

CHAPTER IV

RESULTS

The main findings of unit cost of out-patient and in-patient service of Maharaj Nakhon Si Thammarat between July 1 – December 31, 2003 can be summarized as follow:

Total Direct Cost of Maharaj Nakhon Si Thammarat Hospital

The total direct cost of Maharaj Nakhon Si Thammarat hospital was Bht 377,448,306.94 which consist of labor cost Bht 171,160,777.22 (45.35 per cent), material cost, Bht 193,611,816.69 (51.69 per cent) and capital cost, Bht 12,675,713.03 (3.36 per cent) respectively as shown in the Table 4 below .

Table 4: Amount and Percentage of Direct Cost, Determined by Cost Factor

Cost Factor	Amount (baht)	Percentage
Labor cost	171,160,777.22	45.35
Material cost	193,611,816.69	51.29
Capital Cost	12,675,713.03	3.36
Total Direct Cost	377,448,306.94	100

According to the cost allocation determined by the cost center group, it can be divided into 4 different groups which comprised of the non-revenue producing cost center, revenue producing cost center, patient service area and non-patient service area. Table 5 provides the amount and percentage of direct cost determined by cost factor in

each cost center group. It shows that the direct cost of revenue producing cost center was the highest at Bht 188,406,953.33. When determined by cost structure, the proportion of labor cost, material cost and capital cost was 21.06 : 77.37 : 1.57. The material cost was the highest at Bht 145,778,367.06 (77.37 per cent). The total direct cost of patient service area was Bht 103,947,621.71. The ratio of labor cost, material cost and capital cost was 89.42 : 7.41 : 3.17 which the labor cost was the highest at Bht 92,946,136.81 (89.42 per cent). It also can be seen from the table 5 that the total direct cost of non-revenue producing cost center was Bht 75,750,351.71 and the proportion of labor cost, material cost and capital cost was 42.90 : 51.47 : 5.63 which the material cost was the highest at Bht 38,985,028.24 (51.47 per cent). Lastly, the total direct cost of non-patient service area was the lowest at Bht 9,343,380.19. The proportion of labor cost, material cost and capital cost was 64.68 : 12.24 : 23.08 which the labor cost was the highest at Bht 6,043,751.72 (64.68 per cent).

Table 5: Amount and Percentage of Direct Cost, Disaggregated by Cost Center Group

Cost Center Group	Direct Cost			Total
	Labor Cost (%)	Material Cost (%)	Capital Cost (%)	Direct Cost (%)
Non-Revenue Producing Cost Center (NRPCC)	32,499,691.61 (42.90)	38,985,028.24 (51.47)	4,265,631.86 (5.63)	75,750,351.71 (100.00)
Revenue Producing Cost Center (RPCC)	39,671,197.08 (21.06)	145,778,367.06 (77.37)	2,957,389.19 (1.57)	188,406,953.33 (100.00)
Patient Service Area (PS)	92,946,136.81 (89.42)	7,705,074.55 (7.41)	3,296,410.35 (3.17)	103,947,621.71 (100.00)
Non-Patient Service Area (NPS)	6,043,751.72 (64.68)	1,143,346.84 (12.24)	2,156,281.63 (23.08)	9,343,380.19 (100.00)
Total	171,160,777.22 (45.35)	193,611,816.69 (51.29)	12,675,713.03 (3.36)	377,448,306.94 (100.00)

Table 6 to Table 10 demonstrate the total direct cost, disaggregated by cost center name. All departments were identified as 82 different cost centers. When looking at the total direct cost of the non-revenue producing cost center group (NRPCC), it shows that the total direct cost of General Administration is the highest at Bht23,250,528.38 (30.69 per cent). For the revenue producing cost center group (RPCC), the total direct cost of In-patient Pharmacy cost center was the highest at Bht59,800,284.47 (31.74 per cent). Next, amongst the group of patient service area (PS), Accident and Emergency, Forensic Medicine and Cradle Service Unit was the highest at Bht5,307,272.02 (20.54 per cent). Looking at the cost of in-patient service in Table 9, it illustrates that the total direct cost of Medical Ward No. 1 (Male&Female) was the highest at Bht6,113,028.64 (7.83 per cent). The highest total direct cost in the group of non-patient service area cost center (NPS) comes from Social Medical Unit at Bht5,627,303.45 (60.23 per cent).

Table 6: Amount and Percentage of Total Direct Cost Determined by Non - Revenue Producing Cost Center Group (NRPCC)

Cost Center Code	Cost Center Name	Total Direct Cost	
		Amount (Baht)	%
A01	General Administration	23,250,528.38	30.69
A02	Budget	503,451.01	0.66
A03	Finance	1,034,999.67	1.37
A04	Accounting	835,297.16	1.10
A05	Revenue Collection	483,341.08	0.64
A06	Nursing Administration Office	2,557,199.84	3.38
A07	Health System Development Unit, Library	1,391,456.16	1.84
A08	Quality Assurance Center	1,076,177.49	1.42
A09	Medical Registry and Statistics	3,733,528.20	4.93
A10	Computer Maintenance Center	491,649.74	0.65
A11	Maintenance Center	3,753,308.32	4.95
A12	Medical Equipment Maintenance Center	1,926,274.41	2.54
A13	Office of OPD Service	2,962,389.94	3.91
A14	Laundry and Seamstress	2,483,627.93	3.28
A15	Central Supply & Facility and IC Office	10,294,064.46	13.59
A16	Dietetics	13,166,911.39	17.38
A17	Supply and Equipment	1,327,774.31	1.75
A18	Procurement and Pharmaceutical Products	4,478,372.22	5.91
Total		75,750,351.71	100.00

Table 7: Amount and Percentage of Total Direct Cost Determined by Cost Center in Revenue Producing Cost Center Group (RPCC).

