

CHAPTER IV

RESULTS

The research on the customers and providers' opinions toward the risk incidence in anesthetic service in Maharaj Nakhon Si Thammarat Hospital was conducted by studying the sample group of 400 cases. The researcher had presented the results in the form of descriptive diagram, and the chief and the mainstay of seven risk taking providers had presented the descriptive data respectively :-

The Customers' Aspect

It was divided into 6 parts.

- Part I** The sociodemographic features of the customers in Maharaj Nakhon Si Thammarat Hospital.
- Part II** The customers' opinions toward the safety from anesthetic service activities.
- Part III** The test on the relationship between the sociodemographic feature, utilization of anesthetic service and the process anesthetic service and the customers' opinions.
- Part IV** The customers' satisfaction toward the anesthetic service.
- Part V** The customers' comments and needs toward anesthetic service.
- Part VI** The customers' problems and complications post anesthesia.

The Providers' Aspect

The private data and opinions of the chief providers and mainstays and the customers' opinions toward the risk management when they turned in for an operation and were given anesthesia.

The Customers' Aspect

Part I Presenting the sociodemographic features of the customers who came for anesthetic service at Maharaj Nakhon Si Thammarat Hospital

The respondents who came for anesthetic service at Maharaj Nakhon Si Thammarat Hospital consisted of more female than male, which was 60.0% and 40.0% respectively. The biggest group was between 20 – 35 years old which was 50.3%. The smaller group was between 35 – 50 years old, which was 32.8% and the smallest group was between 51 – 65 years old, which was 17.5%. Most customers completed only the primary school level, which was 32.8%. The smaller group completed the secondary school level, which was 25.5%, and the smallest group was uneducated, which was 3.0%. The group with the highest income between 3,501 – 10,000 baht per month was the biggest one, which was 64.8%. The smaller group having 10,000 baht or higher per month was 23.0%, and the group earning 3,500 baht or less was the smallest group, which was 12.3%. (table 1)

Table 1 : The frequency and the percentage of the sample group of the anesthetic customers were classified according to sexes, ages , levels of education , and income

Sociodemographic features	number	percentage
Sex		
Male	160	40.0
Female	240	60.0
Age (year)		
20 – 35	201	50.3
36 – 50	131	32.8
51 – 65	68	17.5
—		
$\bar{X} = 37.58$	S.D = 12.11	
MIN = 20	MAX = 65	
Levels of education		
Uneducated primary level	12	3.0
Junior secondary level	131	32.8
Senior secondary level	102	25.5
Certificate / diploma level	51	12.8
Bachelor ' degree or higher	72	18.0
Income (bath) / per mont		
< 3,500	49	12.3
3,501 – 10,000	259	64.8
> 10,000	92	23.0
—		
$\bar{X} = 8,592$	S.D = 5,606	
MIN = 2,000	MAX = 35,000	

The sample group of anesthetic customers at Maharaj Nakhon Si Thammarat Hospital who had come for the service during the official working time was the biggest group which was 62.0 %.The smallest group was the customers who come for the service after the official working time which was 38.0 %. The respondents who have under gone the non – emergency operation were the biggest group , which was 62.3 % , and the respondents who were emergent operated were the smallest group , which was 9.8% with the highest ASA physical status class I , which was 72.3% , and with the lowest ASA physical status class III , which was 2.0 %.The customers who were given general anesthesia were the biggest group which was 60.8%. The customers who were given spinal block anesthesia was the lowest group, which was 39.3%. The biggest group, admitted at obstetric- gynecology department was 39.8 % and those who admitted E E NT department was the smallest group, which was 4.5 %. The customers who came for the first anesthesia were the biggest group, which was 68.0%, and those who were given anesthesia for the third time were the smallest group , which was 3.5%.The customers who had no smoking background were the biggest group ,which was 70.5% and those who had regularly smoking history were the smallest group which was 6.3 % , and those without alcohol – drinking history were the biggest group which was 68.5% , and those with regularly alcohol – drinking background were the smallest group, which was 6.3%. The customers who were aware of operation- bearing disease were the biggest group ,which was 98.2% and those who didn't know about the disease were the smallest group , which was 18 .0 %. The customers who were afraid of the complication of anesthesia were the biggest group , which was 37.8% ,and those who were afraid of the operation were the smallest group , which was 9.5% (Table 2).

Table 2: The frequency and the percentage of the sample group's coming for the service were based the time , the emergency in operation ,ASA physical status , type of anesthesia , department, the number of times coming for anesthesia , the smoking and drinking history , the operation – bearing disease and fear

The utilization of anesthetic service	number	percentage
The service time		
Official working period	248	62.0
Outer official working period	152	38.0
The operation urgency		
Not urgent	249	62.3
Urgent	112	28.0
Emergent	39	9.8
ASA Physical status		
Class I	289	72.3
Class II	103	25.8
Class III	8	2.0
Types of anesthesia		
General anesthesia	243	60.8
Spinal block	157	39.3
Department		
General surgery	151	37.8
Orthopedic	72	18.0
Obstetric- gynecologic	159	39.8
E.E.N.T.	18	4.5

Table 2: (Cont.) The frequency and the percentage of the sample group's coming for the service were based the time , the emergency in operation ,ASA physical status , type of anesthesia , department, the number of times coming for anesthesia , the smoking and drinking history , the operation – bearing disease and fear

