

CHAPTER III

DEFINE PHASE



3.1 Business Process Overview

Pattana Medical Center (PMC) has been cordially established under the intention of His Majesty the King as a non-profit public medical institution to provide both of general therapeutics and special disease medications. Its key medical services consist of General Therapeutics (diseases of lungs, hearts, kidneys, skins and diabetes), General Surgical Operations (bones and nerves), Obstetrics, Psychiatry, Dentistry and Recovery Medications etc. The complement laboratory services provide analysis of Blood and Liquids, General X-Ray, Tooth X-Ray, Ultrasound and Heart Efficiency etc. Moreover, small operations such for eyes are conducted as well. The followings will be its Vision, Mission and Objectives.

- *Vision* – To be the clinic where provides medical services to the public with management effectiveness and non-profit objectives
- *Mission*
 - Responsible for public requirements and surrounding communities with high quality and reasonable cost of medical services
 - Provide doctors and professionals who have high level of knowledge and skills
 - Provide modern medical tools and equipments both for medical services necessities and for medication process capability developments
 - Move institution forward to achieve Hospital Accreditation (HA) standard
 - Generate benefits to all stake holders for business continuity and consistency
 - Promote the quality of living for health in public and surrounding communities especially for "BWR"; Baan (Home), Wat (Temple) and Rongrian (School)
 - Encourage employees at every level to be a part of public and community
- *Objective*
 - Be a center of doctors, dentists and professionals for diagnosis and medications
 - Provide suggestions for general therapeutics and special disease medications
 - Encourage quality of living for health through annual medical check up programs

PMC will be inclusively used as a case study in the research in order to systematically represent the Service Quality improvement in this kind of industry through the approach of Lean Six Sigma. Because there is no inpatient service available, therefore, it has been considered as the super outpatient clinic where could completely provide full course of medications with the wide range of modern technology machines. To fulfill the strong intention to be the medical institution that protects and cures the sicknesses for the healthiness of the medication providers and receivers to develop the organization adequately, the institution is now looking for a powerful business improvement methodology to pursue opportunities to improve its service quality level and create competitive advantages in the healthcare market extension.

In order to understand the overall medication process of PMC thoroughly, the concept of Value Chain (Porter, 1985) has been applied to the study by separating all of functions into two groups of processes; Medical Service Core Process and Medical Service Support Process. The first group contains all of customers' touch points which could directly multiply value to the institution called Medical Service Core Process; Registration, OPD, Lab, X-Ray, Finance and Pharmacy, whereas, non value-added functions which well supplies all necessary resources to the first group have been united as Medical Service Support Process; Management Committee, Facility & Maintenance, Purchasing & Medical Supply, Information Technology and Customer Service & Information.

