

## CHAPTER V



## RESULTS

### 5.1 Design Overview

In Nakhonratchasima Province, of the total 25 Hospitals, 24 were Community Hospitals (CHs), 18 had no internist and pediatrician, 15 had 20 or more registered epileptics. Of the 15 CHs, the Hospital Director in 13 CHs agreed to participate by phone and after the educational program. The 13 participating CHs were, then, stratified by the number of epileptics, registered by the CHs, into three groups; six CHs with  $\leq 50$ ; four CHs with 50-99; and three with  $\geq 100$ . In each stratum, the hospitals were randomly sequenced and, then, randomly allocated into Conventional Care (CC) and Shared Care (SC) with the same number of CHs. in each stratum.

### 5.2 Study Setting

#### 5.2.1 Organization of the Community Hospitals and District Health Offices

Of the total 25 hospitals in Nakhonratchasima Province, 24 were CHs, 18 had no internist and pediatrician, 15 had 20 or more registered epileptics. In these 15 CHs, the Hospital Directors and the Head of the District Health Offices were invited by phone to participate. All but two Hospital Directors agreed to participate. One Hospital Director refused participation because he had just been promoted to be a director with a lot of work and the other was on training leave. For the 13 CHs, which

agreed by phone, the education program for this study was provided to the Hospital Directors and all physicians at their hospitals. After the educational program, all Hospital Directors and physicians again agreed to participate. .

After the second acceptance, the 13 CHs were stratified according to the number of registered epileptics into three groups,  $\leq 50$ - 6 CHs; 50-99- 4 CHs;  $\geq 100$ - 3 CHs. Then, the CHs in each stratum were randomly sequenced and allocated into CC and SC groups. The stratum of  $\geq 100$  registered epileptics had three hospitals, the third hospital was not selected because there were enough hospitals (Table 5.1)

**Table 5.1: Random sequence of hospitals in each stratum and random allocation within stratum to Conventional Care (CC) and Shared Care (SC) groups**

Hospital	Number Of Beds	Number of epileptics registered	Sequence Within Stratum	SC or CC By randomization
<b>1: <math>\geq 100</math> Registered Epileptics</b>				
A	60	122	2	SC
I	60	136	3	-
P	60	111	1	CC
<b>2: 51-99 Registered Epileptics</b>				
O	30	80	4	CC
S	90	63	1	SC
E	60	60	2	CC
L	60	51	3	SC
<b>3: 50 or less Registered Epileptics</b>				
M	60	48	4	SC
D	30	48	2	SC
F	30	48	1	CC
J	30	40	3	CC
W	30	30	5	CC
C	30	20	6	SC

### 5.2.2 Structure of the Study Unit

After random allocation of the 12 CHs, all of the registered epileptics were asked to sign an informed consent form. The total patients consenting to the study was 75.1% in CC (208 out of 277; 70.8% of 154 males and 80.5% of 123 females) and 75.7 in SC (253 out of 334; 76.1% of 184 males and 75.3% of 150 females), respectively. There was no significant difference between the percentage of patients consenting in CC and in SC by gender ( $p$ -value > 0.05). Reasons for non-consent were the following: inability to follow the scheduled appointment date because of temporary migration, physical or mental disability and no seizures. After patient consent was obtained, 29 (13.9 %) in CC and 31 (12.3 %) in SC were ineligible because of the following: in CC, 27.6% alcoholism; 13.8% pregnancy; 58.6% severe disability. In SC, 32.3% were alcoholic; 6.5% were pregnant; 58.1 had a severe disability and 3.2% had an associated progressive neurological condition (Arteriovenous Malformation).

The eligible epileptics recruited for this study were 179 in CC (94 male and 85 female) and 222 in SC (118 male and 104 female). Baseline characteristics between two groups by gender were shown in Table 5.2. In personal characteristics, there was no significant difference between two groups by gender. However, the males (37.4 years) and females (36.0 years) in CC was a little older than in SC (34.6 and 34.7 years). The percent married was the same in males in the CC and SC, in female, a little higher proportion were married in SC (48.1%) than in CC (40.0%). In CC, both male and female had a little higher proportion of epileptics with education lower than that required in compulsory program (57.4% and 67.1%) and with unemployment

(35.1% and 36.5%) than in SC (54.2% and 63.5%; and 27.1% and 27.9%). For mental retardation, males in SC (5.1%) had double proportion as many as in CC (2.1%) but the reverse was true in the females (8.6% in SC and 16.5% in CC); none of these differences were statistically significant.

