



ANALYSIS OF THE RELATIONSHIP BETWEEN THE IMPLEMENTATION OF THE CLINICAL PATHWAY FOR NSTEMI DISEASE AND SERVICE VARIANCE

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ABSTRACT

This research was conducted to address the increasing number of NSTEMI (Non-ST Elevation Myocardial Infarction) cases, which represent a significant portion of heart attack patients (85%) according to the 2023 Ischemic Myocardial Infarction National Audit. The challenge for healthcare providers is to ensure optimal care for these patients. Clinical Pathways are structured guidelines designed to improve service quality, but despite a relatively high compliance rate (82%) for filling out Clinical Pathways at Taman Husada Bontang Hospital, there has been no clear analysis of how Clinical Pathway implementation benefits patient outcomes. Therefore, the study aims to evaluate the relationship between the implementation of Clinical Pathway and the quality of care provided to NSTEMI patients. The study aims to analyze the relationship between the implementation of the Clinical Pathway for NSTEMI patients and the quality of service at Taman Husada Bontang Hospital. Quantitative research method with a cross-sectional case study approach. The sample technique used is non-probability sampling; the number of samples is 50 Clinical Pathway forms from NSTEMI patients treated at the hospital during the 2022-2023 period. The Chi Square test on the service variance variable has a significant relationship with the implementation of Clinical Pathway, with a p value of $0.000 < 0.05$, incomplete documentation resulting in a lack of information about the service variance provided with an OR value of 1.5. The conclusion is that the implementation of Clinical Pathway is significantly related to the quality of services, especially the variance of actions given to patients. To improve service quality, improvements are needed in documentation and regular evaluation of the implementation of the Clinical Pathway.

Keywords: clinical pathway; NSTEMI; quality of care; service variance

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INTRODUCTION

NSTEMI (Non-ST Elevation Myocardial Infarction) is a serious cardiovascular condition requiring proper treatment. According to the 2023 Report of the National Audit of Myocardial Ischemia Project (MINAP) and the National Audit on Percutaneous Coronary Intervention (NAPCI), there has been a significant increase in the number of heart attack patients, with 85,000 hospitalized patients in 2021-2022. Of the total cases, 36% were high-risk STEMI cases, and 64% were patients with NSTEMI (NHS, 2023). Epidemiology of acute myocardial infarction (IMA) globally shows that the incidence of STEMI is decreasing, while the incidence of NSTEMI is increasing. About 3 million people suffer from STEMI, and about 4 million people suffer from NSTEMI globally. Every year, in the United States, there are about 650,000 cases of IMA, while in the United Kingdom about 180,000 cases. In India, the epidemiology of IMA is higher due to genetic and lifestyle factors, reaching 64.37/1,000 people. (Anderson & Morrow, 2017)

Based on the results of research conducted by the Ministry of Health in 2018, there are 2 provinces that have a fairly high prevalence of heart disease, namely North Kalimantan (2.2%) and Gorontalo (2.8%)(Ministry of Health of the Republic of Indonesia, 2018) At Taman Husada Bontang Hospital, there was an increase in NSTEMI patients with hypertension from 7% in 2021 to 8% in 2022, reaching 5828 patients, especially in the inpatient department. This increase is related to the pandemic period of the previous year. Patients hope that after the pandemic, health facilities can provide better services, especially in the case of NSTEMI, which requires quick and complex treatment. The incidence of NSTEMI is increasing, but there are still challenges in the management of NSTEMI patients, especially in improving adherence to treatment guidelines (Plugaru et al., 2021)The increasing number of NSTEMI patients requiring hospital treatment is a major challenge for healthcare providers. Health facilities must be able to optimize the quality of service while still ensuring the effectiveness and efficiency of the treatment process.

In addition to the effectiveness and efficiency of health services, service quality and financing control are also important aspects, especially in the health insurance system. Health insurance or health insurance is considered a control system.(Nurdin et al., 2023). The quality of health services is an integral part of the transformation of health services, including referral health services with the development of superior services in various hospitals through the referral hospital network.The effect of the implementation of the Clinical Pathway on health services in inpatients has been proven to reduce the length of stay of patients in hospitals and improve the clinical development of patients.(Subekti & Nurwahyuni, 2019). Various research results prove that the implementation of the Clinical Pathway can increase cost effectiveness and reduce the amount of average treatment time in hospitals (Simanungsong, 2017). According to Feagan found that Clinical Pathway can reduce the length of hospitalization, increase the patient's recovery index (Rotter, 2013). Clinical Pathway describes the critical steps that healthcare teams must take to improve the quality and efficiency of service. Every patient who receives services based on established procedures, whether in the form of an action plan or the provision of therapy, must follow an agreed-upon clinical flow. Evaluation of health financing is necessary to make decisions in the development of services for these patients (Robert & Brown, 2004)

