MEDIA PENELITIAN DAN
PENGEMBANGAN KESEHATAN
Vol 36 No 1, Maret 2026

e-ISSN: 2338-3445
p-ISSN: 0853-9987

CLINICAL AUDIT OF MEDICAL RECORDS BASED ON CLINICAL PATHWAY: CASE STUDY BENIGN PROSTATIC HYPERPLASIA (BPH)

Audit Klinis Rekam Medis Berbasis Clinical Pathway: Studi Kasus BPH

Ida Sugiarti[1], Dedi Setiadi[1], Fadil Ahmad Junaedi[2], Ida Wahyuni[1*]

[1]Medical Record & Health Information Department, Poltekkes Kemenkes Tasikmalaya, Tasikmalaya, Indonesia

[2]Hospital Administration Department, Universitas Bakti Tunas Husada, Tasikmalaya, Indonesia

*Email: ida.wahyuni@dosen.poltekkestasikmalaya.ac.id

ABSTRAK

Benign Prostatic Hyperplasia (BPH) merupakan kondisi umum pada pria dewasa dengan prevalensi melebihi 50 % pada usia ≥ 60 tahun. BPH menimbulkan gejala lower urinary tract infection yang menurunkan kualitas hidup serta meningkatkan beban layanan kesehatan melalui kunjungan, pemeriksaan, dan intervensi medis. Praktik pelayanan BPH masih bervariasi antar layanan kesehatan, rekam medis yang masih tidak konsisten dan sering menyimpang dari pedoman klinis. Tujuan penelitian mengkaji implementasi clinical pathway (CP) BPH melalui audit klinis serta mengeksplorasi faktor-faktor penghambatnya. Jenis penelitian kualitatif dengan desain studi kasus pada satu pusat layanan rujukan daerah. Data dikumpulkan melalui tiga sumber triangulasi: (1) observasi audit medis terhadap 63 rekam medis pasien BPH, (2) wawancara mendalam dengan 12 tenaga kesehatan (dokter dan perawat), dan (3) dokumen kebijakan terkait CP. Analisis tematik dilakukan secara iteratif untuk mengidentifikasi pola-pola ketidaksesuaian CP serta hambatan implementasi. Hasil penelitian sebanyak 35 % rekam medis tidak memenuhi kriteria CP. Hambatan utama meliputi rendahnya kesadaran tenaga kesehatan terhadap CP, keterbatasan waktu klinis, serta kurangnya integrasi sistem informasi kesehatan. Implementasi CP BPH masih terhambat oleh faktor klinis dan sistemik. CP berbasis bukti menawarkan solusi strategis untuk meningkatkan konsistensi dan kualitas layanan. Diperlukan kebijakan pendukung, pelatihan berkelanjutan, dan integrasi sistem informasi untuk mengoptimalkan penerapannya

Kata kunci: *audit klinis, BPH, jalur klinis, rekam medis*

ABSTRACT

Benign Prostatic Hyperplasia (BPH) is a common condition in adult men with a prevalence exceeding 50% by the age of ≥ 60 years. BPH causes symptoms of lower urinary tract infection, which reduces the quality of life and increases the burden of health services through visits, examinations, and medical interventions. BPH service practices still vary between health services, and medical records are still inconsistent and often deviate from clinical guidelines. To examine the implementation of the BPH clinical pathway (CP) through clinical audit and explore its inhibiting factors. Qualitative research with a case study design in one regional referral service center. Data were collected through three triangulation sources: (1) observation of medical audits of 63 BPH patients' medical records, (2) in-depth interviews with 12 health workers (doctors and nurses), and (3) policy documents related to CP. Thematic analysis was carried out iteratively to identify patterns of CP non-conformity and implementation barriers. Results as many as 35% of medical records did not meet the CP criteria. The main obstacles include low awareness of health workers on CP, limited clinical time, and lack of integration of health information systems. The implementation of CP BPH is still hampered by clinical and systemic factors. Evidence-based CP offers strategic solutions to improve consistency and quality of service. Supporting policies, ongoing training, and integration of information systems are needed to optimize their implementation.

https://doi.org/10.34011/jmp2k.v36i1.3436

e-ISSN: 2338-3445
p-ISSN: 0853-9987

Keywords: BPH, clinical audits, clinical pathways, medical records

INTRODUCTION

The payment mechanism based on INA-CBGs (Indonesia Case Base Groups System) in the National Health Insurance (JKN) program in Indonesia puts great pressure on hospitals to reduce costs while maintaining the quality of service [11]. The clinical pathway is a management tool that outlines the standard steps of evidence-based medical and nursing services designed to improve the quality of healthcare while controlling the cost of care. The implementation of clinical pathways has been widely applied in various health facilities as an instrument to optimize the patient care process, including in cases with chronic diseases and elective surgical conditions [2], [3]. The effectiveness of the Clinical Pathway (CP) has been proven to improve the efficiency and quality of surgical procedures, especially the Enhanced Recovery After Surgery (ERAS) program and caesarean section surgery [1], as well as in stroke management [4].

