



**Vietnam (2006): HIV/AIDS TRaC Study
among Injecting Drug Users in Mong Cai,
Uong Bi, and Thai Nguyen City**

Second Round

The P S I D a s h b o a r d

**Hanoi, Vietnam
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Summary

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Background & Research Objectives Tracking surveys serve as tools to inform programming by routinely collecting data from cross-sections of populations at risk for HIV/AIDS and other adverse health outcomes. This survey among injecting drug users (IDUs) aimed to: 1) identify and describe segments of the population in terms of needle-sharing in the three months prior to the survey; 2) explore injecting practices, sexual behaviors and condom use of IDUs; 3) monitor trends in condom use, injecting behaviors, and use of VCT services by IDUs; 4) determine whether exposure to PSI program activities is associated with changes in key indicators; and 5) apply study findings to interventions designed for reducing the risk of HIV transmission among IDUs.

Description of Intervention PSI/Vietnam's Harm Reduction Project uses outreach and peer education to promote safer injecting and protected sex to IDUs in Mong Cai and Uong Bi towns and Thai Nguyen City. To improve access to new needles and syringes and condoms, peer educators distribute needles/syringes complimented by vouchers redeemable at participating pharmacies located near injecting "hot spots" where IDUs typically gather. Communication materials (i.e. matching cards, flip charts, and props) are designed to portray messages that address the specific determinants of needle-sharing and barriers to condom use identified in the tracking surveys. Using results from the first round of research, educational materials and interpersonal communicators prioritized messages that encouraged consistent condom use with both sex workers and regular partners; encouraged IDUs to prepare for their next injection to avoid an emergency; and that even attractive, healthy-looking individuals may have contracted HIV.

Methodology Respondent-Driven Sampling (RDS) was used to recruit 398 male IDUs aged 15 to 45 who live in Uong Bi and Mong Cai towns in Quang Ninh province and Thai Nguyen City in Thai Nguyen province. All IDUs referred for an interview were screened for eligibility and to prevent duplicate participation. The questionnaire collected information on socio-demographic characteristics, drug use and needle-sharing behaviors, opinions about needle-sharing practices, beliefs and knowledge about HIV, sexual activity and condom use, and exposure to harm reduction services. In addition, a section on voluntary counseling and testing for HIV (VCT) was added to the questionnaire for the second round of the tracking survey. Multivariate analyses were performed to identify significant factors associated with needle-sharing, condom use, and use of VCT services. For project monitoring, analysis of variance (UNIANOVA) was conducted to generate adjusted proportions and means for key project indicators by survey round and to identify significant changes in behaviors and behavioral determinants. To evaluate the effect of exposure to PSI's outreach activities, indicators that were significant on the monitoring table were tested with UNIANOVAs to identify differences in indicators by degree of exposure to PSI's outreach activities.

Main Findings Sharing needle/syringes decreased from 20.6% to 10.1%, and consistent use of new needle/syringes increased from 50.5% to 65.7% between the two survey rounds. Consistent condom use with regular partners increased from 27.0% at baseline to 53.0% in round two, and consistent condom use with commercial partners also improved dramatically, from 54.0% to 83.7%. About half of IDUs had ever been tested for HIV, and this proportion did not change significantly over time.

Factors associated with sharing needle/syringes were: the attitude that it is okay to share needles/syringes with people one knows well, feeling less control over using a clean needle/syringe when using someone else's drugs, sharing water for mixing drugs, participating in blood filling, witnessing others share needles/syringes, and having sex with an IDU. Married IDUs were more likely than unmarried to share needle/syringes, which is of particular concern because they also put their spouses at risk of contracting HIV. The attitude that it is better to plan ahead for injecting in order to avoid sharing needles/syringes in an emergency and exposure to the slogan "Mot minh, mot kim" were associated with safer injecting practices.

Consistent condom use with regular partners was associated with: knowing that healthy-looking people can have HIV, carrying condoms when expecting to have sex, and the attitude that it is inappropriate to use condoms with a regular partner. Factors associated with having unprotected sex with regular partners were: the attitudes that condoms are not necessary with regular partners and that it is only necessary to use condoms with commercial sex partners, having unplanned sex while high on drugs, being more likely to have sex without a condom when high, and being a long-term resident of the city/town where interviewed.

Factors associated with ever having VCT were: knowing of a facility that offers HIV testing and counseling services, having a friend encourage the respondent to get tested, the attitude that it is important for a person to know his/her HIV status, and being told about VCT by a healthcare provider in the last 6 months. Barriers to VCT identified in this study were: the expectation of being treated poorly by health workers at an HIV testing site and fear of being seen when going for an HIV test.

The increase in consistent condom use with regular partners was associated with frequent contact with peer educators. Keeping an extra new needle/syringe to use in case of emergency was also significantly more common among those who had frequent contact with peer educators. In addition, knowledge of a facility offering HIV testing and counseling increased significantly by level of exposure to peer educators.

Programatic Recommendations Harm reduction messages and activities should be refined to address the factors found to be associated with sharing needles/syringes, condom use, and VCT in this study. Peer educators and IEC messages should:

- Reinforce that sharing needle/syringes (n/s) with close and trusted friends still carries a risk of HIV transmission and that sharing n/s with anyone is strictly discouraged. Convey that using one's own n/s represents love and support as opposed to lack of trust.
- Address the possibility that even a close drug friend may have, at some time, shared a needle/syringe with someone else, which could put his friends at risk.
- Encourage IDUs to plan ahead for injecting and be prepared to inject safely every time they inject in order to avoid sharing a needle/syringe in an emergency.
- Promote keeping an extra new needle/syringe to use in case of emergency.
- Encourage IDUs to be prepared with their own needle/syringes and water for mixing drugs when expecting to use someone else's drugs.

- Discourage sharing water, blood filling and wet splitting, as well as explain the risks associated with these behaviors.
- Encourage IDUs to use condoms every time they have sex with all partner-types and when having sex with someone who is also an IDU.
- Specifically encourage married IDUs to use condoms consistently to protect their spouses.
- Communicate that healthy-looking people can have HIV when promoting condom use and discouraging needle-sharing.
- Encourage IDUs to be prepared with condoms, especially when they are going to get high and may have unplanned sex.
- Promote VCT and advertise locations of VCT centers with acceptable confidentiality practices and staff trained in sensitive, non-stigmatizing management of high-risk clients.
- Convey the importance of knowing one's HIV status.
- Ask IDUs who have had VCT to encourage their friends to get tested.

Table I. Trends in needle-sharing and condom use, OAM determinants of behaviors, and exposure to harm reduction and VCT services among IDUs in Thai Nguyen City, Mong Cai and Uong Bi towns, Vietnam, November 2005 – August 2006

Risk: Male intravenous drug users aged 15-45 years

Behavior: Needle-sharing and condom use

INDICATORS	November 2005 N=417	July/Aug 2006 N=398	Sig.
BEHAVIOR / USE	%	%	
❖ Always used new needles/syringes (last 3 months)	50.5	65.7	***
❖ Used new needle/syringe at last injection	93.5	96.7	*
❖ Received used needle/syringe from someone else (last 3 months)	15.1	6.8	***
❖ Received used needle/syringe from someone else at last injection	3.9	2.4	
- Gave used needle/syringe to someone else (last 3 months)	9.8	5.3	*
❖ Gave used needle/syringe to someone else at last injection	5.7	1.8	**
- Shared needle/syringe in the last 3 months (given/received)	20.6	10.1	***
❖ Shared needle/syringe at the last injection (given/received)	8.3	3.4	**
❖ Injected drugs mixed in used syringe (last 3 months)	13.5	6.4	***
- Drugs were mixed in used syringe at last injection	4.2	1.4	*
❖ Shared water/solution for mixing drugs (last 3 months)	46.5	47.3	
- Witnessed needle/syringe sharing (last 3 months)	45.8	27.9	***
- Cleaned used needles in the last 3 months ^a	96.2	83.1	*
- Injected by someone else in the last 3 months	n/a	29.6	
- “Wet-splits” drugs for injecting with others at least half of the time	36.6	27.5	**
- Ever participated in blood filling	81.9	79.5	
- Participated in blood filling (last 3 months)	n/a	78.1	
❖ Used condom at last sex with regular partner (girlfriend/wife) ^b	55.1	63.7	
❖ Consistently used condoms when having sex with regular partner in the last 6 months ^b	27.0	53.0	***
❖ Used condom at last sex with commercial partner ^c	81.7	89.2	
❖ Consistently used condoms when having sex with commercial partner in last 6 months ^c	54.0	83.7	***
- Had unplanned sex while high on drugs ^d	24.8	22.2	
❖ Ever been tested for HIV	52.1	55.3	
OPPORTUNITY			
<i>Social Norms</i>	Mean	Mean	
- It is common to share needles/syringes in my group of drug friends	1.94	1.89	
<i>Availability</i>	Mean	Mean	
❖ It is easy to access new needles/syringes whenever I inject	2.93	2.94	
- It is easy to get condoms whenever I need them ^d	2.80	2.83	

Monitoring Table

Vietnam, 2006

INDICATORS	November 2005 N=417	July/Aug 2006 N=398	Sig.
Availability	%	%	
- Knows of at least one place to obtain HIV counseling and testing	64.7	72.9	**
ABILITY			
Social Support		%	
- A friend has encouraged me to get tested for HIV in the last 6 months	n/a	67.5	
Self-Efficacy	Mean	Mean	
- I am confident that I can avoid sharing needles/syringes when I inject together with friends	2.90	2.83	
Knowledge	%	%	
❖ Healthy-looking people can have HIV	90.9	93.7	
❖ Knows ABC	5.6	5.7	
❖ Sharing needles/syringes even once increases my risk of HIV infection	90.8	93.6	
MOTIVATION			
Beliefs	Mean	Mean	
- Scale on beliefs about condom use^d ♠	2.57	2.54	
- I do not need to worry about condom use because my sex drive is low ^d	2.56	2.50	
- I am afraid someone I know will see me if I go for an HIV test	n/a	2.34	
Attitude	Mean	Mean	
- Scale on attitudes about condom use^d ♠	2.45	2.58	***
- It is OK to share needles/syringes with people I know well	2.05	1.97	*
- I am better off to plan ahead for injecting in order to avoid sharing needles in an emergency	n/a	2.94	
- It is inappropriate to use condoms with a regular partner ^d	2.60	2.42	***
- Condoms are not necessary with regular partners ^d	2.33	2.28	
- It is only necessary to use condoms with commercial sex partners ^d	2.72	2.56	**
- It is important to know one's HIV status	3.05	3.02	
Outcome Expectations	Mean	Mean	
- Scale on outcome expectations for new needle/syringe use ♠	3.20	3.11	***
- I would be treated poorly by health workers at an HIV testing site	n/a	2.19	
Intention	%	%	
- In an emergency, I will share a needle/syringe	24.0	13.8	***
- Keeps own used needle/syringe to re-use at least half of the time	33.5	15.1	***
- Keeps extra new needle/syringe at least half of the time	39.0	55.1	***
- Intend to use VCT services in next 6 months	84.6	83.8	

