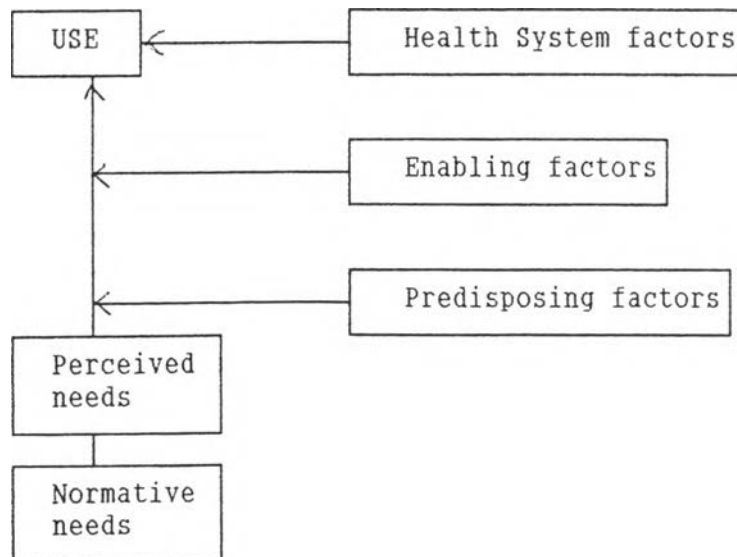


CHAPTER 3

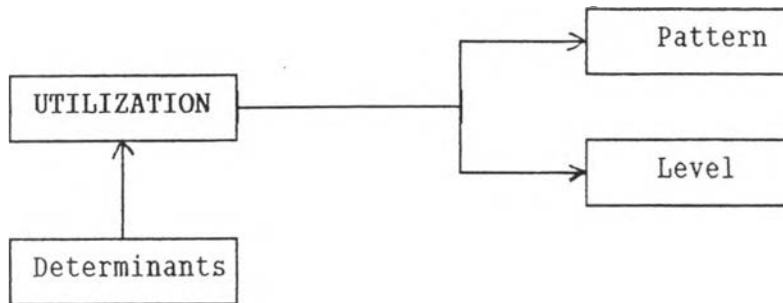
THEORETICAL FRAMEWORK

Malaria is still a public health problem in Thailand, although the trends of morbidity and mortality are decreasing. Malaria control division has difficulties with maintaining the present malaria situation and to improve the condition further. There are many factors that are causing above conditions. Socioeconomic and behavioral factor is one of them and that can influence the utilization of malaria services particularly malaria diagnosis and treatment services. At present, although the services for malaria diagnosis and treatment are free, utilizations of these services are low in some areas. We are trying to explore the factors that affects on utilization of those malaria services. Furthermore, for the sustainability of malaria control programme cost recovery system could be introduced in the future. For this reason we should explore the willingness to pay (WTP) for those malaria services and look for the predicting factors that are determining the WTP for them. Among these factors which are influencing the both utilization and WTP for those malaria services will be investigated and the patient's cost for treating malaria might be one of them.

FIGURE 3.1 Utilization of health services



3.1 Conceptual Framework for Utilization of Malaria Diagnosis and Treatment Services



- Income of household (I)
- Cost incurred by patient (C)
- Severity of illness(SI)
- Distance between home and service point (D)
- Convenience of travel (CT)
- Perceived quality of care (QC)
- Incidence of disease (ID)
- Availability of other health care facilities (AOHF)
- Socio-demographic characteristics (DC)
- Willingness to pay (WTP)

$$\text{Utilization} = f (I, C, SI, D, CT, QC, ID, AOHF, DC, WTP)$$

$$\text{Willingness to pay (WTP)} = g (I, SI, QC, DC, C)$$

Household income

The household income may affect the utilization of formal malaria services. If the household income is high the utilization of those services might increase under the assumption of other things being equal. Some other factors such as availability of alternative services, perceived quality of those malaria services, distance between home and service points, and convenience of travel are influencing them. Therefore multidisciplinary approach should be considered in such a study.

Regarding with willingness to pay (WTP), the people with high income might have high WTP for malaria services. Because income is a part of ability to pay and it definitely affects the WTP. It is consistent with the finding of Olsen and Donaldson 1993.

Cost incurred by patients

It is the cost incurred by patients for treating malaria at formal services and which includes travelling costs, food costs and

time costs. It is obvious that if the cost incurred by the patient for receiving treating malaria is high, the utilization will decrease. There will be negative relationship between the frequency of utilization and the costs of the patients.

