

Service Blueprint and Quality Function Deployment in Designing Service Quality Improvement in Hospital

Bagus Pratama Susanto^a, Febriana Wurjaningrum^{b*}, ^{a,b}Department of Management, Faculty of Economics and Business, Universitas Airlangga, Email: ^{b*}febriana.w@feb.unair.ac.id

The purpose of this study was to determine the business process services in the Marwah Inpatient Room, Haji Hospital, Surabaya by using service blueprint analysis and in improving design for the service quality. The approach used is qualitative descriptive with assisted analysis of service blueprint and quality function deployment. The result of this research is that there are five attributes with the greatest value requiring improvement, namely that the doctor's visit is punctual, the doctors listen and respond to patient complaints well, the medicine is labelled according to the patient's name and medical record number, the nurse attaches a barcode bracelet and re-checks whether it matches the patient's identity and that there are available facilities for handwashing in every room. There needs to be a change in the attributes of technical responses, systematic and sustainable human resource training, hand hygiene guidelines, and regular checks and maintenance.

Key words: *Service blueprint, quality function deployment, service quality, and quality improvement.*

Introduction

Service quality can be interpreted as an effort to meet the needs and desires of consumers, and an accuracy in delivery to balance consumer expectations. It is very important for a hospital to give optimal service to its customer (Juliasih et al., 2018). The process of delivering a service includes the customer's expectations, management application, management and customer perception (Wu et al., 2018). The level of service quality can be measured and known by comparing the perceptions of consumers on services that have been received and the condition

of service, which is expected by consumers. That is, if the services are received per what is expected, then the quality of service is considered good and satisfactory. However, if the services received are lower than what consumers expect, then the quality of service is considered poor.

An effort made by Haji Hospital Surabaya in improving the quality and the means of health services, is by increasing the quality of service in all units, namely to the medical service unit, the medical support service, and the administrative and management service unit through the quality assurance program. That companies with a good reputation will be driven to have high earning quality as an effort to maintain investor confidence in the company (Harymawan & Nurillah, 2017). The quality assurance effort can be demonstrated through accreditation. Hospital accreditation is an acknowledgment given by the government for hospital management, certifying that the hospital meets the established standards. This is in accordance with the Regulation of the Minister of Health of the Republic of Indonesia, regarding hospital accreditation. The accreditation demonstrates a hospital's real commitment to improving patients' quality and safety, ensuring that its service environment is safe. Thus, accreditation is required as an effective way to evaluate the quality of a hospital. Haji Hospital Surabaya has earned hospital accreditation from a hospital accreditation committee in Indonesia, namely KRS.

However, the implementation of hospital accreditation must encounter some obstacles, thus resulting in a less than optimal service received by patients (Siddique & Jalil 2018).

The implementation of the accreditation at Haji Hospital Surabaya can be observed through the service blueprint. The service blueprint method provides a way to implement improvements and innovations that make it possible to clearly visualise the service process from the customers' point of view (Hsiang and Bor-Wen, 2011). The service blueprint is an image or map that accurately describes the service system so that everyone involved in its presentation can understand and execute objectively. Once a service blueprint is designed, it will be easier to determine the order and interaction of the service process. The advantages of the service blueprint method in a hospital compared with other methods is that it can describe the business process from the customers point of view so that it can be known that the services, the transactions and the standard operation procedures are less than maximal, any points of failure and what must be repaired for the services to be effective and efficient. When the improvement is undertaken, it will increase the quality of services, so it is also expected to increase patients' or consumers' satisfaction.

After identifying the scenario of business process through the service blueprint method, the next step is using the Quality Function Deployment (QFD) method to design and form a cycle whose shape resembles a structure called the House of Quality. This method is focused on the

needs of consumers so that the design and development process is more concerned with what consumers want than in the innovation of technology used in the hospital. The Haji Hospital Surabaya can improve the service quality by paying attention to the patients' point of view by using the QFD method. Through patient assessment, the hospital management will be able to determine the technical response to improve the service quality where it is assessed as deficient by the patients. Therefore, the problem investigated in this study is how the service business process applies to the Marwah Inpatient Room, Haji Hospital Surabaya by using the service blueprint analysis and designing service quality improvement by using Quality Function Deployment (QFD) method.

