

CHAPTER 4

EMPIRICAL RESULTS

This chapter presents results of the study in relation to cost burden incurred by the district hospital, Chun Hospital. This hospital has provided health service activities for HIV/AIDS patients. According to the incremental approach, all of the cost incurred to Chun Hospital due to the implemented activities being compared to the situation where there were no HIV/AIDS patients as in the first situation.

4.1 General Description of the Hospital

This hospital was established in 1982 with 10 beds and expanded to 30 beds in March 1992 by government funds. In fiscal year 1998, this hospital had 2 physicians, 1 dentist, 2 pharmacists, 61 health staff and 28 other employees (see Table 4.1). The latest health personnel figures showed from 64 to 105 persons. The number of population was 48,017: male 23,879 and female 24,128 persons and 12,918 households. The population slightly decreasing changed from 54,168 to 48,017 persons. Physician ratio 1: 24,008 persons (less than standard ratio: 2.4 times). As can be seen from Table 4.2 the number of health personnel increased by 39.0% because the hospital was expanded from 10 beds to 30 beds. Thus, the number of health personnel were increased as well, which was not associated with AIDS patients.

In 1998, the total number of out-patients was 62,691 visits per year (172 visits per day). Of these figures, the number of HIV/AIDS out-patients was 2,288 visits per year (6.3 visits per day). The total number of in-patients was 3,992 cases per year (11 cases per day). The number of HIV/AIDS in-patients was 456 cases (1.2 cases per day). The total number of in-patient days was 9,253 per year, and the number of HIV/AIDS in-patient days was 2,594 per year (1.2 cases per day). The average length of stay for HIV/AIDS and non-HIV/AIDS were 5.6 and 1.9, which was more than 3 times. Between 1992 and 1998 the total number of out-patients and in-patients increased by 9.2% and 50.3% respectively. The total number of in-patient days increasing 20.7%.

Table 4.1 Health Personnel and Population of Chun Hospital: 1992 - 1998

Item	1992		1993		1994		1995		1996		1997		1998	
	Number	Personnel: population	Number	Personnel: population	Number	Personnel: population	Number	Personnel: population	Number	Personnel: population	Number	Personnel: population	Number	Personnel: population
Personnel	64	-	104	-	110	-	114	-	94	-	101	-	105	-
Doctor	2	1:27428	3	1:15297	3	1:15945	3	1:15515	3	1:15530	2	1:23652	2	1:24008
Dentist	1	1:54877	1	1:45893	1	1:47835	1	1:46546	1	1:46591	1	1:47304	1	1:48017
Pharmacist	1	1:54877	1	1:45893	1	1:47836	1	1:46547	1	1:46592	2	1:23652	2	1:24008
Registered Nurse	21	1:2613	24	1:1912	27	1:1772	28	1:1662	22	1:2118	24	1:1971	22	1:2182
Technical Nurse	14	1:3920	20	1:2295	15	1:3189	18	1:2586	16	1:2912	20	1:2365	21	1:2286
Health staff	13	1:4221	24	1:1912	31	1:1543	31	1:1501	19	1:2452	22	1:2150	25	1:1921
Servant	12	-	31	-	32	-	32	-	32	-	30	-	32	-

Source: Chun Hospital

Table 4.2 Number of Personnel and Patients of Chun Hospital: 1992-1998

Item	Fiscal Year							
	1992	1993	1994	1995	1996	1997	1998	Δ 1998-1992 (%)
Health personnel	64	104	110	114	94	101	105	39.0
Number of out-patients	56,927	55,903	67,970	74,511	73,329	69,715	62,691	9.2
Average number of visit perday	156	153	186	204	201	191	172	9.3
Number of HIV/AIDS out-patients	0	49	119	1,804	3,748	3,018	2,288	100.0
Average number of visit per day	0.0	0.1	0.3	3.5	10.5	8.3	6.3	100.0
Number of in-patients	1,985	2,394	2,586	2,561	1,629	2,595	3,992	50.3
Average number admission per day	5.4	6.5	7.1	7.0	4.5	7.1	11	50.9
Number of HIV/AIDS in-patients	0	50	199	246	353	351	456	100.0
Average number admission per day	0	0.1	0.5	0.7	0.9	0.9	1.2	100.0
Total number of in-patient days	7,337	8,126	9,034	9,995	8,010	9,229	9,253	20.7
Total number of HIV in-patient days	0	285	635	1,853	2,765	1,640	2,594	100.0
Total occupation bed rate (%)	67	74.2	82.5	78.3	79.77	90.31	84.5	26.1
HIV/AIDS (%)	0.0	2.6	5.8	15.1	25.3	31.0	23.7	100.0
Average length of stay								
Non-HIV/AIDS	3.0	3.4	3.5	3.9	4.9	3.5	1.9	-58.9
HIV/AIDS	0.0	5.7	3.2	6.7	7.8	9.7	5.6	100.0

Source: Chun Hospital

The number of out-patient visits and in-patient days are slightly increasing (see Figures 4.1 and 4.2). The number of AIDS out-patient visits was the same trend as the total number of out-patients. Thus, the total number of out-patients and in-patients were linked to the number of HIV/AIDS out-patients and in-patients. The proportion of HIV/AIDS out-patient visits was less than HIV/AIDS in-patient days. The increasing of the mortality and severe illness for HIV/AIDS patients continued yearly. As indicated in Figure 4.3, the increasing occupancy rate of HIV/AIDS patients was 23.68%. The proportion of the number of in-patients is associated with the number of HIV/AIDS in-patients. As above data the utilization might be relatively low and not efficiency. Thus, this hospital increased its activities to provide the increasing in the patients.

Health status indicators of the people in Chun District in 1997 were: population growth rate, 0.12%; birth rate 11.52 per 1,000 population, mortality rate 10.25 per 1,000 population, infant mortality rate 2.08 per 1,000 live births, and mortality rate of children aged under 5 years 10.41 per 1,000 live births. A comparison of health statistics between 1992 and 1997 had shown the growth rate and the mortality rate in all groups were significantly decreasing, but the mortality rate and AIDS mortality rate were clearly increasing as indicated in Table 4.3 and Figure 4.4. The mortality rate for AIDS, the leading cause of death at Chun District was 3.01 per 1,000 population in 1997 as seen from Figure 4.5. From a 1998 report of Phayao Health Office, the morbidity rate of symptomatic HIV and AIDS patients in Chun District was about 270.4 per 100,000 population. Figure 4.6 showed that the HIV infected in pregnant women rate increasing 12.3% in 1998. Therefore, AIDS became a serious problem of Chun District because it has the highest mortality rate of any disease. According to disease profiles, the highest rate of admitted to IPD was AIDS, i.e. 1,126.7 per 100,000 population. Figure 4.7 showed that the rate of the top five opportunistic infections diseases in HIV/AIDS in-patient were PCP, Cryptococcosis, TB, diarrhea and Toxoplasmosis, 27.32, 27.05, 15.03, 9.02 and 6.83 respectively.

Figure 4.1 Number of Out-patient Visits at Chun Hospital: 1992-1998

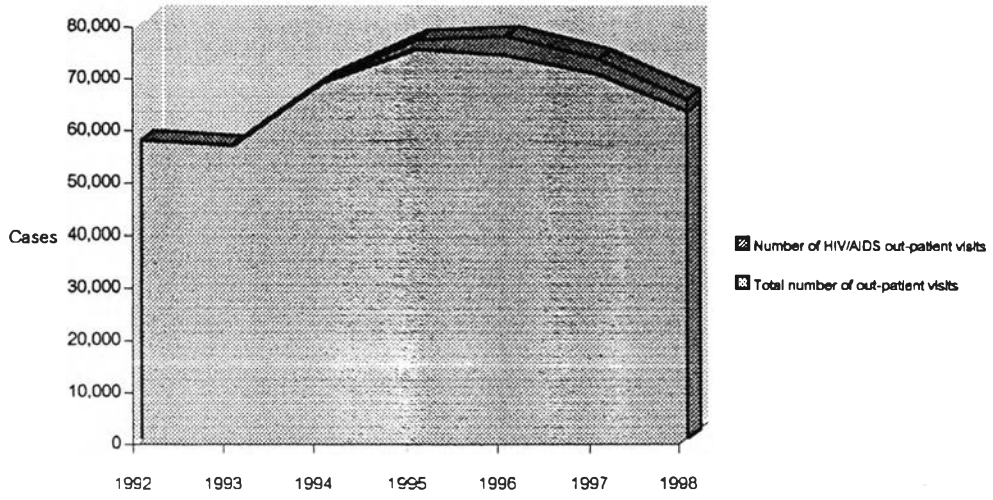


Figure 4.2 Number of In-patient Days at Chun Hospital: 1992-1998

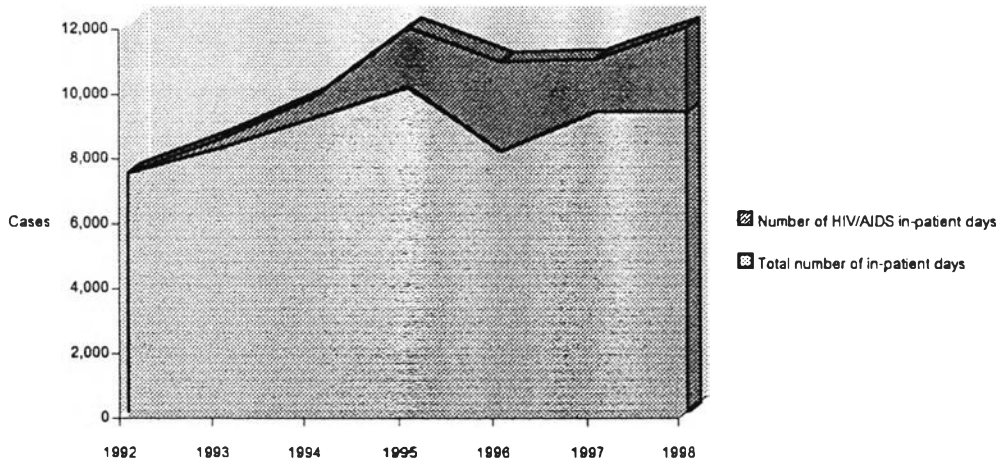


Figure 4.3 Occupancy Rate of Asymptomatic HIV and AIDS Patients at Chun Hospital: 1992-1998

