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# Business Process Evaluation for Outpatient Pharmacy Services

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**ABSTRACT:** XYZ Hospital is a hospital that provides health services and provides pharmaceutical services. According to Regulation of the Minister of Health of the Republic of Indonesia No.129 of 2008 concerning Minimum Service Standards for Hospitals, the waiting time for ready-made drug is ≤ 30 minutes and the waiting time for concoction drug is ≤ 60 minutes. However, in 2019 and 2020 XYZ Hospital has not been able to achieve it, so it is necessary to evaluate the business processes of outpatient pharmacy services. This study aims to identify and evaluate business process gaps in outpatient pharmacy services. This research was conducted for 3 months, from July 2022 to September 2022 by conducting interviews, observation, and documentation. Analysis of the data using qualitative methods by doing data reduction, data display and conclusion/verification.

**KEYWORDS:** Business Process Evaluation, Outpatient Pharmacy Services, Waiting time, QEF, RCA

## I. INTRODUCTION

Hospital is a health service institution that provides complete individual health services by providing inpatient, outpatient and emergency services. The functions of the hospital include providing medical treatment and health recovery services in accordance with hospital service standards [3]. The health services provided by the hospital include medical and medical support services, nursing and midwifery services, pharmaceutical services and supporting services [6]. Here we see that hospital pharmacy services are one of the activities in a hospital that really supports hospital services, so this pharmaceutical service must also be of high quality to increase patient satisfaction and one of the forms of therapy provided by the Doctor in Charge of Service is therapy in the form of pharmacotherapy. In addition, pharmacy is one of the important factors that influence the success of hospitals because pharmacy is the main source of income [5].

Regulation of the Minister of Health of the Republic of Indonesia No.129 of 2008 describes the Minimum Hospital Service Standards [7]. Based on the Minister of Health, for pharmaceutical service standards, it is stated that the waiting time for ready-made medicine drug is ≤ 30 minutes and the waiting time for concocted drug is ≤ 60 minutes. Based on the Minister of Health, the operational definition of waiting time for ready-made medicine drug is the grace period from when the patient submits the prescription to receiving the ready-made drug and the operational definition of the waiting time for concoction drug service is the grace period from when the patient submits the prescription to receiving the concocted drug.

Based on data from the 2019 XYZ Hospital, it was found that the waiting time for ready-made drug was 59 minutes and the waiting time for ready-made drug in 2020 was 54 minutes. This indicates that the target of the Minimum Hospital Service Standards in terms of drug waiting time has not been achieved. Based on complaints received through XYZ Hospital Public Relations, in 2019 there were 152 complaints with 32 complaints or 21.05% related to the long waiting time for outpatient drugs at the XYZ Hospital Pharmacy Installation and in 2020 there were 86 complaints with 18 complaints or 20 .93% which is related to the length of time waiting for drugs at the XYZ Hospital Pharmacy Installation. This means that complaints about the long waiting time for drugs at XYZ Hospital are one of the things that contribute to causing patient complaints.

Based on the data above, we can see that there is a gap between the waiting time for drugs achieved by XYZ Hospital and the waiting time for drugs based on the Minimum Service Standards and the length of time waiting for these drugs causes patient complaints as customers. Therefore, in order to provide optimal performance, it is necessary to evaluate business processes in outpatient pharmacy services at XYZ Hospital.

Before evaluating business processes, it is necessary to model the business processes to find out the current outpatient pharmacy business processes. The evaluation will be carried out using the Quality Evaluation Framework (QEF) method. With the QEF method, evaluation is carried out by measuring the quality of existing business processes using predetermined quality factor measurements so that it is expected to be able to find out what quality factors are fulfilled, or which are not fulfilled.

This research using QEF was conducted by Saraswati et al at Aisyiyah Hospital Malang [8]. Researchers modeled business processes using the Business Process Modelling Notation (BPMN). This research was conducted to evaluate outpatient

services for BPJS patients at the hospital. According to Heidari and Loucopoulos, this approach through QEF is general enough to be applied to any situation [2]. So that research using QEF can also be carried out in outpatient pharmacy services at XYZ Hospital.