**Table 5.2: Baseline characteristics of epileptics between CC and SC**

Characteristics	Male			Female		
	CC (94)	SC (118)	p-value	CC (85)	SC (104)	p-value
<b>Personal</b>						
- Age: Mean (year) (SD)	37.4 (15.7)	34.6 (14.0)	NS	36.0 (19.6)	34.7 (14.2)	NS
- Marital status: Married (%) (n)	43.6 (41)	43.2 (51)	NS	40.0 (34)	48.1 (50)	NS
- Education: < Compulsory program (%) (n)	57.4 (54)	54.2 (64)	NS	67.1 (57)	63.5 (66)	NS
- Employment: No (%) (n)	35.1 (33)	27.1 (32)	NS	36.5 (31)	27.9 (29)	NS
- Mental retardation (%) (n)	2.1 (2)	5.1 (6)	NS	16.5 (14)	8.6 (9)	NS
<b>Seizure severity</b>						
- Type of seizure: Generalized (%) (n)	56.4 (53)	44.0 (52)	NS	62.3 (53)	52.9 (55)	NS
- AED: Monotherapy (%) (n)	75.6 (71)	52.5 (62)	< 0.01	75.3 (64)	49.0 (51)	< 0.001
- Duration of treatment: Mean (year) (SD)	12.4 (8.8)	11.9 (8.3)	NS	13.8 (8.9)	12.9 (8.2)	NS
- Mean seizure frequency three months before study (SD)	0.9 (2.9)	1.4 (6.1)	NS	4.7 (20.7)	2.1 (8.7)	NS
- Median, Mode	0, 0	0, 0		0, 0	0, 0	
- Range	0-24	0-62		0-180	0-60	
- Mean seizure frequency 12 months before study (SD)	6.5 (31.0)	4.1 (9.7)	NS	17.2 (84.8)	10.9 (52.3)	NS
- Median, Mode	0, 0	0, 0		1, 0	1, 0	
- Range	0-288	0-66		0-750	0-480	
Previous follow-up: Regular (%) (n)	33.0 (31)	40.7 (48)	NS	31.8 (27)	40.4 (42)	NS
Chronic medical diseases: Yes (%) (n)	7.4 (7)	2.5 (3)	NS	7.1 (60)	5.8 (6)	NS
Concomitant treatment: Yes (%) (n)	25.5 (24)	11.0 (13)	< 0.01	30.6 (26)	10.6 (11)	< 0.01

For seizure severity characteristics, there was no significant difference in type of seizure, duration of epilepsy treatment, seizure frequency for three and for twelve months before study between two groups by gender.

However, generalized type of seizure had a little higher proportion in CC both in males and females (56.4% and 62.3%) than in SC (44.0% and 52.9%). Duration of treatment of epileptics in CC (12.4 years for male and 13.8 years for female) was the same as in SC both gender (11.9 years for male and 12.9 years for female). Epileptics in SC, especially for male in three months period before study had a mean seizure frequency (1.4) more than in CC (0.9) The females, both for the three months and 12 months period in CC, had more seizures than in SC (4.7 vs 2.1 for three months period and 17.2 vs 10.9 for 12 months period). The males during the 12 months period before the study had, more seizures than those in CC (6.5 vs 4.1).

In addition, regular follow-up was not significantly different in proportion between CC (7.4% and 33.0% for male; 7.1% and 31.8% for female) and SC both genders (2.5% and 40.7% for male; 5.8% and 40.4% for female).

Monotherapy of AED was significantly higher in both males and females in CC (75.6% and 75.3%) than in SC (52.5% and 49.0%),  $p < 0.01$  and  $< 0.001$ .

For some characteristics the epileptics could not remember and give detail, type of seizure, duration of treatment and exact seizure frequency, for example. So, there were some but minimal percent which could not be included in the analysis: For

the males, these included the following: 6.4% and 10.2% in CC and SC for type of seizure; 1.1% and 1.7% in CC and SC for duration of treatment; 3.2% and 2.5% in CC and SC for seizure frequency three months before study; and 5.3% and 5.9% in CC and SC for seizure frequency 12 months before study. In the female these included: 2.4% and 6.7% in CC and SC for seizure type; 1.2% and 1.0% in CC and SC for duration of treatment; 1.2% and 5.8% in CC and SC for seizure frequency three months before study; and 2.4% and 5.8% in CC and SC for seizure frequency 12 months before study. There were four males, four females CC and two males, two females SC with treatment duration less than 12 months or missing OPD card, so the previous follow-up characteristic of these patients could not be evaluated.

The chronic medical diseases were the following: hypertension (five males, two females in CC; four females in SC); arthritis (one male and one female in SC); chronic obstructive pulmonary disease (one male in CC, one male in SC); diabetes (one male in SC); ischemic heart disease (one male in CC); thyroid disease (three females in CC); pulmonary tuberculosis (one female in CC, one female in SC). There was no significant difference in proportion of epileptics with other chronic medical diseases between CC and SC. However, the proportion of epileptics with concomitant treatments in CC, both genders (25.5% and 30.6%) was significantly higher than in SC (11.0% and 10.6%).

### **5.2.3 During the Study**

With CC, at the initial study, there were 22 general practitioners (GPs) in CC participating in this study. During the study, 14 GPs at the CC moved out of the CHs.



Of the 14 GPs who moved out, one moved to another CH, three moved to the hospitals in SC, two quit and eight took a study leave. Eighteen new (replacing) GPs replaced the spaces in CC.

With SC, at the initial study, 23 GPs participated this study. During the study, 7 GPs moved out of the present hospitals. Of the 7 GPs who moved out, one quit, four moved out to other CHs and two took a study leave. The new 11GPs replaced the positions. Reasons for GPs' relocation were dependent upon individuals not involve with this study.

