

CHAPTER 6

DISCUSSION, CONCLUSION, POLICY IMPLICATION, AND RECOMMENDATIONS

This chapter consists of conclusion, discussion, policy implications, limitations, future studies and recommendation of the study.

6.1 Discussion and conclusion:

This study intends to study on cost recovery of the Takeo hospital, which is the public health facility providing primary and secondary health care to the people under catchment area (383.369 populations). The main objective of this study is to identify total cost, total revenue, unit cost of each PSCC, and estimated the potential cost recovery of the Takeo hospital in fiscal year 2003, after withdraw the support of donor (Swiss Red Cross). This study is a retrospective study per formed from provider's perspective. The cost centers were identifying into 3 groups: Non-revenue producing cost center (NRPCC), Revenue producing cost center (RPCC), and Patient service cost center (PSCC).

NRPCC composes of Administration, Catering & supplies, and Laundry.
RPCC composes of Pharmacy, X-ray & Ultrasound, and Laboratory
PS composes of Outpatient department (OPD), Inpatient department (IPD), and Surgery. Total direct costs of cost center were determined and classified into labor costs (LC), material costs (MC), and capital costs (CC).

The total direct costs of NRPCC and RPCC were allocated to all PSCC, which were the main centers to provide services to patients, by step down allocation method under allocation criteria. Therefore the component total costs of PSCC are direct and indirect costs. The unit cost of each PS were determined and for the unit cost calculation.

The hospital revenue from various sources were determined and then compared to the total cost in order to estimate the total cost recovery of the hospital. The result of this study can be concluded as followings.

6.1.1 Hospital cost:

Total cost of Takeo hospital is 1,896,307,335Riels equal to US\$ 486,232.65. The proportion of capital cost, labor cost, material cost is 4: 40: 56. The material cost is a highest, labor cost the second, then the capital cost is the smallest, because most of building and medical equipment in Takeo hospital are very old and over useful lifetime, in our assumption of the capital cost of this study, which item are over useful lifetime cost will be zero.

Cost components	Cost (US\$)	Cost (Riels)	%
LC	196,818.64	767,592,696.00	40
MC	270,141.33	1,053,551,187.00	56
CC	19,272.68	75,163,452.00	4
Total	486,232.65	1,896,307,335.00	100

6.1.2 Hospital unit cost:

The average unit cost of Takeo hospital is 96,486.00 Riels equal to US\$ 24.74 per patients visit. The unit cost of OPD is 22,620.00 Riels about US\$ 5.80, IPD is 164,775.00 Riels equal to US\$ 42.25, unit cost of Surgery is 160,875.00 Riels, it about US\$ 41.25. If compare to the unit revenue one OPD visit hospital lose US\$ 3.40, one IPD visit lose US\$ 31.47, one surgery hospital lose US\$ 1.83. Takeo hospital spent high to IPD and the revenue small, so that the volume Varian between cost and revenue of IPD is very large.

Table 6.1 Volume Variance between unit cost and unit revenue:

Table Comparing Unit Cost & Unit Revenue (Price constant)			
	Unit Revenue	Unit Cost	Volume Varian
OPD	2.40	5.80	(3.40)
IPD	10.78	42.25	(31.47)
Surgery	39.42	41.25	(1.83)
Average	9.26	24.74	(15.48)

6.1.3 The effect of price increase demand fall:

The analysis show that, if price constant (mean that all of price for services are similar to price last year and this year), the total number of patients visit is 19,651, OPD visit, 8,554, IPD visit, 1,707 surgery intervention. Cost recovery (from user fees) is about 30%, the total cost recovery (User fees + Government + Other) is 78%.

If hospital increase fee by 10%, the total number of patients visit will decrease from 19,650.45 to 17,994.37, cost recovery (from user fees) is 36%, total cost recovery is 88%, the demand will lose about 1,656.

If fee increase by 20%, the total number patients visit will reduce from 19,651 to 17,188, cost recovery is 42%, the total cost recovery is 97%, the total demand lose about 2,462

If fee increase by 50%, the total number patients visit will reduce more from 19,651 to 1,7182, the demand lose about 2,467 (See table 5.2 &5.3).

