

First-Year Results of the Needle-Syringe Program in Taoyuan

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Abstract

After 2004, the AIDS/HIV epidemic in Taiwan made a large shift. Intravenous drug users (IDUs) now made up a majority group in the AIDS/HIV incidence, exceeding both the homosexual and heterosexual group. The WHO recommends that harm reduction programs should be implemented in order to decrease HIV transmission among IDUs.

This study reports the first-year result of the implementation of the Needle-Syringe Program (NSP) in Taoyuan (July 2006 to June 2007), including details about how the NSP is being implemented and the change in the

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AIDS/HIV incidence before and after NSP.

In the beginning of the NSP, 169 questionnaires were collected from new methadone users for opinions or willingness for participating in the program. Hospitals or community pharmacies were ideal places for NSP but IDUs were very cautious to pick up clean needles/syringes or return used needles/syringes because of fear of being followed or arrested by police. On the aspects of actual implementation of NSP, community pharmacies, public health department/offices and IDU volunteers all performed very well in providing or receiving needles/syringes. Because police officials agreed not to follow or arrest IDUs in NSP areas, the rate of needles/syringes provided or received continued to increase. In June 2007, an average of 7,259 needles/syringes was given out each week and the receive rate was 45%. More importantly, the HIV incidence in IDU has started to drop. The average monthly cases of HIV+ in IDUs was 1.0 (January to June 2004), 11.0 (July to December 2004), 25.7 (January to June 2005), 40.8 (July to December 2005), 19.8 (January to June 2006), 15.8 (July to December 2006), and 9.2 (January to June 2007). Some new methadone users needed the service of drug counseling and psychological counseling, which is not available in most NSP location. We suggested that the service of drug counseling and psychological counseling should be added in some NSP or other harm reduction programs to assist IDUs in solving their emotional problems and to help them return to society.

Keywords: AIDS epidemic, intravenous drug users, needle-syringe program

Introduction

After 2004, the epidemic of acquired immune deficiency syndrome (AIDS)

in Taiwan made a large shift. Intravenous drug users (IDUs) made up the majority of the population in the AIDS/HIV cases, exceeding the homosexuals and heterosexuals groups. Before 2002, the annual incidence rate of HIV positives in IDUs was in the single-digits. There were 624 cases (41.4%) in 2004, 2,457 cases (72.3%) in 2005 and 1,778 cases (60.4%) in 2006 [1]. The HIV incidence grew faster than predicted. As of September 2007, there were 14,550 cumulative HIV/AIDS native cases [2].

The World Health Organization (WHO) has given a serious warning about an explosive growth of the AIDS epidemic when the virus spreads among IDUs [3]. After IDUs are infected with the virus, the virus is easily transmitted to other drug addicts, sexual partners, and even their children. Furthermore, IDUs engage in criminal activities and endanger public safety due to a tremendous need of daily drug use [4]. The high HIV incidence in several Asian countries was the result of the rapid spread of the virus from IDUs to the general population. The Centers for Disease Control and Prevention, USA, warned that a prevention program should be made while the HIV incidence in IDUs is very low (<5%), in order to stop the spread of the virus in IDUs [5].

The WHO has recommended an implementation of harm reduction programs to bring down the spread of the virus among IDUs. Harm reduction programs provide different alternatives to IDUs, other than just abstaining from heroin, in order to control the spread of the virus among IDUs and reduce the societal and health problems of IDUs. Varied intervention measures in harm reduction include: providing AIDS-related information, drug dependence treatment, clean needles and syringes, AIDS counseling and testing, basic medical care, and eliminating obstacles for obtaining clean needles/syringes. From the sake of the society, the

purpose of a harm reduction program is to reduce the AIDS/HIV outbreak and improve public safety, not to approve the use of addictive drugs. Experiences in other countries have shown that harm reduction programs are effective in controlling the spread of the virus among IDUs [3].