For all new (replacing) GPs, the PI provided with the educational program and for only the new GPs in SC, the PI educated them on how to manage epilepsy.

#### **5.2.4 Annual Review**

Of the total of 401 epileptics, 385 (96.0%) completed the study (172/179-96.1% in CC; 213/222-95.9% in SC). The reason that males did not complete the study were as follows: in CC, two died (one of heart failure and the other from suicide); one, withdrew due to 30 Baht Scheme and two, were seizure free; in SC, one withdrew due to inability to follow the appointment schedule and two were seizure free. The reasons among the females were as follows: in CC, one withdrawal due to pregnancy and one was seizure free; in SC, one suicide; one withdrawal due to pregnancy and one due to the 30 Baht Scheme and three were seizure free.

At annual review, of the total 401 epileptics, 362 came for annual review (163/179-91.1% in CC; 199/222-89.6% in SC). There was no difference in percentage of epileptics with annual review between CC and SC. Among those who did not have an annual review, the reasons for failing to have the annual review were as follows: in CC, 18.2% of male and 60% of female compared to 28.6% of males and 22.2% of females in SC came before the date of the annual review because they were not free on the scheduled date. Some patients had to be followed at the hospitals responsible for the 30 Baht Scheme; in CC, 9.1% of the males; in SC, 7.1% of the males and 11.1% of the females. Among male SC 7.1 % were seizure free. As noted earlier, there were 3 deaths during the study. Some were absent for annual review because of temporary migration (36.4% male and 20.0% female in CC and 35.7% male and 33.3 % female in SC). One in female CC (20.0%) had permanently migrated. Lost to follow-up and unknown reason for absence were found to be 9.1% and 9.1% in male CC comparing to 7.1% and 14.3% in male SC. In addition, 22.2 % female SC had unknown reason for absence (Table 5.3).

For the absentees, to have the data especially on seizure activity as complete as possible, seven in CC (four males, three females) and 11 in SC (seven males, four females) had follow-up by mail.

**Table 5.3: Reason for failing to attend the annual review**

Reasons	CC						SC					
	Male (11)		Female (5)		Total (16)		Male (14)		Female (9)		Total (23)	
	n	%	N	%	n	%	n	%	N	%	n	%
Seizure free	0	0	0	0	0	0	1	7.1	0	0	1	4.3
30 Baht scheme	1	9.1	0	0	1	6.3	1	7.1	1	11.1	2	8.7
Busy, came before	2	18.2	3	60	5	31.3	4	28.6	2	22.2	6	26.1
Death	2	18.2	0	0	2	12.5	0	0	1	11.1	1	4.3
Temporary migration	4	36.4	1	20.0	5	31.3	5	35.7	3	33.3	8	34.7
Lost to follow-up	1	9.1	0	0	1	6.3	1	7.1	0	0	1	4.3
Permanent migration	0	0	1	20	1	6.3	0	0	0	0	0	0
Unknown	1	9.1	0	0	1	6.3	2	14.3	2	22.2	4	17.4
Total	11	100	5	100	16	100	14	100	9	100	23	100

## **5.3 Research Questions**

### **5.3.1 Primary Research Question**

The Primary Research Question was “When comparing SC with CC in epileptics in Nakhonratchasima Province, does SC result in 50% relative gain in regular follow-up as a percentage over CC, considering the effects on both and within gender?”

At the end of the study, there was one female epileptic in CC and one male in SC with both OPD card and patient file missing. Excluding these, the proportion of male epileptics who had regular follow-up was 37.2% (35 out of 94) in CC and 57.3% (67 out of 117) in SC. In the females, the percentage of epileptics with regular follow-up in CC was 46.4% (39 out of 84) and in SC 60.6% (63 out of 104). There was a higher percentage of epileptics with regular follow-up in SC than in CC, both genders. The relative percentage gain in regular follow-up in male and female SC compared to those in the male and female CC was 54% and 30.6%. Thus, only male epileptics met the primary research question.

### **5.3.2 Secondary Research Questions**

#### **5.3.2.1 Over One-Year Period**

1. The secondary question was “when comparing SC with CC in epileptics (within the same gender group) in Nakhonratchasima Province, does SC result in higher frequency of regular follow-up?”

After one-year study, the percentage of epileptics with regular follow-up in SC was 57.3% and 60.6% in males and females, respectively, compared to 37.2% and 46.4% for male and female CC. For the Intention To Treat Analysis, the percentage of epileptics with regular follow-up was significantly higher in male SC than in male CC ( $p$ -value  $< 0.01$ ) except in female ( $p$ -value  $> 0.05$ ).

2. “When comparing SC with CC in epileptics (within the same gender group) in Nakhonratchasima Province, does SC result in better rate of regular follow-up (survival analysis)?”

The life tables by gender of epileptics with regular follow-up were shown in Table 5.4. In male and female, the censor was five epileptics in CC compared to three in SC and two in CC compared to six in SC, respectively. The censor was withdrawal, death and seizure free. In male, median time of regular follow-up was 8.4 months in CC compared to 12 months in SC and 10.9 months in female CC compared to 12 months in female SC. Median time of regular follow-up was longer in SC than in CC, for both genders. The Kaplan Meier curve of regular follow-up by gender was shown in Figure 5.1 and 5.2. The rate of epileptics with regular follow-up was significantly better in male and female SC than in CC ( $p$ -value  $< 0.05$ ).

