

## **Improvement of Service Quality in Hospital Management**

A.D.Kadam <sup>1</sup>, A.V.Harde <sup>2</sup>, R.M.Barai.<sup>3</sup>

<sup>1</sup>*Mech.Engg.Department,PriyadarshiniJ.L.CollegeofEngg.,Nagpur*

<sup>2</sup>*Mech.Engg.Department,PriyadarshiniJ.L.CollegeofEngg.,Nagpur*

<sup>3</sup>*Mech.Engg.Department,PriyadarshiniJ.L.CollegeofEngg.,Nagpur*

---

**Abstract-**Service quality has an emerged important area in any business sector. Thus it is essential that, the service provider should understand the customer expectation and their perception as well as the factor that influence there evaluation and satisfaction with the provided service. Therefore these paper examine and measure the quality of service provided by the hospital. This paper is used to determine patient's expectation and perception of quality service and comprehensive scale adopted from "SERVQUAL" is evaluated for the usefulness in the hospital industry. The finding of the paper is based on the mean difference between perception and expectation of the hospital service. The patients represent the negative and positive numerical score, if the items represented the negative score which means shortfall in the offering service quality and patients perceived the value of the service less than their expectations based on the measured variable. This paper finding helps to the hospital to improve their service quality to fulfil the shortcoming for satisfaction of the customer.

**Keywords-***Servqual, Service Quality, Tangibles, Reliability, Control Charts*

---

### **I. INTRODUCTION**

The twentieth century has gone down in the business history as the era of profuse attention to customer expectation and to profitability through higher customer retention. The purpose of the business is to create and to keep customer (Levitt, 1960). The success of failure of business depends on what type of customer relationship, it practices. In the modern era of ever-increasing competition, growing consumerism and information explosion, the one single element that stands out as the factor of success is the customer. After all, customer is the lifeblood of a business. With respect to the business purpose and business mission, peter F Drucker had said that there is only one focus, one starting point and that is the customer. The customer buys a product or service to satisfy his/her needs. To satisfy the customer is the mission and purpose of the business. In the past few years, Hospital industry has been going through a period of transition that has affected all its constituent segments. The transition has been brought upon by increased competition from foreign players. In the view of competition hospitals are trying everything. Qualities, is a key determinant of market share and retain on investment as well as cost reduction. Measuring a quality of service can be very tedious task as many factors are intangibles.

Therefore the purpose of the study is to examine and measure the quality of service provided by the hospital as well as to determine the patient's expectation and their perception regarding the service quality provided by the hospital "SERVQUAL" scale is used for evaluation of quality. While "SERVQUAL" has been tested in service setting at the practical level, the representativeness at the SERVQUAL items as they relate to hospital services was assessed. The scale was subjected to extensive reliability and validity assessment.

### **II. LITERATURE ANALYSIS**

As can be seen model for measuring service quality viewed as a measure of the degree of discrepancy between consumer's perceptions and expectations (e.g. Parasuraman et al. 1985), or a tool for assessing the perceived quality Teas (1993). Yet, further alternative models have been

offered by other authors Cronin and Taylors, (1992); Bolton and Drew, (1991). A literature review those models can be found in (C. Miguel and Salomi 2004). The table 2.1 summarizes their main characteristics of model based on.

*Table 1. Proposed models for measuring service quality*

<b>Author</b>	<b>Model</b>	<b>Main characteristics</b>	<b>Application</b>
Gronroos(1984)	There is no mathematical representation	Quality is a function of expectations, outcome and image	Different types of services
Parasuraman et al. (1985, 1988)	SERVQUAL Q=P-E	22-items scale using 5 quality dimensions	Different types of services
Bolton and Drew, (1991)	Assessment model of service and value. There are many equations representing the model	Use four dimensions developed by Parasuraman et al (1988) and introduce the concept of value for quality assessment	Telephone services
Cronin and Taylor (1992)	SERVPERF Q=P	Use 5 quality dimensions defined by Parasuraman et al. (1988)	Different types of services

