

AN EVALUATION OF THE IMPLEMENTATION AND ADHERENCE TO THE CLINICAL PATHWAY OF DENGUE FEVER AT MUHAMMADIYAH GAMPING HOSPITAL, YOGYAKARTA

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INDEXING

Keywords:

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ABSTRACT

Background: A clinical pathway, also known as care pathway, integrated care pathway, critical pathway, or care map, is one of the main tools used to manage the quality in healthcare concerning the standardization of care processes. It is a patient's medical treatment path based on standard patient handling procedures adjusted to the medical infrastructure in a hospital. Clinical pathways are made based on cases that occur in a hospital and have the potential to spend large resources. One of the most common cases and getting attention is the dengue fever case. This study aimed to evaluate the implementation and adherence to the clinical pathway of dengue fever at Muhammadiyah Gamping Hospital, Yogyakarta.

Subjects and Method: This was a mixed method study conducted at Muhammadiyah Gamping Hospital, Yogyakarta. In the qualitative study, pediatricians and medical committee members were selected as informants. The data were collected by in-depth interview and document review.

Results: Compliance with clinical pathway of dengue fever was 96.5%. Obstacles in the implementation of clinical pathway included: (1) doctors unavailable for patient visit during holiday; (2) hospital management did not adequately support the implementation of clinical pathway.

Conclusion: Clinical pathway of dengue fever has been adequately implemented with a little support from the hospital management.

BACKGROUND

Clinical pathway is a pre-treatment concept that is compiled based on standard procedures of each profession that refers to the service standards of each profession, adjusted to the level of hospital service facilities. Clinical pathway is one of the main requirements for controlling costs and controlling the quality of patient care in the payment system based on the INA-CBG case-mix, especially in the most cases and has the potential to spend large resources.

One of the most common cases and getting attention is the case of dengue fever (DF). Dengue Fever (DF) and Dengue Hemorrhagic Fever (DHF) is a disease caused by dengue virus which belongs to group B Arthropod Virus (Arboviroses) which is now known as the genus *Flavivirus*, family *Flaviviride*, and has 4 types of serotypes, namely DEN-1, DEN- 2, DEN-3, DEN-4.¹

Globally, the number of cases of dengue fever continues to increase very quickly. The number of cases reported to the World Health Organization (WHO) in 1996-2005 was only around 0.4 million to 1.3 million in one year. In 2010 it reached 2.2 million and 2015 to 3.2 million. Five countries reported the highest number of dengue cases to WHO in one year from 2004-2010, the highest from Brazil (447,446 cases), Indonesia (129,435 cases), followed by Vietnam (91,321 cases), Mexico (75,353 case) and Venezuela (61,612 cases).²

Sleman District ranks second in dengue fever cases after Yogyakarta city and in the third place is Bantul District. PKU Muhammadiyah hospital is located between the border of Sleman District and Bantul District, this fact shows that PKU Muhammadiyah Unit II Hospital is a referral hospital for cases of dengue fever. Therefore the implementation of dengue clinical pathway is very necessary and obeyed by every doctor, nurse or medical staffs in the hospital.

Clinical pathways have a direct and real impact on the process and results of patient care. Clinical pathways approaches and objectives are consistent with total quality management and continuous improvement of clinical quality and basically the application of these principles to the needs of patients.³ In the JKN era, the clinical pathway was very important to do, considering the BPJS payment system retrospectively through the model payment of INA-CBGs.

Compliance with clinical pathway dengue fever, becomes important not only for patients, but also for hospitals. For patients, adherence to clinical pathway with dengue hemorrhagic fever causes patients to receive good services according to the procedure, so that the optimal results are expected to be achieved in the form of patient recovery. As for hospitals, adherence to clinical pathway

with dengue hemorrhagic fever causes hospitals not to suffer losses due to higher maintenance costs than payments by BPJS.