Clinical Pathway is designed to optimize the quality of care, reduce care variations, improve efficiency, and ensure consistency in delivering care. The practice of medicine emphasizes that the Clinical Pathway should be able to be used as a tool to control patient care more than just reduce hospitalization and control costs (Cahyono, 2012). The implementation of Clinical Pathways (CLINICAL PATHWAYS) in hospitals aims to standardize care, reduce variability in treatment, and ensure high-quality patient outcomes. However, despite these benefits, variability in the services provided to NSTEMI patients remains a challenge. This study focuses on analyzing the relationship between the implementation of the Clinical Pathway and service variance at Taman Husada Bontang Hospital.Previous evaluations at Taman Husada Bontang Hospital have shown a compliance rate of 82% in the Clinical Pathway documentation. However, the impact of the implementation Clinical Pathway the consistency and variety of services provided to NSTEMI patients has not been fully explored. This study seeks to fill this gap by analyzing how well the CLINICAL PATHWAY is implemented and its effect on service variance.The main purpose of this study is to analyze the relationship between the implementation of the Clinical Pathway for NSTEMI patients and the variance of services provided at Taman Husada Bontang Hospital. The study aims to:

1. To know the extent of service variants in the care of NSTEMI patients
2. Analyze the relationship between NSTEMI Clinical Pathway implementation compliance with service variance.

3. Provide recommendations to improve the consistency and quality of NSTEMI care

METHOD

This study uses a cross-sectional design, analyzing data collected from NSTEMI patient records at Taman Husada Bontang Hospital. This study focuses on the period 2022 to 2023, examining the implementation of the NSTEMI Clinical Pathway and its relationship with service variance. The samples used in this study were 50 medical records and Clinical Pathway forms of NSTEMI patients who were hospitalized during the period. The sampling technique used is non-probability with purposive sampling, where the sample is selected based on certain criteria, namely patients diagnosed with NSTEMI and have complete Clinical Pathway documentation. This sample was chosen because it provides a representative picture of the application of the Clinical Pathway in the treatment of NSTEMI patients at the hospital. The inclusion criteria in this study are patients who are enrolled in the Clinical Pathway form during the study period and have complete medical records. The exclusion criteria include patients who do not have a Clinical Pathway form or who are not recorded in the hospital's medical records. Data were collected from the hospital's clinical records and NSTEMI's Clinical Pathway documentation. Variables such as length of stay (LOS), type of intervention, and adherence to the NSTEMI Clinical Pathway were noted. Service variance is measured by identifying deviations from the standard treatment pathway outlined in the Clinical Pathway. Statistical analysis was performed using the Chi-Square test to determine the significance of the relationship between the implementation of the Clinical Pathway and the variance of services. Descriptive statistics are also used to summarize the findings.

RESULT

Analysis of General Characteristics of Respondents

Currently, the characteristics of the respondents are obtained based on secondary data that the research takes from the 2022-2023 medical records and the NSTEMI Clinical Pathway

Table 1.

Distribution of Characteristic Frequency of NSTEMI Patient Respondents in the 2022-2023 Hospitalization Period

Characteristics	f	%
Gender		
Male	38	76
Woman	12	24
Age (Years)		
31-41	1	2
42-52	3	6
53-63	14	28
64-74	21	42
75-85	8	16
86-96	3	3
Nursing Classes		
Class 1	13	26
Class 2	13	26
Class 3	24	48

From table 1, it can be explained that most of the respondents are male, which is as many as 38 people or 76% of the total NSTEMI patients. Meanwhile, the female gender is 12 people or 24% of the total number of NSTEMI patients, while in the age range of NSTEMI patients who are listed in the Clinical Pathway Form with a total of 50 sheets of From *Clinical Pathway* of NSTEMI, namely as follows, for the age of 65-74 years as many as 21 patients 42%, the age of 53-63 years as many as 14 patients (28%), 75-85 as many as 8 patients (16%), age for 42-52 years as many as 3 patients (6%), age 86-96 as many as 3 patients (6%) and age 31-41 as many as 1 patient (2%) Cumulatively, it can be concluded that 42% of the total

