

The Development of the Service System of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast, Thailand

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KEYWORDS

Development of the service system, Premium Heart Health Clinic.

ABSTRACT

Background: Developing a quality service system is a challenge in the health system amidst resource constraints and increasing service recipient expectations. This action research developed the service system of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast, Thailand, and evaluated the outcomes of the service delivery duration and the satisfaction with services.

Method: The action research framework was employed. The study process comprised the following four steps: 1) analyzing the situation, 2) designing and developing the service system, 3) trying out the service system and 4) evaluating the service system. The research tools were the service duration record form and the service recipient satisfaction assessment form. Data were analyzed by descriptive statistics, including frequency, percentage, mean, and standard deviation, and independent t-test and content analysis.

The findings revealed that the developed service system of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast, Thailand was the TPCG model, comprising 4 elements: Teamwork (T), Preparation of service provider competencies (P), Creating a marketing plan (C) and Growth mindset (G). It was also found that the mean service duration at Premium Heart Health Clinic after the development of the service system was significantly lower than that of before the development ($p < 0.01$) (before: 138.09; after: 222.42). The mean satisfaction was also significantly higher than before the development ($p < 0.01$) (before: 3.74; after: 3.52).

1. Introduction

Over the past few years, Thailand's medical and public health service system worldwide has changed rapidly, caused by the effects of COVID-19 pandemic that healthcare workers have to adapt themselves and the service system for providing excellent and quality service that is quick to keep up with changes and the expectations of service recipients that have increased than in the past due to the increased awareness of health information from various sources nowadays.

Service quality results from comparing expectations and perceptions of the service when the quality of service is evaluated by the service recipients. Therefore, the service that meet the needs of the service recipients is considered the quality service. When analyzing the needs of the service recipients in the hospital in detail, their needs are not only to recover from illnesses, but also other needs, such as the needs to know the information about their illnesses and receive convenient and fast services. Moreover, the service recipients' needs can be divided into 2 aspects. 1) Core service: It is the service needed by the recipients. 2) Peripheral service: It refers to other services that are not the core service, including the expected service that if the service recipients receive the service as expected, it will bring satisfaction to them, and the augmented service that is the service that the service recipients would like to receive but do not expect to receive it from the service provider. However, if the service recipients receive it, they will be happy and contented, which is more than satisfaction. Therefore, the diverse needs of service recipients are the determinants of service quality, including 1) reliability, 2) responsiveness, 3) competence, 4) access, 5) courtesy, 6) communication, 7) credibility, 8) security, 9) understanding and knowing the customers and 10) tangibles, which are the things that the service recipients can

perceive, such as service location, equipment, or modern medical technology and behavior of service providers. Based on the service recipients' perspectives towards service quality at present, it is obvious that only standard medical treatment, modern medical technology and luxury and convenience of the place are not enough to be assessed as good by the service recipients, but other factors and care in every step of service delivery are also needed.⁹

Therefore, to manage services to meet the needs of service recipients in all dimensions, marketing strategy concepts must be applied. Organizations must prepare effective marketing strategies by studying competitors, current service recipients, and potential future service recipients. The competitive strategies, objectives, strengths, weaknesses and responses to the competitors must also be determined. Strategic marketing planning, using SWOT Analysis¹⁰ and the Lean concept¹¹ is required to reduce steps and service duration. Strategic marketing planning is a process of developing and maintaining suitability in accordance with the organization's visions and missions to adjust the service system for safe and quality service delivery that can shorten time and achieve the goals of making a profit and organizational growth.

