CHAPTER 3

LITERATURE REVIEW

The overall literature review of the study covers three parts as follows; 1) Cost Theory 2) Cost Allocation Criteria 3) Hospital : Public – Private mix in Finance and Provision and 4) Social Security Scheme Study

3.1 Cost Theory

3.1.1 Types of cost

Unit cost : A unit cost is a kind of simple average - the cost per unit of output or outcome. It can be applied to many things in the analysis of primary health care.

The basic calculation of a unit cost (often called average cost) where the total cost and the quantity of output have been found: Unit cost = Total cost / Quantity

" Cost per service " Unit is the total cost occurred in one patient service or expense of the service providing on visit (Wannavake,1990)

Michael M. Coltman (1930) explained that one of the ways to better among costs is to understand that there are many types of cost. If one can recognize the type of cost that is being considered. Some of the most common types of cost are defined as follows:

Direct cost : Direct cost is one type that is the responsibility of a particular department. Most direct costs will go up or down, to a greater or lesser degree, as revenue goes up and down. For this reason they are considered to be controllable by, and thus the responsibility of, the department to which they are charged. Examples of this type of cost are food , beverages , wages and salaries , operating supplies and services , linen and laundry.

Indirect costs : Indirect cost is one that cannot easily be identified with a particular department or area, and thus cannot be charged to any specific department. Even if this difficulty could be overcome, it must still be recognized that indirect costs cannot normally be made the responsibility of an operating department. Examples; General building maintenance could only be charged to various departments.

Fixed cost : Fixed costs are those that over the short run (a year or less) change or vary with revenue. Over the long run all these costs can, of course, change. But in short run they would normally change, if at all, only by a specific top management decision.

Variable cost : A variable cost is one that varies on a linear basis with sales or revenue. Examples of this type of cost are food and beverages. The more food and beverages sold, the more have to be purchased .If sales are zero, then purchases will also be zero.

3.1.2 Cost analysis

Cost analysis is very important from provider perspective. It is an evaluation of examination of resources, how they are being spent. From provider perspective cost analysis can help to know and explain how resources or fund have been used and to identify the areas where expense need to be reduced or increased. Cost analysis can provide important useful information of all kinds of health services. It helps in assessing the use of health care delivery personal and the efficiency of putting supplies, transport resources and other input to work (Creese and Parker, 1994)

3.1.3 Cost recovery

Cost recovery is a comparison of total revenue and total cost or the ratio of the total revenue to the total cost. In this study cost recovery is identified in term hospital's revenue that receive from social security office, ministry of labor and social welfare (per capitation) and cost from hospital's SSS cost.

Cost recovery by insurance schemes is determined in order to assess the capability to cover the cost.

3.2 Cost Allocation criteria

Allocation criteria is criteria to be designed to allocate costs of any department which do not produce revenues to the other revenue departments and departments which do not generate revenues. It indicates relationship of between activities or services of one cost center to others.

Suver and Neumann (1981) : Berman, Weeks and Kukla (1986) classified cost allocation methods into 4 methods. Due to one of the difficulties in allocating indirect costs to sales outlets is in determining the correct basis on which to apportion the cost to each department.

3.2.1 Direct apportionment

The interdepartment demands among the general service centers are ignored. Then the actual or expected costs assigned to the general service centers are apportioned directly to the patient service centers. The major advantages of the direct apportionment method are its simplicity and the ease with it is understand. The major disadvantage is that it fails to reflect interdepartment exchanges among the general service centers.

3.2.2 Step down method

It provides for the allocation of the costs of general service centers to other general service units and in turn to patient service of final cost centers. Under this method, the advantage are the costs of the general service center serving the most departments (both general service and patient service) had allocated first. The cost of the general center serving the second largest number of departments are allocated next, and so on. If two departments serve an equal number of departments, another criterion such as relative costliness should be used to determine the order of apportionment.