Monitoring Table

Vietnam, 2006

INDICATORS	November 2005 N=417	July/Aug 2006 N=398	Sig.
Intention	Mean	Mean	
- If my partner is very attractive looking, I am less likely to use condoms with her/him	2.35	2.19	***
- I usually carry condoms when I think I am going to have sex ^d	n/a	2.71	
Locus of Control	Mean	Mean	
- If I use someone else's drugs, I have less control over whether or not I use a clean needle/syringe	2.29	2.21	
- I am more likely to have sex without a condom when I am high on drugs	2.22	2.22	
Threat	Mean	Mean	
❖ I am at high risk for contracting HIV	2.46	2.54	
- I am less likely than most people to get HIV/AIDS	2.56	2.59	
EXPOSURE	%	%	
- Heard/seen slogan "Mot minh mot kim"	71.2	77.4	*
❖ Heard/seen slogan "Song dep"		86.2	
❖ Had contact with a peer educator at least once in last 3 months	33.9	68.0	***
❖ Had contact with peer educator at least 4 times per month (in the last 3 months)	16.7	50.9	***
- Met with peer educator for less than 5 minutes on at least one occasion in the last 3 months	n/a	62.3	
- Met with peer educator for over 20 minutes on at least one occasion in the last 3 months	n/a	47.0	
- Received voucher for new needle/syringe or condoms from a peer educator (last 3 months)	16.5	57.6	***
- Received new needle/syringe from a peer educator (last 3 months)	18.7	61.0	***
- Received condom from a peer educator (last 3 months)	11.5	51.7	***
- Received or seen IEC material from a peer educator (last 3 months)	20.4	59.5	***
- Heard anything about VCT services (last 6 months)	n/a	69.1	
- Heard about VCT services on TV (last 6 months)	n/a	47.2	
- Heard about VCT services from a peer educator or outreach worker (last 6 months)	n/a	58.0	
- Has seen a poster/sign about VCT services (last 6 months)	n/a	48.0	
- Has seen a billboard about VCT services (last 6 months)	n/a	46.0	
- Received a brochure about VCT services (last 6 months)	n/a	40.7	
- Told about VCT services by a healthcare worker (last 6 months)	n/a	40.5	
- Visited a VCT center in last 3 months	21.0	28.0	*
- Visited a VCT center in last 6 months	n/a	30.7	
- Ever heard of the "Chan troi moi" center	n/a	28.1	
- Heard/seen advertisements for the "Chan troi moi" center (in last 6 months)	n/a	21.9	

Significance: *p < 0.05; **p < 0.01, ***p < 0.001.

❖ Indicates logframe indicator

Adjusted means are controlled for socio-demographic variation, including age, level of education, employment status, ethnicity, income, marital status, living situation, length of injecting experience, and city/town of residence. Response choices for **scaled items** were: Strongly disagree (1), disagree (2), agree (3), strongly agree (4).

- a. Question asked of IDUs who shared needles/syringes in the last 3 months; Baseline n=77, Round 2 n=42; Of those who cleaned needles, most used water only.
- b. Among those who reported having a regular sex partner in the last 6 months; Baseline n=152, Round 2 n=181.
- c. Among those who reported having a commercial sex partner in the last 6 months; Baseline n=71, Round 2 n=76.
- d. Among those who were sexually active in the last 6 months; Baseline n=379, Round 2 n=361.

♣ Scale indicators consist of:

Beliefs about condom use

- 1) Condom use does not reduce trust between partners
- 2) Condoms do not interfere with developing an emotional relationship with a sex partner
- 3) Proposing condom use would not make me appear suspicious of my partner
- 4) Proposing condom use would not make my partner suspicious of me
- 5) Even if you already share needles with a sexual partner, you should still use condoms with that person

Attitudes about condom use

- 1) It is appropriate to use condoms with a regular partner
- 2) Condoms are necessary, even with regular partners
- 3) Condoms are necessary with non-commercial sex partners

Outcome Expectations for new needle/syringe use

- 1) Using new needles/syringes can protect my veins
- 2) Using new needles/syringes can prevent abscesses
- 3) Using new needles/syringes can prevent Hepatitis B and C infection
- 4) Using new needles/syringes can prevent HIV infection

Monitoring Analysis: Trends in needle-sharing and condom use, OAM determinants of behaviors, and exposure to harm reduction and VCT services among IDUs in Thai Nguyen City, Mong Cai and Uong Bi towns, Vietnam, November 2005 – August 2006

The Monitoring Dashboard uses analysis of variance to determine whether levels of needle-sharing, condom use, and OAM determinants of these behaviors have changed between the two survey rounds. For comparative purposes, means and percentages are adjusted for socio-demographic differences in the composition of the samples, including age, level of education, employment status, ethnicity, income, marital status, living situation, length of injecting experience, and city/town of residence. Because of adjustments for these factors, the baseline figures differ from those cited in the Dashboard Report on the baseline survey in November of 2005.

Monitoring analyses revealed significant changes in risk behaviors for HIV transmission among IDUs. The proportion of IDUs who reported sharing needle/syringes in the last 3 months decreased by half between the baseline and second round, from 20.6% to 10.1% ($p<0.001$). The proportion who reported sharing a needle/syringe the last time they injected also declined from 8.3% to 3.4% ($p<0.01$). Correspondingly, the proportion of IDUs who reported witnessing needle-sharing in the last 3 months declined, from 45.8% to 27.9% ($p<0.001$). A significant reduction was also observed in the proportion of IDUs who injected drugs that were mixed in a used syringe in the last 3 months, from 13.5% to 6.4% ($p<0.001$), and at last injection, from 4.2% to 1.4% ($p<0.05$). In the baseline survey, 36.6% of IDUs reported that they “wet split”¹ drugs for injecting at least half the time; this decreased to 27.5% in the second round survey ($p<0.001$). No significant differences were detected in the proportion of IDUs who shared water or solution for mixing drugs in the last 3 months or those who ever participated in blood filling.

Use of new needle/syringes increased significantly between the baseline and second round surveys. The proportion of IDUs who reported consistently using new needle/syringes in the last 3 months increased from 50.5% to 65.7% ($p<0.001$). More IDUs also reported that they used a new needle/syringe the last time they injected (96.7% vs. 93.5%, $p<0.05$). The proportion of IDUs who reported cleaning a used needle in the last 3 months decreased significantly from

¹ Wet splitting is mixing drugs with water and then dividing the mixture by filling other syringes with a dose.

96.2% to 83.1% ($p < 0.05$). This may be a result of having more new needle/syringes enter the market.

While condom use at last sex with regular or commercial partners did not change significantly over time, consistent condom use in the last 6 months increased for both partner types. At baseline, 27.0% of IDUs reported consistently using condoms with their regular partners, compared to 53.0% in the second round ($p < 0.001$). The proportion of IDUs who reported consistently using condoms with commercial sex partners increased from 54.0% to 83.7% ($p < 0.001$). No significant changes were observed for risky sexual behaviors, including having sex with someone who also injects drugs and having unplanned sex while high on drugs.

IDUs were less likely to agree with the attitude that “It is okay to share needles/syringes with people I know well” in the second round compared to the baseline ($\bar{x} = 1.97$ vs. $\bar{x} = 2.05$, $p < 0.05$). Intention to share needles/syringes in an emergency decreased from 24.0% at baseline to 13.8% in the second round ($p < 0.001$). A strategy for avoiding needle-sharing is keeping an extra new needle/syringe to use in an emergency. The proportion of IDUs who said they keep an extra new needle/syringe at least half the time increased over time, from 39.0% to 55.1% ($p < 0.001$). However, the proportion who reported keeping their own used needle/syringe to reuse at least half the time decreased from 33.5% to 15.1% ($p < 0.001$). This may be a result of IDUs keeping new needle/syringes on hand instead and may reduce the likelihood of IDUs giving their used needle/syringes to someone else if asked.

A reliable scale was found for IDUs’ outcome expectations for new needle/syringe use, including the following items:

- “Using new needles/syringes can protect my veins.”
- “Using new needles/syringes can prevent abscesses.”
- “Using new needles/syringes can prevent Hepatitis B and C infections.”
- “Using new needles/syringes can prevent HIV infection.”

IDUs were less likely to agree with the above statements in the second survey round than in the baseline ($\bar{x} = 3.11$ vs. $\bar{x} = 3.20$, $p < 0.001$). Although this finding seems counter-intuitive, it is in line with the baseline finding that sharers are more likely than non-sharers to agree with these outcome expectations. Therefore, with a smaller proportion of sharers in the second round, it can be expected that fewer respondents agreed with the outcome expectation statements. A possible

explanation for why sharers expect more positive outcomes from using new needle/syringes is that they are more familiar than non-sharers with the negative outcomes that result from sharing needles/syringes.

No changes were observed in IDUs' levels of self-efficacy to avoid sharing needles/syringes when injecting in a group, perceived availability of needles/syringes, and sense of control over using clean needles/syringes when using someone else's drugs. On average, IDUs disagree that it is common to share needles/syringes in their group of friends, and most IDUs know that sharing needles/syringes even once increases their risk of contracting HIV.

More positive attitudes about condom use with regular or non-commercial partners were observed over time ($\bar{x}=2.58$ vs. $\bar{x}=2.45$, $p<0.001$). Because the attitude scale was found to be reliable at baseline but not in the second round, trends in individual scale items were also examined. IDUs were less likely to agree that "it is inappropriate to use condoms with a regular partner" in round two than at baseline ($\bar{x}=2.42$ vs. $\bar{x}=2.60$, $p<0.001$). Over time, IDUs were also less likely to agree that "it is only necessary to use condoms with commercial sex partners" ($\bar{x}=2.56$ in round two vs. $\bar{x}=2.72$ at baseline, $p<0.01$). However, there was no significant change in the belief that "condoms are not necessary with regular partners." An increase was observed in intention to use condoms specifically with attractive partners. A higher proportion of IDUs at baseline reported that they are less likely to use condoms with attractive partners than reported the same in the second round ($\bar{x}=2.35$ vs. $\bar{x}=2.19$, $p<0.001$). No significant changes were observed for IDUs' beliefs about condom use, perceived availability of condoms, or likelihood of having sex without a condom when high on drugs.

Significant increases were observed in IDUs' exposure to certain harm reduction activities. The proportion of IDUs who had contact with a peer educator at least once in the 3 months prior to being interviewed doubled between two survey rounds (33.9% vs. 68.0%, $p<0.001$). The proportion who had contact with a peer educator at least 4 times per month in the last 3 months more than doubled, from 16.7% at baseline to 50.9% in round two ($p<0.001$). More than half of IDUs reported receiving a voucher for a new needle/syringe or condoms from a peer educator (57.6%) in the second survey round, up from 16.5% in the first study round ($p<0.001$). At baseline, 18.7% of IDUs said they received a new needle/syringe from a peer educator in the last

3 months, and this proportion increased to 61.0% in round two ($p<0.001$). Likewise, the proportion of IDUs who received condoms from a peer educator in the last 3 months increased from 11.5% to 51.7% between the two survey rounds ($p<0.001$). Finally, an increase was observed in the proportion of IDUs who were given or shown IEC materials by a peer educator in the last 3 months, from 20.4% to 59.5% ($p<0.001$).

About half of the IDUs surveyed had ever been tested for HIV, and this proportion did not change significantly between the baseline and second round. However, the proportion of IDUs who know a place to obtain HIV testing and counseling increased from 64.7% to 72.9% ($p<0.01$), and the proportion who visited a VCT center in the last 3 months also increased from 21.0% to 28.0% ($p<0.05$). Approximately 5 out of 6 IDUs said they intend to use VCT services in the next 6 months: this proportion was not significantly different between survey rounds. IDUs' risk perception for HIV also did not change over time. No significant differences were detected for the attitude that "it is important to know one's HIV status" and the knowledge that healthy looking people can have HIV. Since baseline levels were already high, it is not surprising that no increases were apparent.