Cost Center		Total Direct Cost	
Code	Cost Center Name	Amount (Baht)	%
B01	Out-Patient Pharmacy	53,289,313.08	28.28
B02	In-Patient Pharmacy	59,800,284.47	31.74
B03	Oxygen Supply Center	8,047,130.31	4.27
B04	Laboratory and Pathology	19,035,629.65	10.10
B05	Blood Bank	2,839,902.26	1.51
B06	Radiology	6,435,535.71	3.42
B07	Physiotherapy	1,852,291.27	0.98
B08	Activity Therapy	759,521.17	0.40
B09	Maintenance and Design Equipment for Disable	269,378.66	0.14
B10	Alternative Medical	239,837.31	0.13
B11	Anaesthetic	6,894,492.68	3.66
B12	Operating Theatre (Large/Small)	24,714,718.18	13.12
B13	Delivery Room	3,381,610.84	1.79
B14	Cardiology Unit	467,937.47	0.25
B15	Electrocardiogram and Electro- encephalogram Unit	379,370.27	0.20
Total		188,406,953.33	100.00

Table 8: Amount and Percentage of Total Direct Cost Determined by Cost Center in Out-Patient Service

Cost Center Code	Cost Center Name	Total Direct Cost	
		Amount in Baht	%
C01	OPD- Antenatal Care	1,496,924.79	5.79
C02	OPD- Gynecology and Family Planning	1,165,606.16	4.51
C03	OPD- Surgery	1,613,667.21	6.24
C04	OPD- Urological Surgery	292,035.48	1.13
C05	OPD- Orthopedics	1,026,203.87	3.97
C06	OPD- Medical	1,232,959.35	4.77
C07	OPD- Pediatrics	1,234,008.55	4.78
C08	OPD- Ophthalmology	717,548.86	2.78
C09	OPD- Otorhinolaryngology	850,586.96	3.29
C10	OPD-Specialty Medical Clinic and Psychiatric	1,472,173.25	5.70
C11	OPD- Social Security	566,287.32	2.19
C12	OPD- Part Time Clinic	1,583,082.08	6.13
C13	OPD- Part Time Clinic (Dentistry)	557,587.87	2.16
C14	Accident and Emergency, Forensic Medicine and Cradle Service	5,307,272.02	20.54
C15	Treatment Room - Injection	460,041.05	1.78
C16	Hemodialysis	1,393,564.40	5.39
C17	Dentistry	2,950,525.60	11.42
C18	Children Health Clinic	555,041.57	2.15
C19	Annual Medical Check-up	594,377.18	2.30
C20	Counseling Service Room	417,574.35	1.62
C21	OPD- Rehabilitative Medical	355,413.17	1.38
Total		25,842,481.09	100.00

Table 9: Amount and Percentage of Total Direct Cost Determined by Cost Center in In-Patient Service.

Cost Center Code	Cost Center Name	Total Direct Cost	
		Amount in Baht	%
D01	Postnatal Ward	1,949,851.50	2.50
D02	Gynecology Ward	2,029,905.90	2.60
D03	Male Surgery Ward No. 1	5,685,987.53	7.28
D04	Male Surgery Ward No. 2	3,855,663.06	4.94
D05	Female Surgery Ward	4,620,407.25	5.92
D06	Male Orthopedic Ward	2,240,437.60	2.87
D07	Female Orthopedic Ward	1,894,561.25	2.43
D08	Medical Ward No. 1 (Male & Female)	6,113,028.64	7.83
D09	Medical Ward No. 2	3,296,289.15	4.22
D10	Medical Ward No. 3	3,378,834.32	4.33
D11	Medical Ward No. 4 (Private Section)	2,551,721.65	3.27
D12	Pediatrics Ward No. 1	3,074,424.98	3.94
D13	Pediatrics Ward No. 2	3,086,297.60	3.95
D14	Newborn Ward No. 1	2,998,958.66	3.84
D15	Newborn Ward No. 2	3,334,775.76	4.27
D16	Eye Ear Nose Throat Ward (Male & Female)	3,569,017.70	4.57
D17	Sick Monk Ward	1,625,264.75	2.08
D18	ICU Ward No. 1	4,118,420.79	5.27
D19	ICU Ward No. 2	3,423,072.86	4.38
D20	Private Section Ward- Limpichart – Thungcar Habor	4,751,956.93	6.08
D21	Private Section Ward - Children	661,303.27	0.85
D22	Private Section Ward No. 2	3,545,740.12	4.54
D23	Private Section No. 4	2,412,307.20	3.09
D24	Private Section No. 5	815,457.78	1.04
D25	Private Section Ward- Chalerm Phrabaramree (2 nd Fl.)	3,071,454.37	3.93
Total		78,105,140.62	100.00

Table 10: Amount and Percentage of Total Direct Cost Determined by Cost Center of Non-Patient Service Area (NPS)

Cost Center Code	Cost Center Name	Total Direct Cost	
		Amount in Baht	%
E01	Social Medical Unit	5,627,303.45	60.23
E02	Health Education Unit	1,076,032.46	11.52
E03	Medical Education Center	2,640,044.28	28.25
Total		9,343,380.19	100.00

As shown in Table 11 below, the highest labor cost in Maharaj Nakhon Si Thammarat hospital comes from the patient service area (PS) at Bht 92,946,136.81 (54.30 per cent), follow by the revenue producing cost center (RPCC) at Bht39,671,197.08 (23.18 per cent). The non-patient service area (NPS) is the lowest at Bht 6,043,751.72 (3.53 per cent).

Table 11: Amount and Percentage of Labor Cost (LC) Determined by Cost Center Group

Cost Center Group	Labor Cost in Baht	%
Non-Revenue Producing Cost Center (NRPCC)	32,499,691.61	18.99
Revenue Producing Cost Center (RPCC)	39,671,197.08	23.18
Patient Service Area (PS)	92,946,136.81	54.30
Non- Patient Service Area (NPS)	6,043,751.72	3.53
Total	171,160,777.22	100

Table 12 illustrates the labor cost of Personnel at Maharaj Nakhon Si Thammarat hospital, disaggregated by type of labor. It shows that salary was the highest at 66.09 per cent, followed by overtime/shift allowance, 24.76 per cent and the child support allowance was the lowest at 0.03 per cent, respectively.

Table 12: Amount and Percentage of Labor Cost of Personnel Determined by Type of Labor Cost.

