

CHAPTER 5

DISCUSSION, IMPLICATIONS AND CONCLUSION

In this chapter, the results from the study will be discussed. policy implications will be derived and future studies are to be recommended.

Discussion

It is well recognized that heart transplantation is an operation which is very costly and consumes a lot of limited health care resources. However, just as has been indicated in the previous part of this paper, the actual costs of the operation in the context of Thailand is rarely known. This study serves as an attempt in this regard and try to call for the attention of the health care administrators and planners about the economic concerns of the highly advanced but costly technologies. Although there are many defects and limitations of the study due to the limitation of data available and the time frame for the work, some important implications still could be derived from the study. And it is expected this study could be served as a basis for the future indepth look of the cost and benefit of heart transplantation in Thailand.

Compared with the study by Evans (1987) of 441 heart transplantation recipients in the US, the general characteristics of the patients are similar to that undertaken in Chulalongkorn Hospital. The average age of patients are about 40, with the male patients are the principal recipients of heart transplantation. The primary disease resulting in heart transplantation is also idiopathic cardiomyopathy. This reflects the similarity of the general conditions of the patients in Chulalongkorn Hospital with those under taken in the western countries.

The costs demonstrated in this study is much lower than other studies in the Western countries. For example, Saywell et al (1989) reported the costs of 51 recipients of heart transplantation in a similar scope of study in the United States, and their average costs are US\$ 35,593 with a range of \$22,066 to \$137,100, which is more than three times higher than that of the costs in Thailand. These difference in the costs for the operation are due to a variety of reasons, such as the cost of manpower and materials, cost of capital items, the costing methodology and even the scope of studies.

1. Heart transplantation is a very costly medical technology. In this study, the provider costs of heart transplantation from the day of operation to the day of initial discharge was estimated. The costs are averaged to be about Bt288,262 at the 1994's price, which is more than US\$11,530 at the current exchange rate. Compared with Western countries where most of the operations are undertaken, this is not so high a figure in terms of foreign currency. But Thailand is still a

developing country, and budget for health care are still limited. In 1994, the health care expenditure is about Bt1,500 per capita, which means one heart transplantation operation will consume about the yearly health care budget of about 192 persons in the country even from the day of operation to the day of discharge.

2. Chulalongkorn Hospital is a government sponsored charity hospital. When talking about the cost for the medical technologies like the heart transplantations undertaken in the hospital, only the direct medical costs will be referred, while as a usual practice, a large portion of the indirect costs are often not in the consideration. In this study, it is understood that the major part of the cost are the personnel costs. As readily expected, this part of the costs has rarely be considered as the costs and are not chargeable to the patients if applicable. The charging bill usually only include the medical direct cost which could not reflect the whole resources consumed. The following section describe this problem in more detail.

3. When we look at a more micro level, we can see that it's a burden of the hospital to bear for the cost of providing heart transplantation to the patients who cannot pay for the bill. Since the beginning of the heart transplant program has been established in Chulalongkorn Hospital up till now, there are 30 patients have been undergone the procedure. There are three kind of payment among the patients who admitted in the hospital for receiving heart transplantation.

a. Out-of-pocket payment: The patients who have ability to pay and pay for medical bill from their own pocket. There is only 7 % of the total.

b. Reimbursement: The patient with health insurance covered either from the government or private company as they are the employee of that institute so the hospital can get reimbursement for the medical service. There are 30 % in this category.

c. The patients who do not have any insurance covered and cannot pay for the medical bill, these are the burden of the hospital which provide the services. There are 63 % of the total in this category. (Table 5.1)

Table 5.1 Type of payment for medical bill of the 30 patients transplanted in 1987-1994

Type of payment	Number of patients	%
Out-of-pocket	2/30	7
Reimbursement	9/30	30
No ability to pay	19/30	63

For the 12 studied patients, there are two patients who paid by their own pockets, three of them got reimbursement and seven patients have no ability to pay for the medical bill. (Table 5.2)

Table 5.2 Type of payment for medical bill of the 12 studied patients

Type of payment	Number of patients	%
Out-of pocket	2/12	17
Reimbursement	3/12	25
Noability to pay	7/12	58 .

From Table 5.2, of the studied patients, we can see that the hospital has to bear for 58% of the patients who cannot pay for the medical bill. Even though to the another 42% of the patients the hospital could get partial cost recovery, the charges are considered to be much lower than the actual costs. From the estimation of the nursing department, the medical bill that charge to each patient is totally about Bt150,000, while in our study the total costs were Bt288,262. This means that the hospital had to incur those costs which had not been charged to the patient, it is about Bt138,262 per patient. For the 12 studied patients undergone heart transplantation in Chulalongkorn Hospital, the costs incurred by the hospital is estimated as in Table 5.2.

Table 5.3 Estimation of costs of heart transplantation for 12 studied patients incurred by the Hospital (in Bt, 1994's Price)

Category	No.	Cost/Patient	Costs Incurred
Total Costs of Transplantation	12	288,262	3,459,144
Hospital Incurring Full Costs	7	288,262	2,017,834
Hospital Incurring Partial Costs	5	138,262	691,310
Total of Hospital incurred			2,709,144

Assumptions for estimation:

(1) The average costs of one heart transplantation from the day of operation to the day of discharge is Bt288,262 according to this study.

