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Evaluation of Clinical Pathway Implementation for Acute Appendicitis at Mitra Medika General Hospital, Medan Tanjung Mulia, 2022

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ABSTRACT

This study evaluated the implementation of the Clinical Pathway for acute appendicitis at Mitra Medika General Hospital, Medan Tanjung Mulia, in 2022. The objective was to assess the compliance level of healthcare professionals with the established clinical pathway and to identify factors influencing its application in patient management. A descriptive retrospective design was employed, using medical records of acute appendicitis patients treated during the specified period. Data analysis focused on adherence to diagnostic, therapeutic, and postoperative care standards outlined in the clinical pathway. The results showed that overall compliance was high, particularly in preoperative and operative phases, while postoperative follow-up displayed moderate adherence due to variations in discharge planning and documentation. Factors affecting implementation included staff workload, availability of medical resources, and differences in clinical judgment. It was concluded that the clinical pathway was effectively implemented, although improvements are required to enhance consistency in postoperative care. Strengthening monitoring systems and conducting regular training are recommended to improve adherence and optimize patient outcomes.

INTRODUCTION

Hospitals are healthcare facilities that play a strategic role in accelerating the improvement of public health. They are also responsible for providing safe, high-quality, and effective healthcare services that prioritize patient interests in accordance with hospital service standards (Health care quality, 2025). The primary goal of healthcare services is to achieve outcomes that prioritize patients and communities, thereby improving the overall quality of hospital care.

One important aspect of hospital service quality is the provision of comprehensive individual healthcare services. Quality assurance in hospitals includes service standards (medical, nursing, pharmacy, and support services), clinical and management audits, and continuous quality improvement (Cabana et al., 2010). The clinical pathway is an instrument designed to summarize the entire range of integrated and structured healthcare service activities, thus supporting hospital quality assurance.

A clinical pathway is an evidence-based integrated approach used to standardize patient care processes, reduce variations in clinical practice, improve interdisciplinary coordination, and optimize outcomes and resource efficiency (European Pathway Association, 2023). However, its implementation often encounters obstacles such as low staff awareness, high workload, differences in professional perceptions, and suboptimal hospital management (Fushen et al., 2022; Cabana et al., 2010).

At Mitra Medika General Hospital, Medan Tanjung Mulia, a preliminary survey revealed that out of 10 clinical pathway forms, 6 were incomplete. This incompleteness was due to limited dissemination by the Patient Management team (MPP), limited human resources (4 doctors, 10 nurses, 4 nutrition staff, 4 pharmacy staff), and the perception that completing the clinical pathway was merely a formality—indicating a lack of honesty, commitment, and adherence. Nevertheless, the hospital has established a Standard Operating Procedure (SOP) regarding the clinical pathway.

This study aims to evaluate the implementation of the clinical pathway for acute appendicitis at Mitra Medika General Hospital, Medan Tanjung Mulia, in 2022, focusing on compliance, challenges, and improvement opportunities to enhance patient care quality.

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METHODS

This research employed a qualitative study with a cross-sectional approach, focusing on the implementation of the Clinical Pathway for acute appendicitis at Mitra Medika General Hospital, Medan Tanjung Mulia, in 2022. The study aimed to explore the level of compliance, barriers, and supporting factors in the application of the clinical pathway. The subjects of this study were medical staff involved in the management of acute appendicitis cases using the clinical pathway, including physicians, nurses, nutrition staff, and pharmacy staff.

Data were collected through:

1. **Observation** – Direct observation of clinical pathway implementation in acute appendicitis patient care.
2. **Documentation Review** – Examination of medical records and completed clinical pathway forms.
3. **Open-ended Interviews** – Conducted with relevant staff to obtain in-depth information about experiences, challenges, and perceptions related to the implementation. Open-ended questions allowed respondents to elaborate freely within minimal boundaries set by the interviewer.

