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Operation Management: Empirical Case Study

(Al Buraimi Medical Clinic—Private Clinic)

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Abstract

This case is about a "walk in" clinic called Al Buraimi Medical Clinic (BMC) which treats non-acute illnesses. BMC's philosophy states "first come, first served". It serves about 15,000 citizens. This is the only medical center in the region that provides some of the advanced services including a world-class rehabilitation center, regional burn center, high-risk maternity program and trauma center. This case describes how a process could affect the effectiveness and efficiency of a service. It's vital to understand how process works as it helps to ensure the competitiveness of the company. A process according to Chase, Jacobs and Aquilano (2006), process is any part of the company that turns inputs into outputs which is of a more value to the company than the original inputs. In this case, nurses, MD, specialized equipments combined with another input, the patient is transformed through proper treatment and medical care into a healthy patient. Therefore, the healthy patient is an outcome of the process.

Keywords

operations management , process, time management, complicity, Al Buraimi Medical Clinic

1. Introduction

Al Buraimi operates a walk-in medical clinic (BMC) to meet the non-acute medical needs of its approximately 15,000 citizens. Patients arriving at the clinic are served on a first-come, first-served basis. As part of a new total quality management program, BMC conducted an in-depth, four-month study of its current operations. A key component of the study was a survey, distributed to all county citizens. The purpose of the survey was to identify and prioritize areas most in need of improvement. An impressive 44 percent of the surveys were returned and deemed usable. Follow-up analysis indicated that the people who responded were representative of the population served by the clinic.

After the results were tabulated, it was determined that the walk-in medical clinic was located near the bottom of the rankings, indicating a great deal of dissatisfaction with the clinic. Preliminary analysis of the respondents' comments indicated that people were reasonably satisfied with the treatment they

received at the clinic but were very dissatisfied with the amount of time they had to wait to see a caregiver.

Upon arriving at the clinic, patients receive a form from the receptionist requesting basic biographical information and the nature of the medical condition for which treatment is being sought. Completing the form typically requires two to three minutes.

After the form is returned to the receptionist, it is time-stamped and placed in a tray. Clerks collect the forms and retrieve the corresponding patients' files from the basement. The forms typically remain in the tray for about five minutes before being picked up, and it takes the clerk approximately 12 minutes to retrieve the files.

After a patient's file is retrieved, the form describing the medical problem is attached to it with a paper clip, and it is placed in a stack with other files. The stack of files is ordered according to the time stamps on the forms. When the nurse practitioners finish with their current patient, they select the next file from the stack and escort that patient to one of the treatment rooms. On average, files remain in the stack for ten minutes, but this varies considerably depending on the time of day and the day of the week. On Monday mornings, for example, it is common for files to remain in the stack for 30 minutes or more.

Once in the treatment room, the nurse practitioner reads over the form describing the patient's ailment. Next, the nurse discusses the problem with the patient while taking some standard measurements such as blood pressure and temperature. The nurse practitioner then makes a rough diagnosis, based on the measurements and symptoms, to determine if the ailment is one of the 20 that state law permits nurse practitioners to treat.

If the condition is treatable by the nurse practitioner, a more thorough diagnosis is undertaken and treatment is prescribed. It typically takes about five minutes for the nurse practitioners to make the rough diagnosis and another 20 minutes to complete the detailed diagnosis and discuss the treatment with the patient.

If the condition (as roughly diagnosed) is not treatable by the nurse practitioner, the patient's file is placed in the stack for the on-duty MD. Because of the higher cost of MDs versus nurse practitioners, there is typically only one MD on duty at any time. Thus, patients wait an average of 25 minutes for the MD. On the other hand, because of their higher training and skill, the MDs are able to diagnose and treat the patients in 15 minutes, despite the fact that they deal with the more difficult and less routine cases.

Incidentally, an expert system for nurse practitioners is being tested at another clinic that—if shown to be effective—would initially double the number of ailments treatable by nurse practitioners and over time would probably increase the list even more, as the tool continued to be improved.

