

Community-based Voluntary Counseling and Testing Services in Rural Communities of Chiang Mai Province, Northern Thailand

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Abstract Between September, 2002 to May, 2003, we implemented community-based HIV Voluntary Counseling and Testing (VCT) services in four rural areas of Chiang Mai Province. The services included providing HIV/AIDS education and free mobile VCT using rapid testing with same day results. Overall, 427 villagers came for VCT (testers) and consented to be interviewed. HIV prevalence among testers was 4.9%, range from 1.1 to 8.4% by area. 'It is free' and/or 'convenient' were the most frequently cited factors that motivated them to get tested (72%) from our mobile VCT. Rural residents came for VCT when logistical barriers were removed. HIV prevalence among testers in some areas was high. Without extending HIV prevention efforts to population segments with less access to health care, the HIV problem in Thailand may re-emerge. Convenient and low-cost VCT may prove crucial for containing this HIV epidemic.

Keywords HIV · VCT · Rural Thailand

Introduction

Voluntary counseling and testing (VCT) is an important strategy for HIV prevention and is an entry point to care, treatment, and support for HIV infected individuals. In many settings HIV infected persons can benefit greatly from timely antiretroviral treatment (ART) as it has become more widely accessible. The World Health Organization (WHO) announced at the 2004 International AIDS Conference it planned to treat 3 million persons by 2005. The first step to access ART (as well as other supportive services and treatments) is to know one's HIV sero-status. Studies have shown the efficacy of VCT in decreasing risky behaviors at individual levels in largely healthy populations (The Voluntary HIV-1 Counseling and Testing Efficacy Study Group, 2000; UNAIDS, 1999). Increasing HIV testing prevalence in populations should benefit the overall public health and that of infected individuals. However, there remain important practical and psychological barriers to VCT. Transmission routes of HIV have made HIV/AIDS a highly stigmatized disease in many places, particularly where large HIV knowledge gaps exist. Adding practical barriers, which include cost, distance, language among minority populations, and inconvenient times and locations, make it hard for individuals to seek VCT services. Morin et al. showed that in Zimbabwe when structural barriers were removed by providing mobile VCT services in the community, the services were well accepted in study communities (Morin et al., 2006). To our knowledge, no study has investigated the acceptance and attitudes toward community-based VCT in Thailand, where clinic-based VCT services have been available at all government hospitals since 1992 at a fee of US \$5–\$6. The Thai government has put access to VCT as a primary

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component of the national HIV prevention program (Kawichai et al., 2002).

In 2002 we carried out a study of community-based VCT by providing HIV/AIDS education using group discussions for community members and free, confidential, rapid HIV testing with same day results in conjunction with counseling in rural communities to assess acceptability, motivations, barriers and attitudes toward community-based VCT. Four rural areas in four districts of Chiang Mai Province in northern Thailand, were selected for our study.

Methods

Participants

Four rural areas with a high density of ethnic minority populations in four districts of Chiang Mai Province were purposively selected for this study. This region was the most severely affected by HIV in the country early in the nation's epidemic. While the population of this region accounts for only 8% of the national population, as of December 31, 2005, 32% of 283,668 AIDS cases and AIDS related deaths nationally were from this region (Thai Ministry of Public Health, 2006). The region experienced high HIV prevalence in drug users, women attending antenatal care, and direct (brothel-based) female sex workers. (Thai Ministry of Public Health, 2003) There were 33 villages in the four study areas. Our targeted population was community residents aged 16 years or older. Persons under 16 years of age were excluded because they were minors and, according to the Institutional Review Board, parental consent was required to receive VCT services. Therefore, our VCT services would not have been able to maintain the principle of confidential or anonymous testing as stated in the study protocol.