In response to the explosive growth of HIV incidence among IDUs in Taiwan, Taipei County, Taipei City, Taoyuan County, and Tainan County implemented harm reduction programs in 2006. The main measures included: (1) expanding the surveillance of HIV testing among drug addicts, (2) implementing the Needle-Syringe Program (NSP) to prevent infection of Hepatitis B/C virus or HIV, and (3) providing methadone maintenance treatment (MMT), use an oral administering instead of intravenous injections the drug and providing follow-up guidance and education on quitting drug abuse. The goal of the harm reduction program is to provide IDUs with counseling and education and also to build a bridge between public health agencies and IDUs. These steps help solve their emotional problems and give IDUs an opportunity to return to society so they no longer have to live unlawful lifestyles. As a result, the harm to citizens and society will decrease [6].

In the beginning of the harm reduction program, the Public Health Bureau, Taoyuan County, invited three hospitals to establish MMT clinics. A questionnaire was designed to collect their opinions and willingness to participate in the Program from new methadone users during July-September 2006. Their results were taken into consideration when planning the NSP. This study reports the results of implementation of the NSP in Taoyuan during its first year (July 2006 to June 2007) as well as the change in the AIDS/HIV incidence. We also report the opinions from new methadone users and their acceptance of the NSP. In addition, the successes and failures of the program are discussed.

Materials and Methods

A. New methadone users' opinion (July to September, 2006)

1. Research Design

To implement the harm reduction, three hospitals in Taoyuan set up MMT clinics. These hospitals were Taoyuan Mental Hospital (TMH), Taoyuan Veterans General Hospital (TVGH), and Taoyuan Armed Forces General Hospital (TAFGH). All new methadone users were included in this study.

2. Research Instrument

A questionnaire was developed to collect : (1)demographic data: age, sex, education, marital status, occupation, income, and prior use of psychiatric drugs; (2) use of addictive drugs: the age of first drug use, reason for drug use, types of drugs used within the past 6 months, number of injections, amount of money spent on drugs, any attempts to quit, and reasons for failure to quit; (3) opinions for the NSP: items provided, services provided, locations, willingness to take or return needles/syringes, reason for unwillingness, source of information about NSP [7]; and (4) HIV status: provided by the hospitals.

Officials from the Disease Control Section, Public Health Bureau, Taoyuan County, distributed and collected the questionnaires at the MMT clinics and also checked for any missing data.

B. Implementation of the NSP and the AIDS/HIV Incidence

Besides collecting opinions about NSP through questionnaires from methadone users, several meetings were held to discuss how to implement NSP

with physicians from MMT clinics, a chairman of pharmacist association, a representative of NGO, police officials, prison officials, and one IDU volunteer. The Public Health Bureau, Taoyuan County provided clean needles/syringes and other relevant items, while the MMT clinics, pharmacist association, NGO, and the IDU volunteers were responsible for giving out and receiving needles/syringes. Each needle/syringe received would pay NT\$1 as an incentive. Law enforcement officials notified their colleagues not to follow or arrest IDU in NSP areas. Prison officials allowed for public health officials to announce the information about NSP and other harm reduction programs in the prisons.

Results

1. Demographic Characteristics and Drug Use Status of the Sample

A total of 205 patients completed the questionnaires. Excluding previous methadone users ($n=27$) and incomplete questionnaires ($n=9$), 169 patients were included in the sample. Most of methadone users came from the three hospitals, TVGH (59.0%), followed by TAFGH (36.6%) and TMH (20.0%). There were more males (84.3%) than females (15.7%). The average age was 35.6 years with a standard deviation of 7.0 years with a range of 20.0-52.0 years. The education levels were primarily middle school (49.4%) and high school (38.6%), followed by college and above (5.7%). Most methadone users were single (51.0%), followed by married (22.3%), divorced (19.0%), separated (4.5%), and cohabitation (3.2%). For occupation, the percentage for unemployed (30.8%), unstable job (34.6%) and employed (34.6%) were similar.