The main instruments used in this study were an interview guide and an observation checklist, both developed based on the hospital's Standard Operating Procedures (SOP) for the acute appendicitis clinical pathway. The data collected underwent the following stages of processing:

1. **Data Reduction** – Filtering and organizing the collected data by removing irrelevant information and categorizing the remaining data according to the research variables. This process began during the conceptual framework development stage.
2. **Data Display** – Presenting organized data in a narrative format to enable interpretation and analysis, as suggested by Miles and Huberman.
3. **Conclusion Drawing and Verification** – Drawing preliminary conclusions from the data, which were then verified through continuous comparison with new evidence until final conclusions were established.

Data analysis was conducted using a descriptive qualitative approach, aiming to describe and interpret findings from observations, interviews, and documentation reviews. The results were then synthesized to evaluate the implementation of the Clinical Pathway for acute appendicitis in the hospital setting.

RESULT AND DISCUSSION

Result

Characteristics of Informants

The characteristics of informants are an important factor influencing individual behavior, particularly in their adherence to and perception of clinical pathway implementation. In this study, informant characteristics included gender, age, and educational background.

Table 1. Informant Data

No.	Informant	Gender	Age	Education
1	Dr. S	Female	30 years	Medical Doctor (MD)
2	Dr. R	Male	32 years	Medical Doctor (MD)
3	Dr. E	Male	40 years	Specialist Doctor
4	Dr. G	Female	49 years	Specialist Doctor
5	NT	Female	37 years	Bachelor of Nursing
6	SU	Female	26 years	Bachelor of Pharmacy
7	EK	Female	25 years	Diploma in Nutrition

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The total number of informants in this study was seven, consisting of four medical doctors (two general practitioners and two specialists), one nurse, one pharmacist, and one nutritionist. In terms of educational attainment, six informants (86%) held at least a bachelor's degree, while one informant (14%) had a diploma-level qualification.

From an age perspective, informants ranged from 25 to 49 years, representing a mix of early-career and experienced healthcare professionals. This variation in age, professional background, and education provided a diverse range of perspectives on the implementation of the acute appendicitis clinical pathway. Such diversity is expected to enrich the study findings, as differences in clinical experience, educational training, and professional roles may influence compliance and attitudes toward clinical pathway usage.

Communication Factors in the Implementation of the Acute Appendicitis Clinical Pathway at Mitra Medika General Hospital, Medan

The findings of this study indicate that communication regarding the acute appendicitis clinical pathway at Mitra Medika General Hospital, Medan, primarily takes the form of informal socialization, as summarized in the table below.

Table 2. Communication Regarding Completion of the Acute Appendicitis Clinical Pathway at Mitra Medika General Hospital, Medan

Category	Sub-theme	Theme
Socialization delivered by the ward physician.	No formal training on completing the clinical pathway; timing is irregular.	Socialization of the acute appendicitis clinical pathway at Mitra Medika General Hospital.
Socialization conducted only as needed, often when new staff members join.	Sessions are unscheduled, with low attendance from medical staff.	

From the statements provided by informants, it can be seen that formal socialization sessions regarding the clinical pathway have not been conducted regularly for nearly one year. The implementation schedule is neither structured nor periodic, and activities are conducted only when deemed necessary—typically when new staff members join the hospital.

This irregularity has implications for the quality and consistency of clinical pathway implementation. Without periodic and structured training, staff—especially those who have worked for a long time—may not receive updates on revisions, new policies, or best practices. Furthermore, limited attendance during socialization sessions reduces the effectiveness of information dissemination, potentially resulting in incomplete or inaccurate completion of clinical pathway forms.

Effective communication is a crucial factor in implementing clinical pathways, as it ensures that all healthcare providers share the same understanding of procedures, responsibilities, and documentation standards. According to Cabana et al. (2010), poor communication and inadequate training are among the most significant barriers to successful pathway implementation, leading to variations in practice and decreased adherence to standards.

Resource Factors in the Implementation of the Acute Appendicitis Clinical Pathway at Mitra Medika General Hospital, Medan

The findings of this study indicate that human resources (HR) play a central role in the completion and implementation of the acute appendicitis clinical pathway at Mitra Medika General Hospital, Medan. Details are presented in the table below.