Table 6.2 Demand change by various price

Patient visit	Changing demand			
	Price Constant	Price increase		
		10%	20%	50%
OPD	9,390	7,096	5,616	3,380
IPD	8,554	9,262	9,998	12,38
Surgery	1,707	1,636	1,575	1,427
Total	19,651	17,994	17,188	17,183

Figure 6.1 Price effect Demand

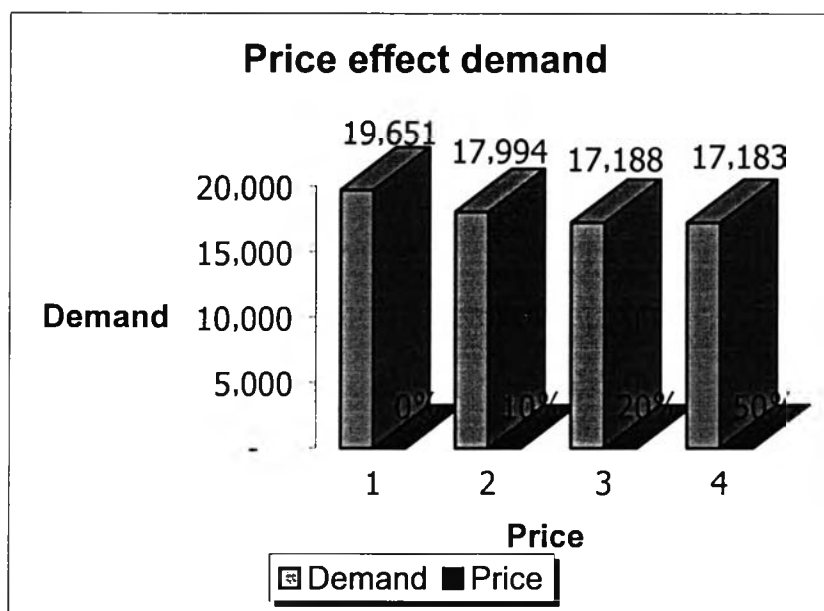


Table 6.3 The effect of price increase

The effect of price increase and the relationship between price, demand and CRR							
	AUR	AUC	Volume Variance	UCRR (UF)	T.UCRR	20% D. Expt.	T.DL
Baseline (Price constant)	9.26	24.74	(15.48)	0.30	0.78	3,930	-
Changing price by 10%	11.16	24.74	(13.58)	0.36	0.88	3,599	1,656
Changing price by 20%	12.97	24.74	(11.77)	0.42	0.97	3,438	2,462
Changing price by 50%	17.91	24.74	(6.83)	0.58	1.13	3,437	2,468

(AUR= Average unit revenue, AUC= Average unit cost, UCRR (UF)= Unit cost recovery of User fees, TUCRR = Total unit cost recovery. D. Expt. = Demand exemption, T.DL = total demand lose).

- $AUR = TR / \text{Output (total patients)}$
- $AUC = TC / \text{Output}$
- Volume variance is the deferent value between unit cost and unit revenue
- $UCRR (UF) = [(AUR (UF) * 0.80) *] / AUC$

Where $AUR * 0.80$ is an actual unit revenue from user fees (80% actual patients paying for services, excluding exemption 20% of the total volume patients).

- $TUCRR = [(UR \text{ User fees} + UR \text{ Govt} + \text{Unit Revenue from Others}) / TUC]$
- Demand exemption (D.Expt) is the number patients 20% free of charge.
- Demand lose (T.DL), we compare the demand of each scenario (Demand with price increase, 10%, 20%, 50%) to the baseline demand (Demand with constant price). In this study the baseline for comparison is the demand with price constant.

If price increase by 10%, so that the demand loses are equal to the demand of price Constance minus the demand with price increase by 10%. If price increase by 20%, the demand loses are equal to the demand of price constant minus the demand with price increase by 20%. And if price increase by 50%, the demand loses are equal to the demand of price Constance minus the demand with price increase by 50%.