### III. SERVICE QUALITY

It is difficult to define service quality as opposed to quality of goods. Quality has been termed as “an elusive and indistinct construct” Parasuraman et al. (1985). However, the numerous works we have today regarding this issue have provided us a better insight into the definition of service quality. Service quality has been variously defined as focusing on meeting needs and requirements, and how well the service delivered matches customer’s expectations. Perceived service quality is a global judgement or attitude relating to service and results from comparison by consumers of their expectations of service with their perceptions of actual service provided. If there is a shortfall, then quality gap exists which providers would to close

A measurement of the above-mentioned service quality gaps had been developed by Parasuraman, Zeithamal and Berry (1988). They present the SERVQUAL concepts using following equation:

**SERVQUAL Score (Q) = Perception Score (P) - Expectation Score (E).**

#### A. Service Quality Dimensions

- i) Tangibles- Appearance of physical facilities, equipment, personal communication and use of appropriate material.
- ii) Reliability- Ability to perform the promised service dependably and accurately.
- iii) Responsiveness- Willingness to help customer’s and provide prompt service.
- iv) Assurance- Knowledge and courtesy of employees and their ability to inspire trust and confidence.
- v) Empathy- Caring individualized attention the service provider gives its customer.

### IV. CONTROL CHARTS

Control charts are important statistical devices used for the study and control of any process of repetitive nature. Control charts were devised by Dr.W.A.Shewhart which is based on the fact that variability always exists in all the repetitive processes. In any machining process there is some variation from piece to piece. This variation is inherent to the particular method of production and inspection. There are two kinds of variation, those due to chance causes and those due to assignable causes. Variation due to chance causes can be discovered and corrected by either totally eliminating

or by reducing to minimum. Assignable cause is due to differences in the machine characteristics or differences in the capability of workers. They are also due to the differences among the properties of raw material or improper tooling, improper working conditions etc. Improper working conditions comprise of variation in temperature, lightening, supply of coolant etc.

The main purpose of the control chart is to find out the charges in the quality of the product so that adjustment can be quickly made to correct the process before large quantities of defectives (scrap) are produced, i.e. the chart gives advance warning of the change in trends of the productions towards the increasing number of defective articles.

**A. The Average ( $\bar{X}$ ) chart**

The average chart shows the variations in the averages of samples. The distribution of these averages will have their central tendency at  $\bar{\bar{X}}$

$$\bar{\bar{X}} = (\bar{X}_1 + \bar{X}_2 + \bar{X}_3 + \dots + \bar{X}_n) / n$$

Where,  $\bar{\bar{X}}$  is the average of the sub group. The 3-sigma control limits on  $\bar{X}$  chart is become,

$$UCL = \bar{\bar{X}} + A_2 * \bar{R} \quad \text{and} \quad LCL = \bar{\bar{X}} - A_2 * \bar{R}$$

**B. The Range (R) chart**

R- Chart shows the variability within the samples. R-chart means the range chart. On a R-chart, set the central line  $\bar{R}$  and,

Upper control limit  $UCL_R = D_4 \bar{R}$  and lower control limit  $LCL_R = D_2 \bar{R}$

The factors  $A_2$ ,  $D_4$  and  $D_2$  are given in an appendix and that depend on subgroup size of sample.

**V. CASE STUDY**

**A. Hospital Profile:**

The case study is carried out at the “RAHATE SURGICAL HOSPITAL”, Kolba swami Square, Central Avenue Road Nagpur-08

Details of Hospitals

Bed Capacity	: -	40
Shift	: -	03
Total Staff	: -	110 (Including Nurses, trainee, Boys)
Doctors	: -	20
Services	: -	Orthopedic, General Surgery, Anesthesia, OGD, Heart Surgery, Physiotherapist, Dietician, Physician, Nero physician, ENT, etc.