**Table 5.4: Life tables for regular follow-up of people with epilepsy**

1: Conventional Care: Male

Time at beginning of Interval (month) X	Under observation at this interval	Number of irregular follow-up observed during interval	Number withdrawn during interval	Proportional surviving (p)	Cumulative proportional survival at end	SE (p)	95%CI*
0	94	0	0	1.000	1.000	.0000	1.000
1	94	0	0	1.000	1.000	.0000	1.000
2	94	5	0	0.9468	0.9468	.0231	.9015 to .9921
3	89	4	1	0.9545	0.9037	.0209	.9135 to .9955
4	84	13	1	0.8434	0.7625	.0362	.7724 to .9150
5	70	12	0	0.8286	0.6318	.0352	.7596 to .8976
6	58	4	0	0.9310	0.5882	.0213	.8893 to .9727
7	54	6	1	0.8868	0.5216	.0260	.8358 to .9378
8	47	4	0	0.9149	0.4772	.0217	.8724 to .9915
9	43	2	1	0.9524	0.4545	.0156	.9218 to .9830
10	40	2	0	0.9500	0.4318	.0156	.9194 to .9806
11	38	1	0	0.9737	0.4204	.0111	.9519 to .9955
12	37	3	2	0.9143	0.3844		

**Table 5.4: Life tables for regular follow-up of people with epilepsy (continued)**

1: Conventional Care: Female

Time at beginning of Interval (month) X	Under observation at this interval	Number of irregular follow-up observed during interval	Number withdrawn during interval	Proportional surviving (p)	Cumulative proportional survival at end	SE (p)	95%CI*
0	84	0	0	1.000	1.000	.0000	1.000
1	84	0	0	1.000	1.000	.0000	1.000
2	84	0	0	1.000	1.000	.0000	1.000
3	84	2	0	.9762	.9762	.0166	.9437 to 1.009
4	82	7	0	.9146	.8928	.0302	.8554 to .9738
5	75	10	1	.8649	.7722	.0356	.7951 to .9347
6	64	7	0	.8906	.6877	.0306	.8306 to .9506
7	57	3	0	.9474	.6515	.0205	.9072 to .9876
8	54	5	0	.9074	.5912	.0262	.8560 to .9588
9	49	5	1	.9167	.5420	.0262	.8653 to .9681
10	44	3	0	.9318	.5050	.0205	.8916 to .9720
11	41	2	0	.9512	.4804	.0169	.9181 to .9843
12	39	0	0	1.000	.4804		

**Table 5.4: Life tables for regular follow-up of people with epilepsy (continued)**

## 2: Shared Care: Male

Time at beginning of Interval (month) X	Under observation at this interval	Number of irregular follow-up observed during interval	Number withdrawn during interval	Proportional surviving (p)	Cumulative proportional survival at end	SE (p)	95%CI
0	117	0	0	1.000	1.000	.0000	1.000
1	117	0	0	1.000	1.000	.0000	1.000
2	117	1	1	.9914	.9914	.0085	.8248 to 1.158
3	115	4	0	.9652	.9569	.0169	.9321 to .9983
4	111	9	1	.9182	.8786	.0248	.8696 to .9668
5	101	7	0	.9307	.8177	.0221	.8873 to .9740
6	94	8	0	.9149	.7481	.0236	.8686 to .9612
7	86	3	1	.9647	.7217	.0150	.9353 to .9941
8	82	4	1	.9506	.6860	.0174	..9165 to .9847
9	77	4	0	.9481	.6504	.0175	.9138 to .9824
10	73	5	0	.9315	.6058	.0195	.8933 to .9697
11	68	3	0	.9559	.5791	.0153	.9260 to .9859
12	65	0	0	1.000	.5791		



**Table 5.4: Life tables for regular follow-up of people with epilepsy (continued)**

## 2: Shared Care: Female

Time at beginning of Interval (month) X	Under observation at this interval	Number of irregular follow-up observed during interval	Number withdrawn during interval	Proportional surviving (p)	Cumulative proportional survival at end	SE (p)	95%CI
0	104	0	0	1.000	1.000	.0000	1.000
1	104	0	0	1.000	1.000	.0000	1.000
2	104	2	1	1.000	1.000	.0135	.9735 to 1.026
3	101	5	0	.9806	.9806	.0210	.9394 to 1.022
4	96	4	2	.9574	.9388	.0190	.9202 to .9936
5	90	3	2	.9659	.9068	.0167	.9332 to .9986
6	85	1	1	.9881	.8960	.0098	.9689 to 1.007
7	83	7	2	.9136	.8186	.0255	.8636 to .9637
8	74	3	2	.9583	.7845	.0173	.9244 to .9922
9	69	6	0	.9130	.7162	.0242	.8656 to .9604
10	63	1	0	.9841	.7049	.0101	.9643 to 1.004
11	62	6	0	.9032	.6367	.0242	.8558 to .9506
12	56	0	0	1.000	.6367		