Based on the background above, the following problems can be formulated:

1. How is the implementation of the clinical pathway of dengue fever at PKU Muhammadiyah Yogyakarta Unit II Hospital?
2. How is the compliance of medical personnel related to the clinical pathway of dengue fever at PKU Muhammadiyah Yogyakarta Unit II Hospital?
3. What are the obstacles in the implementation of the clinical pathway of dengue fever in PKU Muhammadiyah Yogyakarta Unit II Hospital?
4. What are the steps in overcoming the obstacles in implementing the clinical pathway of dengue fever at PKU Muhammadiyah Yogyakarta Unit II Hospital?

RESEARCH METHODS

The study uses a mixed method. The population in this study were all specialist doctors at PKU Muhammadiyah Yogyakarta Unit II Hospital. The sample is all clinical pathway forms of dengue fever carried out by all specialists in certain time. In the quantitative approach, research data are actions performed by specialist doctors according to the clinical pathway of dengue fever, which are listed in the clinical pathway forms for dengue fever. In the qualitative approach, the research informants were 3 specialists and 3 medical committee members. Data collection was carried out with medical record documentation and interviews. Quantitative and qualitative descriptive analysis techniques.

RESULTS AND DISCUSSION

A. Characteristics of Patients

Patient characteristics can be described in table 1.

Table 1
Patient Characteristics

No.	Characteristics	F	%
1.	Gender		
a.	Male	29	50,9
b.	Female	28	49,1
	Total	57	100,0
2.	Age		
a.	≤ 5 yo	8	14,0
b.	6 – 10 yo	28	49,1
c.	> 10 yo	21	36,8
	Total	57	100,0
3.	Length of stay		
a.	≤ 4 days	49	86,0
b.	> 4 days	8	14,0

No.	Characteristics	F	%
	Total	57	100,0

Table 1 shows that based on gender, the majority of patients were male, namely 29 respondents (50.9%). Based on age, the majority of patients were 6-10 years old, namely 28 patients (49.1%), and at least \leq 5 years old, namely 8 patients (14.0%). Based on the length of treatment, most were 4 days, ie 49 patients (86.0%).

B. Implementation of Dengue Fever Clinical Pathway at PKU Muhammadiyah Yogyakarta Unit II Hospital

Based on the number of activities implemented by respondents, the implementation of the clinical pathway for dengue fever was categorized. The results can be described in the following table:

Table 2
Description of Clinical Pathway Implementation of Dengue Fever

No.	Criteria	Score	f	%
1.	Good	> 8	4	7,0
2.	Moderate	5 – 8	51	89,5
3.	Less	\leq 4	2	3,5
	Total		53	100,0

Table 2 shows that the highest implementation of the dengue fever clinical pathway in patients was the moderate category, which was applied to 51 patients (89.5%). Based on this, it was concluded that the implementation of dengue fever clinical pathway in PKU Muhammadiyah Yogyakarta Unit II Hospital was in the sufficient category.

A description of the implementation of the clinical pathway of dengue fever that must be done can be described in the table as follows:

Table 3
Description of Clinical Pathway Implementation of Dengue Fever that Has to be Done

No.	Implementation of Clinical pathway	f	%
1.	Clinical examination by ED doctors		
	a. Done	57	100,0
	b. Not Done	0	0,0
	Total	57	100,0
2.	Clinical examination by a specialist		
	a. Done	55	96,5
	b. Not Done	2	3,5
	Total	57	100,0
3.	At/Hmt examination		

No.	Implementation of Clinical pathway	f	%
a.	Done	57	100,0
b.	Not Done	0	0,0
	Total	57	100,0
4.	DPJP Examination		
	a. Done	55	96,5
	b. Not Done	2	3,5
	Total	57	100,0
5.	Giving lactate/ asering/ D51/2NS infusion		
	a. Done	57	100,0
	b. Not Done	0	0,0
	Total	57	100,0

Table 3 shows that the clinical blood examination of ED doctors was performed on all patients (100.0%). Clinical examinations of specialist doctors were carried out in 55 patients (96.5%). At / Hmt examination was performed on all patients (100.0%). DPJP examination was carried out on 55 patients (96.5%). Ringer lactate / asering / D51/2NS infusion was administered to all patients (100.0%).