**VI. RESEARCH METHODOLOGY**

**A. Objectives of Case Study**

1. To identify the service quality dimensions those are important in improving the level of satisfaction.
2. To study customers perception and expectations.
3. To assess customer satisfaction by measuring customers service quality expectations and perceptions using five service quality dimensions.
4. Compare service quality dimensions of hospital to be survey.
5. To identify the area of improvements.
6. Meeting the customer requirement.
7. Continuous improvement of quality.
8. To develop the participative management

**B. Methodology used in Case Study**

- a) Select the hospital whose service quality is going to assess.
- b) Using the questionnaire obtain the score of each of the 18 expectation statement.

- c) Then obtain the score of each 18 perception statement.
- d) Calculate the gap score of each of the statement  
**Gap Score = Perception Score – Expectation Score.**
- e) Obtain the average gap score for each dimension of service quality by assessing the gap Scores for each of the statements.
- f) Analysis of each dimension on control chart
- g) Identify the area of improvement.

## VII. SAMPLING METHOD

Survey was done in RAHATE SURGICAL HOSPITAL, data was collected and analyzed on the basis of responses provide by 80 respondents.

## VIII. DATA COLLECTION

- a) Required data for case study was collected from 80 respondents. Customer's expectation and perception about services were collected with the help of questioner form (Appendix). Thus the obtained data useful in finding out the quality gap of services.
- b) The format was divided in three sections. The first Section was designated to obtain demographic information about the respondents like Gender, Age, and Qualification etc.
- c) The Second and third section are adopted from (Zeithamlet. Al 1990) SERVQUAL questionnaires. The second section is about the service quality expectation. The third section is about service quality perception. Both sections use a five point scale ranging from. **(1 = strongly disagree to 5 = strongly agree)**
- d) The SERVQUAL instrument is used to measure the gap between customer perception and Expectation (Parasuraman,1988)

**SERVQUAL Score = Perception Score (P) – Expectation Score (E)**

## IX. ANALYSIS OF DATA

Data was analysed by using the control Chart. Control charts are important statistical devices used for the study and control of any process of repetitive nature. Control charts were devised by Dr.W.A. Shewhart which is based on the fact that variability always exists in all the repetitive processes.

### A. Control Chart Analysis for Tangible Dimension.

**Subgroup size is 04**

$$A_2 = 0.73, D_4 = 2.28, \bar{X} = -0.3031, \bar{R} = 1.05$$

**Average Chart:**

$$\text{Upper Control Limit of } \bar{X} = \bar{X} + A_2 * \bar{R} = -0.3031 + 0.73 * 1.05 = \mathbf{0.46}.$$

$$\text{Lower Control Limit of } \bar{X} = \bar{X} - A_2 * \bar{R} = -0.3031 - 0.73 * 1.05 = \mathbf{-1.06}.$$

**Range Chart:**

$$\text{Upper Control Limit of R} = D_4 * \bar{R} = 2.28 * 1.05 = \mathbf{2.394}$$