Research Method

In this study, the approach used is the qualitative descriptive approach. Qualitative descriptive research is an activity that includes the collection of data or answering questions regarding circumstances as the main method of conducting principal research. Data collecting through observations and interviews is also used in this study, where interviews conducted in the location of the study between researchers and resource persons, can check the validity of triangulation data. This research was only done in the Marwah Inpatient Room, Haji Hospital Surabaya, concerned with the service process of patients registering. The respondents were internal parties within the company covering the head of medical services, the head of the inpatient room, admissions officers, nurses and external parties who work in the Marwah Inpatient Room, Haji Hospital Surabaya.

The respondents were all patients of the Marwah Inpatient Room, Haji Hospital Surabaya, numbering a total of 240 patients. The analysis of qualitative data used in this study was undertaken as follows: the service blueprint method was used to identify the flow of service processes, identifying the implementation of the hospital accreditation and as a basis for finding attributes in questionnaire making; then gap analysis was conducted and quality function deployment designed by compiling one or more matrices called House of Quality (HOQ). This matrix explains consumers' needs and expectations.

Discussions

Service Blueprint

The service blueprint is a tool that describes the service process and simultaneously describes the people who deal with the consumers, and describes the services from the patients' perspective of the Inpatient Room, Haji Hospital Surabaya. The service blueprint asserts that there are various systematic levels in service, from the level of patient interactions and physical proof to the level of the internal interactions of Haji Hospital Surabaya. From this stage, all

processes related to the existing services in the Marwah Inpatient Room will be identified. The service process in the room comprises (a) Administrative services provided by the admission officers; (b) Room services by nurses; and (c) Doctors' services.

The business process in the Marwah Inpatient Room with the service blueprint method includes: (a) The procedure of prompt registration service of the patient who should be quickly and easily understood; (b) The room nurses receive the patients with a friendly greeting and introduction; (c) The nurses give information about the facilities in the room; (d) The nurses pair the barcode bracelet and re-check whether it matches the patients' identity or not; (e) The nurses identify the bracelet before the examination of administration, blood collection, and other specimens for clinical matters; (f) The nurses label the medicine according to the patient's name and medical record; (g) There are handwashing facilities and handwashing guidelines available in every room; (h) The doctor's visit is on time; and (i) The doctor listens to and responds to patients' complaints well. The diagram of the service blueprint in the Marwah Inpatient Room, Haji Hospital Surabaya is presented in Appendix 1.

Improvement Design by Using Quality Function Deployment Method

The first step in designing improvements using Quality Function Deployment is to determine customer needs, which are defined as a hope or desire from the consumer about the service quality provided by the hospital based on the indicators derived from the service blueprint listed previously. Table 1 summarizes ten service quality attributes that service users desire based on the results of the service blueprint method.

Table 1: Service Quality Attributes of Haji Hospital, Surabaya

Number	Service Quality Attributes
1	The patient registration procedure is quick and easy to understand
2	The room nurse receives the patient in a friendly manner, greets and introduces him/herself
3	The nurse provides the patient with information or introduction about the facilities in the room
4	The nurse attaches a barcode bracelet and re-checks whether it matches the patient's identity

5	The nurse identifies the bracelet before administration, blood collection, and other specimens for clinical examination
6	The medicine is labeled according to the patient's name and medical record number
7	Facilities for handwashing available in every room
8	Handwashing guidance is available in every room
9	The doctor's visit is on time
10	The doctors listen to and respond to patients' complaints well

The next stage is to create technical characteristics or technical responses for each service quality attribute provided by the hospital, based on the results of discussions conducted by the hospital management, such as the head of medical services and the head of the inpatient rooms who understand the implementation of services provided in the hospital. Technical responses to the ten needs of hospital customers can then be obtained: (1) Sustainable and systematic training in human resource management; (2) Computerized hospital administration; (3) The nurse is equipped with knowledge of service commitment to the patient in accordance with the standards of operational procedure of new patient acceptance as an inpatient; (4) Standard operational procedures for patient identification; (5) Briefing at each shift change; (6) Good cooperation among the nurses; (7) Hand hygiene guidelines; (8) Perform regular checks and treatments; (9) Adjustment of the schedule of medical personnel according to standard operational procedure of physician visit; and (10) Evaluation and assessment of work.