The implementation of dengue fever clinical pathway that can be available or not, is described in the table as follows:

Table 4
Description of Implementation Dengue Fever Clinical Pathway That Can be Done, or not

No.	Implementation of Clinical pathway	f	%
1.	Serologic examination, NS1, IgM/IgG dengue		
	a. Done	9	15,8
	b. Not done	48	84,2
	Total	57	100,0
2.	Ondancetron injection bid		
	a. Done	26	45,6
	b. Not done	31	54,4
	Total	57	100,0
3.	Ranitidin injection bid		
	a. Done	10	17,5
	b. Not Done	47	82,5
	Total	57	100,0
4.	Giving paracetamol 10-15 mg/kgBB		
	a. Done	37	64,9

No.	Implementation of <i>Clinical pathway</i>	f	%
	b. Not done	20	35,1
	Jumlah	57	100,0
5.	Giving Ranitidin syr		
	a. Done	0	0,0
	b. Not done	57	100,0
	Total	57	100,0
6.	Giving ondansetron syr		
	a. Done		
	b. Not done	5	8,8
		52	91,2
	Total	57	100,0

Table 4 shows that dengue serology, NS1, IgM / IgG examination was performed on 9 patients (15.8%). Ondansetron bid injection was performed on 26 patients (45.6%). Ranitidine bid injection was performed on 10 patients (17.5%). Paracetamol 10-15 mg / kgBB was administered to 37 patients (64.9%). The giving of syr ranitidin was not carried out on patients (0.0%). Ondansetron syr was administered to 5 patients (8.8%).

When looking at the clinical pathway table that has to be done (table 3) and those that can and cannot be (table 4), the implementation of dengue fever clinical pathway which is categorized quite more influenced by the non-implementation of the clinical pathway for dengue fever that can exist. This is because doctors consider that the patient's condition does not require such treatment. If the treatment should not be necessary but done, there will be cost inefficiencies, and not improve the quality of hospital services. Clinical pathway is one of the main requirements for controlling costs and controlling the quality of patient services in the payment system based on the INA-CBG case-mix, especially in the most cases and has the potential to spend large resources.

Clinical pathway implementation to improve service quality is evidenced by Pinzon et al (2009) research in stroke patients. The results of the study were obtained on the indicators of tracking risk factors and indicators of assessment of swallowing function, before the application of CP was not done and after the application of CP was done in 100% of cases. In the nutritional consultation indicator, prior to the application of CP was done in 82% of cases and after the application of CP was done in 100% of cases. In the indicator of functional status assessment, prior to CP application was carried out in 32% of cases and after application of CP was done in 100% of cases. This is

evidence that clinical pathways are one of the tools used to improve the service process. Clinical pathways that are made as checklists will serve as a reminder, and are an extension of a medical service standard. The trial results show the pathway improves the stroke service process.⁴

In addition, the implementation of the clinical pathway to improve service quality is also evident from the research of Utami et al (2016) on the implementation of clinical pathways of adult reparable inguinal hernia in Bethesda Hospital, Yogyakarta. This study compares clinical audits before and after the application of clinical pathways. The results of her research show that there is an increase in compliance with several clinical audits, namely the use of injection drugs, use of oral drugs, use of Spinal Anesthesia Block, and use of anesthetic drugs. The results of this study indicate that patients get services in accordance with the standard of service for the disease. The existence of a clinical pathway provides a minimum service standard and ensures that the service is not forgotten and implemented on time.⁵

The implementation of dengue fever clinical pathway, in addition to being beneficial for hospitals for cost effectiveness and the provision of quality services, is also beneficial for non JKN patients. For non JKN patients, the implementation of dengue fever clinical pathway also brings benefits. This is because non-JKN patients get targeted and effective treatment, so that it will affect the costs that must be paid. The benefits of implementing clinical pathways for payers are to get cost savings from reducing unnecessary treatments (eg hospitalization, visits to emergency rooms) and increasing use of cheaper treatments, such as generic drugs.⁶

