

# Access to antiretroviral therapy among HIV/AIDS patients in Chiang Mai province, Thailand

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**Abstract:** The objective of this study is to investigate the access to antiretroviral treatment among human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) patients in Chiang Mai province, Thailand. Access to antiretroviral treatment is defined in terms of availability, affordability, and acceptability. The data for the study were collected during the period of April 1, 2012–May 31, 2012 from a sample of 380 HIV/AIDS patients in eight hospitals who had received antiretroviral treatment for more than 6 months at the time of data collection. The results of the study show that for most patients, the average traveling time to access health care was acceptable, but the nearly half day waiting time caused them to be absent from their work. In particular, it took longer for patients in the rural and lower income groups to access the treatment than the other groups. Their travel times and food costs relating to the treatment were found to be relatively high and therefore these patients had a higher tendency to borrow or seek financial assistance from their relatives. However, due to improvements in the access to treatment, most patients were satisfied with the services they received. The results imply that policy should be implemented to raise the potential of subdistrict hospitals where access to antiretroviral treatment is available, with participating HIV/AIDS patients acting as volunteers in providing services and other forms of health promotion to new patients. Privacy issues could be reduced if the antiretroviral treatment was isolated from other health services. Additionally, efforts to educate HIV/AIDS patients and society at large should be made.

**Keywords:** antiretroviral therapy, HIV/AIDS care, access, Thailand

## Introduction

Access to antiretroviral therapy (ART) is an important component in caring for human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS) patients. The therapy helps boost the patients' immune system, reduces the rate of illness from opportunistic ailments, and therefore raises the patients' quality of life.<sup>1–5</sup> Access to ART has become an important health issue at both national and international levels. The World Health Organization (WHO) and the UNAIDS have campaigned and attempted to arrive at support strategies for HIV/AIDS treatment by reaching the target of universal access, care, and support services in the year 2010 but it was extended to the year 2015.<sup>6,7</sup>

Thailand has been targeted as one of the developing countries to achieve this Universal Access to ART target.<sup>8</sup> The percentage of HIV/AIDS patients receiving ART in Thailand was as high as 72% in 2011, as compared to only 8% in the year 2002.<sup>9,10</sup> This high percentage is the result of the country's policy to expand the coverage of its health insurance to cover those with Thai nationality who need to be treated with ART

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free of charge. It is also due to continuing improvements in the ART service system with attempts to reallocate human as well as budgetary resources with the aim of more equitable access to ART.

Free treatment has been accepted as enabling HIV/AIDS patients to have full access to ART.<sup>11–14</sup> However, in countries where ART is provided free of charge and is readily available, differences in access to ART can still be found among patients with different demographic, social, and economic characteristics, such as sex, age, education, economic status, area of residence, and type of health insurance.<sup>15–20</sup>

Despite the fact that access to ART has been set as an important goal in Thailand, studies among different demographic groups in Thailand found that access to ART was quite low.<sup>21–25</sup> Most studies focused on issues relating to problems or obstacles in receiving the ART services, attitudes towards the services or satisfaction with them, or evaluating the type of services given, and most studies were conducted before the year 2006, when the national health insurance scheme was first expanded to cover all population groups.

The objective of this study is to investigate access to ART in the Chiang Mai province of Thailand. It therefore starts with a survey of the present situation. Suggestions regarding appropriate allocation and distribution of resources to arrive at the highest benefits for HIV/AIDS patients as well as efficient and equitable services are then made.

## Conceptual framework of access

The concept of access to health care is very complex in nature. The definition of access is various and changes with time as well as context. There has been no clear agreement on its meaning and on how to measure or evaluate it. In general, access to health care may be defined in two ways. The first is to define it according to the nature of health resources allocation and distribution, or its supply side. Access is therefore evaluated from the availability of health resources, or is assessed from expenditures in receiving health services.<sup>26–28</sup> The second way to define access is according to the relationship between the demand for and the supply of health services. The perspective of service receivers is therefore considered here.<sup>29–34</sup>

The conceptual framework as proposed by Thiede et al and McIntyre et al is used in this study.<sup>32,35</sup> According to this framework, access to health care is considered in three dimensions: availability, affordability, and acceptability.

