EXPENDITURE AND PAYMENT SOURCES FOR TREATING ACUTE RESPIRATORY INFECTIONS IN RURAL VIETNAM

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Abstract. This paper highlights important effects of the health sector reform in rural Vietnam, such as the expenditure for treatment, payment sources among patients and provision of private services. Using a cross-sectional design with a structured questionnaire, the occurrence of illnesses and utilization of health care for 4,769 members in randomly selected households were investigated, with a focus on acute respiratory infections (ARI). Three hundred and seventy people were reported to have suffered from an ARI in the four weeks prior to interview. In 96% of the cases some action had been taken, most often self-medication. The average expenditure for the first treatment was high, 25,000 *Dong* (US$ 1.7), which is appropriately equal to one third of the monthly *per capita* in the district. The majority of the expenditure was for drug purchasing in the private or public services. Expenditure for treatment of acute respiratory infections was highest in the hospitals, lower in commune health stations and private clinics, and lowest in the case of self-medication. There was no consultation fee at the commune health stations and private clinics. About half of the patients had borrowed money or sold agricultural products to pay for treatment. Only 2% of the patients benefited from health insurance.

High burden of ARI, high cost of treatment and poor coverage of health insurance may create severe economic problems in poor families. Our findings indicate a need to develop pre-payment schemes and the appropriate allocation of resources in order to establish an efficient and equitable health care system.

INTRODUCTION

Acute respiratory infections (ARI) are a major cause of morbidity and mortality worldwide, especially in developing countries (Tambe *et al*, 2000; Shann *et al*, 1999). About 3.5 million deaths per year, mainly in low-income countries, have been attributed to ARI (WHO, 1999). A study of child mortality in a rural area of Ethiopia showed that respiratory infection was the most common disease group: responsible for about 20% of deaths among children under five (Shamebo *et al*, 1991; Muhe, 1994). Respiratory infections require a high input of health resources; they also cause a significant loss of workdays, reduce economic productivity and cut the number of days of healthy life. It is still hard to estimate the total cost of acute respiratory infections. There are several reasons for this: (i) the total cost of treatment consists of complicated components (indirect costs, direct costs, intangible costs and costs in terms of reduced quality of life during the time lost due to the disease); (ii) unreliable available data in the health care institutions; (iii) difficulties in establishing clear-cut definitions of ARI and (iv) recall bias of respondents.

In Vietnam, respiratory tract infections are the most common illnesses, especially in infants and children. For example, in rural areas, children under five are reported to suffer four to seven respiratory tract infections annually, and in urban areas three to five (Chinh and Hiep, 1995). Respiratory infections are

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also common among those who attend clinics and hospitals: according to official statistics, 979 cases per 100,000 inhabitants in 1997 (Ministry of Health, 1998). Among patients seeking care in the public health services, respiratory infections account for about 35% of out- and in-patient attendance (Ministry of Health, 1998). In recent years, there has been increased research into expenditure for health care in developing countries, but little work has been done on household expenditure for treating respiratory infections in the community. In Vietnam, information on health seeking behavior, expenditure and payment sources for respiratory infections is scarce and unreliable. Knowledge about the expenditure for the treatment of ARI and payment sources can help us to better understand health-seeking behavior in Vietnam. This study was carried out in order to describe the action taken in cases of acute respiratory infections to estimate the actual expenditure for treatment in different health care settings and to describe how resources for payment were mobilized in a northern rural area in Vietnam.

MATERIALS AND METHODS

The study site was Ba Vi district, 60 km northwest of Hanoi. The total population of the district is about 232,000. Agricultural production and livestock breeding are the main sources of income. The roads within the district are well developed and there is a national road connecting Ba Vi with other districts and provinces. Ba Vi has one district health center including one hospital, two intercommunal clinics and two mobile teams for preventive and MCH/FP services. There are 32 commune health stations and a number of private practitioners, private pharmacies and drug outlets in the district. In 1997, an Epidemiological Field Laboratory for Health Systems Research (called FilaBavi) was established in Ba Vi. This district was identified and chosen as a typical rural area in Northern Vietnam. A longitudinal, population-based demographic surveillance system has been established and specific research projects are conducted. FilaBavi is a collaborative project between Swedish and Vietnamese Universities and Institutes.

