

# Analysis of Differences Between Hospital Rates and INA-CBG's Claim of Sectio Caesarea

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**Abstract.** Hospitals as advanced referral facilities have an important role in implementing the National Health Insurance (JKN) programme. For payment of advanced health services for JKN participants at the hospital, BPJS makes payments based on the Indonesian case-based groups (INA-CBG's) package. However, the problem that is often found in hospitals is the difference between hospital rates and INA-CBG's claim. This study aims to determine and analyse the difference between hospital rates and INA-CBG's claim for sectio caesarea cases at Bhayangkara Polda DIY Hospital. This study was a descriptive quantitative study with a retrospective approach. The object of the study was the BPJS patient's inpatient claim file for sectio caesarea cases at Bhayangkara Polda DIY Hospital in the fourth quarter of 2023. The number of samples was 39 patients using the total sampling technique. The results showed a significant difference ( $p < 0,05$ ) between hospital rates and INA-CBG's claim for sectio caesarea cases at Bhayangkara Polda DIY Hospital. The difference between hospital rates and INA-CBG's claim caused a negative difference of Rp.10,865,028,00. There is a negative difference between the hospital rates and the INA-CBG's claim for sectio caesarea cases at Bhayangkara Polda DIY Hospital, so the hospital suffers a loss.

**Keywords:** Rates, Claim, Sectio Caesarea, Hospital, INA-CBG's

## BACKGROUND

The Government of the Republic of Indonesia implemented the National Health Insurance/Jaminan Kesehatan Nasional (JKN) programme in 2014 to gradually provide health protection for all Indonesians [1]. The JKN programme is part of the National Social Security System/ Sistem Jaminan Sosial Nasional (SJSN) which is implemented through a mandatory social health insurance mechanism based on the Law of the Republic of Indonesia Number 40 of 2004 on the National Social Security System. The JKN programme is organised by Health Social Security Administration/Badan Penyelenggara Jaminan Sosial Kesehatan (BPJS) with the aim of realising equal rights for everyone in obtaining safe, quality, and affordable health services [2]. In the JKN era, hospitals as advanced referral facilities have an important role in the implementation of the JKN programme. To pay for health services for JKN participants who are treated in hospitals, BPJS uses a casemix system with Indonesian case-based groups (INA-CBG's) package [3]. The casemix system is a grouping based on the diagnosis and treatment actions suffered by the patient [4]. With the casemix system, hospitals will get payment based on the INA-CBG's tariff which refers to the average cost spent by a diagnosis group.

The implementation of JKN in hospitals provides convenience in health services and has an impact on increasing the number of visitors. In providing services, hospitals are certainly required to provide quality and affordable care services. This situation is a challenge for every hospital because it must provide the best service. However, hospitals must still pay attention to the profit factor for the purposes of future hospital management [5]. One of the problems that is often found in hospitals is the difference between hospital rates and INA-CBG's rates, which causes hospitals to experience losses. According to the results of research by Munawaroh et al. (2019), there is a negative difference in income in ischaemic stroke cases based on the INA-CBG's claim with the real hospital rates of Rp.116,374,330,00 so that the hospital experiences a loss. The large difference in hospital income will affect financial management and operational processes in the future [6]. This difference between costs and claims encourages hospitals to manage their costs through cost control measures, including improving efficiency, payment systems, and standardisation of services [7]. A large negative rate difference between the real hospital rate and the INA-CBG's claim in high-cost cases can potentially cause losses to the hospital [8].

Based on preliminary studies at Bhayangkara Polda DIY Hospital in January 2024, it is known that the results of the number of inpatient claims submitted were 215 files with the results of the INA-CBG's claim of Rp. 651,634,800,00, where the total costs incurred by the hospital were Rp. 812,984,132,00, resulting in a negative difference of Rp. 161,349,332,00. This negative difference occurs because the amount of hospital costs is higher than the results of the INA-CBG's rates. One of the cases that caused a negative difference was the payment of claims for sectio caesarea cases totalling 13 files amounting to Rp. 3,735,473.00. The amount of negative difference costs can cause the hospital to experience losses. The cost difference

will affect the hospital’s financial management and service quality. One of the things that needs to be done is to analyse the difference between hospital rates and INA-CBG’s claim for section caesarea cases. Therefore, this study aims to determine and analyse the difference between hospital rates and INA-CBGs claim for sectio caesarea cases at Bhayangkara Polda DIY Hospital.