Availability of a health care service is then considered from its appropriateness, in terms of place and time – whether it is in accordance with needs or not. It therefore can be

assessed by travel alternatives, travel time, service waiting time, and supply of resources such as drugs and health care personnel.

For the affordability dimension, the degree of fit between the full cost of receiving service and the service user's ability to pay is considered. Affordability is estimated from total costs, both direct and indirect, of using the health care service. Included in these cost estimates are payments for medicines and health care personnel, travel and food costs, income foregone for not working, and waiting time to receive the service. It also includes the ability to cope with the incurred expenditure by considering sources of financing, whether it is from income from employment, savings, or borrowing.

For the acceptability dimension, consistency between the service providers' attitudes and the service receivers' expectations is considered. Acceptability therefore is estimated from service users' satisfaction and perceptions with regard to the efficiency of service, and their perceptions of the service providers' attitudes.

## Materials and methods

### Study site and data collection

Chiang Mai province is situated in the Upper North of Thailand. It is the province with the largest number of surviving HIV/AIDS patients in the Northern region. The data provided by the Bureau of Epidemiology, Ministry of Public Health, shows that the number since the year 1984 until November 15, 2011 is 17,697 persons who are infected with HIV/AIDS and are still alive.<sup>36</sup> This accounts for 1.04% of the population in Chiang Mai or 0.15% of the population in the Northern region.<sup>36,37</sup> However, by the results of an assessment of health care for HIV/AIDS patients, there were only 6,150 out of the 17,697 patients who met the criterion for access to ART.<sup>38</sup> In the 2010 fiscal year, 95% of these patients received ART.<sup>38</sup>

Currently, there are a total of 27 hospitals in 25 districts of Chiang Mai province providing ART free of charge for those HIV/AIDS patients whose health benefits are covered under the three national health insurance schemes: ie, the Civil Servant Medical Benefit Scheme (CSMBS), the Social Security Scheme (SSS), and the Universal Coverage Scheme (UCS). Additional to those services to Thai patients, the hospitals also provide free ART to migrant workers and ethnic groups (who are not granted Thai citizenship and therefore are not covered in any national healthcare insurance schemes) through the National Access to Antiretroviral Programs for People living with HIV/AIDS (NAPHA) Extension Program.

The hospitals in this study were drawn by purposive sampling. Our sampling aims were to cover hospitals with a sufficiently large number of HIV/AIDS patients and had the cooperation of an HIV-positive network. Eight community hospitals were selected, one from each of the following districts: San Kamphaeng, San Pa Tong, Doi Lo, Chom Thong, Hod, San Sai, Mae Taeng, and Chiang Dao.

The population for this study was HIV/AIDS patients who were 20–49 years old, had received ART in Chiang Mai's health care centers for more than 6 months, and who had been given the first line antiretroviral regimens according to the National Guideline for the Treatment of HIV/AIDS Patients, 2010.<sup>39</sup> A minimum sample size of 376 was obtained using the Taro Yamane<sup>40</sup> formula with a 95% confidence level and 5% error limit. An anticipated 5% nonresponse rate was added to the minimum sample size to obtain a total minimum sample size of 395 patients. For data collection, a total of 400 patients (50 samples in each hospital) were collected. Accidental sampling was employed and questionnaire-based interviewing was done with outpatients who attended the clinics at one of the eight study hospitals during the period of April 1, 2012–May 31, 2012. However, only 380 out of 400 respondents completed the questionnaire, giving a 95% response rate.

Each participant in the sample was briefed before being interviewed on the objectives of the study as well as his/her patient protective rights. They all had to sign a participatory agreement in the form provided and had to grant permission to be interviewed before every interview. This study was also approved by the committee for Research Ethics (Social Sciences) of Mahidol University.

