Artikel Penelitian

CAESAREAN SECTION INCIDENTS AND COST IN WEST SUMATRA: A COMPARATIVE STUDY BETWEEN PRIVATE AND PUBLIC HOSPITALS UNDER INA CBGS SYSTEM

JKMA

Jurnal Kesehatan Masyarakat Andalas
diterbitkan oleh:
Program Studi S-1 Kesehatan Masyarakat
Fakultas Kesehatan Masyarakat Universitas Andalas
p-ISSN 1978-3833
e-ISSN 2442-6725
15(2)22-29

http://jurnal.fkm.unand.ac.id/index.php/jkma/

Diterima 16 Februari 2021
Disetujui 10 September 2021
Dipublikasikan 15 September 2021

Aladin[1] ✉, Martga Bella Rahimi[1]

[1]Fakultas Kedokteran, Universitas Andalas, Padang, Sumatra Barat, 25148

Abstrak

Sejak diluncurkan pertama kali pada tahun 2014, banyak rumah sakit yang mengaku mengalami kerugian finansial akibat ketimpangan antara tarif riil rumah sakit dengan pembayaran BPJS. Karakteristik dan tren seksio sesarea di rumah sakit penting untuk diidentifikasi sebelum mengukur tingkat efisiensi dalam sistem INA-CBGs. Namun hingga saat ini belum ada studi deskriptif untuk memahami permasalahan tersebut secara komprehensif. Untuk mengisi gap tersebut, penelitian ini bertujuan untuk membandingkan insiden dan biaya seksio sesarea antara rumah sakit swasta dan pemerintah di Sumatera Barat. Penelitian ini bersifat retrospektif dan desain cross-sectional di semua Rumah Sakit di Sumatera Barat dalam sistem INA-CBGs. Data yang digunakan diambil dari BPJS wilayah Sumatera Barat-Riau-Jambi untuk periode 2016 hingga 2018. Selama periode tersebut, hampir 59 ribu seksio sesarea dilakukan, dimana 64% di rumah sakit swasta dan 36% di rumah sakit umum. Dalam kurun waktu tiga tahun, kasus seksio sesarea di rumah sakit swasta meningkat hampir dua kali lipat sedangkan rumah sakit umum menunjukkan tren penurunan. Pada tahun 2018, tiga perempat biaya seksio sesarea yang ditanggung oleh BPJS dibayarkan ke rumah sakit swasta sedangkan rumah sakit umum hanya menerima seperempat dari total biaya tersebut.

Kata kunci: Efisiensi, INA-CBGs, Rumah Sakit, Seksio Sesarea

CAESAREAN SECTION INCIDENTS AND COST IN WEST SUMATRA: A COMPARATIVE STUDY BETWEEN PRIVATE AND PUBLIC HOSPITALS UNDER INA CBGS SYSTEM

Abstract

Since its first launched in 2014, many hospitals claimed to have financial loss due to inequality between hospital real tariff and BPJS payment. It is important to identify the characteristics and trends of caesarean deliveries in hospitals prior to measuring the efficiency level under INA-CBGs system. However, until now there is yet to be a descriptive study to understand this issue comprehensively. To fill this research gap, this study aimed to compare caesarean section incidents and costs between private and public hospitals in West Sumatra, Indonesia. This study was retrospective and cross-sectional design of caesarean section in all West Sumatran hospitals under INA-CBGs system. The data used was taken from BPJS region West Sumatra-Riau-Jambi for period 2016 to 2018. During that period, almost 59 thousand caesarean section were performed, of which 64% in private hospitals and 36% in public hospitals. Within three years, caesarean section incidents in private hospitals were almost doubled while public hospitals showed a decreasing trend. In 2018, three quarter of caesarean costs was paid by BPJS to private hospitals while public hospitals only received a quarter of total costs.