The utilization of anesthetic service	number	percentage
The number of times coming for anesthesia		
the first time	272	68.0
the second time	114	28.5
the third time	14	3.5
Smoking history		
Smoking regularly	25	6.3
Scarcely smoking	93	23.3
Never smoking	282	70.5
Alcohol – drinking history		
Drinking regularly	25	6.3
Hardly drinking	98	24.5
Never drinking	274	68.5
Operation – bearing disease		
Unknown	7	18.0
Known	393	98.2
Fear of :		
Developing diseases	52	13.0
The procedure of given anesthesia	42	10.5
Operation	38	9.5
Pain	117	29.3
Complication	151	37.8

Part II The customers' opinions toward the safety from the physical emotion , society and spiritual risk incidence in anesthetic service. The level of the customers' opinion toward the safety from the anesthetic service activities was classified into three steps according to the process of anesthesia :

It was found that the customers felt much to most secure by considering the score (4+5) from the percentage of the anesthetic customers according to the level of their opinions which there were three anesthetic process (pre, peri and post period) in 20 items as follows :

Pre - Anesthetic Period

90.0 % of the respondents felt the most secure when they were notified every time before any medical activity ($\bar{x} = 4.18$), 85.6% of them felt the most secure when they were asked about their identification , ailment , and the operation bearing disease ($\bar{x} = 3.98$), and 84.2 % of them felt the most secure when they were reminded to have NPO after midnight. ($\bar{x} = 3.97$)

Peri – Anesthetic Period

It was found out that every anesthetic activity had a high effect on their safety. 86.9 % of them felt the most secure when they had a through body check up before being given anesthesia ($\bar{x} = 4.11$), 79.5 % of them felt the most secure when they were not abandoned or isolated while waiting for an operation ($\bar{x} = 3.87$), and 69.40 % of them felt the most secure when they were being serviced without class discrimination ($\bar{x} = 3.87$).

Post - Anesthetic Period

It was found out that every anesthetic activity had a high effect on their safety. 94.2% of them thought that being visited by the anesthetic staff after an operation made them felt the safest ($\bar{x} = 4.28$), 92.4% of them felt safe when the staff called their names, woke them up and urged them to move their limbs in the recovery room ($\bar{x} = 4.26$), and 83.7% of them felt safe when they were being taken care of, not falling of the bed while not being able to take care of themselves ($\bar{x} = 4.01$). (Table 3)

Table 3: The ranking and percentage of the anesthetic customers, according to the level of their opinions toward anesthetic service safety was classified by means of the anesthetic process namely

Ranking	Anesthetic Service Activities (4+5)	Percentage The percentage of the customers					Mean	
		1	2	3	4	5		
	Pre - Anesthetic Period						3.89	
1*	9. Notifying every time before any medical activity	90.0	0.0	1.3	8.8	60.5	29.4	4.18
2*	7. Enquiring the customers' identification, ailment, underlying diseases, the operation and anesthetic administration	85.6	0.0	0.3	14.3	72.7	12.7	3.98
3*	3. Reminding to have NPO after midnight	84.2	0.0	0.0	15.8	70.7	13.5	3.97
4	4. Notifying about the importance of signing the legal consent information before the operation and being given anesthesia	80.1	0.0	0.1	19.8	66.8	13.3	3.93

Table 3: (Cont.) The ranking and percentage of the anesthetic customers, according to the level of their opinions toward anesthetic service safety was classified by means of the anesthetic process namely

Ranking	Anesthetic Service Activities (4+5)	Percentage The percentage of the customers					n = 400	Mean
		1	2	3	4	5		
5	5.Checking the customers' valuable belonging before entering the operating room	79.9	0.0	0.3	19.8	66.7	13.2	3.87
6	8.The laboratory check-up before the operation entering the operating room	79.1	0.0	0.2	20.7	68.2	10.9	3.90
7	1.Visiting before anesthesia	72.3	0.0	1.0	26.7	58.5	13.8	3.85
8	2.Explaining about the preparation before being given anesthesia	61.6	0.0	1.8	36.6	50.8	10.8	3.70
9	6.Notifying about the complication effect after the anesthetic administration	50.7	0.0	2.5	46.8	40.4	10.3	3.58
Peri - Anesthetic Period								3.80
1*	14.Having a through body check-up before being given anesthesia	86.9	0.0	0.8	12.3	62.2	24.7	4.11
2*	10.Not being abandoned or isolated while waiting for the operation	79.5	0.0	0.5	20.0	71.0	8.5	3.87
3*	11.Being serviced without class discrimination	69.4	0.0	0.3	30.3	51.0	18.4	3.87
4	13.Being notified about inhibiting the pain after the operation	63.7	0.0	1.3	35.0	56.2	7.5	3.70
5	12.Being notified about the steps of anesthetic administration	60.6	0.0	0.9	38.5	54.2	6.4	3.66

Table 3: (Cont.) The ranking and percentage of the anesthetic customers, according to the level of their opinions toward anesthetic service safety was classified by means of the anesthetic process namely

