

Conference Paper

Compliance with Clinical Pathway for Cesarean Section Before and After the Implementation of JKN in Hospital X

Atik Nurwahyuni¹, Amal C. Sjaaf², Widia Puspa Hapsari³, and Ryan R. Nugraha¹¹Center for Health Economics and Policy Studies, Faculty of Public Health, Universitas Indonesia, Depok, West Java, Indonesia²Health Administration and Policy Department, Faculty of Public Health, Universitas Indonesia, Depok, West Java, Indonesia³Department of Public Health, Faculty of Public Health, Universitas Indonesia, Depok, West Java, Indonesia

Abstract

Hospital X, which is a Class-A hospital in Jakarta, had set and implemented Clinical Pathway for cesarean section before 2012. During its implementation, the analysis of service providers' compliance to the clinical pathway has never been done. With the implementation of JKN, the adherence to clinical pathway was expected to increase. This study aimed to compare compliance to the clinical pathway before and after JKN. The sample of this cross-sectional study with quantitative approach takes all Caesarean Section cases without complication and comorbidity in 2012 and 2015, which consisted of 58 cases in 2012 and 117 cases in 2015, respectively. Patients Characteristics data, medical data (diagnosis and procedures) and details of services per patient were taken from hospital information system. Tools for pre-clinical pathway development and clinical pathway evaluation (clinpath v.2.0) were used to analyze the data. The results indicated that the average length of stay (LOS) in 2012 (3.8 day) were shorter compared to LOS in 2015 (4.5 days), while LOS in clinical pathway is 4 days. Variations of laboratory examination is also greater in 2015 as well as for the drug.

Keywords: clinical pathway, healthcare service, hospital, caesarean section, variation

Corresponding Author:

Atik Nurwahyuni

atikn.akk@gmail.com

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1. Introduction

Hospital X is a type A hospital located in South of Jakarta. It has been using Clinical Pathway for caesarean section before 2012. Clinical pathway is a guideline to medical practices arranged by the hospital, consisting of various cases which are high in volume, risk, and cost as it was set by the MoH regulation [1]. The objectives of

implementing Clinical Pathway is to improve quality by reducing variation or non-value added activities in service delivery. Despite the availability of clinical pathways in hospitals, the compliance of service providers to Clinical Pathway is still very low.

Deliveries with Caesarean Section in Indonesia has surpassed the rate assigned internationally by WHO (between 10% to 15%). In previous study, the Caesarean Section provided by healthcare providers reached 15.3% among 20.591 women who gave birth within 5 years in 33 provinces in Indonesia [2]. Jakarta has the most significant rate of Caesarean Section utilization reaching 19.9% in 2013. Hence, the implementation of JKN in Indonesia was expected to increase the adherence of service delivery by the hospital providers to its clinical pathway. During the implementation of JKN, there hasn't been any analysis conducted to evaluate the service providers' compliance with hospital X Clinical Pathway. Therefore, this study was conducted to evaluate the compliance of service providers with Clinical Pathway before the implementation of JKN in 2012 and after the implementation of JKN in 2015.

2. Methods

This study is a cross sectional study with data taken in 2012 before implementation of JKN and 2015 after the implementation of JKN. Quantitative approach was used in this study. The data for this study only took account Caesarean Section cases without any presence of complication and comorbidity. Number of caesarean section cases were each 58 and 117 in year 2012 and 2015. The data was provided by hospital information system in Hospital X. Study included three sets of data which were patients' diagnosis, detailed medical and medical supporting services, and drug utilizations. Data for medical and medical supporting activities were taken from the hospital billing. Those data were processed using tools 'Clinpath v.2.0' developed by Faculty of Public Health Universitas Indonesia. The limitation of this study is the service details, in which billing data were not included and processed within the given tool.

3. Results

Study resulted in variation of patients' characteristic, length of stay, services and drugs utilizations in both years compared to the standardized clinical pathway. The number of caesarean section cases was 58 in 2012 and 117 in 2015. The length of stay was 3.8 days in 2012 and slightly increased in 2015 became 4.8 days. The average age of patients undergoing caesarean section in both years was 30.17 and 30.32 (as shown in Table 1).