The benefits of clinical pathway (CP) for cost control, one of which is evidenced by the research of Fadilah & Budi (2017) on the effectiveness of clinical pathway implementation on average length of stay and outcomes of child DF-DHF patients in Yogyakarta City Hospital. The results of his study showed that in children with dengue fever (DF), AvLOS before CP was 4,119. Analysis results obtained $p\text{-value} = 0.016 < \alpha = 0.05$, so that the average length of stay after CP is smaller than before CP in pediatric DF patients. AvLOS is related to costs, so with AvLOS that is shorter after CP is implemented, the costs that the patient must do also become lower. This proves that CP implementation will be able to control costs more efficiently.⁷

C. Compliance of Specialist Doctors Related to Clinical Pathway of Dengue Fever at PKU Muhammadiyah Yogyakarta Unit II Hospital

Compliance with specialist doctors related to dengue fever clinical pathway is assessed from adherence to activities that must be done in handling dengue fever patients. If all these activities are carried out, this shows compliance with the clinical pathway of dengue fever. The results are as follows:

Table 5. Description of Doctor’s Compliance Related to Dengue Fever Clinical pathway

No.	Criteria	F	%
1.	Compliance	55	96,5
2.	Not Compliance	2	3,5
Total		57	100,0

Table 5 shows that the majority of respondents were compliance related to dengue fever clinical pathway, which was applied to 55 patients (96.5%). When looking at table 5, it can be seen that there were 2 activities that were not carried out in all patients, namely the clinical examination of the specialist and the DPJP examination, each of which was not performed on 2 patients (3.5%).

One of the things that led to the compliance of specialist doctors to clinical pathways was because doctors participated in the preparation of clinical pathways. The preparation of clinical pathways was based on the standard of service and management of dengue fever, which was used by specialist doctors before the clinical pathway was prepared. This makes it easier for doctors to treat dengue fever patients based on the clinical pathway, because they already have knowledge about it. Knowledge is one of the predisposing factors that influence behavior.⁸

Knowledge of the function and benefits of dengue fever clinical pathway also influences the formation of attitudes about adherence to the implementation of clinical pathways in dealing with dengue fever patients. This positive attitude encourages doctors to be obedient in carrying out clinical pathways for dengue fever. The positive attitude of specialist doctors towards the implementation of dengue fever clinical pathway is supported by the support of colleagues. PKU Muhammadiyah Hospital is a hospital which in its operation is based and influenced by Islamic values. All social patterns in the work environment are influenced with Islamic values, so that the relationship between co-workers is also familiar and harmonious. Co-workers can respect each other and also influence each other in

terms of goodness. Fellow colleagues respect each other's wishes. This will form positive behavior in terms of compliance with the clinical pathway of dengue fever.

The above description is in accordance with the theory of reasoned action which states that attitude influences behavior through a thorough and reasoned decision-making process, and its impact is limited to three things. First, behavior is not much determined by general attitude but by a specific attitude towards something. Second, behavior is not only influenced by attitudes but also by subjective norms, namely our beliefs about what other people want us to do. Third, attitudes towards a behavior along with subjective norms form an intention or interest to behave.⁹

D. Obstacles in Implementation of Dengue Fever Clinical Pathway at PKU Muhammadiyah Yogyakarta Unit II Hospital

Constraints in the implementation of dengue fever clinical pathway, can come from the clinical pathway itself, from doctors, and from hospital management. The results of the analysis found that dengue fever clinical pathway was good and in accordance with medical standards for handling dengue fever. When looking at all the results of the interviews, it can be concluded that the obstacles in the implementation of dengue fever clinical pathway in PKU Muhammadiyah Yogyakarta Unit II Hospital are as follows:

Constraints in the implementation of dengue fever clinical pathway in PKU Muhammadiyah Yogyakarta Unit II Hospital are as follows:

- a. Doctors responsible for patients (DPJP) who cannot visit patients during national holidays or because there are sudden needs that cannot be left behind.
- b. The management of PKU Muhammadiyah Yogyakarta Unit II Hospital has not fully supported the implementation of clinical pathway for dengue fever. This is indicated by the absence of supervision and audit of implementation of the dengue fever clinical pathway, and the absence of punishments against specialist doctors who do not carry out dengue fever clinical pathway.