Ranking	Anesthetic Service Activities (4+5)	Percentage The percentage of the customers					n = 400	Mean
		1	2	3	4	5		
	Post - Anesthetic Period							3.99
1*	20. Being visited by anesthetic staff after the operation	94.2	0.0	0.3	5.5	60.0	34.2	4.28
2*	15. Calling name, waking up, and urging to move the limbs in the recovery room	92.4	0.0	0.3	7.3	58.0	34.4	4.26
3*	16. Being taken care of, not falling of the bed while not being able to take care of themselves	83.7	0.0	0.0	16.3	66.2	17.5	4.01
4	19. Being moved from the recovery room to the patient's ward	72.7	0.0	0.8	26.5	60.0	12.7	3.84
5	18. Being explained to about the practices after anesthetic administration and operation	73.6	0.0	2.3	23.7	67.7	6.3	3.78
6	17. Being regularly enquired about the abnormal symptoms after the operation	61.5	0.0	0.5	38.0	49.2	12.3	3.73

1 = No safety 2 = Little safety 3 = Moderate safety 4 = Much safety 5 = Most safety

*Ranking by the percentage of customers, according to the level of their opinions toward anesthetic service safety, considering the score from using much safety (4) plus most safety (5)

The respondents thought that types of anesthesia that made them felt the most secure was spinal block , which was a little higher than those general anesthesia being 82.8 % and 80.0 % respectively, while 0.8 % of them thought that general anesthesia was little safety. (Table 3.1)

Table 3.1 : The ranking and percentage of the customers, level of opinions toward the safety from the types of anesthetic administration was classified into the following items.

Ranking	Type of Anesthesia (4+5)	Percentage	The percentage of the customers					Mean n = 400
			1	2	3	4	5	
1	2. Being administered spinal block	82.8	0.0	0.0	17.2	61.1	21.7	4.05
2	1. Being administered general anesthesia	80.0	0.0	0.8	19.2	58.5	21.5	4.00

1 = No safety 2 = Little safety 3 = Moderate safety 4 = Much safety 5 = Most safety

Part III Testing on the relationship between the sociodemographic features, utilization of anesthetic services, anesthetic process and the level of customers' opinions.

1. To determine the relationship between the sociodemographic features and the level of customers' opinions.

1.1 Gender

There was no statistically significant relationship between gender and the level of customers' opinion toward the anesthetic service safety (p- value = 0.705)

The female customers' opinions toward the anesthetic service safety were at the high level, which were little higher than those of the male customers' pinions , being 83.33 % and 81.87 % respectively.

1.2 Education level

There was no statistically significant relationship between the level of education and the level of customers' opinion toward the anesthetic service safety (p- value = 0.265) 94.12 % of the customers with senior secondary school level felt safe toward anesthetic service in high level , while 21.87 % of them with bachelor's degree or higher felt moderately safe. (Table 4)

Table 4: The relationship between the sociodemographic features and the level of the opinions toward the safety from the anesthetic services.

Sociodemographic Features	The level of customers' opinions toward anesthetic safety								X ²	p-value
	Low		Medium		High		Total			
	N	Percent	N	Percent	N	Percent	N	Percent		
Gender										
- Male	0	0	29	18.3	131	81.87	160	100		
- Female	0	0	40	16.67	200	83.33	240	100	0.143	0.705
Education level										
- Uneducated	0	0	0	8.33	11	91.67	12	100		
- Primary School	0	0	25	19.08	106	80.92	131	100		
- Junior secondary school	0	0	19	18.62	83	81.37	102	100		
- Senior secondary school	0	0	3	5.88	48	94.12	51	100	6.452	0.265
- Certificate	0	0	14	19.44	58	80.55	72	100		
- Bachelor's degree or higher	0	0	7	21.87	25	78.13	32	100		

2. To determine the relationship between the utilization of services and the level of customers' opinions.

2.1 Service time

There was no statistically significant relationship between service time and the level of customers' opinion toward the anesthetic service safety (p-value = 0.627).

83.46% and 81.57 % of the customers who came for the service during the official working time felt safe toward anesthetic service at high level, while 18.42% of them came after official working time felt moderate safe.

2.2 Operation urgency

There was no statistically significant relationship between urgency of the operation and the level of customers' opinion toward the anesthetic service safety (p-value = 0.851).

83.13 % of the customers who had undergone the non-urgent operation felt very safe toward anesthetic service, while 20.51 % of them who had undergone the emergency operation felt moderately safe.

2.3 Procedure of anesthesia

There was no statistically significant relationship between the procedure of anesthesia and the level of customers' opinion toward the anesthetic service safety (p-value = 0.572).

84.08 % of the customers who were given a spinal block felt very safe to anesthetic service, and 81.89 % of those who were given general anesthesia felt very safe toward anesthesia service. The former group was higher than the latter one, while 18.11 % of those who were given general anesthesia feel moderately safe.

2.4 Number of service

There was no statistically significant relationship between the number of anesthesia service and the level of customers' opinion toward the anesthetic service safety. (p- value = 0.441)

85.71 % of the customers who came for the service more than twice felt safe toward the anesthetic service at high level , while 21.05 % of those who came for the second time of service felt moderate safe.

2.5 ASA physical status

There was no statistically significant relationship between ASA Physical Status and the level of customers' opinion toward the anesthetic service safety (p- value = 0.828).

83.50 % of the customers with risk assessment by means of ASA physical status class II felt very safe toward anesthetic service. They were the biggest group while 75.00 % of the customers with risk assessment by means of ASA physical status class III felt very safe toward anesthetic services. And 25.0 % of the customers with risk

assessment by means of ASA physical status III felt moderately safe toward anesthetic service.

2.6 Department

There was no statistically significant relationship between department and the level of customers' opinion toward the anesthetic service safety (p-value = 0.452).