Clinical Pathway of NSTEMI patients is between 64 -74 years old, while 16% of the total *Clinical Pathway* of NSTEMI patients is 75 years old. In the characteristics of the nursing class, data on patients treated in grades 1, 2 and 3 were obtained who had a guarantee of BPJS participation, either PBI or Non-PBI. From the data above, it can be explained that in the 2022-2023 period, patients with a diagnosis of NSTEMI received a nursing class (Inpatient) at Taman Husada Hospital, namely 13 (26%) NSTEMI patients were treated in class 1 (26%), patients were treated in class 2 as many as 13 people (26%) and 24 people were treated in class 3 (48%). In this distribution data, it can be explained that of the 50 NSTEMI patients who were hospitalized in 2022-2023, the most patients were treated in class 3 with BPJS PBI guarantees.

Analysis of Service Variance Variables in the Inpatient Unit

The next step is to identify service variances that are divided into three categories. The First Category of the Clinical Pathway noted that patients did not experience variance in services. Category Two service variance occurs but is not documented in the Clinical Pathway, while the third category, service variance, occurs and is documented in the Clinical Pathway.

Table 2.

Table of Identification of Service Variances obtained by NSTEMI Patients

Identify Service Variance	f	%
No variance	27	54
There are undocumented variances	20	40
There are documented variances	3	6

Based on the above data, it was identified that of the total patients with NSTEMI who were under treatment, 27 patients (about 54%) did not experience variance in service, while 20 patients (about 40%) experienced variance in service but were not documented in the Clinical Pathway. There were 3 patients (about 6%) who obtained variance in service, and it was recorded in the Clinical Pathway. This explains that the administration of drugs and actions to patients is in accordance with the Guidelines NSTEMI Clinical Services that have been established at Taman Husada Hospital. There are variances in the services provided to patients with a diagnosis of NSTEMI due to differences in services received by patients while in the hospital, such as the provision of medications, supporting examinations, and service costs. At Taman Husada Bontang Hospital, the types of medications and procedures for NSTEMI patients are based on the Clinical Service Guidelines. These guidelines are used as a reference to establish standards of therapy and action in the Clinical Pathway for NSTEMI.

The researcher identified service variances that were divided into three categories. The First Category of the Clinical Pathway noted that patients did not experience variance in services. Category Two service variance occurs but is not documented in the Clinical Pathway, while the third category, service variance, occurs and is documented in the Clinical Pathway. After identification, it was found that there was no variance in services. it can be concluded that the patient received services according to the plan that has been set out in the NSTEMI Clinical Service Guidelines, including therapy, action plans, and other medical activities. Undocumented variances indicate that although patients may receive service variances, such information is not recorded in the Clinical Pathway. Meanwhile, documented service variance shows that patients receive variance in services, and it is well recorded in the Clinical Pathway by the medical team at Taman Husada Bontang Hospital. The results of the chi-square test on the implementation variables of the NSTEMI Clinical Pathway with service variance in NSTEMI patients are shown in Table 3 below.

Table 3.
 Square Test on the Clinical Implementation Variables of Patwhay NSTEMI with Service Variance (N=50)

Implementasi <i>Clinical Pathway</i>	No Variance		There are undocumented variances		There are dokumented Variances		P	OR
	f	%	f	%	f	%		
Incomplete	0	0	31	93,9	2	6,1	0,000	1,5
Complete	7	41,2	10	58,8	0	0		

Chi Square *test* is significant if p-value<0.005;OR<1 has a negative association; OR=1 no association; OR>1 there is a positive association

Based on table 3, it is explained that the majority of cases (93.9%) with the implementation of the Clinical Pathway have incomplete NSTEMI patients as well as variances in undocumented services. The majority of cases with complete implementation of the Clinical Pathway (58.8%) have variance in undocumented services. Based on the results of the chi-square test, a P value (0.000) < 0.005 can be concluded that the variables of *Clinical Pathway Implementation* and service variance have a significant relationship. From the value of OR = 1.5, it can be interpreted that there is a positive association between the implementation of a complete clinical pathway and the occurrence of "Undocumented Variance". In other words, complete *clinical pathway* implementation increased the chance of "Undocumented Variance" by 58.8% compared to the incomplete group

DISCUSSION

The implementation of the Clinical pathway has been proven to have a significant influence on the variance of services provided to patients. This indicates that although the Clinical Pathway has been implemented with a relatively high level of compliance (82%), there is still variation in services, both recorded and not recorded in the Clinical Pathway documentation. The study found that most service variances are not well documented in the Clinical Pathway, which shows the importance of attention to the medical documentation process. Based on the data obtained, it was found that around 40% of patients experienced service variance that was not recorded in the Clinical Pathway, while 6% experienced documented variance. These findings are in line with previous research that shows that one of the main challenges in the implementation of Clinical Pathways is the difference in practice in the field that is not well recorded, thereby reducing the effectiveness of the Clinical Pathway system in reducing service variability (Firmanda, 2010). This is also supported by the theory of Subkhan et al. (2022), which states that the Clinical Pathway aims to minimize variation in care by providing clear guidelines to medical personnel, but there are still deviations that must be considered to improve the quality of service. The above explanation can find that there is a correlation between the level of implementation of the Clinical Pathway and the variance of documented or undocumented services.