2. Case Background

The BMC medical center had established some medical measurements as a part of total quality management to address various issues related to the services given by the center. Therefore, to improve the total quality of services enhanced by the clinic and to attract many patients as possible, the BMC management conducted a comprehensive survey for all the citizen residing within a close proximity from the clinic, the survey lasted a round four months, identifying of area's that require immediate improvements based on weaknesses which were not measured by the medical center and required some attention according to the clients perceptions and expectation.

The result of such survey was generated outlined an important element that needed improvement, it was clearly indicated after receiving the survey that the walk-in medical clinic was downgraded. The study showed that most of the clients were not satisfied about the amount of time they had to wait to get treated or to get to see the caregiver. Though however and in other hand, the clients were satisfied about the treatments given by the nurse practitioner.

After going through such comprehensive analysis, the clinic demonstrated its interest to conduct proper quality management practice and to ensure that time management must be improved to enable client's satisfaction and accommodate their treatment needs.

3. Analysis

According to the case issue, it was indicated that the medical clinic lacks of the following important issues:

(1) Time management.

(2) Process complicity and not transparent.

Although patients go through a series of procedures before getting seen or treated by the nurse practitioner, however, such procedures were seen far too long for such clinic in relationship with the size of the medical clinic for a walk-in medical center.

In addition, the clinic has not adopted newer methods of process technology to enhance the work flow and simplify the process. It indicated that the work flow seem more old design rather than implementing new technology to streamline the entire process.

The current time consuming phased out according to each process illustrated in the following table. The average time is indicated the current time consumed when waiting to be seen or treated. The expected time is the time to be proposed to satisfy the patient.

Table 1. The Average Time and Expected Time in BMC

Phase	Average Time in Minute	Time expected by the patient in Minutes
Check in process	5	2
Patient information retrieval y clerk	12	5
Files remains on stacks	30	10

Diagnose process by nurse	25	10
Waiting time to see the doctor	25	10
Diagnose process by Doctor	15	15
Total time consumed	112	52

