Implementation of quality function deployment to identify priority needs of customers and health providers of child-friendly community health centre

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ABSTRACT

Background and purpose: The efforts to increase quality of service is critical in public services. Service providers should be able to identify customer needs and expectations. As one of health providers, community health centre are required to develop mechanisms for identifying needs of customers and staff. Needs assessment of clients and staff at Blahbatuh II Health Centre is never been conducted. This study aims to identify priority needs of customer and staff to improve the quality of service at Blahbatuh II Health Centre.

Methods: A quantitative study was conducted at Blahbatuh II Health Centre. Data was collected through interviews guided by a structured questionnaire. A total of 97 customers were consecutively selected and were interviewed. Eight staff of child-friendly community health centres were purposively recruited. Data was analysed using quality

function deployment method and presented in the House of Quality (HoQ) matrix.

Results: There were 16 and 13 expectations from customers and staff respectively. The house of quality matrix showed that respondents ranked several expectations as the most important that include friendly staff, quick and on-time services, and effective treatment. Health staff on the other hand expected the centre to implement performance-based reward system, to provide training program and to follow the standard operating procedures.

Conclusions: Expectations from customers and health staff are different. In order to meet these expectations, health centre should design and implement a quality improvement program to address these diverse quality issues.

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INTRODUCTION

Improved quality is essential for any public services. Quality improvement program in health sector is also critical for community's health status. Under decentralisation era, Gianyar Government implements several innovations aim at promoting Gianyar District as a child friendly district. One key strategy is establishing child-friendly community health centres.[1]

In order to improve quality of service, expectations of client and health provider should be identified. For this identification purpose, a quality function deployment (QFD) method offers multiple benefits. QFD accommodates customers' perspective effectively.[2] It also enables identification of opponents' strengths and limitations. Other managerial tool which offers similar benefits is failure mode and effect analysis (FMEA). FMEA is a quality planning instrument that enables: (1) identification of products' objective; (2) analysis of critical factor of particular products; and (3) prevention of errors to ensure reliability. However, FMEA is unable to uncover expectations of both client and health staff.

This study aims to identify expectations of client and health staff using QFD method in order to improve quality of service provided by Blahbatuh II Health Centre.

METHODS

This quantitative study was conducted among 97 clients and 8 health staff. Data were collected using interviews guided by a structured questionnaire. Clients were consecutively selected while health staff were purposively selected.[3] Data were analysed using QFD method and presented as House of Quality (HoQ) matrix.[3] Data collection was conducted at Blahbatuh II Health Centre from April to May 2016. Research variables were expectation of client and health staff based on five domains consisting of physical aspects, reliability, responsiveness, assurance and emphaty.[2,3,4]

Customer or client expectation was defined by looking at scores of customer importance, target value and sales point. A total of 16 expectation aspects were evaluated and mean value was calculated and entered into QFD matrix. Customer importance mean values of 0-1.5, 1.6-2.5 and

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2.6-3 indicate mild, moderate and high importance respectively. Target values of 0-1.5, 1.6-2.5 and 2.6-3 indicate low, moderate and high demand to change respectively. Sales point mean value of 0-1.5 indicates respondents' willingness to utilise health centre if no change was taken while value of 1.6-2 indicates respondents' reluctance to utilise health centre if no change was taken. Priority of client expectation was defined by calculating the absolute weight from scores of customer importance, target value, and sales point. Absolute weight was measured as scores of customer importance times target value and sales point.[2]

Expectations of health staff were measured by using degree of difficulty and target value. Mean values of these indicators were entered into QFD matrix. Degree of difficulty mean values of 0-1.5, 1.6-2.5 and 2.6-3 indicate low, moderate and high difficulties respectively. Target values of 0-1.5, 1.6-2.5 and 2.6-3 indicate low, moderate and high demand to change respectively. Absolute weight score was calculated by adding up all multiplication values between association score (between client and health staff) and importance value score. Association between client and health staff expectations was defined as: strong association (score 9), moderate association (score 3) and weak association (score 1). Relative weight score was calculated by adding up all multiplication values between association and absolute weight scores.[2]

In order to calculate the relative factor for health staff expectations, each relative weight element was divided by the sum of relative weights. Absolute factor for health staff expectations was measured by calculating absolute weight of each elements divided by the sum of absolute weights. Priority of health staff expectations was determined by the value of relative score.[2]

This study protocol has been approved by Human Research Ethics Committee of Faculty of Medicine Udayana University/ Sanglah General Hospital.