6.1.3 Hospital revenue:

The total hospital revenue will be from three sources, the first is the revenue from government, the second is from user fees, and the third is from other revenue. The revenue from government is approximately 718,065,387 01Riels, it about US\$ 184,119.33. Base on total population, Daun Keo operational district should receive US\$ $3.1 * 180,678 = US\$ 560,101.80$, Takeo hospital received **US\$ 184,119.33** in average per year, it about 32.87% of the amount total OD budget, 67.13% of total budget were spent for OD (Operational district) office and 15 Health centers.

6.1.4 Hospital cost recovery

The analysis shows that:

If price constant, hospital cost recovery (Revenue from user fees) is 0.30. Total cost recovery is 0.78, and the total demand is 19,650, patient exemption 20% is about 3,930. This means total budget revenue cannot cover the cost even with support from government and the other; the revenue is still not able to cover the cost. The financial gap will be 0.22% of the total hospital cost, it cost about US\$ 106,971.18 per year; hospital needs to fine more revenue to complete to be a full cost recovery. In last previous year SRC supported Takeo hospital in average about US\$ 79,096.00, if the government increase more budgets to replace the SRC support, cost recovery will increase from 0.78 to 0.94, and the financial gap will reduce to 0.06, which will lead hospital to better financial condition.

- (1) If hospital wants to increase fee by 10%, the capacity of the hospital to generate the revenue will be equal to 0.88. Cost recovery of user fees is 0.38, and the gap is 0.12, with patient exemption of 20% of total volume patients (3,599). Consequently hospital will lose patients (by demand fall because of increasing price), the amount of demand lose is 1,656 and total revenue is still not able to cover the cost of the hospital.
- (2) If hospital wants to increase fee by 20 %, the total cost recovery is 0.96. User fees can cover about 0.42, government and the other supports cover about

0.54, patient exemption 20% of total volume patients (3,438), this mean the total revenue cannot cover the cost and hospital still need 0.04 to complete this gap. Also by increase price 20%, hospital will lose patients about 2,462.

- (3) If the fee increase 50%, cost recovery of user fees can cover about 0.58, the demand exemption 20% is 3,436; the total cost recovery is 1.13. This mean that total revenue (user fees, government, and other) can cover cost of the hospital, but hospital will lose patients about 2,468. Almost of them are poor people and cannot afford to pay for service with this fee. Even hospital already exempted 20% to the poor, this analysis shows that there are many poor peoples that cannot afford to pay by this fee and are already lose in the demand estimation calculation. Instead of coming to the hospital this poor people will seek for service from health center instead since the user fee is cheaper. Resulting from this, there will be increase the efficiency in the outpatient in the health center but for inpatient and surgery which can not be provide at health center the patient still come to the hospital.

The result of analysis shown that, user fee increases by 10%, 20%, and 50% respectively, the demand will decrease more and more (demand moving along demand curve), but the revenues still raise, that's because of the positive price effect is larger than the negative demand effect. When demand is inelastic, it can be observed that the effect of an increase in price easily offsets the effect of lower demand. Thus, for types of treatment where demand is inelastic, hospital can increase the charges: it true that there will be a drop demand, but revenue well continue to rise. However when demand is elastic, it can be observed that the threshold above which the effect of price increase no longer offsets the drop in demand in quite quickly reached. In this case a small increase in charges lead to an increase in revenue, but a big increase in charges will result in a fall in revenue.

This analysis enables us to see that there is no one mode of price setting, which would be preferable to all others. The first task is to identify the policies and objectives assigned to or selected by health facilities; they will be considerably influence demand and must betaken into account in any assessment of the subsequent

evolution of demand. It should come as no surprise if overall demand stagnates when health objectives and their tool in the shape of modes of payment have consisted in concentration on serious and not very common conditions.

On the other hand, demand can grow, very rapidly if hospital tries to attract patient with minor health problems that can be treated at lesser expense and if patients are encouraged to return to the hospital several times through a system of payment by the episode. Remember that the poor are exposed to greater rise on account of poorer conditions of hygiene, work and nutrition, This phenomenon will be amplified by the fact that those who are the poorest will tend to consultations, hoping there cure will be spontaneous and therefore free of charge, so that longer and more sophisticated treatment will actually be needed. Treatment by episode perhaps the answer to this problem, particularly as the complications of disease that in itself justifies a higher fee the episode.