Keywords: Caesarean section, Efficiency, INA-CBGs, Hospital

✉ **Korespondensi Penulis:**
Fakultas Kedokteran, Universitas Andalas, Padang, Sumatra Barat, 25148
Jl.Perintis Kemerdekaan, Padang, Sumatra Barat, 25148, Email: aladin@med.unand.ac.id

Introduction

The World Health Organization (WHO) suggested that there is no justification for cesarean rates higher than 10%–15%, and thus these numbers are limiting rates[1]. However, many countries showed increasing trends and some have exceeds the limit rate[2]. In the United States, caesarean deliveries had increased substantially from 20.7% in 1996 to 31.1% in 2006[3]. A high caesarean section rates also seen in other developed countries in Europe[4,5]. A study in Latin America showed that 12 countries out of 19 had caesarean rates in a range between 16.8% to 40.0%.[6] More detailed study in Brazil showed that the country had a prevalence of caesarean sections at 18.9%,[7] while another study proved that the rates are high in both private and public hospitals.[8] In addition, a study in Mexico showed that many of the caesarean sections performed in the country was unnecessary, thus leading to economic burden of health institutions.[9] Similar patterns also happened in many developing countries including in Sub-Saharan Africa,[10] South Asia,[11] Southeast Asia,[12] and China.[13,14]

In Indonesia, recent report from National Survey said that the country's caesarean rate in 2017 was 17%,[15] while on the other hand, birth rate increased from 22% in 1986 to 73% in 2012.[16] A more specific study demonstrated that the fatality rate in caesarean delivery was low in Indonesia.[17] The main concerns related to caesarean section in Indonesia were about services quality[18] and tariff.[19] Caesarean section tariff in Indonesia became an issue since the launch of Indonesia's National Health Insurance or known as Badan Penyelenggara Jaminan Sosial (BPJS) in 2014. BPJS has two payment mechanisms through capitation for primary health services and Indonesia Case Base Groups (INA-CBGs) for secondary health services.[20] Several hospitals reported financial loss since its application,[21,22] while other hospitals seemed to gain benefits from the system.[23]

According to BPJS report, ten highest CBGs code spent about 8.5 billion IDR (1 IDR = 0.000064 USD) and the highest incident was caesarean section (code O-6-10) which spends more than 3 billion IDR.(20) The same pattern also applies in West Sumatra Province, which spends more than 113 million IDR only for caesarean section.[24] A comparison between public and private hospitals is crucial to initially identify the problems with this newly introduced financing scheme. However, there is no comprehensive descriptive and comparative study related to caesarean section incidents and costs. To fill this research gap, this study compares caesarean section incidents and costs between private and public hospitals in West Sumatra Province, Indonesia. This study was expected to describe real situation related to caesarean incidents and explore the preference of patients in the province for caesarean deliveries.

Methodology

This was a cross-sectional study of all caesarean section in West Sumatran hospitals which in cooperation with BPJS or under INA CBGs system. This study uses cohort data from 2016 to 2018. West Sumatra is the second highest caesarean delivery rate in Sumatra with caesarean rate of 23.8% and among highest caesarean rate in Indonesia.(15) There are three severity levels as define by INA CBGs system: mild, moderate, and severe.[25,26] All these levels are performed by a team led by specialist obstetrician. All the data was obtained from BPJS region West Sumatra-Riau-Jambi.[24] Details of data included number of incidents and cost of each hospitals.

Inclusion criteria were caesarean section financed by BPJS in any hospitals in West Sumatra. Included in this study was any severity levels of caesarean section incidents, regardless of patients' facility class. This study excluded self-funded caesarean section and any other deliveries paid by insurance agencies other than BPJS.

