

# Development the Strategics and Customer Relationship Management Model for Medical Center Outpatient Services

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*Abstract:* - After the implementation of national health insurance in Taiwan, the hospitals are facing severe operational competition, particularly in Taipei. Thus, to develop customer management model, hospitals have introduced Customer Relationship Management (CRM) to gain new customers, maintain the relationship with existing customers, and enhance customer satisfaction and loyalty. After analyzing the patients' needs, the hospitals can satisfy the patients who will thus revisit the hospitals. The patients' customer loyalty will be enhanced. It is also the effective approach to monitor customer relationship. This study targets on 600 outpatient service customers in a medical center in Taipei, and probes into the relationship between outpatient service customers' characteristics and satisfaction, as well as importance by correlation analysis. This study then divides outpatient service customers into four clusters by cluster analysis, and proposes different managerial strategies with regard to four clusters' characteristics as the criteria for CRM in the hospital.

*Key-Words:* - Customer Relationship Management, Hospital Customer Relationship Management, Medical Center Outpatient Services, Strategic Analysis, Cluster Analysis

## 1 Introduction

After the implementation of national health insurance in Taiwan, the people can use the national health insurance card in all hospitals. Outpatient services with more choices for the people can attract more customers. In Taiwan, the ratio of hospital outpatient service and hospitalization income is 55: 45. Thus, outpatient service customers are particularly important in Taipei. In the past, hospitals tend to operate by the simple hospital-patient relationship; they passively wait for the patients and neglect the interaction between the hospitals and patients. However, in a competitive environment, hospitals must be active and analyze the patients' needs. Otherwise, it will be difficult for them to attract new customers and maintain the existing ones. Hospital Customer Relationship Management (HCRM) aims to find the most proper policy with regard to different clusters of patients' needs to enhance their satisfaction and loyalty.

This study intends to probe into outpatient service customers of a medical center in Taipei (Far Eastern Memorial Hospital), and analyzes the correlation between outpatient service customers' characteristics, satisfaction, and loyalty, in order to explore and construct the model and strategy of outpatient service CRM in Far Eastern Memorial Hospital.

### 1-1. Customer Relationship Management (CRM)

CRM derives from the "customer-oriented" concept which was proposed by Peter Drucker and Theodore Levitt in 1950. The concept was usually called "marketing idea", and it indicates that to satisfy the customers' needs is the most essential business objective [1]. By CRM, companies can recognize the customers, service the customers, collect the information on their needs, and maintain the relationship by the solutions. When companies completely control and satisfy the customers' demands, reduce communication cost and transaction risk, they can certainly enhance customer satisfaction and customer loyalty. [2]

CRM is a kind of continuous relationship marketing and it seeks for the most valuable customers for companies. It is the systematic strategy of companies to increase the profits, customer-oriented core process from outer to inner and the operating strategy integrating the channels, front and back business, database, customer analysis and information technique application. It understands each customer completely, maintains the existing customers, and fight for new ones through all channels to enhance lifelong value of the customers. In this subject, many studies have been presented.[3-6]

**1-2.Hospital Customer Relationship Management (HCRM)**

In terms of four characteristics of hospital service (intangibility, inseparability, variability and perishability) [7], the hospitals are considered as service industry and match the concept of CRM-based operation [8]. For instance, counters, special lines, patient association, customer satisfaction survey and revisit rate are the operation

and indices of CRM. (Table 1)

Hospitals are passive and they only wait for the customers in needs to provide services. Moreover, in recent years, with more hospitals, the supply of medical industry has increased significantly and the industry has become competitive. Thus, hospitals must start considering the approach to break through current situations and provide more services for the customers. [9-15]

**Table 1: Characteristics of Hospital Customer Relationship Management**

	Content	Sources
Integration	<ol style="list-style-type: none"> <li>1. The service is not influenced by the members to enhance the satisfaction with the occupations and reduce learning time.</li> <li>2. Interaction channels are provided for hospital customers, such as voice mail center, internet service and fax.</li> <li>3. Database connection results in immediate data saving, automatic business and improve the responsive time.</li> <li>4. High-quality and effective service is provided to all members, such as the explanation of interests and situation and process of the investigation.</li> <li>5. Description of customer interest, demand investigation and process are suggested for the members.</li> <li>6. Increasing individual work satisfaction, reducing training time and ensuring high-quality interaction.</li> </ol>	McAvoy, 1999 [16]
Technique	<ol style="list-style-type: none"> <li>1. Medical technique is the important factor on hospital service.</li> <li>2. Hospital service providers and customers are the critical reforms in medical market.</li> <li>3. Information technology significantly facilitates HCRM.</li> <li>4. Medical information is obtained through internet.</li> <li>5. Medical center provides different channels to satisfy the customers' needs.</li> </ol>	Blain, Robin, 2000 [17]
Organization	<ol style="list-style-type: none"> <li>1. HCRM changes traditional hospital services into hospital customer-centered organizational activities.</li> <li>2. Treating the maintenance of loyal customers and acquisition of new customers as the goals.</li> </ol>	O'Malley 2000 [18]
Conclusion	HCRM leads to new customer value, provides high-quality, immediate and effective service to satisfy the customers' needs; maintaining long-term customer relationship by CRM and further resulting in customer loyalty and customer satisfaction.	This study