## Data analysis

Descriptive statistics were used to explain the overall picture of the sample: demographic, socioeconomic characteristics, types of national health insurance schemes used, access to health care in the three dimensions, tests for the differences in access to ART by sex, area of residence, and economic status using income level as a criterion. Income level was used to classify the sample into five groups. The first group was the one with the lowest income, and the last group was the one with the highest income. A comparison between the lowest income group and the highest income group in their access to ART was also done. Where the variables used in estimating access to ART were categorical in nature, Pearson's Chi-square tests were used. Where the variables were continuous in nature, Student's *t*-tests were used to test the differences of average values.

## Results

The socioeconomic characteristics of the sample are presented in Table 1. There were more female than male patients, and the average age of all patients was 41 years. More than half of the sample lived in an urban setting and had primary education. Three in four of the patients in the sample were employed in the agricultural sector and were of unskilled occupations.

Access to ART according to availability, affordability and acceptability, by demographics and socioeconomic status is shown in Table 2. On the availability dimension, the results show that for the whole sample, the average travel distance to receive treatment was 11 km. More than four in five patients spent less than 30 minutes in travel time (results not shown) or 27 minutes on average for the whole sample. The distance

**Table 1** Demographic and socioeconomic characteristics of HIV/AIDS patients

Characteristics	n	%
Sample size	380	100
Age		
20–24 years	6	1.6
25–29 years	9	2.4
30–34 years	23	6.1
35–39 years	91	23.9
40–44 years	130	34.2
45–49 years	121	31.8
Mean (years)	41.2	
SD (years)	5.6	
Sex		
Male	150	39.4
Female	230	60.6
Residential area		
Urban	207	54.5
Rural	173	45.5
Marital status		
Single	68	17.9
Married	211	55.5
Widow	87	22.9
Divorced	14	3.7
Education level		
6-year elementary (P6) or less	263	69.2
Occupation		
Agriculture; unskilled	287	75.5
Entrepreneur; students	47	12.4
Factory; skilled; government	22	5.8
Unemployed	24	6.3
Health insurance		
UCS	333	87.6
SSS	38	10.0
CSMBS	4	1.1
NAPHA extension; research program	5	1.3

**Abbreviations:** AIDS, acquired immunodeficiency syndrome; CSMBS, Civil Servant Medical Benefit Scheme; HIV, human immunodeficiency virus; NAPHA, National Access to Antiretroviral Programs for People living with HIV/AIDS; SD, standard deviation; SSS, Social Security Scheme; UCS, Universal Coverage Scheme.

**Table 2** Access to ART according to availability, affordability, and acceptability, by socioeconomic status and overall

	Total	Sex		Residential area		Income quintiles	
		Male	Female	Urban	Rural	1st (poorest)	5th (richest)
Sample size (n)	380	150	230	207	173	71	71
(%)	100.0	39.4	60.6	54.5	45.5	18.7	18.7
<b>Availability</b>							
Travel distance (mean, km)	11.0	10.9	11.0	10.9	11.1	9.6**	12.3
Travel time (mean, minutes)	27.5	26.6	28.0	27.5	27.3	27.5	27.9
Waiting time (mean, minutes)	134.3	136.1	133.1	125.9**	144.3	126.8	130.9
Inadequacy of health personnel (% agree)	92.6	92.0	93.0	92.3	93.1	93.0	90.1
Time periods and day of service are appropriate (% agree)	85.3	84.0	86.1	88.4	81.5	78.9	85.9
<b>Affordability</b>							
Transportation costs (mean, baht/year)	652.1	702.6	619.2	622.0	688.2	616.9	758.6
Food costs (mean, baht/year)	334.8	326.9	339.9	326.7	344.5	400.1	339.6
Waiting time costs (mean, baht/year)	646.1	665.8	633.2	624.6	671.7	628.9	633.5
<b>Sources of income spent for ART (%)</b>							
Working	92.4	91.3	93.0	92.3	92.5	94.4*	85.9
Saving	21.6	18.0	23.9	20.8	22.5	22.5	23.9
Financial support from relatives	10.8	11.3	10.4	10.6	11.0	22.5*	11.3
Borrowing	5.8	4.7	6.5	5.8	5.8	12.7	5.6
<b>Acceptability</b>							
Patient information kept confidential (% agree)	85.0	84.7	85.2	88.9**	80.3	74.6	85.9
Physicians gave the patients opportunities to ask questions (% agree)	77.6	72.7*	80.9	82.1*	72.3	69.0*	81.7
Listening for problems related to ARV drugs taking (% agree)	95.5	96.0	95.2	96.1	94.8	87.3	94.4
Possible side effects of the ARV drugs and solutions given (% agree)	97.4	98.7	96.5	98.1	96.5	94.4	97.2
Satisfaction in service (% "very satisfied" or "satisfied")	68.4	69.3	67.8	71.5	64.7	63.4**	81.7

