UNIT COST ESTIMATION FOR OUTPATIENT AND INPATIENT DEPARTMENTS IN NAKLEOUNG DISTRICT HOSPITAL, CAMBODIA



Mrs. CHAN SORYA

A Thesis Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Health Economics
Faculty of Economics
Graduate School

Chulalongkorn University

Academic Year 1997

ISBN: 974-639-243-3

Thesis title : UNIT COST ESTIMATION FOR OUTPATIENT AND INPATIENT DEPARTMENTS IN NAKLOEUNG DISTRICT HOSPITAL, CAMBODIA : Chan Sorya By : Health Economics Program Thesis Advisor : Asst. Prof. Pongsa Pornchaiviseskul, Ph.D. Accepted by the Graduate School, Chulalongkorn University, in Partial Fulfillment of the Requirements for Master of Science Degree in Health Economics. (Prof. Supawat Chutivongse, M.D.) Thesis Committee: Womanya Patemanile Chairman (Assoc. Prof. Waranya Patarasuk) (Asst. Prof. Pongsa Pornchaiwiseskul, Ph. D.)

(Asst. Prof. Siripen Supakankunti, Ph. D.)

P. Jessodochab. Member (Phitsanes Jessadachatr, Ph.D.)

5734129 : Major HEALTH ECONOMICS

KEY WORD : UNIT COST / OUTPATIENT INPATIENT / NON PROFIT / CAPITAL

RECURRENT COSTS / NAKLOEUNG DISTRICT HOSPITAL

CHAN SORYA: UNIT COST ESTIMATION FOR OUTPATIENT AND

INPATIENT DEPARTMENTS IN NAKLOEUNG DISTRICT HOSPITAL,

CAMBODIA

THESIS ADVISOR: PONGSA PORNCHAIWISESKUL, Ph.D.

pp. 93 ISBN 974-639-243-3

A lot of people have complained that they have been overcharged by uncontrolled private clinics for their health services. However the Government do not have enough resources to provide free health care for the people. As a result, Cambodian Government is considering the introduction of user fee system in the public hospitals. Nakloeung district hospital was purposely selected as a case study. The objective of the study is to estimate unit cost of services provided by Nakloeung district hospital for both outpatient and inpatient departments in order that cost recovery fees can be set. A step-down method was used to calculate the unit cost for the year 1997 (\$1 was equivalent to 2700 riels). Cost per visit in outpatient department varied from 2,188 riels to 2272 riels (from \$0.81 to \$0.84) and the cost per patient day varied from 11,289 riels to 12,528 riels (\$4.18 to \$4.64) when the volume of activities increases 20% and the personnel of the district hospital were give incentive. This result could be useful and can help the committee of the district, GTZ, and Ministry of Health to make decision on cost projection, health care pricing policy and the establishment of the fee system.

บาควิชา	Economics	
สาขาวิชา	Health Economics	,
ปการศึกษา	1997	

ลายมือชื่อนิสิต	Sn-
ลายมือชื่ออาจารย์ที่ปรึกษา	hours .
ลายมือชื่ออาจารย์ที่ปรึกษาร่	วม

ACKNOWLEDGEMENTS

I would like to take the opportunity to thank many people for their contributions to this thesis.

First of all, I am indebted to the Center for Health Economics in providing financial support for tuition of Master of Science in Health Economics that is usefull to Cambodian Ministry of Health in improving health development.

I am very grateful to Dr Gertrud, Director of German Health Project in Cambodia, not only providing for accommodations during the period of study but also for English course, her comments in this thesis and kind cooperation to collect data in the fields.

I would like to thank to Dr Oum Sophal, Director of National Institute of Public Health, in providing the opportunity to study this course and facilitating transportation to collect data from the field.

I am very much thankful to the teaching staff of the Center for Health Economics, particularly Assoc. Prof. Waranya Patarasuk, Dr Chev Kidson, Dr Pirom Kamolratanakul, Dr Pongsa Pornchaiwiseskul, Dr Siripen Supakankunti and Dr Phitsanes Jessadachatr.

I would like to extent my thanks to the two Vice Directors of Nakloeung District Hospital for kind cooperation in providing necessary information for this thesis.

I would like to express my extreme gratitude to one of my classmates, Quazi Liquat Ali and La Hong Yen for providing some important documents related to this thesis.

Finally, I am extremely indebted to my husband for his kind looking after of our kids during my study.