Type of Labor	Amount in Baht	%
1. Salary	113,122,741.33	66.09
2. Position Allowance	7,684,726.70	4.49
3. Postmortem Allowance	78,500.00	0.05
4. Allowance for not doing personal medical clinic	2,085,000.00	1.22
5. Scarcity Allowance	72,000.00	0.04
6. Overtime/Shift Allowance	42,382,254.00	24.76
7. Housing Allowance / Rent	2,133,750.00	1.25
8. Child Relief Allowance	53,670.00	0.03
9. Child Tuition Fee	459,071.00	0.27
10. Meeting/ Seminar Fee	1,907,752.49	1.11
11. Medical Fee	1,181,311.75	0.69
Total	171,160,777.27	100

1. Material cost

Table 13 below presents the material cost of Maharaj Nakhon Si Thammarat hospital disaggregated by the cost center group. The highest material cost comes from the revenue producing cost center group (RPCC) at Bht 145, 778, 367.06 (75.29 per cent) followed by the non-revenue producing cost center group (NRPCC), Bht 38,958,028.24 (20.14 per cent). When being disaggregated by the type of material, as illustrated in Table 14 below that the cost of drug was the highest at Bht 102,026,683.12 (52.70 per cent), followed by medical and science equipment at Bht 48,016,380.06 (24.80 per cent). The cost of vaccine was the lowest at Bht 119,750.00 (0.06 per cent).

Table 13: Amount and Percentage of Material Cost Determined by Cost Center Group.

Cost Center Group	Amount in Baht	%
Non-Revenue Producing Cost Center (NRPCC)	38,958,028.24	20.14
Revenue Producing Cost Center (RPCC)	145,778,367.06	75.29
Patient Service Area (PS)	7,705,074.55	3.98
Non-Patient Service Area (NPS)	1,143,346.84	0.59
Total	193,611,816.69	100

Table 14: Amount and Percentage of Material Cost Determined by Type of Material

Type of Material	Amount in Baht	%
1. Drug	102,026,683.12	52.70
2. Medical and Science Equipment	48,016,380.06	24.80
3. House Keeping and Kitchen	3,184,276.96	1.64
4. Publishing and Printing Material	3,853,107.73	1.99
5. Food	9,387,210.94	4.85
6. Contractor Fee	5,297,731.38	2.74
7. Fuel & Energy	2,272,638.00	1.17
8. Electricity, Water Supply and Construction	1,406,630.05	0.73
9. Gas for Medical Use	7,814,553.31	4.04
10. Utility Expenses	10,232,855.14	5.29
11. Vaccine	119,750.00	0.06
Total	193,611,816.69	100

In term of capital cost, it comprises the depreciation cost of Building and Equipment. As can be seen from the Table 15 below, the capital cost was disaggregated by the cost center group. The capital cost of non-revenue producing cost center group (NRPCC) is the highest at Bht 4,265,631.86 (33.65 per cent), followed by the Patient Service Area (PS) at Bht 3,296,410.35 (26.01 per cent).

Table 15: Amount and Percentage of Capital Cost Determined by Cost Center Group

Cost Center Group	Capital Cost in Baht	%
Non-Revenue Producing Cost Center (NRPCC)	4,265,631.86	33.65
Revenue-Producing Cost Center (RPCC)	2,957,389.19	23.33
Patient Service Area (PS)	3,296,410.35	26.01
Non-Patient Service Area (NPS)	2,156,281.63	17.01
Total	12,675,713.03	100

When disaggregated by the type of depreciation cost, it shows that the depreciation cost of equipment is the higher than building as most of the buildings at Maharaj Nakhon Si Thammarat hospital are quite old, average life span of building is more than 20 years. In this study the depreciation cost of building in the hospital excluding land or rent cost. The depreciation cost of equipment is Bht 6,601,411.97 (52.08 per cent) as shown in Table 16 below.

Table 16: Amount and Percentage of Capital Cost Determined by Type of Depreciation Cost

Type of Depreciation Cost	Amount in Baht	%
Equipment	6,601,411.97	52.08
Building	6,074,301.06	47.92
Total	12,675,713.03	100

2. Indirect cost

The indirect cost of patient service area and non-patient service area had been allocated from non-revenue producing cost center and revenue producing cost center by using the simultaneous equation method.

Table 17 below illustrates the indirect cost of out-patient service of Maharaj Nakhon Si Thammarat hospital which had been allocated from the non-revenue producing cost center. It shows that the Accident and Emergency, Forensic Medicine and Cradle Service unit has the highest Indirect cost at Bht 2,594,456.07 (18.38 per cent), followed by OPD- Medical at Bht 1,349,459.73 (9.56 per cent). For the indirect cost which allocated from the revenue producing cost center (RPCC), Specialty Medical Clinic and Psychiatrics is the highest at Bht 18,584,720.67 (32.18 per cent) and follow by OPD-Medical at Bht 7,551,202.80 (13.08 per cent). The cost center which has the highest total Indirect cost is OPD- Specialty Medical Clinic and Psychiatrics at Bht 19,703,070.00 (27.42 per cent) followed by OPD-Medical at Bht 8,900,662.53 (12.39 per cent) and Accident and Emergency, Forensic Medicine and Cradle Service unit at 8,172,728.26 (11.37 per cent) whereas Counseling Service room is the lowest at Bht63,501.29 (0.09 per cent).

