

## APPLICATION OF VALUE CHAIN AND CRM TO DENTAL CLINIC IN BUSINESS AREAS - DENTAL CLINIC A IN TAIWAN FOR INSTANCE

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### Abstract:

Facing a series of decrease on the budget of health insurance and clusters of healthcare facilities, healthcare facilities nowadays take countermeasure to alter their operation. Therefore, managing healthcare facilities by standard procedures, systematically transmitting information of each department, and creating, maintaining, and strengthening staff's relationships with patients by an innovative management have been a challenge to the survival of healthcare facilities. In addition, today's medical techniques have become more and more widespread, and this results in different locations of healthcare facilities having different patient types; in this way, the operation of healthcare facilities is affected, and we found the difference of operation of normal healthcare facilities and those in business areas with different patient types is worth discussing. Patients feel nervous about going to the dentist and having the treatment or operation; therefore, to decrease clients' fear about the treatment and operation and to maintain patient-physician relationships, a complete service procedure and a fine environment are needed. The main purpose of the value chain is to transfer the management of an enterprise from functional one to procedure-one and further to lower the enterprise's operation costs, improve its operation benefits and economic benefits by the best core professional works, organizational hierarchy, working procedures, information procedures, etc. Customer relationship management is rather applied by an enterprise to fully interact and communicate with its customers, thereby understanding and affecting customer behaviors, attracting new customers, improving customer acquisition rate, customer retention rate, customers' loyalty, and profit rate. From the above, we found the common point of value chain and customer relationship management lies in enhancing enterprises' economic benefits. Therefore, under the condition that there are different locations of dental clinics, we may combine the application of value chain and customer relationship management and use them into daily operation of dental clinics in different locations so as to efficiently take advantage of current resources, systematically transmit information among each department, and providing profound medical environment and prominent medical services by a standardized management; in this way, when healthcare facilities are in the operation, they are able to make profits, build up fine patient-physician relationships, and establish the core competitiveness of sustenance of dental clinics by an innovative management. Moreover, we hope the publication of this study, which combines the operation management, experiences of customer relationship management, and standardized procedures of dental clinics in Taiwan, can serve as the reference of the operation management of dental clinics in other countries and spread the concepts of customer-orientation customer relationship management and systematic management.

## 1. PREFACE

Usually people feel nervous about going to the dentist, and they fear the dental treatment and operations. Therefore, to alleviate patients' fear about the treatment and operations, we need to build up a complete service procedure and a fine environment; more importantly, a professional team that standardizes the procedure from the start to the end such as consulting reservation, making appointment, treatment, and payment allows all the clients to accept the same level of medical treatment. With such systematical management, we believe the patients will feel less nervous and afraid of the treatment and operations, and that they will leave the clinics with their healthy teeth and smiles. In order to achieve the aforementioned objectives and visions, we found necessary to introduce a systematical management into the daily operation of clinics.

Because of the change of medical facilities and clusters of healthcare facilities, we found that under the circumstances that medical techniques have become more and more widespread and different locations of clinics have different types of patients, a customer relationship management that suits the local conditions is eagerly needed in addition to systematic management. However, a customer relationship management that suits the local conditions contains complicated procedures, so this makes the customer relationship management difficult to be enforced. Therefore, after understanding the medical demands from patients, we will face a great challenge about how to match up the medical operation and the customer relationship management and apply them onto different locations of clinics.

Medical education has equipped dentists and medical personnel with professional knowledge and dental techniques but less with knowledge and skills about how to operate healthcare facilities. In this age of customer-orientation and fast changes, all the healthcare facilities not only have to equip them with professional techniques but also need to know their customers' needs well, providing their customers with new values and new services and developing customer-oriented customer relationship management. However, the customer relationship management of medical industry contains complicated procedures, and this makes the customer relationship management in medical industry difficult to be enforced. In addition, dental clinics also face strict challenges such as the update of National Health Insurance Act and Labor Standards Law, huge investment amount of introducing advanced medical technology, training fees for employees, etc., increasing the costs of dental clinics. In this way, under the condition of different locations of dental clinics, how to efficiently run a dental clinic, find out patients' needs, lower the costs, and at the same time match up the medical operation and customer relationship management have become a huge challenge for dental clinics. Among the dental clinics in Taiwan, we found Dental Clinic A worth to be studied because it survives in such a strict environment and makes profits by standardizing its management with professional knowledge and skills, systematically transmitting the information among each department, providing fine medical environment and outstanding medical services, and establishing good patient-physician relationship with innovative management. We hope the publication of this study, which combines the operation management, experiences of customer relationship management, and standardized procedures of dental clinics in Taiwan, can serve as the reference of the operation management of dental clinics in other countries and spread the concepts of customer-orientation customer relationship management and systematic management.