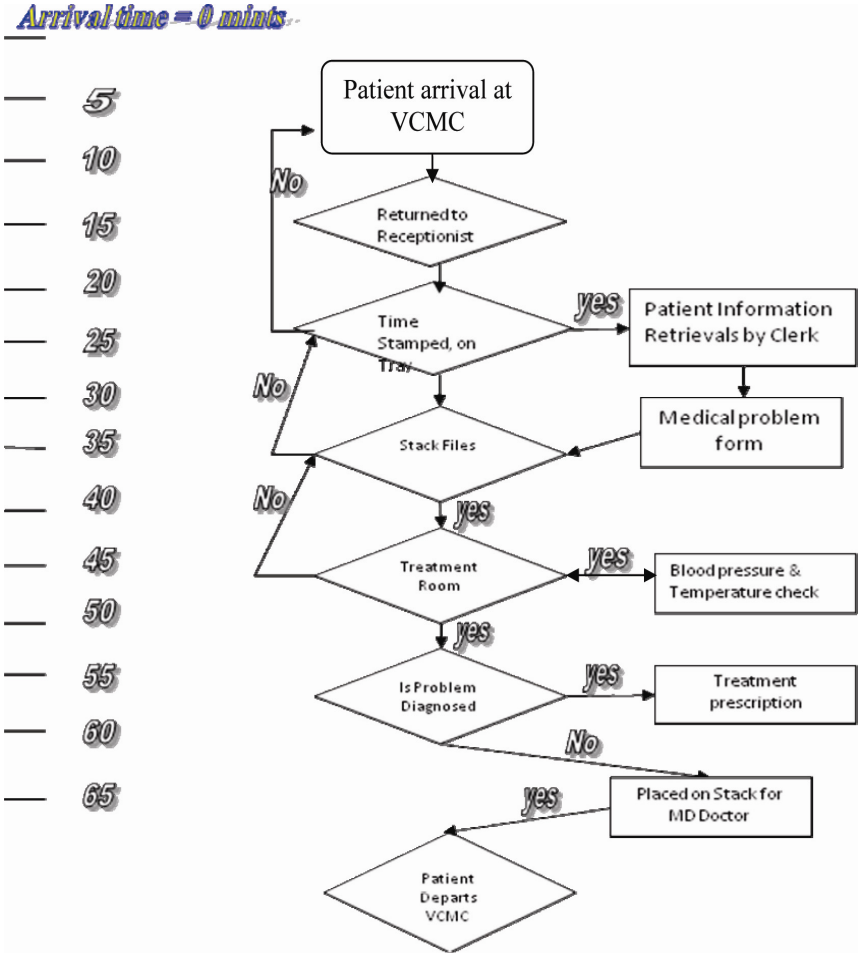

Figure 1. The Current Operating System in BMC

According to the above flow chart, the process outlined indicates that upon arriving at the clinic, the patients have to fill a form describing in details the personal information and the nature of the medical conditions. Such process might take more than 3-5 minutes depends on how fast the patient can write.

Once the form is completed, the receptionist takes extra step by initiating time-stamped and place the form in a try to be collected by the designated clerk for filing retrievals. Having the file to be stacked and retrieved takes around a total of 17 minutes.

After a patient's file is retrieved, the medical problem form is attached with a paper clip, and it is placed in a stack with other files. During the waiting time, the patient is directed to the preliminary examining room to test the blood pressure and the temperature control. The patient than has to wait for around from 10 -30 minutes to be seen by the nurse practitioner.

On the treatment room, the nurse practitioner takes the necessary arrangement and measurement to reads over the form describing the patient's ailment. The nurse practitioner then makes a rough diagnosis, based on the measurements and symptoms, determining the ailment. If the condition is treatable by the nurse practitioner, the treatment is prescribed. It typically takes around 20 minutes for the nurse to diagnose and complete the process which will obviously depends on the each case.

If the conditions warrant earlier attention of the M.D than the patient has to wait additional time to be seen and treated.

The entire time management and based on the survey study which the medical center received from the patients, it was clearly indicated that the patients were dissatisfied with the current time spent for the entire process.

It was noted that the clinic uses old operating system approach which result such lack of time management.