Table 17: Cost and Percentage of Indirect Cost of Out-Patient Service

Cost Center Name	Indirect Cost				Total	
	Cost Allocated from		Cost Allocated from		%	
	Non- Revenue Producing		Revenue Producing Cost			
	Cost Center	Center	Center	Center		
(%)	(%)	(%)	(%)			
Out-Patient Service						
OPD- Antenatal Care	934,229.28	(6.62)	560,381.06	(0.97)	1,494,610.34	(2.08)
OPD- Gynecology and Family Planning	740,257.04	(5.24)	650,167.55	(1.13)	1,390,424.59	(1.93)
OPD- Surgery	950,587.39	(6.73)	3,366,410.14	(5.83)	4,316,997.53	(6.01)
OPD- Urological Surgery	181,186.60	(1.28)	2,577,797.40	(4.46)	2,758,984.00	(3.84)
OPD- Orthopedics	694,331.84	(4.92)	4,686,278.20	(8.12)	5,380,610.04	(7.49)
OPD- Medical	1,349,459.73	(9.56)	7,551,202.80	(13.08)	8,900,662.53	(12.39)
OPD- Pediatrics	775,718.71	(5.50)	1,429,723.44	(2.48)	2,205,442.15	(3.07)
OPD- Ophthalmology	629,870.60	(4.46)	1,310,882.47	(2.27)	1,940,753.07	(2.70)
OPD-Otorhinolaryngology	536,422.70	(3.80)	1,086,923.64	(1.88)	1,623,346.34	(2.26)
OPD- Specialty Medical Clinic and Psychiatrics	1,118,349.33	(7.92)	18,584,720.67	(32.18)	19,703,070.00	(27.42)
OPD- Social Security	453,411.39	(3.21)	2,221,546.39	(3.85)	2,674,957.78	(3.72)
OPD- Part-time Clinic	904,138.58	(6.40)	5,422,636.05	(9.39)	6,326,774.63	(8.80)
OPD- Part-time Clinic (Dentistry)	128,275.89	(0.91)	42,458.84	(0.07)	170,734.73	(0.24)
Accident and Emergency Forensic Medicine and Cradle Service	2,594,456.07	(18.38)	5,578,272.19	(9.66)	8,172,728.26	(11.37)
Treatment Room- Injection	449,344.15	(3.18)	151,490.47	(0.26)	600,834.62	(0.84)
Hemodialysis	224,724.52	(1.59)	397,669.80	(0.69)	622,394.32	(0.87)
Dentistry	855,633.67	(6.06)	133,519.66	(0.23)	989,153.33	(1.38)
Children Health Clinic	131,239.83	(0.93)	7,899.49	(0.01)	139,139.32	(0.19)
Annual Medical Check-up Clinic	227,267.06	(1.61)	542,622.17	(0.94)	767,889.23	(1.07)
Counseling Service Room	63,803.95	(0.45)	469.07	(0.00)	64,273.01	(0.09)
OPD- Rehabilitative Medical	173,666.68	(1.23)	1,441,136.65	(2.50)	1,614,803.33	(2.25)
Total	14,116,375.02	(100.00)	57,744,208.14	(100.00)	71,860,583.17	(100.00)

Table 18 below presents the indirect cost of in-patient service of Maharaj Nakhon Si Thammarat hospital, disaggregated by cost center. When looking at the indirect cost allocated from the non-revenue producing cost center (NRPCC), the highest indirect cost comes from Male Surgery Ward No. 1 at Bht4,583,361.30 (9.25 per cent), followed by Medical Ward No. 1 (Male&Female) at Bht3,775,393.38 (7.62 per cent). For the indirect cost allocated from the revenue producing cost center (RPCC), Male Surgery Ward No. 1 also gets the highest Indirect cost at Bht15,828,986.45 (11.23 per cent) and then follow by Medical Ward No. 2 at Bht13,955,894.02 (9.91 per cent). Therefore, it results Male Surgery Ward No. 1 also gets the highest total Indirect cost of in-patient service at Bht20, 412,347.75 (10.72 per cent). Medical Ward No. 2 is the second highest at Bht16, 562,138.73 (8.70 per cent). The lowest total indirect cost comes from Private Section Ward-Children at Bht601,187.98 (0.32 per cent).

Table 18: Cost and Percentage of Indirect Cost of In-Patient Service

Cost Center Name	Indirect Cost				Total	
	Cost allocated from		Cost Allocated from		%	
	Non-Revenue Producing		Revenue Producing Cost			
	Cost Center		Center			
	(%)		(%)			
In-Patient Service						
Postnatal Ward	1,669,425.03	(3.37)	10,130,868.75	(7.19)	11,800,293.78	(6.20)
Gynecology Ward	1,447,162.80	(2.92)	3,539,400.70	(2.51)	4,986,563.50	(2.62)
Male Surgery Ward No.1	4,583,361.30	(9.25)	15,828,986.45	(11.23)	20,412,347.75	(10.72)
Male Surgery Ward No. 2	2,726,527.20	(5.50)	9,044,271.74	(6.42)	11,770,798.95	(6.18)
Female Surgery Ward	3,395,018.92	(6.85)	11,509,910.48	(8.17)	14,904,929.41	(7.83)
Male Orthopedics Ward	2,024,038.57	(4.08)	7,001,625.72	(4.97)	9,025,664.29	(4.74)
Female Orthopedics Ward	1,453,960.62	(2.93)	4,381,663.72	(3.11)	5,835,624.35	(3.06)
Medical Ward No.1	3,775,393.38	(7.62)	12,521,470.07	(8.89)	16,296,863.45	(8.56)
Medical Ward No. 2	2,606,244.71	(5.26)	13,955,894.02	(9.91)	16,562,138.73	(8.70)
Medical Ward No. 3	2,341,374.30	(4.72)	11,056,757.45	(7.85)	13,398,131.76	(7.04)
Medical Ward No. 4	1,165,725.25	(2.35)	1,198,734.44	(0.85)	2,364,459.69	(1.24)
(Private Section)						
Pediatrics Ward No. 1	1,917,110.66	(3.87)	3,360,745.69	(2.39)	5,277,856.35	(2.77)
Pediatrics Ward No. 2	1,980,591.37	(4.00)	4,562,556.80	(3.24)	6,543,148.18	(3.44)
Newborn Ward No.1	1,609,609.19	(3.25)	2,706,067.24	(1.92)	4,315,676.43	(2.27)
Newborn Ward No. 2	1,760,938.67	(3.55)	2,163,674.56	(1.54)	3,924,613.23	(2.06)
Eye Ear Nose Throat Ward	1,805,118.82	(3.64)	7,126,813.37	(5.06)	8,931,932.19	(4.69)
(Male & Female)						
Sick Monk Ward	642,087.33	(1.30)	1,067,483.07	(0.76)	1,709,570.40	(0.90)
ICU Ward No. 1	2,382,240.58	(4.81)	2,596,243.26	(1.84)	4,978,483.83	(2.61)
ICU Ward No. 2	1,871,178.62	(3.78)	2,460,653.49	(1.75)	4,331,832.11	(2.27)
Private Section Ward :	2,343,389.69	(4.73)	4,721,401.13	(3.35)	7,064,790.82	(3.71)
Limpichart – Thungcar Habor						
Private Section Ward- children	299,870.49	(0.61)	301,317.49	(0.21)	601,187.98	(0.32)
Private Section Ward No. 2	2,564,604.30	(5.18)	4,518,732.10	(3.21)	7,083,336.40	(3.72)
Private Section Ward No. 4	1,603,291.42	(3.24)	3,063,663.29	(2.17)	4,666,954.71	(2.45)
Private Section Ward No. 5	795,261.49	(1.60)	1,195,830.98	(0.85)	1,991,092.47	(1.05)
Private Section Ward-Chalern Baramee (2 nd Fl.)	789,616.07	(1.59)	877,023.26	(0.62)	1,666,639.33	(0.88)
Total	49,553,140.79	(100.00)	140,891,789.28	(100.00)	190,444,930.07	(100.00)