## II.METHOD

This research is descriptive quantitative research with a retrospective approach. This research was conducted at Bhayangkara Polda DIY Hospital which was conducted from February to April 2024. The population in this study were 39 BPJS patient inpatient claim files for sectio caesarea cases at Bhayangkara Polda DIY Hospital in the fourth quarter of 2023. The sample in this study totalled 39 files using the total sampling technique. Data collection through observation and documentation studies. The data analysis techniques used were univariate analysis and bivariate analysis. The bivariate test used is the Mann-Whitney test to analyse the difference between hospital rates and INA-CBGs claims. The level of significance used is 95% with a significance value of  $\alpha = 0.05$  (5%).

## III.RESULTS AND DISCUSSION

### Characteristics of Patient

Based on the review of BPJS patient inpatient claim files for sectio caesarea in the fourth quarter of 2023, the patient characteristics based on age, treatment class, severity level, and Avlos are presented in Table 1.

**Table 1.** Characteristic of Patients

Characteristics	Frequency	Percentage (%)
<b>Age (Year)</b>		
< 20	1	3
20-35	28	72
>35	10	25
<b>Treatment Class</b>		
1	4	10
2	10	26
3	25	64
<b>Severity Level</b>		
I (mild)	37	95
II (moderate)	2	5
<b>AvLOS</b>		
3 days	11	28
4 days	28	72

Source: Primary Data, 2024

Table 1 shows characteristics of sectio caesarea patients at Bhayangkara Polda DIY Hospital are mostly at the age of 20-35 years as much as 72% and the least age at the age of <20 years as much as 3%. Similar results were also obtained in Utami & Fanny's (2021) research where most mothers with cesarean section were aged 20-35 years [9]. Birth mothers aged 20-35 years are the ideal age to undergo pregnancy and childbirth because the condition of the uterus is perfect. Mothers who become pregnant at a high-risk age can cause complications for both the mother and the baby, this is because mothers who are too young (<20 years) do not have mature reproductive organs and the condition of the uterus is not perfect for pregnancy and childbirth. Meanwhile, 35 years old and above is a high-risk age for giving birth because the mother is more susceptible to degenerative diseases and the mother's body condition also decreases [10].

The right age for a mother to give birth is at the age of 20-35 years because she has mature organs and does not have a high-risk during pregnancy and childbirth. However, if the mother's health condition does not allow and there are complicating factors that can cause death or pain to the mother and baby, then delivery is carried out by sectio caesarea [11]. Therefore, age can be one of the indications or causes of a mother to get a cesarean section. Most of the sectio caesarea patients

in Bhayangkara Polda DIY Hospital are class 3 patients as much as 64% and the least patients are in class 1 as much as 10%. Severity level of sectio caesarea cases were mostly found in level I (mild) as much as 95%. Severity level is a classification that shows the severity of a disease [12]. In the JKN program, the severity level is shown in the Roman numeral in the last digit where Roman numeral "I" indicates mild severity, Roman numeral "II" indicates moderate severity, and Roman numeral "III" indicates severe severity. This severity determines the size of the patient's INA-CBGs rates, the higher the severity, the higher the cost of patient care in the hospital and the higher the INA-CBG's claim rate obtained.

Based on Table I, the average length of stay (AvLOS) of cesarean section patients at Bhayangkara Polda DIY Hospital is mostly for 4 days (72%). The length of treatment days for cesarean section patients ranges from 3-7 days [13]. At the hospital rates, the length of treatment can affect the variation in hospital rates because the longer the treatment, the higher the resulting rates, while at the INA-CBG's claim results will remain the same according to the patient's class of care and severity level.