From the results of the preparation of customer needs (WHATs), technical responses (HOWs), analysis of relationships between WHATs and HOWs, analysis of relationships between the HOWs development of the planning matrix and the development of the technical matrix, then the results of data processing, can be interpreted in the House of Quality matrix, which can be seen in Appendix 2. The target of service quality improvement in the Marwah Inpatient Room should be concerned with the following attributes:

1. Performance evaluation and assessment

The improvements can be designed to focus on assessing the extent of the performance of medical personnel, what needs to be improved, and what needs to be done to improve

performance. An employee performance assessment is conducted to evaluate the performance of each employee's work in providing services to the patients. Performance appraisals relate to rewards or penalties.

2. Standard operational procedures for identification of patients' identities

The improvements can be designed by focusing on developments to improve the identification process in term of the administration of medicines, blood or blood products, blood collection or other specimens for clinical examination.

3. Systematic and sustainable training in human resources management for the employee

The improvements can be designed by education and training to develop the quality of human resources owned by RSU Haji Surabaya.

4. The briefing of each shift change

The improvements can be designed by reuniting perceptions of the vision and mission of the hospital. A briefing is one way to make every employee understand what to do and understand the role of each.

5. The nurse is equipped with knowledge of the service commitment to the patient in accordance with the standard of new patient admissions procedure at the inpatient room.

The improvements can be designed by training and motivation related to the fulfillment of good service to the patient. The standard of new patient admissions procedures in hospitalization should not only be stored in the file, but also displayed in each nurse's room and be well understood.

6. Hand hygiene guidelines

The improvements can be designed by providing facilities and guidelines for proper handwashing. This is done to reduce the risk of infection associated with health services. The way to reduce and prevent the risk of infection is by hand washing properly.

7. Perform periodic checks and treatments

The improvements can be designed by focusing on efforts to rejuvenate and manage facilities owned by the hospital. This is done so that patients feel comfortable using the facility during hospitalization. Another purpose is to improve the competitiveness of Haji Hospital Surabaya with other hospitals located in Surabaya.

8. Good cooperation between nurses

The improvements can be designed by developing effective communication, exchange of information and ensuring the nurses remind each other. Ineffective communication will pose a risk of errors in the provision of nursing care.

9. Adjustment of the schedule of medical personnel according to standard physician surgery procedure

The improvements can be designed by focusing on the preparation of working hours and physicians' visits according to the needs of the patients. Most doctors are not only practicing in Haji Hospital Surabaya, so this makes the schedule of the doctors heavy and often too late to visit the inpatients.

10. Computerized hospital administration

The improvements can be designed by focusing on the knowledge of computerization. If the officer is skilled at operating the computer, then the patient registration process will be more effective and efficient.

Conclusion

Academic Implications

The design of improvements which are the integration between service blueprint and quality function deployment method to improve the hospital service quality comprises two items. First, there are ten technical responses, most of which are strongly linked, some have moderate relationships and some may have relationships. Each of the technical responses also has a positive correlation with other attributes. Based on the ten attributes of technical response, most have a very strong positive correlation effect, and some have a strong positive correlation relationship. Secondly, there are five attributes with the greatest value that require improvement; namely, the punctual visit of the doctor, the doctor listening to and responding to patient complaints properly, the nurse ensuring the medicine is labeled according to patient's name and medical record number, the nurse attaching the barcode bracelet and re-checking whether it is in accordance with the identity of the patient, and the availability of facilities for handwashing in every room.