Notes: \* $P < 0.10$ ; \*\* $P < 0.05$ .

Abbreviations: ART, antiretroviral therapy; ARV drugs, antiretroviral drugs.

between home and health care center was, on average, longer for the richest patients than the poorest patients, with statistical significance ( $P < 0.05$ ).

The average waiting time for the whole sample was 130 minutes or nearly half a day. Those who lived in rural areas had to wait longer than those who lived in urban areas ( $P < 0.05$ ) and more than nine in ten of the patients in the sample agreed that a greater number of health care personnel would make the waiting time shorter. However, four in five of the patients in the sample thought that the time periods and days of service available were already appropriate. Those patients who thought that the time and days of service were inappropriate suggested that their periods of service should not be the same as other regular patients since they did not want to reveal themselves as HIV/AIDS patients. They also suggested that the service should be available more than 1–2 days per week in order to shorten the waiting time.

On the affordability dimension, most patients did not have to pay for their medical or medical service charges as most were covered by health insurance schemes. The exceptions were those patients who were under the NAPHA Extension and or another research project. These patients had to pay

50 baht (approximately \$2 US) for medical service charges for each visit.

Expenditures on travel and on food were considered to be major spending items in the access of health care. The results of this study show that on average the patients had to pay 987 baht (approximately \$33 US) per year for these two items of expenditure: 652 baht and 335 baht (approximately \$22 US and \$11 US) for travel costs and food, respectively. Indirect costs or income foregone from receiving treatment were more or less the same as travel costs (646 baht or approximately \$22 US per year). The results also show no significant differences for these three items of expenditure among the different income groups of the sample. However, male patients, patients who lived in rural areas, and those in the richest group, were found to have relatively higher travel and waiting time costs than others.

For the direct costs incurred, the results reveal that more than nine in ten patients indicated that they financed their costs with income from working. Some patients had to rely on financial help from their relatives, or from borrowing. The poorest group had a higher tendency to seek financial help from others and to borrow more money than the other groups ( $P < 0.10$ ).

On the acceptability dimension of access, acceptability can occur when patients believe that their treatments are kept confidential. In our study, the majority of the patients (85%) thought that the hospitals had good systems for keeping their treatment confidential. Those patients who lived in urban areas believed in the systems more than those who lived in rural areas with statistical significance ( $P < 0.05$ ). For the services received, most patients considered them to be good in every aspect, whether it was on advice given on the taking of the antiretroviral drugs, their side effects, and what to do in case of these side effects (97%), or on listening to problems relating to the ART (96%). However, open opportunities to ask questions were found to be limited. Patients who were female, lived in rural areas, and were of the poorest income group expressed lower opportunities to ask questions than other groups with statistical significance ( $P < 0.10$ ). The results also show that those patients from the poorest group had lower satisfaction for the services than those from the richest group with statistical significance (63% “satisfied” or “very satisfied” in the poorest group versus 81% in the richest group;  $P < 0.05$ ).