Based on the explanations above, the authors see how important outpatient pharmacy services are in hospitals. This prompted the author to evaluate the business processes of outpatient pharmacy services in order to improve outpatient pharmacy services at XYZ Hospital.

## II. RESEARCH METHODS

The method used in this study is a qualitative method. According to Creswell, the characteristics of this qualitative research include natural setting, the researcher as a key instrument, collecting data from various sources, inductive and deductive data analysis, studying the meaning conveyed by participants about research problems or issues, the research process is always developing dynamically, reflexivity, overall view in an effort to make a picture of a problem or issue under study [1].

In this study, the object of research was the XYZ Hospital Pharmacy Installation. The subjects of this study were people related to the outpatient pharmacy service process at XYZ Hospital. The time of the research was conducted for 3 months from July 2022 to September 2022. The research data was sourced from primary data and secondary data. Primary data sources were obtained from direct interviews with informants consisting of the Head of the Pharmacy Installation as a purposive sample, Pharmacy Installation staff, POS/helper, outpatient nursing staff and cashier staff who have an interest in hospital operations related to outpatient pharmacy services in hospitals. XYZ as a snowball sample. Observations were also made in this study to obtain primary data by observing the process of outpatient pharmacy services. Secondary data sources were obtained from internal hospital data, including Hospital Minimum Service Standard Reports, hospital profiles, hospital annual reports, hospital staffing data. Data collection techniques in this study were carried out by conducting interviews, observation, and documentation.

### 1. Interview

The interviews were conducted openly and used interview guidelines with informants who were involved in outpatient pharmacy services at XYZ Hospital. Interviews were conducted twice.

a. The first interview was conducted to identify the business process model for outpatient pharmacy services at XYZ Hospital, the informants to be interviewed were Pharmacy Installation staff, POS, outpatient nursing staff and cashier staff who had an interest in hospital operations related to outpatient pharmacy services. at XYZ Hospital as snowball sampling. If the data obtained is considered saturated, then no additional informants are needed to be interviewed. This interview uses interview guidelines that have been prepared beforehand. The interview guide used standardized tools, namely using the pharmaceutical service business process as contained in the Technical Manual for Pharmaceutical Services in Hospitals (2019).

b. The second interview was conducted to evaluate the business processes of outpatient pharmacy services at XYZ Hospital using QEF. In this interview, the informant who will be interviewed is the Head of the Pharmacy Installation as a purposive sampling because the Head of the Pharmacy Installation is considered the most knowledgeable about quality factors in the business process of outpatient pharmacy services. This interview uses interview guidelines that have been prepared beforehand. The interview guide used standardized tools, namely using the pharmaceutical service business process as contained in the Technical Manual for Pharmaceutical Services in Hospitals (2019) and the Quality Evaluation Framework/QEF by Heidari and Loucopoulus (2013).

### 2. Observation

Observations in this study were carried out by researchers by participating in activities related to the informants' activities without being involved in the drug service process (passive observation). In this observation, the researcher recorded the activities at the research location. Observations were made when assessing the achievement of quality factors using the QEF method in the business processes of outpatient pharmaceutical services. To find out the achievement value, a recipe sample was taken using random sampling method. The number of prescription samples will be searched using the Slovin formula, for a known population, namely:

$$n = \frac{N}{1 + N.e^2}$$

Description:

n = The number of samples sought

N = Population

e = The value of the margin of error of the population size.

In this study the margin of error used is 10% or 0.1.

**3. Documentation**

These documents can be in the form of office reports, Standard Operating Procedures (SPO) and others.