**1-3. Customer Value (CV)**

Customer value changes with time. Thus, companies must make efforts to find the incentives of purchase, use and customers' ultimate goal to use the products in order to recognize the value of the products and probe into, memorize and predict the customers' needs by information technology, and develop that the customers desire. Once the companies have the customers' long-term information, they would completely control their preference, and provide the service needed the most by the customers at the most proper time in order to

construct a long-term relationship and loyalty. Customer value would also be enhanced.

With regard to the customers' cognition to the attributes of the hospital, this study demonstrates two findings different from the past:

(1) Hospital customers' cognition to the hospital included below: 1) hospital customer interest; 2) hospital customer cost.

(2) For hospital customers, some hospital attributes which were traditionally regarded as customer interests were the costs, such as diagnosis time, convenience of parking, period of diagnosis, etc.[19]

According to Hospital Customer Value (HCV) model proposed by Kotler generalizes hospital attributes selected in the previous section according to interests and costs:

- (1) Medical interests: the doctors' techniques, nursing quality and equipments.
- (2) Service interests: comfortable facilities, clean environment, good service from the personnel and word-of-mouth on the hospital.
- (3) Hospital customer cost: charge, distance, diagnosis time, parking, diagnosis period. [20-21]

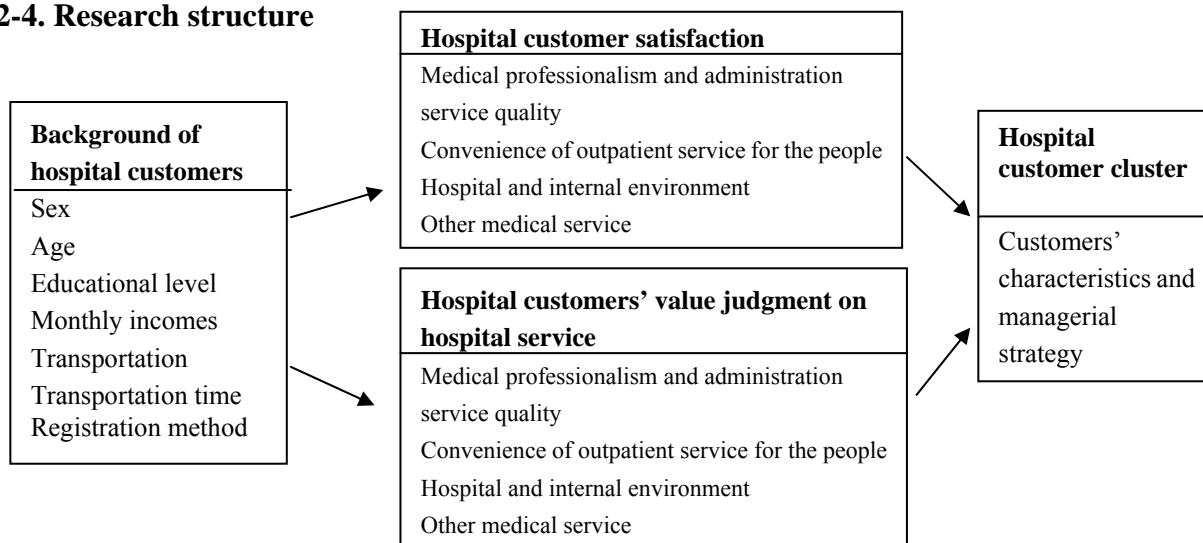
Based on the above definition, CV includes rational and experiential views. "Rational view" means that the customers intend to solve the problems and they value the practicability and effectiveness of the products; "experiential views" emphasizes the impression after the consumption and the customers' feelings. It is the important criterion for customers to judge CV.

**1-4. Customer loyalty**

Patients are the most important assets and the main sources of profits for the hospitals. How to provide high-quality hospital service quality to satisfy the customers and obtain the profits while providing the services, and how to upgrade service quality to enhance customer satisfaction, have become the most important issue for the hospitals in modern time.