Finally when asked to express what their main obstacles were in accessing ART, one in three patients considered travel costs, food costs, and costs on other miscellaneous items in getting to health care centers as their main obstacle, especially for those who resided in rural areas and of the poorest group (as shown in Table 3). Other obstacles expressed included problems taking leave from work, difficulty in travelling to receive treatment, and income foregone from not working. One in three patients in the sample also thought that long waiting times were also an obstacle in receiving ART. Feelings of being discriminated against were found in very few patients.

## Discussion

This study used a three dimensional conceptual framework to examine access to ART among HIV/AIDS patients in the

Chiang Mai province of Thailand. The implementation of a national health policy to make ART available in every hospital has resulted in more HIV/AIDS patients being covered for treatment. The results of our study reveal that patients in our sample did not have to travel too far and did not have to spend too much travel time in order to receive ART and therefore may be regarded as having good and acceptable access to ART.<sup>41–43</sup> Interestingly, the distance between home and the health care center was, on average, longer for the richest patients than the poorest. This may be due to the fact that most patients in the poorest group used public buses (results not shown) for travel and therefore their travel time was more or less the same as the richest patients. A problem encountered by the patients was long waiting times; most patients in the sample would like to see more health care personnel being employed in order to mitigate the long wait. The nearly half day waiting time caused them to forego income from not working, particularly among those patients who had fixed-hour jobs and were required to be absent from work to receive treatment. This problem is similar to the findings of the study by Bartlett et al<sup>44</sup> which show that some patients had to be absent from work in order to receive treatment due to inappropriate service times. In terms of the date and time of ART service, only 14.7% of all respondents deemed the days and hours to be inappropriate due to the fact that the service for ART was normally available during the same periods of other general health care services, so HIV/AIDS patients more or less were forced to reveal their identities; this result reflects the patients’ fears of social stigma.

Lack of health care personnel may be regarded as one of the major problems in access to health care in every country. Thailand is also facing such a problem. Despite the fact that in our health care system, special clinics for HIV/AIDS patients, separated from other general services, have been set up in most hospitals, lack of health care personnel is still a problem in accessing ART. For small community hospitals, there are only one or two doctors working and the special

**Table 3** Major obstacles in access to antiretroviral therapy

Major obstacles	Total	Sex		Residential area		Income quintiles	
		Male	Female	Urban	Rural	1st (poorest)	5th (richest)
Travel, food, and miscellaneous cost (% agree)	36.3	35.3	37.0	30.9**	42.8	47.9*	32.4
Too long waiting time (% agree)	33.2	32.0	33.9	36.2	29.5	32.4	36.6
Problem of taking leave from work (% agree)	17.4	19.3	16.1	11.1***	24.9	18.3	12.7
Difficulty in travelling to receive treatment (% agree)	5.3	5.3	5.2	2.4**	8.7	15.5**	5.6
Income foregone from working (% agree)	2.6	2.7	2.6	3.9*	1.2	5.6**	0.0
Discrimination perception (% agree)	2.6	2.0	3.0	2.9	2.3	1.4	2.8

**Notes:** \* $P < 0.10$ ; \*\* $P < 0.05$ ; \*\*\* $P < 0.01$ .



clinics for ART can be open only 1 or 2 days per week; long lines of HIV/AIDS patients waiting to be treated can be seen on these open days. For bigger community hospitals with more doctors working in their HIV/AIDS clinics with daily service, wait times are still found to be long due to larger numbers of HIV/AIDS patients.

Attempts have been made to solve the problem of long wait times in each hospital. HIV/AIDS infected volunteers have taken turns in giving primary service and advice to new patients. But for smaller community hospitals the problem of long wait times still remains due to a lack of finances to pay these volunteers.