Measures

Study Process

After selecting the study sub-districts, our investigators had meetings with community leaders and local health ministry personnel to explain the study, solicit attitudes toward the project, seek suggestions for ways to operate the services, and seek cooperation and assistance from them including publicizing our services. We also obtained selected community electronic files of resident lists from the community health offices prior to provision of the services. The resident list contained household address and persons living in the household. After the meetings, HIV/AIDS education was launched in each community 2–3 days prior to offering

mobile VCT services. Two-way communication and group discussions were used for the educational programs conducted at a convenient location in the community. HIV/AIDS educational session attendees were informed about the community-based VCT service, including place, date, and time. Flyers and brochures for VCT services were distributed through out the community. Community leaders and health personnel also helped to publicize the VCT services to their community members (Table 2).

VCT Services

Public venues in the community such as a health station, temple (*wat*), or government school were selected as VCT service locations. Tables and chairs were set up in buildings, tents, and under trees where there was sufficient privacy for registration, interviewing, counseling, and HIV testing. As individuals presented and requested VCT (testers), they were asked to register and were given the option of either confidential or anonymous HIV testing. For those choosing confidential testing, the registrar marked their name on the resident list and provided them a card with a study unique number for receiving test results. Participants then provided written informed consent for an interview and HIV testing. Informed consent processes and the interview were conducted by a trained study staff member. Persons who were unable to provide consent or were younger than 16 years old were declined services but provided a referral. The interview included socio-demographic information, recent and past HIV risk behaviors, HIV testing history, motivations and barriers to VCT, including participation in our program. Following the interview, participants received pre-test counseling, HIV testing, post-test counseling and test results by trained counselors and phlebotomists. The counseling model followed the Thai Ministry of Public Health guidelines. The VCT services provided same-day results at no cost to study participants. The interview, pre-test and post-test counseling were provided to participants in their language of choice.

Non-testers Quantitative Interview

After the study VCT services were provided to the community, the list of residents aged 16 and older who did not come for the services (non-testers) were created by deleting the testers and those aged under 16 from the resident list to randomly select non-testers for an interview similarly to the testers. The interviewers were instructed to ask the prospective non-tester participants if they received VCT services from our study prior to obtaining consent for the interview to make sure the cases were not testers.

Table 1 Comparing characteristics between testers and non-testers

Characteristics	Testers (N = 427)	Non-testers (N = 389)	Test statistic (P-value)
Age			
Range	16–71	16–75	
Means (SD)	38.4 (11.7)	39.0 (11.8)	$t = -0.7$ (*)
Median (IQR)	38 (18) # %	40 (18) # %	
Gender			
male	203 47.5	179 46.0	$\chi^2 = 0.2$ (*)
Female	224 52.5	210 54.0	
Occupation			
No job	12 2.8	20 5.1	$\chi^2 = 8.0$
Farmer	267 62.5	260 66.8	($P < .05$)
Laborer	99 23.2	64 16.4	
Others	49 11.5	45 11.6	
Marital status			
Never married	47 11.0	40 10.3	$\chi^2 = 7.8$
Currently married	323 75.6	319 82.0	($P < .05$)
Divorce	32 7.5	14 3.6	
Widow	25 5.8	16 4.1	
Ethnicity			
Thai lowland	318 74.5	247 63.5	$\chi^2 = 11.5$
Ethnic minorities	109 25.5	142 36.5	($P < .01$)
Ethnic minorities			
Karen	49 11.5	60 15.4	Φ
Lisu	18 4.2	19 4.9	
Lahu	23 5.4	43 11.0	
others	19 4.4	20 5.1	
Education			
No schooling	74 17.3	113 29.1	$\chi^2 = 16.3$
Primary school	256 50.0	205 52.8	($P < .01$)
Secondary school	56 13.1	40 10.3	
High school or higher	41 9.6	30 7.8	
Ever used illicit drug			
Never	344 80.6	317 81.5	$\chi^2 = 0.1$ (*)
Ever	83 19.4	72 18.5	
Lifetime # of partners			
None	22 5.2	30 7.7	$\chi^2 = 25.0$
One	164 38.5	204 52.4	($P < .01$)
Two to three	103 24.2	81 20.8	
Four or more	136 32.0	74 19.0	
# sex partners in the past 6 months			
None	90 21.2	76 19.5	$\chi^2 = 11.3$
One	316 74.3	310 79.7	($P < .01$)
More than one	19 4.5	3 0.8	