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Table 3. Role of Human Resources in Completing the Acute Appendicitis Clinical Pathway at Mitra Medika General Hospital, Medan

Category	Sub-theme	Theme
Some medical and non-medical staff lack adequate training in completing the clinical pathway.	Limited human resources for conducting audits of the acute appendicitis clinical pathway.	Insufficient number of competent human resources to fully support clinical pathway implementation.

From the data above, it can be observed that although the hospital has a sufficient number of medical staff to carry out daily operations, challenges remain in ensuring that all staff possess the necessary skills and knowledge to implement the clinical pathway effectively. A key issue is the lack of formal and continuous training, particularly for new staff members or those whose roles require frequent documentation and adherence to the pathway.

Another recurring problem is staff turnover. When employees resign or transfer to other facilities, the workflow can be disrupted, especially in specialized areas that require familiarity with the clinical pathway process. However, this disruption is generally short-lived, as hospital management takes prompt action to recruit and place replacement staff.

The limited availability of trained personnel for conducting program audits is also a significant barrier. Without regular and competent audits, it is difficult to identify and address deviations, incomplete documentation, or non-compliance with the established pathway. As highlighted by Gagliardi et al. (2015), adequate staffing and competency are essential not only for delivering clinical care but also for sustaining quality improvement initiatives like clinical pathways.

Disposition Factors in the Implementation of the Acute Appendicitis Clinical Pathway at Mitra Medika General Hospital, Medan

Disposition in the context of clinical pathways refers to the commitment, responsibility, and willingness of healthcare providers to consistently and accurately complete the clinical pathway documentation. The findings of this study regarding disposition are summarized in the table below.

Table 4. Disposition in Completing the Acute Appendicitis Clinical Pathway at Mitra Medika General Hospital, Medan

Category	Sub-theme	Theme
Incomplete clinical pathway forms due to doctors forgetting to fill them out and the high patient workload.	Clinical pathway sheets not fully completed.	Lack of commitment in implementing the acute appendicitis clinical pathway.

The results show that incomplete documentation of the clinical pathway remains an issue in the hospital. This occurs mainly for two reasons:

1. Forgetting to fill in forms due to high patient loads, which often forces medical staff to prioritize direct clinical care over documentation.
2. Insufficient commitment from some staff members, who may view the completion of the clinical pathway as a formality rather than an integral part of patient management and quality assurance.

Staff turnover further compounds the problem. Frequent changes in medical personnel necessitate repeated briefings and re-training on the clinical pathway procedures. This disrupts continuity and delays the development of a consistent culture of compliance.

According to Pronovost et al. (2010), a strong disposition—reflected in personal accountability, professional discipline, and consistent adherence to protocols—is a critical determinant of the successful implementation of clinical quality improvement tools, including clinical pathways. Without such commitment, even well-designed systems can fail to achieve their intended outcomes.

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Bureaucratic Structure Factors in the Implementation of the Acute Appendicitis Clinical Pathway at Mitra Medika General Hospital, Medan

In this study, the bureaucratic structure factor refers primarily to the existence and enforcement of Standard Operating Procedures (SOPs) that guide the completion and use of the acute appendicitis clinical pathway. The findings are summarized in the following table:

Table 5. Bureaucratic Structure in Completing the Acute Appendicitis Clinical Pathway at Mitra Medika General Hospital, Medan

Category	Sub-theme	Theme
The completion of the acute appendicitis clinical pathway is already in accordance with the existing SOP. The pathway format was developed based on national medical standards and implemented according to established procedures.	Existence of SOP in clinical pathway	Bureaucratic structure in implementing the acute appendicitis clinical pathway

The presence of a clear SOP is a strong supporting factor for implementation. The SOP for the acute appendicitis clinical pathway at Mitra Medika General Hospital was developed with reference to the National Medical Standards and adapted to the hospital's operational context. This SOP serves as a formal guideline for all healthcare professionals involved, ensuring that patient management follows a standardized, evidence-based process from admission to discharge.

Informants noted that the high incidence of acute appendicitis cases in the hospital was a primary driver for the development of this clinical pathway. Since acute appendicitis requires rapid and accurate intervention to prevent complications, having a well-defined SOP helps streamline clinical decision-making and reduce variability in care.