Although the effectiveness of clinical services has been recognized, there are still obstacles to the implementation of CP. Previous studies have shown that the main obstacle in the implementation of clinical pathways is the lack of socialization and involvement of health service users in the process of preparing and evaluating these pathways [13], [14]. In addition, medical record documentation is often incomplete or not in accordance with clinical pathway standards, which has implications for less accurate quality of service evaluations and suboptimal cost control [6]. Therefore, objective quality evaluation tools are needed as an integral part of clinical governance through clinical audits [6]. Clinical audits/medical documentation audits, which include medical record audits, are an important method to assess compliance with the implementation of clinical pathways and their effectiveness in improving service quality [8], [10].

Clinical audits as part of clinical governance in hospitals have a strategic role in encouraging improvement in the quality of health services, especially through the identification of compliance with the implementation of clinical pathways and documentation audits [11], [12]. Benign Prostatic Hyperplasia (BPH) is one of the high-prevalence diseases in elderly men, characterized by Lower Urinary Tract Symptoms (LUTS) that interfere with quality of life. Although rarely life-threatening, BPH can reduce productivity, incur long-term cost burdens, and increase health insurance claims in JKN financing in Indonesia [7], [8]. Therefore, the application of CP in BPH cases is very important, both to maintain the quality of medical services and to control service costs. Most CP studies have focused on the areas of surgery and stroke, while the application of CP to BPH is still very limited [9].

Due to the lack of empirical evidence regarding the effectiveness of CP in the context of BPH and the limitations of BPH medical record audits to control quality and cost, this study fills this gap by conducting CP-based BPH medical record audits. This research aims to identify obstacles to implementation and provide policy recommendations to improve service quality and optimize health costs.

METHODS

This study used a case study design with a qualitative approach. A qualitative approach was chosen to gain an in-depth understanding of the implementation of the clinical pathway (CP) in patients with Benign Prostatic Hyperplasia (BPH) through an audit of medical records and the perspectives of health service providers. Triangulation of data sources is used as a method of validating and increasing the credibility of research results by combining data from various sources.

The research sample was the medical records of BPH patients who had undergone treatment in the hospital during the study period. The sampling technique used is total sampling, with inclusion criteria, namely, patients diagnosed with BPH, who have complete medical records for clinical pathway assessment, aged 41-91 years. Meanwhile, the exclusion criteria are patients with incomplete medical records or

https://doi.org/10.34011/jmp2k.v36i1.3436

e-ISSN: 2338-3445
p-ISSN: 0853-9987

with other severe urological disease comorbidities. There were 63 occurrences of BPH in both 2020 and the period from January to July 2021. To get INA-CBG data, Text files are available. The quality committee, medical committee, administration, internal medicine room nurse, and coder of The "X" Hospital Class B Referral in East Priangan served as the purposive samples to select the study subjects. Protocols for interviews and observation logs served as the study's main data sources. Clinical audits of medical records to assess adherence to clinical pathways and in-depth interviews with designated study subjects are two strategies for data collection.

The main variable in this study is the implementation of clinical pathways in BPH patients, which includes the suitability of medical record documentation with clinical pathway standards, as well as factors that hinder the implementation of clinical pathways in the effectiveness of service quality and cost control. The instruments used include observation instruments to assess compliance with the implementation of the clinical pathway and the main instrument of semi-structured interview guidelines with health professionals involved in the implementation of the clinical pathway. The instrument has gone through a content validation process by experts (hospital CP formulation team) to ensure the relevance and feasibility of the data collected. Ensuring the integrity of sensitive medical record data in this study, the integrity of the research has been approved by the research ethics commission of the Tasikmalaya Ministry of Health Polytechnic, number 2019/KEPK/PE/VII/0018.

Data analysis was carried out qualitatively using thematic analysis techniques from observations, medical record documents, and interviews. Quantitative data in the form of percentage of patient age characteristics (Figure 1) and initial description of clinical pathway implementation are used only as initial descriptions and not as primary analyses. The validity of the data was strengthened through source triangulation, i.e., comparing data from medical record audits (documents) (table 1) with the findings of health worker interviews (table 2). This process aims to identify the suitability and variability of clinical pathway implementation as well as its supporting and inhibiting factors.