Finally cost recovery in the form of direct payment by users has a number of drawbacks. There is arise of over prescribing, especially when the revenue of the health facility depends heavily on supplying patients with drugs: the staff, conscious of the need to make a profit (and interested in a bonus) may be tempted to prescribe and sell more drugs than is necessary, so that the cost expend will be high. This drawback can be limited by the use of standard models of diagnosis and prescription, but the difficulty of introducing these systems should not be underestimated. This drawback does not occur with fees by the episode.

Takeo hospital is public hospital, responsible by government, under Ministry of Health, Takeo Provincial Health Department, and Operational District Daun keo. Since 1996, the MOH has undergone organizational and financial reform to strengthen the health system. The reform process is based upon the fundamental principals of equity, through improved access to health care for all of the population, whether by financing policies or the allocation and distribution of health resources and infrastructure. The reform requires a redefinition of roles, functions and criteria for location of each level of health system, and a health financing policy to improved access and equity of services for the poor. The "Health Financing Charter" (1996)

jointly approved by Ministry of Health (MOH) and Ministry of Economy and Finance (MoEF) has guided the pilot of deferent models of health financing scheme, particular user fee system. The charter ensures community participation in using and managing services to protect the poor. The poor people are not only under responsibility of the MOH; MOEF (under the government) should play a main role on this. It's necessary, the government should consider carefully on access equity in term of budget distribution, allocation budget and subsidies.

Base on the above discussions, and the policies of the MOH, Takeo hospital should not apply cost recovery by increasing price such as (1), (2), (3); otherwise the above policies will be fail. The best way is to apply constant price (The same as last year and year 2002) for the hospital in year 2003. The exemption system should be considered be carefully.

However the hospital has to improve cost recovery because with the cost recovery lower than 1, the hospital cannot survive in the future because costs are more than the revenue. To improved cost recovery or financial status, the hospital has to control the costs or to increase the revenue. There are many alternatives option that the Cambodia government should considered on it, such as social security scheme, community equity fund, health insurance, government subsidies, donors support etc.

6.2 Policy implication:

To provide policy implications of hospital cost recovery analysis, the result of this study will be propose to Takeo hospital administration (Health Financing committee), Daun Keo Operational district, Takeo Provincial Health Department, Health Planning and Evaluating Committee, some policies need to be considered.

6.2.1 Hospital cost containment:

1. Labor cost:

The hospital should consider carefully about personnel recruitment. The hospital should recruit only the personnel that really needed. Because with current

numbers of personnel, some groups of personnel are enough for workload of hospital services. Remember that labor cost can be increasing especially bonus (incentives) if the revenue increase. The health personnel, conscious of the need to make a profit (and interested in a bonus) may be tempted to prescribe and sell more drugs than is necessary, so that the cost expend will be high. This drawback can be limited by the use of standard models of diagnosis and prescription or protocol of treatment “ Do not give more drugs follow the patients want”.

The hospital should contract out some tasks such as garden maintenance, security, cleaning etc, because the cost (both labor and material cost) may be lower and better quality.

2. Material cost:

Material with the highest cost is medicine and other medical materials. Usually Takeo hospital spent a lot of budget to expired date drugs from central medical stock (CMS) of MOH. In the analysis, the MC is a highest cost, it cost total about US\$ 270,141.33, 56% of the total hospital cost. Therefore CMS should limited some item, and decentralize some drugs item to the hospital to purchase by themselves. The hospital can fine the method purchasing contract or bidding of one company within country.

For the other MC expend (Non drugs and medical equipments), hospital administrators should consider be carefully, limited some costs, which is not necessary.

2. Capital cost:

The hospital administrators, Operational district, provincial health department, people with responsible on budget allocation, budget planner, and MOH, should consider the costs and cost recoveries of some medical equipments and buildings, the best is to fine the way to manage resource more efficiently. For the capital cost in Takeo hospital, usually the hospital administrators did not manage directly by themselves, all the capital cost of the hospital were manage by the provincial

health department and MOH, some of medical equipment in the hospital were allocate direct by the MOH such as X-ray machine, Microscope, Desk, Beds etc.