## 2. LITERARY REVIEW

Since the aim of this study is to discuss the application of value chain and customer relationship management to dental clinic in business areas, we respectively introduce value chain and customer relationship management in this section:

### A. Value Chain

Value Chain was proposed by Michael E-Porter in his book, *Competitive Strategy*, in 1985. Porter pointed out that an enterprise needed to connect a series of procedure that created value so as to develop its unique competitive strategy or to create higher added value for its stock holders, and the "series of procedure" was exactly the value chain. CEO of Dental Clinic "A" knows deeply the importance of management in dental clinics in order to created customer-satisfied dental services through a series of procedures in value chain that create values.

Huang (2006) mentioned that the major objective of value chain management is to transform an enterprise's management from functional one into procedure one and further to lower the enterprise's operation costs through the best core professional works, organizational hierarchy, working procedures, information procedures, etc.. Value chain management separates an enterprise's operation activities into "primary activity" and "support activity." Primary activity refers to an enterprise's major procedure which can increase benefit, profit or market share. It includes inbound logistics (the receiving and warehousing of raw material, and their distribution to manufacturing as they required), operation (the process of transforming inputs into finished products and services), outbound logistics (the warehousing and distribution of finished goods), marketing and sales (the identification of customer needs and the generation of sales), and service (the support of customers after the products and services are sold to them).

Support activity refers to the supporting operation for backing up primary activity, including the infrastructure of the firm (necessary support for the whole value chain, such as organization structure, control system, company structure, etc.), human resource management (employee recruiting, hiring, training, development, and compensation), technology development (technologies to support value-creating activities), and procurement (purchasing inputs such as materials, supplies, and equipment).

#### *B. Customer Relationship Management*

Customer Relationship Management (CRM) was derived from "contact management" in the beginning of 1980s, which was aimed at collecting the contact information between customers and enterprises (Spenger, 1999). Lacker (1998) believed that CRM was a continuing relationship marketing, which was targeted at searching for the most valued customers for enterprises, thereby marking off customer groups with different values; Wayland and Coll (1977) regarded CRM as the competence of providing product manufacturing, services, instantaneousness, personalization, customization, and customer satisfaction. The definition of CRM can broadly include the level of making unintended customers satisfied, getting beyond their needs, and attracting their repurchase, turning them into loyal customers. Swift (2000) thought that CRM was an operation method that an enterprise used to understand and affect customer behaviors, increasing new customers, enhancing customer obtain rate, customer retention rate, customer loyalty, and profit rate by fully interacting and communication with customers (2000).

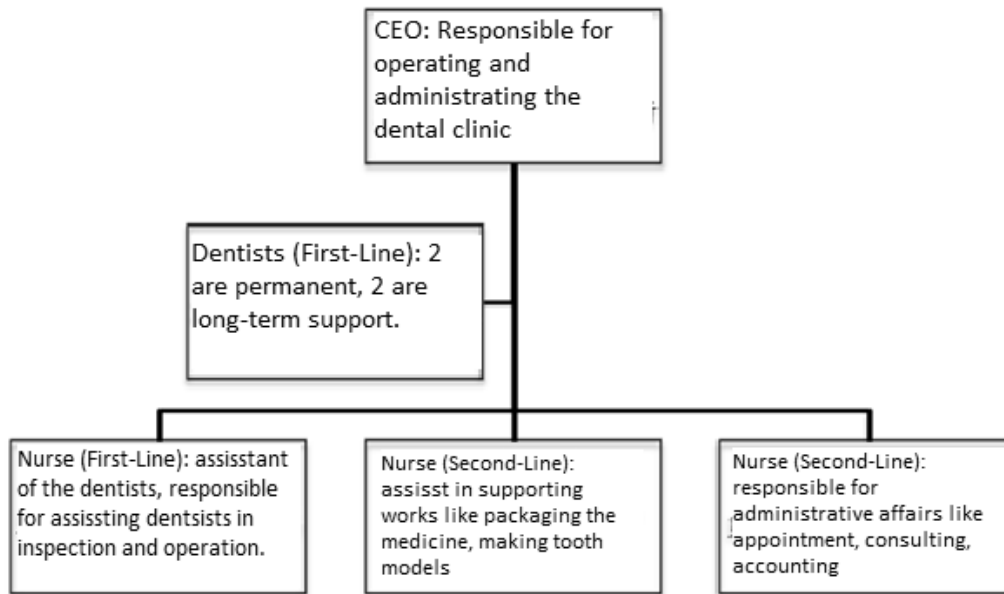
Recently research (Hsu (2001), Chang (2002), Wu (2007)) about CRM in medicine industry has been increasing. These researches show the increasing importance of CRM in medicine industry.

Recent development of the medicine industry and the Internet in Taiwan has enhanced customers' acquisition of medical information. Under the changeable health insurance financial and benefit system, traditional service-oriented operation in medicine industry is forced to be transformed to customer-oriented one; in other words, because Bureau of National Health Insurance, Department of Health provides limited medical resources, healthcare facilities need to alter their operation so as to enhance customer loyalty and build up long-term customer relationships; in this way, these healthcare facilities can maintain their sustenance and development (Howard,1999; Coile, 2001).