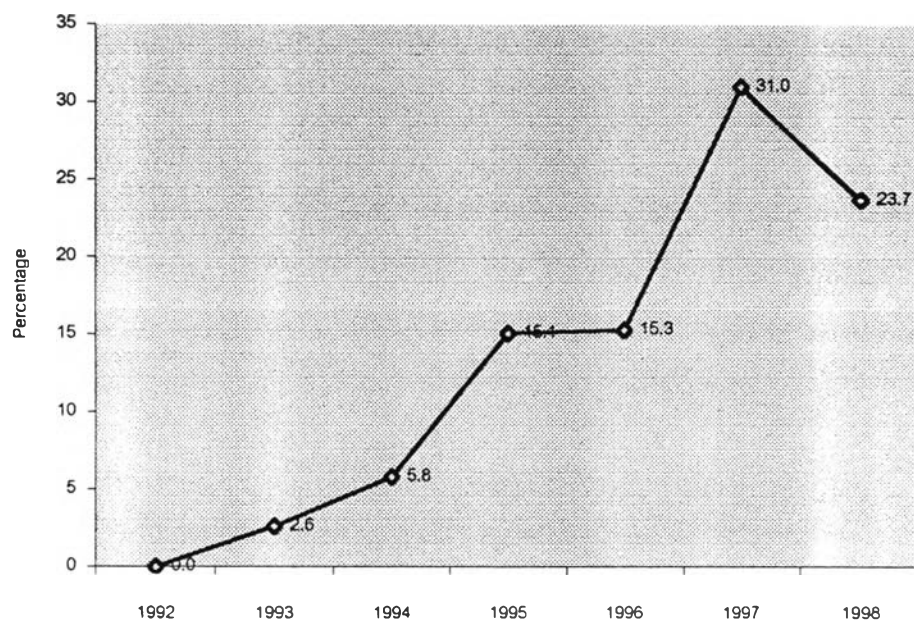


Table 4.3 Health Status Indicators of Chun District: 1992-1997

Health Statistics	Fiscal Year					
	1992	1993	1994	1995	1996	1997
1. Brith rate (1,000 population)	12.85	12.26	12.38	12.3	13.39	11.52
2. Death rate (1,000 population)	5.42	7.1	8.82	11.6	9.91	10.25
3. Growth rate (%)	0.74	0.52	0.35	0.7	0.34	0.12
4. AIDS death rath (1,000 population)	0	0	0.25	1.12	0.69	3.01
5. Infant mortality rate (per 1,000 live births)	17.42	8.88	13.51	15.12	0	2.08
6. Maternal mortality rate (per 1,000 live births)	0	1.78	3.37	0	0	0
7. Mortality rate of children age under 5 years (per 1,000 live births)	24.39	15.98	18.58	18.48	19.31	10.41

Source: Chun District

Figure 4.4 Health Status Indicators of Chun District: 1992-1997

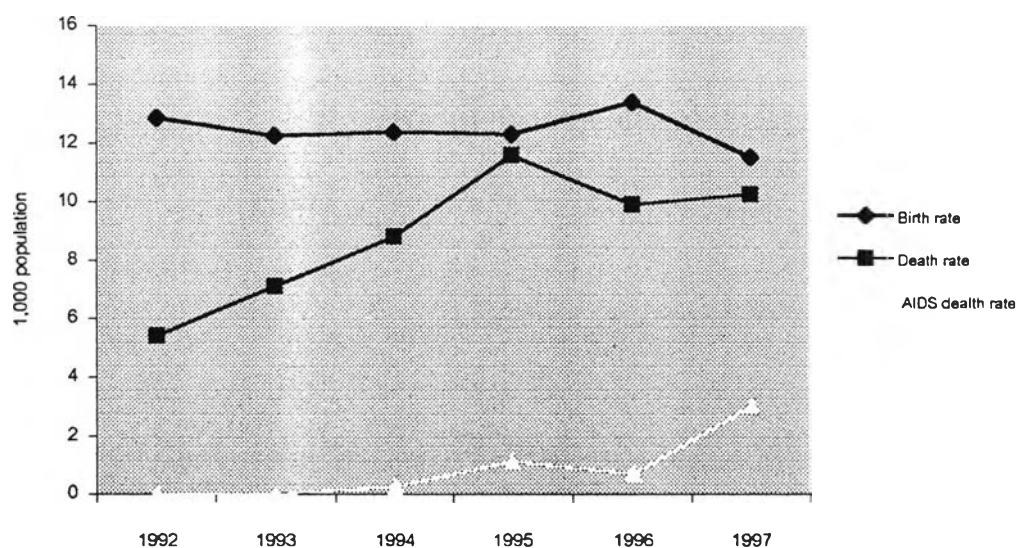


Figure 4.5 The Causes of Death of Population (per 1,000 population) in Chun District, 1997

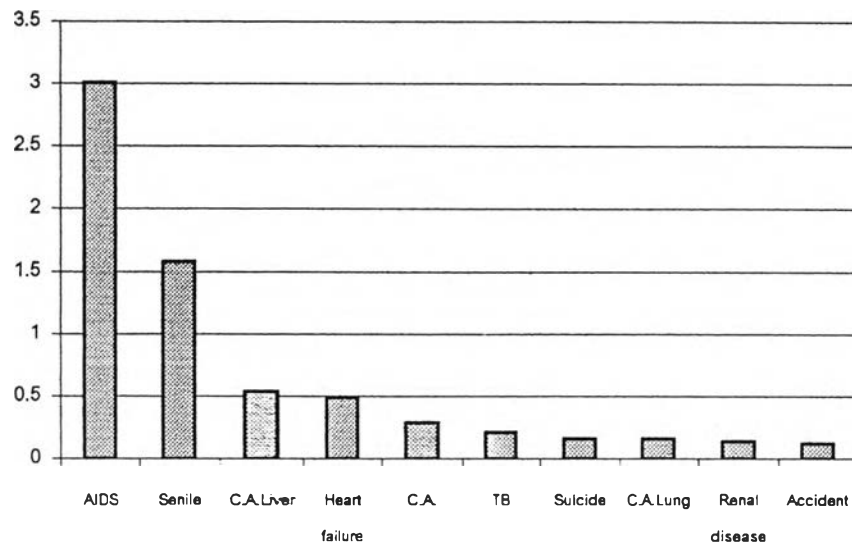


Figure 4.6 HIV Infected Rate in Pregnant Women at Chun Hospital, 1992-1998

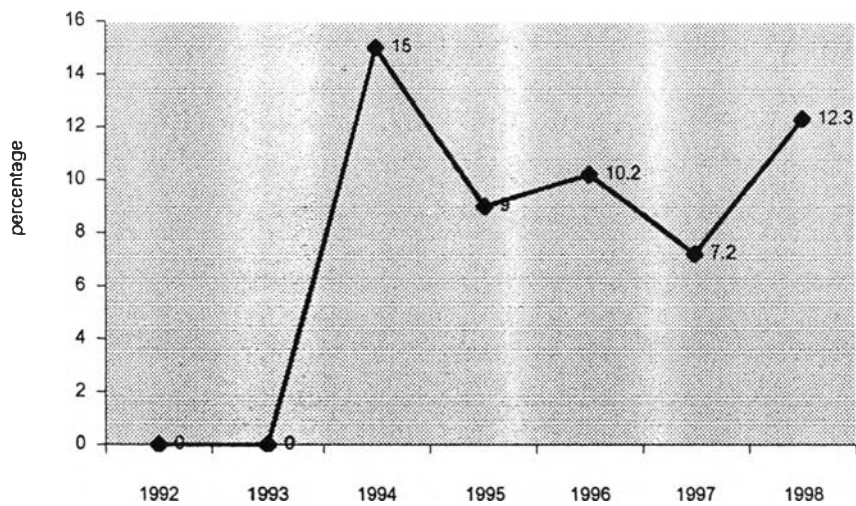
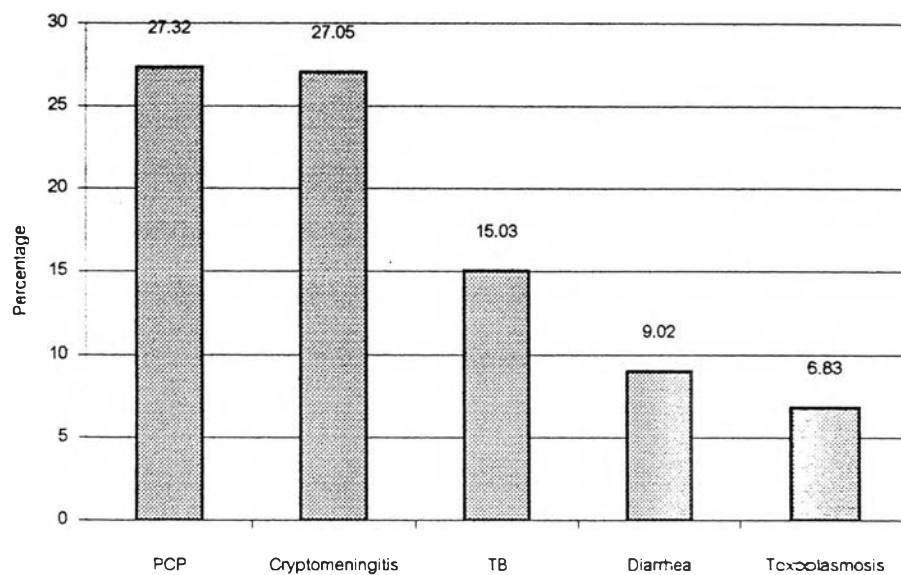


Figure 4.7 Percentage of Top Five Opportunistic Infection Diseases in PWA of Chun Hospital, 1998



4.2 Mobilization of Funding

Financial sources of Chun Hospital in 1998 are presented in Table 4.4. There are two financial sources. The first one is 19,309,854 Baht from the government. The other is 6,133,972 Baht from non-government and local funding. Government funding from Ministry of Public Health, and other Ministries are 50.5% and 25.4% respectively. Other Ministries including Labor Department, Department of Social Welfare, Ministry of Interior and School Department. Non-government and local funds such as AIDS NET and user fees are 0.2% and 23.9% of total finance as seen in Figure 4.8. The finance of Chun Hospital during the period 1992-1998 tend increasing yearly (see Figure 4.9). Especially in 1998, the highest rate of financial growth because it was supported by the United Fund of Phayao Provincial Health Office during the time of economic crisis. The United fund consists of AIDS fund, Health card fund, School fund and Low income fund. The funding specified for AIDS is 2% of total fund. Funding for AIDS patients also came from the Labor Department, Department of Social Welfare, AIDS fund, and AIDS net. The mentioned fund is used for the social functions.

