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Research Article

Analysis of National Health Insurance Reimbursement Patterns for Inpatient Services at Surakarta General Government Hospital

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Abstract: The National Health Insurance (JKN) program, administered by BPJS Kesehatan, has significantly expanded public access to healthcare services, particularly inpatient care. This study aims to analyze inpatient JKN reimbursement patterns at Surakarta General Government Hospital during the period of 2020 to 2024. The analysis focuses on five main variables: INA-CBGs grouping codes, class of care, severity level, INA-CBGs tariff, and actual hospital costs. A descriptive-analytic method with a quantitative approach was employed, utilizing secondary data extracted from the INA-CBGs system. The results indicate that inpatient reimbursements were predominantly concentrated in Class 3 services (64%–70%) and severity level 1 (45%–59%). From 2020 to 2022, respiratory-related cases dominated, likely due to the COVID-19 pandemic, while in 2023–2024 a shift occurred toward non-communicable diseases such as cardiovascular and metabolic conditions. A consistent negative tariff gap was identified, particularly in Class 3 and severity level 1, where INA-CBGs reimbursements were insufficient to cover actual service costs. These findings underscore the importance of periodic review of INA-CBGs tariff structures, reinforcement of Quality and Cost Control (KMKB), and optimization of reimbursement management information systems to enhance service efficiency and ensure the financial sustainability of JKN, especially in Type C hospitals that serve as the primary level of healthcare delivery.

Keywords : INACBGs; JKN; Reimbursement patern; Tariff gap

1. Introduction

The Indonesian National Health Insurance (JKN) programme, organised by the Health Social Security Agency (BPJS Kesehatan), aims to provide comprehensive health protection for the entire population. This programme is mandated by Law Number 40 of 2004 concerning the National Social Security System (SJSN) and is reinforced by Presidential Regulation Number 82 of 2018 concerning Health Insurance. Since its launch in 2014, the JKN programme has undergone significant developments in terms of policies, membership coverage, and financing mechanisms.

As of 2023, the number of JKN participants has exceeded 230 million, making it one of the largest health insurance systems in the world. JKN has partnered with more than 98% of hospitals in Indonesia. This extensive coverage has led to increased access to health services and a higher volume of claims, especially for inpatient services, which account for over 70% of total payments. However, this also presents new challenges related to the efficiency of claims management and the sustainability of financing.

Various studies have shown that JKN claims management still faces several issues, such as delays in document verification, discrepancies with Indonesian Case-Based Groups (INA-CBGs) rates, and high rates of claim revisions and rejections. Factors such as the completeness of claim documents, accuracy of diagnosis codes, and limitations in hospital information systems contribute to delays in claim payments.

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Changes in disease patterns also affect JKN reimbursement trends, showing a shift from infectious diseases to non-communicable diseases such as hypertension and diabetes mellitus. These diseases require long-term treatment and have significant implications for healthcare financing. Therefore, analysing JKN claims data is essential to improve service efficiency and effectiveness, and to support data-driven decision-making.

In this context, Surakarta General Government Hospital (RSUP Surakarta), which became fully operational in 2020, serves as a significant subject of study. As a newly established public hospital, RSUP Surakarta has developed a wide range of essential and specialised services. This study aims to understand the reimbursement patterns of JKN for inpatient services at RSUP Surakarta during the period 2020–2024. The research question is: "What are the JKN reimbursement patterns for inpatient services at Surakarta General Government Hospital from 2020 to 2024?" with specific objectives to analyse reimbursement patterns based on INA-CBGs grouping codes and to examine the differences in reimbursement rates compared to hospital rates based on class of care and severity level..

2. Preliminaries or Related Work or Literature Review

This study has a different contribution from previous studies, because it focuses more on analysing JKN reimbursement patterns by examining 5 variables (grouping code, class of care, severity level, reimbursement rate, hospital rate.) The data analysed is specific to inpatient data for a certain period of time. The method used was descriptive analytics with a quantitative approach. The main findings to be analysed are trends and patterns in JKN services in hospitals, which can be further used to study constraints, as well as optimisation strategies in JKN services. This research is based on the following theoretical studies.

Inpatient Care

Inpatient care is an essential form of medical service provided by hospitals for patients with acute or chronic conditions that require ongoing care (Indonesian Ministry of Health, 2021; World Health Organization, 2020). These services include beds, medical personnel, equipment, and support systems that ensure patient safety and comfort. In Indonesia, hospitalisation is divided into several classes-VIP, I, II, and III-which are differentiated based on facilities and comfort, but still follow established medical service standards (Moeloek, 2018; Ministry of Health, 2019). The National Health Insurance (JKN) scheme managed by BPJS Kesehatan guarantees access to inpatient services for the entire community, including intensive care, surgery, pharmacy, and rehabilitation (BPJS Kesehatan, 2023; Haryanto, 2020).