$$\text{Lower Control Limit of R} = D_2 * \bar{R} = 0 * 1.05 = \mathbf{0}$$

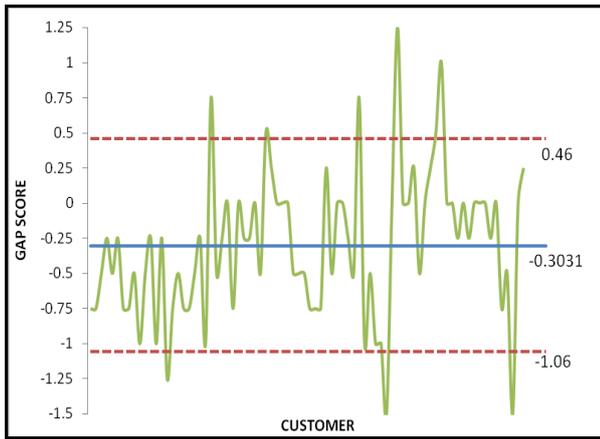


Figure1.Average chart for Tangible Dimension

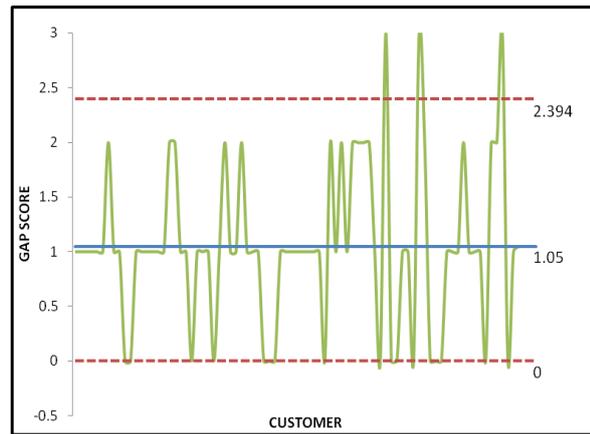


Figure2.Range chart for Tangible Dimension

**B. Control Chart Analysis for Reliability Dimension.**

$A_2 = 1.02, D_4=2.57, \bar{\bar{X}} = -0.1905, \bar{\bar{R}} = 0.375$

**Average Chart :**

Upper Control Limit of  $\bar{X} = \bar{\bar{X}} + A_2 * \bar{\bar{R}} = -0.1905 + 1.02 * 0.375 = \mathbf{0.192}$

Lower Control Limit of  $\bar{X} = \bar{\bar{X}} - A_2 * \bar{\bar{R}} = -0.1905 - 1.02 * 0.375 = \mathbf{-0.573}$

**Range Chart :**

Upper Control Limit of  $R = D_4 * \bar{\bar{R}} = 2.57 * 0.375 = \mathbf{0.96}$

Lower Control Limit of  $R = D_2 * \bar{\bar{R}} = 0 * 0.375 = \mathbf{0}$

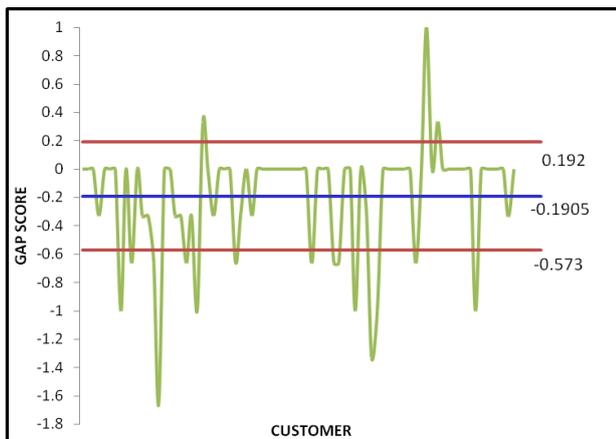


Figure3.Average chart for Reliability Dimension

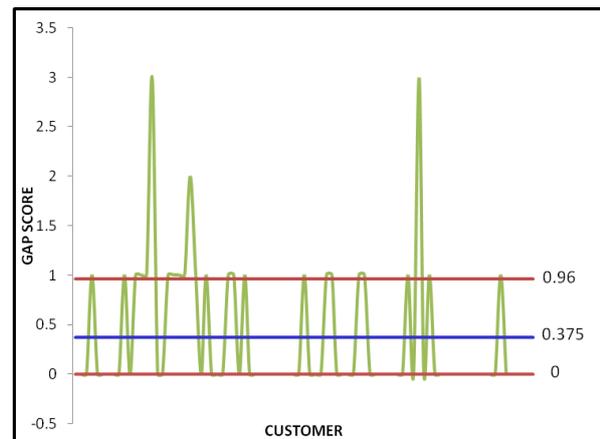


Figure4.Range chart for Reliability Dimension

Table 2. Dimension wise variations in service quality

Dimension	Sample Size	Expectation (E)	Perception (P)	Gap
Tangible	80	4.78	4.45	-0.33
Reliability	80	4.95	4.77	-0.18
Responsiveness	80	4.95	4.75	-0.2
Assurance	80	4.98	4.77	-0.21
Empathy	80	4.9	4.7	-0.2