Table II. Determinants of consistent non-sharing of needles/syringes among IDUs in Thai Nguyen City, Mong Cai and Uong Bi towns, Vietnam, August 2006

Risk: Male intravenous drug users aged 15-45 years

Behavior: Consistently did not share needles/syringes (last 3 months)

INDICATORS	Last 3months		Sig
	Did not share (N=357)	Shared (N=40)	
OPPORTUNITY			
<i>Social Norm</i>	Mean	Mean	
1) It is common for a group of people who buy drugs together to share needles/syringes	1.93	2.15	
2) My friends think it is OK to share needles/syringes in an emergency	2.04	2.33	
<i>Availability</i>	Mean	Mean	
1) It is easy to get new needles/syringes whenever I need them ❖	2.96	2.75	
<i>Availability</i>	%	%	
2) When pharmacies are closed, can find new needle/syringes when ready to inject	72.11	52.50	
ABILITY			
<i>Self-Efficacy</i>	Mean	Mean	
1) I am confident that I can avoid sharing needles/syringes when I inject together with friends	2.84	2.60	
2) I am confident that I can avoid sharing needles/syringes even when I have drug hunger	2.73	2.40	
3) I am confident that I can plan to have new needle/syringes ready whenever I inject	2.98	2.80	
<i>Knowledge Index</i>	Mean	Mean	
1) Proper needle cleaning techniques §	0.83	0.65	
<i>Knowledge</i>	%	%	
1) Using bleach to clean a used needle/syringe makes it safe to inject with	31.65	55.00	
MOTIVATION			
<i>Beliefs</i>	Mean	Mean	
1) There is no need to use new needles/syringes when injecting with new users because they are unlikely to be infected with HIV	1.90	2.23	
<i>Attitude</i>	Mean	Mean	
<i>Attitude Scale about drug hunger ♠</i>	3.00	2.55	
1) It is OK to share needles/syringes with someone I have sex with	2.04	2.48	
2) It is OK to share needles/syringes with people I know well	1.95	2.18	*
3) It does not matter if I give someone else my used needle/syringe	1.88	2.08	
4) I am better off to plan ahead for injecting in order to avoid sharing needles/syringes in an emergency	2.97	2.68	**
<i>Intention</i>	Mean	Mean	
1) Intention scale about future needle/syringe use ♠	2.99	2.72	
<i>Intention</i>	%	%	
2) Keeps own used needle/syringe to re-use at least half the time	1.40	10.00	

INDICATORS	Last 3months		Sig
	Did not share (N=357)	Shared (N=40)	
Locus of Control	Mean	Mean	
1) I am more likely to share needles/syringes when I am suffering from drug hunger	2.07	2.60	
2) If I use someone else's drugs, I have less control over whether or not I use a clean needle/syringe	2.18	2.44	**
Threat	Mean	Mean	
1) I have already done things (behaviors) that put me at risk of contracting HIV	2.65	2.93	
Threat	%	%	
2) I do not know anyone personally who is infected with HIV/AIDS or has died from AIDS	80.39	97.50	
EXPOSURE	%	%	
1) Heard/seen the slogan "Mot minh, mot kim" (One needle, one person)	79.19	65.74	*
POPULATION CHARACTERISTICS	%	%	
<i>Married</i>	24.62	45.27	*
<i>Lives in Thai Nguyen city (vs. Mong Cai town or Uong Bi town)</i>	56.58	82.50	
<i>Injects at public place (vs. injecting somewhere else)</i>	61.90	45.00	
<i>Injected by someone else in the last 3 months</i>	26.05	62.50	
<i>Injected everyday in the last 30 days</i>	73.22	92.50	
<i>Rarely or never "wet splits" drugs with others</i>	74.51	55.00	
<i>Has injected for more than 2 years</i>	80.11	95.00	
<i>Has mixed other drugs with heroin</i>	27.68	55.00	
<i>Has shared water to mix drugs in the last 3 months</i> ❖	43.98	74.99	**
<i>Has never bought drugs already prepared in syringe</i>	99.16	95.00	
<i>Injected drugs mixed in used syringe (last 3 months)</i> ❖	5.04	20.00	
<i>(last injection)</i>	8.40	7.50	
<i>Ever participated in blood filling</i>	79.43	91.12	*
<i>Has not participated in blood filling in the last 3 months</i>	23.53	7.50	
<i>Has witnessed someone else sharing needles/syringes (last 3 months)</i>	24.70	59.53	**
<i>Had sex with IDU in the last 6 months</i>	4.14	15.55	**

Naglekerke $R^2 = 0.425$ for regression model consisting of all significant items.

Omnibus $X^2=90.542$, $df=9$, $p < 0.001$; H&L goodness of fit $X^2=3.811$, $df=8$, $p=0.874$.

Significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

❖ Indicates logframe indicator

§ Knowledge index about proper needle cleaning techniques:

- As long as there is no blood on needles or in syringes, they are safe to inject with
- Cleaning used needles/syringes with bottled or boiled water makes them safe to inject with
- Burning a used needle make it safe to inject with

♣ Attitude scale about drug hunger:

- If my drug hunger is too strong, I sometimes have to use someone else's needle/syringe
- I will do anything to satisfy drug hunger quickly, including using someone else's needle/syringe
- In an emergency, it is sometimes necessary to use someone else's needle/syringe

♣ Intention scale about future needle/syringe use:

- In the future, I will probably share a needle/syringe
- In an emergency, I will share a needle/syringe
- I will never share a needle/syringe again

- I will give someone my used needle/syringe if they ask
- I will be prepared with my own new needle/syringe the next time I inject

Segmentation Analysis: Determinants of consistent non-sharing of needles/syringes among IDUs in Thai Nguyen City, Mong Cai and Uong Bi towns, Vietnam, August 2006

Logistic regression analysis revealed nine significant predictors of consistent non-sharing of needles/syringes in the last 3 months. Results for each significant variable are reported in the segmentation table (table II), which shows all variables included in the development of the model, presented by “did not share” and “shared.” Proportions for each significant predictor are presented, adjusted for the effects of all other significant factors in the model. Unadjusted proportions are presented for items not significant at the multivariate level.

The attitude that it is okay to share needles/syringes with people one knows well was more common among sharers than non-sharers ($\bar{x}=2.18$ vs. $\bar{x}=1.95$, $p<0.05$). Likewise, fewer sharers than non-sharers said that they are better off planning ahead for injecting in order to avoid sharing needles/syringes in an emergency ($\bar{x}=2.68$ vs. $\bar{x}=2.97$, $p<0.01$).

Regarding locus of control, sharers were more likely than non-sharers to report that they have less control over whether or not they use clean needles/syringes if they are using someone else’s drugs ($\bar{x}=2.44$ vs. $\bar{x}=2.18$, $p<0.01$). In other words, non-sharers have a greater sense of control over their decision to use new needles/syringes when splitting drugs.

79.13% of non-sharers recalled hearing or seeing the slogan “Mot minh, mot kim” (One needle, one person). This is significantly higher than the proportion of sharers (65.74%) who recalled the slogan ($p<0.05$).

In addition to sharing needles/syringes, some other risk behaviors, including sharing water for mixing drugs, blood filling, and having a sexual partner that is also an IDU, were more common among sharers than non-sharers. 74.99% of needle-sharers reported that they shared water for mixing drugs in the last 3 months, compared to 43.98% of non-sharers ($p<0.01$); 91.12% of sharers said they have ever participated in blood filling, compared to 79.43% of non-sharers ($p<0.05$); and, only 4.14% of non-sharers reported having sex with an IDU in the last 6 months, compared to 15.55% of sharers ($p<0.01$).

Witnessing others sharing needles/syringes was significantly associated with IDUs' own needle-sharing: a smaller proportion of non-sharers than sharers reported witnessing needle-sharing in the last 3 months (24.70% vs. 59.53%, $p < 0.01$). Finally, the proportion of married IDUs was significantly higher among sharers than non-sharers (45.37% vs. 24.63%, $p < 0.05$).

Table III. Determinants of consistent condom use among IDUs in Thai Nguyen City, Uong Bi and Mong Cai towns, Vietnam, August 2006

Risk: Male intravenous drug users aged 15-45 years

Behavior: Consistently used condoms with regular partner (last 6 months)

INDICATORS	Consistently used condoms with regular partner		Sig
	Yes N=92	No N=86	
ABILITY			
<i>Knowledge</i>	%	%	
1) Healthy-looking people can have HIV	100	84.62	**
MOTIVATION			
<i>Beliefs</i>	Mean	Mean	
1) Condom use reduces trust between partners	2.44	2.62	
2) I do not need to worry about condom use because my sex drive is low	2.38	2.55	
<i>Attitude</i>	Mean	Mean	
<i>Attitude scale about condom use ♣</i>	2.38	2.26	
1) It is inappropriate to use condoms with a regular partner	2.57	2.43	*
2) Condoms are not necessary with regular partners	2.13	2.64	***
3) It is only necessary to use condoms with commercial sex partners	2.43	2.80	***
<i>Intention</i>	Mean	Mean	
1) I am not usually prepared with condoms before I have sex	2.15	2.54	
2) If my partner is very attractive looking I am less likely to use condoms with her	2.02	2.34	
3) I usually carry condoms when I think I am going to have sex	2.94	2.54	***
4) I probably will not use a condom the next time I have sex	2.04	2.49	
<i>Locus of Control</i>	Mean	Mean	
1) I am more likely to have sex without a condom when I have been drinking	2.12	2.47	
2) I am more likely to have sex without a condom when I am high on drugs	2.15	2.34	**
EXPOSURE	%	%	
1) Had contact with a peer educator at least 4 times per month (over the last 3 months) ♣	53.76	34.48	
2) An occasion when peer educator talked with IDU for more than 20 minutes in the last three months	50.54	34.48	
3) Received voucher for condoms or new needle/syringe from PE in the last 3 months	61.29	45.98	
4) Received condoms from a peer educator (last 3 months)	62.37	40.23	
POPULATION CHARACTERISTICS	%	%	
<i>Intends to go for VCT in next 6 months</i>	94.57	80.23	
<i>Lives in Thai Nguyen city (vs. Mong Cai town or Uong Bi town)</i>	58.06	72.41	
<i>Has lived in current town for more than 15 years</i>	73.61	93.35	**
<i>Has had unplanned sex while high on drugs</i>	18.32	40.87	**
<i>Has had unplanned sex while drunk on alcohol</i>	10.75	44.83	

Naglekerke $R^2 = 0.607$ for regression model consisting of all significant items.

Omnibus $X^2=108.133$, $df=8$, $p < 0.001$; H&L goodness of fit $X^2=8.238$, $df=7$, $p=0.312$.