**Figure 5.1: Kaplan Meier curve of male epileptics with CC and SC**

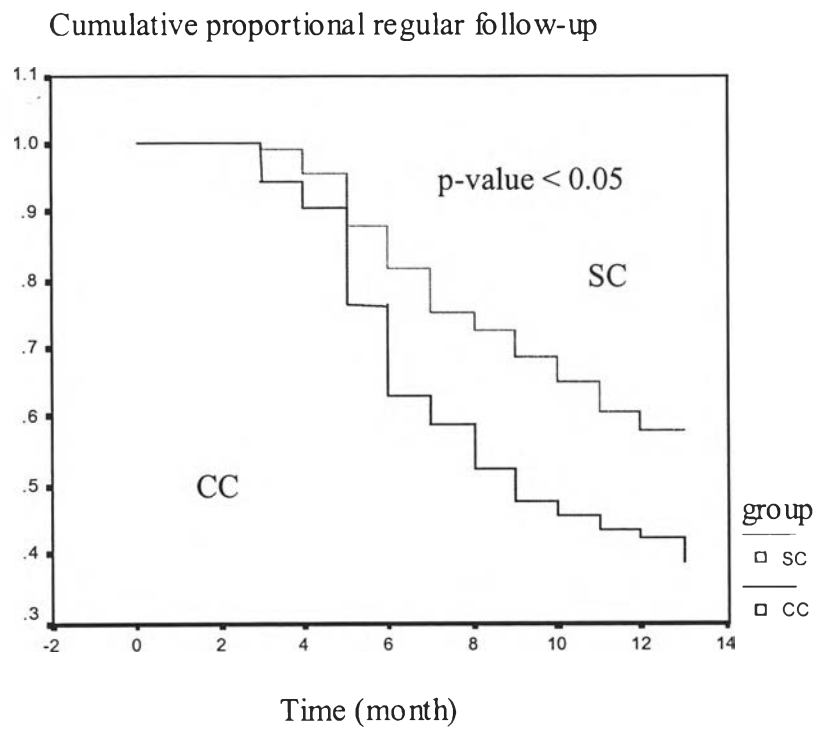
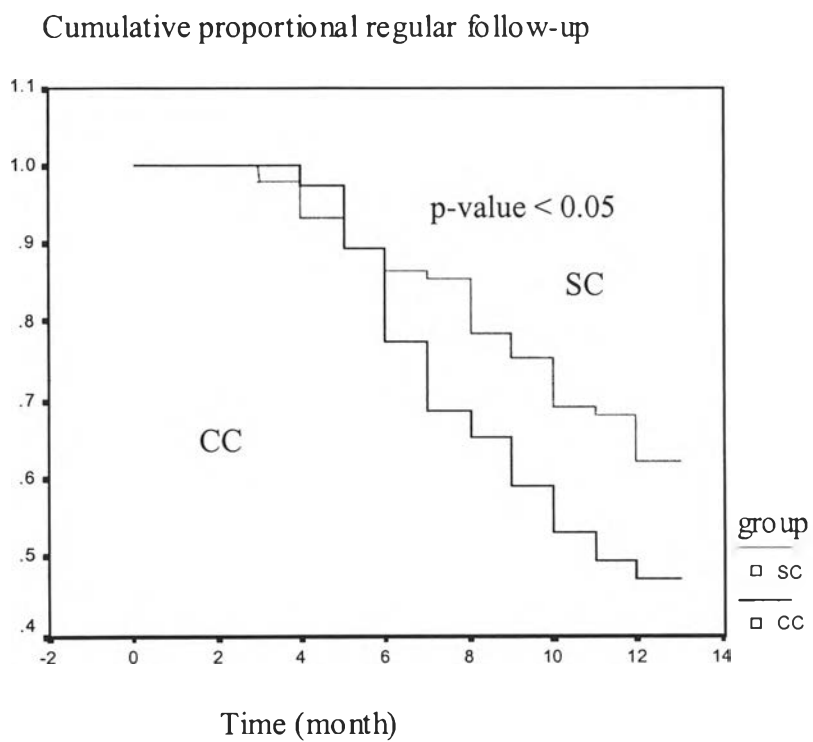


Figure 5.2: Kaplan Meier curve of female epileptics with CC and SC



3. “When comparing SC with CC in epileptics (within the same gender group) in Nakhonratchasima Province, does SC result in increase in regular follow-up after one-year study?”

Four males and females in CC and two males and females in SC had a previous treatment duration of less than 12 months or for whom the OPD card was missing, the total epileptics who could be assessed to answer this question were 90 males and 81 females in CC and 116 males and 102 females in SC. In CC, 31 male and 27 female epileptics with regular follow-up before the study; of these follow-up became irregular in 15 and 13 during the study, respectively. On the other hand, of the 59 males and 54 females with irregular follow-up prior to the study 19 and 23 had regular follow-up during the study, respectively (Table 5.5). There was no significant difference in proportion of regular follow-up compared before with after study (p-value > 0.05).