There were 19.5% of the methadone users who had no income, while 47.4% had unstable incomes. HIV test results were positive in 16.9% of the sample.

The average age of first-time drug use was 24.6 years (SD=0.5 years) with a range of 13.0-41.0 years. The average length of drug use was 11.2 years (SD=5.9 years) with a range of 0-32.0 years. Reasons for drug use included curiosity (85.0%), peer pressure (28.8%), unawareness of the consequences (15.6%), and to escape reality (10.0%). Types of drugs used within the past 6 months included heroin (96.3%) and amphetamines (26.9%). For number of injections, the average number per day was 3.8 (SD=2.4). As for the costs of drugs, the average amount spent per day was NT\$3,192 (SD=NT\$2,166).

A total of 93.6% of the study participants had previously attempted to quit drugs. Most of them had several failures, including some with 15 or more attempts (21.4%), indicating that heroin addiction is extremely hard to overcome. Reasons for failure to abstain from drugs included unable to overcome temptation (45.6%), bad mood or unhappy in job (32.5%) and peer pressure (20.6%)

2. Items, Services and Outreach Provided by the NSP

(1) Items Provided

Results from the questionnaires showed that desired items included 0.5ml syringes (74.4%), alcohol swabs (41.3%), and dilution fluid (23.8%). Most of the patients wanted 1 needle/syringe provided each time (Table 1). The NSP provided sanitary kits, and additional items, including 0.5ml syringes, return boxes, alcohol swabs, dilution fluid, condoms, and AIDS prevention flyers (including the phone numbers and working hours of the

MMT clinics). The sanitary kit consisted of the following: 5 0.5ml syringes, 2 alcohol swabs, 1 bottle of dilution fluid, 1 condom (with instructions), and AIDS educational brochure, the container of the sanitary kit could be used as a return box. IDUs could take a sanitary kit as well as other items as they wished. They could take up to 20 new needles/syringes at one time or a number depending upon how many used needles/syringes returned.

(2) Services Provided

Questionnaire results showed that drug counseling (43.8%) was the most needed service, followed by psychological counseling (28.8%) and AIDS testing (27.5%). In addition, 26.9% felt that services were not necessary (Table 1).

In the past, the Public Health Bureau of Taoyuan County, two hospitals and one NGO provided anonymous AIDS testing and/or counseling. In 2006, saliva HIV test was provided by 60 community pharmacies but were referred to local public health offices in 2007. Group health activities were provided by a NGO.

(3) Outreach Methods

Questionnaire results showed that appropriate outreach methods included television (69.3%) and newspaper (28.9%). The NSP information actually heard from methadone users were: 31.9% did not know, 27.5% indicated from family and friends, 17.5% from medical personnel, and 14.4% from other IDUs (Table 1).

In 2006, news about the NSP appeared in the following Chinese newspapers and magazines: United Daily News, Liberty Times, Next

Magazine, Kimo Online News, and the Newsletter of Public Health Bureau, Taoyuan County. In addition, posters were placed in 75 NSP areas, all gas stations owned by China Petroleum Company or National Petroleum Corporation, 13 local public health offices, all township offices, and all prisons. As of October 2007, posters were placed in the following locations: 109 NSP areas, 13 local public health offices, all prisons, some college campuses, and some travel associations. Flyers and brochures were placed in 109 NSP areas and all prisons. The website announced the NSP information after February 2007 (<http://www.tychb.doh.gov.tw/subweb5/Content.asp?cid=30>).

3. Clean Needle/Syringe Pick-up Locations

Questionnaire results showed that preferred locations to give out needles/syringes were hospitals (60.0%) and community pharmacies (47.5%). Locations for placing needles/syringes vending machines were preferred at hospitals (47.5%) and community pharmacies (48.8%). Locations for returning used needles/syringes were preferred at hospitals (52.5%) and community pharmacies (44.4%) (Table 2).