RESULTS

This study showed that there were 16 elements and 13 aspects of expectation from client and health staff respectively. Quality function deployment analysis resulted in priority needs among clients and health staff which is elaborated below.

From all quality dimensions, clients demanded for friendly health providers. In addition, clients wanted reliable services with short waiting time, on-time services, effective treatment and comprehensive explanation of patients' clinical situation. Clients also preferred comfortable waiting room and affordable services, as presented in Table 1. From health staff perspective, relative factor calculation showed that from all quality dimension, assurance came as the top priority, for example implementation of performance-based reward system and standard operational procedures. In addition, health staff demanded continuing training programs especially on how to effectively communicate with

Table 1 Expectation priority of clients at Blahbatuh II Health Centre

Priority order	Clients' expectation	Importance (a)	Target value (b)	Sales point (c)	Absolute weight (axbxc)
1	Friendly health staff	2.5	2.8	1.5	10.6
2	Service waiting time	2.5	2.6	1.4	9.1
3	On-time services	1.9	2.6	1.4	6.9
4	Effective medication service	2.7	3.0	0.8	6.8
5	Explanation of patients' condition or disease	1.9	2.8	1.2	6.6
6	Quality of facilities for child diagnostics	1.4	2.6	1.8	6.6
7	Parent participation	2.1	2.1	1.4	6.2
8	Medication advice	2.0	2.3	1.3	6.0
9	Availability of education materials	1.7	1.9	1.6	5.4
10	Safety of the surrounding	2.5	2.0	0.9	4.8
11	Quality of lactation room	1.8	2.0	1.0	3.7
12	No smoking sign	1.7	2.1	1.0	3.7
13	Environmental hygiene	1.9	2.6	0.5	2.7
14	Appropriate medication preparation for children	1.1	1.1	1.5	1.8
15	Comfortable waiting room	2.4	0.7	1.1	1.8
16	Affordability of services	1.1	0.5	1.0	0.5

Table 2 Expectation priority of health staff at Blahbatuh II Health Centre

Priority order	Technical requirement	Difficulty	Target value	Absolute weight	Absolute factor	Relative weight	Relative factor
1	Reward system	1.8	2.4	155.2	0.21	476.0	0.24
2	Staff training	2.4	2.8	107.1	0.15	321.7	0.16
3	SOP implementation	1.8	2.5	90.2	0.12	262.5	0.13
4	Communication skill of health staff	2.0	2.6	70.5	0.10	227.2	0.11
5	Availability of pharmacist	2.1	2.8	60.3	0.08	158.7	0.08
6	Quality of diagnostic facilities	2.1	2.6	46.6	0.06	154.2	0.08
7	Maintenance of health facilities	2.0	2.4	53.6	0.07	147.2	0.07
8	Good relationship	2.3	2.3	20.9	0.03	79.9	0.04
9	Availability of sanitary staff	2.1	2.1	51.3	0.07	66.2	0.03
10	Service promotion	2.3	2.6	24.3	0.03	57.6	0.03
11	Floor material	1.8	2.4	26.7	0.04	47.5	0.02
12	Availability of playing facilities	2.1	2.4	23.2	0.03	19.9	0.01
13	Tariff promotion	2.3	2.8	3.3	0.00	1.6	0.00

children and how to provide child-oriented health services. From emphaty dimension, health staff also suggested an active promotion of child-friendly health services tariff to all community members and highlighted the importance of physical aspects for example floor material and the availability of playing facilities for children at the community health center. These can be seen in Table 2.

