



REFERENCES

- American Hospital Association (1998) Estimated Useful Lives of Depreciable Hospital Assets. U.S.A : American Hospital Press.
- Berman, H.J. Weeks, L.E. Kukla, S.F. (1986). Financial management of Hospital 6th ed. Michigan: Health Administration Press.
- Berman, H.J. Weeks, L.E. Kukla, S.F. (1994). Financial management of Hospital. Michigan: Health Administration Press.
- Boyles, R.W. (1982). Hospital Accounting Practice Managerial Accounting London : Aspen Publication.
- Cheah, J. & Chee, Y. C. (1999). Case Mix- For Better or for Worse?: Medical Journal of Singapore. 40.
- Creese, A, & Parker, D. (1994). Cost analysis in primary health care:A training manual for the programme managers. England: WHO Press.
- Drummond, M.F., Obrien, B.J., Stoddart, G.L and Torrance, G.W. (1998). Method for the economic evaluation of health care programmes. Oxford: Oxford University Press.
- Fetter, R.B., Brane, D.A., & Gamache, D. (1991). "DRGs: their Design and Development". U.S.A: Health Administration Press.

Health Insurance Office. (2000). Manual of Thai DRGs version 2. Thailand.
(in Thai)

Howard, Thomas P.,(1979)."A Comparison of Two methods of Cost Finding".
U.S.A: American Accounting Association.

Jichinakul S. (1981). A Study of Unit Cost in Lerd Sin Hospital, M.S.c diss.,
Mahidol University. (in Thai)

Kiranan, T. (1996) Health Economics. Bangkok: Chulalongkorn University.

Kongsawat S. (1991) A Study of Unit Cost of the Out-Patient in Department of
Medicine Chulalongkorn Hospital. M.Sc.diss., Chulalongkorn University.

Meeting, D.T. (1997) 4 Cost Financing Method: which One is Best?, Hospital
Financial Management ,33 : 34-39

Metha, N.H. & Maher, D.J. (1977). Hospital Accounting System and Control.
New Jersey : Prentice Hall Press.

Ngamsiriudom, B. (1994) The Unit Cost and Cost Recovery of Chiangmai
Maternal and Children Hospital. Research Report. (in Thai)

Office of The Prime Minister, Office of The National Economics and Social
Development Board. (1996). The Eighth National Economics and Social
Development Plan 1997-2001. Bangkok. (in Thai)

- Pacharanarumol, W. (1997). Unit cost of out-patient and in-patient service of Khon Kaen Hospital in the fiscal year 1996. M.S.c diss., Chulalongkorn University.
- Pannarunothai, S. (2000). Diagnosis related group: Principle and practice. Health Insurance Office.
- Shepard, D.S., & Hodgkin, D., Anothony, Y. (1998). Analvsis of Hospital Costs: A Manual for Managers. Switzerland: WHO Press.
- Sridaeng, S. (1997). Cost and Unit Cost of Analysis of Thoen Hospital in fiscal year 1997. M.S.c. diss., Mahidol University.
- Sorya, C. (1997) Unit Cost Estimation for Outpatient and Inpatient Departments in Nakleoung Distric Hospital, Cambodea M.S.c. diss., Chulalongkorn University.
- Spiegel, A.D., & Kavalier, F. (1986). Cost Containment and DRGs: A Guide to Prospective Payment. U.S.A: National Health Press.
- Tanamun, B., et al. (1990). A Study of Unit Cost of the Out-patient Department in Chulalongkorn Hospital. Research Report. (in Thai)
- Thantaristri, S. (1998). Unit Cost of Analysis of Bangplee Hospital Fiscal Year 1998. M.S.c. diss., Mahidol University.

The Asia Pacific Health Economic Network. (2001). The Universal Coverage Policy of Thailand: An Introduction. The World Wide Web:
<http://www.unescap.org>.

Wannawake, J. (1992) A Study of Unit Cost of the Out-Patient in Chulalongkorn Hospital. M.S.c. diss., Chulalongkorn University. (in Thai)

Wibulpolprasert, S., et al. (2000). Thailand Health Profile 1997-1998. Ministry of Public Health.

APPENDIX

Table A 1 : Area of each cost center

Code	Emergency building	Surgical building	Medical building	Eighth floor building	Fifth floor building
A01		0	0	616	0
A02		0	0	372	0
A03	0	0	0	0	0
A04	0	0	0	9	0
A05	0	0	0	0	0
A06	0	0	0	0	0
B01	0	0	0	0	2000
B02	0	0	0	0	800
B03	0	0	0	0	1474
B04	378	0	0	0	0
B05	0	0	0	120	0
B06	0	0	0	433	0
C01	389	0	0	0	0
C02	0	0	0	0	1169
C03	39	0	0	64	0
C04	180	0	0	0	0
C05	0	0	0	0	294
C06	0	0	0	0	196
C07	0	0	0	0	98
C08	0	0	0	64	0
C09	0	0	0	308	0
C10	0	0	289	700	0
C11	1222	0	0	0	0
C12	687	325	0	0	0
C13	0	0	0	700	344
C14	187	0	0	0	0
C15	0	0	0	0	344
C16	0	0	0	755	0
C17	0	0	619	0	0
C18	687	325	0	0	0
C19	0	0	0	0	0
C20	0	0	0	0	0
C21	0	0	0	0	0
C22	0	0	0	0	0
Area (sq m)	3769	650	908	4086	6719