In case of WTP for treating malaria, the cost will be negative effects on it. It means that if the costs incurred by patients for treating malaria is high, their willingness to pay for it will decrease.

Severity of malaria

For severity of malaria we will ask the information about perceived severity and their symptoms which they suffered during malaria fever. It is expected that perceived severity of malaria will positively affect the utilization of those services. But there should be assumption that other factors such as perceived quality of service, distance, convenience of travel and availability of alternative services etc., must be constant. It has been shown that there was a strong positive correlation between utilization of health service and perceived morbidity of disease (Bice and White, 1968).

For WTP, if a patient thought that his or her malaria was severed and absent from work for a long time. If he/she could not give a substitute for work, the income would be reduced and the amount of WTP may also decrease.

Distance between home and service point

The distance between home and service point will be an important determinant for utilization of malaria services. Long travel distance will impose high transportation cost and time cost which will deter the utilization of services. For example, the people from remote area will not attend the malaria services because of high traveling cost, although the malaria service is free. On the other hand, convenience of travel is the primary determinant of patient behavior in seeking attention at a service point which is not the nearest to their home (Kaewsonthi and Harding, 1986). Moreover, availability of multiple services at the same place might be an incentive for those people who have long distance from home to service point (Wanmali 1985).The distance between home and service point may influence the amount of WTP for malaria diagnosis and treatment services by the patients.

Convenience of travel

It will be positively associated with utilization of malaria services. It does not concern with distance between home and service point. Although the distance is great, the travel may be convenient because of good condition of road, easy availability of vehicles for transportation and good topographical condition.

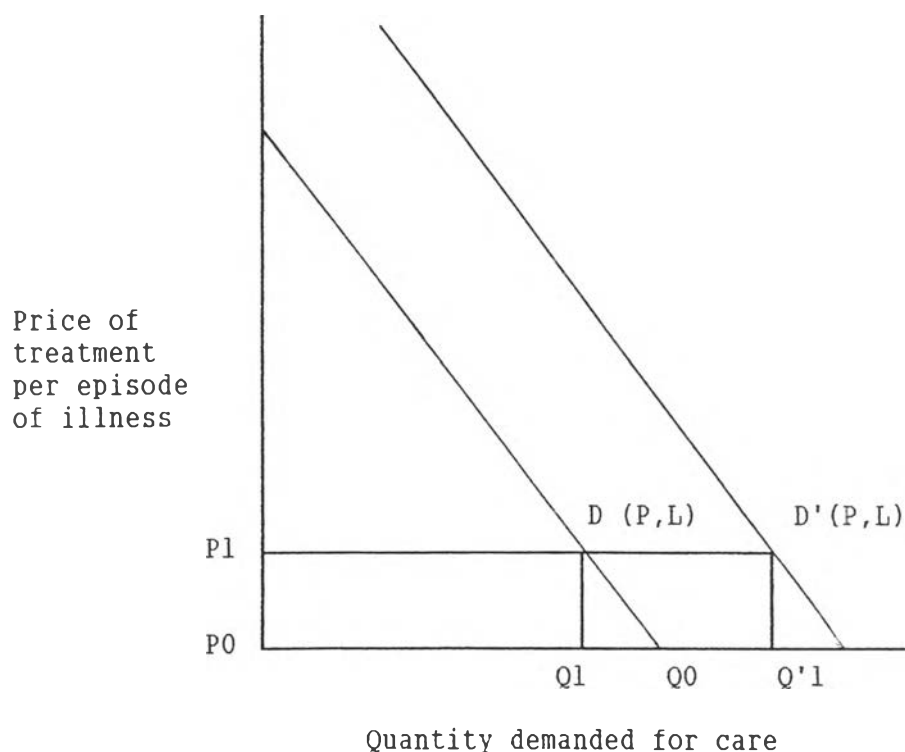
Perceived quality of care

It is accepted that high quality of service may cause the high utilization of health services. The quality of a service depends on the performance and efficiency of this service which mainly concerns with provider side. In this study we asked the respondents' idea about quality of formal malaria services with respect to performance of the staffs.

Regarding with amount of WTP, for hypothetical study it could be assumed that people will have high WTP for treatment of malaria if they thought that the service point has good quality of care. After introduction of user fees system, it will be more obvious that an increase in user fees in the absence of an improvement in quality will decrease utilization of health care. In contrast, when user fees are introduced in combination with an improvement of the quality of care, utilization of health care can increase (Weaver 1993), figure 3.2.