Despite the fact that ART is now available free of charge, other related expenditures (especially travel costs and indirect costs due to absence from work) deter access to ART for some HIV/AIDS infected individuals. This obstacle to ART access was also found in most studies,<sup>16–18,20</sup> especially for those individuals who lived in remote areas far from health care centers who had to bear relatively higher costs on these items. For most patients, the finances to cover these costs came from work earnings. The lower income groups relied on borrowing and help from their relatives more than the higher income groups. This indicates that there are some individuals who do not have enough income to meet the indirect expenditures of receiving ART, despite the fact that the direct expenditures of receiving ART are covered in most national health insurance schemes. It is expenditures on other related items, especially on travel costs, that act as a deterrent to accessing ART.

Social stigma or discrimination is another issue that has been found to have some impact on access to ART.<sup>45–47</sup> However, the results of this study show that the problem is relatively small. Most patients are found to be satisfied with the treatment, indicating better attitudes on the part of service providers. This is in contrast with a past which indicated the existence of social stigma or discrimination in Thailand.<sup>48</sup> This positive tendency could be due to continued attempts made over time by health care personnel to provide better service and to better understand the situation. The problems relating to social stigma have therefore been alleviated. Moreover, strong networking of HIV/AIDS patients in many local areas of Chiang Mai province has empowered these patients in their dealings with service providers.

Social stigma is related more to the perception of how society reacts towards the HIV/AIDS patients rather than the attitude of service providers. This can be seen from the fact that some of the patients in our sample did not join any networking or any HIV/AIDS groups. Some travelled from

other areas for ART as they did not want people in their own areas to know that they were infected. Some patients also expressed the need for separate centers for only HIV/AIDS patients as they did not want to reveal themselves.

Attempts have been made in many Chiang Mai hospitals to separate HIV clinics from other general health care centers. In smaller hospitals, ART services are given only on certain days of the week or are given in the nature of semi one-stop service. In the semi one-stop service, the treatment is given in the same place as other health services, but certain days are designated for ART. Only the HIV clinics in these hospitals examine the HIV/AIDS patients, but these patients have to use other hospital facilities such as the blood laboratory and pharmaceutical center with non-HIV/AIDS patients. Some HIV/AIDS patients see this semi one-stop system as not private enough as they still have to reveal themselves and therefore do not feel comfortable to receive the treatment. In bigger hospitals with one-stop service HIV/AIDS patients feel more comfortable, safe, and confident that they would not see any discrimination from other patients. This problem of privacy in place of service has also been found in the report on the evaluation of service systems for HIV/AIDS patients under the health insurance system in Thailand.<sup>49</sup>

The results of this study show that there are more female patients than male patients in the sample, despite the fact that for the whole country, as well as Chiang Mai, more male HIV/AIDS infected individuals than female have been reported.<sup>36</sup> A number of studies show similar pictures of more male than female patients.<sup>21–23,25</sup> This discrepancy could be due to male patients not wanting to reveal themselves as it may affect their employment. It may be explained by the fact that Chiang Mai has had HIV/AIDS problems for quite a long time and a number of male patients had died, leaving many HIV/AIDS infected women as widows today.

## Limitations

The researchers only collected data on costs from routine ART retrieval. No questions on access to services related to opportunistic infections were asked. Patients who do not take antiretroviral drugs regularly would have a higher likelihood of receiving treatment for opportunistic infections than those who take the drugs regularly. Lack of access or irregular intake of antiretroviral drugs would be reflected by the higher frequency of receiving treatment for other symptoms or having expenses related to drugs for treatment of opportunistic infections in addition to receiving antiretroviral drugs. In addition, the study only took into account the opportunity cost from receiving antiretroviral drugs, and did not include the

potential opportunity costs due to opportunistic infections in cases that the patient did not take the drugs regularly, resulting in absence from work or receiving treatment at various medical facilities. In addition, in this study, data were collected only from public hospitals. Thus the overall picture of the study only reflected part of the HIV/AIDS demographics and certain types of public medical facilities.