The allocation of the capital medical equipment was so late and irregular. All most of the capital cost of the hospital were very old age and over useful lifetime, so that, as we see in the analysis, the hospital has a small a mount of capital cost, it costs \$US 19,272.68, about 4% of total hospital cost. It is very important for financial sustainable capital building and medical equipments, that the Ministry of Health (MOH), Provincial health department (PHD), Operational district (OD), and Hospital Administrators need to be considered for long run period.

6.2.2 Policy for a new facility construction or extension:

The policy a new construction and extension of health facility should be considered. Should not be considered only construction costs, but the maintenance costs and other costs should be considered also. The decision for extending the over utilized health facility should be made under economics backgrounds. The advantages and disadvantages including maintenance cost in the future should be considered carefully. In this study based on assumption, much of the building over useful lifetime (zero cost), but the economic cost still exist. So that, if we include the renting cost into the capital cost in this study, it cost will be high, and cost recovery will be lower than in the result of this analysis.

6.2.3 Fee setting and objectives of health facility:

There are many different objectives, and we have grouped them into two main categories: Public health objective and other objectives. Takeo hospital is a public facility, health personnel and administrators of the hospital should consider on public health objectives.

Public health objectives:

Health personnel and / or their managers may pursue deferent and even contra dictionary objectives that are nevertheless intended to serve public health.

Maximizing utilization:

It may be in the interest of the hospital or the national authorities to maximize utilization of health facilities. In this case it will be better to measure demand by the number of attendances rather than the number of the new cases.

It will be best for the charge to be as low as possible, especially for the most widely prevalent conditions, while ensuring that quality is adequate.

Based on the analysis, shown that a high demand when the hospital use the constant price the same as last several years, the demand fall when price increase more and more. To get this objective Takeo hospital should consider carefully on price setting mechanisms.

Maximizing equity:

If the hospital or national policy maker decide on the objective of reducing inequalities, it will be necessary to introduce modes of payment with criteria to differentiate between categories of the people. Age may be one of these criteria for differentiation. And the second is may be income and/or wealth.

6.2.4 Budget allocation criteria

The MOH, Provincial health department, and Operational district, should consider on budget allocation criteria. Is it fair enough to allocate budget with the criteria of the number of the people in that area? Because the costs of health facilities are not only material cost but also labor cost. For the health facilities with a small number population under catchment area, the budget allocate by per capitation will not cover the cost. It is relevant to “economy of scale”. The allocation of the budget base on unit cost, it might be favorable way to apply for Takeo hospital.

Another reason is the government should consider on health facilities are locating in deferent area with different economic status. So the ability to earn revenue is different. Therefore the minimum guarantee of budget should be support to the facility in the poor area or with a small number of populations under catchment area in order to provide equity to all people within the country.

6.2.5 Adjust policy to increase equity

Recognizing that the poor individuals may not be able to afford health care, most countries subsidize their access to care. In country where health care is delivery through public deliveries systems, subsidies are use to keep user charges so that even the poorest families can afford medical care. Support of this used of public subsidies is often based on the idea that nobody, regardless of income, should be denied access to basic minimal health. Although these commitments are not boundless, they are pervasive through out the world. Such arrangements have important implication in that redistribution policies are inseparable from health care policies. Unless private health care and insurance markets are able to guarantee universal access, government will intervene and subsidize certain services and group to varying extents.

6.3 Limitations of the study:

1. This study was conducted under the timeframe constraint. Price setting mechanism, distribution material cost and labor cost mechanism could not be study in details, the data may be unrecorded or misestimated because of unawareness. Large sample of facility should be collected as well as cost from patient's perspective in order to obtain the real cost of the services provided.
2. A lot of assumption had been applies in order to calculate the cost as well as the revenue, such as the average of 3 years costs of labor and material cost the hospital, exemption of charge in year 2003, growth rate of population and price elasticity are constant, etc.
3. Discount rate applies in this study was 10% which was the acceptable value for cost study. Nevertheless, it was no discount rate of the real situation. Then the result should be interpreted carefully.
4. The capital cost in this study is assume to be zero, but in reality the price should not be zero in case of renting the building there should be some price to

take in mind which is not equal to zero. Due to data availability and time limitation, this study cannot find the price for renting.