Queen Sirikit Heart Center of the Northeast is a 200-bed specialized cardiac center, serving approximately 142,000 patients per year. The examination and treatment services are certified by Joint Commission International (JCI) and Hospital and Health Service (HA). It provides treatment for cardiovascular diseases for both adults and children and 24-hour emergency patient services. Open- and closed-heart surgery, diagnostic procedures and percutaneous coronary intervention (PCI) are performed. It is also the first and only place in the Northeast of Thailand that provides the treatment for arrhythmias using Electrophysiology Study & Radiofrequency Ablation. Regarding the development of a quality service system, the most important thing is the multidisciplinary team of health care providers who will provide care to service recipients and support the management of quality services to be worthwhile and efficient. Previous studies found that multidisciplinary team management in heart failure clinics could improve patient care outcomes. However, some components of standard care management still cannot be applied in some contexts. The provision of quality services in heart health clinics still has some limitations, such as the lack of resources for care management, the increase in the number of patients with heart disease, the complexity of illness, the delay in the care management system, the care referral system, and the document management system. These are the problems and obstacles affecting the outcomes of management of risks that may occur to service recipients, affecting their satisfaction with the service. According to the aforementioned problems, after the COVID-19 pandemic, the service system of the Premium Heart Health Clinic at the Sirikit Heart Center of the Northeast was affected in terms of the government's policy regarding the adjustment of the medical expenses reimbursement program. Also, there were both public and private market competitors. There was an increase in the opening of health service units with heart disease centers in the Northeast of Thailand, affecting the amount of income and profits from operations due to the decrease in the number of service recipients. For these reasons, the Queen Sirikit Heart Center of the Northeast must change the management and service delivery strategies. Previously, the organizational management was based on the government management model. The budget was mainly supported by the government. Therefore, the organization must manage budgets on its own for self-reliance. Marketing concepts must be used to adjust the service delivery for the organization's survival amidst the fluctuations of the political, economic, social, and public health systems occurring during the COVID-19 pandemic. Consequently, the scope of service has been expanded. That is, Premium Service is established to respond to the needs of service recipients in terms of quick service in every process for desirable service outcomes in every aspect and to improve the quality of comprehensive cardiovascular disease services. It is a form of excellent service provision in every dimension, similar to going to receive services at a private hospital with the convenience of the service location and the service system that provides one-stop service in a hospital that provides health check-up and treatment services.

Due to these phenomena and the literature review, the research team was interested in studying the development of the service system of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast to see what the service system of Premium Heart Health Clinic should be in addition to the standard medical treatment according to professional standards, such as having modern medical technology and services comparable to those of leading private hospitals with luxury and convenience of the location and care in every step of service delivery for the service recipients' satisfaction and the organization's profit for being self-reliant in the development of the organization to be more agile without relying only on the government budget and the development of personnel to improve the service quality that exceeds the service recipients' expectations.

2. Conceptual framework

This action research aimed to develop the service system of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast. The marketing strategy concept of Kotler, Philip & Armstrong, Gary (2012) was employed to study competitors, current service recipients and potential future service recipients in order to determine competitive strategies and good operating results of the organization. The concept of Lean Six Sigma of George, M.L., 2001 that emphasizes quick service to reduce time in each step of service and the concept of quality service of Parasuraman Zeithamal & Berry (1985) to increase satisfaction with service quality were also employed in the study. A participatory action research process based on the theoretical concept of Kermis and Mc Taggart (1990) was employed to develop the service system of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast to be excellent in every aspect. The research was conducted with the following 4 steps. Step 1: Analyzing the problems and needs of the service: The service duration, the service recipients' satisfaction, strengths, weaknesses, development opportunities, conditions, problems and obstacles of the services provided at Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast were investigated. Step 2: Designing and developing the service system: Service activities and service manual and service evaluation were prepared. Step 3: Trying out the service system: The service system was implemented. Step 4: Evaluating the service system of Premium Heart Health Clinic: It was the evaluation of the service system after providing services with the participation of the health team. Various methods were selected and used. The approaches for providing services leading to the development of the service guidelines were clarified. The service process must be continuous in order to use the results from the analysis and synthesis at each step to improve the service and plan a new service until the service results have reach satisfaction and the problems can be solved.

3. Methodology

1. Research design and population

This was action research conducted from July 2022 to April 2023. There were two groups of the research participants. Group 1 consisted of 23 service providers who were purposively selected, namely 12 cardiologists, 5 nurses, 2 pharmacists, 2 registration officers and 2 financial officers. Group 2: the service recipients or patients undergoing treatment or annual health examinations, aged 18 years and over, able to communicate verbally or in writing and willing to provide information: They divided into 2 phases. Phase 1: 140 people who were randomly selected to study the service duration and the satisfaction of the service before developing the service system over a period of 2 months. Phase 2: 140 people who were randomly selected to study the duration and the satisfaction of the service after developing the service system over a period of 2 months. The G* Power program was used for selecting the participants. The effect size was set at 0.5. The power analysis was at 0.9, and the p-value was at 0.05. As a result, there were 140 people in each group.