4.3 Types of Activity Provided at Chun Hospital

Additional cost is incurred by Chun Hospital when HIV is spread throughout the community. This hospital provides all types of activities i.e. treatment, promotion, prevention, and rehabilitation for patients, which is aimed not only at HIV/AIDS patients but also to the caregivers as in the general public hospitals. This study focuses on cost and activities provided directly for HIV/AIDS patients, which differs greatly from the standard hospital care for patients. The followings are provided for HIV/AIDS patients at Chun Hospital.

Treatment

Treatment is provided for out-patients and in-patients. Both care and treatment are mainly provided by doctors, nurses and health personnel. The severely illness patients are provided with nursing care and basic medication. The out-patient department has arranged a counseling clinic for patients by the trained counselors

Table 4.4 Budget and Finance of Chun Hospital, 1998

Source of fund	Amount of budget (Baht)
1. Government	
1.1 MOPH	
Budget from PHO	10,200,750
Medicine and supplies from PHO	1,323,758
Health card fund from PHO	1,072,434
AIDS fund from PHO	261,950
1.2 Other Department	
Labor Department	100,000
Department of Social Welfare	35,000
School fund	184,040
Low income fund	6,131,922
Subtotal finance from government	19,309,854
2. Non-government/local	
AIDS Net	40,000
User fees	6,093,972
Subtotal finance from non-government/local	6,133,972
Total finance	25,443,826

Source: Chun Hospital

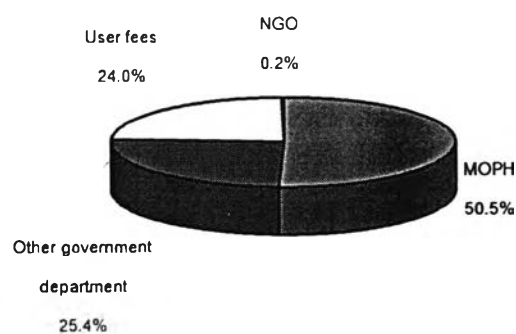
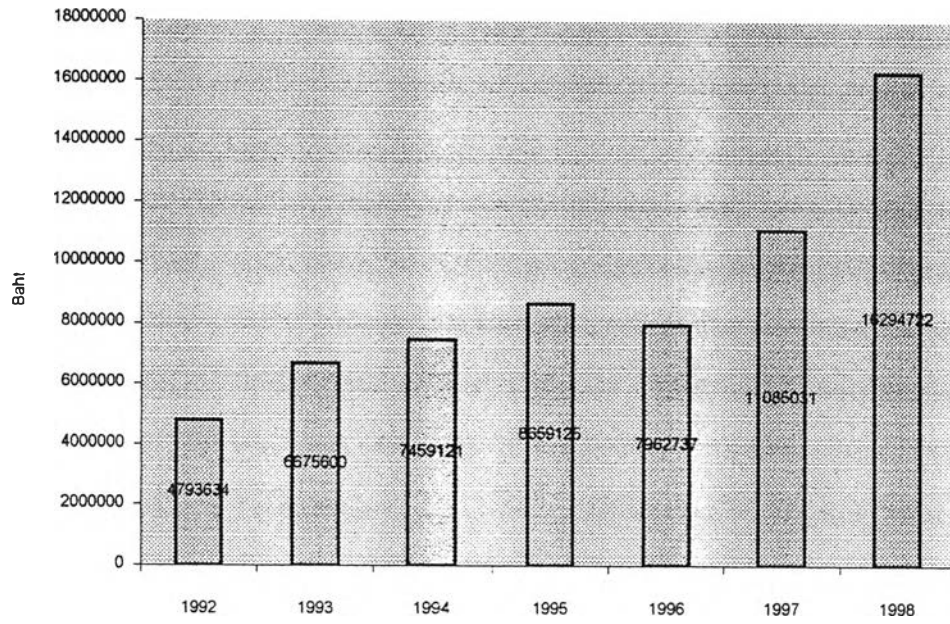
Figure 4.8 Source of Fund at Chun Hospital, 1998

Figure 4.9 Total Budget and Finance of Chun Hospital: 1992-1998



daily. Counseling is provided before blood tests for patient with AIDS and after positive blood tests. There is TB clinic at out-patient department on Friday. The in-patient department provides care for HIV/AIDS patients and non-HIV/AIDS patients the same as in other hospitals. The medicine is provided for all HIV/AIDS patients in the hospital under the control of opportunistic infections.

Maternal and Child Health

The MCH has activities; Antenatal Care, labor, postpartum care, counseling, vaccination under the Expanded Program on Immunization (EPI), growth monitoring, family planning, home health care and health education. An ANC is provided every Monday. Health personnel provides ANC at least 4 times to all pregnant women, 3 doses of tetanus toxoid, and postnatal care twice for each case. Women receive pretest counseling at their first prenatal visit, and HIV testing. If they accept, they will return post-test counseling two weeks later. A confirmation is performed at the provincial hospital in case the result is positive. HIV-infected women are prescribed zidovudine in the 34th week of pregnancy or as soon as possible thereafter. Before starting treatment, the women's hemoglobin, CBC and platelets must be measured. Also infected infants have to take oral zidovudine syrup shortly after birth. Therefore, the Ministry of Public Health (MOPH) strategies offers a public hospital a short regimen of zidovudine to all consenting HIV-infected women to prevent mother-to-child transmission of the virus. These activities are provided for women, pregnant women and children who have AZT treatment for HIV/AIDS during pregnancy and also in new born cases. Breast milk substitution is distributed to HIV-infected children and milk to pregnant women who have low body weight. Milk, medicine and vaccine are supported by the MOPH. Family planning service is provided on Wednesday. There is a counseling clinic for general patients and HIV/AIDS patients and a premarital clinic. Counseling is offered in psychosocial support, family planning, education on child rearing i.e. formula feeding, good hygiene, to avoid of direct contact with blood and body fluids, nutrition and having no pets. HIV/AIDS patients are provided with care which is the same as other patients because this status is not disclosed and no record of the status of HIV/AIDS patients is

made during family planning activity. The condom usage is promoted, especially in the case of discordant couples. Well baby clinic and EPI are available on Thursday weekly. This activity provides nutrition counseling, growth monitoring of child replacement fed or breast milk substitute for HIV positive children or children born to an HIV positive mother. The immunization schedule is similar to that normal of children. BCG is not recommended in symptomatic patients. The records do not specify HIV status. Home health care for mother and child takes place on Tuesday but not specified properly for HIV/AIDS or non-HIV/AIDS by health personnel.