Table A 2 : Area of each cost center

Code	Charem- praktiat building	Service and parking building	Pharmacy and supply building	Laundry building
A01	0	0	0	0
A02	0	0	0	0
A03	0	0	0	162
A04	0	0	0	0
A05	0	675	0	0
A06	0	0	270	0
B01	0	0	0	0
B02	0	0	0	0
B03	0	0	0	0
B04	0	0	0	0
B05	0	44	610	0
B06	0	0	0	0
C01	0	0	0	0
C02	0	0	0	0
C03	0	0	0	0
C04	0	0	0	0
C05	0	0	0	0
C06	0	0	0	0
C07	0	0	0	0
C08	0	0	0	0
C09	0	0	0	0
C10	0	0	0	0
C11	0	0	0	0
C12	0	0	0	0
C13	0	0	0	0
C14	0	0	0	0
C15	0	0	0	0
C16	0	0	0	0
C17	0	0	0	0
C18	0	0	0	0
C19	376	0	0	0
C20	385	0	0	0
C21	376	0	0	0
C22	376	0	0	0
Area (sq m)	1513	719	1080	162

Table A 3 : Area and area ratio of each cost center

Code	Total	Area Ratio
A01	616	0.031
A02	372	0.019
A03	162	0.008
A04	9	0.000
A05	675	0.034
A06	270	0.014
B01	2000	0.102
B02	800	0.041
B03	1474	0.075
B04	378	0.019
B05	974	0.050
B06	433	0.022
C01	389	0.020
C02	1169	0.060
C03	103	0.005
C04	180	0.009
C05	294	0.015
C06	196	0.010
C07	98	0.005
C08	64	0.003
C09	308	0.016
C10	989	0.050
C11	1222	0.062
C12	1012	0.052
C13	1044	0.053
C14	187	0.010
C15	344	0.018
C16	700	0.036
C17	619	0.032
C18	1012	0.052
C19	376	0.019
C20	385	0.020
C21	376	0.019
C22	376	0.019
Total area (sq m)	19606	1.000

Table A 4 : Criteria for cost allocation from A01

Code	FTEs	Allocation FTEs	Allocation ratio
A01	71.8		
A02	31.7	31.7	0.0324
A03	10.4	10.4	0.0106
A04	20.0	20.0	0.0204
A05	36.4	36.4	0.0371
A06	41.7	41.7	0.0425
B01	80.3	80.3	0.0820
B02	44.3	44.3	0.0452
B03	39.6	39.6	0.0404
B04	15.7	15.7	0.0160
B05	66.3	66.3	0.0677
B06	25.0	25.0	0.0255
C01	34.3	34.3	0.0350
C02	13.7	13.7	0.0139
C03	5.3	5.3	0.0054
C04	9.7	9.7	0.0099
C05	3.0	3.0	0.0031
C06	4.2	4.2	0.0043
C07	3.2	3.2	0.0032
C08	3.0	3.0	0.0031
C09	30.1	30.1	0.0307
C10	57.9	57.9	0.0591
C11	61.6	61.6	0.0628
C12	48.6	48.6	0.0496
C13	51.0	51.0	0.0520
C14	34.8	34.8	0.0355
C15	35.3	35.3	0.0360
C16	29.2	29.2	0.0298
C17	24.0	24.0	0.0245
C18	50.7	50.7	0.0518
C19	18.9	18.9	0.0192
C20	16.7	16.7	0.0171
C21	17.2	17.2	0.0176
C22	16.2	16.2	0.0165
Total	1051.7	979.9	1.0000

Table A 5 : Criteria for cost allocation from A02

Code	FTEs	Allocation FTEs	Allocation ratio
A01	71.8		
A02	31.7		
A03	10.4	10.4	0.0109
A04	20.0	20.0	0.0211
A05	36.4	36.4	0.0384
A06	41.7	41.7	0.0440
B01	80.3	80.3	0.0847
B02	44.3	44.3	0.0468
B03	39.6	39.6	0.0418
B04	15.7	15.7	0.0165
B05	66.3	66.3	0.0699
B06	25.0	25.0	0.0264
C01	34.3	34.3	0.0362
C02	13.7	13.7	0.0144
C03	5.3	5.3	0.0055
C04	9.7	9.7	0.0103
C05	3.0	3.0	0.0032
C06	4.2	4.2	0.0044
C07	3.2	3.2	0.0033
C08	3.0	3.0	0.0032
C09	30.1	30.1	0.0317
C10	57.9	57.9	0.0611
C11	61.6	61.6	0.0649
C12	48.6	48.6	0.0512
C13	51.0	51.0	0.0538
C14	34.8	34.8	0.0367
C15	35.3	35.3	0.0372
C16	29.2	29.2	0.0308
C17	24.0	24.0	0.0254
C18	50.7	50.7	0.0535
C19	18.9	18.9	0.0199
C20	16.7	16.7	0.0176
C21	17.2	17.2	0.0182
C22	16.2	16.2	0.0171
Total	1051.7	948.2	1.0000