When looking at the results of the research above, the obstacle in the implementation of clinical pathway for dengue fever comes from specialist doctors and from hospital management. Constraints from specialist doctors are that they cannot visit during national holidays and there are sudden needs. However, when

looking at the results of the study, it was found that adherence to the implementation of clinical pathway dengue fever was 96.5%. When looking at the results of this study, the obstacle of a specialist is not too significant. However, it needs to be handled, so that these obstacles do not become more numerous and become problems in the future.

Constraints from management are that there is no supervision and audit of the implementation of dengue fever clinical pathway, as well as the absence of punishments against specialist doctors, which must be considered. When looking at the results of this study, supported by interviews with several medical committee members, age of doctors, specialist doctors, and nurses on an informal basis, the clinical pathway for dengue fever at PKU Muhammadiyah Yogyakarta Unit II Hospital is more intended as a hospital accreditation requirement.

The Clinical Pathway must be owned by the Hospital to meet the needs of the Hospital Accreditation Standards for the 2012 KARS version. Not only clinical pathway documents, its implementation in quality control and costs is an important factor. The process of making clinical pathways requires cooperation between good departments such as medical teams (doctors), nursing and pharmacy. This combination is then adjusted to an algorithm or evidence-based guide from professional and literary organizations, Medical Service Standards, Standard of Operating Procedures and Standard of Formulary List for actions and treatment.¹⁰

E. Efforts to Overcome Obstacles in Implementation of Dengue Fever Clinical Pathway at PKU Muhammadiyah Yogyakarta Unit II Hospital

Based on the results of the interview, it was concluded that the effort to overcome the obstacle was to make an SOP for the treatment of patients in the condition that DPJP doctors could not visit patients, for example by coordinating with general practitioners and nurses, or replaced by other specialist doctors. In addition, routine monitoring and auditing of the implementation of clinical pathways is necessary.

Operational standards are very important as a guide for doctors in carrying out their duties, including rules if a specialist is absent and cannot visit patients. In the condition that a specialist is unable to attend, they can coordinate with general practitioners and nurses, or be replaced by other specialist doctors. However, if there is no operational standard that manages this, the doctor does not have clear guidelines, so the doctor can

take the wrong step, for example by not doing anything or just informing that he is unable to attend.

Monitoring and auditing the implementation of the clinical pathway for dengue fever is very important to do, to evaluate the implementation of clinical pathways for dengue fever that have been done previously. Through this evaluation, feedback and guidance and improvement measures can be provided so that the implementation of the clinical pathway for dengue fever will improve over time. Through supervision and auditing, the doctor's incompatibility in implementing clinical pathway of dengue fever can be known early, so that steps can be taken to guide and improve.

CONCLUSION

Based on the results of research and discussion, the following conclusions can be drawn:

1. Implementation of dengue fever clinical pathway in PKU Muhammadiyah Yogyakarta Unit II Hospital, is included in the sufficient category.

2. Compliance with dengue fever clinical pathway at PKU Muhammadiyah Yogyakarta Unit II Hospital, most were obedient (96.5%).

3. Constraints in the implementation of dengue fever clinical pathway in PKU Muhammadiyah Yogyakarta Unit II Hospital are as follows:

a. DPJP Doctors who cannot visit patients during national holidays or because there are sudden needs that cannot be left behind.

b. The management of PKU Muhammadiyah Yogyakarta Unit II Hospital has not fully supported the implementation of clinical pathway for dengue fever. This is indicated by the absence of supervision and audit of the implementation of dengue fever clinical pathway, and the absence of punishments against specialist doctors who do not carry out dengue fever clinical pathway.

Efforts to overcome obstacles are by making an SOP for handling patients on condition that DPJP doctors cannot visit patients, for example by coordinating with general practitioners and nurses, or being replaced by other specialist doctors. In addition, routine monitoring and auditing of the implementation of clinical pathways is necessary.

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