However, in SC, there was significantly higher proportion of regular follow-up after study than before study both genders (p-value < 0.01) (Table 5.6). Forty-eight male and 42 female epileptics with regular follow-up before study: of these follow-up became irregular in 13 and eight during the study. On the other hand, of the 68 males and 60 females with irregular follow-up prior to the study 32 and 28 had regular follow-up during the study, respectively.

**Table 5.5: Pattern of follow-up (F/U), before and after study by gender in CC**

## 1. Male CC

		After	
		Regular F/U	Irregular F/U
Before	Regular F/U	16	15
	Irregular F/U	19	40

## 2. Female CC

		After	
		Regular F/U	Irregular F/U
Before	Regular F/U	14	13
	Irregular F/U	23	31

**Table 5.6: Pattern of follow-up, before and after study by gender in SC**

## 1. Male SC

		After	
		Regular F/U	Irregular F/U
Before	Regular F/U	35	13
	Irregular F/U	32	36

## 2. Female SC

		After	
		Regular F/U	Irregular F/U
Before	Regular F/U	34	8
	Irregular F/U	28	32

4. “When comparing SC with CC in epileptics (within the same gender group) in Nakhonratchasima Province, does SC result in 50% or more reduction in seizures after one-year study?”

At the annual review, for seven males and three females in CC and nine males and seven females in SC, the exact seizure frequency could not be obtained because of either their forgetfulness and/or their failure to return for the annual review. The seizure frequency between two groups by gender was shown in Table 5.7. In male as well as in female, mean seizure frequency at 12 months period was higher in SC (9.8 and 14.8) than in CC (4 and 11.4). Fifty percent or more seizure reduction compared before with after study in male CC and SC was 18.1 and 17.8; and in female CC and SC was 27.1 and 19.2, respectively. There was no significant difference in 50% seizure reduction between two groups by intention to treat analysis ( $p$ -value  $> 0.05$ ).

**Table 5.7: Seizure frequency at the end of the study by gender between two groups**

Outcomes	Male			Female		
	CC (94)	SC (118)	p-value	CC (85)	SC (104)	p-value
- Mean seizure frequency in 12 months (SD)	4.0 (6.9)	9.8 (21.1)	NS	11.4 (40.5)	14.8 (41.8)	NS
- Median	0	1		2	3	
- Mode	0	0		0	0	
- Range	0-32	0-126		0-345	0-365	
- Mean seizure frequency in 3 months (SD)	1.3 (3.0)	2.5 (5.8)	NS	2.9 (13.3)	3.9 (13.9)	NS
- Median	0	0		0	0	
- Mode	0	0		0	0	
- Range	0-20	0-33		0-118	0-90	
Seizure reduction in 12 m.						
< 50 % or increase (%) (n)	69.2 (65)	69.4 (82)		65.9 (65)	67.3 (70)	
≥ 50 % (%) (n)	18.1 (17)	17.8 (21)	0.90	27.1 (23)	19.2 (20)	0.27
Unable to evaluate (%) (n)	12.8 (12)	12.7 (15)		7.1 (6)	13.5 (14)	
Seizure reduction in 3 months						
Increased or no change (%) (n)	79.8 (75)	83.0 (98)		67.1 (57)	71.2 (74)	
Reduced (%) (n)	12.8 (12)	8.5 (10)	0.43	28.2 (24)	18.3 (19)	0.15
Unable to evaluate (%) (n)	7.4 (7)	8.5 (10)		4.7 (4)	10.6 (11)	



### **5.3.2.2 Comparing the Three Months Before the Study and the Last Three Months of the Study**

1. “When comparing SC with CC in epileptics (within the same gender group) in Nakhonratchasima Province, does SC result in Reduction in seizure frequency?”

At the study end, for 5.3% males, 3.5% females in CC and 5.9% males, 5.8% females in SC, the exact seizure frequency could not be obtained because of either their forgetfulness and/or their failing to return for the annual review. Mean seizure frequency at three months before the study end in male and in female (2.5 and 3.9) was higher in SC than in CC (1.3 and 2.9). However, it demonstrated higher proportion of epileptics with seizure reduction compared three months before with after study in male (12.8%) and female (28.2%) CC than in SC (8.5% for male and 18.3% for female) but without significant level for intention to treat analysis ( $p$ -value  $> 0.05$ ).

### **5.3.2.3 At the End of the Study**

#### **5.3.2.3.1 Quality of Life in Epilepsy (QOLIE-31) Score**

1. “When comparing SC with CC in epileptics (within the same gender group) in Nakhonratchasima Province, does SC result in higher mean QOLIE-31 Score?”

Because of their mental abnormality, their failing to return for annual review and/or their immaturity, only 66.5 % in CC (119 out of 179; 70.2% of 94 males and 62.4% of 85 females) and 70.3% in SC (156 out of 222; 73.7% of 118 males and 66.3% of 104 females) completed the QOLIE-31 and SF-36 questionnaires at the annual review. The results demonstrated no difference in mean score of the QOLIE-31 between epileptics with CC and with SC on the following domains: Total Quality of Life; Overall Quality of Life; Social Function; Energy and Fatigue; Emotional Well-being; Cognitive Function; Medication Effect; Social Worry and Overall Health except Cognitive Function domain for female significantly higher mean score in CC than in SC ( $p$ -value  $< 0.05$ ) (Table 5.8).