Payment system used by the patients in 2012 varied. There were public insurances such as Askes (5), Jamkesmas (43), and Jamkesda (1). Payment system used in 2015 included JKN, Askes, Jamkesmas, and Jamkesda. On the other hands, there were also patients used out of pocket system in both years. Patients in both years were discharged with the doctors' approvals.

TABLE 1: Patients' characteristics and case distribution in 2012 and 2015.

Item	Variation		
	Hospital CP	2012	2015
Number of Case	-	58	117
Length of Stay (LOS)			
<i>Average</i>	4	3.8	4.5
<i>Min</i>	-	2	3
<i>Max</i>	-	6	12
Age			
<i>Average</i>	-	30.17	30.32
<i>Min</i>	-	21	20
<i>Max</i>	-	43	39
Sex			
<i>Male</i>	-	0	0
<i>Female</i>	-	58	117
Payment Methods			
<i>JKN - Umum</i>	-	-	54
<i>JKN - KJS</i>	-	-	25
<i>JKN - Jamsostek</i>	-	-	15
<i>JKN - Askes</i>	-	5	13
<i>Jamkesda Kota Depok</i>	-	-	4
<i>JKN - Jamkesmas</i>	-	43	2
<i>JKN - KIS</i>	-	-	2
<i>Tunai Bedah Prima</i>	-	-	1
<i>Tunai</i>	-	1	1
<i>SKTM</i>	-	6	-
<i>Jamkesda</i>	-	1	-
Discharge Type			
<i>With Approval</i>	-	58	117
Room Class			
<i>III</i>	-	54	88
<i>II</i>	-	3	17
<i>I</i>	-	1	10
<i>High Care</i>	-	-	1
<i>VIP Anggrek</i>	-	-	1

Based on the clinical pathway, in the clinical assessment, doctors' visit was 4 times during one period of care, meanwhile in practice it was only 1.06 in 2012 and 2.52 in 2015. Within the same category, Consultation was 3 times in the clinical pathway during one period of care; however, it amounted 0.03 in 2012 and 0.27 in 2015 (as shown in Table 2).

TABLE 2: Average utilization of clinical assessment in 2012 and 2015.

Services	Average Utilization		
	Hospital CP	2012	2015
Doctor Visit	4	1.06	2.52
Consultation	3	0.03	0.27

There were some medical supporting services such as laboratory work, which is suggested by Clinical Pathway, namely complete blood and urine test, blood type test, BT,PT, APTT, HbSAg, HIV, SGOT, SGPT, Ureum, Creatine, Fasting Glucose Test, CTG. There were also radiological services such as Ultrasonography (USG) utilized in both years. The most utilized medical supporting service in both years was complete blood test 1.38 in 2012 and 1.73 in 2015. The least utilized service was in 2015 for HbSAg (0.02). There were also other medical supporting services out of Clinical Pathway which were utilized in both years such as Electrolyte, Albumin, Blood Uric Acid, and LDH (as shown in Table 3).

Clinical Pathway in hospital X included nine medical procedures for Caesarean Section such as Spinal Anesthesia, Caesarean Section, Changing Verband, Breast care, Surgical Wound Care, Personal Hygiene, Catheter ins/aff, Insertion of contraceptive devices, and Sterilization. The average utilization in both years were below the amount suggested by clinical pathway. The most utilized procedure was Cesarean Section 2.36 in 2012 and 2.45 in 2015. The lowest average of procedure was Sterilization 0.02 in 2012 and 0.03 in 2015. Moreover, there were also medical procedures which were not utilized in both years namely Spinal Anesthesia, Breast Care and Personal Hygiene (as shown in Table 4). Other procedures not listed in the clinical pathway were also utilized in both years, such as Clysma on the lower Obstructive Organs, Biopsy of other tissue, and Allergy test.

Drugs used in the Clinical pathway were nine kinds of drug consisted of IVFD (1500 cc/24 hr), Oxytocin 1 vial IV, Ceftriaxone 2 gr, Methergine 1 vial, Pronalgest Supp (3 supp), Amoxicillin 500 mg, Mefenammat Acid 500 mg, Sulfas Ferosus, and Opsite. There were also many kinds of branded drugs which were given to the patients. The drugs utilization for Methergine for example; hospital also used Methyl Ergometrine, Myomergin, and Pospargin. The drugs utilization were more various in 2015 (as shown

TABLE 3: Average utilization in medical supporting services 2012 and 2015.