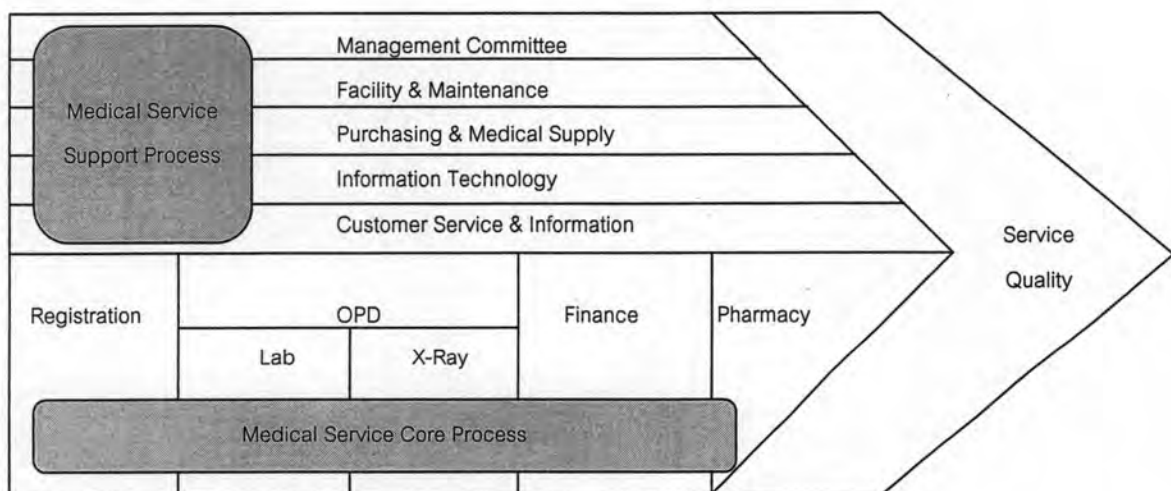


Figure 3.1: Value Chain of the Pattana Medical Center

3.2 Service Quality Study

Perceived Service Quality must be firstly analyzed to understand how effective that overall medication process of PMC has now presently provided to the customers. The modified SERVQUAL instrument which has consisted of the 25 healthcare statements will be used as a key tool to acquire the differences between customers' expectation and perception for particular dimensions of service quality. The survey, therefore, have to be statistically designed to collect all of required information in the next step. The Simple Random Method selected in such a way that every case of patients has equal chance of being included in the random sample is mostly suitable for this kind of survey. The sample size could be statistically calculated as the following formula.

$$n = \frac{t^2 \times s^2}{TE^2}$$

Where

- n = Number of samples to be collected
- t = Confidence Level (1.96 approximate at 95%)
- s = Estimated Standard Deviation
- TE = Acceptable Tolerable Error

Source: Modified from Hayes (1998)

Figure 3.2: Calculation for Survey Sample Size

Under the statistical supposition, the confidence level which is generally used in the customers' satisfaction survey is 95%, thus t value will be estimated at 1.96. The standard deviation (s) of 1.0 will be used according to the primary assumption of 7 point scale format while the Acceptance Tolerable Error (TE) of 0.2 is certainly appropriate for the data collection in the simple random method survey (Hayes, 1998). Sample size of at least 96 must be randomly surveyed to gather enough information for analysis; therefore, 16 sets of questionnaires daily (112 sets for one whole week) will be scheduled to understand the gaps between customers' expectations and perceptions in various service process characteristics and customer behaviors during different provided-service period.

According to the modified SERVQUAL questionnaires, each statement could implicitly refer to the existing gaps between expectations and perceptions in particular five dimensions of total service quality; 1 to 5 for Tangibles, 6-10 for Reliability, 11 to 15 for Responsiveness, 16 to 20 for Assurance and 21 to 25 for Empathy. A set of designed questionnaire composes of 3 pages; 5 importance weight ratings, 25 statements of expectations and another 25 statements of perceptions. The schedule has been set for the second week of the month to gather the data from regular clinic conditions. The survey will have been randomly conducted through the interview arranged by PMC during different period of time with the customers who just immediately complete overall medication service process.