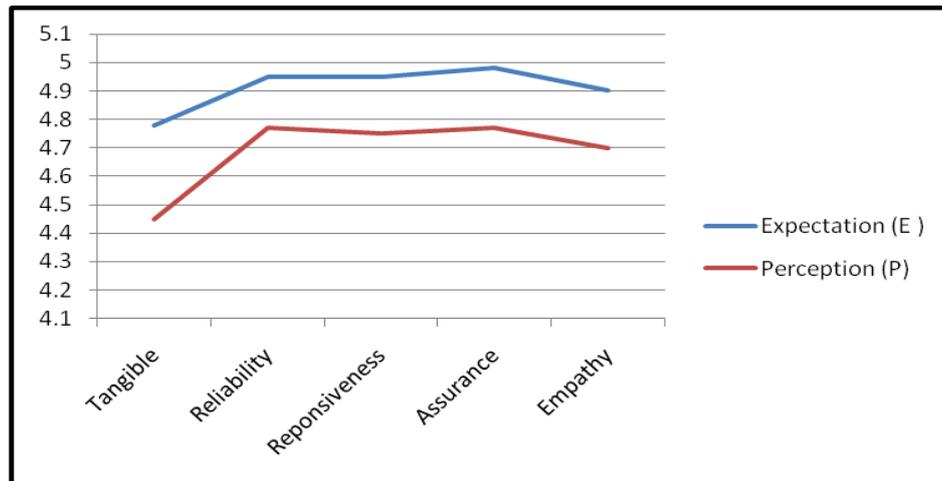


Figure5.Dimension wise Service Quality

## X. CONCLUSION

- 1) For assessing service quality dimension in Hospital industry SERVQUAL instrument was able to provide relevant results for the present study.
- 2) Based on the mean score of the perception and expectation. It is observed that perception falls short to expectation of customer (Overall Gap= -0.24), hence the overall Service of Hospital lagging the customer expectation.
- 3) Based on the current results, all the dimensions need to be improved.
- 4) Based on the mean score of the expectation, Assurance is the important dimension (4.98/5).
- 5) Hence it is proposed to implement the suggestions at organization level and can reduced the service quality gaps which allows them to increase customers retention, corporate image, market shares and hence profit.

## REFERENCES

- [1] A.N.A. Istique, Md.S Akhta & S.K.Taylor. "Customer expectations & perception towards health Services through SERVQUAL model." PJMR Vol.10 No. 1 & 2 (April-Oct. 2006) p.p.58-73.
- [2] A.Parasuraman, V.A.Zeithamal, L.L. berry "Reassessment of expectation as a comparison standard in measuring service quality: Implication for further Research." Journal of marketing Vol.58 (Jan 1994) p.p.111-124.
- [3] A parasuraman, Dhurv Grewal, R.Krishman (2004) "Marketing reserch" Dreamtech press. P.p. 264-352.
- [4] B. Balaji, (2002) "Services marketing and management" S.chand publication. P.p 272-297.
- [5] J.J.Crocin, Jr. & S.A. Taylor "Measuring service quality: A reexamination & extension" Journal of marketing Vol 56 (July 1992) p.p. 55-68.
- [6] The federal transit administration "A handbook for measuring customer satisfaction and service quality". TCRP report 47.
- [7] R. Tamilarasan "A study on retail store service quality dimensions in selected retail stores of Chennai city." Indian journal of marketing (July 07).
- [8] Richard I. Levin, David S. Rubin "Statistics of management" ( seventh edition)
- [9] Muhammad Moshin Butt and Ernest Cyril de run "Measuring Pakistani mobile cellular customer satisfaction" The Icfai university press.
- [10] Valarie A. Zoithami, Leonard L. Berry, & A.Parasuraman " Communication and control process in the delivery of service quality " journal of marketing Vol.52 (April 1988)