**Table 5.8: Mean score of QOLIE-31 by gender between two groups**

QOLIE-31	Male (153)			Female (122)		
	CC (66)	SC (87)	p-value	CC (53)	SC (69)	p-value
- Mean score of total QOL (SD)	54.96 (10.92)	58.90 (11.21)	0.731	54.32 (10.92)	53.21 (12.11)	0.573
- Mean score of Overall QOL (SD)	21.70 (10.95)	18.34 (13.14)	0.315	23.69 (12.48)	20.31 (13.24)	0.553
- Mean score of Social Function (SD)	58.98 (20.21)	63.79 (19.70)	0.794	55.65 (22.21)	54.53 (21.51)	0.647
- Mean score of Energy and Fatigue (SD)	65.24 (19.02)	71.18 (20.38)	0.343	61.51 (19.70)	61.19 (20.76)	0.699
- Mean score of Emotional Well-being (SD)	64.19 (17.69)	69.77 (20.16)	0.241	61.77 (21.33)	62.03 (20.23)	0.643
- Mean score of Cognitive function (SD)	63.34 (15.70)	66.49 (14.60)	0.883	62.74 (13.74)	60.62 (18.90)	<0.05
- Mean score of Medication Effect (SD)	38.89 (26.91)	42.65 (23.00)	0.083	35.00 (23.57)	38.68 (22.84)	0.926
- Mean score of Seizure Worry (SD)	54.16 (26.57)	60.72 (25.50)	0.628	52.58 (27.90)	50.14 (28.52)	0.748
- Mean score of Overall Health (SD)	65.32 (25.01)	73.88 (24.69)	0.611	61.51 (29.13)	64.33 (24.69)	0.524

#### **5.3.2.3.2 Short Form 36 Health Survey (SF-36) Score**

1. “When comparing SC with CC in epileptics (within the same gender group) in Nakhonratchasima Province, does SC result in higher mean SF-36 Score?”

For SF-36 questionnaire, the results showed no significant difference in mean score between epileptics with CC and with SC on the following domains: Total SF-36; Physical Function; Role Physical; Bodily Pain; General Health; Vitality; Social Function; Role Emotion; Mental Health and Health Transition except Health Transition for male significantly higher mean score in CC than in SC (p-value < 0.05) (Table 5.9). Health Transition was asking about health in general compared with this year and last year.

**Table 5.9: Mean score of SF-36 by gender between two groups**

SF-36	Male (153)			Female (122)		
	CC (66)	SC (87)	p-value	CC (53)	SC (69)	p-value
- Mean score of Total SF-36 (SD)	65.81 (18.20)	68.29 (17.07)	0.531	61.73 (17.74)	59.57 (16.07)	0.540
- Mean score of Physical Function (SD)	84.27 (16.17)	86.34 (18.16)	0.928	78.17 (22.16)	81.35 (17.79)	0.219
- Mean score of Role Physical (SD)	57.32 (43.23)	59.30 (42.88)	0.993	49.02 (41.52)	43.12 (39.73)	0.646
- Mean score of Bodily Pain (SD)	62.54 (21.10)	64.48 (21.73)	0.647	57.50 (23.16)	53.71 (21.00)	0.250
- Mean score of General Health (SD)	57.62 (16.24)	63.72 (15.47)	0.819	55.59 (16.96)	54.48 (16.19)	0.826
- Mean score of Vitality (SD)	65.24 (19.02)	71.18 (20.38)	0.343	61.51 (19.70)	61.19 (20.76)	0.699
- Mean score of Social Function (SD)	70.45 (25.54)	80.57 (21.78)	0.219	66.35 (25.31)	75.19 (22.37)	0.264
- Mean score of Role Emotion (SD)	58.11 (42.40)	55.17 (43.77)	0.246	56.07 (43.26)	41.18 (42.37)	0.688
- Mean score of Mental Health (SD)	64.19 (17.69)	69.77 (20.16)	0.241	61.77 (21.33)	62.03 (20.23)	0.643
- Mean score of Health Transition (SD)	73.05 (29.98)	63.10 (34.81)	<0.05	63.94 (36.52)	53.35 (35.08)	0.526

### 5.3.2.3.3 Overall Patient Satisfaction

1. “When comparing SC with CC in epileptics (within the same gender group) in Nakhonratchasima Province, does SC result in higher percentage of overall patient satisfaction with healthcare?”

As noted earlier a number of epileptics failed to attend the annual review (11 males, five females in CC and 14 males, nine females in SC); and a number of epileptics left the answer blank (two males, two females in CC; two males, three females in SC), 88.8% in CC and 87.4% in SC completed the questionnaire. More of the epileptics in CC expressed satisfaction (81.9% for male, 89.4% for female) than in SC (79.7% for male, 84.6% for female). Nevertheless, there was no significant difference in percentage of epileptics with satisfaction between CC and SC for intention to treat analysis ( $p$ -value  $> 0.05$ ). People with epilepsy in SC might have had more expectation to see the neurologist at their CHs. The PI received a letter from a patient in SC. He complained that he had never seen the neurologist when he came to the CH at the due appointment date several visits following the letter reminder. He expected to see the PI because the reminder letter not to miss visiting the CH at the appointment date was written by the PI. After the PI responded to clarify that he would see the PI once a year at the end of the study. He accepted and came to see the PI at the annual review. This scenario showed that false expectation to see the neurologist at the CH every visit might make the people with epilepsy in SC feels little disappointed of SC.

