

CHAPTER 5



CONCLUSION, DISCUSSION AND RECOMMENDATION

This chapter consists of conclusion, discussion, policy implications, limitations, suggestion for further study and recommendations.

5.1 Conclusion

The objectives of this study are to analyze full hospital cost and unit cost of each patient service as well as estimate DRGs cost of 5 common diseases at the tertiary care general hospital, Pranangklaao Hospital, in fiscal year 2000. The study is retrospective from provider's perspective. Data used were both primary and secondary data by questionnaires and record forms. The study uses the step down method for cost analysis. Cost centers were classified into 3 groups: NRPCC, RPCC and PS. NRPCC contains administration, finance, laundry, housekeeping, food catering and supply. RPCC contains operating room, anesthesiology, laboratory, radiology, pharmacy and physiotherapy. PS contains emergency room, OPD medicine, OPD surgery, OPD orthopedics, OPD obs - gynae, OPD pediatrics, OPD ENT, OPD ophthalmology, Dental OPD, Medical ward, pediatrics ward, surgical ward, obs-gynae, surgical ICU, Medical ICU, EENT ward, Monk ward ,orthopedics ward, Medical private ward, Pediatrics private ward, Surgical private ward and Obs-gyn private ward. Total direct cost of each cost center is composed of capital, material and labor cost. Indirect cost of NRPCC and RPCC centers were allocated to all PS centers by step down method, according to each cost center's proportion of allocation criteria. So the total cost of each PS consists of direct and indirect cost. The finding of this study is concluded as follow:

5.1.1 Unit cost

Average OPD unit cost is 251 baht per visit. emergency room center (C01), unit cost was the highest cost of 518 baht per visit and the next highest was dental (C09) that was 446 baht per visit. OPD Obs-gyn (C05) had the lowest unit cost of 183 baht per visit. All OPD cost centers of unit cost are shown on the table below.

Table 5.1 : OPD unit cost

Code	Cost center	Unit cost/ visit (baht)
C01	Emergency room	518
C02	OPD Medicine	193
C03	OPD Surgery	179
C04	OPD orthopedics	239
C05	OPD ob-gyn	176
C06	OPD Pediatrics	290
C07	OPD ENT	210
C08	OPD Ophthalmal	217
C09	Dental	446
Average unit cost		251

Average IPD unit cost is 1,646 per admission day and 8,112 per case. Medical ICU (C15) was the highest unit cost of 4,111 baht per day and 52,985 baht per case. Ortho ward cost center (C18) has the lowest unit cost of 1,190 baht per admission day but obs-gyn (C13) ward had the lowest unit cost of 4,436 baht per case because there were many cases.

Table 5.2 : IPD unit cost

Code	Cost center	unit cost per admission day(baht)	unit cost per case (baht)
C10	Medical ward	1,395	6,810
C11	Pediatrics ward	1,939	8,811
C12	Surgical ward	1,263	7,390
C13	Obs-gyn ward	2,413	4,436
C14	Surgical ICU	3,911	34,532
C15	Medical ICU	4,111	52,985
C16	EENT ward	1,576	7,282
C17	Monk ward	1,218	6,506
C18	Orthopedics ward	1,190	7,436
C19	Medical private ward	1,428	14,721
C20	Pedia private ward	1,596	13,430
C21	Surgical private ward	1,466	14,135
C22	Obs-Gyn private ward	1,934	7,814
Average unit cost		1,646	8,112

5.1.2 IPD with DRGs cost of 5 common diseases

Average adjRW is 0.8981 and DRGs cost per RW is 6,476 (exclude capital cost). The DRGs cost per RW can be determined from average IPD cost per case and average adj RW as following:

$$\text{DRGs cost per RW} = (\text{IPD unit cost per case}) / (\text{average adjRW})$$

For a given disease with a given RW the estimate DRG cost :

$$\text{Estimate DRGs cost} = (\text{av adjRW}) * (\text{DRG cost per RW})$$

Table 5.3 : Estimate DRGs cost of 5 common diseases

Diagnosis (PDX)	DRGs Code	Description	Average adjRW	Estimated DRGs cost
Upper respiratory infection (J069)	70	Otitis media and URI age 0 - 17	0.2976	1,927
Hypertension (I10)	134	Hypertension	0.7505	4,860
Peptic ulcer (K279)	178	Uncomplicated peptic ulcer w / o CC	0.4115	2,665
Urinary tract infection (N390)	322	Kidney and urinary tract infections age 0 - 17	0.3518	2,278
Appendicitis (K359)	167	Appendectomy w / o complicated principle diag w / o CC	1.2124	7,851

5.2 Discussion

Research questions were expressed in chapter one what are the cost structure, what are the unit cost of OPD and IPD and what are the DRGs cost of 5 common diseases at Pranangklaio hospital. From this study, found that total cost of Pranangklaio hospital 300,284,271 baht. The proportion of material cost, labor cost and capital cost was 21: 51: 28. In this study, depreciation values are appraised from the current value of capital cost and annualization factor. The proportion of capital depreciation cost for equipments and buildings was 39% and 61% respectively. Total depreciation capital cost was 83,493,228 baht which consisted of equipment costs were 32,797,291 baht and building costs were 50,695,937 baht. Labor cost was the highest proportion of cost structure. Because the hospital is the tertiary level public hospital, doctors are specialist and there are many personnel. So salaries and wage are quite high. Total labor cost was 153,992,096 baht. Total material cost was 62,798,947 baht. The proportion of material cost was 21.

