

Utilization of private and public health-care providers for tuberculosis symptoms in Ho Chi Minh City, Vietnam

KNUT LÖNNROTH,^{1,2} LE MINH THUONG,³ PHAM DUY LINH³ AND VINOD K DIWAN^{2,4}

¹*Department of Social Medicine, Göteborg University, Sweden,* ²*Nordic School of Public Health, Göteborg, Sweden,* ³*Pham Ngoc Thach TB and Lung Disease Center, Ho Chi Minh City, Vietnam* and ⁴*Division of International Health (IHCAR), Department of Public Health Sciences, Karolinska Institute, Stockholm, Sweden*

In Vietnam, as in many other countries, tuberculosis (TB) control has long been organized exclusively within the public health-care system. However, recently the private health-care sector has become more important and private health-care providers currently have a role in TB care delivery in Vietnam.

Through a retrospective survey of patients at District Tuberculosis Units (DTUs) of the National Tuberculosis Programme in Ho Chi Minh City, we investigated utilization of private and public health-care providers among people with symptoms of TB. Eight hundred and one patients in eight DTUs were interviewed. For the current illness episode, about half of the patients had initially opted for a private health-care provider. Twenty-seven percent had been to a private physician and 31% to a private pharmacy at some time during their current illness. We found no significant association between socioeconomic status and use of private health-care providers.

Utilization of private health-care providers among people with TB or symptoms of TB in Ho Chi Minh City seems to be similar to the general utilization of private providers in Vietnam, at least before TB is diagnosed. Since a large proportion of people with TB in Ho Chi Minh City across all economic and social strata consult private providers at some time during their illness, planners of TB control strategies need to consider both the health-care seeking behaviour of people with TB and the clinical behaviour of private providers, in order to secure early detection of TB, early initiation of appropriate treatment, and maintenance of appropriate treatment.

Introduction

Control of tuberculosis (TB) is often given as a classical example of a public health activity that is important for the whole society and in which it is appropriate for the state to play a dominant role (World Bank 1993; Musgrove 1997). Treatment of TB with short course chemotherapy is a highly cost-effective intervention from a societal viewpoint. It has been identified as one of the most important basic health-care interventions for the state to finance, particularly where health-care resources are very scarce (Murray et al. 1991; World Bank 1993). Accordingly, organized TB control is publicly financed and managed mainly within the public health-care sector in many countries.

However, the public sector has no monopoly in TB care. In many low- and middle-income countries, private health-care providers play an important role in providing care for people with diseases of public health importance, including TB (Berman 1996; Bennett et al. 1997; Swan and Zwi 1997; Brugha and Zwi 1998). A question receiving attention recently is whether the involvement of private providers in TB care delivery is contributing to successful TB control or if

it is harmful because of market failures operating in private health-care markets (Grover 1996; Sbarbaro 1997; Kumar and Kumar 1997; WHO 1997; Lönnroth et al. 1998).

An important question when addressing this issue is how people with TB utilize private providers and other health-care services. To date, utilization of private health-care providers among people with TB has been studied to only a limited extent. In India, where the most extensive studies on private TB care have been carried out, it has been shown that a majority of TB patients, including people from very low income strata, are managed within the private sector (Juvenkar et al. 1995; Uplekar et al. 1996; Ramana et al. 1997; WHO 1997). Studies in other Asian countries have shown that between 34–82% of TB patients treated in government-run TB control programmes have been in contact with a private physician at some time during their TB illness (Allan et al. 1979; Mori et al. 1992; Hooi 1994; Liam and Tang 1997).

In Vietnam, private health-care financing and provision is now commonplace. Particularly in Ho Chi Minh City, private health-care delivery by private medical practitioners and private pharmacies has been growing rapidly since private

health-care was officially re-allowed in Vietnam in 1989 (Chen and Hiebert 1994; Ministry of Health 1994; Witter 1996).

Gertler and Litvack (1998) have estimated that 84% of the total health expenditure in Vietnam is from private sources and that 49% of all health-care delivery is performed by private providers. Various population-based surveys of health seeking patterns in Vietnam have reported that people use private medical practitioners for between 16–30% of all types of illness episodes, whereas private pharmacies are used for between 33–46% of all illness episodes. No clear pattern regarding social or economic determinants for utilization of private providers has been found in these studies (Dung et al. 1994; Ministry of Health 1996, 1997).

We have recently identified a number of factors that make private providers potentially attractive to people with TB (Lönnroth et al. 1998, 2000). However, until recently no data have been available regarding the extent of use of private providers by people with TB in Vietnam.