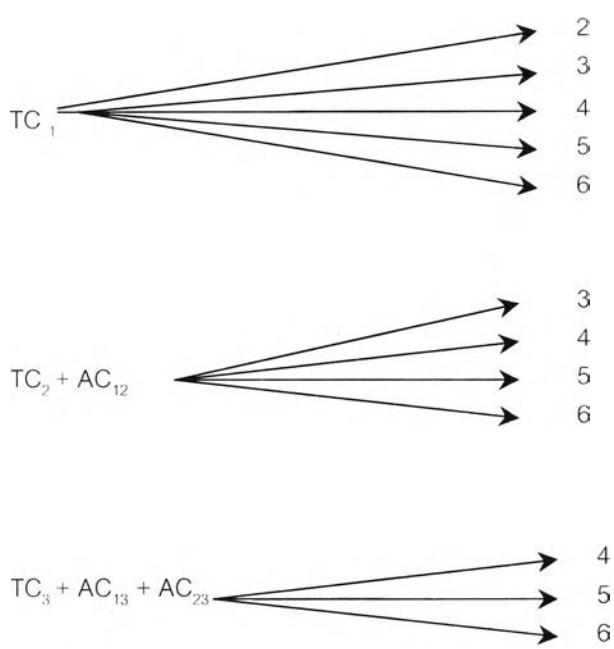
The total cost of the first general service center is apportioned to each of other centers. Next, the total cost of the second general service center and the apportionment from the first to the second general service center are allocated to each of the remaining support centers and to the patient centers. The disadvantage is the first general service center is closed and no allocation from other support centers to this unit is permitted under the step down method. Similarly, once the accumulated costs in the remaining centers are apportioned, these units are closed and no further allocations are made to them. This process continues until the total costs accumulated in the last general service center are apportioned directly to the patient service or final cost centers.

Although the step down method allows for a partial reflection of interdepartment exchanges among general service centers, it can be criticized for failing to allow fully for all exchanges among the general centers. Thus, the step down method partially reflects interdepartmental demands among the general service units.

For example; it is assumed that the general service centers of the hospital are the dietary, housekeeping, and laundry departments while the revenue generating or patient care centers are represented by the laboratory and radiology departments and a nursing unit.

	Department	Code Number
General service centers:	Dietary	1
	Housekeeping	2
	Laundry	3
Revenue generating centers:		
	Laboratory	4
	Radiology	5
	Nursing unit	6

Figure 3.1 shows the allocation of the costs results from the use of the step down method from the above example.



Where

AC_{ij} = apportioned cost form center i to center j for i = 1,2,3

TC = Total cost

The total cost of the first general service center is apportioned to each of the other general service centers and to each of the patient service centers. Next, the total cost of the second general service center and the apportionment from the first to the second general center are allocated to each of the remaining general service centers and to the patient service centers.

3.2.3 Double distribution method

The double distribution method uses two rounds of allocations. This tends to overcome some of the weaknesses inherent in the step down method. In the first distribution, the costs assigned to the general service units are allocated to all the other departments (both general service and patient service) in accordance with measures of the relative demand exerted on the entity whose costs are apportioned. After the first distribution, the cost allocated to the general service units them are redistributed to the final cost centers using either the direct or the step down method.

3.2.4 Simultaneous equation method

This method uses infinite round of allocation unit. The advantage is no cost left in that cost center. The calculation is done by computer excel program. The result under this method is the most accurate among the results of all methods. But the disadvantage is that it can not show how the cost of one cost center is allocated to other cost centers.

Relate data from step down method, the illustration of the cost finding techniques has been simplified by assuming that the hospital is composed of three general service centers and three final cost centers. However, when performing cost analysis in a hospital consisting of many general service and final cost centers, it is necessary only to expand the number of rows and column of the matrix accordingly. For instance, suppose that the hospital is composed of five general service centers and five final cost centers. To accommodate such an organizational arrangement, we might modify the matrix equation.

To use multiple distributions to best advantage, a computer should be used. In fact, a method of distributing interrelated costs has been devised in which simultaneous equations are programmed on a computer.

Several researches were done to determine unit costs of hospital services. And there were many health studies concerning in cost. The methodology of each was different in details, but the main objective was to use the results as a tool to manage the limiting resources of the organization.