Customer loyalty was not only a psychological factor, but also a kind of behavior, and it is divided into behavior loyalty and attitude loyalty: (1) the measurement of behavior loyalty is based on the consumers' repetitive purchase of certain product or service at certain time; (2) with regard to attitude loyalty, it is suggested that brand loyalty is the consumers' consistent purchase of certain brand

**2-4. Research structure**



**Figure 1: Research structure**

through psychological commitment. Thus, loyalty measurement should include the consumers' attitude, preference and purchase intention. Customer loyalty is the success key of the implementation of HCRM. [22-26]

**2 Materials and Methods**

**2-1. Questionnaire survey**

This study was based on questionnaire survey, and distributed the questionnaires to the outpatient service customers of Far Eastern Memorial Hospital. The distribution time was from October to November 2009. In the pretest, a total of 40 questionnaires were distributed, and 600 valid samples were returned.

**2-2. Data analysis**

In order to achieve the research purposes and effectively validate the hypotheses, after considering the characteristics of research framework and variables, this study adopted descriptive statistics, Pearson coefficient analysis, and cluster analysis to probe into the factors of HCRM of outpatient services.

**2-3. Validity and Reliability analysis of questionnaire data**

**2-3-1 Validity analysis:** this questionnaire was evaluated by three medical experts of management. The evaluation targeted on importance and satisfaction and upon Likert 5-point scale, the mean of importance was 3.93, and mean of satisfaction was 3.93. It indicates that the questionnaire is valid.

**2-3-2 Reliability analysis:** this study calculated Cronbach  $\sigma$  of the variables by SPSS; the mean of importance was 0.927 and mean of satisfaction was 0.923, which were higher than the criterion 0.7. It indicates that the questionnaire has a high degree of reliability.

### 3 Results

#### 3-1. Statistical analysis

**Table 2 : Analysis on outpatient service customers' characteristics**

Names of variables	Gender of the targets	Number of samples	Ratio of number of samples (%)
Sex	Male	269	44.8
	Female	331	55.2
Age	10-20	52	8.7
	21-30	190	31.7
	31-40	191	31.8
	41-50	130	21.7
	51-60	34	5.7
	Above 60	3	0.5
Educational level	Below elementary school	13	2.2
	Junior high school	92	15.3
	Senior high school	177	29.5
	College	128	21.3
	University	171	28.5
	Above graduate school	19	3.2
Monthly income	Less than NT\$10,000	98	16.3
	NT\$10,000-30,000	221	36.8
	NT\$30,000-50,000	224	37.3
	NT\$50,000-70,000	41	6.8
	More than NT\$70,000	16	2.7
Transportation to the hospital	Walking	44	7.3
	MRT	116	19.3
	Bus	66	11.0
	Motorcycle	248	41.3
	Car	122	20.3
	Others	4	0.7
Average transportation time	Within 10 minutes	114	19.0
	10-30 minutes	320	53.3
	30-60 minutes	155	25.8
	More than 60 minutes	11	1.8
Registration method mostly used	On-site registration	273	45.5
	Telephone registration	184	30.7
	Internet registration	143	23.8
Will you return to hospital?	Yes	488	81.3
	No	112	18.7
Will you recommend this hospital to your relatives and friends?	Yes	451	75.2
	No	149	24.8

**Table 3: Correlation analysis between outpatient service customers' characteristics and importance & satisfaction with hospital service**

Conditions	Correlation test	Possible reasons
There is a negative correlation between age and importance	-0.124**	Younger customers are more educated and importance and expectation upon medical items are higher; older customers do not reveal high degree of importance.
There is a positive correlation between educational level and importance	0.104*	When the customers' educational level is higher, they are more likely to absorb professional medical knowledge, and tend to expect the service in Far Eastern Memorial Hospital.
There is a positive correlation between average transportation time and importance	0.010*	When the customers' average transportation time is longer, it means that they tend to trust and depend on Far Eastern Memorial Hospital.
There is a positive correlation between registration method mostly used and importance	0.106**	The customers' registration method mostly used refers to higher revisit rate in Far Eastern Memorial Hospital.
There is a positive correlation between age and satisfaction	0.053**	Since older customers are mostly the patients with chronic diseases. They tend to rely on the service of Far Eastern Memorial Hospital.
There is a negative correlation between educational level and satisfaction	-0.068**	The customers with higher educational level usually criticizes and have opinions on the internal environment and medical quality of the hospital and it will reduce their satisfaction.
There is a negative correlation between the transportation to the hospital and satisfaction	0.040*	When customers have more choices for transportation to the hospital, their satisfaction will be enhanced.