Documentation is one of the most important factors that must be done in providing services to patients, because the results of documentation are a communication tool between the medical team to the patient, the medical team with other medical teams participating in the treatment, and also as a communication tool to the leadership in decision-making. In this study, it was found that there are several variances of services that have been carried out that are not documented in the variance column. This is very important to do in line with the implementation guidelines Clinical Pathway which has been issued by the Director General of Health No. 02.02/D/9737/2023, in the guidelines it is stated that each variant of services carried out by the medical team such as the administration of a different type of drug than the one listed in the guideline Clinical Pathway or different service times on a day, the medical

team or doctor in charge of the patient must write in the service variance column and the reason (Kemenkes, 2023). The above description is in line with the research conducted by Firmanda (2010), namely the application of Clinical Pathway can experience irregularities in the provision of services to patients. Any deviation in the execution Clinical Pathway is recorded as a variance and analyzed through audit. The deviation can be caused by disease course conditions, other diseases that arise, or medical errors. This variance is used as one of the indicators to maintain and improve the quality of service (Firmanda, 2010).

The theory presented by Hanevi in 2022 in a study by Subkhan (2022) on the implementation of Clinical Pathway provide benefits to the variance of the services carried out. Clinical Pathway is a management tool for a specific group of patients, where the professionals involved in patient care are defined, optimized, and sorted either by hours, days, or visits (Subkhan et al., 2022). The results of a study conducted by P Carm et al (2022) published in JAMA Network analyzed the impact of efforts to improve the quality of care through clinical or Clinical pathways in acute coronary syndrome (ACS), including NSTEMI. Furthermore, the study also noted that the implementation of Clinical Pathway complete ones tend to increase the chance of "undocumented variance" by 58.8%, which suggests that even if documentation has been thoroughly conducted, there are still shortcomings in ensuring consistency between the procedures executed and the available documentation (Cram et al., 2022). This requires further attention to improve the documentation and training process of medical personnel in complying with the guidelines Clinical Pathway. Studies show that the application of Clinical Pathway can improve clinical outcomes, signaling that standardized pathways can reduce differences or variances in service by ensuring more consistent adherence to evidence-based practices (Cram et al., 2022).

This research provides very useful insights to improve the quality of services in hospitals. One of the key findings is the importance of accurate documentation in the implementation of the Clinical Pathway. By improving the documentation process, variance in services can be reduced, which in turn will improve the quality and consistency of care for NSTEMI patients. Therefore, good documentation management must be a priority in every hospital that implements the Clinical Pathway. In addition, routine evaluation of the implementation of the Clinical Pathway in hospitals is also an important step to minimize service variance. Periodic audits of CP implementation will help in identifying areas that need improvement and ensuring that the services provided remain in accordance with the set standards.

CONCLUSION

The implementation of the Clinical Pathway in NSTEMI disease was stated to have a significant relationship with service variance in the inpatient unit of Taman Husada Bontang Hospital. In an effort to support cost-benefit efficiency, it is recommended to evaluate the variance of actions given to NSTEMI patients by conducting an audit or evaluation of the variance of actions performed in NSTEMI patients to identify certain patterns or trends. This can be helpful in knowing if the variance is based on valid medical reasons or if there are other factors that influence the decision to act. The addition of the type of variance of action must be based on evidence or evidence base. Evaluating the length of stay (LOS) and the variance of additional measures can simultaneously affect the amount of financing for NSTEMI patients. Efforts to evaluate the benefits of the Clinical Pathway in services are by educating and training the medical team. It is necessary to educate and train the medical team on the latest clinical guidelines and the latest evidence in the treatment of NSTEMI patients, either pure or NSTEMI with complications. This can help in reducing unwarranted variance of actions and ensure that patients receive consistent and evidence-based care so that it can be

used to evaluate the implementation of the clinical pathway at Taman Husada Bontang Hospital.

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