

CHAPTER 6 DISCUSSION

Discussion

1. Organization and cost centers

Khon Kaen Hospital is tertiary health care hospital. Main responsibility is curative health care that are all kinds of treatment including specialties. In addition, health promotion and preventive care are still the main function of hospital for example Well Baby Clinic (WBC), Family Planning, home health care and health counseling. The hospital is participated health personnel training which is the important responsibility. Various groups of health personnel are trained or practiced in the hospital, such as medical students, nurse or nurse-aid students, pharmacy students, life guard students, etc. There are physician and nurse training all of the year. Teaching or training center is not established for this responsibility. Each departments must be responsible for giving a knowledge and a practice to students by itself. The advantages of training are that personnel always have an active learning and patients can get indirect benefit.

Cost of this study is determined by cost centers but it is not yet studied by responsibilities. The results of cost finding by responsibilities (curative, health promotion, preventive care and rehabilitation) are very useful for compare the unit cost among the different capability of health delivery system.

Cost centers are divided into 4 groups what are NRPC, RPCC ,PS and NPS. NPS group has only 2 cost centers that are the social medicine department and the health education and public relation department. The reason why they are classified as NPS group because their main functions are health promotion and preventive care for people, for example traffic accident campaign project, immunization for pupils at school, home health care, etc. Some projects of NPS may be given services to patients. The outcomes of these projects are too complicated and taken a long time to be analyzed. Then this study shows the results of NPS group in full cost and its value is only 1% of total cost of hospital.

The organization structure is a key element of cost finding. Khon Kaen Hospital has own unique organization structure. Line of authority and responsibility are used to divide the organization into the organizational sub-units. It is different from cost centers grouping in this study. Cost centers grouping is based on:

- 1.The productivity of each cost center must be determined for calculate proportion of allocation criteria and
- 2.Costs can be determined in labor cost, material cost and capital cost and
- 3.Its result is necessary to know for some benefit.

The difference between organization structure and cost center grouping affects on data collection. It may be have an error and inaccurate in material data collection. For example data of out-patient service areas, much of expense is not incurred by the cost centers independently but expense is shared by five cost centers of out-patient service areas. These are GP, medical, surgical, pediatric and orthopedic out-patient service. To share equitably, it is necessary to have a kind of non-financial data used in dividing the cost among those cost centers. This non-financial data is number of patient visits.

The next study, the listing of cost centers will be different from this study because Khon Kaen Hospital is always developed a framework and function continuously. There would be some changes in Khon Kaen Hospital after 1996, such as:

- Obstetric-gynecological out-patient service is divided into family planing unit, antenatal care, and obstetric-gynecological service.
- Medical engineering & technology department is new established department. It is responsible for computer and tele-medicine service.
- New medical centers under social medicine department are set up for community health service, at Sheta Khon road and Mitraphab high way.
- Medical Education Center Establishment Project
- Trauma center Establishment Project
- Family Medicine Project

If the cost finding of these new units is necessary, they could be classified as the cost center.

2.Total direct cost

The result of this study, the total cost of Khon Kaen Hospital is 411,086,423 baht in the fiscal year 1996. There are two guidelines to complete data.

1.Consult with administrators of Policy and Planning Team of Hospital

All data is presented to administrators of Policy and Planning Team of hospital for approved. Operating cost of initial result is 375 million baht. The difference from real expense is 11 million baht. According to the recommendations of administrators of Policy and Planning Team, data is revised again so that the total cost of the hospital is 411 million baht. There are many suggestions for data revised, such as: house keeping wages, drug that supported by other health sector, material for AIDS patient, material for special projects and other material cost that paid by welfare fund.

2. Operating cost comparison

Operating cost consists of labor cost and material cost. Operating cost from this study is 382,084,070 baht and real operating expense from 1996 annual report of Khon Kaen hospital is 386,597,666 baht. The accuracy of the operating cost is about 99%.