### Differences Between Average Hospital Rates and INA-CBG's Claim Based On INA-CBG's Coding

An analysis of disease costs based on INA-CBG's claim is necessary to understand the rates set for JKN patients based on the grouping system and the actual costs incurred by hospitals as healthcare providers for disease treatment. INA-CBG's claim are set by the government based on each primary diagnosis and secondary diagnosis code, severity level, and hospitalisation class entitlement [14]. Hospital rates depend on the length of stay of the patient; the longer the patient is treated, the higher the rates. Meanwhile, INA-CBG's claims are not affected by length of stay because INA-CBG's claim are adjusted by diagnostic codes and procedural codes only [15].

INA-CBG's grouping is based on the results of the coding of diagnoses and actions that refer to ICD-10 and ICD-9CM. According to WHO, the coding of labour cases consists of complication or condition codes (O00-O99), method of delivery (O80-084), and outcome of delivery (Z37.-) [16]. The coding rule that applies to childbirth cases is that if there is a complication or complication, the complication or complication becomes the main diagnosis, while the method and outcome of childbirth become secondary diagnoses [17]. This coding affects the severity level and the INA-CBG's rate. Based on observations in the claims department at Bhayangkara Polda DIY Hospital, cases of childbirth with cesarean section are divided into two severity levels, namely mild caesarean section with.

**Table 2.** Differences Between Average Hospital Rates and INA-CBGs Claim Based on INA-CBG's Coding

INA-CBG's Coding	Treatment Class	Frequency (n = 39)	Average Hospital Rate (IDR)	Average INA-CBG's Claim (IDR)	Total Difference (IDR)
<b>O-6-10-I (Mild)</b>	1	4	6.455.932	6.013.100	(-) 442.832
	2	9	5.641.179	5.267.100	(-) 374.079
	3	24	4.680.692	4.521.100	159.592
<b>O-6-10-II (Moderate)</b>	2	1	5.960.038	4.782.900	(-) 1.177.138
	3	1	6.291.735	5.572.100	(-) 719.635

Source: Primary Data, 2024

**Table 3.** Differences in Hospital Rates and INA-CBG's Claim for Sectio Caesarea Cases

n	Total Hospital Rate (IDR)	Total INA-CBG's Claim (IDR)	Total Difference (IDR)	Percentage (%)	p-value
<b>39</b>	201.182.728	190.317.700	(-) 10.865.028	5	0.0242

Source: Primary Data, 2024

Based on the Table 2, it can be seen that there is a difference in the average hospital rates and INA-CBG's claim for sectio caesarea patients based on INA-CBG's coding where most of the claims come from mild sectio caesarea patients in treatment class 3 with INA-CBG's code O-6-10-I. Class 3 mild cesarean section patients (O-6-10-I) had a positive difference of Rp. 159,592 with an average hospital rate of Rp. 4,680,692 and an average INA-CBGs claim value of Rp. 4,521,100. However, Overall The Cost Difference Obtained Based On Ina-Cbg's Coding Has A Negative Difference For Hospitals. The Most Negative Difference Came From Moderate Sectio Caesarea Patients In Treatment Class 2 With Ina-Cbg's Code O-6-

10- Ii Of Rp. 1,177,138.00. One Of The Factors Causing This Negative Difference Is Because The Severity Of The Diagnosis Also Determines The Size Of The Patient's Ina-Cbgs Tariff, The Higher The Severity, The Higher The Cost Of Patient Care In The Hospital [18].

#### **Differences In Hospital Rates And Ina-Cbg's Claim For Sectio Caesarea Cases**

The results of statistical analysis in table 3 shows a statistically significant difference ( $p$ -value = 0.0242;  $\alpha < 0.05$ ) between hospital rates and ina-cbg's claim rates obtained from the mann-whitney test results. the total hospital rates of rp. 201,182,728,00 compared to the total claim rate in the ina-cbg's system of rp. 190,317,700,00 resulting in a negative difference of rp. 10,865,028,00. the rates difference reached 5% of the total hospital rates. the negative tariff difference occurred because the total service costs incurred by the hospital for sectio caesarea cases were greater than the total ina-cbg's costs paid by bpjs kesehatan. this negative difference can have a loss impact on the hospital.

This is also like research conducted by nilansari et al. (2021) which shows that the hospital rates are greater than the ina-cbg's claim for inpatient hypertension patients with a negative difference of idr.30,993,964 [19]. previous studies have also revealed a negative difference between actual hospital costs and ina-cbg's claim rates for ina-cbg's code o-6-10-i and moderate caesarean section with ina-cbg's code o-6-10-ii.