Table A 6 : Criteria for cost allocation from A03

Code	Laundry (kilos)	Allocation laundry (kilos)	Allocation ratio
A01	0		
A02	0		
A03	0		
A04	3246	3246	0.0046
A05	458	458	0.0006
A06	48554	48554	0.0690
B01	208897	208897	0.2967
B02	3985	3985	0.0057
B03	5	5	0.0000
B04	5984	5984	0.0085
B05	93	93	0.0001
B06	18099	18099	0.0257
C01	12275	12275	0.0174
C02	605	605	0.0009
C03	605	605	0.0009
C04	157	157	0.0002
C05	1288	1288	0.0018
C06	605	605	0.0009
C07	605	605	0.0009
C08	605	605	0.0009
C09	912	912	0.0013
C10	61425	61425	0.0872
C11	53770	53770	0.0764
C12	61795	61795	0.0878
C13	63097	63097	0.0896
C14	14803	14803	0.0210
C15	13752	13752	0.0195
C16	19003	19003	0.0270
C17	21076	21076	0.0299
C18	48701	48701	0.0692
C19	8831	8831	0.0125
C20	9575	9575	0.0136
C21	9357	9357	0.0133
C22	11879	11879	0.0169
Total	704039	704039	1.0000

Table A 7 : Criteria for cost allocation from A04

Code	Floor area (sq-m)	Allocation floor area (sq-m)	Allocation ratio
A01	616		
A02	372		
A03	162		
A04	9		
A05	675	675	0.0366
A06	270	270	0.0146
B01	2000	2000	0.1084
B02	800	800	0.0434
B03	1474	1474	0.0799
B04	378	378	0.0205
B05	974	974	0.0528
B06	433	433	0.0235
C01	389	389	0.0211
C02	1169	1169	0.0634
C03	103	103	0.0056
C04	180	180	0.0098
C05	294	294	0.0159
C06	196	196	0.0106
C07	98	98	0.0053
C08	64	64	0.0035
C09	308	308	0.0167
C10	989	989	0.0536
C11	1222	1222	0.0662
C12	1012	1012	0.0549
C13	1044	1044	0.0566
C14	187	187	0.0101
C15	344	344	0.0186
C16	700	700	0.0379
C17	619	619	0.0336
C18	1012	1012	0.0549
C19	376	376	0.0204
C20	385	385	0.0209
C21	376	376	0.0204
C22	376	376	0.0204
Total	19606	18447	1.0000

Table A 8 : Criteria for cost allocation from A05

Code	Meals served	Allocation meals served	Allocation ratio
A01	0		
A02	0		
A03	0		
A04	0		
A05	0		
A06	0	0	0.0000
B01	0	0	0.0000
B02	0	0	0.0000
B03	0	0	0.0000
B04	0	0	0.0000
B05	0	0	0.0000
B06	0	0	0.0000
C01	16825	16825	0.0417
C02	0	0	0.0000
C03	0	0	0.0000
C04	0	0	0.0000
C05	0	0	0.0000
C06	0	0	0.0000
C07	0	0	0.0000
C08	0	0	0.0000
C09	0	0	0.0000
C10	83676	83676	0.2075
C11	50526	50526	0.1253
C12	61315	61315	0.1520
C13	39149	39149	0.0971
C14	3201	3201	0.0079
C15	4835	4835	0.0120
C16	28455	28455	0.0706
C17	22397	22397	0.0555
C18	49775	49775	0.1234
C19	11577	11577	0.0287
C20	10995	10995	0.0273
C21	11983	11983	0.0297
C22	8555	8555	0.0212
Total	403263	403263	1.0000

Table A 9 : Criteria for cost allocation from A06

Code	Supply ratio	Allocation supply ratio	Allocation ratio
A01	0.0000		
A02	0.0000		
A03	0.0000		
A04	0.0000		
A05	0.0000		
A06	0.0000		
B01	0.1540	0.1540	0.1540
B02	0.0082	0.0082	0.0082
B03	0.0053	0.0053	0.0053
B04	0.0026	0.0026	0.0026
B05	0.0134	0.0134	0.0134
B06	0.0020	0.0020	0.0020
C01	0.0506	0.0506	0.0506
C02	0.0064	0.0064	0.0064
C03	0.0064	0.0064	0.0064
C04	0.0069	0.0069	0.0069
C05	0.0341	0.0341	0.0341
C06	0.0064	0.0064	0.0064
C07	0.0041	0.0041	0.0041
C08	0.0013	0.0013	0.0013
C09	0.0043	0.0043	0.0043
C10	0.0891	0.0891	0.0891
C11	0.0659	0.0659	0.0659
C12	0.1175	0.1175	0.1175
C13	0.1242	0.1242	0.1242
C14	0.0499	0.0499	0.0499
C15	0.0330	0.0330	0.0330
C16	0.0057	0.0057	0.0057
C17	0.0445	0.0445	0.0445
C18	0.1315	0.1315	0.1315
C19	0.0108	0.0108	0.0108
C20	0.0062	0.0062	0.0062
C21	0.0117	0.0117	0.0117
C22	0.0040	0.0040	0.0040
Total	1.0000	1.0000	1.0000

Table A 10 : Criteria for cost allocation from B01

Code	Allocation operating		
	Operating Cases	cases	Allocation ratio
A01	0		
A02	0		
A03	0		
A04	0		
A05	0		
A06	0		
B01	0		
B02	0	0	0.0000
B03	0	0	0.0000
B04	0	0	0.0000
B05	0	0	0.0000
B06	0	0	0.0000
C01	0	0	0.0000
C02	0	0	0.0000
C03	0	0	0.0000
C04	0	0	0.0000
C05	0	0	0.0000
C06	0	0	0.0000
C07	0	0	0.0000
C08	0	0	0.0000
C09	0	0	0.0000
C10	2037	2037	0.1637
C11	1398	1398	0.1124
C12	1477	1477	0.1187
C13	3403	3403	0.2735
C14	123	123	0.0099
C15	90	90	0.0073
C16	829	829	0.0667
C17	790	790	0.0635
C18	1346	1346	0.1082
C19	165	165	0.0132
C20	204	204	0.0164
C21	179	179	0.0144
C22	399	399	0.0321
Total	12442	12442	1.0000