Significance: * $p<0.05$, ** $p<0.01$, *** $p<0.001$

❖ Indicates logframe indicator

♣ Attitude scale for condom use with regular partners:

1. Using condom does not feel unnatural
2. Using condom does not make sex less satisfying
3. Using condom is not inconvenient

**Segmentation Analysis: Determinants of consistent condom use among IDUs in Thai
Nguyen City, Uong Bi and Mong Cai towns, Vietnam, August 2006**

Logistic regression analysis was conducted on a subset of the IDU population surveyed – those who had a regular sex partner in the last 6 months – revealing eight significant predictors of consistent condom use with regular partners. Results for each significant variable are reported in the segmentation table (table III), which shows all variables included in the development of the model, presented by “Consistently used condom with regular partner: Yes or No.” Proportions for each significant predictor are presented, adjusted for the effects of all other significant factors in the model. Unadjusted proportions are presented for items not significant at the multivariate level. Segmentation analysis was not conducted for condom use with commercial sex partners, because the subset of IDUs who had a commercial sex partner in the last 6 months was insufficient for multivariate analysis.

Most IDUs knew that healthy-looking people can have HIV, however this knowledge was significantly lower among non-users than among condom users. While 100% of condom users correctly agreed with this statement, only 84.62% of non-users agreed ($p < 0.01$).

The attitude that “condoms are not necessary with regular partners” was more common among non-users than condom users ($\bar{x} = 2.64$ vs. $\bar{x} = 2.13$, $p < 0.001$). However, while condom users seem to recognize the necessity of using condoms with regular partners, they were more likely than non-users to feel that “it is inappropriate to use condoms with regular partners” ($\bar{x} = 2.57$ vs. $\bar{x} = 2.43$, $p < 0.05$). Perhaps this belief is a result of opposition condom users experience from their partners when negotiating use, while non-users do not encounter such opposition. Condom users were less likely than non-users to agree that “it is only necessary to use condoms with commercial sex partners” ($\bar{x} = 2.43$ vs. $\bar{x} = 2.80$, $p < 0.001$), suggesting that condom users recognize the necessity of using condoms with non-commercial partners.

Intention to use condoms, demonstrated by carrying condoms when expecting to have sex, was significantly associated with condom use. Condom users were more likely than non-users to say that they usually carry condoms when they think they are going to have sex ($\bar{x} = 2.94$ vs. $\bar{x} = 2.54$, $p < 0.001$).

IDUs who did not use condoms consistently were more likely to have had unplanned sex while high on drugs, compared to condom users (40.87% vs.18.32%, $p<0.01$). Also, non-users were more likely than users to say that they are prone to having sex without a condom when high on drugs ($\bar{x}=2.34$ vs. $\bar{x}=2.15$, $p<0.01$).

Finally, being a long-time resident (more than 15 years) of the city or town where interviewed was negatively associated with condom use. Among non-users, 93.35% were long-term residents compared to 73.61% of condom users ($p<0.01$).

Table IV. Determinants of VCT use among IDUs in Thai Nguyen City, Uong Bi and Mong Cai towns, Vietnam, August 2006

Risk: Male intravenous drug users aged 15-45 years

Behavior: Ever had voluntary HIV test and received results, pre- and post- test counseling

INDICATORS	Ever had VCT		Sig
	Yes (N=181)	No (N=215)	
OPPORTUNITY			
<i>Availability</i>	%	%	
1) Knows of place offering HIV testing and counseling services	87.62	61.70	***
ABILITY			
<i>Social Support</i>	Mean	Mean	
1) Scale for VCT ♠	3.06	2.95	
<i>Social Support</i>	%	%	
2) A friend has encouraged me to get tested for HIV in the last 6 months	77.42	59.09	***
3) I would encourage a friend to get tested for HIV	90.06	70.42	
MOTIVATION			
<i>Beliefs</i>	Mean	Mean	
1) I am afraid someone I know would see me if I went for an HIV test	2.23	2.44	**
<i>Attitude</i>	Mean	Mean	
1) It is important for a person to know his/her HIV status	3.08	2.96	**
2) Knowing my HIV status is important for planning my future	3.08	2.99	
<i>Outcome Expectations</i>	Mean	Mean	
1) If I tested positive for HIV, my family would reject me	2.15	2.25	
2) If I tested positive for HIV, I would lose my friends	2.21	2.34	
3) Getting tested for HIV would give me freedom from my worries	3.07	2.95	
4) I would be treated poorly by health workers at an HIV testing site	2.11	2.25	*
<i>Threat</i>	%	%	
1) I do not know anyone personally who is infected with HIV/AIDS or has died from AIDS	88.95	75.59	
EXPOSURE	%	%	
1) Heard anything about VCT services in the last 6 months	84.53	56.81	
2) Heard about VCT services on TV (last 6 months)	58.56	38.50	
3) Heard about VCT services from a PE or outreach worker (last 6 months)	72.38	46.48	
4) Saw a poster, sign, or billboard about VCT services (last 6 months)	59.67	40.85	
5) Received a brochure about VCT services (last 6 months)	49.17	33.80	
6) Healthcare provider told about VCT services (last 6 months)	48.90	34.04	**
7) Had contact with a peer educator at least once in the last 3 months ❖	81.77	55.87	
8) Had contact with a peer educator at least 4 times per month (in the last 3 months) ❖	59.67	42.72	
9) An occasion when peer educator talked with IDU for less than 5 minutes in the last three months	75.69	51.17	
10) An occasion when peer educator talked with IDU for more than 20 minutes in the last three months	56.91	38.50	

Segmentation Table: VCT

Vietnam, 2006

INDICATORS	Ever had VCT		Sig
	Yes (N=181)	No (N=215)	
POPULATION CHARACTERISTICS	%	%	
<i>Lives in Thai Nguyen city (vs. Mong Cai town or Uong Bi town)</i>	66.85	51.64	
<i>Has lived in current town for more than 15 years</i>	87.85	78.77	
<i>Has injected drugs for more than 2 years</i>	85.64	77.46	

Naglekerke $R^2 = 0.361$ for regression model consisting of all significant items.

Omnibus $X^2=124.151$, $df=6$, $p < 0.001$; H&L goodness of fit $X^2=3.201$, $df=8$, $p=0.921$.

Significance: * $p<0.05$, ** $p<0.01$, *** $p<0.001$

❖ Indicates logframe indicator

♣ Social support scale:

- My friends have encouraged me to get tested for HIV
- My family would think it is a good idea for me to get tested for HIV
- People I know would help me find a place to get tested for HVI if I asked them
- If I asked, my closest friend would go with me if I went for an HIV test
- My friends would support my decision to get tested for HIV.

Segmentation Analysis: Determinants of VCT use among IDUs in Thai Nguyen City, Mong Cai and Uong Bi towns, Vietnam, August 2006

Logistic regression analysis revealed six factors significantly related to use of VCT among IDUs. Results for each significant variable are reported in the segmentation table (table IV), which shows all variables included in the development of the model, presented by “Ever had VCT: Yes or No.” Proportions for each significant predictor are presented, adjusted for the effects of all other significant factors in the model. Unadjusted proportions are presented for items not significant at the multivariate level.

Knowing of a place that offers VCT services was significantly associated with utilization of VCT. Among IDU’s who have had VCT, 87.62% knew of a place offering HIV testing and counseling services, compared to 61.70% of those who have never had VCT ($p < 0.001$).

Social support for HIV testing was associated with VCT use: more VCT users than non-users said they were encouraged by a friend to get tested for HIV (77.42% vs. 59.09%, $p < 0.001$). Perceived importance of knowing one’s own HIV status was also related to VCT use: the attitude that “it is important for a person to know his/her HIV status” was more common among IDUs who had VCT than those who have not ($\bar{x} = 3.08$ vs. $\bar{x} = 2.96$, $p < 0.01$).

Fear of being seen by someone they know and the expectation of being treated poorly by health workers at an HIV testing site are barriers to seeking VCT. IDUs who had VCT were less likely than those who have not to think they would be treated badly by health workers at an HIV testing site ($\bar{x} = 2.11$ vs. $\bar{x} = 2.25$, $p < 0.05$). VCT users were also less likely than non-users to be afraid of seeing someone they know when going for an HIV test ($\bar{x} = 2.23$ vs. $\bar{x} = 2.44$, $p < 0.01$).

Being told about VCT services by a healthcare provider was significantly associated with VCT use. Users were more likely than non-users to say that a healthcare provider told them about VCT services in the last 6 months (48.90% vs. 34.04%, $p < 0.01$).

Table V. Impact of PSI outreach on clean needle/syringe use, condom use and OAM determinants of behavior among IDUs in Thai Nguyen City, Uong Bi and Mong Cai towns, Vietnam, November 2005 – August 2006

Risk: Male intravenous drug users aged 15-45 years

Behavior: Consistently did not share needles/syringes (last 3 months)

INDICATORS	Exposure				Sig.
	Baseline n=417 51.2%	None n=128 15.7%	Low n=109 13.4%	High n=161 19.8%	
BEHAVIOR/USE	%	%	%	%	
❖ Always used new needles/syringes (last 3 months)	50.5 ^a	62.9 ^b	67.4 ^b	66.8 ^b	***
❖ Used new needle/syringe at last injection	93.5 ^a	94.5 ^{a,b}	96.9 ^{a,b}	98.3 ^b	n.s.
❖ Received used needle/syringe from someone else (last 3 months)	15.1 ^a	8.9 ^b	4.2 ^b	6.8 ^b	**
- Gave used needle/syringe to someone else (last 3 months)	9.8 ^a	8.8 ^{a,b}	3.5 ^b	3.7 ^b	*
❖ Gave used needle/syringe to someone else at last injection	5.7 ^a	4.2 ^{a,b}	2.6 ^b	1.0 ^b	*
- Shared needle/syringe in the last 3 months	20.6 ^a	12.6 ^b	8.1 ^b	9.4 ^b	***
❖ Shared needle/syringe at the last injection	8.3 ^a	4.9 ^{a,b}	3.0 ^b	2.4 ^b	*
❖ Injected drugs mixed in used syringe (last 3 months)	13.6 ^a	7.9 ^{a,b}	2.6 ^b	7.8 ^b	**
- Drugs were mixed in used syringe at last injection	4.2	1.5	1.5	1.2	n.s.
- Witnessed needle/syringe sharing (last 3 months)	45.8 ^a	33.1 ^b	25.9 ^b	25.0 ^b	***
- Cleaned used needles in the last 3 months ¹	96.1 ^a	(91.4 ^{a,b})	(75.0 ^b)	(82.0 ^{a,b})	*
- “Wet-splits” drugs for injecting with others at least half of the time (or at all)	36.6 ^a	28.8 ^{a,b}	24.8 ^b	28.2 ^{a,b}	*
❖ Consistently used condom when having sex with regular partner in the last 6 months ²	26.9 ^a	44.9 ^b	47.7 ^{b,c}	65.3 ^c	***
❖ Consistently used condom when having sex with commercial partner in the last 6 months ³	54.2 ^a	80.6 ^b	(80.7 ^b)	89.0 ^b	**
OPPORTUNITY					

Evaluation Table

Vietnam, 2006

	%	%	%	%	
Availability					
- Knows of at least one place to obtain HIV counseling and testing	64.6 ^a	47.7 ^b	75.4 ^c	91.4 ^d	***
MOTIVATION					
Attitude	Mean	Mean	Mean	Mean	
- Scale on attitudes for condom use⁴ ♣	2.45 ^a	2.52 ^{a,b}	2.56 ^{a,b}	2.64 ^b	**
- It is OK to share needles/syringes with people I know well	2.05 ^a	2.00 ^{a,b}	2.04 ^a	1.89 ^b	*
- It is inappropriate to use condoms with a regular partner ⁴	2.60 ^a	2.49 ^{a,b}	2.40 ^b	2.38 ^b	***
- It is only necessary to use condoms with commercial sex partners ⁴	2.72 ^a	2.65 ^{a,b}	2.58 ^{a,b}	2.48 ^b	**
Outcome Expectations	Mean	Mean	Mean	Mean	
- Scale on outcome expectations for new needle/syringe use ♣	3.20 ^a	3.06 ^b	3.09 ^{b,c}	3.15 ^{a,c}	***
Intention	%	%	%	%	
- In an emergency, I will share a needle/syringe	24.0 ^a	16.3 ^b	16.7 ^{a,b}	9.8 ^b	***
- Keeps own used needle/syringe to re-use at least half of the time	33.5 ^a	18.0 ^b	12.8 ^b	14.4 ^b	***
- Keeps extra new needle/syringe at least half of the time	39.0 ^a	49.1 ^b	49.8 ^b	63.5 ^c	***
Intention	Mean	Mean	Mean	Mean	
- If my partner is very attractive looking, I am less likely to use condoms with him/her ⁴	2.35 ^a	2.22 ^{a,b}	2.21 ^{a,b}	2.14 ^b	**

Adjusted means are controlled for socio-demographic variation, including age, level of education, employment status, ethnicity, income, marital status, living situation, length of injecting experience, and city/town of residence.