For this thesis, it will use both step down and simultaneous equation method due to

-Step down method is a more advanced cost finding technique than direct allocation, for it involves the distribution of the costs of non-revenue producing departments to other non-revenue departments and, in turn, finally to revenue departments. The costs of the non-revenue department serving the most departments (both revenue and non-revenue) are distributed first, the non-revenue department serving the second largest number of departments is distributed next; the one serving the third largest number next, and so on.

Due to step down method; the first general service center is "closed" and no allocation from other general service centers to this unit is permitted under the step down method so Simultaneous equation methods have been developed in an attempt the accuracy of cost finding. By using computer, the models will reflect the relationship among and between departments. These systems represent the most precise methods of cost analysis currently available.

To conclusions: In order to adjust for interdepartment services, the simultaneous equation method programmed for a computer is the most exact. Step down, although acceptable to most third party payers is less accurate because of the "closing" of a department for receipt of charges from other departments once its original and accumulated charges has been distributed.

3.1.6 Summary of unit cost papers

Table 3.1 Summary of unit cost studies

Year	Researcher	Hospital	Allocation Method	Unit cost / visit	Unit cost	LC:MC:CC
1991	Priya	Chonburi	Double distribution	OPD=109.54 ER=172.83	-	-
1996	Walaiporn	Khon Kaen	simultaneous	OPD=236 OB Gyn=136	IPD =1,242	48:45:7
1996	Seelepat	Payamengrai	Direct allocation	Traditional medicine OPD=91	-	8:1:1
1998	Pakawadee	Bangsaotong	Direct allocation	Maternal and child care = 228.97	-	33:50:17
1998	Kitteerawutipong	Maeai	Stepdown	OPD=117	IPD=286/day	-

Note; LC = Labor cost, MC = Material cost, CC = Capital cost

Priya (1991) studied unit cost of out – patient Department and Emergency Unit , Chomburi Hospital.She found that unit cost of out – patient Department and Emergency Unit, Chonburi Hospital was rather low , comparing to other similar hospital. The reason were having a lot of building, furntiures and medical instruments that beyond the depreciation period and the well – managed of Chonburi Hospital.

Walaiporn (1996) studied unit cost of out – patient and in – patient service of khon Kaen Hospital. This study revealed that the direct cost of the hospital is 411,086,423 baht. The total cost is composed of cost from NRPCC 17% RPCC 50% PS 32% and NPS 1%. Surgical intensive care unit has the highest unit cost (4,720 baht/day) but the gynecological ward has the lowest one (721 baht/day).

Silapat (1996) studied unit cost and cost recovery of traditional practice clinic in Payamengrai hospital, Chiangrai. Total program cost recovery was 33.19 percent. Material cost recovery was 312.15 percent. The result of the study could provide hospital administrators to compare between cost and benefit (both in money and other benefit term) and decide to promote the program or not.

Pakawadee (1998) studied unit cost analysis per activity of health center in Bangsaotong minor-district samuthprakan province. The unit cost per activity was derived from the total cost of all activities divided by the sum of all activities. Medical and nursing activities was 56% of the total cost.

Kitteerawuttipong (1998) studied operating cost of Maeai hospital, Chiangmai provice. He found that cost center which had the highest total direct cost was administration, and the lowest was X-ray.

3.2 Hospital : Public – Private mix in Finance and Provision

The increase in the proportion of industrial workers and urban residents is apparent. Rapid

industrialization has caused major change in lifestyles, health status, health behavior and increasing demand for overall health service. The improvement was due to more people participating in health development and to an increase in public spending on health.

Both public and private health services have been expanded and will continue to improve until the country achieves an acceptable coverage. The success of health development is due to better coverage of basic health services, both public and private. Thus, more attention must be paid to the development of health management with an appropriate social and financing mechanism, Attention must be devoted to an improvement in health promotion, prevention, curative and rehabilitation services. There are 4 kinds of public and private mix in finance and provision as following;

1) Public finance and public provision
2) Public finance and private provision
3) Private finance and public provision
4) Private finance and private provision

The point is that public finance does not have to match public provision , nor private finance and private provision. Public provision could be financed by private arrangements (private insurance, direct charges, etc.) and private provision by public finance (e.g. prospective payments made by government agencies directly to private hospitals.)