In this qualitative study, data analysis while in the field used the Miles-Huberman Model by carrying out data reduction, data display and conclusion drawing/verification activities [8]. Data analysis was obtained using the Miles Huberman method through:

1. The results of the first interview and observation, the data is processed to obtain a business process model for outpatient pharmacy services at XYZ Hospital using BPMN.
2. The results of the second interview conducted with officers involved in the business process of outpatient pharmacy services at XYZ Hospital (head of the pharmacy installation) and direct observation, obtained data regarding non-functional requirements (NFRs) which refer to the business process of outpatient pharmacy services at Hospital XYZ. The results of identifying these quality factors are in the form of indicators which will later be measured using QEF. The next step in the QEF method is identifying targets (quality objectives) and calculating metrics. Stakeholders determine targets for each activity that is calculated, then perform metric calculations using the equations in the QEF method. Next, evaluate business processes by determining whether the results of calculations using QEF are on target in outpatient pharmacy services at XYZ Hospital.

Test the validity of this research data using:

1. Triangulation of data. Data is collected through various sources so that the results of interviews, observations and documentation can be analysed completely.
2. Member check. Informants will check the entire process of data analysis. Questions and answers with informants related to the results of the researcher's interpretation of reality and the meaning conveyed by the informants will ensure the truth value of a data.

## III. RESEARCH RESULT

### 1. Identification of Outpatient Pharmacy Service Business Processes at XYZ Hospital

After the first interview, Identification of Outpatient Pharmacy Service Business Processes was made by modelling the business process in the form of the BPMN model. The BPMN model that was produced was reconfirmed to the interviewees beforehand to ensure the business process model for outpatient pharmacy services at XYZ Hospital.

The business process begins when the POS stores prescriptions given by doctors to outpatients in baskets that have been prepared at the pharmacy. As a sign that the recipe is coming, the POS/helper presses the buzzer. The pharmacist will first receive the prescription, followed by reviewing the prescription. In this process it will be known whether the recipe is legible or not. If the prescription is not read, the officer will confirm with the Doctor in Charge of Service.

If the prescription is read, the second pharmacist will check the availability of the drug. If the drug is not available, the officer will check the stock in another unit. If the drug is not available in other units, the officer will consult the doctor whether the drug will be substituted with other drugs or not. If the doctor does not agree, drugs will be procured from pharmacy outlets outside the XYZ Hospital that have a Cooperation Agreement with XYZ Hospital.

After the drug is available, the drug is prepared by a third pharmacist. The officer also performs packaging and labelling. The fourth pharmacist will do drug billing and hand over the drug billing to the patient/patient's family. In line with the implementation of this process, the fifth pharmacy officer will conduct a drug review of the drugs that have been previously packaged and labelled. In this process it will be known whether the drug is appropriate or not. If it is not appropriate, the packaging and re-labelling process is carried out until the drug review process occurs correctly and the drug is appropriate.

At the same time, after the drug billing is received by the patient/patient's family, the patient/patient's family will show the billing to the cashier and complete the administration at the cashier's desk. After the administrative process is complete, the patient/patient's family shows proof of administrative completion to the sixth pharmacist and the officer hands over the drug that has gone through the drug review process while carrying out the process of providing information/counselling. With the completion of this process, the outpatient pharmacy service business process ends.

### 2. Evaluation of Business Processes Using the Quality Evaluation Framework (QEF) in Outpatient Pharmacy Services at XYZ Hospital

The next step taken in this research is to evaluate the performance of the outpatient pharmacy service business processes at XYZ Hospital using QEF. Data collection was carried out through interviews, observation, and documentation. Interviews were conducted with the Head of Outpatient Pharmacy Installation after obtaining a business process model for outpatient pharmacy services using BPMN that had been conducted previously. The results of the interviews will be used as indicators which will later be compared with current achievements. Observations and documentation are also carried out to determine the achievement of quality factors.

### 2.1 Identify Quality Factors

The first step of this evaluation is to identify the quality factors that exist in each business process. Identification of these quality factors was obtained based on the results of interviews conducted with the Head of Outpatient Pharmacy Installation. Identification of quality factors will only be carried out for business processes that have been modelled previously. The following is a table of quality factors in the business process of outpatient pharmacy services at XYZ Hospital.

