

Implementation of Clinical Pathways as an Instrument for Controlling Service Costs in Hospitals

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Abstract.

The total real hospital costs for Social Health Insurance (BPJS) Kesehatan patients undergoing cesarean section are much higher than the collectible costs using the Indonesia Case-Based Groups (INA-CBGs) package as the basis of their payment policy. The purpose of this study was to determine the effect of using clinical pathways as a means of controlling the total real hospital costs of BPJS Kesehatan patients undergoing cesarean section. This research used action research. The clinical pathway was applied to BPJS Kesehatan patients undergoing cesarean section from January 1 to March 31, 2014, and compared the real hospital costs between that period and BPJS Kesehatan patients undergoing cesarean section from October 1 to December 31, 2013. From the 126 study groups, 65 clinical pathway forms (51, 58%) were complete. The average real hospital cost was significantly higher after the implementation of CP with $p = 0.019$. The average length of stay, service costs, and hospital costs were significantly lower in the complete CP form group with $p = 0.012$, $p = 0.013$, and $p = 0.012$ respectively. This study demonstrated that implementing the clinical pathway can reduce the actual length of stay and hospital costs in C-section patients, and demonstrated that using the clinical pathway can make services more efficient.

Keywords: *cesarean section, clinical pathways, hospital costs*

1. Introduction

The Ministry of Health of the Republic of Indonesia Number: 1663/MENKES/SK/XII/2005 concerning the Implementation of the Diagnostic Related Group (DRG) System, developed a system called INA-DRG (Indonesian Diagnosis Related System), which was based in 15 vertical hospitals with ICD 10 for diagnosis and ICD 9 CM for intervention procedures and costs based on the applicable tariffs(1). This financing pattern represents an advancement in the field of health service financing. However, it should be understood that this system does not reflect the reality of financing needs across the country, which often results in a mismatch between actual cost requirements and costs paid according to the INA-DRG financing structure. Coupled with the variation in the cost structure for the same intervention in hospitals of different grades, the INA-DRG financing system needs to be better reviewed. With effect from September 30, 2010, the name of the mixed case system, INA-DRG, was changed to INA-CBG(1).

According to the Presidential Decree No. 12 of 2013 concerning Health Insurance, in the article 39 paragraph (3), social health insurance (BPJS) makes payments to advanced referral health facilities based on the Indonesia Case-Based Group (INA-CBGs). In paragraph (4), the amount of capitation

and Indonesia Case-Based Group (INA-CBGs) is reviewed at least once every 2 (two) years by the minister after coordinating with another minister who holds government affairs in the financial sector(2).With this regulation, hospitals are not only required to provide quality health services but also efficient ones. This regulation also requires hospitals to make service quality control instruments and control service costs, so the role of Clinical Practice Guidelines (PPK) and clinical pathways (CP) as a compliment is very important.

The fundamental difference between the tariffs applied in RSUD Dr.Soetomowith the tariffs of INA-CBG is the calculation method. To date, the applicable tariffs in RSUD Dr.Soetomo are calculated with the fee-for-service model, while the tariff scheme of INA-CBGs is a prospective payment model(3). This has resulted in a considerable mismatch between the actual costs of BPJS Kesehatan patients undergoing C-section and the INA-CBG package revenue of IDR 3,688,373, which may be caused by inefficient services. Even though there is already a clinical practice guide (PPK) for C-section, it does not regulate in detail the steps of the services provided so that a clinical pathway is needed that provides details of every important stage of health care. This study aims to examine the implementation of clinical pathways as an instrument for controlling service costs at RSUD Dr.Soetomo with a case review of BPJS Kesehatan patients receiving C-section intervention with the INA-DRG/CBG payment system.

2. Materials and Methods

Research Design, Population, Sample and Variables

The method used in this research was action research. The population in this study were medical record documents of all patients undergoing delivery during 2014. The sample used was 126 BPJS Kesehatan patients who underwent a cesarean section with medical record documents and clinical pathway forms. The study was conducted from January 1 to March 31, 2014. The independent variable in this study was the clinical pathway, while the dependent variable was real costs and collectible costs based on the INA-CBG financing scheme.

Instrument

The instruments used were the implementation of clinical pathways and focus group discussions.

Research Procedures and Analysis

The research data were recorded in a data collection form specifically designed for this study. After mapping the data, the data were then grouped according to the results of filling in the clinical pathway form into the complete clinical pathway filling-out group and the incomplete clinical pathway filling-out group. One-way ANOVA was carried out for all collected data, with the consideration that the population to be tested was normally distributed, the population variance was the same, and the samples were not related to each other. The significance level used was 95% or $p = 0.05$. Statistical calculations were performed using SPSS software.

3. Results

Table 1. Comparison of Real Costs of C-Section Intervention before and after Implementation of Clinical Pathways

	Number of Patients	Length of Stay	Mean LOS	Total Cost	Mean Cost
				(IDR)	
Before the Implementation	215	2-28	5.5	2,354,658,130	10,951,898
After the Implementation	126	1-38	6.7	1,632,672,838	12,957,720

After implementing the clinical pathway, 196 patients underwent C-section intervention. 126 of those patients were covered by BPJS Kesehatan and 75 of them were not. Out of 126 BPJS Kesehatan patients, only 65 (51.58%) cases had completed the clinical pathway completely, so that it could be evaluated, while 61 (48.42%) other cases were not completely filled, so it could not be evaluated [Table 1].