RESULT

According to age-based characteristics, BPH patients were mainly between the ages of 61 and 70. Figure 1 presents the features of BPH patients.

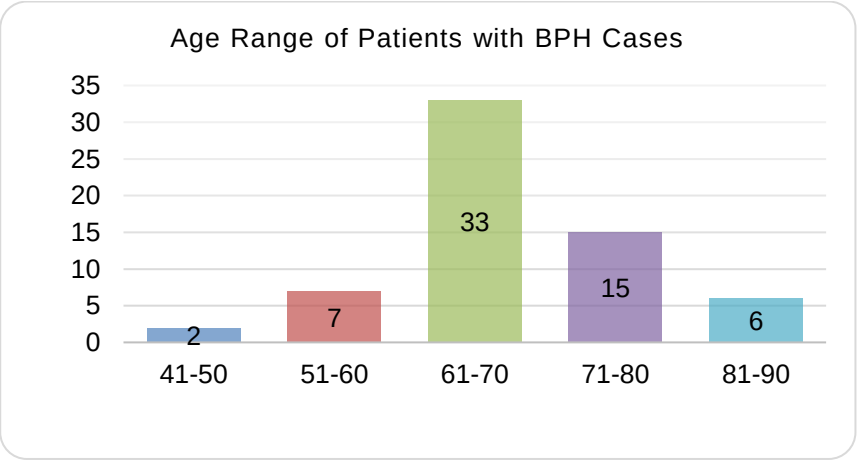

Figure 1. Graph of Age Profiles for BPH Patients

Patients with BPH commonly range in age from 61 to 70. Quantitative information on BPH cases is presented in the clinical record. Compliance with BPH clinical routes is shown in Table 1.

https://doi.org/10.34011/jmp2k.v36i1.3436

e-ISSN: 2338-3445
p-ISSN: 0853-9987

Table 1. Medical Record Compliance with BPH Clinical Pathway

Variable Name	(%) Percentage
Name	98,4
Age	95,2
Medical Record Number	98,4
Written Early Diagnosis	95,2
ICD-10 code listed	0
The treatment plan is written in the number of days	0
Date of entry	100
Out date	100
Length of Stay	90,5
Class	87,3
Rates	100
Cost	98,4
Service activities are written every maintenance day	100
Accompanying diagnosis	39,7
Doctor's Examination Results	100
Results of an Anesthesiologist's consultation	50,8
Laboratory Findings	92,1
X-ray results	33,3
Ultrasound Results	49,2
Installed IV Line and BHP	100
ECG test results	54
Catheter installed	57,1
The written history of injection	100
Administration of Ceftriaxone	100
Administration of Ranitidine	100
Administration of Ketorolac	100
Diet	100
Description of fasting	100
Mobilization information	85,7
The general condition of the patient	100
Daily vital signs	98,4
Number of intakes/ outputs written every day	90,5
Surgical wounds are written every day	82,5
Consciousness was written every day	84,1
Informed consent form filled	77,8
There is education on nutrition	49,2
There is an explanation of the operation preparation	47,6
Planning for release and at-home care is explained	100
Clear name of the nurse, written and signed	71,4
Written clear name of the Doctor in Charge of Care and signed	71,4
There is a clear name of the verifier and a signed	87,3
Main Diagnosis written	100
Written accompanying diagnosis	4,8
Written complication diagnosis	0
The ICD-10 code is written on each diagnosis	3,2
Record the type of action given	100
Written ICD-9CM code	6,3

The results of the clinical audit show that there are still several problems that require attention. 0% of the items are completely unfilled in some cases. Non-compliance with clinical pathways indicates the quality of service in hospitals. The existence of clinical pathways can be a quality control and cost control, especially in the era of BPJS. The following step involves interviewing three internal medicine room nurses with more than five years of experience in-depth. The results of extensive interviews were thematically examined.

https://doi.org/10.34011/jmp2k.v36i1.3436

e-ISSN: 2338-3445
p-ISSN: 0853-9987

The analysis process begins with the stage of coding raw data obtained through in-depth interviews, direct observation, and document review. Coding is done by identifying units of meaning from interview transcripts and field notes, then labeling them according to the essence of the information contained therein. After the coding stage, the researcher categorizes by grouping codes that have similar meanings or are interrelated into broader categories or subthemes. These categories were then analyzed to find patterns and relationships that led to the identification of major themes. This process was visually depicted in the form of a matrix to clarify the connections between the various categories and subthemes and the line of reasoning that underlies the determination of the final themes (Table 2).