During July 2006 to June 2007, clean needles/syringes were provided in 75 areas, including 52 community pharmacies, 14 local public health offices, 8 hospitals, and 1 NGO. All of the NSP areas had set up receiving bins, though vending machines were not provided. In addition, 3 IDU volunteers participated in distributing and receiving needles/syringes (Table 3).

4. Willingness to Take and Return Needles/Syringes

Questionnaire results showed that about half of new methadone users were

willing to take new needles/syringes from NSP locations or vending machines only some of the time. Reasons for their unwillingness included: already participate in MMT (70.6%), fear of being followed by police (29.4%) and the cheap cost of syringes (18.8%). For willingness to return used needles/syringes, most (47.5%) answered that they would not return. Reasons for not returning needles/syringes included: already participate in MMT (65.6%), inconvenient (26.9%) and fear of leaving evidence of drug use (21.9%) (Table 2).

At the beginning of the NSP, the small number of clean needles/syringes was distributed but there was steady growth afterwards. As of June 2007, an average of 7259 needles/syringes was distributed each week with a grand total of 146,010 needles/syringes. The receive rate was very low at the start, but the rate was maintained at 45% from May to June 2007 (Figure 1).

From July 2006 to June 2007, the highest number of needles/syringes were distributed by pharmacies in Taoyuan City (41,188 or 28.2%), followed by IDU Volunteer A (11,863 or 8.1%) and local or county pubic health offices (9,875 or 6.8%). IDU Volunteer A had the highest receive rate (85.6%) (Table 3).

5. AIDS/HIV Incidence

The AIDS/HIV incidence in Taoyuan started to explode in 2004 (163 new cases), reached the peak in 2005 (532 new cases) and decreased in 2006 (303 new cases). The decline continued through January to June 2007 (90 new cases). This rapid increase or decrease is most obvious in IDUs. The proportion of IDUs in the AIDS/HIV incidence was 44.2% in 2004, 76.1% in 2005, 70.6% in 2006, and 61.1% in January to June 2007 (Figure 2). An

encouraging sign is that the AIDS/HIV incidence in IDUs has been declining since the first half of 2006 (Figure 3). Among new HIV cases, the average number of IDU per month were 1.0 (January to June 2004), 11.0 (July to December 2004), 25.7 (January to June 2005), 40.8 (July to December 2005), 19.8 (January to June 2006), 15.8 (July to December 2006), and 9.2 (January to June 2007).

Discussion

Although the NSP has been implemented for many years in other countries and has been shown to reduce the spread of HIV among IDUs [4], Taiwan has not had any experiences with the NSP. In order to run the NSP successfully, public health officials needed the cooperation of hospitals, pharmacies, NGO, police officers, and prison officials as well as considering the needs of IDUs. This study reports the first-year results of the NSP in Taoyuan. We reported the opinions (where, how, other services, willingness of obtaining or returning) about the NSP through questionnaire completed by methadone new users at the beginning of NSP, the details of the NSP actual running and the AIDS/HIV incidence.

1. The NSP Model in Taoyuan

Results from the questionnaires showed that IDUs felt needles/syringes should be provided or returned primarily in hospitals, followed by community pharmacies and convenience stores. Their preference were slightly different from the prisoners', in which more people chose convenience stores as the ideal place for distributing or returning needles/syringes, followed by community

pharmacies and small (or individual) clinics [8]. This outcome may be due to our questionnaire being completed by IDUs who had already joined the MMT in a hospital and who would choose hospitals as the desired place for providing or returning needles/syringes.