As shown in Table 19 below, the highest indirect cost of the non-patient service area which had been allocated from non-revenue producing cost center comes from Social Medical Unit at Bht884,916.98 (72.69 per cent). Social Medical Unit also gets 100 per cent of indirect cost that allocated from the revenue producing cost center, Bht634,381.51. Therefore, it results Social Medical Unit also get the highest total indirect cost at Bht1,519,298.49 (82.04 per cent).

Table 19: Cost and Percentage of Indirect Cost of Non-Patient Service

Cost Center	Indirect Cost				Total	
	Cost allocated from Non-Revenue Producing Cost Center (%)		Cost Allocated from Revenue Producing Cost Center (%)		Total (%)	
Non-Patient Service						
Social Medical Unit	884,916.98	(72.69)	634,381.51	(100.00)	1,519,298.49	(82.04)
Health Education Medical Education Center	198,522.25	(16.31)	0.00	(0.00)	198,522.25	(10.72)
	133,971.06	(11.00)	0.00	(0.00)	133,971.06	(7.23)
Total	1,217,410.29	(100.00)	634,381.51	(100.00)	1,851,791.80	(100.00)

Generally, the cost will be allocated from the non-revenue producing cost center (NRPCC) and revenue producing cost center (RPCC) to the patient service area (PS) and non-patient service area (NPS). All departments of Maharaj Nakhon Si Thammarat hospital have been identified by their functions and relation in providing service or

support to other departments. They can be divided into 82 different cost centers, which consist of 33 transient cost centers, and 49 absorbing cost centers.

Table 20 below presents the cost allocation criteria and the percentage of cost allocation of transient cost center. It is found that the percentage of cost allocation in regard to the true relation between cost centers. The cost of transient cost center will be allocated to the different absorbing cost centers. For example, 97.63 per cent of the cost at Delivery Room will be allocated to the Postnatal Ward, 78.82 per cent of the cost at Activity Therapy Unit will be allocated to OPD- Rehabilitative Medical, and 100 per cent of all cost incurred at Alternative Medical and Maintenance & Design Equipment for Disable will be allocated to OPD- Rehabilitative Medical.

Table 20: Cost Allocation Criteria and Percentage of Cost Allocation of Transient Cost Center

Code	Transient Cost Center	Allocation Criteria	Absorbing Cost Center	Percentage
A01	General Administration	Number of Personnel	Operating Theatre	6.57
A02	Budget	Number of Personnel	Operating Theatre	6.57
A03	Finance	Number of Personnel	Operating Theatre	6.57
A04	Accounts	Number of Personnel	Operating Theatre	6.57
A05	Revenue Collection	Number of Patient	Accident and Emergency, Forensic Medicine and Cradle Service	13.35
A06	Nursing Administration Office	Number of Personnel in Nursing Care Service	Operating Theatre	9.65
A07	Health System Development, Library	Number of Personnel	Operating Theatre	6.57
A08	Quality Assurance Center	Number of Personnel	Operating Theatre	6.57
A09	Medical Registry and Statistics	Number of Patient, Number of out-patient visit, Number of in- patient multiply by 2	Accident and Emergency, Forensic Medicine and Cradle Service	12.15
A10	Computer Maintenance Center	Number of PC	Medical Registry and Statistics	12.83
A11	Maintenance Center	Number of Repair	Private Section Ward- Limpichart Thungcar Habor	7.14
A12	Medical Equipment Maintenance Center	Maintenance Expense	Central Supply and Facility and IC Office	22.30
A13	Office of OPD	Number of out-patient	OPD-Medical	13.77
A14	Laundry and Seamstress	Quantity of clothes in kg.	Operating Theatre	22.43
A15	Central Supply, Facility and IC Office	Quantity disbursed to each cost center	Male Surgery Ward No.1	13.37
A16	Dietetics	Number of meals, Private Section Ward x 2, VIP Section Ward X 3	Private Section Ward- No 2	8.23
A17	Supply and Equipment	Cost of material in each cost center	Laboratory and Pathology	24.68
A18	Procurement and Pharmaceutical Product	Cost per requisition form	Medical Ward No. 1	11.52

Table 20: (Cont.) Cost Allocation Criteria and Percentage of Cost Allocation of Transient Cost Center

Code	Transient Cost Center	Allocation Criteria	Absorbing Cost Center	Percentage
B01	Out-Patient Pharmacy	Cost of drug and non-drug product as per prescription	OPD-Specialty Medical Clinic and Psychiatric	34.48
B02	In-Patient Pharmacy	Cost of drug and non-drug as per prescription	Medical Ward No. 1	11.90
B03	Oxygen Supplies Room	Cost of Service by each cost center	Medical Ward No. 1	35.40
B04	Laboratory and Pathology	Cost of material as per request	Medical Ward No. 2	19.22
B05	Blood Bank	Cost of Material as per pack of blood given	Medical Ward No.2	18.46
B06	Radiology	Service charge by each cost center	Accident and Emergency, Forensic Medicine and Cradle Service	21.91
B07	Physiotherapy	Number of Service	Medical Ward No. 2	18.75
B08	Activity Therapy	Number of Service	OPD-Rehabilitative Medical	78.82
B09	Maintenance and Design Equipment for Disables	Number of Service	OPD-Rehabilitative Medical	100
B10	Alternative Medical	Number of Service	OPD-Rehabilitative Medical	100
B11	Anaesthetic	Anaesthetic Service	Male Surgery Ward No.1	17.72
B12	Operating Theatre (Large/Small)	Service Charge	Eye Ear Nose Throat (Male & Female)	14.88
B13	Delivery Room	Service Charge	Postnatal Ward	97.63
B14	Cardiology Unit	Service Charge	OPD- Medical	56.55
B15	Electrocardiogram and Electroencephalogram Unit	Service Charge	OPD- Medical	39.18