DISCUSSION

The primary focus of QFD is the involvement of client and health staff in a quality improvement program. There were 16 requirements from clients and 13 requirements from health staff that should be taken into account when developing child-friendly community health centre. The requirements can be ranked and priority scale can be developed. Those with higher score should be immediately addressed. When clients' expectation is met, service provider has fulfilled half of its quality improvement.[5]

Clients demand a friendly health staff from Blahbatuh II Health Centre, both to the children and parent. This demand from clients is aligned with the health centre vision to provide friendly services. Friendly services mean that all staff are able to provide health services to patient that are polite, considerate, and respectful.[6,7,8] A study conducted by Nurba found that friendly services are associated with patient satisfaction in Loa Janan Health Centre.[7]

In term of service reliability, clients wish that the child-friendly health centre can provide on-time and quick services. Waiting time at the health centre is the time spent at the health centre from registration until they leave the pharmacist counter.[9]

Similar study in Surabaya found that the quality of services from client perspective is also determined by the waiting time spent at the health centre.[9] Furthermore, on-time services provided by the health centre for child patients is a key expectation from client perspective. Even though opening time of the health centre has been regulated, health staff however tend to delay the opening time – making the waiting time is even longer.

Similarly with the closing time, health staff tend to close the registration locket quicker. On-time service delivery indeed is a key factor for improving quality of service.[9] Effective medication from health staff is another key feature of client expectation. This is critical to reduce the medication errors among child patients. Clients want effective treatments for their children as this will determine clinical outcomes of their children. To effectively treat patients and manage their medication, health staff must understand the condition and the need of patients.[10] Clients also want a comprehensive explanation relating to their children health and illness. Communicating patients' condition to their families may improve patient/ family satisfaction.[11]

In addition, clients highlight the importance of diagnostic facilities for children, both the completeness and the quality. These facilities must be accurate, sensitive, reproducible, safe and should be provided by the health centre to ensure its availability when needed by the patients.[1,12]

In term of responsiveness, parents' involvement is also valued by the clients. Parents play significant roles for children's health status. Parents are the most appropriate person to consult with regarding their children behaviour and preference. For example, parents should decide whether medicine

for their children must be prepared as pill or emulsion.[13,14] Clients also demand an explanation from health staff related to medication and its side effects. A clear information regarding medication will prevent the occurrence of medication errors and severe adverse events. This is essential for patient safety. The communication skills among health staff have been argued by other studies to contribute to patient satisfaction.[10,11]

On the other hand, health staff demand the health centre to create performance-based incentive system to ensure staff productivity and to maintain staff motivation. Reward is defined as gifts or incentives or disincentives provided to staff to encourage productivity.[15,16,17,18] In addition, health staff also need more training program especially related to child health program and how to effectively communicate with children and their parents. Training is an important process to transfer knowledge, particular skills and certain attitudes to employees in order to improve their working capacity and be more responsible toward their duties.[19,20]

Implementation of standard operating procedure (SOP) on providing effective service to child patients is also viewed as an essential quality component by health staff. SOP is the main reference of conduct for health staff. It outlines roles and functions of each health profession including performance indicators of each function. These consist of technical, administrative and procedure indicators.[21]

Communication skill of health providers is another element essential for quality of child health program. Miscommunication may lead to poor quality and eventually will result in negative consequences for both child patients and their families.[21] Health staff urge the provision of pharmacist services at the health centre to support effectiveness of child health program. Pharmacist can provide medication advices to patients and their families.[10]

Health staff highlight the importance of diagnostic facilities for child at the health centre. These facilities must be accurate, sensitive and reproducible. The diagnostic tools should be always available at the health centre. Reguler maintenance is also required to ensure that these equipments are clinically safe.

CONCLUSION

To ensure quality of a child-friendly health centre, several considerations for quality improvement are required. These include hospitality of health staff, short waiting time and on time services, effective medication services, effective communication strategy to explain patients' condition, availability of safe and accurate diagnostic facilities for children,

parent participation in medication planning, and comprehensive explanation on medication planning including its side effects.

From health staff perspective, health centres should develop several mechanisms to maintain staff performance leading to quality improvement that include performance-based incentive system, staff training, consistent implementation of existing procedures, availability of pharmacist at the health centre and diagnostic tools to support program implementation.

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