6.4 Future studies:

This study carried out for only one referral hospital (Takeo Hospital) in Daun Keo Operational district. Then for information on budget allocation on population based, further studies should be conducted:

1. Cost analysis and cost recovery of Operational District Office (ODO)
2. Cost analysis, unit cost and cost recovery of all health centers (15 HC) under catchment area of Daun Keo Operational district.
3. Criteria on budget allocation in Operational district Daun Keo.
4. Strategies and policies to increase equity in Cambodia

6.5 Recommendations:

1. Policies and strategies to allocate budget

Governmental budget allocation criteria for all over the country should be assessed for their appropriateness. For example, fixed budget per capitation for all people in deferent area of the country, it should be more budget for the poor area or area with small number of population under catchment area.

2. Improve financing of health activities

Resource shortage in developing countries especially Cambodia, health system clearly must be address. But the introduction of new systems is not appropriate initial response to the problem. Shortages result both from inefficiencies in resource use and from absolute deficiencies, and until the first are additional resources will also be use inefficiently. It also important to recognize that health financing problems is not simply health sector problems, but often reflect economy-wide difficulties. That is require national strategies to address them, even where additional resources are to be recruited by actions within the health sector. For example, there must be national agreement that

extra finance (ADD, PAP etc) will be retrained for use within the sector (rather than being matched by budget cuts or transferred to other sectors) and that resources can be re-allocate within the sector to meet priority health needs, in order to justify alternative financing strategies.

Within the health sector the first priority must be to improve efficiency, making better use of available resources and enhancing the standing of the sector nationwide. Management can be strengthened through staff training and development of appropriate tools (including incentives); efforts can be made to understand the community 's needs in order that health care better meets them. At the same time the options for increasing funds can be considered using appropriate evaluation criteria.

If efficiency improvements together with the possibility of additional resources still do not bridge the gap between resources requirements and resources ability, then health reconsidered. Not everything that may have a positive impact on health can be affords and health plans must be based on realistic view of resource availability.

3. Communities financing and self- help

Current primary health care initiatives in developing countries stress the important of national self-reliance and community participation in health care delivery. By mobilizing national and local resources (e.g. organizational skills, manpower and cash) and by developing affordable and cultural appropriate delivery system, it is hoped that basic health care will become universally accessible. Government and non-governmental agencies should consider on this and turning to communities for or organization, participation and financial support, and communal self-help is increasingly through of as an important source of financial support for health services. The challenge is to develop a new types of local institution that can coordinate and systematically utilize the community resources. Self-help can take many forms such as labor, local insurance, drugs cooperatives, and support for volunteer health workers.

4. Adjust policy and strategy on health insurance scheme:

Government and non-government agency should consider on self-finance health insurance. Inpatient services cost is very high, sometime the lower and middle income cannot afford to pay, so that Self-financing health insurance is highlighted as well, because increased user fees for care may lead to unaffordable cost in the event of catastrophic illness or injury.

Health insurance allows people to pool contribution to cover the treatment costs of those who experience low probability.

If we combined user fees and self-finance health insurance can reinforce each other's contributions to sustainable health finance of the facilities.

User charges are stimulus to self-financing health insurance schemes. Also for the provider side (health facilities), should consider on quality of care, how to ensure the quality assurance? Therefore quality of care must be strengthening by hospital administrators and health personals.

5. Adjust strategy to identify the poor, health personnel, administrators of the hospital should consider on how identify the poor on there one area (e.g. Provide health card to them if possible), which is better than spent time and personals to make interview everyday.

6.To ensure cost recovery with equity in Takeo hospital, ODO, and PHD, should allocate more budgets to complete the gap, and /or at less greater than this present year, should find the other donor, NGOs to replace SRC, or SRC should continue until Takeo hospital have a sustainable financial.

7. For better performance budgeting to the hospital should be specify in term of physical outputs and unit costs.

8. Takeo hospital should strength more, the information system for collecting essential database on hospital accounting, resources consumption, workload of hospital services, and other important data, the accounting record system; such as record should separately especially recurrent cost of the hospital (Drugs & supplies cost of each department use, material cost was distributed to each department), which is better for further study./.