### **3. VALUE CHAIN ANALYSIS OF DENTAL CLINIC A**

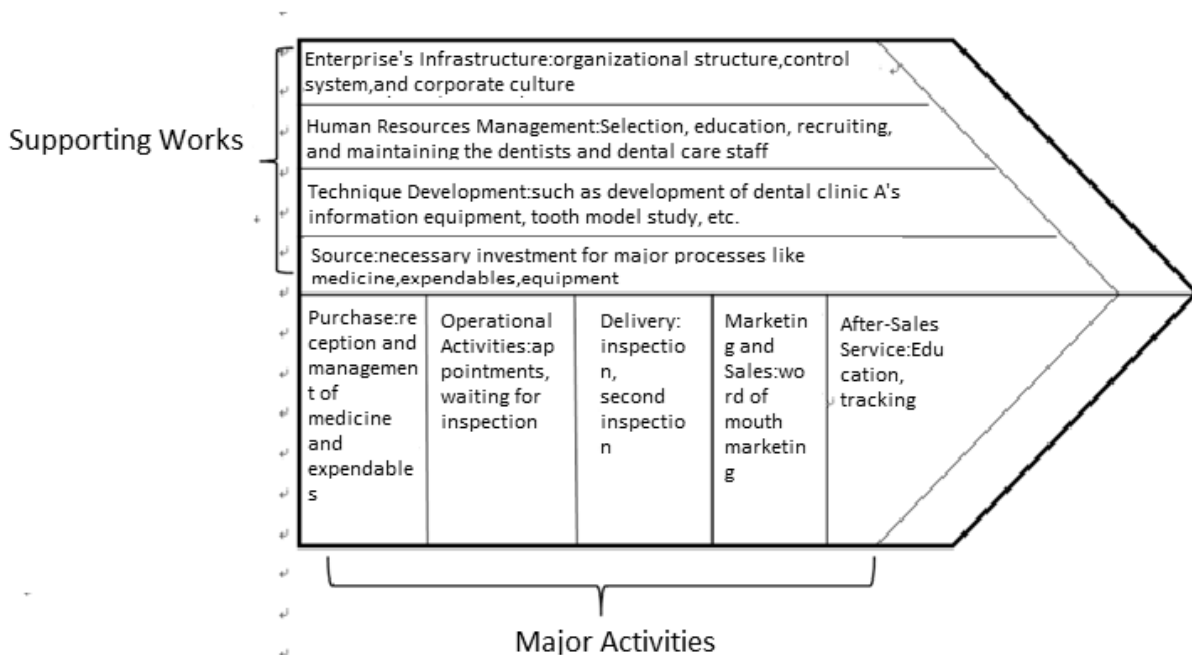
Under the authority of Dental Clinic A's CEO, there are four dentists, two of them are permanent, the other two are long-term support. Under each authority of the dentists, there is support staff, including first-line ones and second-line ones. In inspection, each dentist is supported by one nurse who takes care of the tools needed for inspection, medicine (such as anesthetics), and consumables (e.g., antiseptic gauze, cotton, paper cups, etc.); at the same, second-line nurses help with packaging medicine, tooth models, etc.. Therefore, there will be three sides, dentists, first-line nurses, and second-line nurses, conducting the operation or inspection at the same time; in this way, the time for inspection is three times faster than normal dental clinics. Furthermore, other two second-line nurses take care of administrative affairs like appointment, consulting, accounting, etc.; from supervisor, dentists, and nurses, the definition of works is clear. So the operation of Dental Clinic "A" is smooth and efficient. Its organization structure is as Picture 1.

**Picture 1:** Organizational Structure of Dental Clinic “A”



Dental clinic “A” divided the main procedures of its core affairs into processes and supporting works according to the chain value management. Major processes include purchasing (reception and management of medicine and expendables), operational works (appointments/waiting for inspection), delivery (inspection), marketing and sales (word of mouth marketing), and after-sales service (education/tracking); supporting works rather mainly adjust the major operation of dental clinic “A”. Through major processes and supporting works, a combination of value-transmitting activities comes into being, which is the value chain of dental clinic “A” (shown by Figure 2). By means of the value chain, dental clinic “A” provides quality service to its customers and creates customer values.