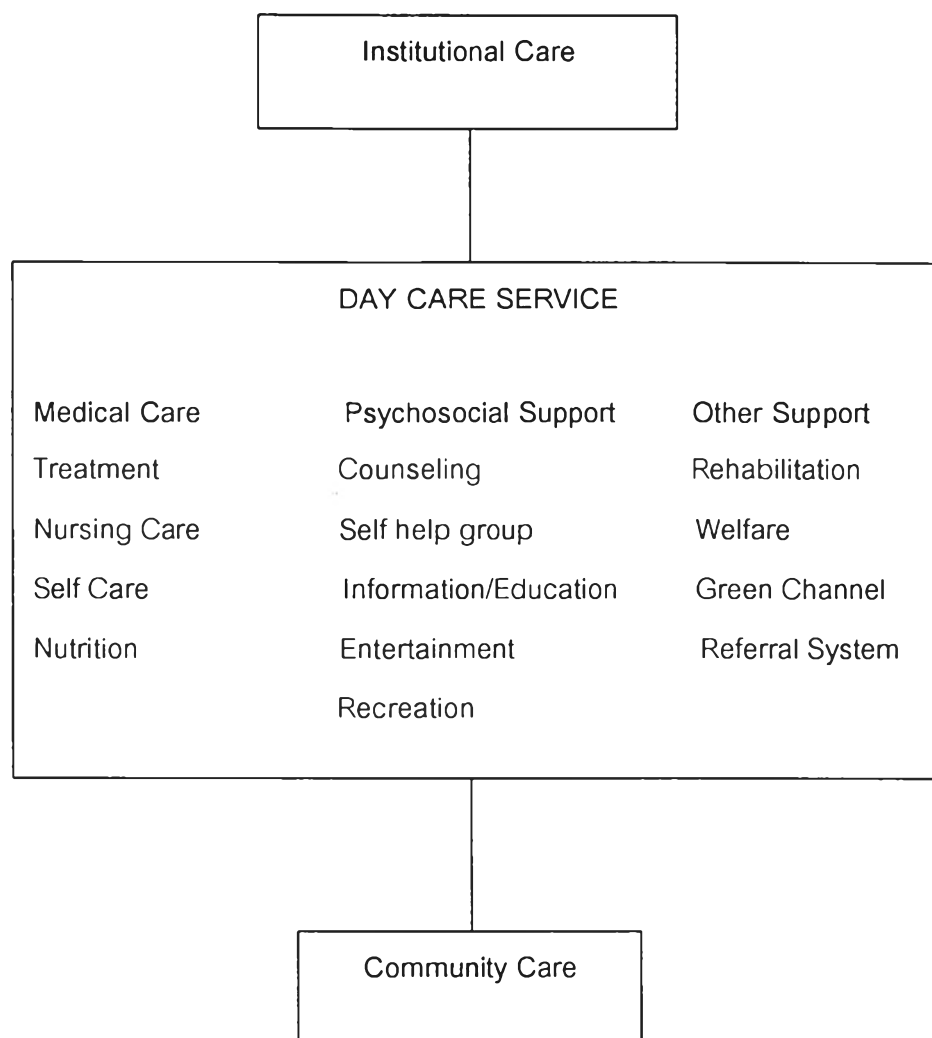
Health Promotion

Health promotion activity was established in this hospital in 1995. Previously, health promotion was a part of OPD functions. Health promotion conducts many community meetings and training sessions for health volunteers, health education at the hospital, schools, other government organizations, and village communities about seasonal disease both basic health needs and HIV/AIDS. Health promotion for AIDS activities includes the distribution of condoms in schools, villages and other departments which they are supported by the Provincial Health Office. In 1998, the promotion programs are not financially supported by donors.

Day Care

Day care was established in this hospital in 1995 by a grant of donor after AIDS had been spread to communities. It provides medical care, psychosocial support, self help groups, entertainment, home health care, and other types of support as shown in Figure 4.10. Day care provides care for HIV/AIDS patients every day except Thursday in which the clinic having the AIDS support activities; medical check up and follow-up by doctors and nurses, self-health groups, entertainment, recreation and occupational therapy. Phayao Health Office has food supported of 600 Baht per day for HIV/AIDS patients who visit the day care and the activities on Thursday. Medical care and treatment is mainly provided by doctors and nurses. Drugs are prescribed to all patients in the hospital under the control of opportunistic infections. Psychosocial support is greatly needed and provided through counseling by volunteers who are

Figure 4.10 Health Service Systems in Day Care



trained, and if they cannot solve the problems, they will refer them to a counselor. Other support: of patients are still engaged in social activities and in daily life ones have to earn for their living and obtaining financial support from NGOs e.g. AIDS net and other MOPH e.g. Department of Social Welfare, Labor Department.

Home Health Care Service

Home health care is an activity of day care. This activity provides HIV/AIDS volunteers and health personnel to visit AIDS cases at home but they do not specify the day. Milk from Provincial Health Office is distributed to HIV/AIDS patients at home.

4.4 General Characteristics of the Samples

General characteristics of the samples were obtained from medical records of all HIV/AIDS patients who were visited and admitted at Chun hospital between 22 February to 5 March, 1999. The sample size of both HIV/AIDS and non-HIV/AIDS patients were 92 cases for each group. The attached questionnaire in Appendix F was used to obtain more information about characteristics of the patients in the hospital.

General characteristics of patients indicated that most of patients who received care in this hospital were female patients, but the HIV/AIDS situation of the whole country was male which was more than female by 2:1. The sex of HIV/AIDS and non HIV/AIDS patients were not different (see Table 4.5).

Table 4.6 indicated that more than 67.4% of HIV/AIDS patients receiving care from hospital were 25 - 34 years old, of which most of them were at working age. The HIV/AIDS patients between 15 and 24 years old was 10.9%, and age younger than 15 years old was 6.5%. They were the children of HIV infected mothers. The age of non-HIV/AIDS patients were not different.

Marital status of HIV/AIDS patients were: widowed or divorced, single, and married were 44.6%, 28.3%, and 27.2% respectively. The data indicated that AIDS was spread out by sexual transmission. Male die earlier, so widowed or divorced have the highest rate. The marital status for non-HIV/AIDS patients was 62.0% married, 19.6% single, and 18.5% widowed or divorced (see Table 4.7).

Table 4.5 General Characteristics of Patients by Sex

Sex	Frequency		Percent (%)	
	HIV	Non-HIV	HIV	Non-HIV
Male	36	37	39.1	40.2
Female	56	55	60.9	59.8
Total	92	92	100.0	100.0

Table 4.6 General Characteristics of Patients by Age

Age Group	Frequency		Percent (%)	
	HIV	Non-HIV	HIV	Non-HIV
<15	6	12	6.5	13.0
15-24	10	6	10.9	6.5
25-34	62	10	67.4	10.9
35-44	8	19	8.7	20.7
45-54	4	15	4.3	16.3
>55	2	30	2.2	32.6
Total	92	92	100.0	100.0

Table 4.7 General Characteristics of Patients by Marital Status

Marital Status	Frequency		Percent (%)	
	HIV	Non-HIV	HIV	Non-HIV
Single	26	18	28.3	19.6
Married	25	57	27.2	62.0
Widowed	25	14	27.2	15.2
Divorced	16	3	17.4	3.3
Total	92	92	100.0	100.0

Table 4.8 showed that 83.7% of patients had an income less than 2,000 Baht per month. This indicated that majority of patients in the hospital were from a low income group. As seen from Table 4.9, the major occupation of most patients (68.4%) based on agriculture.

Tables 4.10, 4.11 indicated that the insurance status of patients in this hospital. Most patients have health insurance schemes, 88% with insurance and 12% without insurance. Health insurance scheme for HIV/AIDS patients was classified as following: 48.9% low income, 35.9% health card, 13% out of pocket and 2.2% other card. The highest component was low income card (48.9%) of total HIV/AIDS patients. Health insurance scheme for non HIV/AIDS patients was 93.5% with insurance and 6.5% without insurance. Most of them were low income card (34.8%).

As seen from Table 4.12, the average number of visits for HIV/AIDS out-patients was 14.6 and 6.3 visits/person/year, and the average number of visits for non-HIV/AIDS out-patients was 6.3 visits/person/year. The average number of visits for HIV/AIDS patients was more than non-HIV/AIDS patients by 2.3 times. The average number of visits for HIV/AIDS in-patients was 8.3 visits/person/year. The average number of visits for non-HIV/AIDS in-patient was 4.8 visits/person/year. The average number of visits for HIV/AIDS in-patient was more than general in-patient by 1.7 times. This indicates that HIV/AIDS patients were a burden to the hospital. Revenue from health insurance schemes was not adequate.

Tables 4.13 - 4.16 showed that the material cost of HIV/AIDS and non-HIV/AIDS patients in OPD and IPD from the observation 2 week. Total cost of medicine, material supplies, X-ray, and laboratory test do not show the proportion used for OPD and IPD by HIV/AIDS and Non-HIV/AIDS patients. The material cost was used to obtain a proportion of unit cost and to estimate the total cost. Table 4.13 showed that medical cost for HIV/AIDS was more than non-HIV/AIDS patients. It indicated that unit cost of medicine for HIV/AIDS out-patient was more than Non-HIV/AIDS patients by 1.2 times because there are TB with AIDS 36.04% which they used more medicine. Unit cost of medicine for HIV/AIDS in-patients was higher than non-HIV/AIDS in-patients by 1.6 times because

Table 4.8 General Characteristics of Patients by Income

Annual Income (Baht)	Frequency		Percent (%)	
	HIV	Non-HIV	HIV	Non-HIV
<1,000 Baht	45	35	48.9	38.0
1,001-2,000 Bah	34	40	36.9	43.5
2,001-3,000 Bah	10	6	10.9	6.5
3,001-4,000 Baht	2	6	2.2	6.5
4,001-5,000 Baht	1	3	1.1	3.3
>5,001 Baht	0	2	0.0	2.2
Total	92	92	100.0	100.0

Table 4.9 General Characteristics of Patients by Occupation

Occupation	Frequency		Percent (%)	
	HIV	Non-HIV	HIV	Non-HIV
Agriculture	67	59	72.8	64.1
Labor	12	8	13	8.7
Vendor	5	4	5.4	4.3
Public Servant	8	1	8.7	1.1
House Wife	0	9	0	9.8
No Occupation	0	11	0	12
Total	92	92	100	100

Table 4.10 Insurance Status

Insurance Status	Frequency		Percent (%)	
	HIV	Non-HIV	HIV	Non-HIV
Insurance	81	86	88	93.5
Non-insurance	11	6	12	6.5
Total	92	92	100	100

Table 4.11 Type of Health Insurance

Type of Health Insurance	Frequency		Percent (%)	
	HIV	Non-HIV	HIV	Non-HIV
Out of pocket	12	7	13	7.6
Civil servant welfare	1	5	1.1	5.4
Health card	33	23	35.9	25
Low income	45	32	48.9	34.8
Elderly card	1	23	1.1	25
Student card	0	1	0	1.1
Private insurance	0	0	0	0
Social security	0	1	0	1.1
Total	92	92	100	100

Table 4.12 General Characteristics of Patients by Number of Visits

Ward		Mean	SD	Min	Max
OPD	HIV	14.6	10.3	1.0	40.0
	Non-HIV	6.3	5.9	1.0	28.0
IPD	HIV	8.3	8.9	1.0	28.0
	Non-HIV	4.8	5.7	1.0	25.0

Table 4.13 General Characteristics of Patients: Medical Cost and Cost of Visit

Item	OPD		IPD		Total cost
	HIV	Non-HIV	HIV	Non-HIV	
Cost of medicine 2 weeks	6,249.43	5,148.60	18,131.24	8,084.21	37,613.48
Number of visit,day 2 week	67	67	134	95	-
Unit cost	93.28	76.84	135.31	85.10	390.53
Number of visit,day 1 year	2,288	60,403	2,594	6,659	-
Total cost 1 year	135,776	2,952,743	223,296	360,511	3,672,326