1. Question only asked of IDUs who shared needles/syringes in the last 3 months; n=77, n=15, n=12, n=15; percentages with n<20 are reported in parentheses.
2. Question asked of IDUs who had a regular partner in the last 6 months; n=152, n=65, n=50, n=66.
3. Question asked of IDUs who had a commercial sex partner in the last 6 months n=71, n=31, n=18, n=27; percentages with n<20 are reported in parentheses.
4. Question asked of IDUs who had sex within the last 6 months; n=378, n=115, n=96, n=150.
5. Proportions in the evaluation table that differ significantly are marked with superscript. Those with the same superscript letter do not differ significantly from each other; those with different superscript letters differ significantly from one another.

♣ Scale indicators consist of:

Attitudes about condom use

- 4) It is appropriate to use condoms with a regular partner
- 5) Condoms are necessary, even with regular partners
- 6) Condoms are necessary with non-commercial sex partners

Outcome Expectations for new needle/syringe use

- 5) Using new needles/syringes can protect my veins
- 6) Using new needles/syringes can prevent abscesses
- 7) Using new needles/syringes can prevent Hepatitis B and C infection
- 8) Using new needles/syringes can prevent HIV infection

Evaluation Analysis: Impact of PSI outreach on clean needle/syringe use, condom use and OAM determinants of behavior among IDUs in Thai Nguyen City, Uong Bi and Mong Cai towns, Vietnam, November 2005 – August 2006

The Evaluation Dashboard (table V) examines whether there is an association between exposure to PSI's harm reduction activities and the significant trends in sharing needles/syringes, condom use, and OAM determinants of behavior found in the Monitoring Dashboard (table IV). For evaluation analyses, UNIANOVA was used to compare key indicators between respondents interviewed for the baseline survey, those interviewed for the second round who reported no exposure to the PSI project, and those in round two who had low and high exposure, while controlling for the following socio-demographic factors: age, educational attainment, employment status, ethnicity, income, marital status, living situation, length of injecting experience, and city/town of residence. Low exposure to PSI's harm reduction project was defined as having contact with a peer educator at least once but less than 4 times in the last 3 months. Having contact with a peer educator 4 times or more per month over the last 3 months constituted high exposure.

Results suggest that high exposure to PSI's peer intervention had a positive effect on IDUs' preparedness to inject safely. The proportion of IDUs who keep an extra new needle/syringe at least half the time is significantly larger among the highly exposed compared to both the low exposure and unexposed groups (63.5% vs. 49.8%, $p<0.05$, and 49.1%, $p<0.05$, respectively). This suggests that contact with peer educators may improve IDUs access to new needle/syringes so that they can keep a spare on hand. Frequent exposure to PSI's peer educators is also significantly associated with an increase in the proportion of IDUs who used condoms consistently with regular partners in the last 6 months from 44.9% among the unexposed to 65.3% among the highly exposed ($p<0.05$).

The proportion of IDUs who know of a place to obtain HIV testing and counseling increased significantly by exposure, from 47.7% among the unexposed to 75.4% ($p<0.001$) among those with low exposure and 91.4% ($p<0.001$) among the highly exposed. The proportion for both the low and high exposure groups is significantly higher than 64.6% at baseline ($p<0.05$ and $p<0.001$, respectively). Thus, low exposure appears to be sufficient to change IDUs' knowledge of where to obtain HIV counseling and testing services.

While outcome expectations were more positive among the highly exposed compared to the unexposed ($\bar{x}=3.15$ vs. $\bar{x}=3.06$, $p<0.05$), the mean among the highly exposed was not significantly different than at baseline. Thus, there is no evidence that exposure to PSI's peer intervention was related to change in outcome expectations over time.

The comparison between those interviewed at baseline and those unexposed in round two shows that there were significant differences for some indicators; however, there is no evidence linking such differences with PSI's peer education efforts. The proportion of IDUs who reported always using new needles/syringes in the last 3 months was higher among the unexposed in round two compared to the baseline (62.9% vs. 50.5%, $p<0.05$). The proportion of IDUs who received a used needle/syringe from someone else in the last 3 months dropped from 15.1% to 8.9% between the baseline and unexposed ($p<0.05$). Correspondingly, the proportion who shared a needle/syringe in the last 3 months, including giving or receiving a used needle/syringe, also declined from 20.6% at baseline to 12.6% among the unexposed ($p<0.05$). As well, witnessing needle-sharing was less common among the unexposed compared to baseline (33.1% vs. 45.8%, $p<0.01$).

Improvements were observed between the baseline and unexposed for indicators of IDUs' intention to inject safely. The proportion of IDUs who said that they would share a needle/syringe in an emergency decreased from 24.0% to 16.3% ($p<0.05$). Keeping an extra new needle/syringe may reduce the likelihood that IDUs would share a needle/syringe in an emergency, and the proportion who said they keep an extra new needle/syringe at least half the time increased from 39.0% at baseline to 49.1% among those unexposed in round two ($p<0.05$). However, keeping one's own used needle/syringe to re-use was less common among the unexposed than at baseline (18.0% vs. 33.5%, $p<0.001$).

Comparing the baseline and unexposed groups, significant increases in consistent condom use were observed for both regular and commercial sex partners. At baseline, only 26.9% of IDUs reported consistently using condoms with their regular partners in the last 6 months, compared to 44.9% among the unexposed in round two ($p<0.05$). Consistent condom use with commercial sex partners increased from 54.2% to 80.6% between the baseline and unexposed ($p<0.05$).

The significant changes in determinants between the unexposed in round 2 compared to the baseline population is not fully understood, but a number of factors may help to explain these results. Generally, a significant difference between baseline and unexposed groups suggests that something outside of the intervention's influence is driving the change, such as a new government policy, increased police presence, or other programs targeting IDUs. However, at the specific sites where PSI's interventions are employed, no additional programmatic activities were monitored during the period of time covered by this study. A possible explanation is that PSI's intervention has been able to affect social norms surrounding injecting and sexual behaviors within a finite and relatively closed population of IDUs. High coverage theory suggests that after reaching 60% of a target population, population level impact can be achieved. Given the very high coverage of the PSI intervention (68% of respondents reported having contact with a peer educator in the last 3 months) and its 'continuously expanding' approach, individuals that were not exposed but reported positive changes in behavior may be indirectly impacted by the intervention.

Dashboard Interpretation: Population Dashboard Tables

Impact of PSI outreach on clean needle/syringe use, condom use and OAM determinants of behavior among IDUs in Thai Nguyen City, Uong Bi and Mong Cai towns, Vietnam, November 2005 – August 2006

INDICATORS	MONITORING TABLE	EVALUATION TABLE	CONCLUSION
BEHAVIOR/USE			
❖ Always used new needles/syringes (last 3 months)	+	n.s.	No impact
❖ Used new needle/syringe at last injection	+	n.s.	No impact
❖ Received used needle/syringe from someone else (last 3 months)	-	n.s.	No impact
❖ Received used needle/syringe from someone else at last injection	n.s.	n/a	No impact
- Gave used needle/syringe to someone else (last 3 months)	-	n.s.	No impact
❖ Gave used needle/syringe to someone else at last injection	-	n.s.	No impact
- Shared needle/syringe in the last 3 months (given/received)	-	n.s.	No impact
❖ Shared needle/syringe at the last injection (given/received)	-	n.s.	No impact
❖ Injected drugs mixed in used syringe (last 3 months)	-	n.s.	No impact
- Drugs were mixed in used syringe at last injection	-	n.s.	No impact
❖ Shared water/solution for mixing drugs (last 3 months)	n.s.	n/a	No impact
- Witnessed needle/syringe sharing (last 3 months)	-	n.s.	No impact
- Cleaned used needles in the last 3 months ^a	-	n.s.	No impact
- “Wet-splits” drugs for injecting with others at least half of the time	-	n.s.	No impact
- Ever participated in blood filling	n.s.	n/a	No impact
❖ Used condom at last sex with regular partner (girlfriend/wife) ^b	n.s.	n/a	No impact
❖ Consistently used condoms when having sex with regular partner in the last 6 months ^b	+	+	+
❖ Used condom at last sex with commercial partner ^c	n.s.	n/a	No impact
❖ Consistently used condoms when having sex with commercial partner in last 6 months ^c	+	n.s.	No impact
- Had sex with someone who injects drugs (in the last 6 months) ^d	n.s.	n/a	No impact
- Had unplanned sex while high on drugs ^d	n.s.	n/a	No impact
❖ Ever been tested for HIV	n.s.	n/a	No impact
OPPORTUNITY			
<i>Availability</i>			
❖ It is easy to access new needles/syringes whenever I inject	n.s.	n/a	No impact
- It is easy to get condoms whenever I need them ^d	n.s.	n/a	No impact
- Knows of at least one place to obtain HIV counseling and testing	+	+	+
<i>Social Norms</i>			
- It is common to share needles/syringes in my group of drug friends	n.s.	n/a	No impact

ABILITY			
Knowledge			
❖ Healthy-looking people can have HIV	n.s.	n/a	No impact
❖ Consistent condom use reduces risk of HIV transmission	n.s.	n/a	No impact
❖ Knows ABC	n.s.	n/a	No impact
❖ Sharing needles/syringes even once increases my risk of HIV infection	n.s.	n/a	No impact
Self-Efficacy			
- I am confident that I can avoid sharing needles/syringes when I inject together with friends	n.s.	n/a	No impact
MOTIVATION			
Attitudes			
- Scale on attitudes about condom use^d ♠	+	n.s.	No impact
- It is OK to share needles/syringes with people I know well	-	n.s.	No impact
- It is inappropriate to use condoms with a regular partner ^d	-	n.s.	No impact
- Condoms are not necessary with regular partners ^d	n.s.	n/a	No impact
- It is only necessary to use condoms with commercial sex partners ^d	-	n.s.	No impact
- It is important to know one's HIV status	n.s.	n.s.	No impact
Beliefs			
- Scale on beliefs about condom use^d ♠	n.s.	n/a	No impact
- I do not need to worry about condom use because my sex drive is low ^d	n.s.	n/a	No impact
Intention			
- In an emergency, I will share a needle/syringe	-	n.s.	No impact
- Keeps own used needle/syringe to re-use at least half of the time	-	n.s.	No impact
- Keeps extra new needle/syringe at least half of the time	+	+	+
- If my partner is very attractive looking, I am less likely to use condoms with her/him	-	n.s.	No impact
- Intend to use VCT services in next 6 months	n.s.	n/a	No impact
Locus of Control			
- If I use someone else's drugs, I have less control over whether or not I use a clean needle/syringe	n.s.	n/a	No impact
- I am more likely to have sex without a condom when I am high on drugs	n.s.	n/a	No impact
Outcome Expectations			
- Scale on outcome expectations for new needle/syringe use ♠	-	+	No impact
Threat			
❖ I am at high risk for contracting HIV	n.s.	n/a	No impact
- I am less likely than most people to get HIV/AIDS	n.s.	n/a	No impact

❖ Indicates logframe indicator

Response choices for **scaled items** were: Strongly disagree (1), disagree (2), agree (3), strongly agree (4).

a. Question asked of IDUs who shared needles/syringes in the last 3 months; Baseline n=77, Round 2 n=42; Of those who cleaned needles, most used water only.

b. Among those who reported having a regular sex partner in the last 6 months; Baseline n=152, Round 2 n=181.

c. Among those who reported having a commercial sex partner in the last 6 months; Baseline n=71, Round 2 n=76.

d. Among those who were sexually active in the last 6 months; Baseline n=379, Round 2 n=361.