3. Full cost of Patient Service Area

The full cost of absorbing cost center or patient service area and non-patient service area is the sum of direct cost and indirect cost which allocated from the non-revenue producing cost center and revenue producing cost center. This study used the simultaneous equation method to allocate the cost. Table 21 below presents the full cost of out-patient service disaggregated by cost center. It shows that OPD Specialty Medical Clinic and Psychiatric has the highest full cost at Bht21,175, 243.25 with the proportion of direct cost, indirect cost allocated from non-revenue producing cost center and indirect cost allocated from revenue producing cost center at 6.95 : 5.28 : 87.77 per cent. The counseling service room has the lowest full cost at Bht481,847.36 with the ratio of direct cost, indirect cost allocated from the non-revenue producing cost center and indirect cost allocated from the revenue producing cost center at 86.66 : 13.24 : 0.10 per cent. The counseling service room gets the lowest since its function is not related to the other departments. It can also be seen for the low percentage of total indirect cost at 13.34 per cent.

When considering the full cost of in-patient service, it shows that Male Surgery Ward No.1 gets the highest cost at Bht26,098,335.28 and the proportion of the direct cost to the indirect cost allocated from non-revenue producing cost center and revenue producing cost center is 21.79 : 17.56 : 60.65. Medical Ward No. 1 is the second highest at Bht22, 409,892.09 and the proportion of direct cost to the indirect cost allocated from the non-revenue producing cost center and the indirect cost allocated from revenue producing cost center is 27.28 : 16.85 : 55.87 per cent. The Private Section Ward – Children has the lowest full cost at Bht1,262,491.25 and the proportion of direct cost to the indirect cost allocated from the non-revenue producing cost center and the revenue producing cost center is 52.38 : 23.75 : 23.87 per cent as shown in Table 21 below.

Table 21: Amount and Percentage of Full Cost of Patient Service Determined by Cost Center

Cost Center	Full Cost			Total Full Cost (%)
	Direct Cost (%)	Cost Allocated from NRPCC (%)	Cost Allocated from RPCC (%)	
Out-Patient Service				
OPD-Antenatal Care	1,496,924.79 (50.04)	934,229.28 (31.23)	560,381.06 (18.73)	2,991,535.13 (100.00)
OPD- Gynecology and Family Planning	1,165,606.16 (45.60)	740,257.04 (28.96)	650,167.55 (25.44)	2,556,030.75 (100.00)
OPD-Surgery	1,613,667.21 (27.21)	950,587.39 (16.03)	3,366,410.14 (56.76)	5,930,664.74 (100.00)
OPD-Urological Surgery	292,035.48 (9.57)	181,186.60 (5.94)	2,577,797.40 (84.49)	3,051,019.48 (100.00)
OPD- Orthopedics	1,026,203.87 (16.02)	694,331.84 (10.84)	4,686,278.20 (73.14)	6,406,813.91 (100.00)
OPD- Medical	1,232,959.35 (12.17)	1,349,459.73 (13.32)	7,551,202.80 (74.51)	10,133,621.88 (100.00)
OPD-Pediatrics	1,234,008.55 (35.88)	775,718.71 (22.55)	1,429,723.44 (41.57)	3,439,450.70 (100.00)
OPD-Ophthalmology	717,548.86 (26.99)	629,870.60 (23.69)	1,310,882.47 (49.32)	2,658,301.93 (100.00)
OPD- Otorhinolaryngology	850,586.96 (34.38)	536,422.70 (21.68)	1,086,923.64 (43.94)	2,473,933.30 (100.00)
OPD- Specialty Medical Clinic and Psychiatrics	1,472,173.25 (6.95)	1,118,349.33 (5.28)	18,584,720.67 (87.77)	21,175,243.25 (100.00)
OPD- Social Security	566,287.32 (17.47)	453,411.39 (13.99)	2,221,546.39 (68.54)	3,241,245.10 (100.00)
OPD-Part-time Clinic	1,583,082.08 (20.01)	904,138.58 (11.43)	5,422,636.05 (68.56)	7,909,856.71 (100.00)
OPD- Part-time Clinic (Dentistry)	557,587.87 (76.56)	128,275.89 (17.61)	42,458.84 (5.83)	728,322.60 (100.00)
Accident and Emergency, Forensic Medicine and Cradle Service	5,307,272.02 (39.37)	2,594,456.07 (19.25)	5,578,272.19 (41.38)	13,480,000.28 (100.00)
Treatment Room - Injection	460,041.05 (43.36)	449,344.15 (42.36)	151,490.47 (14.28)	1,060,875.67 (100.00)

Table 21: (Cont.) Amount and Percentage of Full Cost of Patient Service Determined by Cost Center