A population-based, cross-sectional survey was carried out in February and March, 1999. A household was defined as all persons who regularly ate together and slept under the same roof for at least three months prior to the survey. Thirty clusters were randomly selected from among 67 already chosen by FilaBavi. One household in each cluster was randomly selected using the household list of the cluster. Following this, households were included in a door-to-door manner until completion of the calculated sample size. In this way a sample of 1,075 households with 4,769 individuals was selected. Mothers who were considered as responsible for the health of children and other family members were interviewed in their homes. A structured questionnaire was developed including background variables, occurrence of ARI, health care seeking behavior, expenditure for health care and payment sources. The interviewers, working full time in FilaBavi, were trained to perform their interviews in a standardized manner. Health professionals (assistant doctors) supervised the activities and checked the quality of data daily. Five per cent of all completed questionnaires were randomly selected. The respondents were re-interviewed by the field supervisors and researchers within one week in order to ensure quality of data.

The interviewers were told to enquire about illnesses in the household during the past four weeks, and specifically to ask about common colds. All answers including runny nose/flu without fever, cough with or without fever, fast and/or difficult breathing, sore throat and pneumonia and/or bronchitis (as diagnosed by a health professional) were recorded as ARI. The severity of the illness was classified as mild, moderate or severe. Illness was defined as severe when patients had to stay in bed and could not perform their regular activities. Moderate illness was considered for those who had to stay at home but could carry out some normal activities. Mild illness was considered for those who had symptoms but could continue their regular work. For small children the

interviewers were told to classify according to the mother's assessment. Expenditure for treatment of respiratory infections was defined as cost payment for drugs, consultation (clinical examination), laboratory tests and transportation for health care actions (Fig 1). Expenditure was estimated in *Dong*, the currency of Vietnam (US$1 = 14,500 Dong).

Payment sources were classified as health insurance, savings, making claims on kin or other households, selling rice, livestock or furniture. Economic status was defined as poor and non-poor, following a classification from the end of the previous year. Such classification is carried out annually by the village leaders according to the formal criteria of the Ministry of Labor, Invalids and Social Affairs.

Data was processed and analyzed by using Epi-Info software, version 6.04 (Dean *et al*, 1994). Expenditure for treatment of ARI among different groups and at different health facilities was described by means, median values and standard deviations.

RESULTS

Respiratory infections and health care seeking

In the sample of 4,769 people in the Ba Vi district, 942 (20%) reported some symptoms during the four weeks prior to the study. Of 942 persons, 370 (39%) reported acute respiratory infections, 94 of them were younger than five years of age and 79 were 5-15 years old. Acute respiratory infections occurred in similar proportions in males and females and in poor and non-poor. A severe condition was reported in 12%, moderate in 33% and a mild condition in 55%.

Among persons with ARI, 15 (4%) did not take any health care action while 355 (96%) did so. As indicated in Table 1, only 17 people took a second action. For the first health care action, self-medication (almost exclusively buying western drugs or traditional herbs) was most commonly reported (62%). Patients were more likely to consult private practitioners than hospitals or commune health stations (Table 1). Hospital consultations were 6 times more frequent in the non-poor group than in the poor group while self-medication in the poor group was twice as high as in the non-poor group.

Expenditure for health care

The mean cost of treatment of an ARI per patient and episode was 25,000 Dong, equal to US$ 1.7, and the median was 16,500 Dong. However, there were big differences within groups, as indicated by high standard deviation values (Table 2). The mean expenditure for treating ARI was different in different health facilities also for different kinds of interventions charged for. In the hospitals, total payment was about double that of the private clinics and commune health stations (43,500 Dong *vs* 21,600 and 24,600 Dong). The ex-

Table 1
Actions taken among patients with acute respiratory infection. Data from 370 patients in Ba Vi, 1999.

Actions taken	First action		Second action	
	No.	(%)	No.	(%)
Actions				
Self-medication	230	(62)	-	-
Hospitals	18	(5)	5	(29)
Commune health station	39	(11)	7	(42)
Private clinics	68	(18)	5	(29)
No action	15	(4)		
Total	370	(100)	17	(100)

penditure for self-medication was rather low (11,300 Dong) compared with the expenditures in hospitals, commune health stations and private clinics. The payment for drug purchase in the hospitals was slightly higher than in commune health stations and private practitioners (28,500 Dong *vs* 24,000 and 21,000 Dong), but considerably higher if the drugs were bought directly from the pharmacies (28,500 Dong *vs* 11,300 Dong). Drug purchase constituted 88, 56 and 76 % of the total expenditure in CHS, hospitals and private clinics respectively (Fig 1).