Table 2. Thematic Analysis Matrix

No	Theme	Theme Sub	Code
1	The numbering of medical record forms is inconsistent.	(TS1) Some medical record forms do not have form numbers or are inconsistent, and the sequence of the threaded forms is inconsistent.	(C1) *"The current BPH CP is still ambiguous, between patients who need different and non-surgical treatment are not separated".* (P3)
			(C2) *"I never got an explanation about how the formula numbering in the CP".* (P2)
			(C3) *"I don't know who will evaluate the CP".* (P1)
2	Due to a lack of socialization	(TS2) CP socialization has not been implemented.	(C4) *"I don't know what BHP stands for, I've never heard of that term".* (P1)
			(C5) *"during my work I have never received any socialization on how to fill in CP, I just do it to the best of my ability".* (P2)
			(C6) *"There has never been any socialization and evaluation, we just do what we can".* (P3)
3	The CP's contents lack specificity, and certain items are superfluous.	(TS3) CP content is not specific enough.	(C7) *"I have never found a case of BPH in children".* (P2)
			(C8) *"The current BPH CP is still ambiguous, between patients who need different and non-surgical treatment are not separated".* (P3)
		(TS4) The items in the BPH CP are excessive.	(C9) *"BPH patients never undergo X-rays except those who are going to undergo surgery. Perhaps the CP should be separated for surgical and post-surgical cases".* (P3)
			(C10) *"I think there are unnecessary items in the BPH CP, such as the height of the patient".* (P1)
4	The effectiveness of the CP has not been evaluated.	(TS4) The available CP is limited to meeting the supporting documents for accreditation assessment.	(C11) *"I have never heard of any CP evaluation".* (P1)
		(TS5) CP socialization and evaluation have never been carried out.	(C12) *"As far as I know, there has never been an evaluation. The CP currently available is*

https://doi.org/10.34011/jmp2k.v36i1.3436

e-ISSN: 2338-3445
p-ISSN: 0853-9987

No	Theme	Theme Sub	Code
			only intended for formal accreditation assessment documents." (P2)
		(TS6) The available CP has not been utilized for monitoring service quality and costs.	(C13) *"There has never been any socialization and evaluation; we just do what we can".* (P3)

The following interpretation combines quantitative data from medical record audit results in Benign Prostatic Hyperplasia (BPH) patients presented in Table 1, as well as qualitative data from interviews with health workers summarized in Table 2. This combination analysis aims to provide a comprehensive picture of the effectiveness of clinical services and control of service costs through the implementation of clinical pathways in related health facilities. By integrating both types of data, this interpretation explores the relationship between medical documentation, officer understanding, and clinical practice that has implications for service quality and cost efficiency.

Good basic patient documentation is a foundation for auditing the quantitative data. Table 1 shows the level of documentation of basic variables such as patient name (98.4%), age (95.2%), medical record number (98.4%), entry and exit dates (100%), with a high level of compliance. This shows that the patient's demographic and administrative data are quite complete, which is an important first step to conduct valid and ongoing medical audits in quality and cost control.

Lack of critical documentation on clinical pathways hinders audit effectiveness and cost control. However, key aspects directly related to clinical pathway effectiveness and cost control, such as ICD-10 codes (0%) and day-to-day care plans (0%), are not documented at all. This has the potential to obscure in-depth clinical analysis and cost control based on specific service activities, making audits less comprehensive and accurate.

Compliance with daily service activity documentation is high, but clinical pathway content is still ambiguous, although the writing of daily service activities reaches 100%. The interviews from Table 2 indicate ambiguity in the BPH clinical pathway (CP) applied. For example, the absence of a clear separation between patients requiring surgical and non-surgical treatments, as well as inconsistencies in medical record forms, has an impact on the ineffectiveness of clinical pathways in improving service quality and cost efficiency. Supported by the statement of the P3 informant*: "CP BPH is currently still ambiguous, between patients who need different treatment and non-surgical treatment are not separated."*

Lack of socialization and understanding of clinical pathways hinders implementation and evaluation. Interview data show a low understanding of the concept of BPH and its clinical pathways (P1*: "I don't know what BPH is"*, and "*I have never heard of CP evaluation"*). This condition indicates a lack of training and socialization that can hinder the implementation of effective clinical pathways and continuous audits for quality control and cost.