JKN inpatient services in practice face challenges such as limited BPJS partner facilities, long queues, and delays in reimbursement payments (Indonesian Ministry of Health, 2021; Sari, Nugroho & Utami, 2020). Hospitals are required to maintain service quality amid these limitations through management efficiency and service system improvement (Haryanto, 2020). Inpatient quality is influenced by medical personnel, patient satisfaction, and facility management. Anderson's (2021) study shows that patient satisfaction is influenced by the response of health workers, room comfort, and effective communication. Smith and Brown (2021) emphasised the importance of HR training and health technology, while Jones (2017) highlighted the negative impact of high bed occupancy rates (BOR). Facing these challenges, hospitals need to implement efficient management, strengthen referral systems, and continue to transform to improve the quality of inpatient services (Indonesian Ministry of Health, 2021).

Social Health Insurance in Indonesia

Jaminan Kesehatan Nasional (JKN) is a social health insurance programme in Indonesia managed by BPJS Kesehatan, which aims to provide access to quality and equitable health services for the entire population without being constrained by high costs (Naralita, Budi & Safriantini, 2019; BPJS Kesehatan, 2023). JKN is part of the National Social Security System (SJSN) which is regulated in Law No. 17 of 2023 (Haryanto, 2020). The programme adheres to the principles of social insurance and equity, with a mutual assistance system where well-off participants help less well-off participants (Nugroho, 2020). Participation is compulsory and includes four main categories, namely PBI (government-borne contributions for the

poor), PPU (formal workers, contributions are shared with employers), PBPU (independent workers pay their own contributions), BP (participants without fixed income such as retirees).

BPJS Kesehatan is responsible for JKN operations, including enrolment, contribution management, and payment of health service reimbursements (Mitriza & Akbar, 2019). To prevent fraud, BPJS conducts regular verification of reimbursements. JKN implementation is overseen by the Indonesian Ministry of Health, which regulates service standards and referral systems, and by the National Social Security Council (DJSN), which provides policy recommendations and evaluates JKN's financial sustainability (Naralita, Budi & Safriantini, 2019; DJSN, 2019). The JKN financing scheme consists of participant contributions and is supported by two payment systems: capitation for First Level Health Facilities (FKTP), and Ina-CBGs for advanced referral services (Haryanto, 2020). Financial oversight is conducted by BPKP and BPK to ensure transparency and accountability of funds (Supreme Audit Agency, 2020).

INACBGs

Indonesia Case-Based Groups (INA-CBGs) is a package-based payment system within the National Health Insurance (JKN) framework that was implemented to replace the fee-for-service payment model in hospitals (Ministry of Health, 2021; BPJS Kesehatan, 2023). The system was developed to improve financial efficiency and transparency of health services by categorising patients based on the final diagnosis and medical procedures performed at advanced referral health facilities (Ministry of Health, 2019). Through INA-CBGs, each group of cases is assigned a fixed rate that reflects the complexity of the disease, clinical severity, and type of medical intervention provided. As such, hospitals receive payment based on the category of service rather than the number of procedures performed, thereby reducing the potential for over-treatment and promoting operational efficiency (Haryanto, 2020).

The implementation of INA-CBGs is under the supervision of BPJS Kesehatan and the Ministry of Health, which are responsible for setting tariffs and ensuring that they are in line with the actual cost of services. However, the implementation of this system still faces various obstacles, including tariff discrepancies between regions, inaccuracies in diagnosis coding, and the risk of under-treatment due to cost efficiency pressures (Jones, 2017). In response to these challenges, the INA-CBGs system has undergone several updates to improve tariff accuracy and ensure access to quality health services (Ministry of Health, 2021).

The basis of classification in this system uses the 2010 version of the ICD-10 reference for di-agnosis and the 2010 version of the ICD-9-CM for medical actions/procedures. The case grouping process was carried out through the INA-CBGs Application, which resulted in a total of 1,075 case groups, consisting of 786 inpatient groups and 289 outpatient groups, each assigned an alphanumeric combination code to identify the specific type of case (Indonesian Ministry of Health, 2021).

Reimbursement Data Analysis

Reimbursements data analysis in the National Health Insurance (JKN) system plays a crucial role in evaluating the cost-effectiveness and quality of health services provided to participants. JKN reimbursements data includes comprehensive information on reimbursement amounts, diagnoses, types of medical procedures, treatment costs, and service utilization patterns, all of which can be utilised to understand spending trends, detect savings, and improve the efficiency of health resource allocation (BPJS Kesehatan, 2023; Rahmadani, Lestari, & Kusuma, 2021). Given that the JKN payment scheme is based on the Indonesia Case-Based Groups (INA-CBGs) system, which sets fixed rates based on diagnosis and severity, reimbursements analysis can also be utilised to assess the effectiveness of this system in reflecting participants' medical needs (Haryanto, 2020). In addition, this analysis is also an important tool in detecting potential fraud by providers (Nugraha, Putri, & Hidayat, 2019).