2. Data collection: The data collection tools were as follows:

The quantitative research tools comprised (1) the questionnaire on the personal information of the service recipients, including gender, age, highest education level and medical treatment rights, (2) the service duration record form, which was used to record the service duration at each point, starting from outpatient screening to receiving medicines and advice on the use of medicines from the pharmacist through a computer program of Queen Sirikit Heart Center of the Northeast, and (3) the service recipient satisfaction assessment form, which was developed from the Clinician & Group Consumer Assessment of Healthcare Providers and Systems (CG-CAHPS). The content validity index was 0.98 and the Cronbach's alpha coefficient was 0.96. It was used to assess the service recipients' satisfaction of the services of doctors, nurses and multidisciplinary team, especially on the understanding and empathy for service recipients and the overview of the hospital's service system. The service recipient satisfaction assessment form consists of 7 aspects, namely the services provided by 1) registration officers, 2) nurses, 3) doctors, 4) pharmacists, 5) financial officers, 6) safety services and 7) the overview of the hospital services. There are 20 items. Each response is rated on a 4-point rating scale, where 1 means never receive the service and 4 means always receive the service. The interpretation of the satisfaction level is based on the following score criteria: 3.50-4.00 = the service recipient satisfaction is at a high level; 2.50-3.49 = the service recipient satisfaction is at a moderate level; 1.50-2.49 = the service recipient satisfaction is at a low level and 1.00-1.49 = the service recipient satisfaction is at a very low level.

2) Qualitative research tools included (1) the in-depth questions for individual interviews, (2) the group

discussion questions, and (3) the group discussion record form.

3. Data analysis: Data were analyzed using the statistical software packages as follows:

1. The participants' general data were analyzed by descriptive statistics, including frequency, percentage, mean (\bar{x}) and standard deviation (S.D.).
2. The service duration and the satisfaction levels before and after the development of the system were compared using independent t-test.
3. The qualitative data were analyzed by content analysis.

4. Human research ethnics

This research was approved by the Khon Kaen University Ethics Committee for Human Research (Reference No. HE651161, dated June 26, 2022). Before collecting data, the researchers submitted a letter requesting permission for conducting the research to the director of Queen Sirikit Heart Center of the Northeast. The researchers explained the details of the research and asked for cooperation in conducting research with the target groups. The research objectives, the data collection process, the rights of the participants in accepting or refusing to participate in the research were informed to the target groups. The participants can withdraw from the research without giving reasons. Data would be anonymized and presented as a whole and used for educational purposes only.

5. Research process: It consisted of the following 4 steps.

Step 1: Analyzing the situation (1 July - 31 August 2022): The strengths, development opportunities, problems and obstacles of the service system of Premium Heart Health Clinic were analyzed before conducting the research. The researchers 1) surveyed the needs of the service recipients as the information for developing the service system. In-depth interviews were administered. The services that were still delayed or duplicated and the satisfaction of 140 service recipients were investigated. 2) In-depth interviews and group discussions with 23 service providers consisting of doctors, nurses, pharmacists, registration officers and financial officers were administered.

Step 2: Designing and developing the service system (September 2022): The information obtained from the situation analysis was used to design and develop the service system as follows: 1) Appointing the committee to develop the service system, consisting of 2 cardiologists, 5 nurses, 1 pharmacist, 1 registration officer, 1 financial officer and 1 marketing consultant, 2) drafting the service system, 3) creating the guidelines for providing services for each profession, 4) drafting the marketing plan and 5) developing competencies for the service providers.

Step 3: Trying out the developed service system in Phase 1 (October-December 2022): The developed service system and marketing plan were tried out with the service recipients. The data of the service duration, problems and obstacles were collected. The obtained information was used to analyze the service duration, problems and obstacles of the service. After that, the service system was improved and developed for trying out in Phase 2 (January-February 2023). The data on the service duration and the satisfaction of the service were collected from 140 service recipients.

Step 4: Evaluating the developed service system (March-April 2023): The situation after the service system had been developed was analyzed. The service duration and the satisfaction of the service were compared. The lessons learned from the development of the service system were also summarized.