Low additional diagnostic documentation reduces clinical evaluation accuracy and cost. The percentage of additional diagnoses, which is only 39.7% in Table 1, indicates that there may be important clinical data that have not yet been recorded. This can reduce accuracy in clinical service assessments and actual cost estimates, resulting in less than optimal audits for cost control.

DISCUSSION

The following are the findings of the thematic analysis. The discussion of the themes found is:

https://doi.org/10.34011/jmp2k.v36i1.3436

e-ISSN: 2338-3445
p-ISSN: 0853-9987

1. **The numbering of medical record forms is inconsistent.**

A medical record form exists, but it doesn't yet have a number. The objects in CP are unknown to informants. The three informants claim that the CP failed to specify who was responsible for overseeing each activity or for completing paperwork, including the laboratory results form, the medical activity approval form, the discharge planning form, the nurse records form, and the medical resume form. The informant stated that, “The current BPH CP is still ambiguous; between patients who need different and non-surgical treatment are not separated” (P3). Another informant stated, “I never got an explanation about how the formula numbering in the CP” (P2). Alignment of structured documentation systems with provider workflows is critical to success. So, numbering and sequencing of record forms becomes a necessity [13].

2. **Due to a lack of socialization, the user has never seen the CP.**

Users are unfamiliar with CP; it has not been socialized, and some of its concepts are obscure. The terms BHP inscribed on the CP have never been spoken by informants 1, 2, or 3. The three informants said they had never had any socialization with CP or seen the BPH CP before. One of the reasons for the insufficient filling of the CP is officials' ignorance. The forms' ICD-10 and ICD-9-CM codes, treatment plans, chest X-ray and ultrasound results, nurse/midwife records, and health personnel's signatures without a distinct name accompanying them are examples of incomplete fillings. The informant stated, “I don't know what BHP stands for, I've never heard of that term" (P1). Another informant stated the same thing when confirmed. The informant also stated: "During my work, I have never received any socialization on how to fill in CP, I just do it to the best of my ability” (P2). User involvement in formulating clinical pathways is one of the keys to the success of implementing clinical pathways [15]. If the user is involved in the formulation, then he will understand and provide care according to the established clinical flow, so that achieving quality and controlling care costs becomes easier.

3. **The CP's contents lack specificity, and certain items are superfluous.**

Informants 2 and 3 said that, except for pediatric patients, the identity column did not require information on weight or height and that there were no cases of BPH in children. The informant stated, “I have never found a case of BPH in children” (P2). According to Informant 3, only patients with comorbidities and impending surgery underwent X-ray testing. The informant said: "BPH patients never undergo X-rays except those who are going to undergo surgery. Perhaps the CP should be separated for surgical and post-surgical cases” (P3). Preoperative and postoperative instances of CP should be separated. If the patient was over 60 years old, according to informants 2 and 3, the CP ought to include an ECG. Informants 2 and 3 claimed that because the rates were already noted in the maintenance records, there was no need for payments about tariffs.

4. **The effectiveness of the CP has not been evaluated. A CP evaluation, according to the three informants, had never taken place.**

Informant 1 said, “I have never heard of any CP evaluation” (P1). Informant 2 said: “As far as I know, there has never been an evaluation. The CP currently available is only intended for formal accreditation assessment documents.” (P2). Informant 3 said: “There has never been any socialization and evaluation, we just do what we can” (P3).

As an effort to formulate a strategy to achieve effective implementation of clinical pathways, researchers conducted focus group discussions with experts and users. An academic from Gajah Mada University (UGM) from the UGM Research Center will be invited to engage in a Focus Group Discussion (FGD) with participants. The focus group discussion was attended by the internal medicine room nurse, the coder, the quality committee, the medical committee, and the administration of The “X” Hospital Class B Referral in East Priangan.

The FGD's findings include the necessity to reconsider the format because the hospital's form isn't yet interdisciplinary and because several Professional Care

https://doi.org/10.34011/jmp2k.v36i1.3436

e-ISSN: 2338-3445
p-ISSN: 0853-9987

Providers (PPA) haven't been included in it. The FGD participants agreed that CP should be created according to the requirements for accreditation and modified to meet the needs of the community's health services. Additionally, CP may be made to support insurance claims. Participants in the FGD concurred that CP should make use of the KARS (Hospital Accreditation Committee) form. Studies are conducted by the nursing committee and the quality committee of the nursing profession. The FGD participants decided to request that the research team prototype the electronic application format for the clinical pathway so that it can be modified to fit the KARS form. Additionally, they requested that it be made available to other CPs. The forum decided to host a second workshop on creating CPs by following the roadmap that had already been established. This workshop would benefit from community service initiatives for academics from Poltekkes Kemenkes Tasikmalaya. A Director's Decree appointing the team members for the CP Compiling was also decided upon by the forum. The service department should be contacted to set standard operating procedures for filling CP. The FGD's recommendations are based on the needs analysis, but they cannot be implemented immediately on the ground since they need the consent of numerous parties, particularly the leadership elements.