Obstetric procedures for both vaginal and cesarean delivery [20][4][7]. With the difference in rates, hospital management needs to evaluate and determine a planning programme for handling it so as not to cause losses to the hospital. With the difference in rates, hospital management needs to evaluate and determine a planning programme for handling it so as not to cause losses to the hospital.

One way to overcome the difference between hospital rates and INA-CBG's claim is to maximise the use of clinical pathways. Clinical pathway is a patient handling step consisting of therapy protocols and patient service standards from admission to discharge [21]. With the clinical pathway, the amount of treatment and care costs can be predicted accurately [12]. The implementation of clinical pathway can increase the efficiency of using the length of days treated without reducing its quality. Health workers' adherence to clinical pathways and effective and efficient health service management can help hospitals overcome losses in the National Health Insurance system.

### **IV. CONCLUSIONS AND SUGGESTIONS**

There is a significant ( $p < 0,05$ ) difference between hospital rates and the INA-CBGs rates for sectio caesarea cases at RS Bhayangkara Polda DIY. There is a negative difference between hospital rates and INA-CBG's claim for sectio caesarea cases, so that hospitals suffer a loss. to overcome the difference between hospital rates and INA-CBG's claim is to maximise the use of clinical pathway.

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### **REFERENCES**

- [1] Irwandy I. Kajian Literature: Evaluasi Pelaksanaan Program Jaminan Kesehatan Nasional di Indonesia. Jurnal Kebijakan Kesehatan Indonesia: JKKI 2016;5:110-4.
- [2] Kementerian Kesehatan Republik Indonesia. Buku Panduan Jaminan Kesehatan Nasional (JKN) Bagi Populasi Kunci. Jakarta: 2016.
- [3] Rahayuningrum IO, Tamtomo D, suryono A. Comparison Between Hospital Inpatient Cost and INA-CBGs Tariff of Inpatient Care in the National Health Insurance Scheme in Solo, Boyolali and Karanganyar Districts, Central Java. Journal of Health Policy and Management 2016;01:102-12. <https://doi.org/10.26911/thejhpm.2016.01.02.05>.
- [4] Monica RD, Firdaus FM, Lestari IP, Suryati Y, Rohmayani D, Hendrati A. Analisis Perbedaan Tarif Riil Rumah Sakit dengan Tarif Ina-CBG's Berdasarkan Kelengkapan Medis Pasien Rawat Inap pada Kasus Persalinan Sectio Caesarea guna