\*\*significance level is 0.01, \*significance level is 0.05

The analysis on the characteristics of outpatient service customers in different clusters as Table 2 show below:

- (1).According to gender analysis of on-site valid questionnaire survey, most of the targets are females.
- (2).Most of the customers are 21-40 years old (63.5%) and they are in the meridian of life, followed by 40-50 year olds (21.7%).
- (3).The educational level of most of the customers is senior high and vocational school (29.5%), followed by university (28.5%). Nearly half of the hospital customers are at least college graduated.
- (4).Most of the customers have monthly incomes from NT\$30,000 to 50,000 (37.3%). It shows that

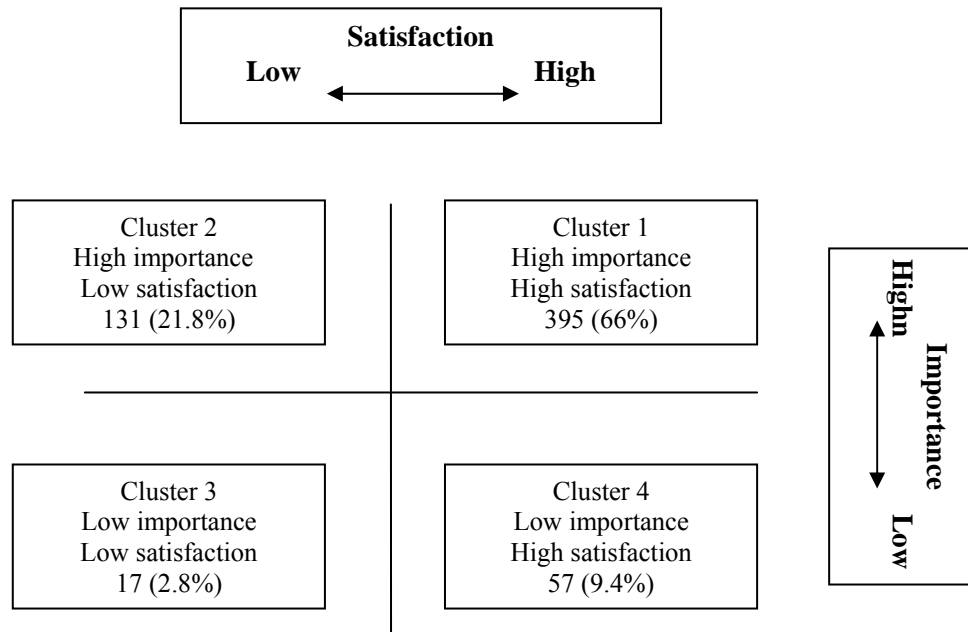
they can afford the medical expenditure. However, few of them have monthly incomes more than NT\$ 70,000. (2.7%).

- (5).Most of the customers use motorcycles as the transportation (41.3%) and some (19.3%) take MRT. It shows that although there is transportation near the hospital, the customers mostly ride the motorcycles.
- (6).The customers' revisit rate is 81.3% which demonstrates that the degree of hospital customer loyalty is high. The hospital treats "the customers as the first" and thus it should value customer satisfaction to maintain and increase customer revisit rate.

### 3-2. Pearson correlation analysis

This study observes the relationship between outpatient service customers' characteristics and hospital service importance and satisfaction by Pearson correlation analysis, as shown in Table 3. The importance level reveals a positive correlation

with educational level, average transportation time, registration method mostly used, and it reveals a negative correlation with age. The satisfaction level with hospital service reveals a positive correlation with age and transportation to the hospital, and it shows a negative correlation with educational level.



**Figure 2 Clustering of outpatient service customers**

### 3-3. Cluster analysis on outpatient service customers

This study conducted two stages of cluster analysis by SPSS. It first divided the samples into two clusters (high and low degrees of satisfaction), and treated one of the clusters as another sample for cluster analysis to lead to two-dimensional clustering result as shown in Figure 2.

This study treated the mean of different dimensions as the threshold. The mean of cutting point of satisfaction was 3.0, and that of importance was 4.0

There were 395 (66%) samples in Cluster 1 (high importance and high satisfaction);

131 (21.8%) samples in Cluster 2 (high importance and low satisfaction);

17 (2.8%) samples in Cluster 3 (low importance and low satisfaction) ;

57 (9.4%) samples in Cluster 4 (low importance and high satisfaction).