### **5.3.2.4 Evaluating Processes of Shared Care for Epileptics in Nakhonratchasima Province**

#### **5.3.2.4.1 Comparing the First and Last Three Months of the Study**

1. “In SC group, does SC interventions result in reduction in inappropriate practices?”

At the end of the study, of the total of 325 copied sheet of the follow-up medical records at the last three months period, 12 (3.7%) were inappropriate practice compared with 17.1% (64 out of 374) at the first three months of the study. There was significant reduction in inappropriate practice compared the first with the last three months of the study ( $p$ -value  $< 0.001$ ).

The inappropriate practices were as follows: inappropriate doses of phenobarbital; inappropriate adjustment of AED when seizure or drug effect occurrence; and inappropriate increment of AED when no seizure.

#### **5.3.2.4.2 During the Study**

1. “In SC group, does SC interventions result in usefulness of Treatment Review and Immediate Feedback?”

At the end of the study, of the total of 52 questionnaires evaluating the usefulness of Treatment Review and Immediate Feedback, 49 were completed by the GPs. The result demonstrated mean score of the item of understanding the content,

agreement with the content and relevant to the real practice was 4.2 (SD = 0.46; range of 3-5), 4.18 (SD = 0.39; range of 4-5) and 4.10 (SD = 0.51; range of 3-5), respectively. All of the GPs understood most of the content, agreed with the content and that the content was relevant to the real practice.

#### **5.3.2.4.3 At the End of the Study**

1. “In SC group, does SC interventions result in usefulness of Pamphlet and Education?”

As noted earlier a number of epileptics in SC failed to attend the annual review (14 males, nine females in SC). Of the 104 males completing the questionnaire, 103 received education and met their expectation with mean score of 4.22 (SD = 0.83) and 100 understood the content with mean score of 3.92 (SD = 0.88) and applied knowledge to self-care with mean score of 3.83 (SD = 0.91). Most male epileptics received education and met most of their expectation, understood most of the content and applied to self-care. For female, of the 95 completing the questionnaire, 94 received education and met most of their expectation (mean score = 4.11; SD = 0.82); and all of the 94 understood most of the content (mean score = 3.94; SD = 0.81) and applied most of the knowledge to self-care (mean score = 3.95; SD = 0.94).

2. “In SC group, does SC intervention result in usefulness of Problem-based Education (PBE)?”



During the PBE training session, most GPs including the Hospital Directors were very active to join this activity. They discussed and made solutions together with the neurologist. However, GPs at some CHs had a lot of work, they sometimes could not attend until finishing except at one CH, the GPs had no time to attend so this activity was set up for two days. Of the total of 30 GPs, 28 attended the activity. All of the attending GPs (28) completed the questionnaire. They understood most of the content (mean score = 4.25; SD = 0.44), had improvement of most of their knowledge (mean score = 4.36; SD = 0.49) and the content was relevant to the real practice (mean score = 4.21; SD = 0.42).

### **5.3.2.5 Evaluating GPs' Communication across CC and SC at the**

#### **End of the Study**

##### **1. "Is there communication of GPs across treatment groups?"**

At the study end, of the total of 74 participating GPs, 72 completed the questionnaire. The result showed little communication across the treatment groups (mean score = 1.34; SD = 0.75 in CC and 1.26; SD = 0.67 in SC).

## **5.4 Summary of the Study**

Of the total of 24 CHs, 12 were eligible and participatory to this study. Six hospitals were for CC and SC. The registered epileptics at each participating CHs were invited to participate the study. In CC and SC, 179 and 222 epileptics were eligible for this study, respectively. The baseline characteristics of epileptics by genders between CC and SC were not significantly different except concomitant

treatments higher in CC and poly-pharmacy higher in SC, both genders. At the end of the study, 14 with two deaths in CC and 22 with one death in SC were absent for annual review. The regular follow-up by genders in SC did not have 50% relative gain as a percentage over CC except male gender. However, the regular follow-up by genders in SC was significantly improved compared with before and after study except in CC and the rate of regular follow-up in SC was significantly better than in CC. For medical outcomes, there were no significant difference in number of epileptics with 50% seizure reduction at 12 months period and in number of epileptics with seizure reduction at three months period compared with before and after study. For quality of life, the result showed no significant difference in mean score of the QOLIE-31 and SF-36 between CC and SC except Cognitive Function domain of QOLIE-31 which was higher in female CC and Health Transition domain which was higher in male CC. For overall patient satisfaction, more of the epileptics in CC expressed satisfaction, in both genders.

For inappropriate practice, the percentage of inappropriateness was significantly reduced after study. For SC processes evaluation, Education and pamphlet; Treatment Review and Immediate Feedback; and PBE, the result showed usefulness to epileptics and GPs. Finally, there was little contamination among GPs between in CC and SC.