Table 4.14 General Characteristics of Patients: Medical Supply Cost

Item	OPD		IPD		Total cost
	HIV	Non-HIV	HIV	Non-HIV	
Cost of medicine 2 weeks	50.00	123.83	6,414.00	5,044.00	11,631.83
Number of visit,day 2 week	67	67	134	95	-
Unit cost	0.75	1.85	47.86	53.09	103.55
Number of visit,day 1 year	2,288	60,403	2,594	6,659	-
Total cost 1 year	1,753	114,193	126,868	361,269	604,083

Table 4.15 General Characteristics of Patients: X-ray Cost

Item	OPD		IPD		Total cost
	HIV	Non-HIV	HIV	Non-HIV	
Cost of medicine 2 weeks	140	580	1050	1760	3530
Number of patient 2 weeks	67	67	25	25	-
Unit cost	2.09	8.66	42.00	70.40	123.15
Number of patient 1 year	2,288	60,403	456	3,536	-
Total cost 1 year	467	51,027	1,868	24,283	77,645

Table 4.16 General Characteristics of Patients: Lab Cost

Item	OPD		IPD		Total cost
	HIV	Non-HIV	HIV	Non-HIV	
Cost of medicine 2 weeks	500	770	3,000	2,310	6,580
Number of patient 2 weeks	67	67	25	25	-
Unit cost	7.46	11.49	120.00	92.40	231.35
Number of patient 1 year	2,288	60,403	456	3,536	-
Total cost 1 year	4,517	183,677	14,482	86,469	289,145

of larger quantity consumption and took longer treatment times. The total cost of HIV/AIDS out-patients was less than non-HIV/AIDS out-patients because the number of non-HIV/AIDS visits was more than HIV/AIDS visits. Medical cost was calculated as a proportion of the number of visits and number of patient days. In 1998, the number of HIV/AIDS in-patients and non-HIV/AIDS in-patients were 456 and 3,536 and the number of patient days were 2,594 and 6,659 respectively. Medical cost was obtained from cost for 2 weeks divided by the number of visits and the number of patient days and then calculate the proportion of unit cost transferred to total cost by the number of visits and the number of patient days in one year. Medical cost for HIV/AIDS and non-HIV/AIDS out-patients were 135,776 and 2,952,743 Baht. Medical cost for HIV/AIDS and non-HIV/AIDS in-patients were 223,296 and 360,511 Baht. The total medical cost for OPD and IPD were 3,672,326 Baht.

As indicated in Table 4.14, medical supply cost for non-HIV/AIDS out-patients and in-patients were higher than HIV/AIDS out-patients and in-patients by unit cost observed over 2 weeks. Unit cost of medical supplies for HIV/AIDS out-patients and in-patients were less than non-HIV/AIDS out-patients and in-patients. Material supply cost was obtained from the 2 week observation and was divided by the number of visits and the number of patient days and then calculate the proportion of unit cost transferred to the total cost by the number of visits and number of patient days per year. Material supply cost for HIV/AIDS and non-HIV/AIDS out-patients were 1,753 and 114,193 Baht. Material supply cost for HIV/AIDS and non-HIV/AIDS in-patients were 126,868 and 361,269 Baht. The total cost of material supply cost was 604,083 Baht.

Table 4.15 showed that X-ray cost for HIV/AIDS out-patients and in-patients was less than non-HIV/AIDS patients. This cost was obtained from the 2 week observation and was divided by number of patients and then calculate the proportion of unit cost and converted to the total cost by the number of patients per year. X-ray cost for HIV/AIDS and non-HIV/AIDS out-patients were 467 and 51,027 Baht. HIV/AIDS and non-HIV/AIDS in-patients were 1,868 and 24,283 Baht. The total X-ray cost for OPD and IPD were 77,645 Baht.

As seen from Table 4.16, laboratory cost for OPD and IPD from observation, and unit cost of HIV/AIDS in-patients was more than non-HIV/AIDS in-patients by 1.3 times. Unit cost of non-HIV/AIDS out-patients was more than HIV/AIDS out-patients by 1.5 times. This cost was obtained the same as X-ray cost and then calculate the proportion of unit cost which was used to estimate the total cost by the number of patients per year. The total Laboratory cost for out-patients and in-patients were 289,145 Baht. Laboratory cost for HIV/AIDS and non-HIV/AIDS out-patients were 4,517 and 183,677 Baht, while those of HIV/AIDS and non-HIV/AIDS in-patients were 14,482 and 86,469 Baht.

4.5 Cost to Provider in 1992

Cost calculation in 1992 was classified by input only due to having no HIV/AIDS patients and health service activity was provided for them. Cost of the provider was composed of capital cost and recurrent cost as follow:

1) Capital cost was calculated from 4 buildings, 2 cars and 2 motorcycles and equipment. In this study, the useful life of a building was 25 years, 10 years for vehicle, and 5 years for equipment. World Bank discount rate of 10% was used to calculate current value or present value, and annual cost of building, equipment, and vehicles. The annual cost of each item was presented in Appendix A. Annual cost of buildings, vehicles, and equipment was 1,943,068, 168,335, and 483,191 Baht respectively. The total capital cost was 2,594,594 Baht.

2) Recurrent cost included material, labor, operating, and maintenance were as following:

Recurrent cost was collected from MIS records of hospital, and being calculated by summation of all the cost of material, labor, operating and maintenance as present in Appendix B. Total annual cost of materials was 2,155,700 Baht. The total labor cost for hospital in 1992 were the summation of the total income of staff. Total annual labor cost was 2,888,960 Baht. Total annual operating cost was 412,280 Baht, including electricity, telephone, mailing, fuels, gas, and water. Maintenance cost for car was 17,480 Baht. Annual total recurrent cost was 5,474,420 Baht.

In 1992, **annual** recurrent cost was higher than capital cost by 2.1 times. The total cost of the hospital was 8,069,014 Baht.

4.6 Cost to Provider in 1998

Cost to provider in 1998 by input and activity was composed of capital cost and recurrent cost as follow.

1) Capital Cost: the capital cost of this hospital was calculated from the cost of building, equipment and vehicles. Annual cost of each item for HIV/AIDS activities was presented in Appendix C. The proportion of total capital cost used for HIV/AIDS patients was a rough proportion obtained from the number of HIV visits divided by the number of total visits in each health service activity. Details of component cost were mentioned below.

(1) Building cost: the proportion of building space for health service activities was clarified by measurement space used for each health service activity. Table 4.17 presented the proportion of building space for each health service activity. The proportion of space for HIV/AIDS patient was calculated by using the proportion of HIV/AIDS visits and total visits in each health service activity. In OPD, total number of out-patient visits was 62,691 and number of HIV/AIDS out-patient visits was 2,288 and this was $(2,288/62,691)*100 = 3.6\%$ of OPD building space. The observation time of health personnel spent on HIV/AIDS and non-HIV/AIDS to treatment was the same. Thus, the time patients used the building space was no different and can used in the above proportion. In IPD, the number of in-patient days was 9,253 and the number of HIV/AIDS in-patient days was 2,594 and this was $(2,594/9,253)*100 = 28.0\%$ of IPD building space. The proportion of the building used for HIV/AIDS at MCH was a rough proportion from the number of HIV/AIDS patients divided by the total number of visits for each activity at MCH and was about 12.8% of MCH building area. The proportion of building used for HIV/AIDS at health promotion was a rough proportion obtained from interviewing health personnel and record of services associated with AIDS activity, because of having no service provided for HIV/AIDS patients directly. The proportion of the building space used for HIV/AIDS patients at health promotion was about 25%. The

Table 4.17 Annual Cost of Building Used for HIV/AIDS Patients in 1998

Building	Area (m.m.)	Annual Cost (Baht)	Proportion of space used for HIV/AIDS	Annual cost of building for HIV/AIDS (Baht)	Annual cost of building for non-HIV/AIDS (Baht)
OPD	245	393,235	3.6	14,156	379,079
IPD	500	762,921	28.0	213,618	549,303
MCH	145	550,516	12.8	70,466	480,050
Promotion	20	75,933	25.0	18,983	56,950
Day Care	72	149,500	100.0	149,500	0
Other					
Other Service	126	399,480	0	-	399,480
Auxiliary Service	494	1,110,679	4.1	45,538	1,065,141
Total	1,602	3,442,264	14.9	512,261	2,930,003

proportion of the building used for HIV/AIDS patients at day care service was 100% because it was provided directly to HIV/AIDS patients. The proportion of the building space used by HIV/AIDS for other services i.e. dental care, sanitary and operation room was not allocated to HIV/AIDS because no activity was related to HIV/AIDS patients. Other auxiliary services, the total number of patients was 66,683 and the total number of HIV/AIDS patients was 2,744 and this was $(2,744/66,683) * 100 = 4.1\%$. The proportion of other building space used for HIV/AIDS patients was 4.1%. This study found that space use was 3.6% for OPD, 28.0% for IPD, 12.8% for MCH, 25.0% for health promotion, 100.0% for day care, and 4.1% for auxiliary service. The total annual cost of buildings was 3,442,264 Baht. The total annual building cost of HIV/AIDS was 512,261 Baht (14.9%) and that for non HIV/AIDS patient was 2,930,003 Baht (85.1%). The highest annual building cost of HIV/AIDS activity used for IPD and the rest was for day care, MCH, auxiliary service, promotion and OPD. The building space used for OPD was less than other activities because the number of HIV/AIDS patients were less than non-HIV/AIDS patients. So the cost of building was rather low.

(2) Equipment cost: Table 4.18 indicated annual equipment cost for HIV/AIDS patients and non-HIV/AIDS patients in each health service activity. The proportion of equipment used for HIV/AIDS patient was the same proportion as being used in the building cost calculation. The total annual equipment cost for health service activities was over 926,027 Baht. The total annual equipment cost for HIV/AIDS patient was 68,922 Baht (7.4%) and for non-HIV/AIDS patients is 857,105 Baht (92.6%).