88.89 % of the customers who were admitted at the orthopedic unit felt very safe to anesthetic service. They were biggest group, while 22.22 % of them felt moderately safe.

2.7 Alcohol-drinking history

There was no statistically significant relationship between alcohol-drinking history and the level of customers' opinion toward the anesthetic service safety (p-value = 0.483).

89.29 % of the customers, the biggest group, who always drink alcohol felt very safe toward anesthetic service, while 23.63 % of them who never drink alcohol felt moderately safe.

2.8 Cigarette-smoking history

There was no statistically significant relationship between cigarette-smoking history and the level of customers' opinion toward the anesthetic service safety (p-value = 0.925).

84.00%, 83.87 %, and 82.27 % of the customers who always, hardly, and never smoke cigarettes respectively felt very safe toward anesthetic service , while 17.73 % of them who never smoke felt moderately safe.

2.9 Operation - bearing disease

There was no statistically significant relationship between operation - bearing disease and the level of customers' opinion toward the anesthetic service safety. (p-value = 0.480).

92.86 % and 82.38 % of the customers, who had unknown and known the operation bearing disease respectively felt very safe toward anesthetic service, while 17.62 % of them who had known the operation bearing disease felt moderately safe.

2.10 Fear

There was statistically significant relationship between fear and the level of customers' opinion toward the anesthetic service safety (p-value < 0.05).

89.47 % of the customers, the biggest group, who were afraid of an operation felt very safe, while 32.69 % of them who were afraid of disease, felt moderately safe toward anesthetic service. (Table 5).

Table 5: The relationship between the utilization and the level of the opinions toward the safety from the anesthetic services.

Utilization of services	The level of customers' opinions toward anesthetic safety								X ²	p-value
	Low		Medium		High		Total			
	N	Percent	N	Percent	N	Percent	N	Percent		
Service time										
- Official working time	0	0	41	16.53	207	83.46	248	100	0.236	0.627
- After official working time	0	0	28	18.42	124	81.57	152	100		
Operation urgency										
- No urgency	0	0	42	16.87	207	83.13	249	100		
- Urgency	0	0	19	16.96	93	83.04	112	100	0.323	0.851
- Emergency	0	0	8	20.51	31	79.49	39	100		
Procedure of Anesthesia										
- General anesthesia	0	0	40	18.11	199	81.89	243	100		
- Spinal block	0	0	25	15.92	132	84.08	157	100	0.319	0.572
Number of service										
- The first time	0	0	43	15.80	229	84.19	272	100		
- The second time	0	0	24	21.05	90	78.95	114	100	1.637	0.441
- More than twice	0	0	2	14.29	12	85.71	14	100		
ASA physical status										
- Class I	0	0	50	17.30	239	82.70	289	100		
- Class II	0	0	17	16.50	86	83.50	103	100	0.377	0.828
- Class III	0	0	2	25.00	6	75.00	8	100		
Department										
- General surgery	0	0	29	19.21	122	70.93	151	100		
- Orthopedic	0	0	8	11.11	64	88.89	72	100	2.632	0.452
- Obstetric-gynae	0	0	28	17.61	131	82.39	59	100		
- E.E.N.T	0	0	4	22.22	14	77.78	18	100		

Table 5: (Cont.) The relationship between the utilization and the level of the opinions toward the safety from the anesthetic services.

Utilization of services	The level of customers' opinions toward anesthetic safety								X ²	p-value
	Low		Medium		High		Total			
	N	Percent	N	Percent	N	Percent	N	Percent		
Alcohol-drinking history										
- Always drink	0	0	3	10.71	25	89.29	100			
- Scarcely drink	0	0	15	16.13	83	84.70	98	100	1.454	0.483
- Never drink	0	0	51	23.63	223	76.37	274	100		
Cigarette-smoking history										
- Always smoke	0	0	4	16.00	21	84.00	25	100		
- Scarcely smoke	0	0	15	16.13	78	83.87	93	100	0.155	0.925
- Never smoke	0	0	50	17.73	232	82.27	282	100		
Operation bearing Disease										
- Unknown	0	0	1	7.14	13	92.86	14	100	-	0.480*
- Known	0	0	68	17.62	318	82.38	386	100		
Fear										
- Diseases	0	0	17	32.69	35	67.31	52	100		
- Anesthesia	0	0	7	16.67	35	83.33	42	100		
- Operation	0	0	4	10.53	34	89.47	38	100	10.701	0.030**
- Pain	0	0	17	14.53	100	85.47	117	100		
- Complication	0	0	24	15.89	127	84.11	151	100		

* Fisher's exact

** Statistic significant at p-value < 0.05

3. To determine the relationship between fear and anesthetic process (pre, peri and post anesthetic period)

3.1 Pre- anesthesia period

There was no statistically significant relationship between fear and pre-anesthesia period (p- value = 0.543).

92.5% of customers who were afraid of pain and complication felt very safe in pre- anesthesia period, while 11.5 % of them who were afraid of disease, felt moderately safe.

3.2 Peri - anesthesia period

There was no statistically significant relationship between fear and peri-anesthesia period (p- value = 0.756).

61.3 % of customers who were afraid of anesthesia and operation felt very safe in peri - anesthesia period, while 44.2 % of them were afraid of disease felt moderately safe.

3.3 Post - anesthesia period

There was statistically significant relationship between fear and post - anesthesia period (p- value < 0.05).