**Table 1. Table of Quality Factors in Outpatient Pharmacy Service Business Processes at XYZ Hospital**

| No | Business Process | Code | Quality Factor |
|---|---|---|---|
| 1 | Reception of recipes | Q1 | *Resource efficiency* (resource efficiency in the reception of recipes process) |
| 2 | Reception of recipes | Q2 | *Time efficiency* (time efficiency in the reception of recipes process) |
| 3 | Recipe assessment | Q3 | *Resource efficiency* (resource efficiency in the recipe assessment process) |
| 4 | Recipe assessment | Q4 | *Time efficiency* (time efficiency in the recipe assessment process) |
| 5 | Recipe assessment | Q5 | *Failure frequency* (failure frequency in the recipe assessment process) |
| 6 | Checking the availability of drug | Q6 | *Time efficiency* (time efficiency in the checking the availability of drug process) |
| 7 | Checking the availability of drug | Q7 | *Failure frequency* (failure frequency in the checking the availability of drug process) |
| 8 | Checking the availability of drug | Q8 | *Throughput* (the amount of availability of prescribed drugs) |
| 9 | Checking the availability of drug | Q9 | *Resource efficiency* (resource efficiency in the checking the availability of drug process) |
| 10 | Drug preparation | Q10 | *Resource efficiency* (resource efficiency in the drug preparation process) |
| 11 | Drug preparation | Q11 | *Time efficiency* (time efficiency in the drug preparation process) |
| 12 | Drug preparation | Q12 | *Failure frequency* (failure frequency in the drug preparation process) |
| 13 | Making drug billing | Q13 | *Resource efficiency* (resource efficiency in making drug billing process) |
| 14 | Making drug billing | Q14 | *Time efficiency* (time efficiency in making drug billing process) |
| 15 | Drug review | Q15 | *Resource efficiency* (resource efficiency in drug review process) |
| 16 | Drug review | Q16 | *Time efficiency* (time efficiency in drug review process) |
| 17 | Drug review | Q17 | *Failure frequency* (failure frequency in drug review process) |
| 18 | Administration | Q18 | *Time efficiency* (time efficiency in administration process) |
| 19 | Drug delivery | Q19 | *Resource efficiency* (resource efficiency in drug delivery process) |
| 20 | Drug delivery | Q20 | *Time efficiency* (time efficiency in drug delivery process) |
| 21 | Drug delivery | Q21 | *Failure frequency* (failure frequency in drug delivery process) |
| 22 | Provision of information/counseling | Q22 | *Resource efficiency* (resource efficiency in provision of information/counseling process) |
| 23 | Provision of information/counseling | Q23 | *Time efficiency* (time efficiency in provision of information/counseling process) |

| | | | |
|---|---|---|---|
| 24 | Provision of information/counseling | Q24 | *Authority*<br>(authority in provision of information/counseling process) |

### 2.2 Quality Factor Achievement Identification and Metric Calculation

After identifying the quality factor targets, the next step is to identify the quality factor achievements and metric calculations. For the quality factors of resource efficiency and authority, the achievement results were seen through the observation method while for the quality factors of time efficiency, failure frequency and throughput, to determine the value of the achievements, a recipe sample was taken using random sampling method.

In this study the margin of error used is 10% or 0.1. Based on interviews conducted with the Head of the Pharmacy Installation to find out the number of outpatient prescriptions served by the XYZ Hospital Pharmacy Installation per month, it was found that the average number of outpatient prescriptions served was 6000 per month.

$$n = \frac{6000}{1+ 6000 (0.1)^2}$$

$$= 98.36$$

Based on the Slovin formula, the number of recipe samples that will be assessed for quality factors according to the quality factors determined previously is 99 recipes.

The steps taken after identifying the quality factor achievement results from Q1 to Q24, then the next step is to calculate the quality factor metrics according to calculations using the Quality Evaluation Framework (QEF) method. The following is a table of the results of the calculation of the quality factor.