(3) Vehicle cost: Table 4.19 showed annual vehicle cost for HIV/AIDS patients in each health service activity. The proportion of time for each vehicle used in each health service activity was obtained from MIS records and interviewing with health personnel, 4 vehicles in use at original cost of 1,939,000 Baht. The total annual vehicle cost was 476,730 Baht. The number of time for vehicle use 1,200 time/year. The proportion of time for vehicle used per year were: OPD: 120 times per year (10%), IPD: 360 times per year (30%), MCH: 180 times per year(15%), Promotion: 180 times per year (15%), Day care: 60 times per year(5%), and other services: 300 times per year

Table 4.18 Annual Cost of Equipment Used for HIV/AIDS Patients in 1998

Cost items	Annual Cost (Baht)	Proportion of time used for HIV/AIDS	Annual cost of equipment used for HIV/AIDS (Baht)	Annual cost of equipment used for non HIV/AIDS (Baht)
1.OPD	45,482	3.6	1,637	43,845
2.IPD	61,289	28.0	17,161	44,128
3.MCH	24,803	12.8	3,175	21,628
4.Promotion	3,192	25.0	798	2,394
5.Day care	20,772	100.0	20,772	0
6.Other				
Other service	151,498	0	0	151,498
Auxiliary service	618,991	4.1	25,379	593,612
Total	926,027	7.4	68,922	857,105

Table 4.19 Annual Cost of Vehicle Used for HIV/AIDS Patients in 1998

Cost item	Annual cost (Baht)	Proportion of time used for HIV/AIDS	Annual cost of vehicle for HIV/AIDS (Baht)	Annual cost of vehicle for non HIV/AIDS (Baht)
OPD	47,673	20.0	9,535	38,138
IPD	143,019	60.0	85,811	57,208
MCH	71,510	10.0	7,151	64,359
Promotion	71,510	20.0	14,302	57,208
Day care	23,836	100.0	23,836	0
Other				
Other Service	23,836	0	0	23,836
Auxiliary Service	95,346	10.0	9,535	85,811
Total	476,730	-	150,169	326,561

(25%). The annual cost of vehicles for each health service activity was presented in Table C.3. The proportion of time for vehicle used per year for HIV/AIDS patients were OPD: 24 times per year (20%), IPD: 216 times per year (60%), MCH: 18 times per year (10%), health promotion: 36 times per year (20%), day care: 60 times per year (100%), and other services: 30 times per year (10%). Then annual vehicle cost for HIV/AIDS patients was calculated from the annual cost of vehicles multiplied by the proportion of time used for HIV/AIDS patients. The total annual vehicle cost of HIV/AIDS patients was 150,169 Baht (31.5%). Table 4.19 showed the annual vehicle cost of HIV/AIDS patients for each activity. The highest annual vehicle cost for HIV/AIDS patients of the IPD was 85,811 Baht. The total annual vehicle cost of non-HIV/AIDS patients was 326,561 Baht (68.5%).

The total capital cost for each HIV/AIDS activity was a summation of building, equipment, and vehicle cost for HIV/AIDS activities. Tables 4.20 showed total annual cost of capital used for HIV/AIDS patients. The total capital cost was 4,845,021 Baht. The total annual capital cost for HIV/AIDS patients was 731,353 Baht (15.1%): Cost for non-HIV/AIDS patient was 4,113,668 (84.9%) of total capital cost. The highest capital cost for HIV/AIDS was the cost of IPD, followed by day care, MCH, auxiliary service, health promotion and OPD.

2) Recurrent cost

(1) Labor cost was calculated from the proportion of health personnel's work time associated with HIV/AIDS patients in each health service activity multiplied by their total income in the fiscal year 1998. The average work time was 87.5% of total time, and the average leisure time was 12.5% of total time (see Figure 4.11). The details of work time for each health service activity shown in Appendix D.1. The work time for HIV/AIDS patients was 16.3% of total work time as seen from Figure 4.12.

The average time spent for HIV/AIDS and non-HIV/AIDS patients at OPD were not different from the time logging by random sampling of the work time of 7 nurses and 2 doctors for 2 weeks. The average work time of nurses and doctors spent for HIV/AIDS patients was 2.8%, 6.0% of the total time working. The average time of a doctor was

Table 4.20 Annual Total Cost of Capital Used for HIV/AIDS and Non-HIV Patients in 1998

Cost item	Annual total cost of building (Baht)		Annual total cost of equipment (Baht)		Annual total cost of vehicles (Baht)		Annual total capital cost (Baht)	
	HIV	non-HIV	HIV	non-HIV	HIV	non-HIV	HIV	non-HIV
1.OPD	14,156	379,079	1,637	43,845	9,535	38,138	25,328	461,062
2.IPD	213,618	549,303	17,161	44,128	85,811	57,208	316,590	650,639
3.MCH	70,466	480,050	3,175	21,628	7,151	64,359	80,792	566,037
4.Pomotion	18,983	56,950	798	2,394	14,302	57,208	34,083	116,552
5.Day Care	149,500	0	20,772	0	23,836	0	194,108	0
6.Other								
Other service	0	399,480	0	151,498	0	23,836	0	574,814
Auxiliary service	45,538	1,065,141	25,379	593,612	9,535	85,811	80,452	1,744,564
Total	512,261	2,930,003	68,922	857,105	150,170	326,560	731,353	4,113,668
Percent	14.9	85.1	7.4	92.6	31.5	68.5	15.1	84.9

Figure 4.11 Average Work Time and Leisure Time of Health Personnel

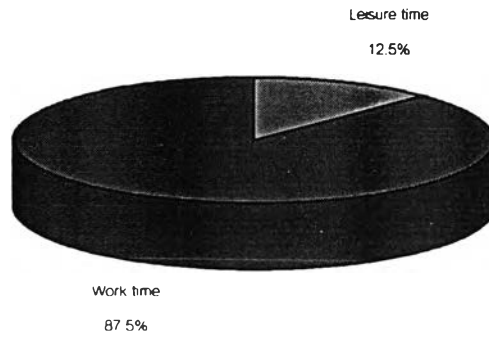
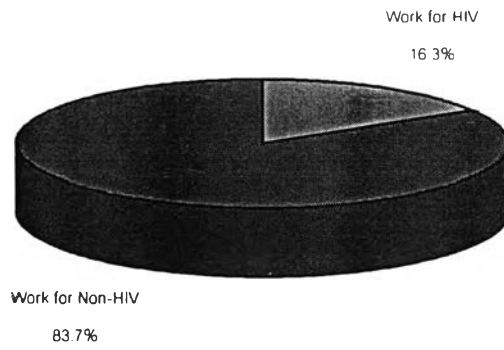


Figure 4.12 Average Work Time of Personnel for HIV and Non-HIV



more than a nurse because the number of doctors were less than the nurses. They had more opportunity to contact HIV/AIDS patients than nurses. The proportion of time spent on HIV/AIDS patients was less because there were more general patients than HIV/AIDS patients.

For IPD, the time of nurses and doctors was obtained from time logging observations. Observation the average work time of nurse was more than in other health service activities by 30 minutes daily a day, because there were many patients to take care. The average work time of nurses at IPD was 91.5%, and average personnel time was 8.5% of total time. The average work time of nurses spent for HIV/AIDS patients was 35.5%. The work time of 2 doctors was different because they treated patients different times and have other jobs to do. The average work time of 2 doctors spent on HIV/AIDS patients was 37.8% and 49.0%. The proportion of work time of other personnel at IPD was obtained by the proportion of total patient days divided by the total HIV/AIDS days, 28.0%. According to observation, health personnel spent the same period of time with HIV/AIDS and general patients.

At MCH and the labor room, the proportion of time spent on patients was different according to interviewing health personnel and time spent was more than non-HIV/AIDS patients. Because they provided more health education to HIV/AIDS patients than general patients.

The average proportion of time for promotion spent for HIV/AIDS patients was 21.5% of total time obtained from interviewing with health personnel and record activities associated with HIV.

For day care, the work time of personnel spent on HIV/AIDS patients was different depending on each member of health personnel because they did other activities.

For dental and sanitary, no time was spent on HIV/AIDS patients because there were no activities related to AIDS. The proportion of time spent for HIV/AIDS patients at MIS, registration and supply was a rough proportion by the number of HIV/AIDS visits

divided by total number of visits. The average proportion of time spent on HIV/AIDS patients was 4.1%.

The proportion of time spent for pharmacy, laboratory, X-ray and laundry was based on the patient day because these activities were responsible for auxiliary services to patient services.

There were more details of work time for each health service activity, as indicated in Table 4.21. The total annual labor cost was 9,546,151 Baht. The annual labor cost used for HIV/AIDS patients was 1,552,661 Baht (16.3%) and for non-HIV/AIDS patient was 7,993,490 Baht (83.7%). The highest labor cost for HIV/AIDS patients was 757,025 Baht for IPD, followed by day care, MCH, auxiliary service, OPD. The smallest labor cost was health promotion.

(2) Material cost included medicine, medical supplies, and office supplies. The volume and types of medicine used for HIV/AIDS and Non-HIV/AIDS were usually the same according to symptoms and diagnosis, which it was not different by records of medicine usage and observations. The cost of medicine, medical supply, X-ray, and laboratory were the real usage obtained from pharmacy and MIS record. The cost of medicine in 1998 was 3,672,326 Baht, including medical cost for OPD, IPD, and day care excluding the cost of MCH. The total cost of medical supplies was 814,083 Baht, including medical supply cost for OPD, IPD, day care, and other services. The cost of medicine and medical supplies for HIV/AIDS patients at MCH, health promotion, and day care were the real usage from records and discussion with health personnel. Most of medical supplies for health promotion were 118,250 Baht, which were the cost of condom distribution for AIDS activities.