The actual performance of NSP locations varied a lot. The actual distribution and receive rates for the hospitals were not very high. A possible reason may be that methadone users did not use needles/syringes again. Or, the needles/syringes placed in the MMT clinics, may be an inconvenient location for IDUs or were high-risk areas for being followed. Public health offices have been set up as health care networks, with good relationships with local officials, good public credibility, and had conducted many public health programs successfully. For example, in June 2002, the Pharmacists Consulting Neighbors Program encouraged community pharmacies to provide their neighbors with more pharmacy-related services. The program built a communication bridge among public health departments, hospitals and the general public [9], and help to implement other public health programs. With the NSP this time, public health offices once again had excellent results with their distribution and receive rate. The highest distribution and receive rate of needles/syringes belonged to pharmacies, probably due to the sheer number and wide-coverage locations. Since public health offices, pharmacist associations and community pharmacies established good interactions while running the Pharmacists Consulting Neighbors Program, community pharmacies were willing to cooperate with the NSP. The IDU volunteers made valuable contributions to the NSP as well. Although there were only 3 IDU volunteers,

the distribution of needles/syringes was 8.8% and the receive rate reached 85.6%. These numbers indicated that the volunteers were more trusted by IDUs, who were more willing to return their used needles/syringes to IDU volunteers. Only one NGO in Taoyuan participated in the NSP. Due to the shortage of staff and high turnover in NGO, it did not perform very well in distributing and receiving needles/syringes. Taoyuan plans to start using vending machines in November 2007, after which the distribution and return rate for this method can be evaluated.

Questionnaire results showed that the NSP should provide 0.5ml syringes and alcohol swabs. IDUs in Kaohsiung also requested similar items [8]. The Taoyuan NSP analyzed results from the questionnaires and invited IDUs as well as experts to discuss program details, necessary items and the required supply. These aspects were crucial for controlling costs in order to continue the running the NSP.

Questionnaire results showed that television was the best outreach method, although reports on the NSP were rarely seen in TV. Since HIV is primarily transmitted through the blood and sexual activities, the risk of infection is low for most groups in Taiwan, where the general population is more conservative. In order to prevent unnecessary panic among the general public, it was not convenient to air too many AIDS epidemic or NSP announcements on television. A primary means for reaching IDUs included hanging posters, distributing flyers, holding school activities, and word-of-mouth. As the questionnaire results indicated, news about the NSP came mostly from family and friends or fellow IDUs.

Questionnaire results also showed that the NSP could provide other services, such as drug counseling and psychological counseling. Most of the IDUs (especially those willing to accept MMT) hoped for more services. The WHO also believes that the NSP can serve as a bridge for contacting with IDUs and helping them overcome emotional problems [4]. However, most NSP areas primarily provided AIDS testing. Due to shortage of manpower and equipment, providing drug and psychological counseling may be logistically difficult. We recommend that other relevant organizations improve or add these types of services in order to help with the addiction, AIDS crisis and other psychological issues among IDUs.

2. Willingness to Take or Return Needles/Syringes

Questionnaire results showed that IDUs had a passive or cautious attitude toward taking and returning needles/syringes. Thus, most IDUs said that they would pick up the items only some of the time, which was similar to the response given by convicted IDUs [7, 8]. Perhaps IDUs were afraid that their response would affect their right to participate in the MMT, so they were more likely to respond with an unwillingness to take or return needles/syringes. In addition, their fear of being followed by police and ending up in the same situation as their imprisoned counterparts may be important reasons for their response [7, 8]. At the start of the NSP, the IDUs would wait and watch, and that resulted in a low distributing rate of needles/syringes. When IDUs did not get followed or arrested in taking or returning needle/syringes, their willingness to participate increased, and the distribution continued to rise.

However, the rate of giving out needles/syringes was not enough in

Taoyuan. The Ministry of Health estimated that there were 2640 IDUs in Taoyuan [10]. Excluding 982 people who were in MMT and did not have drugs detected in their urine ($=1402 \times 70\%$), the remaining 1,658 IDUs needed needles/syringes. This study gathered from the questionnaires that IDUs injected drugs an average of 3.8 times per day. Thus, an estimate of 44,103 clean needles/syringes per week ($=1,658 \times 7 \text{ days} \times 3.8 \text{ times per person per day}$) was needed in Taoyuan. In addition, Taoyuan gave out an average of 7,259 needles/syringes per week in June 2007, for a proportion of 16.5% ($7,259 / 44,103 \times 100\%$). Some of the IDUs may have purchased their own needles/syringes (data cannot be collected). Results indicated that the distribution rate of needles/syringes could be improved.