This study is part of a project designed to examine characteristics, quality and use of private and public TB care in Ho Chi Minh City from the perspectives of the patient, the provider and TB control. The aim of the present study was to analyze health-care utilization patterns among people with TB and people with symptoms of TB in Ho Chi Minh City.

Methods

Setting

The study was carried out in urban and rural (or what could be termed semi-rural) districts in Ho Chi Minh City. The city officially has about 5 million inhabitants. In contrast to the generally agriculture dominated economy in Vietnam, Ho Chi Minh City is dominated by trade and industry.

Subjects included in the study were identified at District Tuberculosis Units (DTU) in Ho Chi Minh City. The DTU is the key component of the National TB control Programme (NTP) where most case detection and TB treatment take place. People may be formally referred to a DTU from other health-care facilities or patients may attend a DTU directly without a referral letter. Sputum smear is the core diagnostic tool for diagnosis of pulmonary TB at DTUs. Treatment in the NTP is free of charge. However, to be eligible for free treatment the patients have to agree to attend the DTU daily during the initial 2 months of treatment. Further, in order to enable tracing of patients that default from treatment, only patients with an official permanent address are eligible for free treatment.

Private pharmacies and single practising private physicians running small outpatient clinics dominate the private health-care sector in Ho Chi Minh City. There are also a smaller number of private nurses, midwives, assistant physicians and traditional practitioners. In addition, there are private or semi-private X-ray clinics and other private diagnostic facilities, some of which are situated within public health-care

premises. There are few private hospitals in Vietnam. There is as yet no private or social health-care insurance scheme that covers care in the private sector. Pharmaceuticals sold by private providers are not subsidized. Payments to private providers are on a fee-for-service basis and fully financed by the patient.

The public health-care system on the other hand is mainly financed through taxes (about 60%) and compulsory insurance (about 14%) (Dahlberg 1998). However, private financing in the public health-care sector through user fees is increasing.

Sampling

There are 18 DTUs in Ho Chi Minh City of which 12 are in urban and six in rural districts. Six urban and two rural districts were selected through stratified random sampling. A larger proportion of urban districts than rural districts were sampled due to the larger size of the population in the urban districts. All patients aged 15 years or older who visited a DTU for the first time were eligible for inclusion in the study. We approached consecutive patients between April and July 1997 and between November 1997 and January 1998. All 801 patients approached agreed to participate.

Data collection

Structured interviews were carried out by one assistant physician at each DTU, as a part of the first clinical encounter with a patient. For this purpose a structured questionnaire had been piloted and revised in four sequences. The first part of the questionnaire included items concerning social, economic and demographic background variables, as well as clinical information on the current illness episode. The second part of the questionnaire included questions concerning health service utilization for the current illness episode, as well as detailed information on activities during contacts with each separate health-care provider prior to the visit at the DTU (data concerning reported activities at various providers are reported elsewhere). The third part of the data collection tool was a data-entry form for registration of clinical data at 6–8 weeks follow-up after the initial visit to a DTU where diagnosis in the TB programme was recorded.

Definitions

Occupational categories: 'Retired' people (retired due to old age or disability), 'students' (including university students) and 'farmers' represent original occupational classes in the questionnaire. Classification of unemployment is problematic in Vietnam. In particular, it is difficult to distinguish between women who label themselves 'housewives' but who in fact are unemployed and actively seeking work, from women who have actively chosen to be 'housewives'. We have therefore compiled the two original categories 'housewife' and 'unemployed' into one category: 'unemployed'. This category thus includes people who have no personal income. 'Blue-collar workers' include skilled and unskilled manual labourers. 'White-collar workers' include people with occupations for which an academic high school or university degree is normally

required. 'Traders' include mainly shopkeepers and street vendors.

Income: Patients were asked to estimate their individual monthly income. Three income categories were created. The 'low income' category includes people who earned 500 000 Dong (approximately US\$40)¹ or less, the 'middle income' category includes people who earned more than 500 000 but less than 1 000 000, and the 'high income' category includes people who earned 1 000 000 or more.

Socio-demographic variables, as used here, refer to the following: age, sex, occupation, years of education, income and rural/urban residency.

Analysis

Analyses of health-care utilization patterns were carried out on the sub-set of patients who were diagnosed with TB at 6–8 weeks follow-up (n = 442), as well as on the whole sample (n = 801). Univariate and multivariate analyses of determinants of health-care utilization pattern were carried out on the whole sample. The common characteristic of people in the whole sample was that they all had symptoms that were interpreted by themselves or by others as signs of TB, which had made them attend a DTU.