(2) To the 7 patients who had no ability to pay the medical bill, the hospital had to incur all the costs.

(3) To the 5 patients the hospital could get partial reimbursement, the costs incurred per patient is about Bt138,262 based on the example.

From the above demonstration, it can be realized that among 12 studied patients who received heart transplantations in Chulalongkorn Hospital, the hospital have to incur about 78% of the total costs of the operation, totally about Bt2,709,144 for the transplantation from the day of operation to the day of discharge. This is by no way a little burden to the government hospital which itself is suffering from the financial constraint.

However, it should be realized that this analysis and demonstration is purely based on the economist point of view. The hospital administrators and planners should also take into account many other factors in the decision process. Even though, it give us some useful insights about the economic situation of the operation, and more extensively, of other high technological procedures.

Policy Implication

The ultimate goal of cost analysis is to serve the health care planners and administrators in their planning and administration of health care delivery procedures. In the context of Chulalongkorn Hospital, the cost information for heart transplantation could be used in the following aspects.

1. Hospital administrators could use the cost information for planning the number of operation. Within the limited health care budget, it is impossible to undertake heart transplantation to all the patients who need the intervention. In this case, the hospital could set a budget for this kind of intervention each year, and the intervention could be undertaken within the budget. In this way, the doctors will be more cost-conscious and set a more rational criteria for selecting the patients. It will be more efficient way of resource utilization for the limited health care resources.

2. Cost information could be used as a basis for cost recovery. As has been indicated in the previous section, the current cost recovery is about 50% of the total resources consumed for the operation. For those patients who have the ability to pay and those who are covered by health insurance, it is reasonable to make a full cost recovery both in the efficiency and equity concerns. The resources from cost recovery could be reallocated to other health area from which the poor could be benefitted.

3. As we have known from more previous analysis that the cost of the operation is related to the length of stay in the ICU unit and

in the surgery ward. it is suggested that the cost could be reduced if the length of stay of the patient in the ICU and the surgical ward could be decreased. However, the length of stay is not solely dependent on the economic concern. The medical justifications have more to say on this aspect.

If we have a good protocol or criteria for recipient selection, it is possible to have a good result for the heart transplantation procedure that means we can possibly reduce the length of stay in the hospital. Another choice for reducing the length of stay is setting up the home health care program for the patient, so that they can take care of themselves after discharge from the hospital. It is necessary to prepare the patients by giving them the knowledge, attitude and practice from the beginning of the entering for heart transplantation program.

4. The cost information regarding the controllable and uncontrollable costs could be of some implications to the administrators. In the case of our study, recurrent are the absolute share of the total cost, in which some of the cost items are controllable. for example, the supply cost and drug costs etc. From this point of view, those costs could be controlled by the hospital personnel involved.

5. In a larger sense of equity concern, we should also think about the equity aspects for this operation. Even if the service is free of charge to some of the patients who received the heart transplantation, we could not say that all those in need have the equal access to the operation, as the external cost to the patients may be high enough to prevent the patients from getting the operation. This requires further study of the full economic costs of heart transplantation operation, including internal and external costs.

Limitation of the Study:

Because this is a retrospective study, there are a number of limitations which may degrade the value of the study. Firstly, because of the difficulty in getting the data, only 12 of the patients could enter the study. This sample size is far from satisfactory and prevents many valuable indepth analysis such as the comparison of the trend of the costs. Secondly, there are no real unit costs available for some of the hospital service, such as the laboratory costs, radiology etc. As a result, it would be very difficult to get the economic costs of those items. Some of the estimations could only be based on the market price or the hospital charges which may be a little bit higher or lower than the economic costs.

Even with all those defects of the study, however, this study could still be served as an early start in this field and provide many useful information and policy implication like those derived above.

Recommendations for future studies:

1. It is a better idea to undertake the cost study in prospective rather than the retrospective way like this study. In the prospective study, the investigator could design carefully all the data to be collected and thus get a more accurate result. For some of the cost categories, pre-study designs are the pre-requisites which otherwise could not be got.

2. This study examined only the transplantation costs which incurred during the time of operation to initial discharge. That is only a part of the cost of heart transplantation program. The further study should be considered about the costs of pretransplantation and post transplantation which is a long term costs that must be continued until the patient die because the patient need medication and follow up both in-patient service and out-patient service for the rest of their life.

3. Cost utility study about heart transplantation: The current study could serve part of the objectives of study the cost. The ultimate objective is to compare the ratio of cost-quality of life and thus to compare the value of the operation in improving the quality of life of patient.

Conclusion:

This study is an attempt to develop a methodology of cost analysis of heart transplantation in a specific context, at Chulalongkorn Hospital. Costing principles have been reviewed; costing methodology has been developed and cost models and functions have been developed. Using all the theoretical framework, an empirical analysis of the cost data was undertaken. The cost data of 12 patients who received heart transplantation were collected from the relevant departments in Chulalongkorn Hospital. The total provider cost for the operation was calculated. In this study, the total provider costs of heart transplantation from the day of operation to the day of discharge are averaged to be Bt 288,262 in 1994's price. Among the cost components, the personnel cost is the highest category, the second and the third being the drug cost and supply cost, respectively. The important implication from this study is that the hospital incur most of the costs for heart transplantation, while cost recovery is a minor part of the total. Further studies about the cost utility is recommended using the prospective data collection method.