Table A 11 : Criteria for cost allocation from B02

Code	Allocation anesthesia		
	Anesthesia cases	Cases	Allocation ratio
A01	0		
A02	0		
A03	0		
A04	0		
A05	0		
A06	0		
B01	0		
B02	0		
B03	0	0	0.0000
B04	0	0	0.0000
B05	0	0	0.0000
B06	0	0	0.0000
C01	0	0	0.0000
C02	0	0	0.0000
C03	0	0	0.0000
C04	0	0	0.0000
C05	0	0	0.0000
C06	0	0	0.0000
C07	0	0	0.0000
C08	0	0	0.0000
C09	0	0	0.0000
C10	1154	1154	0.1637
C11	792	792	0.1124
C12	836	836	0.1187
C13	1927	1927	0.2735
C14	70	70	0.0099
C15	51	51	0.0073
C16	470	470	0.0667
C17	448	448	0.0635
C18	762	762	0.1082
C19	93	93	0.0132
C20	115	115	0.0164
C21	101	101	0.0144
C22	226	226	0.0321
Total	7045	7045	1.0000

Table A 12 : Criteria for cost allocation from B03

Code	Lab tests	Allocation lab tests	Allocation ratio
A01	0		
A02	0		
A03	0		
A04	0		
A05	0		
A06	0		
B01	0		
B02	0		
B03	0		
B04	0	0	0.0000
B05	0	0	0.0000
B06	0	0	0.0000
C01	24696	24696	0.0788
C02	77490	77490	0.2472
C03	31061	31061	0.0991
C04	20947	20947	0.0668
C05	28367	28367	0.0905
C06	23432	23432	0.0748
C07	9098	9098	0.0290
C08	12958	12958	0.0413
C09	0	0	0.0000
C10	14985	14985	0.0478
C11	9574	9574	0.0305
C12	13029	13029	0.0416
C13	9427	9427	0.0301
C14	1635	1635	0.0052
C15	1758	1758	0.0056
C16	5773	5773	0.0184
C17	6360	6360	0.0203
C18	12678	12678	0.0404
C19	2561	2561	0.0082
C20	2583	2583	0.0082
C21	2604	2604	0.0083
C22	2430	2430	0.0078
Total	313447	313447	1.0000

Table A 13 : Criteria for cost allocation from B04

Code	X-rays	Allocation x-rays	Allocation ratio
A01	0		
A02	0		
A03	0		
A04	0		
A05	0		
A06	0		
B01	0		
B02	0		
B03	0		
B04	0		
B05	0	0	0.0000
B06	0	0	0.0000
C01	4542	4542	0.0948
C02	14253	14253	0.2974
C03	5713	5713	0.1192
C04	3853	3853	0.0804
C05	5218	5218	0.1089
C06	4310	4310	0.0899
C07	1673	1673	0.0349
C08	2383	2383	0.0497
C09	2335	2335	0.0487
C10	596	596	0.0124
C11	409	409	0.0085
C12	432	432	0.0090
C13	996	996	0.0208
C14	36	36	0.0008
C15	26	26	0.0006
C16	243	243	0.0051
C17	231	231	0.0048
C18	394	394	0.0082
C19	48	48	0.0010
C20	60	60	0.0012
C21	52	52	0.0011
C22	117	117	0.0024
Total	47921	47921	1.0000



Table A 14 : Criteria for cost allocation from B05

Code	Prescriptions	Allocations prescriptions	Allocation ratio
A01	0		
A02	0		
A03	0		
A04	0		
A05	0		
A06	0		
B01	0		
B02	0		
B03	0		
B04	0		
B05	0		
B06	0	0	0.0000
C01	28001	28001	0.0666
C02	87860	87860	0.2090
C03	35217	35217	0.0838
C04	23751	23751	0.0565
C05	32163	32163	0.0765
C06	26568	26568	0.0632
C07	10315	10315	0.0245
C08	14692	14692	0.0349
C09	14391	14391	0.0342
C10	24153	24153	0.0574
C11	16575	16575	0.0394
C12	17513	17513	0.0417
C13	40345	40345	0.0960
C14	1456	1456	0.0035
C15	1073	1073	0.0026
C16	9832	9832	0.0234
C17	9371	9371	0.0223
C18	15959	15959	0.0380
C19	1954	1954	0.0046
C20	2415	2415	0.0057
C21	2125	2125	0.0051
C22	4732	4732	0.0113
Total	420463	420463	1.0000

Table A 15 : Criteria for cost allocation from B06

Code	Allocation		
	Physiotherapy cases	Physiotherapy cases	Allocation ratio
A01	0		
A02	0		
A03	0		
A04	0		
A05	0		
A06	0		
B01	0		
B02	0		
B03	0		
B04	0		
B05	0		
B06	0		
C01	9577	9577	0.1602
C02	30050	30050	0.5025
C03	12045	12045	0.2014
C04	8123	8123	0.1359
C05	0	0	0.0000
C06	0	0	0.0000
C07	0	0	0.0000
C08	0	0	0.0000
C09	0	0	0.0000
C10	0	0	0.0000
C11	0	0	0.0000
C12	0	0	0.0000
C13	0	0	0.0000
C14	0	0	0.0000
C15	0	0	0.0000
C16	0	0	0.0000
C17	0	0	0.0000
C18	0	0	0.0000
C19	0	0	0.0000
C20	0	0	0.0000
C21	0	0	0.0000
C22	0	0	0.0000
Total	59795	59795	1.0000

