Implementational Factors of Utilizing E-mail and SMS (Short Message Service) for mCRM Systems In Medical Institution

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Abstract

This paper describes implementational factors of utilizing E-Mail and SMS for mCRM system in medical institution using CRM technology. If the medical institution could contact and inform the patients concerning their exams, changes, and other issues through E-mails and SMS, patient satisfaction level would increase as well as the credibility of the institution. Conversely, medical institutions would effectively manage time and personnel and increase the productivity, which would bring a "Kill two birds with one stone" effect. Furthermore, the use of E-mail and SMS on mCRM system will not only be more cost effective compared to the telephonic communication method, but the increase in quality of service, image of the institution, and credibility.

Keywords:

E-Mail; SMS(Short Message Service); mCRM(Medical Customer Relationship Management)

Research Background

As the users of Internet and cellular phones are growing, this new technologies are rapidly become a part of our lifestyle. Therefore, considering the utilization of E-mail and SMS, one of the most popular mobile services, in the development of a CRM for medical institution will greatly increase the satisfaction and reliance level of the customers (patients). Furthermore, in the management perspective, it will allow management to more effectively managing customer relationship and effectively management of work process in the medical institution.

When Customer management teams and clinical examination departments of medical institution have the need to contact customers (patients) with information about examination, issues relating to the patient, and/or changes, the use of a telephone is the most prevalent method. However, in some cases, the patient may not be contacted due to a busy tone, missed calls, or other reasons and therefore may be unable to receive important information in a timely manner, which would pose a threat to the patient's health. This, in turn, would decrease the credibility of the institution originate a dispute. Furthermore, the workload of the personnel who are responsible for contacting the patients would be tremendous. Therefore, the objective is to develop system that will provide the medical institution the means to rapidly and accurately deliver messages to patients where telephone communication is not possible.

If the medical institution could contact and inform the patients concerning their exams, changes, and other issues through E-mails and SMS, patient satisfaction level would increase as well as the credibility of the institution. Conversely, medical institutions would effectively manage time and personnel and increase the productivity, which would bring a "Kill two birds with one stone" effect. Furthermore, the use of E-mail and SMS on mCRM system will not only be more cost effective compared to the telephonic communication method, but the increase in quality of service, image of the institution, and credibility.

The Demand of CRM in Medical Institutions

Since the separation of dispensary from medical practice and integration of the medical insurance, use of a credit card, display of retail cost of medication, opening of the medical market, and standardizing the level of medical capability, the competition among medical institutions are rapidly growing. Attracting new customers and retention of current customers are key issues for the survival of the organization. Furthermore, the institution is required to keep up with the ever-changing improvement of science. Moreover, customers are not content with simply receiving treatment from the medical institutions but rather demand more precise and diverse service. This phenomenon causes an increase in competition among the institutions and those that lack the competitive advantage will be forced to close its doors. As a result, to gain a competitive advantage and survive, general hospitals and mid-sized hospitals will perform an M&A.

Medical institutions would attain competitive advantage through increasing the satisfaction level of the customers, which would increase the revenue; establish a business strategy to increase the bonding with customers; and adapt to the new environment through active marketing efforts by introducing new systems.

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For the customers to be satisfied and to trust the institution, the institutions cannot simply emphasize being friendly towards customers, but rather determining the need of the customers, when they want it, and to provide the service before hand.

Most of the institutions have developed and are currently in use of a medical information system. Through the use of the medical information system, the institutions were able to gather clinical and operational data. The gathered data will now require a new system called Medical institution CRM (mCRM) for increased effectiveness in management and treatment of patients through CRM method.

CRM, widely used in the banking industry and distribution sectors, are now being looked at in the medical industry. It is necessary that medical institutions provide not only provides medical treatment but also the after care of patients. These efforts will change the way the customers think of the institution and create customer loyalty.

The Structure of mCRM Utilizing E-Mail And SMS

The transmission mechanism of E-mail and SMS are mostly similar. However, there are some differences: 1) E-mail is one part of web service and SMS is part of mobile service. 2) As for method of transmission, E-mails are transmitted utilizing its in house transmission agent program, opposed to a SMS, which utilizes an outside agent company. Although there are modules that allow the institutions to directly connect and send messages through mobile communication companies, this requires additional cost and operating staff and therefore would not be cost effective.
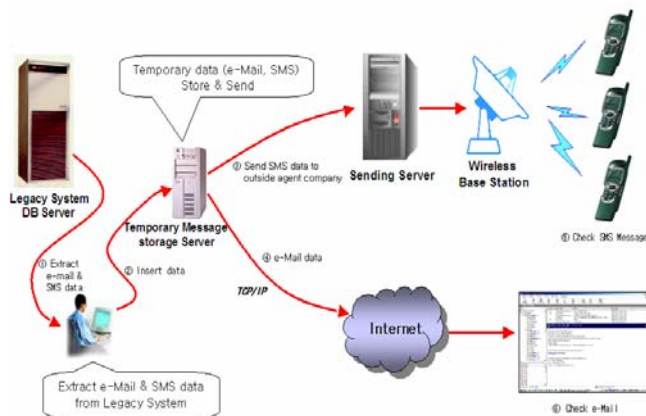