♠ Scale indicators consist of:

Beliefs about condom use

- 1) Condom use does not reduce trust between partners
- 2) Condoms do not interfere with developing an emotional relationship with a sex partner
- 3) Proposing condom use would not make me appear suspicious of my partner
- 4) Proposing condom use would not make my partner suspicious of me
- 5) Even if you already share needles/syringes with a sexual partner, you should still use condoms with that person

Attitudes about condom use

- 1) It is appropriate to use condoms with a regular partner
- 2) Condoms are necessary, even with regular partners
- 3) Condoms are necessary with non-commercial sex partners

Outcome Expectations for new needle/syringe use

- 1) Using new needles/syringes can protect my veins
- 2) Using new needles/syringes can prevent abscesses
- 3) Using new needles/syringes can prevent Hepatitis B and C infection
- 4) Using new needles/syringes can prevent HIV infection

Programmatic Recommendations

Based on the results, several specific messages should be incorporated into the strategy to reduce needle-sharing. The attitude that it is okay to share needles/syringes with people one knows well was significantly associated with needle-sharing. Therefore, peer educators and messages in PSI's IEC materials should discourage sharing needles/syringes with anyone, even close and trusted friends. Realistic messages should address the possibility that injecting friends may have, at some time, shared needle/syringes with someone else. IDUs should also be reminded that if they have ever shared a needle/syringe, they could put their closest friend(s) at risk by also sharing with them. Messages should link the concept of being close friends "like brothers" with the motivation to "look out for each other." Positive reinforcement could emphasize the benefits of helping each other stay safe, such as keeping each other healthy and having each other to help through the good and bad times. Messages should specify that although an IDU may have known and trusted someone for a very long time, the risk of contracting HIV depends on the behavior, not the individual. Even one instance of sharing a needle/syringe can put the IDU at risk of HIV infection.

While discouraging needle-sharing, PSI's harm reduction activities should promote strategies IDUs can use to practice safer injecting. Specifically, IDUs should be encouraged to plan ahead for injecting by being prepared with new needle/syringes. Non-sharers were more likely than needle-sharers to agree that they are better off to plan ahead for injecting in order to avoid sharing needles/syringes in an emergency. Between 2005 and 2006, consistent use of new needle/syringes increased by 15 percentage points. Ideally this proportion should be higher: being prepared with new needles/syringes for every injection should be promoted. In addition to planning ahead, IDUs should be encouraged to enhance their preparedness to inject safely in an emergency by keeping an extra new needle/syringe. The proportion of IDUs who often keep a spare new needle/syringe increased significantly over time, but was only up to 55% by round two.

Needle-sharers were more likely than non-sharers to agree that they have less control over whether or not a clean needle/syringe is used when sharing someone else's drugs. Therefore, an aspect of planning ahead for safe injecting is to be prepared with his own needle/syringe and water for mixing drugs if an IDU expects to use someone else's drugs.

Sharing water also poses a risk for HIV transmission if IDUs extract water from the vial with used needles. Once the vial or water is contaminated by a used needle, anyone else who uses it may be at risk for HIV. Sharing water was associated with needle-sharing: three-quarters of needle-sharers said they shared water in the last 3 months. Program messages should explain the risk associated with sharing water and discourage such behavior.

In addition to sharing water and needle/syringes, blood filling and wet splitting are also risk behaviors for HIV transmission. Blood filling involves drawing blood back into the syringe after injecting a dose and then re-injecting the blood. This behavior is associated with needle-sharing, and it is a common practice for nearly 4 out of 5 IDUs. Wet splitting involves preparing multiple doses together in one syringe and then splitting the prepared drugs among several syringes. This poses an increased risk of HIV transmission if the drugs are mixed in a used syringe or if a dirty needle is used to extract a dose from the batch. While wet splitting was not significantly associated with needle-sharing, the fact that it is prevalent among more than one-quarter of IDUs is of concern: 27.5% of respondents reported that they wet split drugs at least half of the times they inject. Even IDUs who do not share needles/syringes may be exposed to HIV if those with whom they wet split drugs use dirty needle/syringes. Thus, IDUs should be educated about the risks associated with blood filling and wet splitting, and these behaviors should be discouraged.

Witnessing others sharing needles/syringes is associated with one's own needle-sharing behavior. This suggests that IDUs perceive needle-sharing to be a norm in their social networks and are therefore inclined to share needles/syringes as well. Messages must acknowledge that, while needle-sharing is strongly discouraged, it still occurs; IDUs should be urged not to approve of needle-sharing or feel that it is acceptable to share needles/syringes just because others are doing it.

Overall, IDUs should be encouraged to use condoms consistently with all partner-types, including their spouses, regular and commercial sex partners, and when having sex with someone who is also an IDU. Strategies for promoting condom use should address circumstances in which IDUs might not recognize the necessity of using condoms. Needle-sharers are more likely than non-sharers to be married, so the spouses of needle-sharers are at risk of contracting HIV if they do not use condoms. Thus, married IDUs should be encouraged to use condoms consistently in order to protect their loved ones.

While sex with someone who is also an IDU was reported by less than 6% of IDUs interviewed in round two, it should be acknowledged that this situation poses an additional risk for HIV transmission between IDUs. Condom use should be promoted on the basis that a sex partner who injects is more likely to have HIV than a partner who is not an IDU.

The attitude that “it is only necessary to use condoms with commercial sex partners” was less common in round two than at baseline. Also, only about half of IDUs with regular partners consistently used condoms with those partners in the last 6 months. Therefore, it is necessary to heavily promote condom use with non-commercial sex partners, especially regular sexual partners because they are repeatedly exposed to the risk of infection.

Because most IDUs know that healthy-looking people can have HIV, it will be difficult to increase levels of this knowledge overall. However, awareness of this fact is significantly lower among those who do not consistently use condoms. Therefore, this information should be incorporated into messages that encourage consistent condom use and discourage needle-sharing.

Like needle-sharing prevention messages, campaigns that stress the importance of being prepared with condoms could increase the likelihood of consistent condom use. Messages should encourage IDUs to be prepared to have protected sex by carrying condoms regularly. IDUs who consistently used condoms with their regular partners in the last 6 months were more likely than non-users to say that they usually carry condoms when they expect to have sex. Messages should convey that carrying condoms is especially important when IDUs get high, because having unplanned sex while high on drugs was associated with unprotected sex. As well, agreement with the statement “I am more likely to have sex without a condom when I am high on drugs” was more common among non-users than consistent condom users.

IDUs should be made aware that it is necessary and appropriate to use condoms with their regular partners, because IDUs are high risk. Consistent condom use with regular partners should be portrayed as a normal and loving part of the relationship. Messages should reinforce the need to protect loved ones from HIV via methods such as:

- Increase risk perception of IDUs, regardless of whether they know their own HIV status or that of their close friends. Emphasize that not using condoms presents a very high risk for their sexual partners.

- Reinforce IDUs' roles as a husband, boyfriend, and/or father, drawing on traditional Vietnamese notions of responsibility toward his family to encourage him to protect them by practicing safer injecting and consistent condom use.
- Increase IDUs' self efficacy to negotiate condom use, especially with regular partners where condom use has been considered unnecessary or inappropriate. IDUs should be taught strategies for incorporating consistent condom use into their relationships so they can more confidently do so and achieve increased acceptance of condom use from their partners. This may include openly discussing their drug use with loved ones or proposing condom use for birth control.

Only about half of the IDUs interviewed said they have ever been tested for HIV: this proportion did not increase significantly over time. IDUs should be targeted with messages promoting VCT. Messages should include information about locations of VCT centers and their hours of operation, because knowing of a place that offers HIV testing and counseling services was associated with having had VCT. Two concerns were more common among those who never had VCT than those who had: the fear of being seen by someone they know and the expectation of being treated poorly by health workers at an HIV testing site. VCT centers promoted by PSI's program should first be assessed for acceptable confidentiality practices, and staff should receive training on being sensitive toward high-risk clients, specifically IDUs, to prevent stigmatization.

Most IDUs are aware that it is important to know one's HIV status, but this attitude is less common among those who never had VCT. Thus, program messages should convey the importance of knowing one's HIV status. Likewise, IDUs who have had VCT should be asked to encourage their friends to get tested, because friends' encouragement is significantly associated with having VCT, and 90% of those who had VCT said they would encourage a friend to get tested.

Being told about VCT services by a healthcare provider in the last 6 months was more common among IDUs who ever had VCT than those who had not. This relationship may be bias if those who had VCT are more likely to seek health services in general which increases their opportunity to be told about VCT services by providers. However, training healthcare providers to encourage IDUs to seek VCT could be beneficial if it is possible to incorporate into PSI programming.