The cost of X-ray was 80,645 Baht for all OPD, IPD and MCH. The proportion of X-ray cost obtained from X-ray for out-patients and in-patients over the total cost of X-ray from observation and then used this proportion for an estimate the X-ray cost of OPD and IPD patient for one year. The cost of X-ray for MCH was 3,000 Baht. X-ray cost for MCH was the real usage for HIV and non-HIV patients.

Table 4.21 Annual Total Labor Cost for HIV/AIDS Patients in 1998

Cost Item	Annual salary (Baht)	Other fringe benefit (Baht)	Total annual income (Baht)	% of time spent for HIV/AIDS	Total labor cost for HIV/AIDS (Baht)	Total labor cost for non HIV/AIDS (Baht)
1.OPD	1,394,424	566,149	1,960,573	3.5	68,288	1,892,285
2.IPD	1,670,978	517,719	2,188,697	34.6	757,025	1,431,672
3.MCH	973,766	204,884	1,178,650	13.6	160,769	1,017,881
4.Promotion	144,720	19,418	164,138	21.5	35,350	128,788
5.Day Care	467,052	61,344	528,396	74.4	393,335	135,061
6.Other						
Other service	747,280	98,210	845,490	0	0	845,490
Auxiliary service	2,199,610	480,597	2,680,207	5.1	137,894	2,542,313
Total	7,597,830	1,948,321	9,546,151	16.3	1,552,661	7,993,490

Table 4.22 Annual Total Cost of Material Used for HIV/AIDS Patients in 1998

Cost Item	Cost of material (Baht)	Cost of donated material (Baht)	Total cost of material (Baht)	% of total volume for HIV/AIDS	Total cost of material for HIV/AIDS (Baht)	Total cost of material for non-HIV/AIDS (Baht)
1.OPD	3,486,547	-	3,486,547	4.1	144,039	3,342,508
2.IPD	1,261,418	-	1,261,418	30.4	383,978	877,440
3.MCH	220,071	995,845	1,215,916	32.9	400,195	815,722
4.Promotion	26,806	118,250	145,056	86.1	124,952	20,104
5.Day Care	33,570	33,360	66,930	100.0	66,930	0
6.Other						
Other service	112,487	-	112,487	0	0	112,487
Auxiliary service	134,597	-	134,597	4.1	5,518	129,079
Total	5,275,496	1,147,455	6,422,951	17.6	1,125,612	5,297,340

The cost of laboratory was 407,205 Baht for all OPD, IPD and MCH. The proportion of laboratory cost obtained from laboratory of all OPD and IPD patients over the total cost of laboratory from observation and then used this proportion to estimate the laboratory cost of OPD and IPD patients for one year. The cost of laboratory for MCH was 118,060 Baht. Laboratory test for MCH was the real usage for HIV/AIDS and non-HIVAIDS obtained from records and interviews with health personnel.

The cost of office materials was 301,237 Baht and calculated from the total cost of office materials multiplied by the proportion being used for HIV/AIDS. The proportion of office supplies for HIV/AIDS patients was also a rough proportion as used to calculate the cost of buildings and equipment.

Material cost specified each health service activity showed in Table 4.22. The total cost of materials was 6,422,951 Baht. The annual cost of materials used for HIV/AIDS patient was 1,125,612 Baht (17.6%) and for non-HIV/AIDS patient was 5,297,340 Baht (82.4%).

(3) Operating cost: the cost of operating was obtained from MIS records at Chun Hospital. The proportion of operating cost for HIV/AIDS patients was calculated on a basis of number of HIV/AIDS visits divided by total number of visits in each health service activity, it was the rough proportion of building space used for HIV/AIDS. The total cost of operation was multiplied by the total proportion usage of HIV/AIDS patients. As seen from Table 4.23, the annual total cost of operating was 643,800 Baht. The annual cost for HIV/AIDS patients was 98,121 Baht (15.2%) and for Non-HIV/AIDS patients was 545,679 Baht (84.8%).

(4) Maintenance cost of this hospital was 10,800 Baht for the vehicles. In 1998, maintenance cost was used for vehicles only. Maintenance cost was calculated from the total cost of maintenance multiplied by the proportion used for HIV/AIDS patients. The proportion of maintenance cost was also rough proportion. Table 4.24 showed that annual cost of maintenance for HIV/AIDS patients were 3,402 Baht (31.5%) and non-HIV/AIDS were 7,398 Baht (68.5%).

Table 4.23 Total Operating Cost Used for HIV/AIDS Patients in 1998

Cost Items	Total cost of operating (Baht)	% used for HIV/AIDS (Baht)	Total cost of operating used for HIV/AIDS (Baht)	Total cost of operating used for non HIV/AIDS (Baht)
1.OPD	120,203	3.6	4,327	115,876
2.IPD	182,120	28.0	50,994	131,126
3.MCH	44,714	12.8	5,723	38,991
4.Promotion	24,143	25.0	6,036	18,107
5.Day Care	23,242	100.0	23,242	0
6.Other				
Other service	59,154	0.0	0	59,154
Auxiliary service	190,224	4.1	7,799	182,425
Total	643,800	15.2	98,121	545,679

Table 4.24 Total Maintenance Cost Used for HIV/AIDS Patients in 1998

Cost Item	Annual cost of maintenance (Baht)	% used for HIV/AIDS	Total cost of maintenance used for HIV/AIDS (Baht)	Total cost of maintenance used for non HIV/AIDS (Baht)
1.OPD	1,080	20.0	216	864
2.IPD	3,240	60.0	1,944	1,296
3.MCH	1,620	10.0	162	1,458
4.Promotion	1,620	20.0	324	1,296
5.Day Care	540	100.0	540	0
6.Other				
Other service	540	0.0	0	540
Auxillary service	2,160	10.0	216	1,944
Total	10,800	31.5	3,402	7,398

Total recurrent cost for each HIV/AIDS activity was the summation of labor, material, operating and maintenance cost. The highest recurrent cost for HIV/AIDS was the cost of IPD, followed by MCH, Day care, OPD, health promotion, and auxiliary services, as seen in Table 4.25. The total recurrent cost was 16,623,703 Baht. The proportion of recurrent cost used for HIV/AIDS patients was 2,779,976 Baht (16.7%), and for non-HIV/AIDS patients was 13,843,907 Baht (83.3%).

Table 4.26 showed that the total cost of the hospital for HIV/AIDS patients was classified by input and activity. The total cost of the hospital was 21,468,724 Baht, which was classified by inputs. Cost for HIV/AIDS patients was 3,511,149 Baht (16.4%) and cost of non-HIV/AIDS patients was 17,957,575 Baht (83.6%). Hospital cost by activities were 28.2% for OPD, 22.5% for auxiliary service, 21.4% for IPD, 14.4% for MCH, 7.4% for other service, 3.8% for day care, and 2.3% for health promotion. The highest cost of activity was the cost of OPD, and the least cost was health promotion.

4.7 Cost Burden of HIV/AIDS Patients

Figure 4.13 showed that the total annual cost of providing care incurred by the hospital within the year 1998 was 21,468,724 Baht, (US\$ 596,353 in 1998). The total cost per capita of the district was 447 Baht (US\$ 12). The total capital cost was 4,845,021 Baht, 15.1% of total capital cost was for HIV/AIDS patients. The total recurrent cost was 16,623,703 Baht, and 16.7% of total recurrent cost was for HIV/AIDS patients. The recurrent cost of the hospital was higher than capital cost by 3.4 times when AIDS came to community. The proportion of hospital cost for HIV/AIDS patients was 16.4% of total cost.

4.8 Incremental Cost of the Hospital

The total cost of the hospital in 1992 and 1998 was 8,069,014 and 21,468,724 Baht retrospectively. Figure 4.14 presented a comparison of the total cost in 1992 and 1998, using the 1992 constant cost. The cost of the hospital in 1998 was 15,471,590 Baht. The incremental total cost of the hospital during 1992 to 1998 was 7,402,576 Baht or 47.8%, which accounted for HIV/AIDS patients 2,532,628 Baht or 16.4% and for non-

Table 4.25 Annual Total Cost of Recurrent Used for HIV/AIDS and Non-HIV/AIDS Patients in 1998

Cost item	Material cost (Baht)		Operating cost (Baht)		Maintenance cost (Baht)		Labor cost (Baht)		Annual recurrent cost (Baht)	
	HIV	non-HIV	HIV	non-HIV	HIV	non-HIV	HIV	non-HIV	HIV	non-HIV
1.OPD	144,039	3,342,508	4,327	115,876	216	864	68,288	1,892,285	216,870	5,351,533
2.IPD	383,978	877,440	50,994	131,126	1,944	1,296	757,025	1,431,672	1,193,941	2,441,534
3.MCH	400,195	815,722	5,723	38,991	162	1,458	160,769	1,017,881	566,849	1,874,052
4.Promotion	124,952	20,104	6,036	18,107	324	1,296	35,350	128,788	166,662	168,295
5.Day Care	66,930	0	23,242	0	540	0	393,335	135,061	484,047	135,061
6.Other										
Other service	0	112,487	0	59,154	0	540	0	845,490	0	1,017,671
Auxiliary service	5,518	129,079	7,799	182,425	216	1,944	137,894	2,542,313	151,427	2,855,761
Total	1,125,612	5,297,340	98,121	545,679	3,402	7,398	1,552,661	7,993,490	2,779,798	13,843,907
Percent	17.5	82.4	15.2	84.8	31.5	68.5	16.3	83.7	16.7	83.3

