data collection, including general information, drug use behaviors, sexual risk behaviors and access to HIV prevention and alleviation program in IDUs.
6. A log sheet to submit the collected specimens, the research staff or researchers in the field would record the number of the coupons, date and time in the registration to acquire the specimens from the participants in the study project on each day.
7. Rejection log sheet, it is a log sheet for the participants who came back as the second time to collect travel allowance or test result. The participants were also asked about coupon distribution among their friends and if there were cases that rejected the coupon, how many of them rejected and the researcher would record this in the log sheet.
8. Each coupon is composed of 2 parts:
  - First part** is the stub of the coupon.
  - Second part** is the coupon for health check-up.
  - The front of the stub** contains the coupon number, the telephone number of the facility where an appointment is made for the test result and the number of peers which can recruit their peers into the study.
  - The front of the health check-up coupon** includes the coupon number, the telephone number of the facility, office hours, the expiry date of the coupon.
  - The back of the coupon** includes a map of the facility



## Data Analysis

SPSS v. 16.0 and RDSAT (Respondent Driven Sampling Analysis Tool) v. 5.6 were used to analyze the equilibrium and RDS-weighted values, which were adjusted proportionately to the different size of the network and the recruitment pattern classified by the characteristic of interest to yield the values that can be inferred as the proportion of the population network in the study sites.

Logistic regression and ANOVA were used to analyze the factors affecting the behaviors in using clean needles and their condom use with regular partners.

## Results of the HIV and STI Surveillance and Associated Risk Behaviors

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In 2012, the Bureau of Epidemiology conducted an HIV and STI surveillance survey, including associated risk behaviors among injecting drug users by using Respondent Driven Sampling (RDS) method in 4 selected provinces, namely Chiang Mai, Bangkok, Samut Prakan and Songkhla. Details are as follow:

### Part 1: General Information

#### Demographic characteristics

Most injecting drugs users in the selected sites in Chiang Mai and Songkhla were male more than 80%. Considering the age interval, it was found that most IDUs in Bangkok and Songkhla are 25 years of age and above. In Chiang Mai province, there was distribution in all age intervals, especially those who were under 25 years of age at 23%.

In terms of occupational engagement, more than-80% of IDUs in Chiang Mai and Songkhla reported to have jobs and only 59.7% of those in Bangkok and its vicinities reported to be working. This was in accordance with the reports.

Table 1: General information about IDUs in the 2012 Surveillance System

General information	Bangkok and its vicinities (N=321) % (95%CI)	Chiang Mai (N=274) % (95%CI)	Songkhla (N=173) % (95%CI)
Sex:			
Male	84 (79.4 - 88)	80.5 (74.1 - 86.1)	98.6 (97.3 - 99.6)
Female	16 (12 - 20.6)	19.5 (13.9 - 25.9)	1.4 (0.3 - 3.1)
Age:			
Less than 25 years	2.8 (1.4 - 4.6)	23 (16.5 - 30.5)	NA
25 - 35 years	25.7 (21.8 - 32)	47.1 (39.8 - 54.8)	31.5 (21.3 - 40.3)
More than 35 years	71.5 (64.8 - 75.9)	29.8 (21.5 - 37.7)	68.5 (59.1 - 78.7)
Highest education:			
Junior high or above	86.2 (82.1 - 89.7)	57.2 (48.6 - 65.7)	89.2 (83.8 - 93.9)
Primary or below	13.8 (10.3 - 17.9)	42.8 (34.2 - 51.4)	10.8 (6.1 - 16.2)
Marital status:			
Single	50.1 (44 - 55)	33.9 (26.3 - 41.6)	45.9 (36.2 - 54.2)
Separated	21.8 (17.5 - 26.5)	29.1 (21.3 - 36.9)	9.2 (3.7 - 16)
Married/ cohabitated	28.2 (23.5 - 33.9)	37 (29.7 - 45.2)	45.6 (36.3 - 55.6)
Employment:			
Working	59.7 (54.5 - 65.5)	84 (78.3 - 90.1)	87.5 (82 - 92.9)
Not working	40.3 (34.5 - 45.5)	16 (9.9 - 21.7)	12.2 (7.1 - 18)

Income: No income/No answers	-	-	12.5 (8 - 17.2)
Less than 5,000 THB	38.5 (31.8-44.6)	26.2 (19.1-33)	22.5 (15.3-29.6)
More than 5,000 THB	61.5 (55.4-68.2)	73.8 (67-80.9)	65.1 (57.6-73.6)