Data was processed and analyzed using Epi-Info version 6.1. Odds ratios with corresponding 95% confidence intervals and the Chi-square test were used to analyze associations between background variables and contact with different providers. To control for confounding, multiple logistic regression analysis was performed using the software LOGISTIC version 3.11. The following socio-demographic variables were included in all logistic regression models: occupation, education, sex and urban/rural residency. Income category was not included in any model for two reasons. First, income was not significantly associated with utilization in the univariate analyses. Secondly, the internal non-response to the question about income was high (27%). To control for clinical status, symptom variables significantly associated (p < 0.05) in the univariate analysis have also been included in the multiple logistic regression models. Unless otherwise stated, 'statistically significant' or 'significant' means statistically significant at the 5% level.

Results

Some socio-demographic characteristics of the study sample are shown in Table 1. For those who reported income, the mean monthly individual income was 726 000 Dong (US\$58) (SD; 439 000 Dong). The response rate for this question was 73%. No statistically significant differences regarding socio-demographic variables were found between responders and non-responders to the question about income.

Follow-up and diagnosis at the DTUs

At the follow-up 6–8 weeks after the initial visit to a DTU, 442 (55.2%) of the patients had been diagnosed with TB, while 251 (31.3%) were judged not to have TB. For the remaining

Table 1. Socio-demographic characteristics of the whole study sample (n = 801)

Variable	n	(%)
Residency		
Urban	684	(85)
Rural	117	(15)
Age		
15–34	352	(44)
35–54	305	(38)
55–74	120	(15)
>75	24	(3)
Sex		
Male	514	(64)
Female	287	(36)
Income ^a		
Low	225	(38)
Middle	220	(37)
High	143	(24)
Occupational status		
Unemployed	118	(15)
Retired	80	(10)
Students	29	(4)
Blue collar	337	(42)
White collar	96	(12)
Traders	103	(13)
Farmers	31	(4)
Education		
No schooling	98	(12)
Primary school	221	(28)
Secondary school	255	(32)
High school	184	(23)
University	43	(5)
Marital status		
Married	554	(69)
Other	247	(31)

^a Information about income missing for 213 respondents.

108 (13.5%) patients, no definite diagnosis had been made. Sixty-four of these 108 patients were still followed up in order to certify diagnosis and 44 were labelled definite 'defaulters' of the diagnostic procedure. The latter category had not returned for a planned follow-up visit and final diagnosis was not possible. Of the 442 patients that were diagnosed with TB, 298 (67.4%) had smear-positive pulmonary TB, 84 (19.0%) had smear-negative pulmonary TB and 60 (13.6%) had extra-pulmonary TB only. Twenty-two (5%) of the patients diagnosed with TB did not register for treatment in the TB programme. Eight of the 22 patients who did not register for treatment were recommended by the staff at a DTU to go to a private physician for treatment.

Health-care provider contacts prior to attending the DTU

Eighteen percent of the whole study sample came directly to a DTU (Table 2), 46% had been in contact with one provider, 27% with two providers and 9% with three or more different providers before turning to the DTU. On average, 1.3 different health-care providers had been contacted prior to turning to the TB programme. On average, 2.5 visits had been made to each provider from whom help was sought.

Table 2. Numbers and proportions that have been to various types of health-care providers among people with TB (n = 442) and among people with symptoms of TB (n = 801)

	People diagnosed with TB (n = 442)				People with symptoms of TB (n = 801)			
	First visit		Visit any time		First visit		Visit any time	
	n	(%)	n	(%)	n	(%)	n	(%)
Public PHC ^a	51	(11.5)	84	(19.0)	109	(13.6)	149	(18.6)
Public hospital	66	(14.9)	103	(23.3)	107	(13.4)	152	(19.0)
Private physician	79	(17.9)	118	(26.7)	124	(15.5)	174	(21.7)
- Assistant physician	8	(1.8)	12	(2.7)	11	(1.4)	16	(2.0)
- General physician	66	(14.9)	112	(25.3)	106	(13.2)	161	(20.1)
- Lung specialist	5	(1.1)	10	(2.3)	7	(0.9)	14	(1.7)
Private nurse	6	(1.4)	7	(1.6)	6	(0.7)	8	(1.0)
Traditional practitioner	2	(0.5)	5	(1.1)	4	(0.5)	8	(1.0)
Private pharmacy ^b	132	(29.9)	139	(31.4)	188	(23.5)	199	(24.8)
X-ray clinic ^c	36	(8.1)	100	(22.6)	64	(8.0)	139	(17.4)
TB hospital	37	(8.4)	128	(29.0)	52	(6.5)	149	(18.6)
DTU	33	(7.5)	442	(100)	147	(18.4)	801	(100)
Total	442	(100)	-	-	801	(100)	-	-

^a Public PHC = Public primary health care centre.

^b This category does not include visits to pharmacies to have prescribed drugs dispensed.

^c This category does not include investigations at X-ray clinics initiated by another health care provider.