Proportion of labor cost.:material cost:capital cost is 48:45:7. Proportion of labor cost and material cost are closely. That is different from research of Kanongyud et.al. who studied in fiscal year 1980 and found that proportion of LC:MC:CC of extraordinary large hospital (more than 360 beds) is 35:53:12. That is different from research of Somsak Pongprasert et.al. who studied in fiscal year 1986 and found that proportion of LC:MC:CC of Lampang provincial hospital is 36:59:5. And that is different from research of Surachai Rungtanapirom et.al. who studied in fiscal year 1986 and found that proportion of LC:MC:CC of Sappasittiprasong hospital Ubon Ratchatani province is 43:55:2. But that is similar research of Suwit Vibulpolprasert et.al. who studied financial information system development of 8 hospitals (Doi Saket hospital and Chiang Mai hospital Chiang Mai province, Si Bun Ruang hospital and Udon Thani provincial hospital Udon Thani Province, Tha Mai and Prabokkuan Chanthaburi Province) in the fiscal year 1989 and found that proportion of LC:MC:CC is 50:40:10 (table 6.1).

Table 6.1 Comparison of the proportion of LC:MC:CC among researches

Researcher	Fiscal year	Hospital	Proportion LC:MC:CC
Kanongyud Kanjanakul et.al.	1980	Extraordinary large hospital (more than 360 beds)	35:53:12
Somsak Pongprasert et.al.	1986	Lampang hospital Lampang province	36:59:5
Surachai Rungtanapirom et.al.	1986	Sappasittiprasong hospital Ubon Ratchatani province	43:55:2
Suwit Vibulpolprasert et.al.	1989	Financial information system development of 8 hospitals	50:40:10
This study	1996	Khon Kaen Hospital	48:45:7

2.1 Labor cost

Labor cost of hospital in fiscal year 1996 is 48% of total cost. Most of labor cost comes from patient service areas and its value is 51.6% of total labor cost. The labor cost is categorized as shown in table 6.2.

Table 6.2 The various categories of the labor cost

Type of labor cost	Percentage
1.salary (paid by budget)	65.53
2.wages (paid by hospital earning)	5.26
3.welfare	5.29
4.overtime and professional fee	19.08
5.traveling expense	2.90
6.bonus (paid by social insurance fund)	1.94
Total labor cost	100.00

2.2 Material cost

Material cost equals 45% of total cost. Majority of material cost comes from RPCC and its value is 70.4% of total material cost. The two highest material costs are medicine and medical supply (45.36% and 22.52% of total material cost). Normally, these are very essential supply for health service in the hospital.

2.3 Capital cost

Capital cost is a depreciation cost of all buildings, office equipment and medical equipment. Depreciation cost data has a great deal of variations. There are many problems in data collection. Data is determined from equipment registration form of each department. Not only many departments have incomplete and incorrect records but also some departments have no records. The direct survey and estimation of historical price of equipment are used for collecting data.

3. Allocation criteria

In the next study, many cost centers should be thought about more compatible allocation criteria: e.g. general affairs department, academic department and health insurance office.

4. Unit cost

4.1 unit cost of out-patient service

Dental department and general practice (GP) unit provide service to patient both in working hours and overtime. The unit cost of these departments ought to be studied separately into working hours and overtime.

4.2 unit cost of in-patient service

The unit cost of medical ward for female patients is almost twice the medical ward for male patients (2,032 and 1,094 baht/day, respectively), while they have a similar characteristic and severity of diseases. On the other hand, their occupancy rate are very different (87% and 139%, respectively).

5. Unit cost comparison

Unit cost comparison among hospitals must be concerned with the following topics: size, location, occupancy rate, data collection, allocation criteria and period of study. In addition, characteristic and severity of disease must be concerned. The in-depth evaluation of unit cost should be done with diagnostic related groups (DRGs).

6. Application

This study is the first systematic cost finding of Khon Kaen Hospital. This data and results are a guideline for similar study in the future. The results provide a basic information for managerial decision making, for example the proportion of LC:MC:CC is the basic information for cost saving in the next year. Cost finding is used primarily to establish total department costs in order to compare total costs across several departments. It is not particularly useful for identifying cost behavior patterns.