Population Characteristics

POPULATION CHARACTERISTICS	Thai Nguyen City (n=235)		Mong Cai (n=82)		Uong Bi (n=81)		TOTAL (N=398)	
	N	%	n	%	n	%	n	%
Age groups								
15 – 20 years old	8	3.4	8	9.8	17	21.0	33	8.3
21 – 30 years old	77	32.8	64	78.0	40	49.4	181	45.5
31 – 40 years old	127	54.0	8	9.8	23	28.4	158	39.7
41 – 45 years old	23	9.8	2	2.4	1	1.2	26	6.5
MEAN AGE	32.60		26.11		26.53		30.03	
Ethnicity								
Kinh	206	87.7	82	100	80	98.8	368	92.5
Other	29	12.3	0	0	1	1.2	30	7.5
Highest education								
Primary school	15	6.4	10	12.2	2	2.5	27	6.8
Secondary school	104	44.3	40	48.8	31	38.3	175	44.0
High school	110	46.8	32	39.0	43	53.1	185	46.5
University	6	2.6	0	0	5	6.2	11	2.8
Marital status								
Single	135	57.4	64	78.0	64	79.0	263	66.1
Married	78	33.2	14	17.1	14	17.3	106	26.6
Divorced / Separated / Widowed	22	9.4	4	4.9	3	3.7	29	7.3
Currently live with...								
Alone	22	9.4	19	23.2	6	7.4	47	11.8
Friend	0	0	12	14.6	2	2.5	14	3.5
Sexual partner	1	0.4	1	1.2	0	0	2	0.5
Spouse or family	212	90.2	50	61.0	73	90.1	335	84.2
Employment status								
Self-employed	146	62.1	53	64.6	31	38.3	230	57.8
Government/private sector	29	12.3	1	1.2	9	11.1	39	9.8
Student	2	0.9	1	1.2	7	8.6	10	2.5
Unemployed	58	24.7	27	32.9	34	42.0	119	29.9
Average monthly income level								
No response	2	0.9	0	0	0	0	2	0.5
No income	33	14.0	3	3.7	11	13.6	47	11.8
< 500,000 VND	16	6.8	5	6.1	11	13.6	32	8.0
500,000 – 999,999 VND	77	32.8	15	18.3	30	37.0	122	30.7
1,000,000 – 1,999,999 VND	89	37.9	41	50.0	21	25.9	151	37.9
> 2,000,000 VND	18	7.7	18	22.0	8	9.9	44	11.1
MEAN MONTHLY INCOME	933,691 VND		1,458,537 VND		847,531 VND		1,024,747 VND	

Drug Use and Sharing Practices

DRUG USE AND SHARING PRACTICES	Thai Nguyen City (n=235)		Mong Cai (n=82)		Uong Bi (n=81)		TOTAL (N=398)	
	N	%	n	%	n	%	n	%
Last injection								
Gave away used needle/syringe to someone else	7	3.0	0	0	1	1.2	8	2.0
Received used needle/syringe from someone else	8	3.4	2	2.4	0	0	10	2.5
Injected drugs mixed in used syringe	6	2.6	0	0	0	0	6	1.5
Used a new needle and syringe	224	95.3	80	97.6	80	98.8	384	96.5
Frequency of new needle/syringe use, last 3 months								
Never	0	0	0	0	2	2.5	2	0.5
Less than half the time	9	3.8	1	1.2	1	1.2	11	2.8
About half the time	34	14.5	4	4.9	3	3.7	41	10.3
Most of the time	58	24.7	14	17.1	10	12.3	82	20.6
Every time	134	57.0	63	76.8	65	80.2	262	65.8
Number of injections per week, last 30 days								
Not at all	2	0.9	0	0	0	0	2	0.5
1 day a week or less	2	0.9	1	1.3	0	0	3	0.8
2-3 days a week	13	5.6	10	12.7	23	29.1	46	11.7
4-6 days a week	20	8.5	12	15.2	15	19.0	47	12.0
Everyday	197	84.2	56	70.9	41	51.9	294	75.0
Place normally inject								
Home	75	31.9	16	19.5	10	12.3	101	25.4
Dealer's venue	38	16.2	5	6.1	7	8.6	50	12.6
Friend's house	0	0	3	3.7	3	3.7	6	1.5
Public place / Park / Street / Outdoors	121	51.5	58	70.7	60	74.1	239	60.1
Secrete place	1	0.4	0	0	1	1.2	2	0.5
Ever shared needle/syringes with...								
Sexual partner	7	3.0	1	1.2	3	3.7	11	2.8
Friend	55	23.4	6	7.3	15	18.5	76	19.1
Dealer	6	2.6	2	2.4	4	4.9	12	3.0
Relative	13	5.5	2	2.4	1	1.2	16	4.0
Someone don't know	7	3.0	1	1.2	1	1.2	9	2.3
Injected by someone else, last 3 months	69	29.4	30	36.6	19	23.5	118	29.6
Frequency of wet splitting								
Never	98	41.7	38	46.3	29	35.8	165	41.5
Less than half the time	76	32.3	17	20.7	31	38.3	124	31.2
About half the time	41	17.4	17	20.7	15	18.5	73	18.3
Most of the time	13	5.5	5	6.1	6	7.4	24	6.0
Every time	7	3.0	5	6.1	0	0	12	3.0
Frequency of keeping extra new needle/syringe								
Never	36	15.3	19	23.2	13	16.0	74	18.6
Less than half the time	61	26.0	24	29.3	8	9.9	40	10.1
About half the time	60	25.5	24	29.3	24	29.6	108	27.1
Most of the time	24	10.2	8	9.8	22	27.2	107	26.9
Every time	54	23.0	7	8.5	14	17.3	69	17.3

Drug-related Information

DRUG RELATED INFORMATION	Thai Nguyen City (n=235)		Mong Cai (n=82)		Uong Bi (n=81)		TOTAL (N=398)	
	N	%	n	%	n	%	n	%
Knows place to get new needles/syringe near where normally inject	215	91.5	77	93.9	74	91.4	366	92.0
Can find new needle/syringes when pharmacies are closed	158	67.8	52	63.4	67	82.7	277	69.6
Ever been arrested for drug-related offense	81	34.5	13	15.9	14	17.3	108	27.1
Ever been tested for HIV	140	60.1	35	42.7	44	54.3	219	55.3
Ever received detoxification for IDU	155	66.0	31	37.8	33	40.7	219	55.0

Sexual Behavior

SEXUAL ACTIVITY INFORMATION	Thai Nguyen City		Mong Cai		Uong Bi		TOTAL N=398	
	n	%	n	%	n	%	n	%
Ever had sex	226	96.2	75	91.5	60	74.1	361	90.7
Had partner in the last 6 months								
Regular partner	118	52.2	35	46.7	28	46.7	181	50.1
Commercial partner	47	20.8	19	25.3	10	16.7	76	21.1
Condom use with partner in the last 6 months								
<i>Regular partner</i>								
Never	33	28.0	7	20.0	4	14.3	44	24.3
Sometimes	31	26.3	5	14.3	8	28.6	44	24.3
Every time	54	45.8	23	65.7	16	57.1	93	51.4
<i>Commercial partner</i>								
Never	2	4.3	0	---	0	---	2	2.6
Sometimes	10	21.3	2	10.5	0	---	12	15.8
Every time	35	74.5	17	89.5	10	100	62	81.6
Condom use with partner at last sex								
<i>Regular partner</i>								
Yes	68	57.6	23	65.7	22	78.6	113	62.4
No	50	42.4	12	34.3	6	21.4	68	37.6
<i>Commercial partner</i>								
Yes	37	78.7	19	100	10	100	66	86.8
No	10	21.3	0	---	0	---	10	13.2
Knows place to buy condom	198	87.6	61	81.3	59	98.3	318	88.1
Ever had unplanned sex while drunk on alcohol	51	22.6	15	20.0	12	20.0	78	21.6
Ever had unplanned sex while high on drugs	56	24.8	13	17.3	13	21.7	82	22.7
Had sex with IDU in the last 6 months	15	6.6	4	5.3	2	3.3	21	5.8

Reliability Analysis

Behavior Change Determinants	Baseline		Round 2	
	Cronbach's Alpha	# of Items	Cronbach's Alpha	# of Items
Behavior: Needle-sharing				
Social norms	.6624	4		
Factor 1	-	-	.6041	3
Factor 2	-	-	.4783	3
Self-efficacy	.4777	3	.5632	3
Beliefs	.4063	3	.6494	3
Attitudes				
Needle-sharing in general	.6666	3	.6341	4
Needle-sharing in an emergency	.7316	4	.8336	3
Outcome expectations	.8586	4	.7253	4
Threat	.5017	4	.6670	3
Intention	-	-	.7012	5
Behavior: Consistent condom use with regular partners				
Beliefs	.7734	5	.7605	4
Attitudes				
Factor 1	.7121	3	.6400	3
Factor 2	-	-	.7398	3
Threat	.4322	3	.6670	3
Intention	-	-	.6125	3
Behavior: Ever had VCT				
Social support	-	-	.7353	5
Attitudes	-	-	.6188	3
Outcome expectations				
Factor 1	-	-	.6899	3
Factor 2	-	-	.3877	3
Threat	-	-	.6670	3

Behavior: Needle Sharing**SOCIAL NORMS**

At baseline:

- 1) It is common to share needles and syringes in my group of friends.^R
- 2) It is common for a group of people who buy drugs together.^R
- 3) Sharing needles and syringes can bring people closer together.^R
- 4) My friends think it is okay to inject with used needles and syringes they get from people they know well.^R

Round 2: Factor 1

- 1) It is common to share needles/syringes in my group of drug friends.^R
- 2) It is common for a group of people who buy drugs together to share needles/syringes.^R
- 3) My friends think it is OK to share needles/syringes in an emergency.^R

Round 2: Factor 2

- 1) My friends try not to share needles/syringes.
- 2) My friends would refuse to inject with a used needle/syringe offered to them by someone they know well.
- 3) When I inject in a group, my friends use their own needles and syringes.

SELF EFFICACY

At baseline:

- 1) I am confident that I can avoid sharing needles/syringes when I inject together with friends.
- 2) I am afraid to obtain needle/syringes in some pharmacies, because someone I know might see me.^R
- 3) I do not feel comfortable buying needles/syringes in a pharmacy because people may find out that I am an IDU.^R

Round 2:

- 1) I am confident that I can avoid sharing needles/syringes when I inject together with friends
- 2) I am confident that I can avoid sharing needles/syringes even when I have drug hunger

- 3) I am confident that I can plan to have new needle/syringes ready whenever I inject

BELIEFS

At baseline:

- 1) There is no need to use new needles/syringes when injecting with new users because they are unlikely to be infected with HIV.^R
- 2) If I only share needles/syringes with my closest friends, there is no risk for HIV.^R
- 3) I am afraid the police will arrest me if they find out I am carrying needles/syringes.^R

Round 2:

- 1) There is no need to use new needles/syringes when injecting with new users because they are unlikely to be infected with HIV.^R
- 2) Sharing needles and syringes with my closest friends does not pose a risk for HIV.^R
- 3) It is not dangerous if I only share needles/syringes once in a while.^R

ATTITUDES (about needle-sharing in general)

At baseline:

- 1) It is okay to share needles/syringes with people I know well.^R
- 2) If I have shared a needle/syringe with someone once, it is okay to share again.^R
- 3) It does not matter if I give someone else my used needle/syringe.^R

Round 2:

- 1) It is okay to share needles/syringes with someone I have sex with.^R
- 2) It is okay to share needles/syringes with people I know well.^R
- 3) It does not matter if I give someone else my used needle/syringe.^R
- 4) It is okay to share needles/syringes with someone who looks healthy.^R

ATTITUDES (about drug hunger)

At baseline:

- 1) If my drug hunger is too strong, I will use someone else's needle/syringe if I have to.^R
- 2) I will do anything to avoid drug hunger, including using someone else's needle/syringe.^R
- 3) In an emergency, it is sometimes necessary to use someone else's needle/syringe.^R
- 4) It is difficult to use a new needle/syringe when I am in a hurry to inject.^R

Round 2:

- 1) If my drug hunger is too strong, I sometimes have to use someone else's needle/syringe.^R
- 2) I will do anything to satisfy drug hunger quickly, including using someone else's needle/syringe.^R
- 3) In an emergency, it is sometimes necessary to use someone else's needle/syringe.^R

OUTCOME EXPECTATIONS

Both rounds:

- 1) Using new needles/syringes can protect my veins.
- 2) Using new needles/syringes can prevent abscesses.
- 3) Using new needles/syringes can prevent Hepatitis B and C infection.
- 4) Using new needles/syringes can prevent HIV infection.

