THALASSEMIA IN THE OUTPATIENT DEPARTMENT OF THE YANGON CHILDREN'S HOSPITAL IN MYANMAR : COST ANALYSIS OF THE DAY-CARE-ROOM SERVICES FOR THALASSEMIA

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Abstract. A cost analysis study for the fiscal year 1989-1990 was conducted in the day care room (DCR) for thalassemia patients at the Yangon Children's Hospital in Myanmar to provide a basis for future cost-effectiveness, cost-benefit and efficiency analyses. Two types of costs, hospital costs and costs borne by the patients' families were studied by reviewing hospital records and by interviewing family members of patients. Of the total cost of DCR services for thalassemia 74 to 75% was contributed by material costs most of which were for imported items. The cost of each transfusion visit and the annual cost per patient were Kyats 166.5 to 173.3 and Kyats 1,108.6 to 1,208.7, respectively. The median cost (range) per treatment visit and the averaged annual median cost (range) borne by the patients' families were Kyats 21 (0-302) and Kyats 107 (0-1,509), respectively.

INTRODUCTION

Studies to determine in part the size of the medical care problem of thalassemia in Myanmar have not been done before. For instance, the cost of treatment for one thalassemia patient per year and the expenses incurred by the family concerned have never been determined. Likewise, the number of newly registered patients and the increasing amount of money that have to be used for new thalassemia patients year by year is still unknown.

This cost analysis study was carried out as part of a study on thalassemia in the Outpatient Department (OPD) of the Yangon Children's Hospital (YCH) (Khin Ei Han *et al,* 1992). It was done to determine the cost of hospital treatment for thalassemia and the costs borne by the patient's families and to provide a basis for future cost-effectiveness, cost-benefit and efficiency analyses.

MATERIALS AND METHODS

This study covered the costs for transfusing thalassemia patients at the day care room (DCR) in OPD of YCH during a period of one fiscal year (1 April 1989 to 31 March 1990) in which 985 transfusions to 186 patients were given. The details of YCH and its DCR as well as the study population are described elsewhere (Khin Ei Han *et al,* 1992).

We studied two types of costs : (1) hospital costs and (2) costs borne by the patients' families. The hospital costs included only the recurrent costs (staff salaries, medicines, supplies, stationery, blood donor food costs and other minor miscellaneous expenses). The capital items (buildings, furniture, and equipment) were omitted because DCR occupies only a small area of OPD (one small room) and since these items were quite old, their current depreciated values would contribute very little to the total hospital costs. The costs borne by the patients' families included out-of-pocket expenses (travel and food costs), family input into treatment (blood donor costs, donations, transfusion sets, etc) and the time loss from work.

DCR, blood bank and laboratory were visited to assess the cost of items and the type of activities carried out there that are necessary for transfusing patients in DCR. Records were examined to ascertain the recurrent costs at each site and when

necessary the hospital administration records were consulted. Costs for medicines and supplies were calculated on the basis of current prices at the Central Medical Stores Depot. Family members of patients (usually the mother or the father) were interviewed to assess the current costs borne by them per transfusion visit. Altogether, 118 (89%) out of 132 families included in the study were interviewed.

Accounting of medicines and supplies was adjusted upwards for inflation if the available prices were not obtained for the fiscal year under study (1989-1990). Costs borne by the families obtained by interview in 1990-1991 were adjusted downwards for 1989-1990. The inflation adjustments were made according to the formula given by WHO, 1988 and the consumer price indexes published by the Ministry of Planning and Finance of Myanmar, 1990 were used as inflation indicators in the calculations.

Staff salaries were accounted as the proportion of their time spent for DCR services. The cost of the blood bank and the laboratory services were distributed according to the number of blood packs (1,007-1,087) and bottles (183-263) issued to and the number of hemoglobin examinations requested (1,190-1,350) by DCR. The numbers are in ranges because 80 unknown packs or bottles issued were taken as if all were packs or bottles.

Unit costs per transfusion (per patient) overall and for each type of service (DCR proper, blood bank and laboratory) were obtained by dividing the total annual costs incurred by the number of components of the activity carried out (by the total number of patients transfused in 1989-1990). The averaged annual median costs borne by the patients' families were determined by multiplying the cost per transfusion visit by the median annual number of transfusions per patient. This median annual number of transfusions per patient (5) was

Table 1

Distribution of recurrent costs for thalassemia day care room (DCR) services at Yangon Children's Hospital, 1989-1990.

Items	DCR Proper		Blood Bank		Laboratory		Total	
	Kyats	%	Kyats	%	Kyats	%	Kyats	%
Salary	23,982	86	27,994 to 30,845	16	1,550 to 1,762	100	53,526 to 56,589	25-26
Medicine	–	–	3,183 to 3,507	2	–	–	3,183 to 3,507	2
Stationery	1,458	5	27,496 to 30,222	16	–	–	28,954 to 31,680	14
Blood packs/bottles	2,443	9	104,898 to 116,069	59	–	–	107,441 to 118,512	52-53
Donor food costs	–	–	13,195 to 14,539	7	–	–	13,195 to 14,539	6
Total	27,883	100	176,766 to 195,182	100	1,550 to 1,762	100	206,199 to 224,827	100

determined on patients visiting DCR during the period in which the data recorded in the register were most reliable (1983-1985).