Table A 16 : NRPCC allocation with step down method

Code	Cost center	A01	A02	A03	A04	A05	A06
A01	Administration						
A02	Finance	625784					
A03	Laundry	204149	58317				
A04	Housekeeping	394402	112663	18948			
A05	Food Catering	717757	205032	2671	510314		
A06	Supply	821978	234803	283420	204126	0	
B01	Operating Rm	1583760	452411	1219389	1512043	0	1437809
B02	Anesthesiology	874359	249766	23262	604817	0	76629
B03	Laboratory	780820	223046	29	1114375	0	49557
B04	X-ray	308743	88194	34928	285776	0	24173
B05	Pharmacy	1307455	373482	543	736365	0	125182
B06	Physiotherapy	493634	141010	105647	327357	0	18764
C01	Emergency Rm	676374	193210	71653	294092	805391	472189
C02	OPD Medicine	269559	77001	3532	883789	0	59618
C03	OPD Surgery	103676	29616	3532	77870	0	59617
C04	OPD Ortho	191671	54752	916	136084	0	64463
C05	OPD Obs-Gyn	59160	16900	7515	222270	0	318355
C06	OPD Pediatrics	82941	23693	3532	148180	0	59617
C07	OPD ENT	62206	17770	3532	74090	0	38652
C08	OPD Ophtha	59160	16900	3532	48385	0	12441
C09	Dental	593106	169424	5324	232855	0	40472
C10	Medical Ward	1141836	326172	358555	747705	4005581	831298
C11	Pediatrics Ward	1214173	346836	313870	923858	2418679	614988
C12	Surgical Ward	957522	273522	360714	765094	2935134	1096755
C13	Obs-Gyn Ward	1005726	287292	368312	789286	1874074	1159017
C14	Surgical ICU	686876	196210	86409	141376	153208	465596
C15	Medical ICU	696167	198864	80274	260071	231470	308133
C16	EENT Ward	575859	164498	110926	529215	1362151	53004
C17	Monk Ward	474036	135411	123026	467977	1072119	414912
C18	Ortho Ward	1000743	285868	284281	765094	2382719	1227132
C19	Medical Private	371749	106192	51549	284347	554185	100529
C20	Pedia Private	329619	94158	55892	291151	526321	58071
C21	Surgical Private	339768	97057	54619	284347	573606	108915
C22	Obs-Gyn Private	319168	91172	69341	284347	409517	37504
	Total	19323939	5341242	4109670	13946658	19304155	9333390

Table A 17 : RPCC allocation with step down method

Code	Cost center	B01	B02	B03	B04	B05	B06
A01	Administration						
A02	Finance						
A03	Laundry						
A04	Housekeeping						
A05	Food Catering						
A06	Supply						
B01	Operating Rm						
B02	Anesthesiology	0					
B03	Laboratory	0	0				
B04	X-ray	0	0	0			
B05	Pharmacy	0	0	0	0		
B06	Physiotherapy	0	0	0	0	0	
C01	Emergency Rm	0	0	1679442	867759	1292180	1032805
C02	OPD Medicine	0	0	5269659	2722806	4054531	3240677
C03	OPD Surgery	0	0	2112262	1091395	1625197	1298976
C04	OPD Ortho	0	0	1424508	736036	1096032	876028
C05	OPD Obs-Gyn	0	0	1929079	996745	1484253	0
C06	OPD Pediatrics	0	0	1593502	823354	1226058	0
C07	OPD ENT	0	0	618700	319679	476034	0
C08	OPD Ophtha	0	0	881201	455312	678005	0
C09	Dental	0	0	0	445977	664104	0
C10	Medical Ward	6173716	2438562	1019021	113883	1114600	0
C11	Pediatrics Ward	4236812	1673503	651046	78154	764912	0
C12	Surgical Ward	4476607	1768219	885998	82577	808204	0
C13	Obs-Gyn Ward	10312491	4073341	641100	190229	1861812	0
C14	Surgical ICU	372278	147046	111159	6867	67211	0
C15	Medical ICU	274240	108322	119537	5059	49511	0
C16	EENT Ward	2513206	992694	392572	46360	453733	0
C17	Monk Ward	2395296	946120	432537	44185	432446	0
C18	Ortho Ward	4079157	1611230	862163	75246	736449	0
C19	Medical Private	499462	197283	174153	9213	90173	0
C20	Pedia Private	617372	243856	175676	11388	111460	0
C21	Surgical Private	543181	214552	177065	10020	98066	0
C22	Obs-Gyn Private	1209571	477770	165282	22312	218375	0
	Total	37703390	14892499	21315663	9154555	19403345	6448485