**Picture 2:** Dental Clinic A's Value Chain



### 3.1. Supporting Activities in Dental Clinic A's Value Chain

The smoothness of major activities depends on the assistance of supporting activities. Therefore, we first investigate the supporting activities in the value chain of dental clinic "A", thereby finding out how supporting activities assist in proceeding major activities. The details of the four supporting activities are as follows:

#### *The Infrastructure of the Firm:*

If we suppose an enterprise is a human body, corporate culture is like human brain and heart, representing a human's thinking and center of life; organizational structure is like human bone and flesh, forming the shape of a human; the control system is like a human's immune system, monitoring the normal operation of the body and protecting it to decrease external irritation. Returning to an enterprise, if an enterprise would like to maintain its operation, then corporate culture, organizational structure, and control system should be the fundamental basis. In the following, we discuss the infrastructure: corporate culture, organizational structure, and control system of dental clinic "A":

- Corporate Culture: With care and profession, dental clinic "A" takes its customers into first consideration, and provides its customers with fine environment and high quality service to lower customers' nervousness and uncomfotableness. Dental clinic "A" stand in the shoes of its customers and hopes its customers can leave with their healthy teeth and smiles; in addition to its quality service, dental clinic "A" expects to teach its customers the correct concept of teeth care.
- Organizational Structure: dental clinic A's organizational structure is simple. It is divided into "front desk" and "backstage support (also known as "rear service support staff)". Front desk staff is responsible for administrative works like customer reception, administrative affairs, finance, and budgeting. Because front desk staff will affect the first impression of customers on dental clinic "A", and at the same time, customers' assessment on the quality of the inspection lies largely in the interaction with front desk staff, the attitude and savoir faire of front desk staff are very important. Rear service staff includes dentists, assistant nurses, nurses, and CEO; among them, dentists, assistant nurses, and nurses are behalf of professional techniques and knowledge as they are required to take professional training; a CEO needs to be equipped with integration competence, adjustability, executive ability, and endurance; meanwhile, the CEO should be able to observe the operation on a macro-scale, integrate resources, control everything all the time, and calmly deal with any management problem; in addition, CEO has to set an example by his/her own action; therefore, CEO is truly the core of dental clinic "A".
- Control System: dental clinic "A" arranges the daily shift schedule in advance, and posts it at the front desk. Each nurse has their own seal, and they need to stamp on the daily statement, which contains the used amount of medicine and expendables, records of appoints and inspection, accounting, etc., to show responsibility and serve as future tracking basis. In addition to hand-written statement, dental clinic "A" uses MIS for health insurance, appointment, operation and managing expense; in this way, dental clinic "A" not only can preserve complete medical records and clearly classify the records, but also can crosscheck with hand-written statement. Moreover, dental clinic "A" not only has daily statement, but also monthly one and yearly one that record the content of each appointment and inspection. Through monthly and yearly statement, customers' appointment, orthodontic records, payment records are clearly recorded, thereby avoiding future medical disputes but at the same time serving as the reference for clinical treatment.

#### *Human Resource Management:*

"People" are definitely the essential key to a fine inspection environment and quality service. Dental clinic "A" has made great effort on the selection, education, recruiting, maintaining of human resources. Dental clinic "A" believes that only the cooperation among staff can provide quality care for patients. In the following, we will discuss how dental clinic "A" manages human resources.

With regard to the selection and recruiting of human resources, suppose dental clinic "A" hopes to recruit 8 employees, then dental clinic "A" will adopt 12 employees and train them. During the training, the CEO of dental clinic "A" selects full-time employees based on dental clinic A's corporate culture

and learning attitudes, with a hope to recruit healthcare personnel who stand in the shoes of patients and will learn hard. On the other hand, those intern employees who don't suit dental clinic "A" will be paid generous allowances when they leave.

As far as the healthcare personnel's training is concerned, the CEO of dental clinic "A" standardized, streamlined, and put the healthcare procedures into a manual. Each healthcare personnel has one manual, which elaborates the tools and steps for all the operations or treatment, and healthcare personnel can follow the manual and operate by themselves; at the same time, CEO will avoid the consulting hours and conduct training at free time, or offer double salary for the healthcare personnel to join the simulative training on holiday. Meanwhile, the CEO will give tests to see if his/her employees have memorized the tools and steps for operations or treatment. In addition, dental clinic "A" is also equipped with DVD-based courses, and its employees can learn by them. Healthcare personnel is divided into first-line nurses and second-line ones; senior nursing staff is divided to first-line nurses, responsible for helping dentists with inspection or operation; junior nursing staff is classified into second-line nurses, responsible for taking care of the front desk (such as administrative affairs, reception desk) and backstage support (such as medicine packaging, making models, etc.) and learn from senior nurses to accumulate their own experiences.

With regard to maintaining human resources, dental clinic "A" rewards its nurses and dentists by incentives and incentive tours. To nurses, dental clinic "A" pays them based on different pay for different work; each employees are given different incentives according to their characteristics and their different contribution to dental clinic "A"; those who behave well will be given additional incentives. Moreover, the locations of incentive tours to local Taiwan or foreign countries are determined by employees' performances. Through incentive tours, employees will be encouraged and their relationship among employee will be closer.