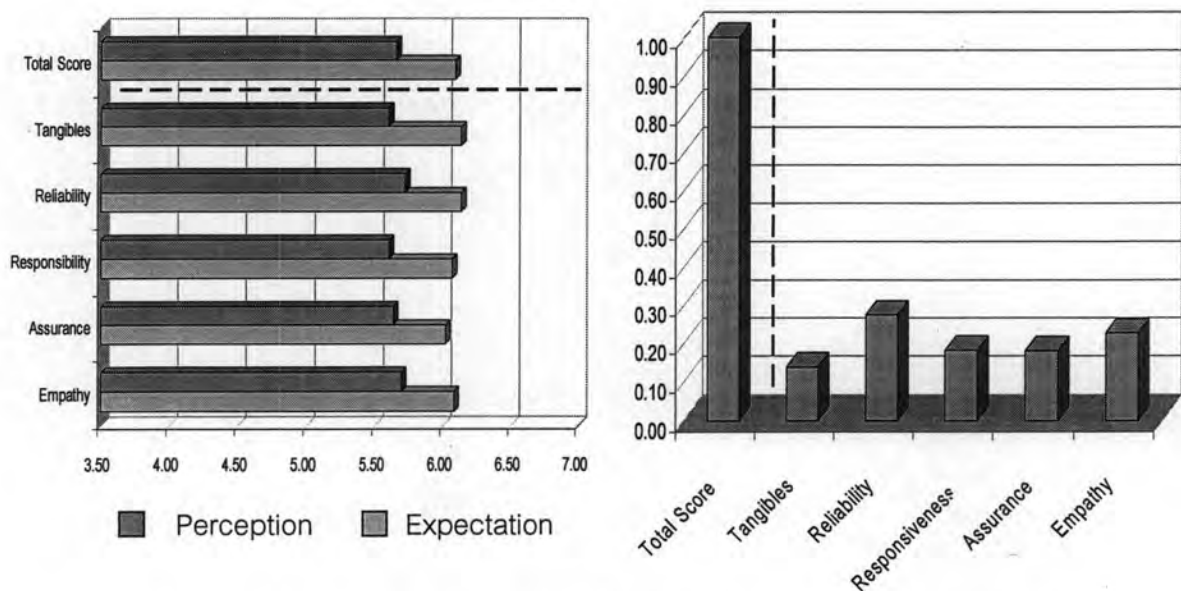


Figure 3.3: Scores for Expectation, Perception and Importance Weight

According to above Figure, every dimension were scored between 5.0 and 6.5 illustrates that the customers almost strongly agree for individual statements for both of expectation and perception questionnaires. The customer perceptions for all of five dimensions which have lower scores than the expectations mean PMC's performance is behind what their customers would like to see. Although there is no significant differences between particular dimensions of service quality but the importance weight survey shows some interesting information. Reliability dimension is intensively judged by the customers as the highest rate of 0.27 while all of the rest are lower than 0.2. By this reason, the importance weight will play a significant role for the total score definitely.

Once looking closer to the SERVQUAL score (gap between perception and expectation), Tangibles, Responsiveness, Assurance and Empathy dimension inclusively perform equally or even higher scores than the Total score of -0.09 except the Reliability which score the lowest at -0.11. Before multiplying raw scores with the importance weights, every dimension illustrate almost equal differences but, after that, Reliability stands out of the row because its importance weight is as high as 0.27 which more than $\frac{1}{4}$ of the total weight (1.0). It is essential that customers highly pay attention to the reliable outcomes that they perceived from PMC; therefore, Reliability dimension should be intensively considered in order to improve the organization's performance.