The costs were accounted in Myanmar Kyats. The official exchange rate during September 1989 (mid point for 1989-1990 fiscal year) was 6.7 Kyats to one US dollar.

RESULTS

Of the total costs of DCR services for thalassemia at YCH during 1989-1990 fiscal year, 25 to 26% was contributed by labor costs and 74 to 75% by material costs. Table 1 shows the distribution of total costs and cost profiles for recurrent costs by input items. Fifty-two to 53% of the overall total cost resulted from the costs of blood packs/bottles and supplies and only 25-26% was due to salaries. In the DCR proper the majority of costs (86%) came from staff salaries and in the blood bank, blood packs/bottles and supplies made up the major share (59%).

Each transfusion visit cost Kyats 166.5 to 173.3 to the hospital and the cost of issuing one unit of packed cells or one bottle of whole blood was Kyats 144.6 to 148.5 (Table 2). On the other hand, the cost per patient amounted to Kyats 1,108.6 to 1,208.7 and the the cost of issuing blood to each patient was Kyats 950.4 to 1,049.4 (Table 3).

The median cost (range) per treatment visit and the averaged annual median costs (range) borne by the patients' families during 1989-1990 were Kyats 21 (0-302) and Kyats 107 (0-1,509), respectively. Most of the costs to the patients' families came from the travel and food costs, particularly to those patients coming from districts outside Yangon. The family input into treatment and the cost of time loss from work were nought or marginal.

DISCUSSION

The present paper has outlined the costs involved in providing day-care transfusion services to thalassemia patients at the Yangon Children's Hospital during 1989-1990 fiscal year.

The major share of the costs to the hospital was contributed by the material costs (74 to 75%), mainly from the cost of blood packs/bottles and supplies used in the blood bank (59%). Blood packs and supplies such as donor sets and antisera for blood grouping usually have to be imported using foreign currency and naturally will cost more than the items available locally. Though each transfusion visit costs between Kyats 166.5

Table 2

Total and unit costs for thalassemia day care room (DCR) services at Yangon Children's Hospital, 1989-1990.

DCR services	Unit of activity	No. of activities	Total costs (Kyats)	Unit costs (Kyats)
DCR proper	Transfusions	1,190-1,350	27,883	20.7-23.4
Blood Bank	Blood packs/ bottles issue	1,190-1,350	176,766 to 195,182	144.6-148.5
Laboratory	Hb tests done	1,190-1,350	1,550 to 1,762	1.3
Total	All activities	1,190-1,350	206,199 to 224,827	166.5-173.3

Table 3

Cost per thalassemic patient transfused at the day care room (DCR) of Yangon Children's Hospital, 1989-1990.

DCR services	Total costs (Kyats)	No. of patients	Costs per patient (Kyats)
DCR proper	27,883	186	149.9
Blood Bank	176,766-195,182	186	950.4-1,049.4
Laboratory	1,550-1,762	186	8.3-9.5
Total	206,199-224,827	186	1,108.6-1,208.7

and 173.3 the cost per patient during the year was much greater (Kyats 1,108.6 to 1,208.7). To date, cost analysis studies on thalassemia management from countries in Asia are rarely found in the literature. Although we wished to relate our cost data to a recent study from India which contained cost analysis (Sangani *et al,* 1990), we were unable to do so because their way of calculating costs were not quite comparable to ours.

Although the families' averaged annual median cost (Kyats 107.0) was greater than the median cost per treatment visit (Kyats 21.0) both were less than the hospital cost per transfusion visit (Kyats 166.5 to 173.3) and the annual cost per patient (Kyats 1,108.6 to 1,208.7). Most of the families' costs were spent on travel and food and costing more to those from the districts than from Yangon. The family input into treatment and the cost of time from work were nought or marginal because for most visits the families did not have to pay for blood, drugs, blood sets etc, and the majority of persons who accompanied the children to the hospital were either unemployed or with no source of income.

Of the many burdens that are imposed upon thalassemia patients and their families (financial, social, psychological), we have only assessed the financial burden borne by the hospital (government) as well as the families. These costs are likely to rise with the introduction of the recommended high transfusion regime together with the iron-chelating therapy. These extra costs will be well worth spending because of the many physical, social and psychological benefits that can result from such treatment. Before such a time comes, the hospital costs can probably be reduced to a certain extent by producing the imported items locally and the costs to the families from districts minimized by establishing day-care transfusion schemes in the district hospitals.

We have attempted to determine the cost of hospital treatment and the cost borne by the patients' families and it is hoped that this cost information can provide a good basis for future cost-effectiveness, cost-benefit and efficiency analyses concerning thalassemia management.

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