Utilization pattern differed only slightly between all 801 patients and the sub-sample of 442 patients with a final TB diagnosis (Table 2). In the whole sample as well as among people with a final diagnosis of TB, the most common first health-care contact for the illness episode was a private health-care provider; most commonly a private pharmacy or a private physician (Table 2). Including private nurses and private traditional practitioners (but not private X-ray clinics), 50% first went to a private provider and 61% had been to a private provider at some point before the first visit to a DTU.

Factors associated with use of different types of providers

Univariate and multivariate analyses of associations between contact with a private physician and socio-demographic background factors are displayed in Table 3. In the multiple logistic regression model, being female and rural residency were significantly associated with higher likelihood of attending a private physician. Being unemployed was significantly associated with lower likelihood of attending a private physician.

Table 4 summarizes the results of the analyses of association between socio-demographic variables and contact with three different health-care providers: contact with a private pharmacy at any time; contact with a public hospital at any time; and contact directly with a DTU without having previously contacted any other health-care provider. Only factors significantly associated in the multiple regression models are reported in the table. Rural residency, being retired and being unemployed were significantly associated with a lower likelihood of having been to a private pharmacy. Having visited a public hospital during the course of the illness was more common among rural residents than among urban residents. However, farmers were less likely to have been to a public

hospital compared with the reference category. The likelihood of having visited a public hospital increased with number of years of education. Those who had no employment or were retired were more likely to turn directly to a DTU without having been in contact with any health-care provider. Rural residents turned directly to a DTU less frequently than did urban residents (Table 4).

In the univariate analyses, income level was not associated with any of the different outcome variables (contact with a private physician, contact with a private pharmacy, contact with a public hospital and contact directly with a DTU). For reasons mentioned above, income was not included in the multivariate analyses. Separate stratified analyses did not show any significant confounding effect by any of the other socio-demographic variables or symptoms variables that indicated a confounding bias towards unity for any of the associations between income level and contact with a specific provider type.

Discussion

This study shows that a considerable proportion of people with TB in Ho Chi Minh City have been in contact with a private provider before turning to the NTP. But, we have only described a part of the utilization of private providers among people with TB. There is a transfer from the NTP to the private sector, which is only partly captured with our study design. Our data suggest that at least 5% of patients default during the diagnostic phase at the DTU and some of these patients may have turned to a private provider. One reason for this drop out is that the diagnostic procedure in the NTP can be complicated and involve repeated smears and X-rays over a period of several weeks (Lönnroth 1998, 2000). In addition, 5% of people diagnosed with TB in this study did

Table 3. Association between socio-demographic variables and visit at any time to a private physician among people with symptoms of TB (n = 801)

	To private physician		Percentage to private physician	Crude OR (95% CI)	Adjusted OR ^a (95% CI)	Adjusted p value
	Yes	No				
Sex						
Male	100	414	19.5	1	1	
Female	74	213	25.8	1.44 (1.00–2.06)	1.56 (1.05–2.33)	0.029
Income ^b						
Low	50	175	22.2	1	–	–
Middle	49	171	22.3	1.00 (0.63–1.61)	–	–
High	31	112	21.7	0.97 (0.57–1.66)	–	–
Education						
No schooling	20	78	20.4	1	1	
Primary	48	173	21.7	1.08 (0.60–1.94)	0.96 (0.50–1.85)	0.901
Secondary	54	201	21.2	1.05 (0.59–1.87)	0.95 (0.48–1.87)	0.884
High school	41	143	22.3	1.12 (0.61–2.04)	1.10 (0.54–2.25)	0.784
University	11	32	25.6	1.34 (0.58–3.11)	1.10 (0.39–3.01)	0.852
Rural resident						
No	118	566	17.3	1	1	
Yes	56	61	47.9	4.40 (2.84–6.83)	5.00 (3.06–8.16)	<0.001
Occupation ^c						
Trader	28	75	27.2	1	1	
Unemployed	16	102	13.6	0.42 (0.20–0.87)	0.38 (0.19–0.78)	0.007
Blue-collar	60	277	17.8	0.58 (0.34–1.00)	0.79 (0.46–1.37)	0.401
White-collar	22	74	22.9	0.80 (0.40–1.59)	0.74 (0.35–1.58)	0.442
Retired	22	58	27.5	1.02 (0.50–2.06)	0.77 (0.38–1.57)	0.478
Farmer	1	19	38.7	1.69 (0.67–4.25)	0.67 (0.25–1.75)	0.412
Student	13	16	44.8	2.18 (0.86–5.54)	2.48 (0.97–6.33)	0.057

^a From a multiple logistic regression model including (a) sex, (b) occupation (modelled as dummy variables with the category ‘traders’ as reference group), (c) residency, (d) education (modelled as dummy variables with ‘no schooling’ as reference) and (e) two symptom variables that were associated in the univariate analyses: hemoptysis (negative association) and chestpain (positive association).