Table A 18 : Material cost of NRPCC allocation with step down method

Code	A01	A02	A03	A04	A05	A06
A01						
A02	112379					
A03	36661	2467				
A04	70827	4765	12696			
A05	128895	8672	1789	449848		
A06	147611	9931	189908	179939	0	
B01	284413	19135	817061	1332882	0	623421
B02	157018	10564	15587	533153	0	33226
B03	140220	9434	19	982334	0	21487
B04	55444	3730	23404	251915	0	10481
B05	234793	15797	364	649114	0	54278
B06	88647	5964	70789	288569	0	8136
C01	121464	8172	48011	259246	93095	204737
C02	48407	3257	2366	779070	0	25850
C03	18618	1253	2366	68643	0	25849
C04	34420	2316	614	119959	0	27950
C05	10624	715	5036	195934	0	138036
C06	14895	1002	2366	130622	0	25849
C07	11171	752	2366	65311	0	16759
C08	10624	715	2366	42652	0	5394
C09	106510	7166	3567	205264	0	17548
C10	205052	13796	240252	659110	463007	360443
C11	218042	14670	210311	814391	279576	266653
C12	171952	11569	241699	674438	339273	475543
C13	180609	12151	246790	695764	216625	502539
C14	123350	8299	57899	124624	17709	201878
C15	125018	8411	53788	229256	26756	133604
C16	103413	6958	74327	466509	157452	22982
C17	85128	5727	82435	412527	123927	179902
C18	179714	12091	190485	674438	275419	532073
C19	66759	4491	34541	250655	64058	43588
C20	59193	3982	37451	256653	60838	25179
C21	61016	4105	36598	250655	66303	47225
C22	57316	3856	46462	250655	47336	16262
Total	3470203	225911	2753716	12294130	2231375	4046872

Table A 19 : Material cost of RPCC allocation with step down method

Code	B01	B02	B03	B04	B05	B06
A01						
A02						
A03						
A04						
A05						
A06						
B01						
B02	0					
B03	0	0				
B04	0	0	0			
B05	0	0	0	0		
B06	0	0	0	0	0	
C01	0	0	871435	238271	474851	125172
C02	0	0	2734338	747634	1489960	392756
C03	0	0	1096018	299678	597228	157430
C04	0	0	739154	202102	402770	106171
C05	0	0	1000967	273688	545434	0
C06	0	0	826842	226078	450552	0
C07	0	0	321033	87778	174933	0
C08	0	0	457241	125021	249154	0
C09	0	0	0	122457	244045	0
C10	1526908	351139	528753	31270	409593	0
C11	1047865	240975	337817	21460	281090	0
C12	1107172	254613	459730	22674	296999	0
C13	2550526	586537	332656	52233	684179	0
C14	92073	21174	57678	1886	24699	0
C15	67826	15598	62026	1389	18194	0
C16	621576	142942	203699	12730	166738	0
C17	592414	136236	224436	12132	158915	0
C18	1008873	232008	447362	20661	270630	0
C19	123529	28408	90365	2530	33137	0
C20	152691	35114	91156	3127	40959	0
C21	134342	30894	91876	2751	36037	0
C22	299156	68796	85762	6127	80249	0
Total	9324951	2144432	11060344	2513677	7130346	781529

Table A 20 : Labor cost of NRPPC allocation with step down method

Code	A01	A02	A03	A04	A05	A06
A01						
A02	337055					
A03	109957	37105				
A04	212430	71684	4986			
A05	386593	130456	703	53082		
A06	442727	149398	74581	21233	0	
B01	853033	287856	320877	157279	0	618618
B02	470941	158919	6121	62912	0	32970
B03	420559	141918	8	115915	0	21322
B04	166293	56116	9191	29726	0	10401
B05	704211	237636	143	76595	0	53860
B06	265878	89720	27800	34051	0	8073
C01	364303	122934	18855	30591	34114	203160
C02	145188	48994	929	91930	0	25651
C03	55841	18844	929	8100	0	25650
C04	103236	34837	241	14155	0	27735
C05	31864	10753	1978	23120	0	136973
C06	44673	15075	929	15413	0	25650
C07	33505	11306	929	7707	0	16630
C08	31864	10753	929	5033	0	5353
C09	319454	107800	1401	24221	0	17413
C10	615007	207534	94352	77775	169666	357667
C11	653969	220682	82594	96098	102449	264599
C12	515733	174034	94920	79583	124325	471880
C13	541696	182795	96920	82100	79381	498668
C14	369960	124843	22738	14706	6489	200323
C15	374964	126532	21124	27052	9804	132575
C16	310164	104665	29190	55048	57697	22805
C17	255322	86158	32374	48678	45412	178516
C18	539013	181890	74807	79583	100926	527975
C19	200229	67567	13565	29577	23474	43253
C20	177537	59910	14708	30285	22294	24985
C21	183003	61754	14373	29577	24296	46861
C22	171908	58010	18247	29577	17346	16136
Total	10408112	3398477	1081442	1450700	817674	4015699

Table A 21 : Labor cost of RPCC allocation with step down method

Code	B01	B02	B03	B04	B05	B06
A01						
A02						
A03						
A04						
A05						
A06						
B01						
B02	0					
B03	0	0				
B04	0	0	0			
B05	0	0	0	0		
B06	0	0	0	0	0	
C01	0	0	478708	467932	513673	530797
C02	0	0	1502064	1468252	1611775	1665504
C03	0	0	602080	588526	646055	667592
C04	0	0	406042	396902	435699	450223
C05	0	0	549865	537487	590027	0
C06	0	0	454212	443987	487388	0
C07	0	0	176354	172384	189235	0
C08	0	0	251178	245523	269524	0
C09	0	0	0	240489	263998	0
C10	3071327	1600609	290462	61411	443081	0
C11	2107747	1098443	185574	42144	304071	0
C12	2227041	1160613	252545	44529	321281	0
C13	5130302	2673635	182739	102579	740116	0
C14	185202	96517	31685	3703	26718	0
C15	136430	71100	34073	2728	19682	0
C16	1250280	651578	111899	24999	180370	0
C17	1191622	621009	123291	23826	171908	0
C18	2029317	1057570	245751	40576	292756	0
C19	248474	129491	49641	4968	35846	0
C20	307133	160061	50075	6141	44308	0
C21	270224	140826	50471	5403	38983	0
C22	601743	313596	47112	12032	86810	0
Total	18756843	9775047	6075820	4936522	7713303	3314115