Finally, the most evident difference on human resource management between dental clinic "A" and other dental clinics is that there is no human resources gap between resigning employees and newly-recruited employees. Generally, most dental clinics often face the human resources gap when their employees resign and they can't find a new one to fill the vacancy. To avoid this kind of problem, dental clinic "A" establishes "resignation pay regulation," encouraging its employees to provide their resignation date in advance, which allows dental clinic "A" to have enough time for training new comers. The resignation pay regulation says that resigning employees will be paid two-month resignation pay if they provide their resignation date two months earlier; resigning employees will be paid one-month resignation pay if they provide their resignation date one months earlier; however, if resigning employees provide their resignation date within one month, then they won't be paid resignation pay. Through this resignation pay regulation, dental clinic "A" has no human resources gap between resigning employees and newly-recruited employees.

#### *Technology Development:*

Dental clinic "A" has e-formalized its medical records. The medical records are divided into four kinds of systems: health insurance, appointments, operation, and own-expense, and each system is individual, making accounting accounts clear and avoiding confusion; meanwhile, dental clinic "A" combines the systems with Standard Operating Procedure(SOP). Moreover, to guarantee the safety of operations, dental clinic "A" builds up uninterruptable power supply system, which can provide whole-day power consumption for appointments and operations; therefore, if there is sudden power cut or black out, the this power supply system will automatically supply power and ensures that the operations are safe and not interrupted.

Dental clinic "A" can also customize the procedures for its customers. Through its technique of making tooth models before, during, and after the operations, dental clinic "A" can record the change of its customers' tooth arrangement during the operations. In addition, dental clinic "A" can predict its customers' future tooth arrangement by its specially made soft wax models, decreasing its customers' uncertainty and fear; even if its customers know few about medical science, by the specially made soft wax models the patient can clearly understand the whole operation procedures, thereby benefitting the communication between dentists and patients and allowing each customer to realize their current teeth situations. Dental clinic A's ability to make soft wax models is exactly its unique core ability.

#### *Procurement:*

Generally, hospitals have to get through a lot of steps during procurement, and they have to wait until there's low stock, while dental clinic "A" adopts different procurement method: it discusses with its dentists and asks for their professional advices before it looks for suitable medicine and treatment tools; it seeks direct cooperation with suppliers and purchase stock for a whole year with a view to obtain cheaper prices and at the same time to maintain stable cooperative relationship with its suppliers. The procurement of dental clinic "A" is divided into medicine and expendables; with regard to the medicine, because of the timeliness and expiry date, dental clinic "A" only asks for currently needed medicine amount and to receive the amount from the suppliers even though it orders whole-year stock. Moreover, the medicine can be divided into refrigeratory ones and non-refrigeratory ones: refrigerator medicine is stored in special refrigerator equipment. As for expendables, they are divided into consumables for operations (such as cotton, gauze, disposable sticks, etc.) and presents (such as teeth brushing set, seals, toy cars, dolls, etc. for customers), and they are also in large amount; in addition, these expendables are coded and neatly classified on the warehouse at the attic of dental clinic "A". Every day, dental clinic A's nurses should get a basket and select necessary medicine and expendables from the warehouse. By means of standardized management, dental clinic "A" can precisely control the consumption amount of the medicine and expendables.

### **3.2. Major Activities in Dental Clinic A's Value Chain**

Based on its four supporting activities, infrastructure (including organizational structure, control system, and corporate culture), human resources, technique development (including information technology and teeth model technique, etc.), and procurement, dental clinic A's operation management was transformed from functional one to procedure one. These four supporting activities support the major activities of dental clinic "A" and make its major procedures smooth. In the following, the major activities of dental clinic "A" will be introduced based on inbound logistics, operation, outbound logistics, marketing and sales, and service:

#### *Inbound Logistics*

The inbound logistics of dental clinic "A" is mainly the reception and management of medicine and expendables. After large amount of purchases with cheaper purchase costs, dental clinic "A" faces the problem about storage and distribution. With regard to the medicine, it is classified into refrigeratory ones and non-refrigeratory ones. Refrigeratory ones will be classified neatly in crispers with labels for recognition; non-refrigerator medicine is classified by the same way and is stored in the storeroom at dental clinic A's attic. The unique point about dental clinic A's appointments is that every day before appointments, the nurses will prepare the medical formula (such as analgesic and antiphlogistine) in advance and put them in the drawer beside the appointment and operation desk. In this way, after customers go through their appointments or operations, they can directly take away their medicine without going to the pharmacy for prescription drugs, which is regarded as more convenient service for customers.

As far as the expendables are concerned, they are stored on different shelves according to their shapes, size, and weight, and they are coded with labels for recognition. Every day before appointments, dental clinic A's nurses have to take a basket to the storeroom at the attic, get needed supplies for that day's appointments and operations, and put them in the shelves and drawers at the operation room and consulting room. No matter they are medicine or expendables, nurses that take them away need to write down the amount, keep records on daily reports, and stamp to show responsibility; in this way, dental clinic "A" can precisely control the used amount of medicine and expendables, consume the precise amount, and avoid waste of the supplies.