\* Crude frequency, RDSAT-adjusted not available

## Part 2: HIV and STI prevalence

### HIV infection and Chlamydia

The median of HIV prevalence among IDUs in 3 sites is 23.6 and it was found that Syphilis is highest in Chiang Mai at 5.7%, followed by Songkhla at 1.5 % and Bangkok and its vicinities at 0.6%. (See Table 2)

Table 2: HIV and STI infections

HIV, GC and Chlamydia	Bangkok and its vicinities (N=321) % (95%CI)	Chiang Mai (N=274) % (95%CI)	Songkhla (N=173) % (95%CI)
HIV infection	23.6 (19-28.9)	14.2 (9.5-20.2)	43.8 (34.1-52.8)
Syphilis	0.6 (0.3-1.4)	5.7(1.7-10.9)	1.5 (0.3-4.5)

\* Crude frequency, RDSAT-adjusted not available

## Part 3: Drug injecting behaviors and use of injecting equipment.

Drug injecting behaviors, the median of IDUs more than 85.6% have injected drugs for more than 5 years and used heroin more than any other substances. Use of needles and syringes found the median of most people used new equipment at the latest use at 80%. (See Table 3)

Table 3: Percentage of drug injecting behaviors and use of injecting equipment

	Bangkok and its vicinities (N=321) % (95%CI)	Chiang Mai (N=274) % (95%CI)	Songkhla (N=173) % (95%CI)
Injecting drug use			
≤ 1 year	0.9 (0.2-1.8)	19 (12.8-25.5)	5 (0.4 – 12.2)
> 2-5 years	4.3 (2.3-6.6)	27.4 (20.9-33.3)	9.4 (4.5 – 14.9)
<5 years	94.8 (92.4-96.9)	53.7 (46.5-62.5)	85.6 (77.8 – 92.9)
Substances injecting the past 12 months			
Heroin	78.3 (70.8 – 85.2)	75.2 (67.3 - 82)	99*
Opium	6.9 (4.4 - 10)	7.8 (4.2 – 11.2)	1.6(0.5 – 4.2)
Dormicum	46.7 (40.8 – 53.3)	7 (4.3 – 10.7)	2.8 (0.7 – 5.4)
Methadone	38.9 (33 - 45.3)	9.4 (6.5 – 14.8)	1.4 (0.1 – 2.8)

Amphetamine Methamphetamine	68.2 (63.2 – 74.3) 39 (33.4 – 44.1)	50.1 (43.6 – 57.9) 6.1 (3.5 – 10.4)	18.9 (13.3 – 25.4) 5.7 (2.2 – 10.1)
Used new equipment at the latest use	93.1 (90.3-96.6)	69.7 (60.4-78.6)	80 (69.1-88.5)

\* Crude frequency, RDSAT-adjusted not available

#### Part 4: Sexual behaviors

In the past 12 months, IDUs who reportedly have had sexual intercourse at the highest percentage in Chiang Mai at 74.9%, followed by Bangkok at 66.9% and in Songkhla at 63.6%. The proportion of IDUs who reportedly have ever had sex with commercial sex workers was in Songkhla only 9.4% but the median of mostly with regular partners at 69% and **Non** condom use rate at the latest sex was high at 54% (See Table 4)

Table 4: Percentage of sexual behaviors

<b>Sexual Behaviors</b>	<b>Bangkok and its vicinities (N=321) % (95%CI)</b>	<b>Chiang Mai (N=274) % (95%CI)</b>	<b>Songkhla (N=173) % (95%CI)</b>
Sexual intercourse in the past 3 months	66.9 (60.7-73.5)	74.9 (69.1-81.2)	63.6 (55.6-72.9)
Proportion of sexual partners by type in the past 3 months			
Regular partners	69 (61-78)	60.6 (51.2-69.4)	87.1 (74.8-9.8)
Casual partners	22.8 (15.1-29.9)	39.5 (34.5-48.3)	8 (1.2-15.4)
Commercial sex partners	-	41.6 (32.3-51.9)	9.4 (2.9-20)
Condom use at latest sex with the regular partner	67.9 (59.1-76.1)	46 (35.2-53.5)	38.8 (27.8-54)

\* Crude frequency, RDSAT-adjusted not available

#### Part 5: HIV Knowledge

IDUs who have HIV knowledge would be identified when being asked with 5 questions (Question No. 1 – 5), which are GARP indicators and the correct answers to 5 questions were found highest in Songkhla at 62.8%, followed by Bangkok at 57.1% and Chiang Mai at 40.3%. For the correct knowledge about “whether shared needles and syringes can transmit HIV”, was highest at 94.9% in Songkhla. (See Table 5)