A regular and continuous study of unit cost will provide the useful information for determining cost per procedure but it is relatively limited in terms of timeliness, acceptable methodologies and relevance to ongoing managerial decisions. Cost analysis or cost accounting is much broader in scope, more timely and not as constrained as cost finding.

Suggestion

An over view of functional structure of the hospital can be attained from the study. All departments have relevant to each other and do not ignore any department.

Now, Khon Kaen hospital has many good individually information systems of each department but there is no data linkage system of all departments in order to consistently and readily use. The better data linkage system is, the more convenient we will get. There are some suggestions about information system as follows:

1. Labor cost

-Name list and history data of all personnel is recorded by general affairs department but income data is recorded by finance and accounting department. Data system of both departments ought to link up in order to the same data can be used with out repeatedly record.

-Identity number of each personnel should be used for personal data recording and it is not reused for anyone.

-Historical information (transferring date and every working places) should be recorded on personal profile. These data must be updated for easier on data grouping by cost center categories.

-All incomes of every personnel ought to be recorded with identity number in the same computer program.

2.Capital depreciation cost

Every departments must be made the new registration of all equipments. If the new registration do not finished, the next study should regardless of depreciation cost and determined only operating cost(labor cost and material cost).

3.Allocation criteria

More appropriate allocation criteria of some departments would be concerned in the next study. Data of many departments in RPCC is already recorded in computer and it ought be recorded all kinds of data for more complete information, for example out-patient pharmacy unit must record the service unit shown on prescription in computer program.

The information usefulness of each department is more necessary than regular submitted reports. The most importance is cooperation of the ones who are responsible for data record, therefore the unit cost should be studied under the team of staffs from many departments. This team should understand structure, function and work interrelation among departments in hospital.

Income system should be evaluated together with cost finding. The cost analysis and cost accounting will be more fascinating study. The results approved by hospital administration or policy committee is very trustful. The unit cost study is usually a time-consuming process; accordingly, the most importance of the study is a full utilized the results for worthwhile. No additional study should be undertaken if its benefits are less than its costs. It should only be conducted when the benefits justify the efforts.

Conclusion

This is a descriptive retrospective study of unit cost of Khon Kaen Hospital in fiscal year 1996. All departments of hospital are divided into 53 total cost centers which are classified into 4 categories as :

1. Non Revenue Producing Cost Center (NRPCC) consists of 12 cost centers
2. Revenue Producing Cost Center (RPCC) consists of 9 cost centers
3. Patient Service Area (PS) consists of 30 cost centers
4. Non Patient Service Area (NPS) consists of only 2 cost centers

Total direct cost is calculated from labor cost, material cost and capital cost of each cost centers. Appropriate allocation criteria are used to allocate total cost from NRPCC and RPCC to PS and NPS by simultaneous equation method.

The study revealed that total direct cost of hospital is 411,086,423 baht. The proportion of labor cost::material cost:capital cost is 48:45:7. The total cost is composed of cost from NRPCC 17%, RPCC 50%, PS 32% and NPS 1% only. The highest costs of NRPCC, RPCC and PS are general affairs department (28.02 million baht), pharmacy department (97.12 million baht) and emergency and forensic department (9.89 million baht) respectively.

The unit cost of out-patient service areas is 236 baht/visit. Dental department shows the highest unit cost of out-patient service areas (533 baht/visit) but the unit cost of obstetric-gynecological out patient service is the lowest one (136 baht/visit).

The unit cost of in-patient service areas is 1,242 baht/day. Surgical intensive care unit has the highest unit cost that is 4,720 baht/day. Gynecological ward has the lowest unit cost that is 721 baht/day.

This data and results are a guideline for similar study in the future. The results provide a basic information for managerial decision making, such as basic information about cost saving, medical service pricing, payment system setting. On the others hand, many factors must be concerned, for example characteristic of disease, severity, pattern of service and quality of service.