Table 1 Comparing characteristics between testers and non-testers

Characteristics	Testers (N = 427)	Non-testers (N = 389)	Test statistic (P-value)
Ever had casual sex			
Never	385 90.6	371 95.4	$\chi^2 = 7.0$
Ever	40 9.4	18 4.6	($P < .01$)
Ever be CSW			
†2			
No	391 97.0	358 99.7	One side
Yes	12 3.0	1 0.3	exact test ($P < .01$)
Among female participants (♦) N = 224 N = 210			
♦ Ever be CSW			
†2			
No	210 94.6	209 99.5	One side
Yes	12 5.4	1 0.5	exact test ($P < .01$)
Among male participants (▲) N = 203 N = 179			
▲ Ever had sex with male			
Never	198 97.5	178 99.4	One side
Ever	5 2.5	1 0.6	exact test (*)
▲ Ever visit CSW			
Never	96 47.3	111 62.0	$\chi^2 = 8.3$
Ever	107 52.7	68 38.0	($P < .01$)
▲ Visited CSW in the past 6 months			
No	195 96.0	178 99.4	One side
Yes	8 4.0	1 0.6	exact test ($P < .01$)
▲ Using condom at last CSW			
No	58 54.7	37 55.2	$\chi^2 = 0.004$
Yes	48 45.3	30 44.8	(*)
▲ Time since last CSW			
Less than a year	11 10.5	1 1.5	Φ
1–2 years	4 3.8	4 6.2	
3–5 years	10 9.5	3 4.6	
More than 5 years	80 76.2	57 87.7	
Ever been sick or worried about HIV/AIDS			
Ever	32 8.6	17 4.8	$\chi^2 = 4.2$
Never	340 91.4	339 95.2	($P < .05$)
Ever had HIV test:			
†2		†1	
Yes	131 30.7	111 28.5	$\chi^2 = 0.5$ (*)
No	294 68.8	277 71.2	
Among who ever had HIV test (●) N = 131 N = 111			
● # of time tested			
One time	66 50.4	56 50.4	ϕ
Two times	38 29.0	31 27.9	
More than two times	27 20.6	24 21.6	
● (Selected) reasons for seeking the test			
Pregnant	32 24.4	31 27.9	$\chi^2 = 0.4$ (*)
Felt sick	12 9.2	15 13.5	$\chi^2 = 1.2$ (*)
Wanted to know HIV status	20 15.3	9 8.1	$\chi^2 = 3.8$ (*)
Had risk behavior	9 6.9	3 2.7	$\chi^2 = 2.2$ (*)

Table 1 Comparing characteristics between testers and non-testers

Characteristics	Testers (<i>N</i> = 427)		Non-testers (<i>N</i> = 389)		Test statistic (<i>P</i> -value)
Doubtful about partner risk behavior	9	6.9	1	0.9	One side exact test (<i>P</i> < .01)
(Selected) reasons for not seeking HIV test prior to participate in this study	<i>N</i> = 294		<i>N</i> = 277		
Did not know where to get tested	25	8.6	10	3.6	$\chi^2 = 5.9$ (<i>P</i> < .05)
Could not afford the expense	36	12.3	8	2.9	$\chi^2 = 17.6$ (<i>P</i> < .01)
Perceived no risk to get infected	174	59.6	226	81.6	$\chi^2 = 34.1$ (<i>P</i> < .01)
Afraid to know the test result	11	4.8	10	3.6	$\chi^2 = 0.007$ (*)

Note: * = Not significant, Φ = not test, † = number of missing answer

Qualitative Study

Samples of village leaders, testers, and non-testers were selected for an in-depth interview to solicit opinions about community based VCT services. All village leaders were approached and those who agreed to participate were interviewed. After the non-testers completed the quantitative interview, testers and non-testers were randomly selected from the VCT register and the interview list for in-depth interviews.