According to Table 1, BPH patients are generally between the ages of 61 and 70. Benign Prostate Hyperplasia (BPH), which has a severe influence on quality of life, is one of the most prevalent diseases among elderly men, and low urinary tract symptoms (LUTS) are a common symptom [16]. At this age, a man officially begins to reach retirement age. Long-term quality of life is reduced while the patient loses productivity. Patients require support and attention. Patients who have recently retired may experience worsening illnesses due to their psychological state. When compared to people without LUTS/BPH, in the LUTS/BPH population, depressed symptoms were more common. In patients with LUTS/BPH, the onset of depressed symptoms was linked to multimorbidity, education, and poor sleep ($P<0.001$) [17]. Numerous studies have shown a connection between metabolic syndrome and BPH-related LUTS [16]. However, LUTS/BPH frequently coexists with other common cardiovascular diseases, hypertension, and erectile dysfunction are age-related comorbidities [18]. Factors that the BPH symptoms bring about have an impact on the patient's well-being and quality of life [19].

The study found that creating a clinical pathway for open tibial and femur fractures decreased the number of operations requiring external fixation, the length of time patients must stay in the hospital, and the number of procedures required for patients without increasing the risk of complications [20]. A study claims that adherence offers unmistakable proof that clinical pathway software (CPSs) can enhance adherence. Additionally, the study revealed strong evidence that measures of appropriate diagnosis, prompt treatment, and length of stay were improving processes [14]. The drafting of the medical record does not adhere to the current BPH Clinical Pathway, according to the data in Table 2. A clinical pathway that has been carefully constructed by the user and makes use of each profession's service standards [21]. SOPs are used by many businesses to make sure that their products are consistent and of high quality [22]. SOPs or procedures that are correctly followed might be a sign of quality medical care. The objectives for quality control and cost management cannot be managed if clinical pathways are not effectively completed, as this will not improve the quality of how current health services are implemented. The filling's incompleteness can be used to describe subpar health treatments in terms of quality. Another factor is that, despite the fact that the action had been done, the officers did not completely document it. All forms of the medical record exhibit this incompleteness; however, only particular forms may be used to make certain entries. Another possibility is that the existing clinical pathway was not created by users who directly supply healthcare services or that it does not adhere to the National Guidelines for Medical Services (PNPK). There is no explanation of which

https://doi.org/10.34011/jmp2k.v36i1.3436

e-ISSN: 2338-3445
p-ISSN: 0853-9987

actions, in a given situation, are required or discretionary. This relates to the findings of in-depth interviews, which showed that users were unaware of the existing CP because it had never been publicized or put into action. It is crucial to socialize the process to increase understanding. User involvement in formulating clinical pathways is one of the keys to the success of implementing clinical pathways [15]. The study's findings suggest that learning standard operating procedures can improve behavior and that there is a rather high correlation between performance and the effectiveness of operational procedures [23]. Once it has been adopted by the institution, the clinical approach can be used to control costs and quality. If the user is aware of how crucial clinical routes are for cost and quality control, they can be used.

The results of the medical audit of medical records in this study refer to the clinical pathway (CP) which found significant inconsistencies between documentation and the supposed clinical flow. The advantage of this study lies in the use of mixed methods (quantitative and qualitative) to identify the root of the problem, namely the lack of socialization of CP to clinical staff. However, this study has limitations as a single case study in a single hospital, so generalization of its findings is limited. The main implication of these findings is that incomplete documentation indicates low quality of service, and user involvement in CP design is crucial to improve the quality and efficiency of healthcare.

CONCLUSION

This study showed that the implementation of the clinical pathway in patients with Benign Prostatic Hyperplasia (BPH) faces various significant obstacles, including the lack of complete critical documentation, such as ICD-10 codes and treatment plans, as well as low understanding and socialization of the clinical pathway among health workers. Although basic patient documentation and daily service activities are quite good, the lack of clarity in the content of the clinical pathway and the lack of systematic evaluation have an impact on the effectiveness of clinical services and the control of service costs that are not optimal. The practical implications of these findings underscore the need to improve the quality of medical record documentation, the implementation of intensive socialization and training for health workers related to the BPH clinical pathway, and the development of continuous evaluation and audit mechanisms. This increase is expected to support better service quality as well as cost efficiency in health services.