Services	Average Utilization		
	Hospital CP	2012	2015
Clinical Pathway Services			
Complete blood test	2	1.38	1.73
Complete Urine test	1	0.34	0.15
Blood type test	1	0.24	0.22
BT	1	–	–
PT	1	0.1	0.18
APTT	1	0.1	0.18
HbSAg	1	–	0.02
HIV	1	–	0.02
SGOT	1	0.05	0.07
SGPT	1	0.05	0.07
Ureum	1	0.07	0.08
Creatine	1	0.07	0.08
Fasting Glucose Test	1	–	–
CTG	2	0.09	0.53
USG	2	0.02	0.03
Other Variation			
Electrolyte (Na, K, CL) (Kimia-LAS)	–	0.03	0.12
Albumin (Kimia-LAS)	–	0.05	0.07
Blood Calcium (Kimia-LAS)	–	–	0.05
Blood Uric Acid (Kimia-LAS)	–	0.05	0.03
LDH (Kimia-LAS)	–	0.03	0.03
Anti HCV (Imunologi-LAS)	–	–	0.01
CRP Quantitative (Imunologi-LAS)	–	–	0.01
Feritin (Hematologi-LAS)	–	–	0.01
Blood smears (Hematologi Lab Lain)	–	–	0.01
Iron (SI) (Hematologi-LAS)	–	–	0.01
Anti-HIV Test	–	–	0.01
Reticulocyte (Hematologi)	–	–	0.01
TIBC (Hematologi-LAS)	–	–	0.01
Fibrinogen (Hematologi-LAS)	–	0.03	–
LED (Hematologi-LAS)	–	0.02	–

in Table 5). Variation were also happened in other compounds of drugs such as Analgesic, Anesthesia, Antibiotics, Antiemetic, Antihypertensive, Antiinflammation,

TABLE 4: Average utilization in medical procedure 2012 and 2015.

Services	Average Utilization		
	Hospital CP	2012	2015
Clinical Pathway Services			
Spinal Anesthesia	1	–	–
Caesarean Section	1	2.36	2.45
Changing Verband	1	0.07	1.46
Breast Care	3	–	–
Surgical Wound Care	2	0.07	1.46
Personal Hygiene	3	–	–
Catheter ins/aff	3	0.66	0.13
Ins of Spiral, implant, injection, drugs	1	0.21	0.21
Sterilization	1	0.02	0.03
Other Variation			
Clysmo on the lower Obstr	–	0.26	0.11
Biopsy of other tissue	–	0.02	0.01
Allergy test (Skin Prick Test)	–	0.12	0.01

Antimicrobial, Antispasmodic, Hypokalemia, Mucolytic, Sedatives, and Vitamin. The utilization in other variation of drugs were also greater in 2015 (as shown in Table 6).

4. Discussion

The number of caesarean section cases was increased in 2015. It was because the presence of social insurance scheme of JKN increased the participation of Indonesian people to become its members and made the access to healthcare more available to them. It was recorded that number of deliveries groups (CMG 0 in INA-CBGs) including Caesarean Section was 411.543 in 2012 and kept increasing until 2015 [3]. The length of stay of these cases also increased in 2015 became 4.5 days from 3.8 days in 2012. The stays was longer than it should be in the clinical pathway (4 days). This happened because non-value added services were included in the service delivery. Moreover, since the complication and other comorbidities were excluded from the beginning, more thorough investigation on the postpartum assessment were needed. Non-clinical factors should also be considered, such as the absence of multidisciplinary pathways [4].

The minimum age of patients underwent caesarean section in 2012 was 21 years old and 20 years old in 2015. In both years there were high risk patients' age for delivering babies with caesarean section (43 years old). Primiparous and multiparous women

TABLE 5: Variation in drug utilization.