HIV Testing

Two rapid tests approved by the Thai Ministry of Public Health, *Determine* (Abbott, Tokyo, Japan) and *Bioline* (IMMUNO CHEMICAL LAB, CO. Bangkok, Thailand), were run simultaneously on whole blood obtained from a finger prick. Concordant positive or negative results were considered to be true positive or true negative results. Participants who had discordant results were asked to provide a venous blood sample for confirmatory testing at

the Research Institute for Health Science, Chiangmai University by enzyme linked immunosorbent assay (ELISA) using commercially licensed reagents (Vironostica HIV Uni-form II plus 0, Organon Teknika). Non-reactive specimens by ELISA were considered HIV negative. Specimens reactive by ELISA were further confirmed by Western blot (HIV Blot 2.2, Genelabs Diagnostics, Singapore).

Data Analysis

All data were double entered and verified. Percent distributions, Chi-square tests, *t*-test, odds ratios (OR) and 95% confidence intervals (CI) were used for quantitative data analysis. The dependent variable for the comparative analysis between testers and non-testers was the tester and non-tester category. Selected socio-economic, history of drug use, sexual behaviors, history of HIV test, and HIV test stigma were the independent variables. In investigating HIV prevalence among testers, HIV status was the dependent variable and selected socio-economic, history of drug use, sexual behaviors, and HIV test history were the independent variables. The in-depth interviews were coded and emerging patterns and themes were assessed using ATLAS.ti.

Results

There were approximately 21,400 persons in the target population (aged > 15 years old) in the four selected communities and a total of 2,188 (about 10%) participated in HIV/AIDS education sessions during the 31 days that staff were on-site. The mobile VCT unit provided VCT to community members for 20 days at various locations and 451 persons came forward for HIV testing. Overall, only 5.3% (24 persons) declined the test after pre-test counseling, reporting they had no HIV risk (20 out of 24) as their reason for withdrawing from the study. While both anonymous and confidential VCT were offered to the clients, all

Table 2 Stigma on having HIV test among testers and non-testers

	Testers		Non-testers		χ^2 (<i>P</i> -value)
	#	%	#	%	
• Worried someone would recognize you (YES)	33	7.7	29	7.4	0.02 (*)
• You would be labeled HIV positive (Yes)	41	9.6	50	12.8	2.2 (*)
• Someone would see you and go to tell your friends/family/relatives (YES)	33	7.7	36	9.2	0.6 (*)
• Worried your spouse or partner would find out about your coming for HIV test (Yes)	23	5.4	24	6.2	0.2 (*)

Questions for testers: Did you think about any of the following while walking for HIV test at our mobile services? (*n* = 427)

Question for non-testers: You did not come for our services because you have the following ideas. (*n* = 389)

Note: * = Not significant

of them chose confidential VCT. On average, there were 23 VCT clients per day (range 6–58). All but one participant returned for HIV results on the same day. A random sample of 389 non-testers (95.6% response rate) consented to be interviewed after the completion of VCT services in each community.

Comparisons of Testers and Non-testers' Characteristics

Overall, 427 participants came for community-based VCT (testers) and a random sample of 389 community non-testers were compared: they were similar in age (Mean (sd), testers = 38.4(11.7), non-testers = 39.0(11.8); t (df = 814) = -0.73, Not significant), gender proportion (52.5 vs. 54.0% are female; χ^2 (df = 1) = 0.2, Not significant), and history of any illicit drug use (19.4 vs. 18.5%; χ^2 (df = 1) = 0.1, Not significant). However non-testers when compared to testers were: more often currently living with spouse (82.0 vs. 75.6%; χ^2 (df = 1) = 4.9, $P < .05$), had a larger proportion of ethnic minorities (36.5 vs. 25.5%; χ^2 (df = 1) = 11, $P < .01$), and a greater proportion had no formal education (29.1 vs. 17.3%; χ^2 (df = 1) = 17.8, $P < .01$).