#### *Operation*

Dental clinic "A" is located in the business area, so its customer types are diverse, which can be divided into employees from contributing stores of the business area, visitors, students, and nearby residents. Therefore, dental clinic "A" puts great emphasis on its service quality, and it customizes its service for different customer types to avoid long waiting time: to employees from contributing stores of the business area, dental clinic "A" understands their working schedule is different from normal wage earners, so it will avoid their working schedule to make appoints for them; to visitors, students, and nearby residents, dental clinic "A" has to control the precise time and procedure of the

appointments and provide its customers with precise appointment schedule. If the nurses know that the appointment schedule would be delayed in advance, they will call the customers, or advise them to having meals or shopping at the contributing stores, and then the nurses would remind the customers that the appointment schedule is approaching to decrease its customers' waiting time. As soon as its customers arrive at dental clinic "A", the nurses will prepare water for the customers, and they will arrange lots of books, comic books, toys, and contributing stores' DM at the waiting area with a hope to avoid customers' bore and at the same time help visitors to know more about the contributing stores so that they can arrange their schedule.

For customers who are first appointment or inspection at dental clinic "A", the nurses need to make sure what kinds of operations or treatments the customers need in advance and pass on to the dentists; then they will provide free consulting to the customers before treatment, understand more about the customers' teeth conditions and medication, and design a customized treatment according to each customers' different situations. During the consulting, four main subjects will be discussed: what's the objective of the operation or treatment this time? Tell the customers the price of the operation or treatment this time. How many times of operations or treatments are needed? How can the dentist and the customer cooperate with each other? Before actually conducting the treatments, dental clinic "A" will communicate with its customers in advance; in this way, it not only can avoid medical disputes, but also it can maintain good medical relationship with customers. After all the related subjects are discussed with the customers, dental clinic "A" will sign the contracts with objectives, treatments, and payment terms with customers, and customers only need to pay 10% of the total fee of the operations or treatments, and the remained fees can be paid according to customers' needs and selection of payment terms (e.g., installment, pay the remained fees after the operations or treatments, etc.)

#### *Outbound Logistics*

Standardization of the medical procedures and comprehensive training can avoid mistakes and enable all the patients to have the same level healthcare. During the inspection, each dentist will be assisted by four nurses; two are responsible for administrative affairs like front desk reception, administrative works, financing, budgeting, etc.. The other two are the assistant of the dentist. First-line nurses have to make sure the patient's appointment content on that day, and prepare the tools needed for that day's treatment on the operating table with order so that the dentist doesn't have to waste time looking for tools during the treatment. At the same time, first-line nurses will ask for second-line nurses' help with cast pouring, X-ray taking, etc. according to that time's treatment. Through the cooperation of the three sides, the efficiency and effects are enhanced at the same time; therefore, each dentist's appointments and speed at dental clinic "A" are three times of the other dental clinics; moreover, many nurses' help can also lower the tiredness of the dentists.

To the patients who are going to go through operations or treatments, dental clinic "A" will take pictures of their teeth as records and make teeth models when they come for first appointment; in this way, customers can understand more about their teeth problems and dental clinic "A" also teaches their customers right teeth healthcare concepts. In addition, in every appointment dental clinic "A" will record customers' changes on teeth occlusion, shapes, and arrangement, and it will also make teeth models before, in the middle of, and after the operations so that customers can understand the current process and check if their original objectives are achieved through the teeth models. People usually feel feared and unsafe about the unknown, so patients are usually nervous and uncomfortable when they go to the dental clinic; at this time, this dental clinic takes advantage of the teeth models for explanation, so customers without knowledge background about medical science can know clearly about the whole procedure of the operation. Moreover, separation of the operations and appointments can also avoid disturbances and lower patients' anxiety and nervousness.

To customers who have finished their appointments or operations, dental clinic A's two nurses at the front reception desk will advise customers suitable meals (such as rice porridge) based on their symptoms, and ask them if they would like to make reservation for meals, assisting them to have meals at the business area to decrease the waiting time after they get their appointments done.

To children who have fear about going to the dentists, nurses and dentists of this dental clinic will encourage and pacify them; the nurses and the dentists will also give the children stickers, toys, stationery, etc. according to their age, personality and performances to be the presents (as shown by



Picture 3). Furthermore, the dark X ray rooms are hung with cute displays, which lowers children's fear, and nurses will also accompany the children to take the X-ray in the X-ray rooms.