Table 3 shows the payment for respiratory tract infections in relation to age, sex, distance and economic status for the three degrees of severity. The mean expenditure for treatment

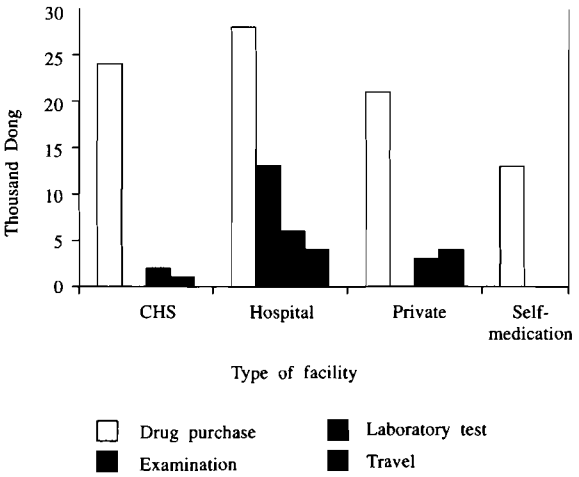

Fig 1–Expenditure by type of service and facility.

Table 2
Expenditure (in Dong) for the first visit to different health services. Data from 355[1] patients in Ba Vi, 1999.

Expenditure	Commune health station	Hospital	Private clinics	Self-medication	Average
Mean	24,500	43,500	21,600	11,300	25,000
Standard deviation	24,000	44,000	21,000	8,000	26,000
Mode	40,000	29,000	5,000	10,000	15,000
Median	15,000	29,000	15,000	10,000	16,000

Table 3
Expenditure by age, sex, distance and economic status in relation to severity (in Vietnamese Dong).

Factors	Average	Severe	Moderate	Mild
Age (years)				
< 5	28,200	38,000	21,800	23,100
5-14	19,800	15,000	33,300	10,600
15-59	25,000	17,300	31,300	15,600
>59	25,000	24,000	25,500	-
Sex				
Male	26,000	24,800	31,600	19,600
Female	24,000	36,500	24,000	14,000
Distance to health services				
<2 km	24,300	27,100	28,700	12,500
2 km+	28,300	40,300	23,000	31,400
Economic status				
Poor	24,400	31,000	21,900	24,400
Not poor	25,300	32,600	14,200	25,300
Average	25,000	34,800	27,400	16,600

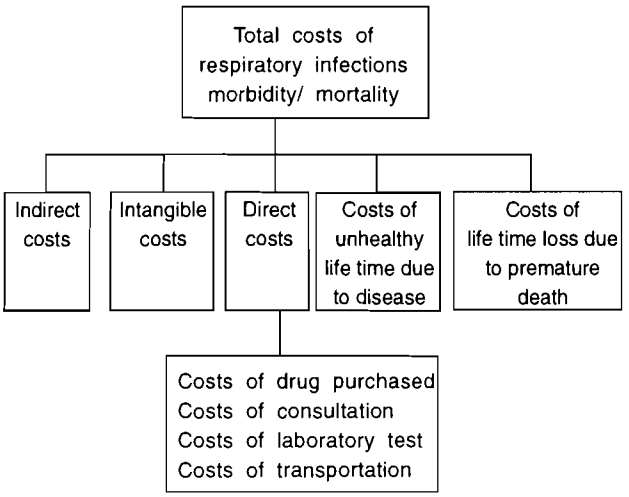

Fig 2–Kinds of costs treating for respiratory infections (Modified from Shepard, 1991).

Table 4
Mobilizing resources to pay for health care. Data from 115 patients attending health services in Ba Vi, 1999. (Some of them reporting multiple sources).

Sources	Frequencies	Percent
Health insurance	3	2
Direct payment		
Saved money	63	49
Borrowing money	24	19
Selling furniture	1	1
Selling rice	11	9
Selling livestock	26	20

of children under five was significantly higher than for others. On average, males paid slightly more for their health care than females. Those who lived far from health services and those who suffered from severe illnesses had higher payment than the others. Persons classified as non-poor paid more.

Mobilizing resources for payment

Almost all patients paying for the services paid in cash straight away (98%). Only 2% of them had health insurance (Table 4). Of those who paid directly, 49% reported that they had paid with money they had saved. To cover costs, 19% of the patients had to borrow money from kin or other households. Others sold rice (9%) or livestock (20%). In all, the proportion of patients who could not pay directly was 49%.