^b Information about income missing for 213 respondents.

^c Information about occupation missing for seven respondents.

Table 4. Selected results from three different multiple regression models showing socio-demographic variables significantly associated with utilization of private pharmacies, public hospitals and use of DTU without any other previous health care contacts, respectively

Provider contact	Variable	Adjusted OR ^a (95% CI)	Adjusted p value
Private pharmacy ^b	<i>Negative predictors</i>		
	Rural resident	0.34 (0.18–0.67)	0.002
	Retired	0.40 (0.19–0.85)	0.017
	Unemployed	0.53 (0.28–0.98)	0.042
Public hospital ^c	<i>Positive predictors</i>		
	Rural resident	2.83 (1.68–4.76)	<0.001
	Years of education	1.06 (1.00–1.13)	0.035
	<i>Negative predictor</i>		
Directly to DTU	Farmer	0.20 (0.04–0.95)	0.043
	<i>Positive predictor</i>		
	Unemployed	2.25 (1.15–4.41)	0.018
	Retired	3.46 (1.59–7.56)	0.002
	<i>Negative predictor</i>		
	Rural resident	0.03 (0.00–0.20)	<0.01

^a Variables included in all three models are: (a) occupation (modelled as a dummy variable with ‘trader’ as reference category), (b) residency, (c) sex and (d) education (modelled as number of years of education). n = 801 in all models.

^b This model includes one symptom variable, presence of cough, which was positively associated in the univariate analysis.

^c This model includes three symptom variables, loss of appetite and cough which were negatively associated and hemoptysis which was positively associated in the univariate analysis.

not start free treatment in the NTP. Many of those patients were advised by staff at the DTU to turn to a private physician, since they were not eligible for free treatment in the NTP. The study gives no information about people that initially turn to the private sector and then complete the treatment there, or about the transfer to the private sector after treatment in the NTP has started. Thus, our figures underestimate the proportion of people with TB who have contact with the private sector at any time during the course of their illness.

Our results are similar to those in a recent study of health-care utilization among TB patients in 23 rural and urban districts in Vietnam, which found that about 26% first turned to a private medical practitioner (Nguyen Hoang Long, unpublished data). Various household surveys in Vietnam indicate a rather homogeneous pattern of use of private providers for different types of illnesses and across different geographical areas. People have been found to use private practitioners for between 16–30% of all illness episodes and private pharmacies for between 33–46% of all episodes (Dung et al. 1994; Ministry of Health 1996, 1997). Our data suggest that use of private providers among people with TB does not differ substantially from the general pattern of utilization of private providers in Vietnam. At least, not before TB has been diagnosed.

The findings in this study provide no evidence that utilization of private physicians is associated with income level. In fact, income was not significantly associated with utilization of any provider type. It is possible that people in Ho Chi Minh City systematically under-report their income. If such under-reporting has been larger among people with higher income, this could have biased the association between utilization and income towards unity and a true association may have been missed. However, the generally weak associations between utilization patterns and both education level and occupation category further support that the private and public health-care sectors in Ho Chi Minh City may not be divided by clear social class boundaries. The only finding suggesting an influence of social class on use of private physicians was that unemployed people were less likely to utilize private physicians, and more likely to directly opt for the free treatment at the DTU.

We also analyzed relationships between socio-demographic variables and the likelihood of first turning to a private physician (data not shown). This analysis showed very similar results to when use of a private provider at any time was the dependent variable in the analysis.

Other studies in Vietnam analyzing the relationship between economic status and general health-care utilization pattern show somewhat heterogeneous results. Gertler and Litvack (1998) found that the people in the highest income quintile used private medical practitioners about twice as often as those in the lowest quintile (about 30 vs 15% of all illness episodes), while there were no differences between people in the 2nd, 3rd and 4th quintiles (about 20% in each quintile). Two studies have shown a weak trend towards income being positively associated with overall use of private practitioners

(Ministry of Health 1996, 1997), one study has shown no economic gradient in use of private providers (Dung et al. 1994), and one study has shown that poor people utilize private practitioners for a higher proportion of illness episodes than rich people (Truong Viet Dung, personal communication). In summary, none of these studies showed any large differences in use of private practitioners related to economic situation, and all studies showed also that the very poor utilize private providers to a considerable extent.