4. Results

Step 1: Analyzing the problems and needs of those involved in the service delivery: The results were as follows. 1) The service area of Premium Heart Health Clinic was as the same area as the outpatient examination room, which was quite crowded with loud noise. The service of Premium Heart Health Clinic that was different from the outpatient examination room was that the service of Premium Heart Health Clinic was provided during both office hours and outside office hours. Two cardiologists were on duty per day. 2) The outstanding feature of the service was that service recipients can use the service without having to wait in long queues. The right to reimbursement of the medical expenses can be used by those who have the right. 3) The opportunity to develop the service system was that the needs of service recipients increased each month, but there were limitations to

the service area, and the manpower of doctors, nurses, and pharmacists was insufficient to provide increased services. Moreover, the guidelines for providing services in each profession were not used to provide comprehensive services.

Step 2: Designing and developing the service system of Premium Heart Health Clinic: The co-researchers proposed the draft system and process for providing services, which was the TPCG Model. 1) Teamwork (T) for providing services at Premium Heart Health Clinic equivalent to excellent services provided by private hospitals in order to provide comprehensive services: The team consisted of 12 cardiologists, 5 nurses, 2 pharmacists, 2 registration officers and 2 financial officers, a total of 23 people, responding to the problems and needs of service recipients and the assessments according to international quality and safety standards for patient care, namely Joint Commission International (JCI) and Hospital Accreditation (HA). 2) Preparation of service provider competencies (P) for excellence in all dimensions of service delivery: The nurses were developed with the knowledge about nursing care for patients with heart disease. The pharmacists were developed with the knowledge about medicines used for patients with heart disease. The financial officers and the registration officers were developed with the basic knowledge about heart disease. All of the service providers were developed with communication skills in providing services according to the AIDET Model as well as roles and responsibilities, skills in using information in providing services. The service guidelines for the service providers according to their roles and responsibilities were also prepared. 3) Creating a marketing plan (C): This was performed to expand the service recipient base in addition to the service recipients in the Northeast and foreigners. It aimed to expand the service to the customers in the Lao People's Democratic Republic. 4) Growth mindset (G): The service providers must provide services with belief in the potential of all service providers with the desire of continually developing themselves in order to be more efficient in providing services. The principles of building team relationships were applied such as greeting, smiling, and creating a friendly working atmosphere, working together to achieve the goal of providing excellent service, listening to each other's opinions, and participating in decision making in developing the service system. A monthly consultation meeting was held to find ways to develop the service system to drive operations towards common organizational goals.

Step 3: Trying out the developed service system at Premium Heart Health Clinic: The researcher team followed the plan after trying out the service system developed in Phase 1. The problems and obstacles from trying out the draft service model at Premium Heart Health Clinic can be presented as follows. 1) There was an increase in the number of service recipients both Thais and foreigners. 2) There was overcrowding at the examination room of Premium Heart Health Clinic. 3) The parking space was not enough, causing the service recipients to take time to travel to the examination room. 4) The manpower of service providers, including doctors, nurses and pharmacists was insufficient. 5) The referral system for referring the service recipients with stable health conditions to nearby hospitals still encountered limitations because the service recipients did not have confidence in the hospital's referral service system. The research team presented the problems and obstacles from the trial of the draft service system to the management team of Queen Sirikit Heart Center of the Northeast. Also, there was a trial of the newly developed and improved service system in Phase 2 with the following stages. 1) The service area of Premium Heart Health Clinic was moved to the 8th floor and there were 8 examination rooms. 2) The manpower for providing services was increased. Four doctors were on duty per day. One nursing staff and 6 patient assistants were added. 3) One stop service was provided at the service area, including blood collection room, X-Ray room, Echocardiogram room, Exercise Stress Test, Holter Monitoring, medication room and financial room. A room for providing vaccines to prevent influenza and pneumonia was also added in the service area. The resting corner, providing snacks and healthy drinks as well as health information and Free Wi-Fi was also available at the clinic. Parking space for service recipients was also increased.

Step 4: Evaluating the developed service system and reflecting the results of the development of the service system of Premium Heart Health Clinic: After the developed service system was tried out, the results can be concluded as follows.