Table A 22 : Capital cost of NRPCC allocation with step down method

Code	A01	A02	A03	A04	A05	A06
A01						
A02	176350					
A03	57531	18745				
A04	111145	36214	1266			
A05	202269	65904	178	7385		
A06	231639	75474	18932	2954	0	
B01	446315	145420	81451	21881	0	195770
B02	246401	80283	1554	8753	0	10434
B03	220041	71695	2	16127	0	6748
B04	87006	28349	2333	4136	0	3291
B05	368450	120050	36	10656	0	17045
B06	139110	45325	7057	4737	0	2555
C01	190607	62104	4786	4256	678181	64292
C02	75964	24751	236	12790	0	8117
C03	29217	9520	236	1127	0	8117
C04	54014	17599	61	1969	0	8777
C05	16672	5432	502	3217	0	43347
C06	23373	7616	236	2144	0	8117
C07	17530	5712	236	1072	0	5263
C08	16672	5432	236	700	0	1694
C09	167142	54459	356	3370	0	5511
C10	321778	104843	23950	10820	3372908	113188
C11	342163	111485	20965	13369	2036654	83736
C12	269837	87919	24094	11072	2471536	149332
C13	283421	92345	24602	11422	1578068	157810
C14	193567	63069	5772	2046	129009	63395
C15	196185	63922	5362	3764	194910	41955
C16	162281	52875	7409	7658	1147002	7217
C17	133587	43526	8218	6772	902780	56494
C18	282017	91888	18989	11072	2006373	167084
C19	104762	34134	3443	4115	466653	13688
C20	92889	30265	3733	4213	443190	7907
C21	95749	31197	3648	4115	483006	14830
C22	89944	29306	4632	4115	344835	5107
Total	5445624	1716855	274512	201827	16255106	1270819

Table A 23 : Capital cost of RPCC allocation with step down method

Code	B01	B02	B03	B04	B05	B06
A01						
A02						
A03						
A04						
A05						
A06						
B01						
B02	0					
B03	0	0				
B04	0	0	0			
B05	0	0	0	0		
B06	0	0	0	0	0	
C01	0	0	329299	161556	303656	376837
C02	0	0	1033256	506920	952796	1182417
C03	0	0	414165	203191	381914	473954
C04	0	0	279313	137032	257562	319634
C05	0	0	378247	185570	348793	0
C06	0	0	312448	153289	288118	0
C07	0	0	121312	59516	111866	0
C08	0	0	172783	84768	159328	0
C09	0	0	0	83030	156061	0
C10	1575482	486815	199806	21202	261926	0
C11	1081200	334085	127655	14550	179751	0
C12	1142393	352993	173723	15374	189924	0
C13	2631663	813169	125705	35416	437517	0
C14	95002	29355	21796	1279	15794	0
C15	69984	21625	23438	942	11635	0
C16	641350	198173	76974	8631	106625	0
C17	611260	188876	84810	8226	101623	0
C18	1040967	321653	169050	14009	173062	0
C19	127458	39384	34147	1715	21190	0
C20	157548	48682	34446	2120	26193	0
C21	138615	42831	34718	1865	23045	0
C22	308673	95378	32408	4154	51317	0
Total	9621595	2973019	4179500	1704356	4559695	2352841

Table A 24 : OPD MC, LC, CC components

Code	Cost center	Material cost	Labor cost	Capital cost	Full cost
C01	Emergency room	2,766,446	12,023,481	3,608,116	18,398,043
C02	OPD Medicine	6,255,298	9,184,834	6,107,927	21,548,060
C03	OPD Surgery	2,346,723	3,797,780	1,828,429	7,972,933
C04	OPD Ortho	1,707,022	4,100,898	1,402,901	7,210,822
C05	OPD Obs-Gyn	2,207,785	3,203,539	1,760,140	7,171,464
C06	OPD Pediatrics	1,701,103	3,477,133	4,584,378	9,762,614
C07	OPD ENT	709,022	1,513,002	519,478	2,741,502
C08	OPD Ophtha	914,413	1,810,652	1,326,409	4,051,474
C09	Dental	1,388,847	4,772,784	1,972,773	8,134,404
	Total	19,996,659	43,884,104	23,110,551	86,991,313