Introduction of user fees in all parts of the health-care system in Vietnam at a time when income distribution has become more dispersed has been found to increase inequity in general access to health-care (Ensor and San 1996; Bloom 1998; Gertler and Litvack 1998). The findings in the present study do not suggest that income strongly influences the choice between private and public providers among people with symptoms of TB who seek help in Ho Chi Minh City. There are indications that fees at private practitioners in Vietnam are only slightly higher than at public primary health-care centres and often considerably lower than at public hospitals (Ministry of Health 1996). In the public sector, formal as well as informal fees may be impossible to avoid, whereas private physicians may apply very flexible pricing and allow payment in kind. Costs of long distance travel and long waiting time may also contribute to a higher total cost of utilizing a public hospital than local private clinics (Smithson 1993; Lönnroth et al. 1998, 2000).

In our present study, there were many patients with low reported income that went to private physicians. It is worth noting that those who pay for a complete treatment with anti-TB drugs in the private sector in Ho Chi Minh City spend comparatively large amounts of money. A possible common pattern for people with TB is that they use the private services until they are diagnosed with TB and realize the cost involved in treating TB in the private sector. Only some then continue treatment in the private sector, while others transfer to the NTP. This pattern is common in India (WHO 1997). On the other hand, some studies from India have shown that many people from the poorest segments of society complete TB treatments in the private sector, often becoming indebted in the process (Yesudian 1994; Uplekar et al. 1996; Ramana et al. 1997; WHO 1997). We have no data on whether this is also common in Vietnam, since the present study does not include people that have completed treatments in the private sector.

Even if use of private providers is common only in the early phase of the illness, this may still have important public health implications. We have recently reported that the ability to direct people with TB to where they can be properly diagnosed and treated is less evident among private providers than among public providers (Lönnroth et al. 1999). The fact that a large proportion of people with TB have contact with private providers early in their illness may thus have a negative impact on case detection and control of TB.

Contrary to what was expected, use of private health-care services was more common in rural areas than in urban areas. Rural residents were also more likely to turn to a public hospital and less likely to turn to a private pharmacy or directly

to a DTU. Only 1% of rural residents had turned directly to a DTU (data not shown). The explanation for this needs to be studied further, but may be related to differences in the structure and quality of care, as perceived by patients, between urban and rural DTUs. Distances from the rural districts of Ho Chi Minh City to the urban areas are not great and there is relatively easy access to both private physicians and central hospitals. The rural districts of Ho Chi Minh City should be regarded more as semi-rural areas or suburbs than rural areas. It is, therefore, not appropriate to generalize about rural-urban differences in Vietnam in general from the present data.

Women were more likely than men to turn to a private physician and this was not explained by social, demographic, occupational or educational differences, or differences in clinical presentation of the diseases. There are a number of possible explanations for why women with TB utilize private health-care services more than men do. It is possible that women in Vietnam are more sensitive to the social stigma of TB than men are, and to adverse attitudes among health-care staff in the NTP. One traditional belief in Vietnam is that TB is hereditary and that a woman who has had TB should not marry (Long 1999). It seems to be particularly important for women with TB in Vietnam to keep secret about their disease; a situation similarly described in India (Rangan and Uplekar 1998). As has been shown previously, it may be much easier to conceal the disease when seeking care in the private sector than in the public sector (Rangan and Uplekar 1998; Lönnroth et al. 1998, 2000).

There are some limitations with this study. We have analyzed a sample of patients who do not represent all people with TB or symptoms of TB in Ho Chi Minh City. Another potential source of bias is that the study subjects have been interviewed in public health facilities, which may bias their responses, particularly responses about utilization of private providers. The 100% response rate despite informed consent may indicate that patients feel obliged to participate, and perhaps obliged to give suitable answers to the questions. There are some indications that staff at public health-care facilities show adverse attitudes towards patients who have been to private providers. Such attitudes may make people unwilling to reveal all their previous health-care contacts. As discussed, the measurement of income used may be invalid. The non-response rate for questions related to income was rather high. However, we found no differences in other socio-demographic variables between responders and non-responders. The study describes some aspects of a health-care-seeking pattern, but it gives little information about why people make certain choices between private and public providers. The decision-making process among people with TB in Ho Chi Minh City has been studied further in two studies using in-depth interviews and focus group discussions with physicians (Lönnroth et al. 1998) and patients (Lönnroth et al. 2000).

Conclusions

Utilization of private health-care providers among people with TB or symptoms of TB in Ho Chi Minh City seems to be similar to the general utilization of private providers in

Vietnam, at least before TB is diagnosed. A large proportion of people with TB in Ho Chi Minh City, across all economic and social strata, consult private providers at some time during their illness. Therefore, the performance of the private sector with regard to detection, treatment and monitoring of TB is extremely important for the control of TB in Vietnam. However, as in most other low- and middle-income countries, the official TB control strategy in Vietnam involves exclusively government health services. Similarly, evaluations of the quality and effectiveness of the control strategy focus only on the performance of the government health services. With a large and growing private sector, planners of TB control in Vietnam should urgently consider how private providers may best contribute in the attempt to achieve early detection, early initiation of appropriate treatment, and maintenance of appropriate treatment for all people with TB.