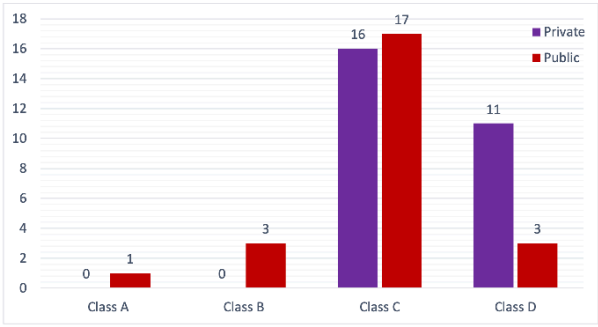
The unit of analysis was caesarean section incidents and cost based on hospitals' claim. A Chi-square test was used to compare several categorical variables. The analysis was divided into two parts: descriptive and analytical. In the descriptive part, the categories of caesarean section incidents in private and public hospitals were compared. The comparison were analyzed further

within each class category of hospitals. P-values ≤ 0.05 were considered significant in calculating the differences between the respective proportions. Statistical analysis were carried out using linear regression using Microsoft Excel 2016 software.

Results

In West Sumatra Province, 60 hospitals already in cooperation with BPHS from 2016-2018. (20,24) However, not all hospitals performed caesarean section, thus excluded from this study. The number of hospitals included in this study was 51, consists of 1 class A hospital, 3 class B hospitals, 33 class C hospitals, and 14 class D hospitals (Figure 1). Class A and class B hospitals were only consisting of public hospitals (owned by the government) while class C and class D hospitals consisted of both public and private hospitals. In class C hospitals, 17 hospitals were public hospitals, while the other 16 were private hospitals. In class D hospitals, only 3 hospitals were managed by the government, whereas 11 hospitals were owned by private.

Figure 1. Number of Hospitals Based on Category



Total caesarean section (INA-CBGs' code O-6-10) in West Sumatra according to BPJS record was 58,977 cases during 2016-2018 period (Table 1). 37,807 (64.1%) cases were performed in private hospitals, while only 21,170 (35.9%) were performed in public hospitals. From all the incidents, 54,603 (92.6%) caesarean section were categorized as mild (INA-CBGs code O-6-10-I), 4,335 (7.4%) cases categorized as moderate (INA-CBGs code O-6-10-II), and only 39 (0.1%) cases categorized as severe (INA-CBGs code O-6-10-III). Similar percentage also occurred in both public and private hospitals. In public hospitals, 92.6% (19,602/21,170) cases were mild, 7.2% (1,529/21,170) cases were moderate, and 0.2% (39/21,170) cases were severe. In private hospitals, 92.6% (35,001/37,807) cases were mild, and 7.4% (2,806/21,170) cases were moderate. There were no severe caesarean section incidents in private hospitals.

Table 1 also sho-wed the distribution of caesarean section incidents in each class of hospitals. Class A hospitals recorded 803 (1.4%) caesarean section, while class B recorded 4,053 (6.9%) cases, class C had the most cases with 39,137 (66.4%) cases, and class D had 14,984 (25.4%) cases. Private hospitals, which only consist of class C and class D hospitals, were having 26,367 (69.7%) and 11,440 (30.3%) caesarean section respectively. In public hospitals, 803 (3.8%) cases occurred in class A hospitals, 4,053 (19.1%) cases in class B hospitals, 12,770 (60.3%) cases in class C hospitals, and 3,544 (16.7%) cases performed in class D hospitals.

Table 1. Descriptive of the Whole Caesarean Section in West Sumatra, 2016-2018

	Overall		Private Hospital		Public Hospital	
	n	%	n	%	n	%
Caesarean Section	58,977		37,807	64.1	21,170	35.9
Severity						
Mild	54,603	92.6	35,001	92.6	19,602	92.6
Moderate	4,335	7.4	2,806	7.4	1,529	7.2
Severe	39	0.1	-	-	39	0.2
Hospital Type						
Class A	803	1.4	-	-	803	3.8
Class B	4,053	6.9	-	-	4,053	19.1
Class C	39,137	66.4	26,367	69.7	12,770	60.3
Class D	14,984	25.4	11,440	30.3	3,544	16.7

Figure 2 showed the distribution of caesarean section severity level throughout the three years period from 2016-2018. As shown in figure 2, the majority of caesarean section incidents in each year were mild, only small percentage accounted for both moderate and severe cases. In 2016, from the total of 15,925 caesarean section incidents,

15,561 (97.7%) cases were mild, 356 (2.2%) cases were moderate, and only 8 cases (0.1%) cases were severe. In 2017, out of 20,016 total cases, 17,823 (89%) cases were mild, 2,177 (10.9%) cases were moderate, and 16 (0.1%) cases were severe. While in 2018, from the total of 23,036 cases, 21,219 (92.1%) cases were mild, 1,802 (7.8%) were moderate, and 15 (0.1%) were severe.