Figure 1. The Structure of mCRM utilizing E-Mail and SMS

The choice in the method may very depending on the amount of content, characteristics, level of urgency, accuracy, and institutional policy. However, the structure and operation of the system would not differ. E-mail and SMS content to be sent out would be gathered from an existing database server and stored in a temporary message storage server. From this message storage server, E-mails are transmitted through a Daemon program written with Visual Basic 6.0 where when new message is inserted in the

program, it automatically sends the message to the receiver. SMS messages are transmitted to the outside agent company for delivery. The messages are prioritized based on the policy and urgency and are transmitted in real time or in bulk.

The E-mail and SMS can be used in most of the operations other than the treatment itself. The operational sectors of the hospital are able to conduct target marketing by providing individualized service.

Following are the key utilization in the operational functions:

1. In conjunction to the telephone reservation system, the service would send out a reminder message before 1-2 days in advance, which would decrease the no-show rate.

2. For diverse reasons, when a need arises where the institution must send out identical information, or it is more cost effective and quality time management to use this system rather than the telephone.

3. The institutions would build a bonding with the customers by sending messages for discharge from a hospital, birthday, anniversary, birth of a child, or congratulatory messages.

4. Doctors are able to send messages to their patients on medication instructions and to inform needed changes of the medication, current dosage, and maximum dosage.

5. Display the current availability of beds to increase the effectiveness in operation.

Following are the key utilization in the area of nursing and treatment functions:

1. When emergency concerning the patient or importance information arise, a message can be sent to the physician in charge or related personnel for appropriate action to take place.

2. To perform precautionary measures for examination, i.e. CT, MRI, endoscope, or other medical examination, such as amount of meal and medication to be consumed, time of consumption, or other requirements for the exam. This will be convenient for the patient and provide additional comfort.

3. To provide medical checkup information along with the results and relevant information to the patient, which is practicing preventive medicine and providing 1 to 1 care service. This would increase customer satisfaction.

4. To provide customized service based on each patient's characteristics to increase the return rate of patients. Also provide information for patients who have exceeded the weight limit or those who are interested in a weight management, or to inform pregnant women of their month in to the pregnancy. Moreover, for those patients with geriatric diseases such as diabetes or high blood pressure, the physician can inform the patients of the current condition and services available. The physician can also provide information on cause, sure, and prevention of diseases in specific circumstances.

5. This system can be used for Target marketing of centralized pool of customers. The institution can perform

direct marketing with the frequently visiting patients to increase the customer loyalty in turn would create increase revenue. For instance: Diseases that require long term care (diabetes or high blood pressure), patients of dermatology and plastic surgery (which is mostly not covered by national medical insurance), infants and children of pediatric ward, those customers who visit the hospital for a regular checkups, and customers who visit to see their private doctor.

6. Send out information concerning an epidemic and inoculation of diseases such as influenza, encephalitis, hepatitis, food poisoning or Cholera to random potential customers. This would trigger interests in the medical institution and improve its identity, which would lead to a visit.

Lastly, the system is use as a tool to market and improve the identity of the institution. To provide additional information concerning health seminars, medical institution, health care to increase the satisfaction level of the customers and to brand an image as health care partner. This would prevent the loss of patients to competing institutions and attract potentially new customers. Depending on the method of use, this system can be used to contact system administrators and/or engineers in case of an emergency dealing with H/W or database failure.

Implementation

As illustrated in figure 2, the system is capable of extracting the target based on the date, whether its in/out patient, or gender and upon selecting the message, is able to transmit through desired medium of communication. Figure 2 depicts an illustration of transmitting a message via E-mail. When this data is transferred to the E-mail server, it is systematically read by the E-mail daemon depicted in Figure 3 and is sent to the predetermined E-mail address depicted in Figure 4.
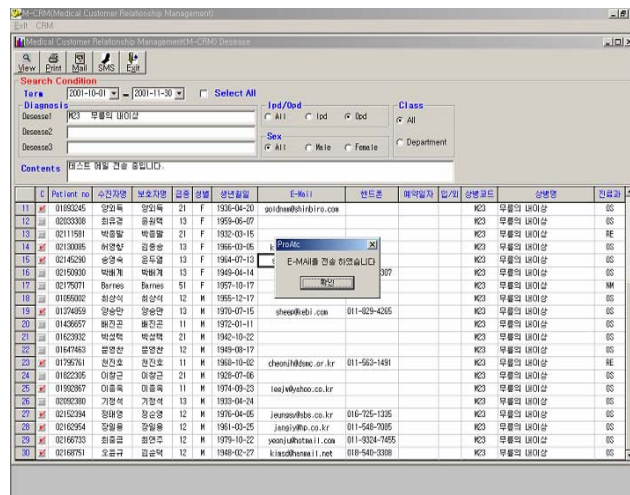