Cost Center	Full Cost			Total Full Cost (%)
	Direct Cost (%)	Cost Allocated from NRPCC (%)	Cost Allocated from RPCC (%)	
Hemodialysis	1,393,564.40 (69.12)	224,724.52 (11.15)	397,669.80 (19.73)	2,015,958.72 (100.00)
Dentistry	2,950,525.60 (74.89)	855,633.67 (21.72)	133,519.66 (3.39)	3,939,678.93 (100.00)
Children Health Clinic	555,041.57 (79.95)	131,239.83 (18.91)	7,899.49 (1.14)	694,180.89 (100.00)
Annual Medical Check-up Clinic	594,377.18 (43.57)	227,267.06 (16.66)	542,622.17 (39.77)	1,364,266.41 (100.00)
Counseling Service Room	417,574.35 (86.66)	63,803.95 (13.24)	469.07 (0.10)	481,847.36 (100.00)
OPD- Rehabilitative Medical	355,413.17 (18.04)	173,666.68 (8.81)	1,441,136.65 (73.15)	1,970,216.50 (100.00)
Total	25,842,481.09 (26.45)	14,116,375.01 (14.45)	57,744,208.15 (59.10)	97,703,064.26 (100)
In-Patient Service				
Postnatal Ward	1,949,851.50 (14.18)	1,669,425.03 (12.14)	10,130,868.75 (73.68)	13,750,145.28 (100.00)
Gynecology Ward	2,029,905.90 (28.93)	1,447,162.80 (20.63)	3,539,400.70 (50.44)	7,016,469.40 (100.00)
Male Surgery Ward No.1	5,685,987.53 (21.79)	4,583,361.30 (17.56)	15,828,986.45 (60.65)	26,098,335.28 (100.00)
Male Surgery Ward No.2	3,855,663.06 (24.67)	2,726,527.20 (17.45)	9,044,271.74 (57.88)	15,626,462.01 (100.00)
Female Surgery Ward	4,620,407.25 (23.66)	3,395,018.92 (17.39)	11,509,910.48 (58.95)	19,525,336.66 (100.00)
Male Orthopedics Ward	2,240,437.60 (19.89)	2,024,038.57 (17.97)	7,001,625.72 (62.14)	11,266,101.89 (100.00)
Female Orthopedics Ward	1,894,561.25 (24.51)	1,453,960.62 (18.81)	4,381,663.72 (56.68)	7,730,185.60 (100.00)
Medical Ward No.1 (Male & Female)	6,113,028.64 (27.28)	3,775,393.38 (16.85)	12,521,470.07 (55.87)	22,409,892.09 (100.00)
Medical Ward No. 2	3,296,289.15 (16.60)	2,606,244.71 (13.12)	13,955,894.02 (70.28)	19,858,427.88 (100.00)

Table 21: (Cont.) Amount and Percentage of Full Cost of Patient Service Determined by Cost Center

Cost Center	Full Cost			Total Full Cost (%)
	Direct Cost (%)	Cost Allocated from NRPCC (%)	Cost Allocated from RPCC (%)	
Medical Ward No. 3	3,378,834.32 (20.14)	2,341,374.30 (13.96)	11,056,757.45 (65.90)	16,776,966.08 (100.00)
Medical Ward No. 4 (private Section)	2,551,721.65 (51.91)	1,165,725.25 (23.71)	1,198,734.44 (24.38)	4,916,181.34 (100.00)
Pediatrics Ward No. 1	3,074,424.98 (36.81)	1,917,110.66 (22.95)	3,360,745.69 (40.24)	8,352,281.33 (100.00)
Pediatrics Ward No. 2	3,086,297.60 (32.05)	1,980,591.37 (20.57)	4,562,556.80 (47.38)	9,629,445.78 (100.00)
Newborn Ward No. 1	2,998,958.66 (41.00)	1,609,609.19 (22.00)	2,706,067.24 (37.00)	7,314,635.09 (100.00)
Newborn Ward No. 2	3,334,775.76 (45.93)	1,760,938.67 (24.26)	2,163,674.56 (29.81)	7,259,388.99 (100.00)
Eye Ear Nose Throat (Male & Female)	3,569,017.70 (28.55)	1,805,118.82 (14.44)	7,126,813.37 (57.01)	12,500,949.89 (100.00)
Sick Monk Ward	1,625,264.75 (48.74)	642,087.33 (19.25)	1,067,483.07 (32.01)	3,334,835.15 (100.00)
ICU Ward No. 1	4,118,420.79 (45.27)	2,382,240.58 (26.19)	2,596,243.26 (28.54)	9,096,904.62 (100.00)
ICU Ward No. 2	3,423,072.86 (44.14)	1,871,178.62 (24.13)	2,460,653.49 (31.73)	7,754,904.97 (100.00)
Private Section Ward : Limpichart Thung Habor	4,751,956.93 (40.21)	2,343,389.69 (19.83)	4,721,401.13 (39.96)	11,816,747.75 (100.00)
Private Section Ward - Children	661,303.27 (52.38)	299,870.49 (23.75)	301,317.49 (23.87)	1,262,491.25 (100.00)
Private Section Ward No. 2	3,545,740.12 (33.36)	2,564,604.30 (24.13)	4,518,732.10 (42.51)	10,629,076.52 (100.00)
Private Section Ward No.4	2,412,307.20 (34.08)	1,603,291.42 (22.65)	3,063,663.29 (43.27)	7,079,261.91 (100.00)
Private Section Ward No. 5	815,457.78 (29.06)	795,261.49 (28.34)	1,195,830.98 (42.60)	2,806,550.25 (100.00)
Private Section Ward: Chalerm Baramee (2 nd Fl.)	3,071,454.37 (64.82)	789,616.07 (16.67)	877,023.26 (18.51)	4,738,093.70 (100.00)
Total	78,105,140.62 (29.08)	49,553,140.78 (18.45)	140,891,789.27 (52.47)	268,550,070.69 (100)

4. Unit Cost

Table 22 below displays the unit cost of patient service of Maharaj Nakhon Si Thammarat between July 1 – December 31, 2003 divided by the type of patient service provided, out-patient and in-patient service. The out-patient service area can be determined into 21 cost centers whereas the in-patient service area can be divided into 25 cost centers.

The average cost per visit of out-patient service is at Bht444.32 which comprise of the average routine service cost (RSC) per visit at Bht181.72 and the average medical care cost per visit at Bht262.60 respectively. As can be seen from the below table, the average cost per visit of Hemodialysis is the highest at Bht3,230.70 which comprises of the average routine service cost per visit at Bht2,593.41 and the medical care cost per visit at 637.29 respectively. The lowest average cost per visit comes from Treatment Room - Injection at Bht185.86 which comprises the routine service cost per visit at Bht159.32 and the medical care cost per visit at Bht26.54.