**Picture 3:** Gifts for Children: Teeth Brushing Set and Toys



### Marketing and Sales

Dental clinic “A” is located in the business area. So its customer types are diverse, which can be divided into employees from contributing stores of the business area, visitors, students, and nearby residents; to employees from distributing stores, dental clinic “A” understand they need to stay close to customers, so this dental clinic will give them mouth-washes if they come for appointments and they can keep their breath and teeth fresh and clean when they encounter their customers; to visitors, this dental clinic will provide information or coupons of stores at the business area so that the visitors can make arrangement for their schedule, thereby offering them different experiences of going to the dental clinic “A” for teeth; to students and nearby residents, this dental clinic will regularly deliver free speeches about teeth healthcare at nearby elementary schools and teach the students right teeth brushing method; in this way, dental clinic “A” shows the model of education and making contribution to the community, building up dental clinic A’s stable status among nearby residents and employees at the business area. As a result, through cooperation with stores at the business area and schools, dental clinic “A” can strengthen its customer source and attract visitors without self-recommendation because its customers and nearby residents will pass its reputation from mouth to mouth, and this dental clinic will have constant customer resources by word of mouth marketing without advertisements.

### Service

Dental clinic “A” puts emphasis on each customer. After the operations, to seize the key 24 hours after operations, all the dentists are asked to turn on their cell phones in case their customers have urgent situations or problems. Meanwhile, dental clinic “A” regularly conducts telephone polling as well; it randomly picks up customers from its records, track their subsequent situations, ask if they are satisfied with the service of dental clinic “A” and its employees, and look for its customer advices.

Moreover, this dental clinic provides its customers with one thoughtful service: selling tooth brushes and toothpastes. At dental clinic A’s wall, there are various tooth brushes and toothpastes which are sold at cost price to customers. Dental clinic “A” doesn’t expect to get profit from its customers because of selling peripheral products, but hopes to bring convenience to its customers; in addition, nurses at the reception desk can also educate the customers how to select suitable tooth brushes and toothpastes for themselves based on their teeth situations, making its customer unprecedented experiences of teeth treatments.

## 4. APPLICATION OF CRM IN VALUE CHAIN – TAKING DENTAL CLINIC “A” FOR INSTANCE

Based on the literature review, it is known that the major activities of value chain include activities of marketing and sell, and CRM is included in relationship marketing, and meanwhile relationship marketing is one of the concepts of marketing. Hence, CRM can be applied to the marketing and sell of value chain. Four factors, portfolio management of customers' combination, value positioning, role of added values, return and risk sharing, proposed by Wayland and Coll (1977) that decided the value of customer relationship are used here to demonstrate how CRM can be applied to the main activities : marketing and sell of value chain in dental clinic “A”.

### 4.1. Portfolio Management of Customers' Combination

In the medical service market, medical institutes should make segmentation for customers, which is aimed to providing one-on-one marketing and customized services to each customer. If there is no strategy of market segmentation positioning, it would be hard for a medical institute's medical service to be the leading branding position, and its medical service and features cannot be shown. Therefore, we demonstrate dental clinic A's customized services and market segmentation strategy in the following:

#### A. Customized Services

Dental clinic “A” believes that each customer's body and mind is unique. So it conducts customized services for every customer. In the first appointment, dental clinic “A” takes pictures, makes records and teeth models of its customers' teeth. For every appointment, it records changes of the occlusion, shapes, and arrangement of customers' teeth, letting its customers know more about their teeth problems and have their own teeth models; dental clinic “A” gives the most appropriate treatments for its customers according to their medical reports, medicine records and physical and mental situations. In addition, this dental clinic gives teeth-washes to employees from stores at the business area as gift to keep their breath fresh because this dental clinic knows that they need to stay close to their customers.

#### B. Market Segmentation

Dental clinic “A” separates customers for appointments and customers for operations. To customers who go for appointments, this dental clinic regularly picks up random customers from monthly reports to do telephone polling, tracking their subsequent situations and asking them if they are satisfied with the service of this dental clinic and its employees; to customers who go for operations, each dentist will turn on their mobile phone for 24 hours so as to effectively take care of customers' physical situations in time.

### 4.2. Value Positioning

There are 3 dimensions to set up the value positioning strategy: to provide core products, extended series, and total solution. In the following, we take dental clinic “A” for example and demonstrate how to have the value positioning strategy:

#### A. Core Products:

Dental clinic A's core product is the teeth treatment for customers. It invites prominent dentists and nurses to provide medical services for its customers, which is the basic product and service of a dental clinic.

#### B. Extended Services:

In addition to the core products, for extended services, dental clinic “A” puts great emphasis on the quality of service to customers, and it provides different extended services to different customer types. To employees of the contributing stores at the business area, dental clinic “A” understands their working hours are different from those of normal wage earners. So the clinic will avoid their working schedule to make appoints for them; to visitors, students, and nearby residents, dental clinic A's nurses need to control the time for appointments, operations, and procedures, and provide customers with more precise appointment schedule. If the nurses know that the appointment schedules will be delayed in advance, they will call the customers or advise them to have meals or shop at the

contributing stores at the business area, and remind them to come back for appointments until the appointment time is close, thereby, to decrease customer waiting time. Moreover, as soon as customers go inside the clinic, the nurses will prepare water for them, and at the same time the waiting area is filled with lots of books, comic books, toys, and DM from stores at the business area, which would not make customers bored.