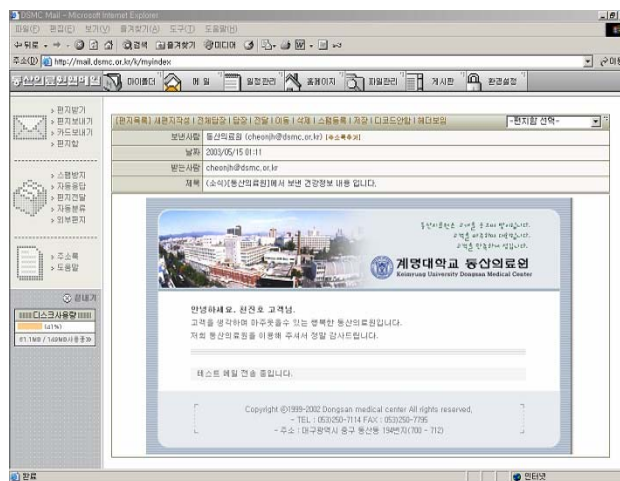Figure 2. Captured frame of transmitting a message via E-Mail

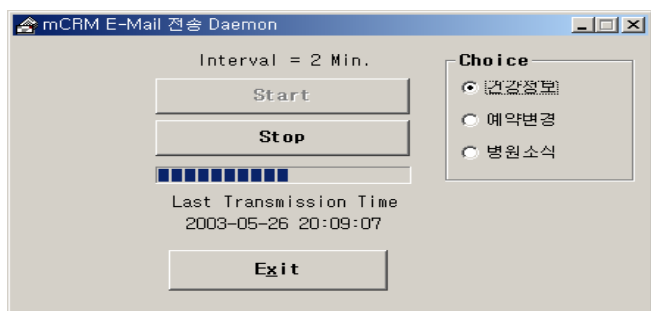Figure 4. Captured frame of transmitting a message via E-Mail

Figure 3.E-Mail transmitting daemon

In Figure 5 shows a captured frame of transmitting a reminder message to in/out patient with an appointment. The data can be extracted based on appointment date, type of appointment (In/out), gender, department, ward, and physician in charge. Once the selection is completed, the message can be sent through a desired medium of communication. Figure 5 depicts an illustration of transmitting a message via SMS. When this data is transferred to the transmitting daemon, the message is diverted to the SMS transmitting agency's server, where it is sent out to the mobile telecommunication center instantly or held until a predetermined time. Figure 6 shows the message received on via SMS.
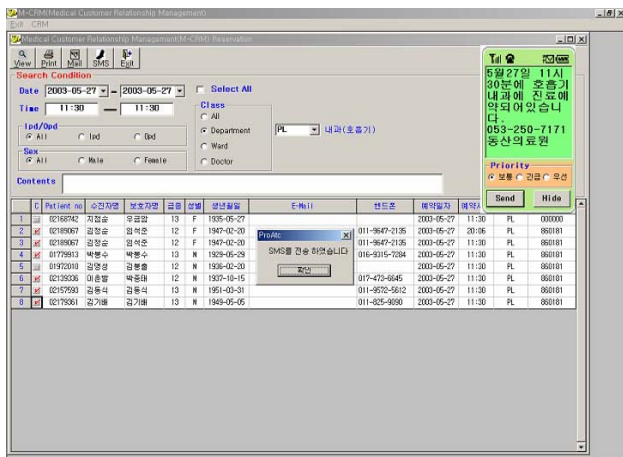
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Figure 5. Captured frame of transmitting a message via SMS

Figure 6. Examples of messages received via SMS

Conclusion

Most of the medical institutions are faced with many hardships due to worsening of diverse social-economical factors. One of the reasons for this phenomenon would be decreasing number of customers. Friendliness, cleanliness, accessibility, waiting time to see a doctor, reliability of the physician, irrational health policies are some of the criteria patients look for in a medical institution. With the exception of a few medical institutions, most are standardized. Customers would rather select an institution where they believe that the institution is trying its best to comfort the patient and that the institution revolves around the patient.

Once the system is developed, tested, and operational, it is expected to lead to effective development of patient service system, one-on-one patient care service, customized patient care which in turn increase customer satisfaction. However, with the opening of the medical market, the institutions are forced into a difficult business environment where implementing the mCRM would increase the market share for the institution.

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