Table 22: Unit Cost of Out-Patient Service on Average Per Visit Determined by Cost Center

Cost Center	Number of Service (Visit)	RSC / VISIT (Baht /Visit)	MCC / VISIT (Baht/Visit)	Average Cost (Baht/Visit)
OPD- Antenatal	10,560.00	230.22	53.07	283.29
OPD- Gynecology and Family Planning	11,268.00	169.14	57.70	226.84
OPD- Surgery	17,184.00	149.22	195.90	345.13
OPD- Urological Surgery	3,138.00	150.58	821.48	972.28
OPD- Orthopedics	12,222.00	140.77	383.43	524.20
OPD- Medical	24,942.00	103.54	302.75	406.29
OPD- Pediatrics	15,216.00	132.08	93.96	226.04
OPD-Ophthalmology	10,218.00	131.87	128.29	260.16
OPD-Otorhinolaryngology	7,152.00	193.93	151.97	345.91
OPD- Specialty Medical Clinic and Psychiatrics	19,854.00	130.48	936.07	1,066.55
OPD- Social Security	7,920.00	128.75	280.50	409.25
OPD- Part-time Clinic	22,170.00	112.19	244.59	356.78
OPD- Part-time Clinic (Dentistry)	3,054.00	224.58	13.90	238.48
Accident and Emergency, Forensic Medicine and ER Cradle Service	33,312.00	237.20	167.46	404.66
Treatment Room - Injection	5,708.00	159.32	26.54	185.86
Hemodialysis	624.00	2,593.41	637.29	3,230.70
Dentistry	7,518.00	506.27	17.76	524.03
Children Health Clinic	1,838.00	373.38	4.30	377.68
Annual Medical Check-Up Clinic	1,530.00	537.02	354.66	891.68
Counseling Service Room	2,239.00	215.00	0.21	215.21
OPD- Rehabilitative Medical	2,225.00	237.79	647.70	885.49
TOTAL	219,892.00	181.72	262.60	444.32

Table 23 below displays the unit cost of in-patient service of Maharaj Nakhon Si Thammarat hospital between July 1 – December 31 2003, disaggregated by cost center. It shows that the cost per case of ICU Ward No. 1 is the highest at Bht36,829.57 which comprises the routine service cost (RSC) per case at Bht26,318.47 and the medical care cost (MCC) per case at Bht10,511.11. Follow by ICU No.2 is at Bht35,410.52 and the Medical Ward No.1 is at Bht32,572.52 respectively. On the other hand, the lowest cost per case comes from Postnatal Ward at Bht2,752.23. For the cost per patient day, Private Section Ward-Chalerm Phrabaramee has the highest cost at Bht5,701.68, follow by ICU Ward No. 2 Bht5,415.44 whereas the Postnatal Ward has the lowest cost per patient day at Bht952.82.



Table 23: Unit Cost of In-Patient Service Determined by Cost Center

Cost Center	RSC / CASE (Baht/Case)	MCC/ CASE (Baht/Case)	Cost Per Case (Baht /Case)	RSC / DAY (Baht/day)	MCC / DAY (Baht/day)	Cost Per Patient day (Baht/day)
Postnatal Ward	724.43	2,027.80	2,752.23	250.80	702.02	952.82
Gynecology Ward	2,750.85	2,800.16	5,551.00	667.77	679.74	1,347.51
Male Surgery Ward No. 1	6,012.50	9,267.56	15,280.06	948.41	1,461.86	2,410.26
Male Surgery Ward No. 2	4,901.11	6,734.38	11,635.49	736.18	1,011.55	1,747.73
Female Surgery Ward	4,854.89	6,971.48	11,826.37	741.41	1,064.65	1,806.06
Male Orthopedics Ward	2,963.50	4,865.62	7,829.12	500.23	821.31	1,321.54
Female Orthopedics Ward	3,241.55	4,241.69	7,483.24	556.51	728.21	1,284.72
Medical Ward No. 1 (Male &Female)	14,372.71	18,199.81	32,572.52	1,737.86	2,200.61	3,938.47
Medical Ward No.2	1,970.80	4,659.73	6,630.53	473.83	1,120.33	1,594.16
Medical Ward No.3	2,228.36	4,307.27	6,535.63	517.99	1,001.25	1,519.24
Medical Ward No.4 (Private Section)	14,297.87	4,610.52	18,908.39	3,736.13	1,204.76	4,940.89
Pediatrics Ward No. 1	3,540.10	2,383.51	5,923.60	831.65	559.94	1,391.58
Pediatrics Ward No. 2	4,585.42	4,129.01	8,714.43	874.96	787.87	1,662.83
Newborn Ward No. 1	6,186.00	3,632.31	9,818.30	922.27	541.54	1,463.81
Newborn Ward No. 2	11,528.77	4,895.19	16,423.96	1,338.51	568.34	1,906.85
Eye Ear Nose Throat Ward (Male & Female)	3,219.97	4,270.11	7,490.08	803.31	1,065.29	1,868.60
Sick Monk Ward	13,910.14	6,548.98	20,459.11	2,097.46	987.50	3,084.95
ICU Ward No. 1	26,318.47	10,511.11	36,829.57	3,080.88	1,230.45	4,311.33
ICU Ward No. 2	24,174.66	11,235.86	35,410.52	3,697.10	1,718.33	5,415.44
Private Section Ward – Limpichart ThungcarHabor	11,481.14	7,639.81	19,120.95	1,499.44	997.76	2,497.20
Private Section Ward - Children	3,141.09	984.70	4,125.79	1,025.80	321.58	1,347.38
Private Section Ward No.2	4,389.62	3,246.22	7,635.83	1,019.41	753.88	1,773.29
Private Section Ward No.4	5,051.07	3,853.66	8,904.73	1,100.77	839.82	1,940.59
Private Section Ward No.5	6,942.76	5,154.44	12,097.20	888.92	659.95	1,548.87
Private Section Ward- Chalerm Phrabaramee (2 nd Fl.)	15,695.41	3,565.14	19,260.54	4,646.29	1,055.38	5,701.68
Total	4,322.56	4,770.66	9,093.22	881.56	972.95	1,854.51