Figure 2. Severity Level of Caesarean Section Cases in West Sumatra

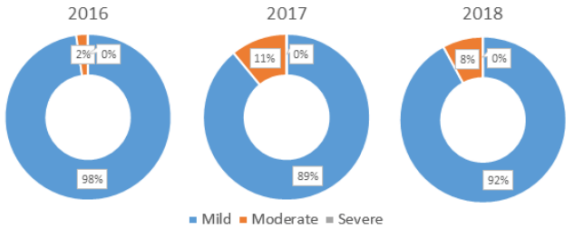
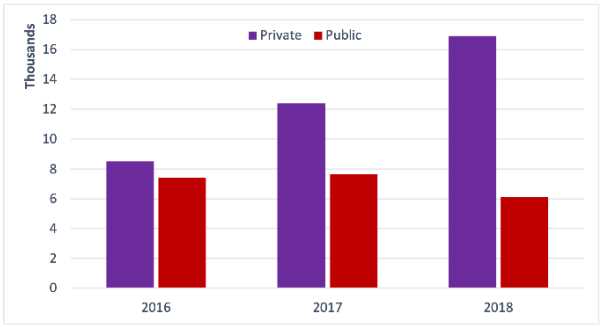


Figure 3. Caesarean section trend in private and public hospitals in West Sumatra



Caesarean section trend in both private and public hospitals were shown in figure 3. In 2016, 54% (8,520/15,925) cases occurred in private hospitals while the other 46% (7,405/15,925) cases occurred in public hospitals. In 2017, as the total caesarean section incidents increased to 20,016 cases, both private and public hospitals also showed increasing cases. 62% (12,381) cases were performed in private hospitals, while 38% (7,635) cases were performed in public hospitals. In 2018, private hospitals were showing increasing number of caesarean section incidents with 73% (16,906/23,036) cases. However, public hospitals were showing a decreasing trend with 27% (6,130/23,036) caesarean section incidents.

Figure 4 showed the trend of caesarean section incidents in private hospitals based on hospital type. Private hospitals in West Sumatra only consist of class C and class D hospitals. Class C hospitals had increasing caesarean section incidents from 5,119 cases in 2016 to 8,992 cases in 2017 and finally reached 12,356 cases in 2018. In class D hospitals, the increasing trend was more slightly, from 3,401 cases in 2016 to 3,489 cases in 2017 and 4,550 cases in 2018.

Figure 4. Caesarean section cases in private hospitals in West Sumatra

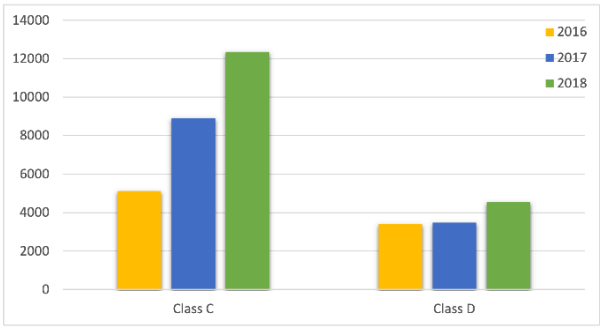
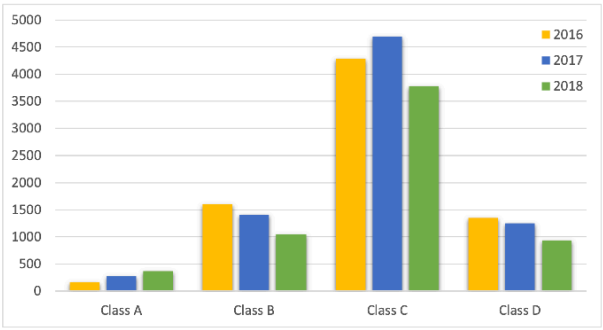