New Operating System

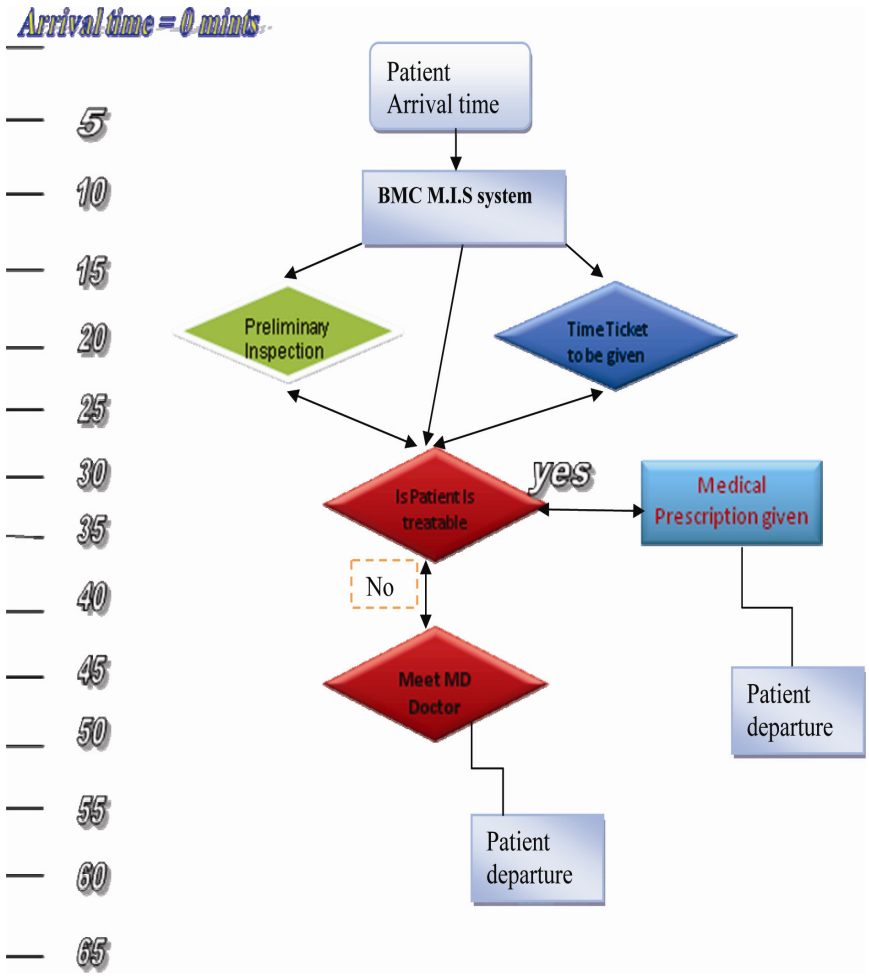

Figure 2. The New Operating System in BMC

The above flow chart indicates the new operating system that the BMC has to adopt to properly manage the operating system which more related to the Management Information System (M.I.S).

The system has identified areas of improvements to minimize the process time management and process complicity and concentrates on patient treatment time rather than formalities of paper works and other process.

Upon arriving to the clinic, the patient is requested to enter his name or Medical ID number at the main reception, feeding this data to the M.I.S system. The entire information is retrieved and revised by the receptionist or the designated clerk which is a matter of few seconds, all patient information including past medical history should be saved on the main server data base.

The patient is than given a time ticket to wait for the nurse practitioner. Meanwhile the patient is directed for the preliminary inspection room to take some measurements like blood pressure and temperature. The entire process should not take more than 10 minutes.

The clinic management should have to improve communications between the departments and equipped these departments with the new M.I.S system for patient information retrieval rather than manual files.

All related data and patient information regarding the diagnoses etc, should be entered in the system for easy access and retrieval.