92.5 % of customers who were afraid of anesthesia and operation felt very safe in post-anesthesia period , while 21.2 % of them who were afraid of disease felt moderately safe. (Table 6).

Table 6: The relationship between fear and anesthetic process (pre, peri and post anesthetic period)

Fear	The level of customers' opinions toward anesthetic safety in											
	Pre- anesthesia				Peri - anesthesia				Post- anesthesia			
	Medium		High		Medium		High		Medium		High	
	N	%	N	%	N	%	N	%	N	%	N	%
- Diseases	6	11.5	46	88.5	23	44.2	29	55.8	11	21.2	41	78.8
- Anesthesia and operation	8	10.0	72	90.0	31	38.7	49	61.3	6	7.5	74	92.5
- Pain and complication	20	7.5	248	92.5	104	38.8	164	61.2	22	8.2	246	91.8

$$\chi^2 = 1.219 \quad \chi^2 = 0.560 \quad \chi^2 = 8.869$$

$$p\text{-value} = 0.543 \quad p\text{-value} = 0.756 \quad p\text{-value} < 0.05^{**}$$

** Statistic significant at $p\text{-value} < 0.05$

The correlation coefficient between the average of opinion scores to anesthetic process (pre, peri and post anesthesia) and the age, income factors, in both overall aspects or each aspect, were not found to be statistically significant. (Table 7)

Table 7: The correlation coefficient between the average opinion scores base on the anesthetic process and the age, and income factors both in overall aspects and in each aspect.

Sociodemographic features	Opinions	
	r	P-value
Age (year)		
Overall anesthetic process	- 0.046	0.360
1. Pre-anesthetic period	- 0.036	0.477
2. Peri-anesthetic period	- 0.013	0.790
3. Post-anesthetic period	- 0.013	0.129
Income (baht)		
Overall anesthetic process	- 0.042	0.403
1. Pre-anesthetic period	0.018	0.723
2. Peri-anesthetic period	0.049	0.330
3. Peri-anesthetic period	0.046	0.359

* (Correlation is significant at the 0.1 level (2 – tailed))

Part IV The customers' satisfaction toward anesthetic services

It was found that the customers felt much to most satisfied by considering the score (4+5) from the percentage of the anesthetic customers according to the level of their satisfaction which there were 3 aspects in 18 items were classified namely.

Anesthetic service system aspect

94.0 % of the customers felt the most satisfied toward the readiness of the appliances ($\bar{x} = 4.18$). They were the biggest group, 90.2 % of them felt very satisfied toward the quality of anesthetic services in the overall image ($\bar{x} = 4.17$), and 89.0 % of

them felt very satisfied toward modern, tidy, and clean surrounding in the operating room ($\bar{x} = 4.13$), while 1.1 % of them felt the least satisfied or not satisfied at all toward the information given to them to prepare themselves before they were given anesthesia.

Anesthetic personnel aspect

86.6 % of the customers felt the most satisfied toward the relationship of the anesthetic personnel who were very verbally polite and tender personnel and they were careful circumspect, an meticulous to do their work ($\bar{x} = 3.98$), and 77.4 % of the customer felt satisfied toward the personnel who were very competent in their work and ready, and willing to given their services. ($\bar{x} = 3.94$), while 59.2 % of them felt satisfied toward being given an opportunity to ask some question and problem. ($\bar{x} = 3.68$).

The convenience and quickness of the service aspect.

79.9 % of the customers felt the most satisfied toward the quickness of health care assistance ($\bar{x} = 3.94$) and 77.7 % of them felt very satisfied toward the quick help care ($\bar{x} = 3.85$), and 71.5 % of them felt satisfied toward the waiting period from arriving at the operation room to the time when being operated ($\bar{x} = 3.76$), while 13.0 % of them felt the least satisfied or none at all toward not being able to contact other people. (Table 8)

Table 8: The classification of the ranking and percentage based on the customers' satisfaction toward anesthetic services.

Ranking	Anesthetic Services (4+5)	Percent	The percentage of the customers					Mean n = 400
			1	2	3	4	5	
Anesthetic Service System							2.95	
1*	5.The readiness of the appliances and instruments	94.0	0.0	0.0	6.0	69.8	24.2	4.18
2*	6.The quality of anesthetic services	90.2	0.0	0.0	9.8	63.2	27.0	4.17
3*	4.Modern, tidy, and clean surrounding in the operating room	89.0	0.0	0.3	10.7	64.7	24.3	4.13
4	2.Calm and quiet atmosphere in the operating room	84.5	0.0	0.5	15.0	57.2	27.3	4.11
5	3.Warming up the body all the time in the operation	79.2	0.0	0.0	20.8	66.4	12.8	3.02
6	1.Receiving information about self preparation before being given anesthesia	65.9	0.3	0.8	33.0	61.5	4.4	3.69
Anesthesia Personnel							2.78	
1*	7.The relationship and friendliness of the verbally polite and tender personnel	86.6	0.0	0.0	13.4	74.8	11.8	3.98
1*	9.They are careful, circumspect, an meticulous to do their work	86.6	0.0	0.3	13.1	74.3	12.3	3.98
2*	10.The anesthetic staff are very competent in their work	77.4	0.0	0.2	22.4	62.3	15.1	3.94

Table 8 : (Cont.) The classification of the ranking and percentage based on the customers' satisfaction toward anesthetic services.