Table 4.26 Annual Total Cost of Chun Hospital in 1998

Cost item	Annual total capital cost		Total cost (Baht)	Annual total recurrent cost		Total cost (Baht)	Total cost of hospital		Grand total	
	(Baht)			(Baht)			(Baht)		(Baht)	(%)
	HIV	non-HIV	HIV	non-HIV	HIV	non-HIV				
1. OPD	25,328	461,062	486,390	216,870	5,351,533	5,568,403	242,198	5,812,595	6,054,793	28.2
2. IPD	316,590	650,639	967,229	1,193,941	2,441,534	3,635,475	1,510,531	3,092,173	4,602,704	21.4
3. MCH	80,792	566,037	646,829	566,849	1,874,052	2,440,901	647,641	2,440,089	3,087,730	14.4
4. Promotion	34,083	116,552	150,635	166,662	168,295	334,957	200,745	284,847	485,592	2.3
5. Day care	194,108	0	194,108	484,047	135,061	619,108	678,155	135,061	813,216	3.8
6. Other										
Other service	0	574,814	574,814	0	1,017,671	1,017,671	0	1,592,485	1,592,485	7.4
Auxiliary service	80,452	1,744,564	1,825,016	151,427	2,855,761	3,007,188	231,879	4,600,325	4,832,204	22.5
Total	731,353	4,113,668	4,845,021	2,779,796	13,843,907	16,623,703	3,511,149	17,957,575	21,468,724	100.0
Percent	15.1	84.9	100	16.7	83.3	100	16.4	83.6	100	100.0

Figure 4.13 Total Cost of Hospital: Capital Cost and Recurrent Cost in 1998

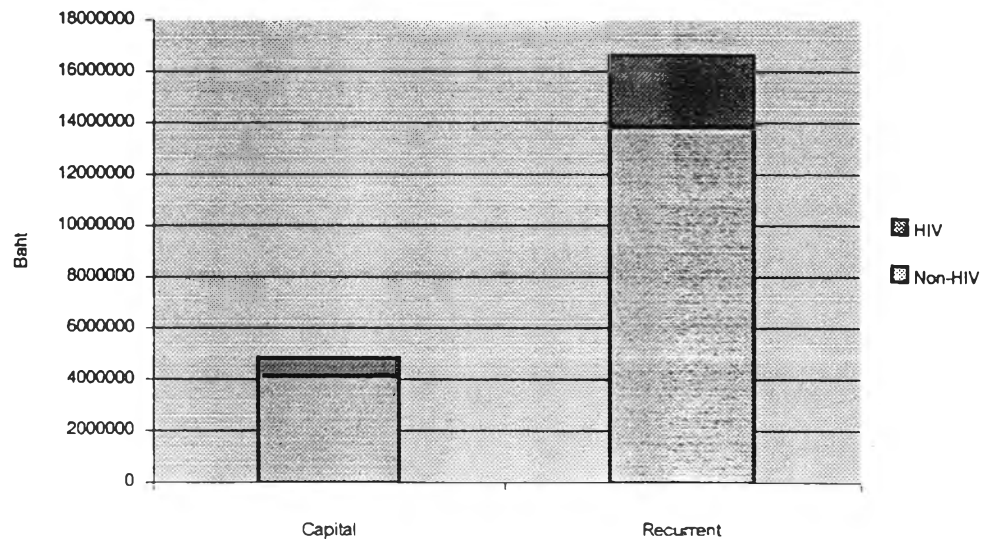
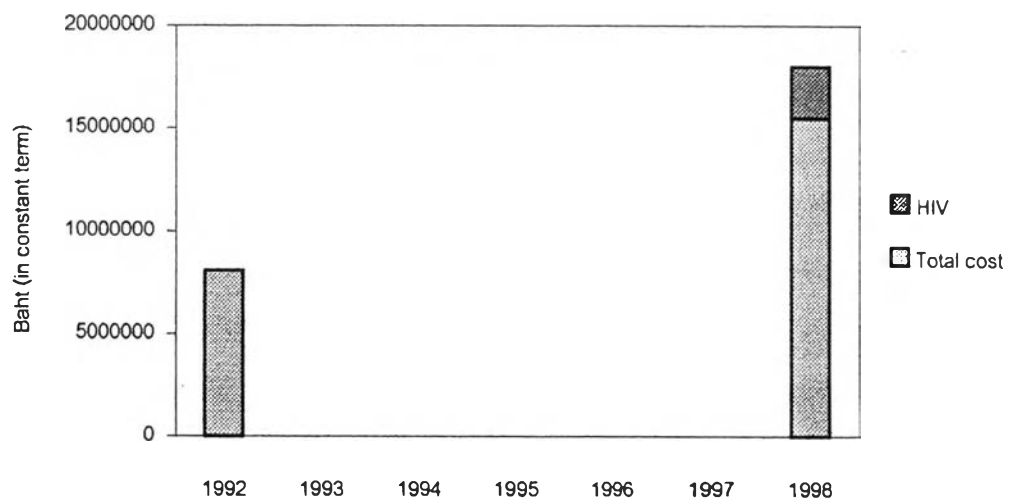


Figure 4.14 Incremental Total Cost of Hospital (Adjusted for C.P.I.): 1992 - 1998



HIV/AIDS patients 4,869,948 Baht or 31.4%. Due to the spread of HIV/AIDS to community, the hospital cost had increased because some additional activities had to be provided for HIV/AIDS patients e.g., day care, health promotion, counseling, home health care, and AZT treatment for pregnant women and children with HIV/AIDS. From surveying data of opportunistic infection medical cost inflation (1998 compare to 1997) at Phayao Provincial Hospital showed a wider range of 11% to 50% cost increase, average 31% was one of the reason that increased the total cost. This study found that the longest share of increasing was linked to other reason than HIV. The reason of total cost increasing was from the rising number of material and personnel, but the work and number of patients did not increase.

4.9 Additional of Financing Mobilized

The incremental cost due to HIV/AIDS patients was 2,532,628 Baht. The incremental funding provided to support HIV/AIDS patients was 436,950 Baht. The incremental cost due to HIV/AIDS patients is more than incremental funding 5.8 times. It meant that expenses was over financial support.

4.10 Unit Cost

This study used allocation method to determine the cost per unit for each health service activity. The total cost of auxiliary services were allocated to service departments based on the number of patient visits to each health service activity. Then, auxiliary cost were allocated to HIV/AIDS patients for OPD, IPD, MCH, health promotion, day care and other services, based on the number of HIV/AIDS patients (see Appendix E). The result of unit cost was obtained from a cost analysis of Chun Hospital in 1998 and being summarized as following:

1) Total cost of treatment for HIV/AIDS patients in Chun Hospital were:

Total (OPD+IPD)	=	14,281,650	Baht
OPD	=	9,060,424	Baht
IPD	=	5,221,226	Baht

Unit cost of treatment for HIV/AIDS and non-HIV/AIDS patients in Chun Hospital were:

Per patient:	HIV/AIDS	non-HIV/AIDS
Total (OP+IP)	3,845 Baht	1,144 Baht
Out-patient	153 Baht	144 Baht
In-patient	3,692 Baht	1,000 Baht
Per day:		
Total (OP+IP)	802 Baht	675 Baht
Out-patient	153 Baht	144 Baht
In-patient	649 Baht	531 Baht

Table 4.27 showed that total cost of HIV/AIDS in-patients was higher than HIV/AIDS out-patients by 4.8 times. The unit cost of treatment for HIV/AIDS patients were higher than non-HIV/AIDS patients. Total unit cost per patients for HIV/AIDS was higher than non-HIV/AIDS by 3.4 times. Total unit cost per day for HIV/AIDS was higher than non-HIV/AIDS by 1.2 times. A high cost for HIV/AIDS patients was due to the large proportion of the following cost such as laboratory, medicine, medical supplies, and laboratory (see Table 4.28). These cost were higher than non-HIV/AIDS patients as mention below 4.5, 2.5, 6.7, 1.8 times, respectively.

Figure 4.15 indicated the total cost of out-patients was higher than in-patients by 1.7 times, but the total cost for HIV/AIDS in-patients was more higher than those of HIV/AIDS out-patients by 4.8 times. The cost of HIV/AIDS in-patients was 32.2% of the total cost of in-patients. 3.9% of HIV/AIDS out-patients was out of the total out-patients. The main reason for a high in-patients cost for HIV/AIDS patients was because there was a large proportion of recurrent cost for HIV/AIDS in-patients, specifically labor and medical cost. Care provided for HIV/AIDS out-patients was the same as for general patients but HIV/AIDS in-patients consume more medicine than general patients. Most of them had antibiotics to control opportunity infection diseases. All medical cost for OPD and IPD came from Ministry of Public Health.

Table 4.27 Unit Cost of Care for HIV/AIDS and Non-HIV/AIDS Patients at Chun Hospital, 1998

Items	Number of patients		Number of patient days		Total cost (Baht)		Unit cost (Baht)			
	HIV	non-HIV	HIV	non-HIV	HIV	non-HIV	Per patient		Per day	
							HIV	non-HIV	HIV	non-HIV
OPD	2,288	60,403	2,288	60,403	350,401	8,710,023	153	144	153	144
IPD	456	3,536	2,594	6,659	1,683,717	3,537,509	3,692	1,000	649	531
Total	2,744	63,939	4,882	67,062	2,034,118	12,247,532	2,845	1,144	802	675

Table 4.28 Unit Cost of Treatment for HIV/AIDS and Non-HIV/AIDS Patients at Chun Hospital, 1998

Items	Labor cost (Baht)		Medicine Cost (Baht)		Medical supply cost (Baht)		X-ray cost (Baht)		Lab cost (Baht)	
	Total	Unit/Patient	Total	Unit/Patient	Total	Unit/Patient	Total	Unit/Patient	Total	Unit/Patient
HIV	1,552,661	566	359,072	131	128,621	47	2,335	1	18,999	7
Non-HIV	7,993,490	125	3,313,254	52	475,462	7	75,310	1	270,146	4
Total	9,546,151	691	3,672,326	183	604,083	54	77,645	2	289,145	11

Figure 4.15 Comparison of Out-patients and In-patients Cost for HIV/AIDS and Non-HIV/AIDS Patients in 1998