Chan Sorya

TABLE OF CONTENTS

	Page
Abstract	i
Acknowledgment	iĩ
Table of Contents	iii
List of Tables	iv
List of Figures	vi
Abbreviations	vii
Chapters	
1 Introduction	1
1.1 Problems and Rationale	2
1.2 Reseach Objectives	4
1.3 Possible Benefits	5
2 Litterature Reviews	6
2.1 Cost Classification	6
2.2 Methods to Allocate and Analyse Health Care Costs	7
2.3 Approach to Calculate Annual Capital Cost	9
3 Methodology and Cost Calculation	
3.1 Data collection	11
3.2 Conceptual Framework	12
3.3 Data Analysis	14
3.4 Steps of Unit Cost Estimation	22
4 Summary of the Study Results	36
5 Discussion, Conclusion and Recommendation	42
5.1 Limitations of the study	42
5.2 Discussion and Conclusion	42
5.3 Recommendation	43
References	
Appendices	47
1' \!	03

LIST OF TABLES

Table	I	Page
3.1	The Approach of Step-down Allocation	17
3.2	Summary of the Bases used for Allocating Various Types of Overhead	
	Cost to Final Cost Centers in Previous Studies	19
3.3	Summary of the Bases for Allocating Overhead and Intermediate	
	Costs to Final Cost Center	20
3.4	Total Costs (capital and recurrent) of all Division in the	
	District Hospital	24
3.5	Step-down Allocation of the Baseline Scenario from NRPCC to RPCC	25
3.6	Step-down Allocation of the Baseline Scenario from IC to FCC	27
3.7	Unit Cost for OPD and IPD of the Baseline Scenario	. 28
3.8	Unit Capital and Recurrent Cost of the Baseline Scenario	30
3.9	Unit Cost for OPD and IPD when the Demand Increases 20% before	
	Giving Incentive to the Personnel	31
3.10	Unit Cost for OPD and IPD after Giving Incentive to the Personnel	. 33
3.11	Unit Cost for OPD and IPD after Giving Incentive to the Personnel	
	when the Volume of Activities Increases 20%	. 34
3.12	Sensitivity Analysis, Variance among Scenarios	. 35
4.1	Total Cost in OPD and IPD	37
4.2	Unit Cost for OPD and IPD	37
4.3	Unit Cost for both OPD and IPD when the Volume of Activities	
	Increases 20%	. 39
4.4	Unit Cost for both OPD and IPD after Giving Incentive to the Personnel.	. 39
4.5	Unit Cost for OPD and IPD when Demand Increases 20% after Giving	
	Incentive to the Personnel	40
4.6	Result of Sensitivity Analysis	4()
A.1	Conversion of Capital Cost from Foreign Currency to Local Currency	47
.\ 2	Conversion of Recurrent Cost to Present Values	53

LIST OF TABLES (Continued)

Table	I	Page
A.3	Assignment of Salary and Bonus before Giving Incentive to	
	the Personnel	. 57
A.4	Salary and Bonus of the Personnel in each Division	. 58
A.5	Assignment of the Drug Cost	. 60
A.6	Drug Cost	61
A.7	Calculate Capital Cost for all Divisions in the hospital	. 69
A.8	Step-down Allocation of the Baseline Scenario from NRPCC	
	to RPCC for Capital and then Recurrent Costs	75
A.9	Step-down Allocation of the Baseline Scenario from IC to FCC	
	for Capital and then Recurrent Costs	. 79
A.10	Reassignment of Salary and Bonus after Giving Incentive to	
	the Personnel	80
A.11	New Salary of the Personnel in each Division	. 81
A.12	New Recurrent Cost after Giving Incentive to the Personnel	83
A.13	Total Costs (capital+recurrent) of all Divisions in the	
	District Hospital after Adding Incentive to the Personnel	. 85
A.14	Step-down Allocation from NRPCC to RPCC when	
	the Personnel are Given Incentive	. 86
A.15	Step-down Allocation from IC to FCC when the Personnel	
	are Given Incentive	. 88
B.1	Incentive for each Level of Personnel Received each Month at the Routine	2
	Laboratory of the National Institute of Public Health	
B.2	Total Number of Laboratory Test 1997	90
B.3	Total Number of X-Ray Test 1997	91
B.4	Existing Plan of Nakloeung District Hospital	92

LIST OF FIGURES

Figure	Page
3.1	Conceptual Framework of Unit Cost for Outpatient Department 13
3.2	Conceptual Framework of Unit Cost for In-patient Department 14
4.1	Total Cost in Nakloeung District Hospital
4.2	Unit Cost for Outpatient Department
4.3	Unit Cost for In-patient Department
4.4	Variation of Unit Cost for OPD in different Scenarios
4.5	Variation of Unit Cost for IPD in different Scenarios

ABBREVIATIONS

Acti. = Activity

CC = Capital cost

GTZ = German Technical Training

IC = Intermediate cost

IPD = In-patient department

No = Number

NRPCC= Non revenue producing cost center

OPD = Outpatient department

PC = Patient cost center

P/d = Patient day

RC = Recurrent cost

RPCC = Revenue producing cost center