Table 2. Comparison of Average Length of Stay and Real Costs of BPJS Kesehatan Patients with Complete Clinical Pathways and Incomplete Clinical Pathways (n=126)

	Number of Patients	Length of Stay	Mean LOS [#]	Total Real Cost	Mean Real Cost [*]
				(IDR)	
Complete CP	65	3-17	5.8	682,456,040	10,499,322
Incomplete CP	61	1-38	7.8	947,762,524	15,537,090

[#]p=0,037 ^{*}p=0,012

The comparison between the costs incurred by the hospital before and after implementing the clinical pathway in [Table 2] shows that the average cost of the C-section intervention after implementing the clinical pathway was higher than before implementing the clinical pathway, and by t-test, the difference had a significance of p = 0.019. However, looking at the longer mean length of stay for post-implementation of the clinical pathway, this difference likely indicated a higher disease severity in the post-implementation group.

Table 3. Comparison of Average Service Costs, Drug Costs, Real Costs, and Collectible Costs between BPJS Cases with Complete Clinical Pathways and Incomplete Clinical Pathways (n=126)

	Service Costs	Drug Costs	Real Costs	INA-CBG Collectible Costs
	(IDR)			
Complete CP	9,650,180	1,810,393	10,499,324	6,307,265
Incomplete CP	13,560,408	2,851,130	15,537,091	8,171,223
	p=0.013	p=0.073	p=0.012	p=0.122

Comparison between the length of stay and real costs in cases with complete clinical pathways and incomplete clinical pathways in [Table 3] shows that cases with complete clinical pathways had a significantly shorter length of stay (p = 0.037) and a significantly lower real cost (p = 0.012) than cases with incomplete clinical pathways. Therefore, clinical pathways could be utilized to provide timely and standardized services and to reduce unnecessary service variations. Thus, it was expected to produce more efficient services and better control of service costs.

The comparison of the average service costs, drug costs, real costs, and collectible costs between BPJS Kesehatan cases with complete clinical pathways and incomplete clinical pathways in [Table 4] shows a significant difference between service costs (p = 0.013) and real costs (p = 0.013), and between JKN cases with complete and incomplete clinical pathways.

During the 3 months of implementation, there were 196 cases of C-section intervention, of which 126 were BPJS Kesehatan participants, and from these 126 cases, only 65 (51.58%) cases had completed the clinical pathway completely. Meanwhile, 61 (48.42%) other cases were not completely filled. This situation might be caused by the unclear position of the clinical pathway in the patient's medical record document.

4. Discussion

In accordance with the Regulation of the Ministry of Health of the Republic of Indonesia Number 1438 of 2010 concerning Medical Service Standards, clinical pathways are a complement to the Clinical Practice Guidelines that must be established by the hospital director. However, in the 2012

KARS version of the Hospital Accreditation Assessment Standard in the MPKP 2.1 assessment elements, the development and implementation of clinical pathways is an important assessment element in efforts to improve service quality and patient survival. Thus, the position of the clinical pathway in the medical record documentation must be immediately determined so that there is an obligation for everyone who treats patients to fill out the clinical pathway correctly and completely(4).

The average real cost after the clinical pathway implementation was significantly higher than before the implementation. The high real cost could be due to the surge in the number of referral patients with a higher severity, where cases with a level 1 severity decreased from 87.90% before the implementation of the clinical pathway to 74.60% after implementation. Meanwhile, the number of referral patients for level 3 severity increased from 2.79% before the implementation of clinical pathways to 12.69% after implementation. No change was found for the level 2 severity. This situation is a direct consequence of RSUD Dr. Soetomo as PPK-3, which should only provide specialist and sub-specialist services. Piling on top of this is the introduction of referral service network in East Java, requiring RSUD Dr. Soetomo only received referrals from class B hospitals that received referrals from class C and D hospitals in the district/city.

A comparison is done in this study between BPJS Kesehatan patients undergoing C-section intervention with complete clinical pathways and patients with unfilled or incomplete clinical pathways. From this study it was found that cases with complete clinical pathways had significantly shorter average length of stay compared to those with unfilled or incomplete clinical pathways. In addition, the mean real cost is also significantly lower in cases with complete clinical pathways.

The study by(5)shows that clinical pathway compliance can reduce LOS (Length of Stay), and hospitalization costs in C-section cases have a correlation with a value of $p < 0.001$. Furthermore, the comparison of service costs, drug costs, real costs, and collectible costs between the BPJS Kesehatan case with a complete clinical pathway and an incomplete clinical pathway is carried out. It was found that service costs and real costs were significantly higher for cases with incomplete clinical pathways. This shows that implementing a clinical pathway can lower the real costs required to provide C-section intervention care. In another study,(6)found a relationship between compliance with the implementation of clinical pathways with the total real cost of C-section patients with a value ($p = 0.000$). Moreover, research by(7)shows that the implementation of clinical pathways is an effective and safe method to reduce postoperative LOS and hospital costs with a value of $p < 0.05$.

5. Limitation of the Study

Clinical pathways are an integrated service planning concept that encapsulates any evidence-based intervention with measurable outcomes based on medical service standards, nursing care standards, and other service standards, provided to patients from admission to discharge. By referring to clinical pathways, it is expected that the services provided are standard, effective, and efficient. That way, health workers can reduce the variations that may arise, both variations in diagnosis, treatment, and medical therapy, which will subliminally lead to service efficiency. If there is variation, it is hoped that it can be recorded and the cause can be identified. In other words, compliance with clinical pathways will have a direct impact on service quality and cost control.

6. Conclusion

Complete and correct clinical pathways in 65 (51.58%) cases were proven to reduce length of stay and real costs in BPJS Kesehatan cases with C-section intervention.

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