With respect to sexual behavior risk, testers were: more likely to have more than one sexual partner both in their lifetime and in the past six months (56.2 vs. 39.8%; χ^2 (df = 1) = 21.8, $P < .01$; and 4.5 vs. 0.8%; χ^2 (df = 1) = 10.6, $P < .01$, respectively), more likely to have been engaged in commercial sex among female participants (5.4 vs. 0.5%; exact test, $P < .01$), and more likely to have a history of visiting commercial sex workers (CSW) among male participants (52.7 vs. 38.0%; χ^2 (df = 1) = 8.3, $P < .01$). Of men who ever visited a CSW, testers had a higher proportion who visited a CSW in the past year compared to non-testers (10.5 vs. 1.5%; χ^2 (df = 1) = 4.9, $P < .05$).

About one-third of testers (30.8%) and non-testers (28.6%) gave a history of receiving a prior HIV test, and 28.5 and 21.2% of them tested two or more times, respectively. Of the reasons for not getting an HIV test prior to participating in this study, perceiving no personal risk was the leading reason for both testers and non-testers, but more frequently cited among those who did not receive the study VCT (59.6 vs 81.6%; χ^2 (df = 1) = 34.1, $P < .01$).

Reasons and Motivations for Getting an HIV Test from the Study VCT Unit (Testers)

More than half (53.3%) of the participants cited "I want to know my HIV sero-status" as their reason to come for

VCT from our mobile unit. Other reasons included: 24.2% were engaged in risk behaviors, 11.4% did not want to worry any longer, and 12.5% gave others reasons. Of the motivations to come forward for VCT at the unit cited by the testers (can have more than one motivation) were that the services were free of charge (54.5%), the service was in the community with easy to access and convenience (54.3%), and knowing the result on the same day (4.2%).

Reasons for not Coming Forward for HIV Test at the Study VCT (Non-testers)

Of the 389 non-testers, 74.3% reported they knew about our services prior to the service days, of whom, 63.3% learned the news from village leaders and/or local health personnel. The reasons cited by these non-testers for not coming forward for our study VCT services included "Not being in the community on the service day" (42.3%), "Had no risk for HIV infection" (34.9%), "Did not understand clearly about the service or did not know the services dates" (24.2%), and "Had an HIV test already" (5.0%). When asking "Would you decide to get the test if the services return to your community again?" 78.8% responded affirmatively.

Interpersonal HIV Testing Stigmatization

Interpersonal stigmatization around the HIV test both among testers and non-testers was similar and, surprisingly, uncommon. While testers were waiting to get their HIV test at the mobile unit, 7.7% worried that someone would recognize them, 9.6% reported they were afraid they would be labeled as HIV infected, 7.7% thought someone would see them and would tell their friend/family/relatives, and 5.4% worried that their spouses or partners would find out about their coming for the test. Of the non-testers 7.4, 12.8, 9.2, and 6.2% had the above concerns, respectively, to be important factors preventing them from coming for VCT at the mobile unit (Tables 1 and 2).

HIV Prevalence Among Testers

Twenty-one (4.9%) of 427 participants who presented for our study VCT services tested positive for HIV, and HIV prevalence varied between communities, ranging from 1.1% to 8.4%. In bivariate analysis, those aged between 26–35 years were more likely to be infected compared to those aged more than 45 years (OR = 4.4; 95% CIs 1.1, 25.3; $P < .05$), widowers were 6 times (OR = 6.0; 95% CIs 1.3, 22.8; $P < .01$) more likely to be infected compared to couples who lived together, and those who had more than three lifetime partners were almost 10 times more likely to

be infected (OR = 9.7; 95% CIs 2.1, 89.7; $P < .01$) compared to those who had one partner or none. Women with a history of being a CSW (OR = 11.4; 95% CIs 1.6, 63.3; $P < .01$) were also highly likely to be HIV seropositive. Those who had a prior HIV test were also more likely to test positive (OR = 4.9; 95% CIs 1.8, 14.8; $P < .01$). All 21 positive cases were healthy and had no HIV/AIDS symptoms at the time of getting the study HIV test. Fourteen (70%) of the positive cases reported an HIV test previously and of their previous test; 8 (57.1%) reported negative results, 2 (14.3%) did not know the result, and 4 (28.6%) reported a positive test result (Table 3).