1. The service recipients' general information of: Before the development of the service system, male service recipients were accounted for 48.6% and female service recipients were accounted for 51.4% with the average age of 56.6 years (S.D. 9.7 years). The age group of 51-60 years was found the most (40.0%). The highest level of education was a bachelor's degree (52.9%). The most medical treatment rights were the direct payments for healthcare from the government (51.4%). After the development of the service system, male

service recipients were accounted for 55.0% and female service recipients were accounted for 45.0% with the average age of 54.9 years (S.D. 10.6 years). The age group of 51-60 years was found the most (42.1%). The highest level of education was a bachelor's degree (57.9%). The most medical treatment rights were the direct payments for healthcare from the government (54.3%).

2. The comparison results of the service duration of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast before and after the development of the service system are presented in Table 1.

Table 1 Mean (\bar{x}) and standard deviation (S.D.) of the service duration of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast before and after the development of the service system

Service steps	Before		After		Test statistics
	\bar{x}	S.D.	\bar{x}	S.D.	p-value
1. Outpatient screening	9.41	2.81	4.39	1.30	<0.001
2. Registration and verification of medical treatment rights	31.57	8.30	4.32	1.73	<0.001
3. Measuring vital signs, weight and height	15.39	8.76	5.89	2.06	<0.001
4. Screening, taking history and assessing risk by the nurse	13.51	7.40	8.24	2.89	<0.001
5. Blood tests and chest x-rays	61.58	6.50	52.44	7.24	<0.001
6. Referring patients to see the cardiologist	24.53	8.89	11.04	2.94	<0.001
7. The cardiologist performing cardiovascular procedures	23.49	7.67	17.09	11.51	<0.001
8. Receiving an appointment form, health examination results and advice from the nurse	9.26	3.16	8.06	2.73	<0.001
9. Paying for medical expenses	7.27	3.24	4.85	2.01	<0.001
10. Receiving medicines and advice on the use of medicines from the pharmacist	26.42	12.81	21.77	5.98	<0.001
Total service duration (minutes)	222.42 (3.70ชม.)	20.22	138.09 (2.30ชม.)	16.03	<0.001

* Statistical significance at $p < 0.01$

From Table 1, the mean and standard deviation of the total service duration of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast after the development of the service system decreased at every point of service. The top three services that took the most time to provide services before developing the service system were blood tests and chest x-rays with the mean score of 61.58 (S.D.6.50), registration and verification of rights with the mean score of 31.57 (S.D.8.30) and receiving medicine and advice on the use of medicines from the pharmacist with the mean score of 26.42 (S.D.12.81), respectively. From the test statistics, the mean duration of all services after the development of the service system was significantly less than that of before the development of the service system ($p < 0.01$).

3. The comparison results of the satisfaction of the service of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast before and after the development of the service system are presented in Table 2.

Table 2 Mean (\bar{x}) and standard deviation (S.D.) of the satisfaction of the service of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast before and after the development of the service system

Service providers	Before		After		Test statistics
	\bar{x}	S.D.	\bar{x}	S.D.	p-value
1. The service of the registration officers	3.17	0.67	3.59	0.52	<0.001
2. The service of the nurses	3.65	0.48	3.83	0.38	<0.001
3. The service of the doctors	3.61	0.40	3.81	0.24	<0.001
4. The service of the pharmacists	3.40	0.57	3.70	0.48	<0.001
5. The service of the financial officers	3.54	0.50	3.77	0.42	<0.001
6. The overview of the safety services	3.28	0.52	3.72	0.45	<0.001
7. The overview of the hospital services	3.52	0.34	3.74	0.23	<0.001

*Statistical significance at $p < 0.01$

From Table 2, the mean and standard deviation of the satisfaction levels on the service of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast were higher in all aspects of the service providers. The three highest service satisfaction levels after the development of the service system were the services provided by nurses with the mean score of 3.83 (S.D.0.38), the doctors with the mean score of 3.81 (S.D.0.24) and the financial officers with the mean score of 3.77 (S.D.0.42), respectively. From the test statistics, the mean service satisfaction scores after the service system development were significantly higher than those of before the service system development ($p < 0.01$).