Endnotes

¹ Approximate exchange rate in 1997: US\$1 = 12 500 Vietnamese Dong.

References

- Allan WGL, Girling DJ, Fayers PM, Fox W. 1979. The symptoms of newly diagnosed pulmonary tuberculosis and patients' attitudes to the disease and its treatment in Hong Kong. *Tubercle* **60**: 211.
- Bennett S, McPake B, Mills A (eds). 1997. *Private health providers in developing countries*. London: Zed Books.
- Berman P (ed.). 1995. *Health sector reform in developing countries*. Harvard Series on Population and International Health. Boston, MA: Harvard University Press.
- Bloom G. 1998. Primary health care meets the market in China and Vietnam. *Health Policy* **44**: 233–52.
- Brugha R, Zwi A. 1998. Improving the quality of private sector delivery of public health services: challenges and strategies. *Health Policy and Planning* **13**: 107–20.
- Chen LC, Hiebert LG. 1994. *From socialism to private markets: Vietnam's health in rapid transition*. Working Papers Series No. 94.11. Boston, MA: Harvard Center for Population and Development Studies.
- Dahlberg G. 1998. Health care financing in Vietnam – some key issues. Paper presented at the Ministry of Health Seminar on Applied Health Policy Research September 1998, Hanoi.
- Dung TV, Tam NT, Tipping G, Segall M. 1995. *Quality of public health services and household health care decisions in four rural communes of Quang Ninh province, Vietnam*. Hanoi: Medical Publishing House.
- Ensor T, Pham Bich San. 1996. Access and payment for health care: the poor of northern Vietnam. *International Journal of Health Planning and Management* **11**: 69–83.
- Gertler P, Litvack J. 1998. Access to health care during transition: the role of the private sector in Vietnam. In: Dollar D, Glewwe P, Litvack J (eds). *Household welfare and Vietnam's transition*. World Bank Regional and Sectoral Studies. Washington, DC: World Bank.
- Grover NK. 1996. Role of private practitioners in tuberculosis control in India. *Journal of the Indian Medical Association* **94**: 370–1.
- Hooi LN. 1994. Case-finding for pulmonary tuberculosis in Penang. *Medical Journal of Malaysia* **49**: 223–30.
- Juvenkar SK, Morankar DB, Dalal SG et al. 1995. Social and operational determinants of patient behaviour in lung tuberculosis. *Indian Journal of Tuberculosis* **42**: 87–94.
- Kumar M, Kumar S. 1997. Tuberculosis control in India: role of private doctors. *Lancet* **350**: 1329–30.
- Liam CK, Tang BG. 1997. Delay in the diagnosis and treatment of pulmonary tuberculosis in patients attending a university teaching