- Pengendalian Biaya Rumah Sakit TNI AU Dr. M. Salamun Bandung. *Jurnal Manajemen Informasi Kesehatan Indonesia* 2021;9:96. <https://doi.org/10.33560/jmiki.v9i1.289>.
- [5] Sulistiadi W, Sangadji I. Strategi Atasi Perbedaan Unit Cost Sectio Caesaria dengan Klaim berdasarkan Tarif INA-CBG's pada Pasien BPJS di Rumah Sakit Khusus Ibu Dan Anak Bunda Liwa. *Jurnal Manajemen Dan Administrasi Rumah Sakit Indonesia (MARS)* 2019;3:142–54.
- [6] Munawaroh R, Sulistiadi W, Rachmad. Perbedaan Tarif INA–CBG's Dengan Tarif Riil Rumah Sakit Pada Pasien BPJS Kasus Stroke Iskemik Rawat Inap Kelas I Di RS PON Tahun 2018. *Jurnal Manajemen Dan Administrasi Rumah Sakit Indonesia (MARS)* 2019;3:155–64.
- [7] Kismarahardja JS, Lorensia A, Suryadinata RV. Analysis of Differences in Riil Costs of Hospital with INA-CBG'S Rate in Sectio Caesarea. *Teikyo Medical Journal* 2021;44:2259–69.
- [8] Aisyah N, Andayani TM, Puspendari DA. Analisis Biaya Kemoterapi Pada Pasien Rawat Inap Kanker Payudara Peserta JKN di RSUD Ulin Banjarmasin. *Jurnal Ilmiah Ibnu Sina* 2018;3:333–42.
- [9] Utami YT, Fanny N. Faktor Penyebab Perbedaan Selisih Klaim Negatif Tarif Ina-Cbgs dengan Tarif Riil di RSUD Dr. Moewardi. *Jurnal Sains Dan Kesehatan* 2021;3:492–9. <https://doi.org/10.25026/jsk.v3i3.605>.
- [10] Khoiriah A. Hubungan Antara Usia dan Paritas Ibu Bersalin dengan Bayi Berat Lahir Rendah (BBLR) di Rumah Sakit Islam Siti Khadijah Palembang. *Jurnal Kesehatan* 2017;8:310–4.
- [11] Wahyuni R, Rohani S. Faktor-faktor yang berhubungan dengan riwayat persalinan sectio caesarea. *Wellness And Healthy Magazine* 2019;1:101–7.
- [12] Agiwahyunto F, Widianawati E, Wulan WR, Putri RB. Tarif rumah sakit dengan tarif Ina-CBGs pasien rawat inap. *HIGEIA (Journal of Public Health Research and Development)* 2020;4:520–32.
- [13] Karminingtyas SR, Oktianti D, Furdianti NH. KEEFEKTIFAN PENGGUNAAN ANTIBIOTIK PROFILAKSIS PADA PASIEN BEDAH SESAR (SECTIO CAESAREA). *Cendekia Journal of Pharmacy* 2018;2:22–31. <https://doi.org/10.31596/cjp.v2i1.14>.
- [14] Muslimah AT, Pinzon R, Endarti D. Perbandingan Biaya Riil Terhadap Tarif INA-CBG's Penyakit Stroke Iskemik di RS Bethesda Yogyakarta [Comparison of Real Costs Against INA-CBG's Ischemic Stroke Rates at Bethesda Hospital Yogyakarta]. *Jurnal Manajemen Rumah Sakit Universitas Gajah Mada* 2017;7.
- [15] Kusuma AAMW, Ariawati K. Penelitian Perbedaan Tarif Riil dan INA-CBG's Penyakit Talasemia di Ruang Perawatan Anak RSUP Sanglah Bali Tahun 2017. *Jurnal Penelitian Dan Pengembangan Pelayanan Kesehatan* 2018:95–101. <https://doi.org/10.22435/jpppk.v2i2.171>.
- [16] World Health Organization. International Statistical Classification of Diseases and Related Health Problems 10th Revision Volume 2 Instruction Manual Fifth Edition 2016. vol. 2. World Health Organization; 2016.
- [17] Kementerian Kesehatan Republik Indonesia. Peraturan Menteri Kesehatan Republik Indonesia Nomor 76 tahun 2016 tentang Pedoman Indonesian Case Base Group (INA CBG) dalam Pelaksanaan Jaminan Kesehatan Nasional. Jakarta: 2016.
- [18] Nugraheni WP, Mubasyiroh R, Hartono RK. The influence of Jaminan Kesehatan Nasional (JKN) on the cost of delivery services in Indonesia. *PLoS One* 2020;15:e0235176. <https://doi.org/10.1371/journal.pone.0235176>.
- [19] Nilansari AF, Yasin NM, Puspendari DA. Analisis Tarif INA-CBGs Pasien Hipertensi Rawat Inap di Rumah Sakit Umum Daerah Panembahan Senopati. *Indonesian Journal of Clinical Pharmacy* 2021;10:22. <https://doi.org/10.15416/ijcp.2021.10.1.22>.
- [20] Surya R, Gani A, Saroyo YB. Hospital Cost vs INA-CBGs Claim for Obstetrics Procedure In Soe Rural General Hospital, East Nusa Tenggara. *Indonesian Journal of Obstetrics and Gynecology* 2023.

- [21] Astuti ND, Irmawati I, Apifah A. Analisis Tarif Rumah Sakit dan Tarif Ina CBGs Kasus Gagal Jantung Kongestif. *Jurnal Rekam Medis Dan Informasi Kesehatan* 2021;4:44–51. <https://doi.org/10.31983/jrmik.v4i1.6788>.