Figure 5. Caesarean section cases in public hospitals in West Sumatra



Caesarean section incidents in public hospitals was seen in figure 5. The only increased caesarean section incidents were occurred in class A hospitals, from 162 cases in 2016 to 273 cases in 2017 and 368 cases in 2018. On the contrary, class B hospitals showed a decreasing trend from 1,599 cases in 2016 to 1,409 cases in 2017 and 1,045 cases in 2018. Class C hospitals were showing an increasing caesarean section incident from 4,289 cases in 2016 to 4,700 cases in 2017, but decreased to 3,781 cases in 2018. Class D hospitals also showed a decreasing trend from 1,355 cases in 2016 to 1,253 cases in 2017 and only 936 cases in 2018.

Table 2 showed the amount of cost paid by BPJS to all 51 hospitals for caesarean section incidents in 2018. The total amount of caesarean section cost was reaching IDR 125,017 million (1 IDR = 1 IDR = 0.000064 USD), where 74.4% (IDR 92,963 million) went to private hospitals and remaining 25.6% (IDR 32,054 million) went

to public hospitals. Based on severity level, most of the cost were paid for mild cases with IDR 114,318 million (91.4%), followed by moderate cases with IDR 10,533 million (8.4%), and severe cases with IDR 166 million (0.1%). The same proportion also happened in both private hospitals and public hospitals. In private hospitals, IDR 85,872 million (92.4%) were accounted for mild cases and only IDR 7,091 million (7.6%) for moderate cases. In public hospitals, IDR 28,446 million (88.7%) were paid for mild cases, IDR 3,442 (10.7%) were paid for moderate cases and only IDR 166 million (0.5%) for severe cases.

Table 2. Cost of Caesarean Section in West Sumatra 2018

	Overall		Private Hospital		Public Hospital	
	Cost*	%	Cost*	%	Cost*	%
Caesarean Section	125,017		92,963	74.4	32,054	25.6
Severity						
Mild	114,318	91.4	85,872	92.4	28,446	88.7
Moderate	10,533	8.4	7,091	7.6	3,442	10.7
Severe	166	0.1	-	-	166	0.5
Hospital Type						
Class A	2,633	2.1	-	-	2,633	8.2
Class B	5,373	4.3	-	-	5,373	16.8
Class C	89,610	71.7	70,009	75.3	19,601	61.2
Class D	27,401	21.9	22,954	24.7	4,447	13.9

*cost unit in million IDR

Figure 6. Caesarean section cost based on hospital type

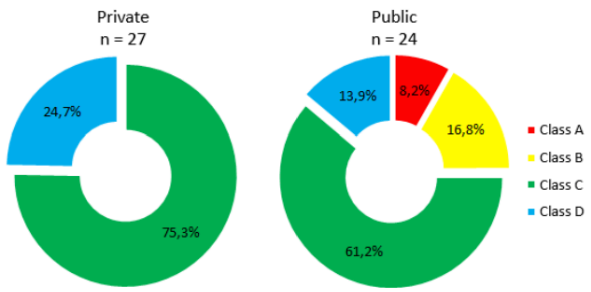


Figure 6 showed the cost proportion of caesarean section in 2018 for private and public hospitals based on hospital type. In private hospitals, 75.3% (IDR 70,009 million) of the cost were paid to class C hospitals while the remaining 24.7% (IDR 22,953 million) went to class D hospitals. In public hospitals, the largest caesarean section cost was accounted to class C hospitals with 61.2% (IDR 19,601 million), followed by class B hospitals with 16.8% (IDR 5,372 million), then class C hospitals with 13.9% (IDR 4,447 million), and class D hospitals with 8.2% (IDR 2,633 million).