#### C. Total Solution:

The value positioning method of providing total solution is to cooperate with nearby distributing stores at the business area and to provide services for nearby elementary schools. By delivering free speeches about teeth healthcare to elementary schools and teaching children the right teeth brushing method, dental clinic "A" not only make contribution to the community, but also build up relationship between dental clinic "A" and nearby residents at the business area. As a result, dental clinic "A" will have constant customer resources without self-recommendation because its customers and nearby residents will pass its reputation from mouth to mouth.

### 4.3. Role of Added Values

As far as the value chain activities of medical industry are concerned, hospitals should regard them as administrators of the network, which means hospitals need to closely connect their customers with other healthcare or medical institutes; that is to say, hospitals should enlarge their value chain activities to become a multi-functional medical service institutes, thereby making customers feel relieved to entrust their health to hospitals' enhanced values of medical services instead of getting caught in the myth of promotion of medical services. Therefore, we demonstrate the added value services of dental clinic "A" in the following:

#### A. The Dentists' Cellphones are Turned On for 24 Hours

Take dental clinic "A" for example, after customers' operations, related dentists need to turn on their cellphones for 24 hours so as to deal with customers' urgent problems or unexpected incidents in time.

#### B. Education and Consulting

On dental clinic A's wall, there are filled with various kinds of tooth brushes and toothpastes. Dental clinic "A" doesn't expect to make profit from selling those products but to bring convenience to customers. This clinic sells the tooth brushes and toothpastes at cost prices, and nurses will teach them how to select suitable tooth brushes and toothpastes for themselves; in addition, by means of the tooth models, customers can know more about their teeth health and they can be taught right teeth healthcare concepts.

### 4.4. Return and Risk Sharing

Facing a series of decrease on the budget of health insurance in Taiwan, healthcare facilities draw upon the countermeasures to enlarge their amount of services so as to make profits. However, when making profits, healthcare facilities should also take risks into consideration. Therefore, under the balance of return and risks, healthcare facilities need to put special emphasis on building up, maintaining, and strengthening the relationships between their customers and staff, thereby avoiding medical disputes and creating customer loyalty. In the following, we will show how dental clinic "A" gets return and risk sharing:

#### A. Provide Free Consulting before Treatment

Before the treatment, dental clinic "A" will provide free consulting to customers who come for appointments or inspection. Its aim is to understand the teeth situations and drugs taking of this customers in advance, and then it will start its treatments.

#### Design Customized Treatment

After understanding the situations of customers' teeth situations and drugs taking conditions, the dentists and nurses will design customized treatments according to customers' different situations.

During the consulting, customers will be asked about the following four questions:

- (1) What's the objective of the operation or treatment this time?
- (2) What's the approximate budget for the operation or treatment this time?
- (3) How many times will it take to finish the operation or treatment?

(4) How should the dentist and the customer cooperate with each other?

In this way, dental clinic "A" can fully communicate with its customers before actually conducting treatment, so it can avoid medical disputes and maintain medical relationships with its customers.

## 5. CONCLUSION

With the fast development of technology and amazing progress of the age, consumers' demands are becoming diverse. In such an age of customer-orientation and of fast industry change, dental clinics not only need to have its own professional abilities, but also need to consider how to provide new values and new services to its customers at different locations and how it can effectively operate its business, understand customers' demands, and lower its costs under the operation principle of customer-orientation, and this has become a great challenge for dental clinics. With CEO's management knowledge and operation principle of customer-orientation, dental clinic "A" effectively builds up a systematic standard procedure system and CRM to different customers; at the same time, by supporting activities and operation management knowledge and skills, dental clinic "A" can provide fine environment and quality services for all the customers and effectively takes advantages of current resources. Under the same quality, dental clinic "A" obtains cheap prices by purchasing large amount, while general clinics waste lots of resources on administrative expenses. On the other hand, by means of standardized management, dental clinic "A" formalizes its medical procedures, which systematically transmitting information of dental clinic A's each department. With the help of innovative management, dental clinic A's experienced nurses can help the dentists with inspections and operations for different customers, which customers can have dental clinic A's customized services and dentists can focus on their patients so as to improve the efficiency of dentists' inspections and operations and to let customers enjoy better medical quality. With the help of the dentists, first-line nurses, and second-line nurses, dental clinic A's appointments are three times of the other clinics'. Through the application of CRM and value chain, dental clinic "A" can more effectively make use of its resources, transfer information, and provide high quality-services at lower costs; at the meantime, dental clinic "A" feedbacks its customers with letting them enjoy higher quality services at reasonable prices. By innovative management, dental clinic "A" can also build up good medical relationships with its customers, maintain its old customers as well as attracts new ones. At the same time, by dental clinic A's case we hope the experiences of operating an innovative dental clinics in Taiwan can be spread to other countries and serve as their basis of operation management, which combines the concepts of CRM and systematical management and visions of quality services.

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