Questionnaire results also showed that 47.5% of the IDUs were unwilling to return needles/syringes, which was higher than those unwilling to take them. The reason for their unwillingness to return needles/syringes, aside from the inconvenience, was fear of providing evidence of drug use, similar to the findings of the prisoners [7,8]. The return rate in the beginning of the NSP was very low but reached 45.0% from May to June 2007. In a WHO review of relevant articles, the return rate and HIV incidence were unrelated. The most important factors of controlling the spread of HIV were reducing shared needles/syringes or fluids [4]. On the other hand, the fact that several countries have had to stop the NSP due to citizen complaints about low return rates should be important for Taiwan to consider in implementing its own NSP [4].

3. Reduction of the AIDS Epidemic

The AIDS/HIV incidence among IDUs in Taoyuan has been declining,

indicating that the NSP may have been effective. This result is similar to the NSP experiences in many countries [4]. However, credit cannot be given entirely to the NSP, since before its implementation other harm reduction programs were already in place (for example, AIDS prevention education, AIDS testing and MMT). Figure 3 shows that the AIDS/HIV incidence among IDUs in Taoyuan started to decline from January to June 2006. When pushing for harm reduction programs, the WHO recommended more measures in order to control the AIDS epidemic in IDUs as early as possible [4].

4. Laws

Before 2004, HIV transmission could be confined in the homosexual and heterosexual populations in Taiwan and had not spread to IDUs. After 2004, police officers started to arrest drug users vigorously. Officers stayed close to pharmacies and followed people who bought needles/syringes. Although only a small number of IDUs were arrested, news of the police following them spread quickly among IDUs. Through interviews in prison IDUs, IDUs reported that they were afraid to buy needles/syringes at the pharmacies and could only share them with other IDUs or re-use them. The lack of AIDS-prevention knowledge among IDUs, such as not knowing that sharing needles/syringes or dilution fluid could spread the virus, can cause an outbreak of AIDS among IDUs. In addition, since IDUs often spread the virus in groups, HIV cases increase very rapidly [11].

During the pilot phase of the harm reduction programs, the Director of the National Police Agency sent a letter to the Centers for Disease Control, Department of Health. It stated that law enforcement officials would cooperate

with the harm reduction programs and would not follow or arrest IDUs at the MMT hospitals or in NSP areas. These steps agreed with recommendations made by the WHO regarding NSP measures. The elimination of obstacles for getting clean needles/syringes is the most important determinants in whether or not the NSP is successful [4].

On July 11, 2007, laws for preventing the spread of HIV and for protecting the rights of HIV populations officially went into effect [13], replacing the AIDS prevention law. The ninth section was most relevant to harm reduction programs: “In order to prevent the spread of HIV through shared needles/syringes, dilution fluid or containers, services of NSP or MMT should be provided depending upon the real need. Target populations, methods, details, administrative departments, and other logistics should be established by officials from the central government. People involved in the above program, such as providing needles/syringes or managing methadone, will not be liable to lawsuits.” With the legal framework available, implementation of the NSP and other harm reduction programs should be much easier and the AIDS/HIV incidence among IDUs should decline.

Research Limitations

This study only reports on the first year of the NSP and the AIDS/HIV incidence in Taoyuan and did not include evidence from other regions. Thus, we cannot discuss implementation of the NSP in the entire country or compare the AIDS/HIV incidence among regions.

The questionnaires used in this study recorded the IDUs' name to avoid

duplicate records but may have jeopardized the quality of our questionnaire data. We did not require filling in ID card numbers. Thus, we do not know the proportion of our sample in the population and the representativeness of our sample. Since the questionnaires in our study gathered the thoughts and needs from IDUs on MMT in hospitals, our results may not be generalized to other IDUs.