Ranking	Anesthetic Services (4+5)	Percent	The percentage of the customers					Mean n = 400
			1	2	3	4	5	
2*	11.The anesthetic staff are ready and willing to provide the service	77.4	0.0	0.2	22.4	62.3	15.1	3.94
3*	8.Being given an opportunity to ask question and problem	59.2	0.0	2.3	38.5	47.5	11.7	3.68
Convenience and quickness of the services								2. 59
1*	16.Having quick help care	79.9	0.0	0.8	19.3	65.2	14.7	3.94
2*	15.Having quick, and simple services	77.7	0.0	2.0	20.3	69.0	7.7	3.85
3*	17.The waiting period from arriving at the operation room to the time when being operated	71.5	0.0	2.5	26.0	64.5	7.0	3.76
4	18.Being removed from a recovery room to patients' ward with out waiting so long	71.2	0.3	2.5	26.0	55.2	16.0	3.84
5	13.Having an operation and anesthesia in the due time	69.2	0.0	1.8	29.0	63.0	6.2	3.73
6	12.Having a lot of convenience while staying in the operating room	54.0	0.0	0.0	46.0	45.3	8.7	3.62
7	14.Being able to contact other people	31.3	0.0	13.0	55.4	25.5	5.8	3.23

1 = not satisfied

2 = little satisfied

3 = moderately satisfied

4 = much satisfied

5 = most satisfied

***Ranking** by the percentage of customers, according to the level of their satisfaction toward anesthetic service , considering the score which using much satisfied (4) plus most satisfied (5).

Part V The comments and the needs of the customers toward anesthetic services.

The customers who were given anesthetic service at Maharaj Nakhon Si Thammarat Hospital had presented various comments as following :

98.0 % of the customers who were admitted at this hospital always recommend their friends and relatives to come for a service here, and 2.0 % of them were not sure whether or not to recommend their friends and relatives to come to this hospital.

95.8 % of the customers felt very confident to come to this hospital if the customers have to an operating, while 4.3 % of them were not sure whether to come or not.

36.3 % of the customers would like to know about the complication of being given anesthesia most. While 10.5 % of them would like to know about the types of anesthesia , and 0.8 % of them would like to know what they have to do when the operative wound was painful.

89.3 % of the customers thought that anesthetic services at Maharaj Nakhon Si Thammarat Hospital were good, and they needn't be improved while 65.1 % of them

thought that the most important thing to improve was the way to give advice and information. 16.3 % of them thought that there should be pre-anesthetic visit from the anesthetic staff and 7.0 % of them thought that they didn't want to wait long time and they should be allowed to choose the types of anesthesia, while 4.7 % of them thought that the least important thing to improve was prescribing analgesic drug.(Table 9)

Table 9 : The frequency and the percentage of the customers having comments were classified as follows:

Comments	Number (person)	Percentage
1. Recommending friends or relatives to come for the service at this hospital again		
- recommend	392	98.0
- not recommend	8	2.0
- not sure	8	2.0
2. Returning to this hospital again if they have to have an operation		
- confident to come	383	95.8
- not sure	17	4.3
- confident not to come again	0	0.0
3. Need to know about administering anesthesia		
- Complication after being given anesthesia	145	36.3
- Types of anesthesia	42	10.5
- Preparing themselves before being given anesthesia	40	10.0
- How to practice when the wound is painful	3	0.8
4. Anesthetic service was already good	357	98.3
5. The things that anesthetic service should be improved		
- Giving advice and information	28	65.1
- Having a pre anesthetic visit	7	16.3
- Having to wait a long time	3	7.0
- Permitting the customers to choose the procedure for administering anesthesia	3	7.0
- Prescribing analgesic drug	2	4.7

Part VI Assessing the problems and complication of the customers post anesthesia

61.5 % of the customers who were given anesthesia have no complication, while 38.5 % of them had complication . 26.3 % of them had to face the most painful operative wound, and 8.4 % of them had nausea vomiting and shivering, and the smallest group which were 0.7 % of them had cough, constipation ,low blood pressure and nausea vomiting, nausea vomiting and a rash, low blood pressure and painful wound , backache , high blood pressure, a rash and oliguria, nausea vomiting and painful wound , oliguria and urinary retention (Table 10).

Table 10: The frequency and the percentage of the customers and complication circumstances (N = 400)

Problems and Complications	Number (person)	Percentage
Having no complication	246	61.5
Having complication	154	38.5
Having painful wound	41	26.3
Having nausea and vomiting	13	8.4
Having shivering	13	8.4
Having sore throat	7	4.6
Having painful wound and shivering	6	3.9
Having rash	5	3.3
Having low blood pressure	3	2.0
Having nausea, vomiting and shivering	3	2.0
Having bradycardia	2	1.3
Having a cough	1	0.7
Having low blood pressure and nausea vomiting	1	0.7
Having nausea vomiting and a rash	1	0.7
Having low blood pressure and painful wound	1	0.7
Having a backache	1	0.7
Having high blood pressure	1	0.7
Having a rash and oliguria	1	0.7
Having nausea vomiting and painful wound	1	0.7
Having oliguria	1	0.7
Having urinary retention	1	0.7

The Aspect of the Chief and the Mainstay

Seven of the chief and the mainstay providers had been interviewed. Three of them were 30 - 40 years old. Two of them were 41 – 50 years old, and two others were 51 – 60 years old. Four of them were female, and the others were male. They were a general surgeon, an obstetrician, an EENT specialist, an orthopedist, an anesthesiologist, an nurse anesthetist and a surgical nurse. Four of the chief and the mainstay providers had 1-5 year working experience, and another one had 11-15 year working experience, and another one had more than 20 year working experience. Two of them had never attended a risk incidence conference , but five of them had discussed about the doctor' s risk of being accused or sued by the patients , fire, the patient safety and the risk management in the hospital.