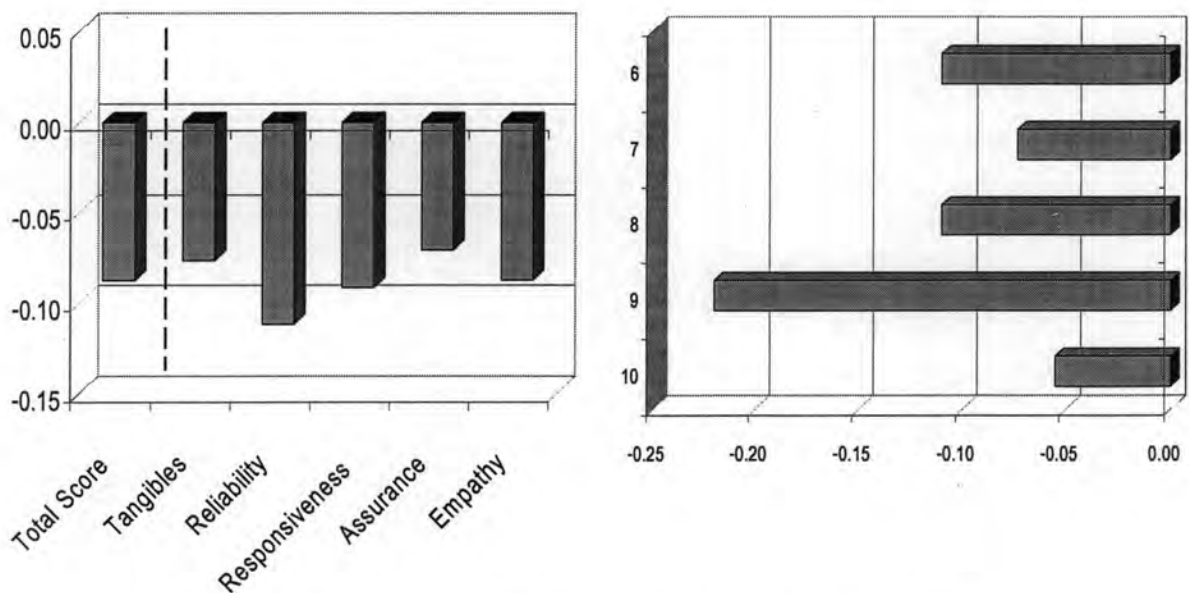


Figure 3.4: SERVQUAL Scores for Perceived Service Quality

To improve the service quality for overall medication process of PMC, each statement which is linked to the Reliability dimension must be individually considered. The figure clearly illustrate that statement no. 9 is rated as the lowest score of -0.22 while the others are higher than -0.15 so that if the weak point could be consistently eliminated, SERVQUAL score for both Reliability, itself, and the Total will be increased significantly. In depth, statement no. 9 has been intentionally designed to understand whether an organization provides services at the time they promise or not. Questionnaires let the customers to make comparison between the excellence clinic and PMC. Strong minus score means that PMC's processes could not provide their medical services at the time they promise to deliver or should deliver.

Because there has been a huge opportunity to improve service duration and clinic's customer satisfaction level, the study of existing service duration will be done both for understanding the present process performance and using as the baseline information for future improvements. Data collection process, therefore, will be mainly implemented in the medical service core process which contains all of customers' touch-point from admission to completion; Registration, OPD, Laboratory, X-Ray, Finance and Pharmacy. The analysis will clearly illustrate statistical information not only about how long the customers have to spend their time for the particular medications in the clinic but also how often they have to wait for the same duration as usual.