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**Table 1. Opinions of the NSP by New Methadone Users
(July to September 2006: n=169)**

Items Provided (multiple selections)		Appropriate Outreach Methods (multiple selections)	
0.5ml syringe	119 (74.4%)	Television	111 (69.3%)
Alcohol swab	66 (41.3%)	Newspaper	46 (28.9%)
Dilution fluid	38 (23.8%)	Poster	35 (21.9%)
Cotton	31 (19.4%)	Flyer or brochure	33 (20.6%)
Tourniquet	23 (14.4%)	Website	34 (21.3%)
Returning box	19 (11.9%)	Movie trailer	28 (20.6%)
Condom	16 (10.0%)	Prison	27 (16.9%)
AIDS prevention flyer	16 (10.0%)	Radio	16 (10.0%)
Disinfection instructions	15 (9.4%)	Source of NSP Info (multiple selections)	
Disinfectant bleach	12 (7.5%)	Don't know	51 (31.9%)
3ml syringe	4 (2.5%)	Family/friends	44 (27.5%)
1ml syringe	5 (3.1%)	Medical personnel	28 (17.5%)
None	3 (1.9%)	Newspaper	19 (11.9%)
No. of Needles/Syringes Provided		Other IDU	23 (14.4%)
One each time	75 (50.0%)	Prison	13 (8.1%)
1 dozen each time	56 (37.3%)	Internet	5 (3.1%)
2 dozen each time	4 (2.7%)		
3 dozen each time	14 (9.3%)		
Other Services Provided (multiple selections)			
Drug counseling	70 (43.8%)		
Psychological counseling	46 (28.8%)		
AIDS testing	44 (27.5%)		
AIDS counseling	20 (12.5%)		
Job skills training	11 (6.9%)		
Employment guidance	12 (7.5%)		
Group health activities	6 (3.8%)		
None	43 (26.9%)		

Table 2. Willingness of Obtaining Clean Needles/Syringes or Returning Used Needles/Syringes among New Methadone Users (July to September 2006: n=169)

	Pick-up Location (multiple selections)	Vending Machine Location (multiple selections)	Returning Location (multiple selections)
Hospitals	96 (60.0%)	76 (47.5%)	84 (52.5%)
Pharmacies	76 (47.5%)	78 (48.8%)	71 (44.4%)
Convenience stores	24 (15.0%)	47 (29.4%)	33 (20.6%)
Drug gallery	19 (11.9%)	23 (14.4%)	23 (14.4%)
NGO	8 (5.0%)	9 (5.6%)	10 (6.3%)
Special stores	3 (1.9%)	4 (2.5%)	6 (3.8%)
Parks	2 (1.3%)	5 (3.1%)	11 (6.9%)
Outreach vehicles	4 (2.5%)	3 (1.9%)	2(1.3%)
Police departments	1 (0.6%)	2 (1.3%)	2(1.3%)
Remote areas	2 (1.3%)	2 (1.3%)	5(3.1%)
Public restrooms	—	4 (1.5%)	11(6.9%)
	Willingness to obtain needles/syringes at a NSP location	Willingness to obtain needles/syringes from vending machines	Willingness to return the used needles/syringes
Never	58 (36.3%)	47 (29.4%)	76 (47.5%)
Sometimes	74 (46.3%)	85 (53.1%)	56 (35.0%)
Always	28 (17.5%)	28 (17.5%)	28 (17.5%)
	Reasons for unwillingness to obtain government-provided needles/syringes (multiple selections)		
already participate MMT		113 (70.6%)	
Fear of being followed		47 (29.4%)	
Cheap cost of syringes		30 (18.8%)	
Available at pharmacies		15 (9.4%)	
Inconvenient locations		10 (6.4%)	
	Reasons for unwillingness to return the used needles/syringes (multiple selections)		
already participate MMT		105 (65.6%)	
Inconvenient		43 (26.9%)	
Fear of leaving evidence		35 (21.9%)	
Fear of being poked		18 (11.3%)	