## Conclusion

This study provides information about access to ART among HIV/AIDS patients in Chiang Mai province, Thailand. Access to ART was considered in three dimensions: availability, affordability, and acceptability. On the availability dimension, for most patients the average traveling time was acceptable. The wait time for ART service was too long; the patients suggested increasing the number of health care personnel to solve this problem. In terms of day and time of ART service, most patients thought that the time periods and days of service available were appropriate. However, some patients from small community hospitals suggested that the service should be available for more than 1–2 days per week. Another time-related inconvenience was that the service hours coincided with the regular outpatient clinics, which required the HIV patients to expose themselves.

On the affordability dimension, even though the national health insurance schemes have helped alleviate the medical costs, the costs of traveling and food related to accessing ART service were found to be relatively high. The patients, especially those who resided in rural areas and were of the poorest group, considered these costs as their main obstacle to accessing ART service. Most of the poor patients borrowed money or sought financial assistance from their neighbors or relatives to cover these costs.

On the acceptability dimension, most patients considered the services to be convenient and reach their needs or expectations adequately in terms of provision of advice regarding antiretroviral drug use, tackling the side effects, listening to the patient's complaints about taking the medication, and maintaining the patient's confidentiality. Moreover, the continuous improvement of the service has resulted in most patients' satisfaction in the services received.

The findings in this study could probably be useful information to the policy makers on the accessibility to ART issue as follows. First, primary community health care centers should be developed and enabled to give out medication for those patients who have to take antiretroviral drugs and do not need to be examined by a doctor on regular basis. This should help cut down travel costs and long waiting lines in bigger

hospitals. It should also help reduce the opportunity costs that may arise from absence from work. In order to make these primary health care centers perform well in providing ART, intensive training(s) for related personnel on appropriate and correct doses of the antiretroviral drugs to be given should be carried out first.

Second, the problem of social stigma or discrimination may still exist. This may lead to another problem of HIV/AIDS patients being uncomfortable in using the services of these primary health care centers as they do not want to reveal themselves to other local people who may know them well. It is therefore the role of the public sector and related personnel to create better understanding in the society as well as among HIV/AIDS patients that AIDS is just another disease and should be looked at like other diseases, therefore individuals infected with this disease should not be discriminated against. This should lead to fewer differences in access to ART between male and female patients.

Moreover, in large hospitals, separate sections for ART should be made so that HIV/AIDS patients feel comfortable, safe, and confident that they will not be discriminated against from other patients. At present, the separation of HIV clinics from other general clinics has been made in most large hospitals, which is good and appropriate, but the HIV clinics should also be made to be a one-stop service for HIV patients. This should not only make HIV/AIDS patients more confident about their privacy, it should also help lessen problems relating to long wait times in receiving ART.

Lastly, the problem of long wait times may be reduced by relying on the cooperation or role promotion of volunteers who are HIV/AIDS patients themselves or through their networks to perform some tasks such as screening or preliminary examination. These volunteers and their networks may be assigned to have a bigger role in health promotion, in providing the knowledge related to the use of the antiretroviral drugs, and in preventing the spread of the infection. Relying on these volunteers should make new HIV/AIDS patients feel more comfortable as these volunteers should be able to explain the treatment with easy to understand language and with a better understanding of how these new patients may feel. Some budget should be earmarked as reward payments and therefore act as a financial incentive for these volunteers.

## Acknowledgment

The authors would like to thank the HIV/AIDS patients who participated in this study for their cooperation. Thanks to the network of HIV/AIDS patients of Chiang Mai, and doctors

and nurses at the San Pa Tong hospitals for providing remarkable information and being very helpful. Finally, thanks to Dr Praphan Phanuphak and Thammarat Marohabut for helpful comments on the first draft of this manuscript.

## Disclosure

The authors report no conflicts of interest in this work.

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