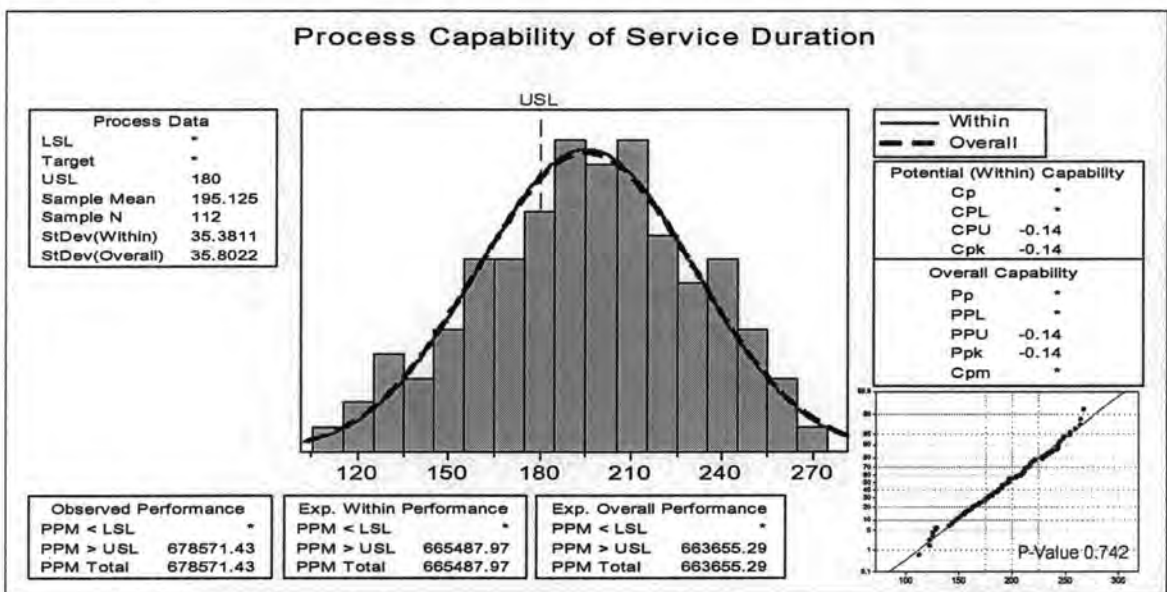


Figure 3.5: Process Capability of Service Duration

Above figure definitely performs the service durations which were gathered from 112 data. At first stage, referring to the P-Value of 0.742, there is evidence that the data do follow a normal distribution. The customers spent their time in the clinic for 195.13 minutes in average, together with, 35.38 minutes in standard deviation while the process capability index, C_{pk} , is -0.14. Not only that present service duration is longer than 180 minutes specified by customers as the longest acceptable duration but the minus sign of process capability index also reflect the unacceptable performance. All in all, it could be implied that PMC's process performance is far from what most of the customers want and there still be a huge gap between expectation and perception that needs to be improved immediately.

3.3 The Project Charter

In order to leverage the customer satisfaction of overall service duration from the existing poor performance, the Project Charter is basically required as the primary tool both for establishing a taskforce who will be responsible for the whole project implementation and for preparing all possible resources that impact the medical service process as well. It contains most of information which will be useful to setup the project, focus all key points, catch up the team members and monitor overall progress. The charter must be filled in by the project manager before starting project to ensure that there is no unforeseen matter about the key topics. The contents are Project Name, Manager and Champion, Project Description, Project Scope, Project Goal, Business Impact, Team Member and Proposed Schedule.

"The Service Duration Improvement in Medical Service Process" has been set by the team as the name of this improving project to align different understandings of team members and the others on what will be going on in the Pattana Medical Center. The Managing Director will act as Project Champion who would not only accommodate the established taskforces with all of available resources but also make the decision on all of possible changes during the improvement period. Project Description has been exactly specified to improve service duration of overall medication process while the Project Scope state to focus OPD function on the second floor as the pilot area where the proposed improvement solutions will be firstly implemented.

Another essential part of the Project Charter is the list of team members who will take accountability from defining the problem, measuring necessary information, analyze key related factors, improve potential weak points and control overall processes after all. In order to understand overall medication process clearly, the team has been intentionally established as the cross-functional taskforce who directly involve with the medication process from the admitting point to the discharging point; Registration, OPD, Laboratory, X-Ray, Finance and Pharmacy. Heads of department are proposed to work both for their daily regular basis in the clinic and the specifically assigned improvement project according to the proposed schedule.

Project Name	The Service Duration Improvement in Medical Service Process				
Project Manager	Peerapatana Ketboonchoo				
Champion	Managing Director				
Facility	Pattana Medical Center, Bangkok, Thailand				
Project Description	To improve the customer service duration of overall medication process in the Pattana Medical Center				
Project Scope	OPD function on the second floor will be specified as the pilot area where the proposed improvement solutions will be implemented				
Project Baseline	Mean 195.13 minutes in average Standard Deviation 35.38 minutes in average				
Business Impact	overall medication process which consistently contribute satisfied service duration of the Pattana Medical Center				
Team Member	Head of Registration Head of OPD (2 nd Floor) Head of Laboratory Head of X-Ray Head of Finance Head of Pharmacy				
Project Schedule	Define Phase 1 st Month Measure Phase 1 st Month Analyze Phase 2 nd Month Improve Phase 3 rd Month Control Phase 4 th & 5 th Month				
Thesis Methodology	1 st Month	2 nd Month	3 rd Month	4 th Month	5 th Month
1. Define Phase					
2. Measure Phase					
3. Analyze Phase					
4. Improve Phase					
5. Control Phase					

Figure 3.6: Project Charter for Service Duration Improvement