There were six items of the concepts which were used to interview the providers who were responsible for the risk management of the safety of the customers who came for anesthetic services and an operation.

Question 1 : What kind of risk do the customers who come for anesthetic services and operation have to face?

- The obstetrician thought that the customers may have aspiration.
- The general surgeon thought that the customers may have a risk from the complication of the spinal block, such as a high spinal block and post spinal block headache.

- The anesthesiologist thought that the customers may have a risk from a cardiac arrest, bronchospasm, a high spinal block, aspiration., and mis-operation. (a wrong case operation).
- The E.E.N.T specialist thought that the customers may have a risk when they are im-property prepared before and operation. For example, the customers underlying disease should be cured into a safe condition before an operation and anesthetic administration, and they may face a complication from an anesthetic administration and an operation in the fist 24 hours after the operation, such as having an air way obstruction.
- The orthopedist thought that the customers may have a risk from being improperly or readily prepared for and operation. For example, The customers' underlying disease should be cured in to a safe and sound condition before an operation .Besides, they may be given the wrong dose of medicine and the wrong type of medication, and drug or mixture allergy.
- The nurse anesthetist thought that the customers may have a risk from their anxiety , such as the fear of pain, or unconsciousness, burn, and a body warmer.
- The surgical nurse thought that the customers may have a risk from burn, an electro-magnetic shock, a body warmer, operating appliances being left inside the patients, body and falling off the bed.

It was concluded that inside the obstetrician and the anesthesiologist had a relevant opinion that the customers may have a risk from aspiration. The general

surgeon and the anesthesiologist had the same conclusion that the customers may have a risk from the complication circumstances caused by high spinal block while the E.E.N.T and the orthopedist had a relevant opinion that the customers may have a risk from being improperly prepared for the operation. For example, their underlying disease was still incurable before an operation. The anesthetic nurse and a surgical nurse had the same opinion that the patients may had a risk from the burn of the body warmer.

Besides, an anesthesiologist had a different opinion that the patients may have a risk from cardiac arrest, bronchospasm and mis-operation.

Question 2 : What are the regulated policies of risk management base on the customers' safety?

- The obstetrician insisted that there should be a requirement based on the ready and proper preparation of the patient before an operation according to a protocol guideline, such as NPO and complete laboratory result. The anesthesiologist, together with the general surgeon and the specialist should work together in health care assistance the patients before administering anesthesia and an operation, and there should be pre-operation visit in case of cardiac condition.
- The general surgeon urged that the surgical unit and should explain to the patient about the stop of administering anesthesia before the real practice.

- The anesthesiologist that the patients should be readily prepared for an operation by means of protocol guideline , the readiness of the appliance and instruments and the readiness of an operating team, such as a surgeon, an anesthesiologist, a nurse anesthetist, a surgical nurse, a paramedic, a circulate , and a stretcher carrier.
- The E.E.N.T specialist suggested that there should be a policy requirement for the customers pre-operation preparation based on protocol guideline and there should be knowledge improvement for risk management personnel.
- The orthopedist required that there should be a guideline for a standard scale practice and a standard follow-up. The anesthesiologist together with the surgeon and the medical expert should assess and take care of the patients and in case of cardiac condition they should pay a pre-operation visit.
- An nurse anesthetist confirmed that the risk management policy of the hospital, write risk incidence in the anesthetic unit and find a way to solve the problems.
- Surgical nurse indicated that there should be a policy to schedule a monthly conference on the risk incidence and a standard scale practice and a standard follow-up.

It was concluded that the obstetrician, the E.E.N.T specialist and the anesthesiologists suggested that there should be a policy regulation for the customers' pre-operation practice based on the protocol guideline. The anesthesiologist and the

orthopedist had a relevant opinion that the anesthesiologist together with the surgeon and the medical expert should assess and take care of the patients before anesthetic administration and pre-operation visit in case of cardiac condition. Besides this the general surgeon urged that the surgical department and the anesthetic department should advise the patients about the steps of anesthetic administration before the real practice.

Question 3 : How is the knowledge improvement seminar held for the medical staff?

- The obstetrician suggested that there should be a knowledge improvement seminar about the risk incidence in health care assistance before, during, and after the operation and taking good care of the infants with Cesarean Section (C/S).
- The general surgeon suggested. That there should a brochure explaining about the way to practice before or after an operation and the medical staff should explain the practice to the patients and their relatives and bring up the problems and the ways to solve these problems at the patients care term (PCT) conference.
- The anesthesiologist suggested that the chief and the mainstay of the risk taking providers should old a seminar to provide some knowledge to every kind of medical staff and give them some suggestion before the real practice.