REFERENCES

[1] L. Noba, S. Rodgers, C. Chandler, A. Balfour, D. Hariharan, and V. S. Yip, “Enhanced Recovery After Surgery (ERAS) Reduces Hospital Costs and Improve Clinical Outcomes in Liver Surgery: a Systematic Review and Meta-Analysis,” *J. Gastrointest. Surg.*, vol. 24, no. 4, pp. 918–932, 2020, doi: 10.1007/s11605-019-04499-0.

[2] F. Kanwal *et al.*, “Clinical Care Pathway for the Risk Stratification and Management of Patients With Nonalcoholic Fatty Liver Disease,” *Gastroenterology*, vol. 161, no. 5, pp. 1657–1669, 2021.

[3] A. Fitria, A. Armani Sofa, T. Rochma Nurul, B. T. Purwaka, and W. J. Pudjirahardjo, “Penerapan Clinical Pathway sebagai Instrumen Pengendalian Biaya Pelayanan di Dr. Soetomo : Studi Penelitian Tindakan Penderita BPJS yang Menjalani Operasi Caesar dengan Sistem Pembayaran INA-CBG,” *J. Keperawatan Silampari*, vol. 4, no. 2, pp. 593-599. https://doi.org/10.31539/jks.v4i2.1546, 2021, doi: https://doi.org/10.31539/jks.v4i2.1546.

[4] R. Pinzon, L. Asanti, and K. R. Widyo SMF Saraf Bethesda Yogyakarta, “Clinical Pathway Dalam Pelayanan Stroke Akut: Apakah Pathway Memperbaiki Proses Pelayanan?,” *J. Manaj. Pelayanan Kesehat.*, vol. 12, no. 1, pp. 20-23. https://doi.org/10.22146/jmpk.v12i01.2562, 2009, doi: https://doi.org/10.22146/jmpk.v12i01.2562.

[5] A. G. De Belvis *et al.*, “Ischemic stroke: clinical pathway impact.,” *Int. J. Health Care*

https://doi.org/10.34011/jmp2k.v36i1.3436

e-ISSN: 2338-3445
p-ISSN: 0853-9987

Qual. Assur., vol. 32, no. 3, pp. 588-598. https://doi.org/10.1108/IJHCQA-05-2018–01, Apr. 2019, doi: https://doi.org/10.1108/IJHCQA-05-2018-0111.

[6] O. D. Paramita and I. Dwiprehasto, "Penggunaan Clinical Reminder Sebagai Instrumen Kendali Mutu dan Kendali Biaya Pada Penatalaksanaan Bayi Prematur Yang Dirawat di NICU RSUD Tarakan," Universitas Gajah Mmada, Yogyakarta, 2019.

[7] G. R. Hatta, "Pedoman Manajemen Informasi Kesehatan di Sarana Pelayanan Kesehatan," in *Pedoman Manajemen Informasi Kesehatan di Sarana Pelayanan Kesehatan*, Jakarta: UI Press, 2022, p. 496.

[8] D. R. Sari, "Audit Implementasi Clinical Pathway Diare Akut di Rumah Sakit Anak dan Bunda Harapan Kita Tahun 2016," *J. ARSI*, vol. 3, no. 2, pp. 115-126. http://dx.doi.org/10.7454/arsi.v3i2.2217, 2017, doi: http://dx.doi.org/10.7454/arsi.v3i2.2217.

[9] H. Djasri, "Corona Virus dan Manajemen Mutu Pelayanan Klinis di Rumah Sakit," *J. Hosp. Accredit.*, vol. 2, no. 1, pp. 1–2, 2020, doi: 10.35727/jha.v2i1.62.

[10] H. Djasri, "Pengantar Pelatihan Clinical Audit (Audit Klinik/Medik) di RS. Disampaikan pada Bimbingan Teknis Audit klinis (Audit Medis & keperawatan) di Rumah Sakit dan Puskesmas/Klinik, Yogyakarta, 29-30 November 2019," 2019, *Pusat Kebijakan dan Manajemen Kesehatan (PKMK) Universitas Gadjah Mada, Yogyakarta*.

[11] A. Arifuddin, S. Rochmiyati, A. F. Nur, N. E. Dyastuti, H. Arifuddin, and Vidyanto, "Peranan Clinical Governance terhadap Penjaminan Mutu Rumah Sakit; Sistematik Review.pdf," *Heal. Tadulako J.*, vol. 8, no. 2, 2022, doi: https://doi.org/10.22487/htj.v8i2.530.