Discussion

In West Sumatra, there is only one class A hospital and three class B hospitals recorded for caesarean section cases in West Sumatra. Dr. M. Djamil Hospital was the only class A hospital and also the largest in the province. Therefore, a severe caesarean section could only be performed in this hospital. Meanwhile, there is only three class B hospitals which recorded for caesarean section incidents in West Sumatra, namely Achmad Mochtar Hospital, Pariaman Hospital, and Solok Hospital. Solok Hospital was having the highest caesarean section incidents with 1,590 cases from 2016 to 2018, followed by Pariaman Hospital with 1,247 cases and Achmad Mochtar with 1,216 cases during the same period.

Class C hospitals that were having the most caesarean section incidents from 2016 to 2018 are Siti Hawa Hospital (4,393 cases), followed by Rizki Bunda Hospital (3,417 cases), and Ibnu Sina Padang Islamic Hospital (3,351 cases). Those three hospitals accounted for 28.5% of caesarean section incidents of class C hospitals or 42.3% among all private hospitals in class C. In class D hospitals, most caesarean section was occurred in Bhayangkara Hospital (3,148 cases), Ibnu Sina Sp. Empat Hospital (2,575 cases), and Aisyiyah Pariaman Hospital (2,181 cases). Those accounted for 52.7% caesarean section incidents in all class D hospitals or 69.1% of private hospitals in class D.

High number of caesarean section incidents reported in this study also reflected the global trends of increasing caesarean sections in the United States[3], Europe[4,5], Latin America[6–8], Mexico[9], Africa[10], South Asia[11], Southeast Asia[12], and China[13,14]. This study results also consistent with earlier studies performed in Indonesia showing the increasing trend of caesarean section incidents[15] while on the other hand,

birth rate increased from 22% in 1986 to 73% in 2012[16,17]. A specific study in China suggested that socio-economic factors were the most possible cause of this increasing in caesarean section incidents[13].

Examining the differences between caesarean section trends in private hospitals and public hospitals, several factors might be associated as the main cause. Two separate studies in Brazil concluded that non-medical factors had more influence rather than medical factors[7,8]. Factors such as doctor's availability and maternal desire were claimed as the reason mothers chose private hospitals over public hospitals. This situation might be the same with this study, where in West Sumatra, the number of private hospitals were more than public hospitals. However, some other factors such as services quality and hospitals efficiency need to be examined further in relation with different trends in caesarean section incidents between private hospitals and public hospitals.

Comparing the cost proportion between private hospitals and public hospitals, there is only slight difference between these two types of hospitals in West Sumatra, mainly because private hospitals did not have class A and class B hospitals. For private hospitals, more than three quarter of caesarean section cost went to class C hospitals while the remaining went to class D hospitals. Class C hospitals also dominant among public hospitals where almost two third of the total cost were paid to these type of hospitals. Second highest amount of cost paid in 2018 went to class B hospitals with almost 17% shared, followed by class D with around 14%. Class A hospitals, despite only having 1.6% of caesarean incidents in 2018, however, contributed to more than 8% of caesarean section cost in public hospitals.

Conclusion

From 60 hospitals that cooperate with BPJS, we found that 51 hospitals are available to perform caesarean section. Even though the number of hospitals is almost the same between private and public hospitals, there is a huge difference in terms of caesarean section incidents from 2016-2018. While caesarean section incidents shows a significant increase in private hospitals within three years, public hospitals indicated a decreasing number of cases within the same period. These findings lead to the amount of cost paid by BPJS. Almost three quarter of the total cost went to private hospitals and only 25.6% were paid to public hospitals. The differences between private and public hospitals might indicate the services quality as well as the level of efficiency between types of hospital. Future study is suggested to examine caesarean section unit cost in each hospitals to measure the efficiency level under INA-CBGs system.

Acknowledgement

The authors would like to acknowledge that this research is funded by LPPM (Lembaga Penelitian dan Pengabdian Masyarakat) Universitas Andalas under Penelitian Skim Dosen Pemula, No. 1097/UN16.02.D/PP/2020.

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