SSS is a example of mix between public finance to public or private provision which the universal coverage of health insurance and the active participation of the private sector and the local population must be encouraged. For example; SSO which is public finance payment per capitation to Nakornthon Hospital which is private provision. In the other way Nakornthon Hospital which is private provision pay to contract clinic which is private provision.

3.3 Social Security Scheme Study

Anne Mills, Sara Bennett, Porntep Siriwanarangsun, Viroj Tangcharoensathien (2000) studied The response of providers to capitation payment: a case-study from Thailand

There has been a increase in interest in low and middle income countries in introducing (or expanding) compulsory social health insurance schemes. Some social health insurance schemes in middle income countries, such as South Korea and Taiwan, have for some time purchased care from public and private facilities on a fee-for-service basis. The experienced of these schemes, particularly in terms of the rapid cost inflation experienced, has acted as a warning to other countries just initiating social health insurance or

contemplating insurance reform. For example fee-for-service payment in Taiwan during the period 1980-1994 was undoubtedly a major factor behind the annual, per capita, health spending increase of 15.7% compared with a per capita annual GNP increase of only 12.1%. In Korea, health expenditure as a share of GDP increased from 2.8% in 1975, to 4.3% in 1986 and 7.1% in 1991. The Ministry of Health and Social Affairs attempted to contain costs by mandating lower fees, but this was countered by volume increases. In Thailand, fee for service payment has been used under the Civil Servants' Medical Benefit Scheme. This scheme experienced annual cost inflation of 20% in nominal terms during the period 1988-97, despite low inflation and almost zero growth in civil servant numbers. The very high rates of cost inflation experienced were, at least in part, a response by providers to the incentives inherent in the fee for service payment system

An alternative means to control health care costs, while avoiding the complex demands imposed by case-based payment, is capitation payment. Social health insurance schemes in Argentina, Brazil, Nicaragua and Thailand have adopted, or are currently piloting, capitation payment as a means to remunerate public and private providers and this form of payment is attracting increasing interest. Capitation payment may help to control costs by transferring risk to the health care provider. But this transfer of risk also has potentially negative consequences. In the United States, the evidence concerning the impact of capitation based payment on the quality of care is mixed and provides very little help to countries facing very different market structure, demand conditions and regulatory regimes. Very little is known about the effects of capitation in middle income countries.

Capitation payment coupled with choice of provider are often recommended for compulsory insurance schemes, in an attempt to ensure both cost containment and quality of care (Barnum et al..1995). Thailand already has experience of capitation payment and there is a need to evaluate the experience of capitation payment and there is a need to evaluate the experience of capitaiton payment and there is a need to evaluate the experience of capitation payment under the SSS in order to provide in formation that can guide the reform of the other schemes. The Thai experience in designing and implementing the scheme is also of great relevance to other countries who may be thinking of introducing similar approaches

Table 3.2 Number of Individual Choice of Hospitals in Thailand, 1991 – 2001

Year	Public Hospital	Private Hospital	Total
1991	1,996,953 (82.22)	414,234 (17.18)	2,411,190
1992	1,703,246 (61.82)	1,051,844 (38.19)	2,755,090
1993	1,612,077 (48.68)	1,699,290.50 (51.32)	3,311,367.50
1994	1,748,345 (44.71)	2,162,328 (55.29)	3,911,162.50
1995	1,900,258 (44.81)	3,339,752 (55.18)	4,240,010
1996	1,980,582 (40.38)	2,924,262 (59.62)	4,904,844
1997	2,317,446 (43.10)	3,058,912 (56.90)	5,376,358.50
1998	2,534,412 (45.46)	3,041,163 (54.54)	5,575,575
1999	2,396,250 (42.73)	3,211,751.50 (57.27)	5,608,001.50
2000	2,436,704 (42.01)	3,368,005 (57.99)	5,799,709
2001	2,480,924 (41.31)	3,524,989 (58.69)	6,005,913

Note : the values in parentheses are percentage.

The number of insured people at Nakornthon Hospital show as follow ;

In 1999 Number of insured people was 31,056 persons. (0.005 % of whole country insured people)

In 2000 Number of insured people was 42,971 persons. (0.007 % of whole country insured people)