Targets to be achieved by RSU Haji Surabaya include (1) Making a superior product to competitors on the attributes of technical response by adjusting the schedule of medical personnel according to standard operational procedures of physician visit; (2) Changes should be made to the attributes of the technical response, so that the nurse is provided with knowledge of the service commitment to the patient in accordance with the standard of new patient admissions procedure at the inpatient room, the standard of operational procedures for identification of patient identity, and evaluation and performance appraisal; (3) There needs to be a change in the attributes of technical responses concerning systematic and sustainable human resource training, hand-hygiene guidelines, and regular checks and maintenance; and (4) No changes to the attributes of technical response, computerized hospital administration, briefings of each shift change and good cooperation among nurses.

Managerial Implications

The managerial implications that can be provided to improve the hospital service quality are (1) To design the improvements by using the Quality Function Deployment method, to meet the patient's desired service needs and to be used as a competitive strategy; (2) To conduct routine and continuous reviews of service quality to see the progress of patients' needs, to support the improved success for the hospital service quality; (3) To make the repairs as soon as possible based on the improvement priorities designed to improve the hospital service



quality; and (4) To conduct a benchmarking with the higher quality hospitals, to exchange information in order to accelerate and improve the service quality improvements.



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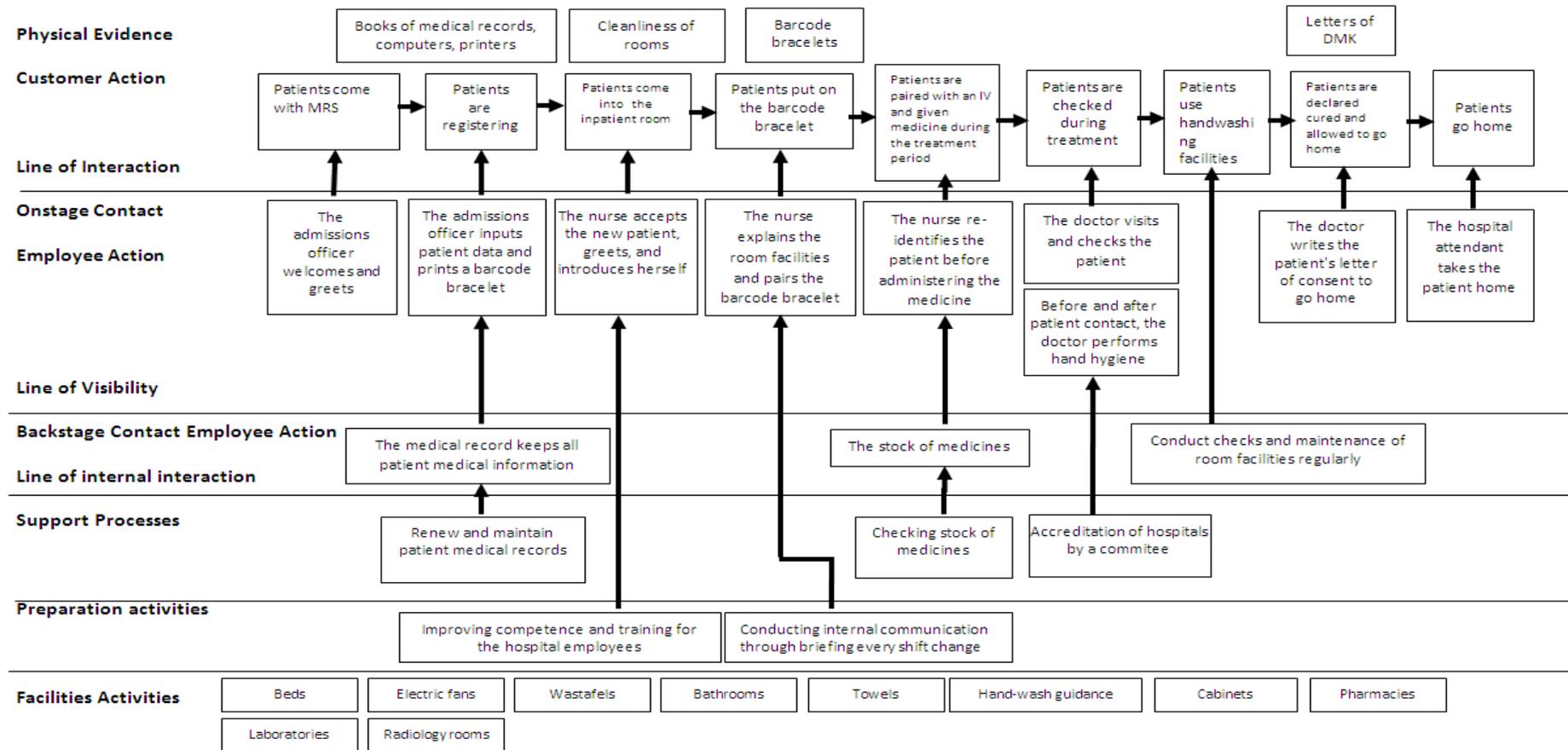
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Appendix 1: Service Blueprint of the Marwah Inpatient Rooms, Haji Hospital, Surabaya