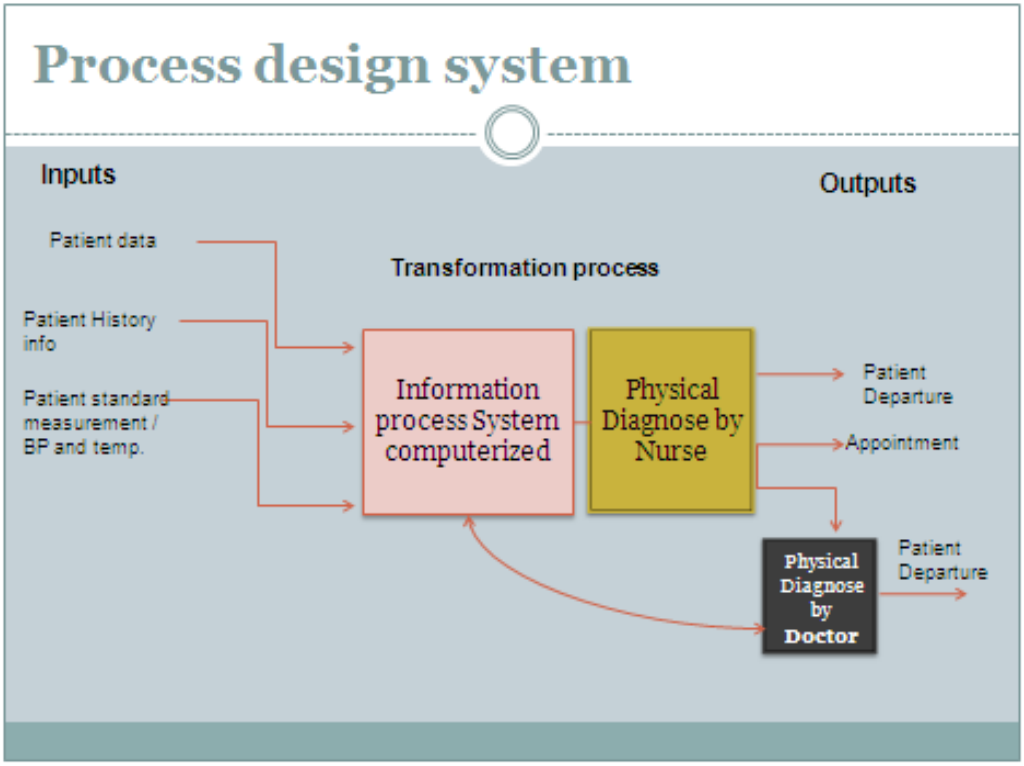

Figure 3. Process Design System

The above chart illustrates the best approach based on the input Vs output. As input is patient data fed to the Information system data base, the process than circulates into a series of process to retrieve information and patient past history which is called transformation process. The diagnoses will be determined by the nurse practitioner.

4. Recommendations

Evans and Collier (2007) believe that today's dynamic world time is perhaps one of most important element in order to get competitive advantage. Customers require short waiting times, quick response and reliability performance wise especially when the customer is a patient and looking for medical attention. Based on this statement and patients requirements, the following is recommended:

- Improving process design system:

The process design could be improved by eliminating some of the un-necessary steps and by reducing time. Evans & Collier (2007) suggested that the time could be reduced by one of the following ways:

- Perform activities in parallel:

Steps usually operate in sequential base in operational process. Serial approach is sum of the entire process plus the total time of individual steps and waiting time between each process. Using parallel approach can decrease the total time by almost 80% which results in better performance. Clinic should consider using parallel approach in order to reduce time as its very clear that they use the serial approach; once done with one process only then they do the next and the time waiting only adds up to it.

- Change the sequence of Activities:

Documents are usually sent back and forth from one section to another, changing sequences some of these activities could help in reducing time. The clinic should change or alter some of the sequences in order to reduce time.

- Reduce interruptions: most of the processes take comparatively long waiting time between each activity.

Individuals should be aware of the deadlines to avoid missing them. Patients should be informed on the waiting time so that they know the estimated time of waiting and be prepared for their turn. Unknown waiting time could only lead to high frustration.

- Increasing the number of nurse practitioners to meet the number of patients at a time:

The number of the nurse practitioners should meet the number of the patients. These nurses could be either full time or part time. Part time nurses would be preferred for days that are considered to be most busy according to the case one of the busiest days of the week is Monday where the files remain in the stack for 30 minutes or more.

- Increasing the number of M.D doctors to improve the treatment time when required:

The clinic should consider the number of MDs as it's vital to meet the demand. Increasing numbers of MD would help in reducing the waiting time and therefore decrease the numbers of unsatisfied patients.

The clinic could hire these MD's also as part time in order to reduce their cost.

- Improve the communication system between the nurse practitioner and the clerk responsible for file retrievals:

In order to reduce the time waiting, it is very important to improve the communication between the nurse practitioner and the clerk. The clerk on average takes about 12 minutes to retrieve the files and it adds up to the time waiting. In order to reduce the total waiting time, it is crucial to reduce the file retrieving time. A system could be acquired to improve the communication between the nurse and clerk or the clerk should be positioned close to the nurse to avoid any delays.

- Acquire a modern system for data entering:

Filing application on every visit of the clinic is a waste of time. The clinic should acquire a high tech system where the customer information is entered once only and at the next visit the patient is required to give a unique to search for his/her information. This would reduce time and keep a history of the patients. Most of the clinics nowadays use high-tech systems as it increases the effectiveness and efficiency. It also gives a positive image of the clinic to the patients. As many consider the first impression lasts long.

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