OPD average unit cost was 251 baht per visit. The highest unit cost was emergency room (C01) that was 518 baht per visit. The proportion of cost component for material, labor and capital cost was 15: 65: 20. Labor cost was the highest proportion because there were many nurses and doctors on duty for standby always. However there were not much patients , require several nurses and doctors to spend time on a single patient more than patients at OPD. The next highest unit cost was dental (C09) that was 446 baht per visit. The proportion of cost component for material, labor and capital cost was 17: 59: 24. Labor cost was the highest proportion because the fixed cost was the major part of cost. Dental requires a dentist, an assistant and time to a patient however the number of patients were not much.

IPD average unit cost was 1,646 baht per admission day. The highest unit cost was medical ICU that was 4,111 baht per admission day. The proportion of capital, labor and capital cost was 11: 66: 23. Labor cost was the highest proportion because a patient required several nurses, specialists and some assistants.

DRGs cost per RW was 6,476 baht. For estimate DRGs cost came from adjRW multiply DRGs cost per RW. Upper respiratory infection(J069), DRGs code is 70. Estimate DRGs cost was 1,927 baht. Acute appendicitis (K359), DRGs code is 167. Estimate DRGs cost was 7,851 baht. There was no complication of upper respiratory infection for DRGs code 70 so it was not required for long stay as acute appendicitis (K359) was required longer stay and other supplies.

5.3 Policy Implication

This section presents policy implications of the hospital costing analysis. The results of this study will be proposed to Pranangklaow hospital administrator who should set up the policy to control the cost as the follows:

5.3.1 Labor cost

Labor cost is the highest proportion of cost for Pranangklaow hospital so the hospital administrator should be aware hiring new personnel. Improve productivity for example by adding more automation such as conversion from manual record keeping to computerized record keeping. However every effort should be made to maintain interaction of patients with doctors, nurses and others for quality healthcare.

5.3.2 Capital cost

The policy of new health facility construction and buying new equipments should be considered carefully. There should be shared equipments from this hospital with other hospitals by using patient referrals.

Since 2001 the hospital has implemented the Universal Coverage program, 30 baht and the hospital has expanded its floor space in the new building for the universal coverage program at OPD which will increase the total capital cost as this study excluded the new building and its floor space.

5.3.3 Material cost

The highest cost are medicine, laboratory and other medical materials. The hospital administrator should consider improved purchase strategies and keep a detailed inventory of materials in stock and keep better records of internal requisitions for materials.

There should be motivation to use supplies efficiently, to keep costs under control.

5.4 Limitation of the Study

Limitation of this study are as follows:

5.4.1 This study is a retrospective study which some data was underestimated or poorly recorded or unrecorded such as number of personnel in each OPD and material cost used in each OPD.

5.4.2 The study only analyzed the provider's perspective on costs but did not include costs from patients and society.

5.4.3 This study calculated average DRGs cost of 5 common diseases. There was insufficient data for proper analysis of DRGs cost. A more accurate approach would be to identify the cost components for each DRGs treatment and compute DRGs cost directly by summing the cost components.

5.5 Further Studies

Further studies should be conducted as follows:

5.5.1 A new study could include hospital costing under universal coverage scheme and cost recovery analysis and maintain equity issues.

5.5.2 A further study could be conducted to determine a better estimate of DRGs costs for common diseases and other diseases.

5.6 Recommendations

This study does not include the universal coverage program, 30 baht. After universal coverage has been implemented since October 2001 in the hospital. The payment mechanism for government hospitals was changed to capitation payment. The new budget allocation has impact to the hospital structure and unit cost as follows:

5.6.1 Cost allocation criteria

From this database, have to revise the allocation criteria for personnel. There is a shift of some personnel who are physicians, dentists, pharmacists and nurses as well as other health personnel to work at OPD UC which includes work in the hospital and out of hospital at health centers.

5.6.2 Capital cost

This study does not include the new building as it was going to structure and the universal coverage program, 30 baht. The hospital has provided a room in the new building at OPD for the patients who have used gold cards under the Universal Coverage program. So there should be additional building space for the capital cost.

5.6.3 Financial management tool

It is recommended that the hospital administrators should invest in a financial management software tool to store, analyze and track costs and revenues. The data for this tool should be gathered from each cost center and update periodically. Data should include all material, labor, capital costs and DRGs costs in addition to all revenues sources. Both cost and budget analysis should be conducted frequently to identify problem areas. The data should contain enough details to allow investigation into all the components for each center' s revenues and unit cost.

This study calculated the estimated DRGs cost of 5 common diseases. It is recommended that the hospital administrators may determine and identify the cost components for each DRGs treatments. Then the calculation of DRGs cost per relative weight could be taken into consideration for reimbursement policy in the future.