Appendix 2: House of Quality for the Marwah Inpatient Rooms, Haji Hospital, Surabaya

Customers Needs	Technical response										Importance to customers		Customer Satisfaction Performance					Goal	Improvement Ratio	Sales Point	Raw Weight	Normalized Raw Weight	Prioritized Customer Requirement
	Sustainable and systematically training in human resource management	Computerized hospital administration	The nurse is equipped with knowledge of service commitment to the patient in accordance with the standard of operational procedure of new patient acceptance at inpatient	Standard operational procedures to patient identification	briefing of each shift change	Good cooperation between nurses	Hand hygiene guidelines	Perform regular checks and treatments	Adjustment of the schedule of medical personnel according to standard operational procedure of physician	Wale	Evaluation and assessment of work	TK	P	K	H	G							
The patient registration procedure is quick and easy to understand	●	●	△							□	4.42	7	4.12	4.42	-0.3	4.42	1.07	1.5	7.094	0.097			
The room nurse receives the patient friendly and greets and introduces himself	□		●		△					□	4.32	9	4.3	4.32	-0.02	4.32	1	1.5	6.480	0.088			
The nurse provides the patient with information or introduction about the facilities in the room	△		●		△					□	4.22	10	4.04	4.22	-0.18	4.22	1.04	1.5	6.583	0.090			
The nurse attaches a barcode bracelet and re-checks whether it matches the patient's identity	●		△	●	●	□				□	4.46	6	4.1	4.46	-0.36	4.46	1.09	1.5	7.292	0.100			
The nurse identifies the bracelet before administration, blood collection, and other specimens for clinical examination.	△		□	●	●	△				□	4.46	5	4.18	4.46	-0.28	4.46	1.07	1.5	7.158	0.098			
The medicine is labeled according to the patient's name and medical record number	△			●	□	●				□	4.76	1	4.3	4.76	-0.46	4.76	1.1	1.5	7.854	0.107			
Available facilities for hand washing in every room							●	●			4.6	3	4.38	4.6	-0.22	4.6	1.05	1.5	7.245	0.099			
Handwashing guidance is available in every room							●	●			4.42	8	4.32	4.42	-0.1	4.42	1.02	1.5	6.783	0.092			
The doctor's visit is on time	△								●	□	4.54	4	3.52	4.54	-1.2	4.54	1.29	1.5	8.785	0.120			
Doctors listen and respond to patient complaints well	△									●	4.62	2	3.96	4.62	-0.66	4.62	1.16	1.5	8.039	0.110			
Contribution	2.5168	0.7956	2.0654	2.6865	2.2471	1.9923	1.7784	1.6596	1.0782	3.291													
Normalized Contribution	0.1289	0.0408	0.1058	0.1377	0.1152	0.0714	0.0911	0.0851	0.0553	0.1687													
Priorities	3	5	10	2	4	8	6	7	9	1													
Own Performance	4.11	4.25	4.09	4.11	4.34	4.38	4.32	4.32	3.63	3.96													
Competitive Benchmarking	3.68	3.66	3.73	3.74	3.76	3.88	3.85	3.90	3.50	3.60													
Target	3	2	4	4	2	2	3	3	5	4													
Prioritized Technical Description																							