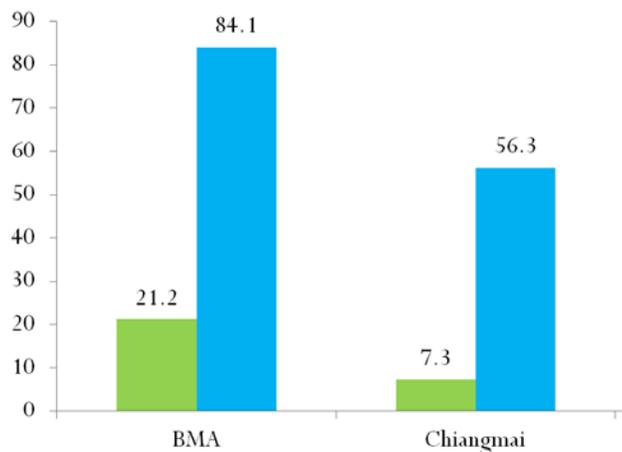
Table 5: Percentage of HIV knowledge

	<b>Bangkok and its vicinities (N=321) % (95%CI)</b>	<b>Chiang Mai (N=274) % (95%CI)</b>	<b>Songkhla (N=173) % (95%CI)</b>
5 Answers to knowledge on UNGASS related questions	57.1 (50.4-64.1)	40.3 (32.3-47.7)	62.8 (51.2-72.9)
1. Having sex with only one faithful, uninfected partner can reduce the risk of HIV transmission	93.2 (88.4-95.9)	81.5 (75.7-86.5)	89.1 (81.5-94)
2. Using condoms can reduce the risk of HIV transmission.	86.1 (80.8-91.5)	87.9 (82.1-92.9)	96.8 (93.2-99.5)
3. A healthy-looking person can have HIV.	94 (91.1-96.9)	81.3 (75.1-87.1)	75.1 (65-83.7)
4. Can Having food with a person living with HIV can get infected.	82.4 (67.4-80.4)	85.3 (79.5-90.4)	96.8 (93.8-98.9)
5. A mosquito can transmit HIV to human beings.	74.3 (67.4-80.4)	64.6 (58.7-72.4)	94.3 (89.2-98.1)
6. Sharing a needle and syringe can get infected with HIV.	82.3 (76.4-87.4)	92.1 (87.9-95.7)	94.9 (86.9-99.3)

\* Crude frequency, RDSAT-adjusted not available

### Part 6: Receiving HIV test

IDUs who have ever blood testing for HIV test and have resulted in previous year at 84.1%, in Chiang Mai at 56.3% and Songkhla at 79.6%.



## Conclusion and discussion

As a result of the Integrated Behavior and Biological Survey of HIV, STI and associated risk behaviors among IDUs by using the RDS method. Bangkok, Samut Prakan, Chiang Mai and Songkhla were respondents participated in this exercise as 321, 274 and 173 respectively. There were both those who were visiting methadone clinics, those who had ever undergone treatment and those who have never undergone treatment. These were the networks reached from the seeds with different criteria and were different from the routine HIV surveillance system of which the people were recruited from health facilities.<sup>1</sup>

Drug injecting behaviors. More than 85.6% have injected drugs for more than 5 years and used heroin more than any other substances. Currently, other heroin substitutes are used for injection because it has become more difficult to find heroin in the market. Many people have shifted to use amphetamine, opium, methadone and dormicum or a combination of those.

Use of injecting equipment .The median of most people bought needles and syringes from general drug stores and used new equipment at the latest use at 80%.

For the median of HIV knowledge, it was found that 57.1% of IDUs who correctly answered 5 questions according to the UNGASS indicators, which reflected that their knowledge was higher than the student group because many of them were getting services at methadone clinics everyday where they met and received consistent knowledge of HIV. 92.1%(median) was found to correctly answer the question on shared needles and syringes.

The history of sexual risk behaviors among IDU was very minimal since most IDUs, which was 69%, have steady partners and have less sexual risks other than sharing needles and syringes.

The median of IDUs more than 79.6% reportedly have ever tested for HIV since many of them ever received or were receiving treatment at methadone clinics, which brought them close to the treatment and counseling service providers, and since they came to get services consistently, therefore they know where to get HIV testing.

### Reference:

1. Bureau of Epidemiology, HIV surveillance in selected sites.