Medicines	Utilization	
	2012	2015
IVFD (1500 CC/24 JAM)		
AQUA FOR INJ 25 ml	✓	✓
AQUADEST 1000 ML STERIL	-	✓
ASERING	✓	✓
DEXTROSE 5% INFUS 500 ml.	-	✓
DEXTROSE 40% 25 ml	✓	✓
ECOSOL GLUCOSA 10%	-	✓
ECOSOL GLUCOSE 5%	✓	✓
ECOSOL NACL 0.9% 100 ML	-	✓
ECOSOL NACL 1000 ML	-	✓
ECOSOL NACL 500 ML	✓	✓
ECOSOL RINGER LACTATE	✓	✓
INFUS SET ADULT	✓	✓
INFUS SET PEDRIATIC	-	✓
Oxytocin 1 Vial IV		
INDUXIN INJ 1 ML	✓	✓
TIACINON AMP 10 IU/ML	-	✓
Ceftriaxone 1 x 2 gr		
CEFTRIAXON 1 GR INJ DX	✓	✓
CEFTRIAXONE 1 g (IF)	✓	✓
CEFTRIAXONE 1 GR INJ	-	✓
Methergine 1 amp		
METHYL ERGOMETRIN AMP 0,200 MG 1 ML	-	✓
MYOMERGIN 1 ml INJ	✓	✓
POSPARGIN 0,2 MG/ML 1 ML	✓	✓
Pronalgest Supp (3x1) 3 SUPP		
PRONALGES SUPP	✓	✓
Amoxicillin 3 x 500mg		
ABBOTIC XL TAB 500 MG	-	✓
AMOXYCILLIN CAP 500 MG	-	✓
CO-AMOXICLAVE KAPL 625 MG	✓	-
Mefenamat Acid 3 x 500 mg		
ASAM MEFENAMAT TAB 500 MG	✓	✓
Sulfas Ferosus (10hr)		
SULFAS FERROSUS TAB 300 MG	✓	✓
Opsite		
ALCOHOL SWAB	-	✓

TABLE 6: Other variation in drug utilization.

Other Medicines	Utilization	
	2012	2015
Analgesic		
DEXKETOPROFEN INJ	-	✓
PARACETAMOL 500 MG (1000 TAB)	✓	-
Anesthesia		
CATHEJEL 12.5 G	-	✓
DECAIN 4 ML INJ	✓	✓
DORMICUM INJEKSI 1 MG/ML	-	✓
AERRANE 250 ML	✓	-
ANESJECT 1000 mg	✓	-
Antibiotics		
BACTESYN INJ 1.5 G	-	✓
CEFOTAXIM 1000 mg (IF)	-	✓
CLINDAMYCIN CAP 300 MG	-	✓
DIAZOLE INFUS 100 ML	-	✓
CEFADROXIL CAP 500 MG	✓	-
Antiemetic		
DONPERIDON TAB 10 MG	✓	✓
Antihypertensive		
ADALAT OROS TAB 30 MG	-	✓
CATAPRES 1 ml	-	✓
DOPAMET 250 mg	-	✓
Antiinflammation		
DEXAMETHASON AMP. 5 mg	✓	✓
Antimicrobial		
CEFTAZIDIME INJ	✓	✓
Antispasmodic		
BUSCOPAN INJ. 20 mg. 1 ml.	-	✓
Hypokalemia		
CALCII GLUCONAS 10 ml	-	✓
Mucolytic		
AMBROXOL 30 mg	-	✓
Sedatives		
FENTANYL INJ. 0.05 MG/ML 2 ML	✓	✓
Vitamin		
ALINAMIN F TAB 50 MG	-	✓
ALINAMIN-F 25mg/ml 10ml	-	✓

from age group 35 or older has increased risk for caesarean section with relative risk 1.6 [5]. The payment system used in 2015 was mostly JKN. It was because the aim of

JKN (2014) was to cover all of Indonesian citizen in a social insurance scheme. Other patients who already used public insurances such as *Askes or Jamsostek* were then included in JKN system [6].