Motivations, Barriers and Attitudes to Community VCT—Results from In-depth Interviews

A total of 31 village leaders, 54 testers, and 43 non-testers completed in-depth interviews. In general, community attitude towards the mobile VCT services was viewed very positively by all three groups, especially among village leaders. The main motivations cited by testers for seeking VCT included a high self-perceived risk of HIV, being unsure of their sexual partner's history, the convenience of the mobile unit, and the free cost. Two classes of barriers to testing were noted by non-testers: those with time conflicts because of work and those with a very low perceived risk of HIV. Having already been tested and a fear of testing positive also influenced non-testers' decisions, while fear of stigma was a less commonly cited factor.

Discussion

The main reasons to seek HIV testing among the study participants included a desire to know their HIV result (53.3%) and recently engaging in risk behaviors (24.2%). Risk perception for HIV acquisition or transmission has been shown to be a major motivator for seeking HIV testing (Irwin et al., 1996, Stein and Nyamathi, 2000). Thus, VCT may be viewed as attractive to persons at risk for HIV infection. The principal motivations for coming for mobile VCT were that it was free (54.5%) and easy to access in convenient locations (54.3%). However, several barriers were cited by non-testers that prevented them from coming forward, including not being in the community on the service date (42.3%) and not being aware of study dates and times of services (24.2%). Perceived non-risk for HIV infection was cited by 34.9% of non-testers for not seeking VCT. The motivations and barriers identified from quantitative data were supported by the results from the qualitative in-depth interview data.

Table 3 HIV prevalence among testers by characteristics

Characteristics	Total #	HIV+		OR (95% CIs); P -value
		#	%	
Gender				
Male	203	12	5.9	1.50 (0.56, 4.12); *
Female	224	9	4.0	Reference
Age				
25 or younger	67	1	1.5	0.61 (0.01, 7.80); *
26–35	102	10	9.8	4.38 (1.08, 25.32); $P < .05$
36–45	134	7	5.2	2.22 (0.49, 13.58); *
Older than 45	124	3	2.4	Reference
Occupation				
No job	12	1	8.3	2.34 (0.05, 19.29); *
Farmer	267	10	3.8	Reference
Laborer	99	10	10.1	2.89 (1.04, 7.99); $P < .05$
Others	49	0	0	–
Marital status				
Never married	47	3	6.4	2.13 (0.36, 8.70); *
Currently married	323	10	3.1	Reference
Divorce	32	4	12.5	4.47 (0.95, 16.69); *
Widow	25	4	16.0	5.96 (1.25, 22.77); $P < .01$
Ethnicity				
Thai lowland	318	19	6.0	3.40 (0.80, 30.5); *
Ethnic minorities	109	2	1.8	Reference
Education				
No schooling	74	2	2.7	1.11 (0.06, 67.16); *
Primary school	256	14	5.5	2.31 (0.33, 100.24); *
Secondary school	56	4	7.1	3.08 (0.29, 155.23); *
High school or higher	41	1	2.4	Reference
Ever used illicit drug				
Never	344	14	4.1	2.17 (0.71, 5.98); *
Ever	83	7	8.4	Reference
Ever had HIV test				
Yes	131	14	10.7	4.94 (1.80, 14.78); $P < .01$
No	296	7	2.4	Reference
Lifetime # of partners				
None or One	186	2	1.1	Reference
2–3	103	5	4.8	4.69 (0.75, 49.86); *
4 or more	136	13	9.6	9.72 (2.13, 89.69); $P < .01$
Ever had casual sex				
Never	375	14	3.7	Reference
Ever	38	3	7.9	2.21 (0.39, 8.46); *
Among female: ever be CSW				
No	211	6	2.8	Reference
Yes	12	3	25.0	11.39 (1.55, 63.34); $P < .01$
Among male: ever had sex with male				
Never	197	11	5.6	Reference
Ever	5	0	0	–

Table 3 continued

Characteristics	Total #	HIV+ #	%	OR (95% CIs); <i>P</i> -value
Among male: ever visit CSW				
Never	95	4	4.2	Reference
Ever	107	7	6.5	1.59 (0.39, 7.65); *

Note: * = Not significant

Stigma related to HIV testing is less a problem for these rural residents than anticipated. Only about 10% of testers and non-testers (range from 5.4–12.8%) felt that they would be labeled as HIV positive or were afraid of that a family member would know that they were seeking an HIV test. Expanding and removing structural and practical barriers to VCT will reach at-risk individuals as well as community members at large and HIV testing could become a social norm in the community. Service time should be adjusted to accommodate the community members' time schedules. Providing services on weekends and public holidays could expand utilization of services.