5. Discussion

The service system development of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast resulted in the TPCG Model, consisting of the following elements: 1) Teamwork (T), 2) Preparation of service provider competencies (P), 3) Creating a marketing plan (C), 4) Growth mindset (G). In addition to the service quality, the developed TPCG Model can also reduce the service duration in each step and create satisfaction from the services received. It can also increase income from the increased profits by 60.06% from the set target of 40%. This is consistent with a study by Klongkayun, studying the development of outpatient service model with Smart Hospital Process Phoncharoen Hospital, BuengKan Province, which found that the service model developed for providing services in the outpatient department using electronic medical records, paperless prescriptions, the online queue system, the automatic queue booth and the television screen system for displaying queues and measuring vital signs connected to the Hos XP system can reduce the wait times and increase the service recipients' satisfaction.

In addition, the service duration at each step of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast before and after the development of the service system was significantly different at the 0.01 level. This aligns with a study by Godley M, Jenkins JB, entitled "Decreasing wait times and increasing patient satisfaction: a lean six sigma approach", which found that providing services at the vascular interventional radiology department using a lean six sigma approach for developing the service can reduce wait times and increase patient satisfaction. When considering each step of the service delivery, before developing the service system, the step with the highest service duration was blood tests and chest x-rays because before the development of the service system, service recipients had to go for blood tests and chest x-rays at the service point shared with other service recipients receiving other services at the hospital, causing delays in receiving the service. In terms of registration and verification of rights, before developing the service system, service recipients had to register to check their rights at the service point shared with other service recipients, causing delays. As for receiving medicines and advice on the use of medicines from the pharmacist, the service was provided at the medication room. Although service recipients did not have to go to the medicine room to pick up the medicines themselves, it still took a long time to wait for the medicines. After developing the service system, the blood test and chest x-ray system has been improved. The registration and verification of rights are a comprehensive service at the examination room. However, the process of receiving medicines is still a limitation of the service because pharmacists' manpower is insufficient for providing the service. The service is still provided at the medication room, but there has been an increase in the number rounds to pick up medicines at the medication room to help reduce the time spent waiting for medicines. This is considered an opportunity to develop the system for receiving medicines for patients at Premium Heart Health Clinic.

In addition, the satisfaction levels before and after the development of the service system of Premium Heart Health Clinic at Queen Sirikit Heart Center of the Northeast were significantly different at the 0.01 level. When considering the satisfaction levels towards the service providers, it was found that the services provided by the nurses gained the highest satisfaction score. It is because at the examination room, nurses are distributed to each point of service. Advice is provided at each step of the service delivery as well as examinations and procedures. The information on health promotion and health care specific to the disease of the patients is also provided. Next, it is the service provided by the doctors because the service recipients are examined by specialty doctors. They are also confident in the doctors' treatment. The doctors provide treatment and the patients' illnesses are improved. The complications of illnesses are also reduced. The service recipients have a good quality of life and can live normal life. Regarding the service of the financial officers, after receiving services, when paying expenses, the financial officers usually explain the costs that the service recipients must pay for each activity in previous medical treatments. Before the development of the service system, the financial officers rarely communicated or explained the expenses to the service recipients. They just informed the total amount of expenses to the service recipients. Moreover, the medical costs that the service recipients have to pay are greatly reduced when compared to receiving services at the leading private hospitals with the comparable quality of service. This is in line with a study by Asamrew N, Endris AA, Tadesse M, entitled "Level of patient satisfaction with inpatient services and its determinants: a study of a specialized hospital in Ethiopia" and a study by Abu-Rumman A, Al Shraah A, Al-Madi F, Alfalah Ton the impact of quality framework application on patients' satisfaction, which found that improving the quality of standard services, providing health knowledge to service recipients, arranging facilities and developing service competencies for service providers can result in the service recipients' satisfaction.

6. Recommendations

This research can serve as a model for developing the service system of heart health clinics or other health examination rooms provided by government hospitals. The service system obtained from research can be applied to the development of the service system that is as excellent as the service provided by private hospitals but with cheaper medical costs in order to proactively generate income for the hospital without having to rely on only the budget support from the government.

Funding

This research was supported by research funding from the Faculty of Nursing, Khon Kaen University, Thailand.

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