**Table 2. Quality Factor Calculation Results**

| Code | Quality Factor | Unit | Target | Calculation | Description | Score | Achieved Yes/No |
|---|---|---|---|---|---|---|---|
| Q1 | *Resource efficiency* (resource efficiency in the reception of recipes process) | People | ≥100 | Planned human resource x 100<br>Actual human resource | 2 x100<br>1 | 200 | Yes |
| Q2 | *Time efficiency* (time efficiency in the reception of recipes process) | Second | ≥100 | Planned time activity x 100<br>Actual time activity | 60 x100<br>6.68 | 89.2 | Yes |
| Q3 | *Resource efficiency* (resource efficiency in the recipe assessment process) | People | ≥100 | Planned human resource x 100<br>Actual human resource | 2 x100<br>1 | 200 | Yes |
| Q4 | *Time efficiency* (time efficiency in the recipe assessment process) | Second | ≥100 | Planned time activity x 100<br>Actual time activity | 120 x100<br>6.23 | 1926.16 | Yes |
| Q5 | *Failure frequency* (failure frequency in the recipe assessment process) | - | 0 | Number of fail activity<br>Sample | 1<br>99 | 0,01 | No |
| Q6 | *Time efficiency* (time efficiency in the checking the availability of drug process) | Second | ≥100 | Planned time activity x 100<br>Actual time activity | 120 x100<br>21,01 | 571,16 | Yes |
| Q7 | *Failure frequency* (failure frequency in the checking the availability of drug | - | 0 | Number of fail activity<br>Sample | 2<br>99 | 0.02 | No |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | process) | | | | | | |
| Q8 | *Throughput* (the amount of availability of prescribed drugs) | - | 100 | Number of availability of prescribed drugs / sample | 9900% / 99 | 100% | Yes |
| Q9 | *Resource efficiency* (resource efficiency in the checking the availability of drug process) | People | ≥100 | Planned human esource x 100 / Actual human resource | 1x100 / 1 | 100 | Yes |
| Q10 | *Resource efficiency* (resource efficiency in the drug preparation process) | People | ≥100 | Planned human resource x 100 / Actual human resource | 2 x100 / 1 | 200 | Yes |
| Q11 | *Time efficiency* (time efficiency in the drug preparation process) | Second | ≥100 | Planned time activity x 100 / Actual time activity | 600 x100 / 130.35 | 460.3 | Yes |

**Table 2. Quality Factor Calculation Results (Continue)**

| Code | Quality Factor | Unit | Target | Calculation | Des-cription | Score | Achieved Yes/No |
|---|---|---|---|---|---|---|---|
| Q12 | *Failure frequency* (failure frequency in the drug preparation process) | - | 0 | Number of fail activity / Sample | 0 / 99 | 0 | Yes |
| Q13 | *Resource efficiency* (resource efficiency in making drug billing process) | People | ≥100 | Planned human resource x 100 / Actual human resource | 2 x100 / 1 | 200 | Yes |
| Q14 | *Time efficiency* (time efficiency in making drug billing process) | Second | ≥100 | Planned time activity x 100 / Actual time activity | 60 x100 / 144.15 | 41.62 | No |
| Q15 | *Resource efficiency* (resource efficiency in drug review process) | People | ≥100 | Planned human resource x 100 / Actual resource | 2 x100 / 1 | 200 | Yes |
| Q16 | *Time efficiency* (time efficiency in drug review process) | Second | ≥100 | Planned time activity x 100 / Actual time activity | 180 x100 / 150.74 | 119.41 | Yes |
| Q17 | *Failure frequency* (failure frequency in drug review process) | - | 0 | Number of fail activity / Sample | 0 / 99 | 0 | Yes |
| Q18 | *Time efficiency* (time efficiency in administration process) | Second | ≥100 | Planned time activity x 100 / Actual time activity | 300 x100 / 2450.96 | 12.24 | No |
| Q19 | *Resource efficiency* (resource efficiency in drug delivery process) | People | ≥100 | Planned human resource x 100 / Actual human resources | 2 x100 / 1 | 200 | Yes |
| Q20 | *Time efficiency* | | ≥100 | Planned time activity x 100 | 180 x100 | 1349.3 | Yes |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | (time efficiency in drug delivery process) | Second | | Actual time activity | 13.34 | 2 | |
| Q21 | *Failure frequency* (time efficiency in drug delivery process) | - | 0 | Number of fail activity / Sample | 0 / 99 | 0 | Yes |
| Q22 | *Resource efficiency* (resource efficiency in provision of information/counseling process) | People | ≥100 | Planned human resource x 100 / Actual human resource | 1 x100 / 1 | 100 | Yes |
| Q23 | *Time efficiency* (time efficiency in provision of information/counseling process) | Second | ≥100 | Planned time activity x 100 / Actual time activity | 300 x100 / 123.51 | 242.89 | Yes |
| Q24 | *Authority* (authority in provision of information/counseling process) | - | 100% | $U(a) = \left[1 - \sum_{k=1}^{n} W_k UV_K(a)\right] x100$ | (0)x100 | 0% | No |