Table A 25 : IPD MC, LC, CC components

Code	Cost center	Material cost	Labor cost	Capital cost	Full cost
C10	Medical ward	6,430,773	16,093,689	9,211,078	31,735,540
C11	Pediatrics ward	4,877,933	14,287,044	9,011,591	28,176,568
C12	Surgical ward	5,957,104	12,886,238	6,126,054	24,969,396
C13	Obs-Gyn ward	8,040,137	16,769,379	9,720,754	34,530,269
C14	Surgical ICU	1,397,606	5,390,062	2,915,941	9,703,609
C15	Medical ICU	1,249,172	7,194,933	2,523,711	10,967,816
C16	EENT ward	2,308,120	7,016,458	4,488,474	13,813,052
C17	Monk ward	2,694,036	5,756,666	3,312,410	11,763,113
C18	Ortho ward	5,636,677	11,395,324	5,863,667	22,895,667
C19	Medical private ward	980,728	2,721,709	1,847,418	5,549,855
C20	Pedia private ward	1,031,547	3,377,072	1,849,949	6,258,568
C21	Surgical private ward	1,026,076	3,063,152	1,706,255	5,795,483
C22	Obs-Gyn private ward	1,172,378	4,156,266	1,805,375	7,134,020
	Total	42,802,288	110,107,992	60,382,677	213,292,957

The adjRW the length of stay is shows in below.



where; $wtlos/3$ = low outlier

$wtlos$ = standard length of stay for a given DRGs code

OT = outlier trim point

Table A 26 : Low Outlier rule

length of stay (day)	low outlier
0	0.23
1	0.33
2	0.67
3	0.71
4	0.75
5	0.79
6	0.83
7	0.87
8	0.91
9	0.95
10	0.99

Table A 28 : DRGs code 134 and pdx I10

DRGs	los	discht	pdx	rw	adjrw	OT	wtlos
134	4	1	I10	0.66	0.66	12	3
134	4	1	I10	0.66	0.66	12	3
134	4	1	I10	0.66	0.66	12	3
134	4	1	I10	0.66	0.66	12	3
134	4	1	I10	0.66	0.66	12	3
134	4	1	I10	0.66	0.66	12	3
134	4	1	I10	0.66	0.66	12	3
134	4	1	I10	0.66	0.66	12	3
134	5	1	I10	0.66	0.66	12	3
134	5	1	I10	0.66	0.66	12	3
134	5	1	I10	0.66	0.66	12	3
134	5	1	I10	0.66	0.66	12	3
134	5	1	I10	0.66	0.66	12	3
134	5	1	I10	0.66	0.66	12	3
134	5	1	I10	0.66	0.66	12	3
134	5	1	I10	0.66	0.66	12	3
134	5	1	I10	0.66	0.66	12	3
134	5	1	I10	0.66	0.66	12	3
134	5	1	I10	0.66	0.66	12	3
134	6	1	I10	0.66	0.66	12	3
134	6	1	I10	0.66	0.66	12	3
134	6	1	I10	0.66	0.66	12	3
134	6	1	I10	0.66	0.66	12	3
134	6	1	I10	0.66	0.66	12	3
134	6	1	I10	0.66	0.66	12	3
134	6	1	I10	0.66	0.66	12	3
134	6	1	I10	0.66	0.66	12	3
134	6	1	I10	0.66	0.66	12	3
134	7	1	I10	0.66	0.66	12	3
134	7	1	I10	0.66	0.66	12	3
134	7	1	I10	0.66	0.66	12	3
134	7	1	I10	0.66	0.66	12	3
134	7	1	I10	0.66	0.66	12	3
134	7	1	I10	0.66	0.66	12	3
134	7	1	I10	0.66	0.66	12	3
134	7	1	I10	0.66	0.66	12	3
134	7	1	I10	0.66	0.66	12	3
134	7	1	I10	0.66	0.66	12	3
134	8	1	I10	0.66	0.66	12	3
134	8	1	I10	0.66	0.66	12	3

Table A 30 : DRGs code 322 and pdx N390

DRGs	los	discht	pdx	rw	adjrw	OT	wrtos
322	0	1	N390	0.36	0.08	11	3.7
322	1	1	N390	0.36	0.12	11	3.7
322	2	1	N390	0.36	0.36	11	3.7
322	2	1	N390	0.36	0.36	11	3.7
322	2	1	N390	0.36	0.36	11	3.7
322	2	1	N390	0.36	0.36	11	3.7
322	3	1	N390	0.36	0.36	11	3.7
322	3	1	N390	0.36	0.36	11	3.7
322	4	1	N390	0.36	0.36	11	3.7
322	4	1	N390	0.36	0.36	11	3.7
322	4	1	N390	0.36	0.36	11	3.7
322	4	1	N390	0.36	0.36	11	3.7
322	4	1	N390	0.36	0.36	11	3.7
322	5	1	N390	0.36	0.36	11	3.7
322	5	1	N390	0.36	0.36	11	3.7
322	6	1	N390	0.36	0.36	11	3.7
322	6	1	N390	0.36	0.36	11	3.7
322	6	1	N390	0.36	0.36	11	3.7
322	6	1	N390	0.36	0.36	11	3.7
322	7	1	N390	0.36	0.36	11	3.7
322	7	1	N390	0.36	0.36	11	3.7
322	8	1	N390	0.36	0.36	11	3.7
322	9	1	N390	0.36	0.36	11	3.7
322	10	1	N390	0.36	0.36	11	3.7
322	11	1	N390	0.36	0.36	11	3.7
322	12	1	N390	0.36	0.37	11	3.7
322	12	1	N390	0.36	0.37	11	3.7
322	34	1	N390	0.36	0.75	11	3.7

BIOGRAPHY



Name : Nareerat Cook

Date of Birth : 13 February 1965

Nationality : Thai

Educational Qualification :

Degree	Institutes	Year of Graduation
Bachelor of education	Srinakarinthawirol University	1990

Address : 46/84 Phaholyothin Road, Bangkhen, Bangkok

E-mail address : durain5@hotmail.com