DISCUSSION

This is the first study in Vietnam describing the expenditure involved in treating respiratory infections and sources of payment, using a population-based study design. Our paper highlights several important issues currently of concern to health policy makers and planners, *eg* how much and in what way patients pay for their treatment. Due to difficulties in obtaining accurate estimates of total costs of treating respiratory infections, this study focused on expenditure by clients including costs of drug purchase, clinical examination, laboratory tests and transportation to the health services. The total costs, illustrated in Fig 2, are considerably higher than those estimated by us.

The average expenditure for treatment of ARI was 25,000 Dong per episode (Table 2). This amount corresponds to one third of the mean monthly income officially reported in the area (Ba Vi District Health Center, 1999). This is also consistent with the findings from a recent Vietnam Living Standard Survey which estimates that one visit to a commune health station costs 8% of the annual non-food consumption of a poor family (General Statistic Office, 1998).

Weaver (1995) and Gilson (1997) conclude that higher costs can have three effects on the utilization of health services: (i) patients will avoid seeking care at health services; (ii) patients will delay seeking care from health services or make fewer visits; and/ or (iii) patients will alternatively seek private and public health services. The higher costs of hospital care in particular, in relation to low costs of self-medication and high proportion of mild illness, might be the reason why 62% of the patients used self-medication (Table 1). This is consistent with our previous study in a mountainous area (Toan *et al*, 2001) and other

studies (Trong, 1999; Thorson *et al*, 2000a,b; General Statistic Office,1998; Tipping *et al*, 1994). Clearly, high costs for the patient may increase self-medication and decrease attendance at public health services.

The most important finding in this study was that a high proportion (49%) of the patients had made claims on kin or other households (borrowed money) or sold their farm products like livestock, rice or furniture to pay their treatment costs (Table 4). Borrowing money or selling farm products in order to pay fees occurs not only in Vietnam, but also in other low-income countries, where user fees have been introduced. In his review article, Russel (1997) reported that 40-70% of the patients had to make claims on kin or other households or sell farm products to pay fees. In China, where user fees were introduced some years earlier than in Vietnam, 30% of poverty-stricken families became financially ruined due to the burden of medical costs (Wu, 1997). High costs of treating illnesses, poor economic status of the population and low coverage of health insurance put families at high risk of falling into the 'medical poverty trap' (meaning that people will suddenly become very poor due to health care expenditure). Twenty-eight million people (one third of the total population of Vietnam) are considered to be poor and lacking any kind of health insurance (Phuong, 1999): these may easily fall into the 'medical poverty trap' when somebody suddenly becomes sick or injured. Moreover, the high costs of treating illnesses and poor economic status of the population together with the low coverage of health insurance may prevent poor people from access to better quality health services as compared with better-off people. The results from the Vietnam Living Standard Survey also showed that poor people were less likely to attend hospital or intercommunal clinics than better-off people (General Statistic Office, 1999). Poverty and the high cost of treatment together with a shortage of financial resources challenge the Government to help poor people to avoid falling into the 'medical poverty trap' and to enable them to get reasonable access to health care. Our findings call for action, *eg* to develop a pre-payment scheme for people who are not covered by any kind of health insurance in the rural area, as suggested by the Ministry of Health (Hung, 1999).

Another important finding is that patients with ARI did not pay for clinical examination in the commune health stations and private clinics (Table 2). If the practitioners do not receive any benefit from the clinical examination, do they receive benefits from selling drugs? They might then either receive a benefit by selling drugs at their clinics, or get some income from pharmacies filling their prescriptions. It is well known that in some areas of Vietnam, there are agreements between prescribers and pharmacies, securing part of the drug charge for the prescribers (Tuong *et al*, 2000; Dung *et al*, 1996; Naterop and Wolffers, 1998). Eighty percent of the private practitioners in Vietnam are physicians or assistant physicians employed by the public sectors but working privately after office hours (Thuy, 1998). Their salaries are low and therefore they sell drugs either directly while practising or by contracting certain pharmacies to give them some remuneration according to the number of drugs prescribed (Tuong *et al*, 2000; Chuc *et al*, 2000).

Studies on actual household expenditure for care of ARI in low-income countries, like our study, are rare and difficult to conduct. It is, however, even more difficult to apply methods for assessment of indirect costs, particularly in rural settings. These kinds of calculations have, however, to be made if the total costs for the patient are to be assessed, which is desirable for planning purposes.

With the design used in our study, including pre-test of methods, appropriate and adequate training of interviewers and field supervisors and a well functioning supervision system in an established research-oriented environment, we believe that the validity of data has been secured. Hence, recall bias should not influence the results. Further efforts have, however, to be made to develop the methods for the estimation of total costs.

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