About 2,200 persons (10%) of the target population presented for HIV/AIDS education discussion during the 31 days when this service was provided, an average of 70 persons per day.

Community members may have had time conflict with the activities, as they needed to work during the day. Although stigma was not prominent among these community members, stigma may hinder those who did not attend when they knew the topic was about HIV/AIDS. Finally, the method of drawing people to the sessions may not be routinely viewed as attractive; entertainment may need to be incorporated in community mobilization to increase participation.

About a third (30%) of our study participants reported having a prior HIV test. However, it was among those who had a prior test who were more likely to test positive in our study. Among the 21 positive cases tested by our study, 14 reported a prior HIV test, with 8 (57.1%) reporting a prior negative result, 2 (14.3%) did not know their results, and 4 (28.6%) had previously tested positive. In a setting where HIV prevalence is generalized (in excess of 1% in the general population) repeat testing is invaluable and can identify substantial new positive cases. These findings also underscore the ongoing nature of HIV risks among those seeking repeat testing. Cost-effective analysis by Paltiel et al. and Sanders et al. suggest that HIV test screening is cost-effective even in settings where prevalence is less than 1% and repeat testing in all populations for every 3–5 years for high prevalence setting (3% or more) is attractive (Paltiel et al., 2005; Sanders et al., 2005).

HIV prevalence among testers varied in our communities from 1.1 to 8.4% with an average of 4.9%. These

figures are in excess of the estimated national prevalence of 2% (The World Bank, 2000) and overall country HIV prevalence of 1.2% among pregnant women in 2003 (Thai Ministry of Public Health, 2003). The HIV prevalence among testers is higher than the estimation of national figures. Moreover, the 21 HIV positive cases identified by this study were all healthy, suggesting that their infection may have occurred relatively recently. It is clear that the HIV in Thailand is still epidemic and the problem is far from over. Both governmental and non-governmental organizations involved in HIV prevention must not be complacent in light of the recent reports of a decline in HIV incidence. Aggressive prevention strategies are still needed to prevent the spread of HIV, given there is no existing cure or prophylactic vaccine. Condom use in commercial sex settings should continue to be promoted. Affordable condoms should be made widely available in all settings, including remote rural areas. HIV/AIDS education and condom promotion for diseases prevention should be implemented periodically around the country to reach out to as many people as possible, particularly those who have less education and/or less access to health care.

Our study results are derived from a self-selected, cross-sectional study of northern Thai rural residents who sought VCT from our mobile units and a random sample of non-testers who consented to participate in this study; as such our inferences are subject to some limitations. First, the findings may not generalize to other populations outside this rural setting. Second, our data are based solely on self-reports and thus they are subject to unknown biases. Socially desirable and undesirable behaviors may be over- and/or under-reported. Participants may under-report their own personal risk behaviors while over-reporting low-risk behaviors. However, any significant results from this study that reflects undesirable behaviors may reflect reality, as the behaviors probably tend to be under-reported.

There are structural and psycho-social barriers to VCT uptake at the community level. When removing structural barriers—including cost, distance, and inconvenience—by providing mobile free HIV VCT at convenient venues in the community, rural residents came forward for VCT. Those who were HIV infected were asymptomatic and appeared healthy, suggesting more recent infections. The HIV problem in Thailand has not yet been resolved and may re-emerge if aggressive prevention efforts are not enforced by all organizations involved, particularly the central government. Reaching out to people, particularly to those with less access to health care for HIV VCT, is a critical strategy for the HIV prevention.

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