- The E.E.N.T specialist suggested that there should be a knowledge improvement on the risk of some certain diseases of the patients who come for anesthesia, such as tracheostomy and biopsy.
- The orthopedist suggested that there should be a standard scale of the risk taking, and medical staff should be notified about it and about the current risk incidence report.
- The nurse anesthetist nurse suggested that the chief and the mainstay of the risk providers of the unit should hold a conference to give knowledge to every group of medical staff.
- A surgical nurse suggested that the risk management committee should take part in conference of the risk incidence held by the hospital and spread the knowledge to the unit's medical staff.
- It was concluded that the anesthesiologist and the anesthetic nurse share the same opinion that the chief and the mainstay of the risk providers of the unit should hold a conference to give some knowledge to surgical group of the medical staff while the orthopedist suggested that there should be a risk standard criteria, and the medical staff should be notified about it and reported risk incidences.

Question 4 : How have the risk incidence report been managed?

- The obstetrician suggested that morbidity and mortality conference should be held monthly for the anesthetic staff to discuss about serious case and their solutions and risk prevention with the patient care team.

- The surgeon suggested that there should be a report accumulation of risk incidence, an outcome analysis, interpret , an assessment, and an approach for a solution
- The anesthesiologist suggested that the anesthetic staff should be reported the seriousness and details of monthly risk incidences and try to find a way to stop and prevent it, or find a way to bring about the least complication and the risk incidence should be weekly informed to the health care center so that they will gather all the hospital is problems for further improvements and solutions
- The E.E.N.T. specialist suggested that there should be a collection of the risk incidences, an out come analysis, an outcome variable, an assessment and an approach for a solution and prevention.
- The orthopedist suggested that the anesthetic staff should be informed about the fatality and details of the current risk incidences every month in order to find a way for a prevention and ask for a co-operation among the units if the risk incidences occur among them.
- The anesthetic nurse suggested that they should be a conference to inform every personnel staff and make them realize the significance and necessity of reporting the risk incidences and finding a strategy to solve the problems according to their priority
- The surgical nurse suggested that the risk incidences should be reported to the health care center weekly so that all the hospital's problems would be collected for further solutions and improvements.

- Conclusively, the general surgeon and the E.E.N.T. specialist had relevantly suggested that there should be an accumulation of all the risk incidence ,an out come variable ,an outcome analysis, an assessment and problem solving while the anesthesiologist and the surgical nurse suggested that the risk incidences should be weekly reported to the health care center so that it can accumulate all the problems for further solutions and improvements. Besides, the obstetrician suggested that there should be a monthly morbidity and mortality conference base on the fatality of the cases and discuss them with the patient care team for further agreement and problem solution.

Question 5 : How have the risk incidences happening to the customers who come for anesthesia and an operation been managed?

- The obstetrician suggests that the risk incidence problems should be brought up at the patient care team conference a prevention measure. Some medical specialists should be consulted and they had to take part in health care assistance. A plan should be set up to prevent any possible risk incidences.
- The general surgeon insisted that the patients and there relatives should be informed about the risk incidences, which will possibly happen. However ,the hospital has been putting a hard effort to prevent them, but they still exist.
- The anesthesiologist suggested that the site manager should take action immediately once the problem arise and these problem should be promptly reported to the higher responsible personnel.

- The E.E.N.T. specialist recommended that a new measure which is suitable to the risk incidences should be regulated and an alert system should be set up to avoid any risk incidences which will possibly happen to the customers.
- The orthopedist suggested that the cause of the risk incidences should be proved and analyzed to find a way to prevent them and there should be a co-operation with other agencies involved to set up a new prevention measure which are suitable to the risk incidences.
- The anesthetic nurse suggested that the cause of the risk incidences should be figured out and analyzed, and every agency involved should work together to find a way to prevent them.
- The surgical nurse recommended that there should be an enquiry into the cause of the risk incidences, risk analysis, and co-operation with other agencies involved to find a way to prevent them.
- The conclusion was that three out of seven staff, the orthopedist, the nurse anesthetist, and the surgical nurse, suggest that the anesthetic staff should find out the cause of the risk, analyze it, and co-operate with the agencies involved to find a way to prevent it while the E.E.N.T. specialist say that a new prevention measure should be set up to uphold the risk incidences and the risk alert system against each disease should be done for the benefit of the anesthetic and operative customers.

Question 6 : How have the staff planned and developed the continuous service system for the customers safety?

- The obstetrician suggested that there should be a monthly risk incidence conference so that the staff can conclude an accumulate and find away to prevent it and set the guideline in health care practice.
- The general surgeon preferred that every work group should be encouraged to set a plan and take a serious action in preventing any risk incidence which possibly happens.
- The anesthesiologist suggested that all the data should be analysis based on the frequency, quality and intensity including the medical expenses, and the guideline should be set up to obtain the continuous development.
- The E.E.N.T. specialist suggested that there should be a monthly conference for the leader of the patient care team about the current risk incidence, and the collected data should be assessed, and then staff have to set up the an aggressive prevention against the serious risk incidences which always happen.
- The orthopedist required that there should be a regular risk incidence conference and a continuous health care standard development.
- The nurse anesthetist suggested that there should be an accumulation of the benchmarks and these benchmarks should be used in self-assessment based on the risk incidences and the service quality. The work group should be reported and they have to work together to set up a plan to prevent any risk incidences.

- The surgical nurse preferred that there should be an encouragement to set up a leading patient care team in the operative team.

Conclusively, the E.E.N.T. specialist and the surgical nurse coherently suggested that there should be an encouragement to set up a leading patient care team, and a monthly risk incidence conference. The data should be collected and assessed. In addition, the anesthesiologist suggested that the data base on the frequency, quantity, and intensity should be analyzed including the medical expenses. Then the medical staff should be set up a guideline to bring about a continuous development.