The result varied in terms of clinical assessment, which is consisted of doctors' visit and consultations, since the number is still below what is suggested by Clinical Pathway. Clinical Pathway suggests ideally 4 times of doctors' visit and 3 times for Consultations during one period of care. In fact, the utilization for doctor's visit was still 1.06 in 2012 and delicately increased to 2.52 in 2015. It was also observed in consultation in which the average utilization was still below the suggestion, which were 0.03 in 2012 and declined to 0.27 in 2015. While it was evident that the doctors played less role than expected, in this case, shortage of care providers can also be considered. One the other hand, it is suggested that doctors showed hesitancy in treating patients using non-private financing and the relationship between obstetrician and patient happens to be very close in private practice [7].

The utilization for medical supporting services such as laboratory and radiological services also varied compared to Hospital Clinical Pathway. The utilization for medical supporting services was generally bellow the suggestion of Clinical Pathway, yet included larger variation for services out of the Clinical Pathway. The variation were larger in 2015. There were some patient within the year of 2015 utilized services such as Blood calcium, Anti-HIV, CRP, Ferritin, Blood smears, Iron, Anti-HIV Test, Reticulocyte and TIBC while some other did not. Considering the no other comorbidities and complications were observed, this phenomenon needs further confirmation since most of aforementioned tests are not considered as standard tests for diagnosis indicating Caesarean Section. Moreover, low utilization in medical supporting devices creates assumption that it is somewhat easy for the practitioners in the hospital to operate Caesarean Section without any supporting evidence for it to become the indication. It has to be noted that this is coming from a class A hospital, which is considered as to having fulfilled basic obstetric supporting devices or equipment [8].

Variation also happened in medical procedures. Clinical Pathway included nine procedures for each period of care. The average utilization of Caesarean Section were above Clinical Pathway 2.36 in 2012 and 2.45 in 2015. Procedures such as Spinal Anesthesia, Breast Care and Personal Hygiene were 0 in both years. Details of those procedures were not included in the hospital bills because they didn't have certain tariff in the systems for given procedures. This resulted in under-recorded utilizations despite the utilization of certain drug used in the procedure, which was also recorded; namely Cathejel, Decain, Dormicum, Aerrane, and Anesject were classified as Anesthesia.

Such variation in assessment, services in terms of medical supporting as well as procedures took place due to the lack of evaluation of hospital Clinical Pathway. Since the clinical decision in giving patient treatments is a dynamic process, lack of updating it in the Clinical Pathway would result to great variation in service delivery for Caesarean Section. Moreover, ever since the implementation of Indonesian Casemix-Based Groups (INACBGs), the system would allow only reimbursement by group package, meaning that it would pay the delivery of health care in fixed amount. Such variation, however, would impose hardship in the reimbursement of medical service, thus lagging the later provision of medical service in the given hospital.

Variation happened among the kinds of drug suggested in Clinical Pathway (nine kinds of drugs), the variation of different brands were very large. Hospital used various drugs which were based on the National and Hospital Formularies. National Formulary 2015 consisted of 574 items of drugs. The Hospital Formulary adopted about 73.8% drugs available in National Formulary. It was a great variation of drugs to be prescribed including for Caesarean Section. This was also the cause of greater variation of drugs utilization in 2015. Variation also happened in drugs utilization which was out of the clinical pathway classified as 12 groups of drugs (as seen in Table 6). Along 2014, Study showed that drugs used in Hospital X which was out of the National Formulary reached 38.4%. In 2015, the compliance with National Formulary was only 80%. There were still other 20% of drugs prescribed out of the National Formulary [9]. This caused greater variation in drugs utilization within and out of National and Hospital Formularies. To elaborate variations which happened in hospital services and drug utilization, the qualitative study is needed.

5. Conclusion

The Length of Stay (LoS) for Caesarean Section patients increased after the implementation of JKN, from 3.8 days became 4.5 days in 2015. The variation of medical supporting services such as laboratory services were greater in 2015. Variation in drug utilization was also greater in 2015 and it was caused by the large variation in both national and hospital formularies and non-compliance of the doctors with both formularies.

Conflict of Interests

The authors declare that they have no conflict of interests in this research work.

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Authors Contribution

All authors contributed to the development of the Tool (Clinpath V.2.0), implementation of study, and the submission of this paper.

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