INTENTION

Round 2:

- 1) In the future, I will probably share a needle/syringe.^R
- 2) In an emergency, I will share a needle/syringe.^R
- 3) I will never share a needle/syringe again.
- 4) I will give someone my used needle/syringe if they ask.^R
- 5) I will be prepared with my own new needle/syringe the next time I inject.

THREAT

At baseline:

- 1) I am at high risk for contracting HIV/AIDS.
- 2) I am not the sort of person who will get HIV/AIDS.^R
- 3) I am less likely than most people to get HIV/AIDS.^R
- 4) I am not concerned about protecting myself from HIV/AIDS.^R

Round 2:

- 1) I am at high risk for contracting HIV/AIDS.
- 2) I have already done things (behaviors) that put me at risk of contracting HIV.
- 3) I am less likely than most people to get HIV.^R

Behavior: Condom Use with Regular Partners**BELIEFS**

At baseline:

- 1) Condom use reduces trust between partners.^R
- 2) Condoms interfere with developing an emotional relationship with a sex partner.^R
- 3) Proposing condom use would make me appear suspicious of my partner.^R
- 4) Proposing condom use would make my partner suspicious of me.^R
- 5) If you already share needles/syringes with a sexual partner, there is no need to use condoms with that person.^R

Round 2:

Items 1-4 from baseline.

ATTITUDES

At baseline:

- 1) It is inappropriate to use condoms with a regular partner.^R
- 2) Condoms are not necessary with regular partners.^R
- 3) Condoms are only necessary with commercial sex partners.^R

Round 2: Factor 1

Same as baseline.

Round 2: Factor 2

- 1) Using condoms feels unnatural.^R
- 2) Using condoms makes sex less satisfying.^R
- 3) Using condoms is inconvenient.^R

THREAT

At baseline:

- 1) I am not the sort of person who will get HIV/AIDS.^R
- 2) I am less likely than most people to get HIV/AIDS.^R
- 3) I am not concerned about protecting myself from HIV/AIDS.^R

Round 2:

- 1) I am at high risk for contracting HIV/AIDS.
- 2) I have already done things (behaviors) that put me at risk of contracting HIV.
- 3) I am less likely than most people to get HIV.^R

INTENTION

- 1) I am not usually prepared with condoms before I have sex.^R
- 2) If my partner is very attractive looking I am less likely to use condoms with her.^R
- 3) I probably will not use a condom the next time I have sex.^R

Behavior: Condom Use with Regular Partners**SOCIAL SUPPORT**

Round 2:

- 1) My friends have encouraged me to get tested for HIV.
- 2) My family would think it is a good idea for me to get tested for HIV.
- 3) People I know would help me find a place to get tested for HIV if I asked them.
- 4) If I asked, my closest friend would go with me if I went for an HIV test.
- 5) My friends would support my decision to get tested for HIV.

ATTITUDES

Round 2:

- 1) It is important for a person to know his/her HIV status.
- 2) It is important to know my HIV status in order to protect my partner(s).
- 3) Knowing my HIV status is important for planning my future.

OUTCOME EXPECTATIONS

Round 2: Factor 1

- 1) If I tested positive for HIV, I would experience discrimination and social isolation.^R
- 2) If I tested positive for HIV, my family would reject me.^R
- 3) If I tested positive for HIV, I would lose my friends.^R

- 4) If I tested positive for HIV, I am afraid I would not be able to get treatment. ^R
- Round 2: Factor 2
- 1) Getting tested for HIV would give me freedom from my worries.
 - 2) If I got tested for HIV, my results would be kept confidential.
 - 3) If I tested positive for HIV, my family would still love and support me.

R = reverse coded

Methodology

Sampling and participants The sample population was male IDUs aged 15 to 45 who live in Uong Bi or Mong Cai towns in Quang Ninh province or Thai Nguyen City in Thai Nguyen province. In order to be included in the study, IDUs must have injected any sort of drug for at least a period of one month and have injected drugs within the last 6 months from the day of the interview.

Data Collection Procedure This survey used Respondent-Driven Sampling (RDS) to recruit respondents. Six seeds were selected in Thai Nguyen City, three seeds in Mong Cai, and two in Uong Bi. In an effort to diversify the sample, seeds were recruited with different combinations of age and length of injecting experience. For recruitment, each seed received three coupons to give to members of his social network and all recruited respondents received three coupons. This chain-referral method was followed until 82 respondents were recruited in Mong Cai, 81 in Uong Bi, and 235 in Thai Nguyen City. Unique serial numbers on each coupon were recorded to link each respondent to his network. Interviews were conducted in tea stalls and culture houses located nearby “hot spots.” IDUs who received coupons presented them to the research team at the interview location listed on the coupon. Those who consented to participate in the interview were asked to answer screening questions to verify eligibility and that they were truly IDUs. In addition, a ‘unique identifier code’ (constructed from their initials and month and year of birth) and biomarkers were taken from study participants to check for duplication. The team recorded scars, birthmarks and tattoos and measured the length of the left forearm and circumference of the left wrist. If an IDU met the inclusion criteria and passed the screening test, he was allowed to be interviewed. For this second round of the tracking study, data were collected in July and August 2006.

The computer software RDS Analysis Tool (Heckathorn 2004) was used to calculate the equilibrium of study data. Proportions are different between the needle sharing and non-sharing groups and the sample population proportion for each of the study areas is within the acceptable range of results (-2% and +2% of the equilibrium sample distribution). The estimated number of waves required was two in each of the study locales; recruitment extended to at least 4 waves in each study site. Two-by-two recruitment tables in RDS Analysis Tool revealed that sharers recommended non-sharers for study participation and vice versa. It is therefore assumed that the study sample reached equilibrium and approximates a probability sample.

Equilibrium Proportion	Thai Nguyen City		Mong Cai		Uong Bi	
	Sharers	Non-sharers	Sharers	Non-sharers	Sharers	Non-sharers
Estimated Population Proportion	0.131	0.868	0.037	0.962	0.020	0.979
Sample Population Proportion	0.144	0.855	0.060	0.939	0.037	0.962
Equilibrium Sample Distribution	0.149	0.850	0.050	0.949	0.037	0.962

Survey Instrument(s) The first two pages of the questionnaire covered screening questions which examined preliminary qualifications and verified whether or not individuals volunteering for interviews were truly IDUs. The main questionnaire included seven sections: background characteristics, personal drug use and sharing practices, perceptions and knowledge about needle-sharing, sexual practices and condom use, perceptions about condom use, experience with and opinions about HIV testing, and exposure to products and services. Questions measuring opinions and beliefs were presented on a 4-point Likert scale: 1) Strongly disagree, 2) Disagree, 3) Agree, 4) Strongly agree. The questionnaire was pre-tested among IDUs in Hanoi before study implementation and the language improved. Reliability tests were also conducted on scaled items based on pre-testing responses: constructs and items deemed unreliable were abandoned or revised.

Analytic Technique Data were entered using EpiData software and cleaned in SPSS by the research agency, the Center for Community Research and Development. The PSI research manager and consultant cleaned and verified data again before analysis. SPSS 11.0 was used for analysis. Data were analyzed using PSI's Dashboard Analysis techniques. The following analyses were conducted:

- Reliability testing was conducted for scaled items. Scales were considered reliable if they achieved a Chronbach's alpha of .70 or higher. Individual items from unreliable scales were used in subsequent analyses, but as individual predictors of needle-sharing or condom use.
- Scaled constructs, individual items from unreliable scales, population characteristics, and exposure indicators were tested for bivariate correlations with the outcome variable – either needle-sharing, condom use, or VCT. Predictors from each bubble category (opportunity, ability, and motivation) that were significantly correlated with the behavioral outcome were included in the logistic regression model. All

population characteristics and exposure indicators that were significantly correlated with the outcome variable were also included in the logistic regression model.

- Logistic regression analyses were conducted until a model containing only significant predictors of the outcome was produced. Odds ratios for significant predictors were converted to percentages or means, adjusted for the effects of other significant factors in the model via ANOVA MCA. Unadjusted proportions were also run for variables that were significantly correlated with the outcome, but not significant at the multivariate level. Data were unweighted.
- To monitor changes over time, UNIANOVA was conducted on behavior variables and all OAM determinants that were significant in the baseline or round two segmentation analyses. Sociodemographic characteristics were controlled in the UNIANOVA.
- To assess the impact of PSI's harm reduction activities, evaluation analyses were conducted for each variable that was significant in the monitoring analyses. UNIANOVA was used to test for significant differences in behavior and predictor variables by level of exposure, controlling for sociodemographic characteristics.

Challenges As with all studies, challenges were encountered during this research, particularly during data collection. A police campaign targeting drug users was underway in Thai Nguyen City during the week interviews were conducted for this study. Some IDUs were reluctant to come to the interview sites for fear of police presence, which slowed the data collection process. PSI field staff negotiated with local authorities to “lighten-up” on their campaign around the interview sites so that our research could be conducted. However, the research team was unable to reach the desired sample size of 240 IDUs in Thai Nguyen City within the time allotted for conducting research there.

The team also had trouble recruiting enough IDUs in Mong Cai. It was evident that the incentives for referrals and participation in the interview were too low for Mong Cai. Because it is a border town and wages are higher than usual, drugs are much more expensive there. (Some IDUs spend 1 million VND per day on drugs.) In some cases, IDUs left town without distributing their referral coupons, to work in China where they could earn considerably more than the incentive we were offering for referrals. Therefore, RDS referral process proceeded slowly. A third seed was recruited, because referral chains from the first two seeds were not progressing quickly enough to reach the target sample size in the time allotted. The incentive for participation also

seemed too low; for example, one IDU commented that being thanked for completing the interview was more important to him than the incentive, because it was not very much money.

Finally, the biomarker measurements that were taken to prevent repeat participation were not diverse enough among the participants to be used for the intended purpose. The research team relied mostly on UICs and general recognition to identify IDUs who tried to be interviewed twice. While they feel this alternative was effective for preventing duplication, it is not an ideal method, especially for larger sample sizes.

Improvements for Future Study Rounds The next round of data collection should be planned for a time that does not coincide with a police campaign. PSI's field supervisors should communicate with local authorities to determine when police campaigns are planned, so that the survey can be scheduled for a time when there is unlikely to be interference from police. During the next study round, the value of incentives should be re-evaluated to ensure they are appropriate for the economic context in each town/city. A new screening procedure should be developed for future study rounds. Ideally, the procedure would be more precise and effective and less cumbersome than the system used during the baseline and round two. One idea that was explored is using semi-permanent ink to mark the hands of IDUs who were interviewed; however, we were unable to find ink that stays on skin for at least one week. Given more time to look for such a product, perhaps this procedure could be implemented for the next round. The new procedure should be pre-tested before it is used in the field.

For the next survey round, the questionnaire should be revised to include improved scaled items and will exclude factors not correlated with the outcome of interest or important for programmatic implementation. Scales that were not reliable in this analysis should be revised and pre-tested again, especially scaled items that were not individually correlated with the behavioral outcomes.

Performance Framework for Social Marketing