FIGURE 3.2

Shift in demand curve following improved quality of care



Incidence of disease

It is an occurrence of new malaria cases per unit of population during a given time interval. In our study, we used the cumulated incidence rate per 1000 population during 6 month period started from June, 1994. This is an only available data for every hamlet within study area. Incidence is the most basic measure of frequency and is the best indicator for the trends of a disease whether it is increasing, decreasing or remaining static. It is also useful for surveillance system to analyze how people are using the health services. A high incidence rate of malaria in a defined area is expected to be a cause of high utilization for malaria diagnosis and treatment services.

Availability of other health care facilities

Availability of other health care facilities is a kind of substitute for the formal malaria diagnosis and treatment services. If the accessibility of these substitutes is better than formal services, the utilization of the formal services will eventually decrease other things being equal. Moreover, if the cost incurred by patients in seeking care at those substitutes is less than that of formal services, the utilization of formal malaria services will also decrease. In this study there are one hospital, one private clinic of a health assistant, and assuming one drug stores in each hamlet in relation with one unit of formal malaria service that comprises one malaria clinic, one health center and one village malaria volunteer.

Demographic characteristics

Some demographic characteristics such as age, sex, marital status, level of education, level of occupation, number of family member and number of children influence the utilization of those malaria services.

In case of malaria, middle age group will utilize the malaria services more because of high frequency of occurrence of malaria in this age group. Another reason is that they are active group for production and they want to be cured as soon as possible because of afraid of long absence from their works. In contrast, for hospital admission rate and average length of stay, it is lowest for children and then rise with age, in general (Anderson 1973).

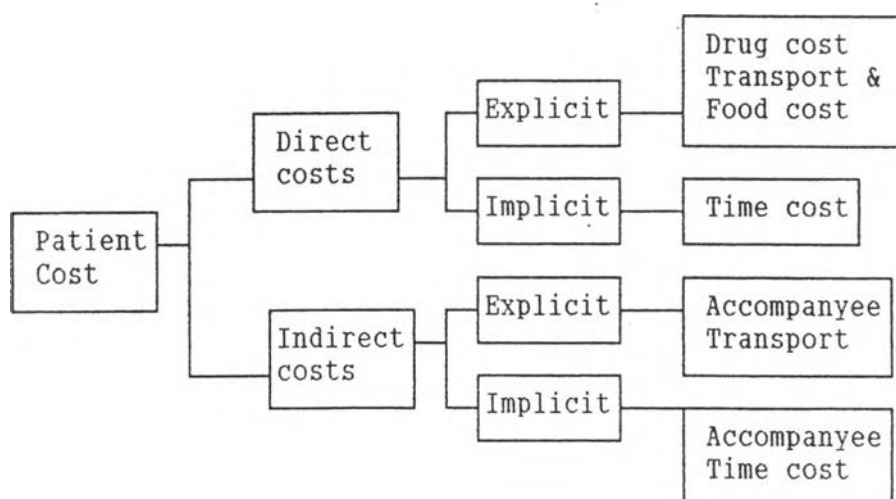
One study (Olsen 1993) showed that women are willing to pay significantly more for hip replacement programme than men. But the relationship may depend on type of disease. It will be the same for utilization of services.

Level of education will positively affect the utilization of malaria services. In the study of Anderson (1973), it has been shown that education was found to be positively associated with both admission rate and the length of stay. For WTP level of education has a significant negative impact on WTP for the helicopter health service

in Olsen's (1993) study.

Level of occupation will positively associated with utilization of malaria services. Persons with higher level of occupation (eg. public servants and traders) are more likely to use those malaria services than others. It has been shown that occupational level of household heads was positively associated with utilization of physician's services (Bice and White 1969).

3.2 Costs Incurred by Patients for Treating Malaria



From the conceptual framework, drug costs may be costs of drugs for treating malaria at the different health facilities apart from formal malaria services. In this study, although drug cost for treating malaria at the formal malaria services are free, we will include the travelling cost, food cost and time cost for a malaria patient and it will be examined whether it will influence or not on the willingness to pay.

Costs incurred by patients for seeking care at the services will affect the utilization of services. It includes the travelling and time costs and its effect may be added by effects of travelling distance. If the cost incurred by patients is high, utilization of formal malaria services will reduce under the assumption with other things are constant. Furthermore, the poor will more sensitive to cost in utilization than the rich. If the cost is too high for them, they will postpone the use of services until the desperate condition of severity of malaria.