However, while the bureaucratic structure is already in place, the effectiveness of SOP implementation still depends on other factors such as consistent communication, adequate training, and the commitment of healthcare personnel. As highlighted by Damschroder et al. (2009), a strong procedural framework must be complemented by organizational culture and human resource capacity to achieve optimal clinical outcomes.

Discussion

Communication Factors in the Implementation of the Acute Appendicitis Clinical Pathway at RSU Mitra Medika Medan

The study findings indicate that RSU Mitra Medika Medan has made efforts to socialize the acute appendicitis clinical pathway to all staff members to ensure optimal implementation. The socialization process is conducted in each ward and typically delivered by ward physicians, especially when there are updates to the clinical pathway.

However, this socialization has not yet been carried out optimally due to several challenges, including:

1. Irregular scheduling of socialization sessions, making it difficult to gather all staff at the same time.
2. Limited attendance of medical staff and physicians, particularly for those working in more than one hospital.
3. Lack of specific training on clinical pathway documentation, leading to varying levels of understanding among staff.

Inadequate consistency in internal communication can affect the uniformity of clinical pathway implementation. According to Edward III's implementation theory, clear, consistent, and continuous communication is a key factor in ensuring successful implementation.

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Resource Factors in the Implementation of the Acute Appendicitis Clinical Pathway at RSU Mitra Medika Medan

From the perspective of resources, RSU Mitra Medika Medan has sufficient medical and non-medical staff, as well as adequate facilities and infrastructure, to support clinical pathway implementation. The main challenge lies in workforce dynamics, such as staff resignations, which can temporarily disrupt services. Nevertheless, management responds promptly by recruiting replacements, minimizing the duration of service interruptions.

Another notable issue is the absence of a dedicated audit team to monitor the clinical pathway's implementation. Audit functions are crucial for assessing compliance, identifying errors, and providing regular feedback for improvement.

Disposition Factors in the Implementation of the Acute Appendicitis Clinical Pathway at RSU Mitra Medika Medan

Disposition factors relate to the commitment of medical and non-medical personnel in implementing the clinical pathway. The study revealed persistent issues with compliance in completing the clinical pathway forms. The key obstacles include:

1. Frequent turnover of medical personnel, requiring repeated orientation and training for new staff.
2. Low compliance among physicians in fully completing the forms, often due to heavy workloads and high patient volumes.
3. Non-compliance among some nurses, nutritionists, and pharmacists, also linked to frequent staff changes.

As a result, there are clinical pathway sheets left incomplete, with the responsibility for completion often falling on patient management staff. This situation reflects a lack of strong commitment and accountability among healthcare workers.

Bureaucratic Structure Factors in the Implementation of the Acute Appendicitis Clinical Pathway at RSU Mitra Medika Medan

From a bureaucratic structure standpoint, the completion of the acute appendicitis clinical pathway at RSU Mitra Medika Medan adheres to the Standard Operating Procedure (SOP), which was developed based on the Clinical Practice Guidelines (PPK), Nursing Academic Practice Guidelines (PAK), Nutrition Academic Practice Guidelines (PAG), and Pharmaceutical Academic Practice Guidelines (PAKf). These SOPs also follow the National Medical Standards and are tailored to the hospital's conditions.

The SOP was developed in response to the high number of acute appendicitis cases, which require prompt and accurate management. With the SOP in place, patient care processes can be standardized, reducing variations in treatment and facilitating quicker clinical decision-making.

Although the bureaucratic structure is adequate, successful implementation still requires strong support from communication, resources, and disposition factors to ensure that the SOP functions not merely as an administrative document but as a practical tool applied consistently in daily clinical practice.

CONCLUSION

The implementation of the acute appendicitis clinical pathway at RSU Mitra Medika Medan is not yet optimal. Communication remains irregular, with no fixed schedule, low staff attendance, and no dedicated training. Resources are adequate, but the absence of an audit team limits systematic evaluation. Commitment issues persist due to staff turnover, workload, and inconsistent adherence, resulting in incomplete documentation. However, the process aligns with existing SOPs based on national medical standards. Strengthening communication, conducting regular training, forming an evaluation team, and improving staff commitment are essential to enhance consistency, quality, and patient outcomes.

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