This study reorganized outpatient service customers' characteristics and managerial strategy in four clusters, as shown in Table 4

**Table 4 Outpatient service customers' characteristics and managerial strategy**

Cluster	Characteristics of customers	Managerial strategy
1. High importance High satisfaction	In this cluster, most of the customers are females (57.7%); they are from 10 to 20 and more than 60 years old. It is the cluster of young and old people; as to educational level, most of them are senior high school graduated; they mostly have incomes less than NT\$10,000; as to the transportation, they mostly take MRT, bus and mass transit; transportation time is from 10 to 30 minutes (medium and short distance).	It can continue maintaining the customers' high satisfaction to increase medical services. The customers in this cluster are mostly satisfied with hospital services which meet their demands. They are the most loyal customers, and are less satisfied with outpatient service process and other medical services, including the consulting service of the patients' departments, the hospital will actively inform the patients of revisit time, reduce medicine collecting time, reduce registration waiting time, reduce pricing time, provide community service, reasonable medical expenditure, internet service, telephone service and regular community bus. The hospital provides better medical professionalism and administration service quality for the customers. The hospital can recognize proper service according to the customers' individual information to satisfy the customers and maintain competitive advantages.
2. High importance Low satisfaction	In this cluster, most of the customers are males (54.2%) which is more than the average; they are 41-50 years old (middle-aged); as to educational level, most of them are junior high school and college graduated; they have incomes from NT\$50,000 to 70,000; they mostly ride the motorcycle as transportation; transportation time is 10-30 minutes and more than 60 minutes (medium, short and long distance).	It can enhance the customers' satisfaction by recognizing the factors of their dissatisfaction. It first analyzes the reasons and items of the customers' dissatisfaction. According to the analytical result, they customers expect that the hospital provides the consulting of departments, it can actively inform the patients of revisit time, reduce medicine collecting time, reduce registration waiting time, reduce pricing time, provide community service, internet service, telephone service and regular community bus. Thus, the customers in this cluster significantly expect that the hospital can reduce waiting time and provide regular community bus.

Cluster	Characteristics of customers	Managerial strategy
3. Low importance Low satisfaction	In this cluster, most of the customers are females (58.8%); they are 31 to 40 years old; as to educational level, most of them are university graduated; they have incomes from NT\$50,000 to 70,000 and more than 70,000; they mostly walk or drive the cars; transportation time is in 10 minutes (short distance).	The hospital can wait and see since the demands of the customers in this cluster are significantly different from the hospital services. The customers tend to complain about the hospital. Most of them are university graduated and they subjectively demand for medical service. They are in the prime of life and mostly live near the hospital. Thus, they highly expect the hospital. Besides medical professionalism and internal environment, they further demand for outpatient service process and other medical services. These customers are only 3% of all hospital customers and they are the minority. Thus, the hospital should cautiously invest in these customers and even transfer the investment to other clusters of customers.

Cluster	Characteristics of customers	Managerial strategy
4. Low importance High satisfaction	In this cluster, most of the customers are females (57.9%); they are 21-40 years old (in young and prime life; as to educational level, most of them are below primary school and above graduate school; they mostly use motorcycles and cars as the transportation; transportation time is from 30 to 60 minutes (medium and long distance).	The hospital should invest in the critical demands of the customers and enhance the marketing. It should actively concern about these customers' needs and have more marketing activities. The customers in this cluster have the medical service from the hospital for long term and they highly value the service. These customers are not clear about other related hospital services and thus they do not recognize the services and related characteristics. The medical personnel or service personnel should actively concern about these customers' demands, introduce the facilities and convenient services such as internet service, telephone service, regular community bus, etc. The customers in this cluster further expect the services below: the hospital should actively inform the patients of revisit time, reduce medicine collecting time, reduce registration time, reduce pricing time, etc.

#### 4. Conclusion and Suggestion

This study recognizes the characteristics of the customers in Far Eastern Memorial Hospital according to cluster analysis, and provides the most proper services upon their characteristics. With regard to on-site investigation on 600 outpatient

service customers, most of the customers are in the cluster of high satisfaction and high importance and they highly value and expect the hospital. Thus, the hospital should enhance the marketing, actively concern about the customers' needs, and find the



most proper medical services to satisfy current customers' demands. Generally speaking, the customers are satisfied and their revisit rate is high; they are likely to recommend the hospital to other customers. It demonstrates their satisfaction with the overall hospital services; it is the advantage of the hospital which should be maintained. In addition, the hospital should also improve the items which are valued but less satisfying. It meets outpatient service customers' demands. Good HCRM must integrate the departments in the hospital upon complete implementation. Thus, the departments should work as a team and satisfy the customers according to their demands, so that the customers are willing to revisit the hospital and their customer loyalty can be enhanced. They would recommend the hospital for their relatives and friends, and the hospital can construct positive word-of-mouth and brand advantage, thus, the hospital can be capable of sustainable operation.

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