[12] NHS, "Clinical Audit and Effectiveness Policy," 2020.

[13] T. Ebbers, R. P. Takes, L. E. Smeele, R. B. Kool, G. B. van den Broek, and R. Dirven, "The implementation of a multidisciplinary, electronic health record embedded care pathway to improve structured data recording and decrease electronic health record burden," *Int. J. Med. Inform.*, vol. 184, p. 105344, Apr. 2024, doi: 10.1016/J.IJMEDINF.2024.105344.

[14] M. Askari, J. L. Y. Y. Tam, and J. Klundert, "The effectiveness of clinical pathway software in inpatient settings: A systematic review.," *Int. J. Med. Inform.*, vol. 147, p. 104374. https://doi.org/10.1016/j.ijmedinf.2020.10, Mar. 2021, doi: 10.1016/j.ijmedinf.2020.104374.

[15] J. Walsh *et al.*, "Path towards efficient paediatric formulation development based on partnering with clinical pharmacologists and clinicians, a conect4children expert group white paper," *Br. J. Clin. Pharmacol.*, vol. 88, no. 12, pp. 5034–5051, Dec. 2022, doi: 10.1111/BCP.14989.

[16] R. Cannarella, R. A. Condorelli, F. Barbagallo, S. La Vignera, and A. E. Calogero, "Endocrinology of the Aging Prostate: Current Concepts.," *Front. Endocrinol. (Lausanne).*, vol. 12, p. 554078. https://doi.org/10.3389/fendo.2021.554078, 2021, doi: 10.3389/fendo.2021.554078.

[17] W. Zhang *et al.*, "Depressive symptoms in individuals diagnosed with lower urinary tract symptoms suggestive of benign prostatic hyperplasia (LUTS/BPH) in middle-aged and older Chinese individuals: Results from the China Health and Retirement Longitudinal Study.," *J. Affect. Disord.*, vol. 296, pp. 660-666. https://doi.org/10.1016/j.jad.2021.09.045, Jan. 2022, doi: 10.1016/j.jad.2021.09.045.

[18] D. Porav-Hodade *et al.*, "Prostate Dimensions and Their Impact on LUTS and Erectile Function: Is Length the Missing Link?," *J. Clin. Med. 2024, Vol. 13, Page 7123*, vol. 13, no. 23, p. 7123, Nov. 2024, doi: 10.3390/JCM13237123.

[19] C. ke Wang, J. hua Zhang, Y. Gao, X. yu Meng, H. xia Zhang, and H. huan Luo, "Quality of life and influencing factors in older adults with benign prostatic hyperplasia," *Int. J. Urol. Nurs.*, vol. 18, no. 1, p. e12391, Mar. 2024, doi: 10.1111/IJUN.12391.

[20] W. J. Tan and E. B. K. Kwek, "Outcomes after implementation of an open fracture clinical pathway.," *Arch. Orthop. Trauma Surg.*, vol. 140, no. 10, pp. 1373-1379. https://doi.org/10.1007/s00402-020–0336, Oct. 2020, doi: 10.1007/s00402-020-03363-0.

https://doi.org/10.34011/jmp2k.v36i1.3436

e-ISSN: 2338-3445
p-ISSN: 0853-9987

[21] I. Sugiarti and F. A. Junaedi, "Pendampingan Pembuatan Clinical Pathway Dalam Peningkatan Mutu Pelayanan Kesehatan Di RSUD DR. Soekardjo Kota Tasikmalaya," *J. Pengabdi. Masy.*, vol. 3, no. 2, Jan. 2023, Accessed: Sep. 16, 2024. [Online]. Available: https://ejurnal.universitas-bth.ac.id/index.php/P3M_JUPEMAS/article/view/1009

[22] K. P. Freeman, J. R. Cook, and E. H. Hooijberg, "Standard operating procedures," *J. Am. Vet. Med. Assoc.*, vol. 258, no. 5, p. 477. https://doi.org/10.2460/javma.258.5.477, 2021, doi: https://doi.org/10.2460/javma.258.5.477.

[23] T. Warashati, D; Novieastari, E; Afriani, "Optimalisasi Peran Dan Fungsi Kepala Ruangan Dalam Pelaksanaan Sosialisasi Regulasi Dan Standar Prosedur Operasional Keselamatan Pasien," *J. Keperawatan Komprehensif*, vol. 6, no. 2, pp. 85-94. https://doi.org/10.33755/jkk.v6i2.165, 2020, doi: https://doi.org/10.33755/jkk.v6i2.165.

https://doi.org/10.34011/jmp2k.v36i1.3436