- hospital. *International Journal of Tuberculosis and Lung Disease* **1**: 326–32.
- Lönnroth K, Thuong LM, Linh PD, Diwan VK. 1998. Risks and benefits of private health care – exploring physicians' views on private health care in Ho Chi Minh City, Vietnam. *Health Policy* **45**: 81–97.
- Lönnroth K, Thuong LM, Linh PD, Diwan VK. 1999. Delay and discontinuity – A survey of TB patients' search of a diagnosis in a diversified health care system. *International Journal of Tuberculosis and Lung Disease* **3**: 992–1000.
- Lönnroth K, Thuc-Uyen T, Thuong LM, Diwan VK. 2000. Can I afford free treatment? Perceived consequences of health care provider choices among people with tuberculosis in Ho Chi Minh City, Vietnam. *Social Science and Medicine* (in press).
- Long NH, Johansson E, Diwan V, Winkvist A. 1999. Different tuberculosis in men and women – Beliefs from focus groups in Vietnam. *Social Science and Medicine* **49**: 815–22.
- Ministry of Health. 1994. *Private sector development*. Hanoi: Ministry of Health.
- Ministry of Health/UNICEF. 1996. *A study on factors influencing health services utilization by households*. Hanoi: Ministry of Health, Department of Planning and Finance.
- Ministry of Health. 1997. *Baseline health survey in Son Dong and Luc Ngan districts, Bac Giang Province – 1997*. Hanoi: Ministry of Health, Department of Planning.
- Mori T, Shimao T, Jin BW, Kim SJ. 1992. Analysis of case-finding process of tuberculosis in Korea. *Tubercle and Lung Disease* **73**: 225–31.
- Murray CJL, Jonghe E, Chum HJ. 1991. Cost effectiveness of chemotherapy for pulmonary tuberculosis in three sub-Saharan African countries. *Lancet* **338**: 1305–8.
- Musgrove P. 1996. *Public and private roles in health – Theory and financing patterns*. World Bank Discussion Paper No. 339. Washington, DC: World Bank.
- Ngoan TH, Ho N, Arnadottir T. 1997. *National Tuberculosis Program, Vietnam*. Den Haag: KNCV.
- Ramana GNV, Naidu BMCS, Murthy KJR. 1997. *Mapping of TB treatment providers at selected sites in Andhra Pradesh State, India*. WHO/TB/97.2333. Geneva: World Health Organization.
- Rangan S, Uplekar M. 1998. Gender perspectives of access to health and tuberculosis care. In: Diwan V, Thorson A, Winkvist A (eds). *Gender and Tuberculosis – an international research workshop*. NHV report 1998: 3. Göteborg: Nordic School of Public Health.
- Sbarbaro JA. 1997. 'Multidrug'-resistant tuberculosis – It is time to focus on the private sector of medicine [Editorial]. *Chest* **111**: 1149–51.
- Smithson P. 1993. *Health financing and sustainability in Vietnam*. Hanoi: Save the Children Fund (UK).
- Swan M, Zwi A. 1997. *Private practitioners and public health: close the gap or increase the distance?* PHP Departmental Publication No. 24. London: London School of Hygiene and Tropical Medicine.
- Uplekar MW, Juvenkar SD, Parande DB et al. 1996. Tuberculosis management in private practice and its implications. *Indian Journal of Tuberculosis* **43**: 19–22.
- Witter S. 1996. 'Doi moi' and health: the effect of economic reforms on the health system in Vietnam. *International Journal of Health Planning and Management* **11**: 159–72.
- WHO. 1997. *TB patients and private for-profit health care providers in India*. WHO/TB/97.223. Geneva: World Health Organization.
- World Bank. 1993. *World Development Report 1993*. Washington, DC: World Bank.
- Yesudian CAK. 1994. Behaviour of the private sector in the health market in Bombay. *Health Policy and Planning* **9**: 72–80.

Acknowledgements

Peter Allebeck and Kitty Lambregts have provided valuable comments on drafts of this paper. The research presented in this article is part of a project supported by Sida/SAREC.

Biographies

Knut Lönnroth trained as a medical doctor in Sweden and holds an MSc in epidemiology from the Centre for Clinical Epidemiology and Biostatistics (CCEB), University of Newcastle, Australia and a PhD from the Faculty of Medicine, Göteborg University, Sweden. He is a lecturer in epidemiology at the Nordic School of Public Health, Göteborg, Sweden. His main research interest is the role of private health-care providers in delivery of care for diseases of public health importance.

Le Minh Thuong trained as a medical doctor in Vietnam. He is a specialist in lung diseases and works at the Pham Ngoc Thach TB and Lung Disease Center, Ho Chi Minh City, Vietnam. He trained in epidemiology in Malaysia and Sweden and is currently enrolled in the Master of Public Health Programme at Karolinska Institute, Sweden.

Dr Pham Duy Linh trained as a medical doctor in Vietnam and has been involved in tuberculosis control since 1966. He has worked in the National Anti-Tuberculosis Institute in Hanoi, been the Director of the Medical Preventive Center in Ho Chi Minh City (HCMC), and was Director of Pham Ngoc Thach Tuberculosis and Lung Disease Center from 1986 to 1998. He is currently the Chief of Tuberculosis and Lung Disease, Department of Training and Performance, Center for Health Workers in HCMC and is a lecturer of the Hygiene and Community Health Institute in HCMC. He holds a PhD and has been involved in a wide range of public health research. His research in the field of tuberculosis and lung disease includes studies of BCG effectiveness, asthma epidemiology, and studies of the effectiveness of the TB Control Programme in HCMC.

Vinod Diwan is Professor of Community Medicine and Epidemiology at the Nordic School of Public Health, and an associate professor at the Division of International Health Care Research, Karolinska Institute, Sweden. He trained as a medical doctor and holds a Diploma in Tropical Medicine; he is a Doctor of Medical Science and a Master of Public Health. He is involved in several research projects on equity in health and on infectious disease epidemiology in Europe, Asia and Africa. He is conducting research on the role of private health care providers in TB control, and on gender and tuberculosis in Vietnam.

Correspondence: Knut Lönnroth, Department of Social Medicine, Göteborg University, Vasa Hospital, S-411 33 Göteborg, Sweden. Email: knut.lonnroth@socmed.gu.se