Table 3. Distributing Quantity of Clean Needles/Syringes and Receive Rates of Used Needles/Syringes in Taoyuan (July 1, 2006 to June 27, 2007)

	n	Needles/Syringes Distributed	Receive Rate (%)
(A) Fixed Locations	75	133,204	32.1
Pharmacies	52		
Taoyuan	15	41,188	43.3
Chungli	6	37,375	29.5
Kueishan	6	27,715	23.8
Yangmei	3	4,678	49.8
Luju	12	3,313	0.4
Pingcheng	1	1,917	0.0
Bade	1	1,532	0.0
Lungtan	4	296	4.4
Kuanyin	1	12	0.0
Dasi	2	0	0.0
Dayuan	1	0	0.0
Public Health Offices	14	9,875	33.4
Hospitals	8		
with MMT clinics	3	2,545	33.4
without MMT clinics	5	1,246	8.0
NGO	1	1,512	44.4
(B) IDU Volunteers	3	12,806	80.2*
A	1	11,863	85.6*
B	1	623	0.0
C	1	320	35.3

* Receive rate above 50.0%

Figure 1. Distributing Quantity of Clean Needles/Syringes and Receive Rate of the Used Needles/Syringes in Taoyuan (July 2006 to June 2007)

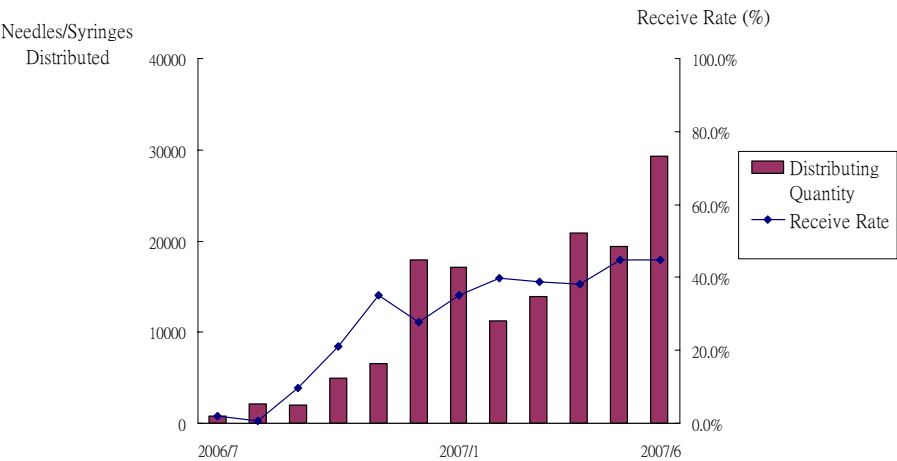


Figure 2. AIDS/HIV Annual Incidence in Taoyuan from 1984 to June 2007 (Taiwan Citizens Only)

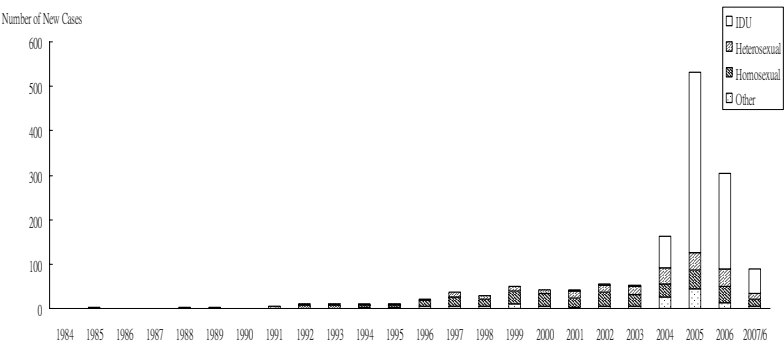


Figure 3. AIDS/HIV Monthly Incidence in Taoyuan from 2004 to June 2007 (Taiwan Citizens Only)