From the results of the calculation of the quality factors above, it is known that there are achievement quality factors that are not in accordance with the target. The incompatibility of these quality factors can be seen in the following table.

**Table 3. Incompatibility of Quality Factors**

| No. | Proses | Kode | Faktor Kualitas |
|---|---|---|---|
| 1 | Recipe assessment | Q5 | *Failure frequency* (failure frequency in the recipe assessment process) |
| 2 | Checking the availability of drug | Q7 | *Failure frequency* (failure frequency in the checking the availability of drug process) |
| 3 | Making drug billing | Q14 | *Time efficiency* (time efficiency in making drug billing process) |
| 4 | Administration | Q18 | *Time efficiency* (time efficiency in administration process) |
| 5 | Provision of information/counseling | Q24 | *Authority* (authority in provision of information/counseling process) |

From the table above it is known that the achievement of quality factors is not appropriate in the outpatient pharmaceutical business process. This achievement discrepancy is found in the prescription review business process which includes Q5 (failure frequency in the recipe assessment process), the process of checking drug availability which includes Q7 (failure frequency in the checking the availability of drug process), the drug billing process which includes Q14 (time efficiency in making drug billing process), administrative processes which include Q18 (time efficiency in administration process) and the process of providing information/counselling which includes Q24 (authority in provision of information/counseling process).

## CONCLUSION

Based on the results of the analysis, several conclusions were obtained, namely:

1. The business process of outpatient pharmacy services at XYZ Hospital consists of receiving prescriptions, reviewing prescriptions, checking drug availability, drug preparation, drug billing, administration, drug delivery and providing information/counseling.
2. There is a discrepancy in the achievement of quality factors in the prescription review process which includes Q5 (failure frequency), the drug availability checking process which includes Q7 (failure frequency), the drug billing process which

includes Q14 (time efficiency), the administrative process which includes Q18 (time efficiency) and the process of providing information/counseling which includes Q24 (authority).

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**REFERENCES**

1) Creswell, John 2016, Research Design: Qualitative, Quantitative, and Mixed Methods Approaches, SAGE Publication Inc, Fourth Edition.
2) Heidari, F & Louopoulos, P 2013, Quality Evaluation Framework (QEF): Modelling & Evaluating Quality of Business Process, International Journal of Accountancy Information Systems, ACCINF-00313.
3) Law of the Republic of Indonesia No. 44 of 2009 concerning Hospitals.
4) Ministry of Health of Republic Indonesia, 2019, Technical Guidelines for Pharmaceutical Services in Hospitals, Jakarta
5) Muhardi, Hendarta, A, Chan, S, Kristiaji, J 2020, Strategic Management: Hospital Business Strategy Plan, Refika Publisher, Bandung
6) Republic of Indonesia Government Regulation No. 47 of 2021 concerning Implementation of the Hospital Sector
7) Regulation of the Minister of Health of the Republic of Indonesia No. 129 of 2008 concerning Minimum Hospital Service Standards
8) Saraswati, T, Akrunanda, I, Setiawan, N 2019, Evaluation, and Improvement of Business Processes with Quality Evaluation Framework (QEF), Root Cause Analysis (RCA) and ESIA Techniques (Case study: BPJS outpatient care at Aisyiyah Islamic Hospital Malang). Journal of Information Technology Development and Computer Science, Vol 3.
9) Sugiyono, 2018, Mix Methode Research, CV Alfabeta, Bandung.