Previous studies have shown that reimbursements data analysis can identify inefficient use of services, such as unnecessary hospitalisation or overuse of drugs. In addition, there were also differences in the frequency of reimbursements between regions and types of health facilities, indicating inequality in access to health services in Indonesia (Prasetyo, Suryani, & Widodo, 2021). The analysis process by BPJS Kesehatan is carried out through several stages, starting with data collection from hospitals and primary healthcare facilities (FKTP), followed

by data cleaning to eliminate duplication and errors, diagnosis and procedure coding according to standards, and descriptive and trend analysis to understand the distribution and patterns of reimbursements (BPJS Kesehatan, 2023). These analyses also involve fraud detection, cost-efficiency evaluation with the Ministry of Health, and reporting for more targeted policy decision-making.

Reimbursements data analysis can be visualised using various methods, such as bar, line, pie, heatmap, box plot, and interactive dashboards, to facilitate interpretation and decision-making (Raghupathi & Raghupathi, 2014). The benefits of these analyses include improved financing efficiency, early detection of fraud, data-driven policy development, increased transparency and accountability of the JKN system, and monitoring of disease trends and national health burden (Sari, Nugroho, & Utami, 2020; Prasetyo, Suryani, & Widodo, 2021; Rahmadani, Lestari, & Kusuma, 2021). For hospitals, reimbursements data analysis also supports more accurate financial planning, resource optimisation, improved regulatory compliance, service quality monitoring, and identification and rectification of administrative issues in the reimbursements process to BPJS Kesehatan.

3. Proposed Method

This study uses an analytical descriptive approach with quantitative methods that aims to describe the pattern of National Health Insurance (JKN) reimbursements on inpatient services at Surakarta General Hospital during the 2020-2024 period. This approach focuses on analysing numerical data to obtain trends and patterns of reimbursements that occur without intervening in the research subject (Gregar, 2023). The study was conducted from February to April 2025 at Surakarta General Hospital. The study population included all JKN patient reimbursement data for inpatient services during this period, and the sample used a saturated sample technique, namely all existing reimbursement data.

Research variables include INACBGs grouping codes, JKN patient class, patient severity, INACBGs rates, and hospital rates. According to Creswell and Creswell (2017), variables in descriptive research are used to describe relationships, patterns, or trends in a population based on data collected quantitatively or qualitatively. The instrument used to collect data is a data collection checklist, which ensures the completeness and accuracy of the data (Sugiyono, 2016). The data used is secondary data imported from the INACBGs application during the 2020-2024 period. The data analysis process follows the stages outlined by Miles and Huberman (in Schoch, 2020), namely data collection, data reduction, data presentation, and conclusion drawing. The data collected will be summarised, selected, and arranged in the form of tables and narratives to facilitate interpretation. This research also pays attention to ethical principles, including permits submitted to Surakarta General Hospital and maintaining the confidentiality of personal data in accordance with applicable regulations. Researchers made sure not to display personal data (Sugiyono, 2016).

4. Results and Discussion

The researcher analysed the reimbursement data of X Government Hospital for 2020-2024 by processing data from the INACBGs application using excel data processing software. The results of the analysis provide a comprehensive picture of the pattern of National Health Insurance (JKN) reimbursements on inpatient services which are described in 3 parts as follows.

Reimbursement Pattern Based on INACBGs Grouping Code

Table 1. Top 10 Inpatient Case Groups in 2020

INACBG	INACBGS DESCRIPTION	Σ CASES
J-4-15-I	Respiratory inflammation and infection (mild)	49
J-4-17-I	Chronic obstructive pulmonary disease (mild)	45
J-4-16-I	Simple pneumonia & whooping cough (mild)	32
I-4-12-I	Heart failure (mild)	29
I-4-12-II	Heart failure (moderate)	23
J-4-15-II	Respiratory inflammation and infection (moderate)	21
J-4-17-II	Chronic obstructive pulmonary disease (moderate)	17

J-4-16-II	Simple pneumonia & whooping cough (moderate)	15
J-4-20-I	Pleural effusion and pneumothorax (mild)	13
E-4-10-II	Diabetes & nutritional/metabolic disorders (moderate)	12

Table 2. Top 10 Inpatient Case Groups in 2021

INACBG	INACBGS DESCRIPTION	Σ CASES
J-4-16-I	Simple pneumonia & whooping cough (mild)	41
J-4-16-II	Simple pneumonia & whooping cough (moderate)	34
J-4-15-I	Respiratory inflammation and infection (mild)	31
J-4-15-II	Respiratory inflammation and infection (moderate)	28
J-4-18-I	Asthma & bronchiolitis (mild)	15
J-4-17-II	Chronic obstructive pulmonary disease (moderate)	15
J-4-16-III	Simple pneumonia & whooping cough (severe)	15
A-4-15-III	HIV infection (severe)	12
J-4-21-I	Miscellaneous respiratory system symptoms, signs and diagnosis (mild)	11
J-4-21-II	Miscellaneous respiratory system symptoms, signs and diagnosis (moderate)	11

Table 3. Top 10 Inpatient Case Groups in 2022

INACBG	INACBGS DESCRIPTION	Σ CASES
J-4-15-I	Respiratory inflammation and infection (mild)	87
J-4-21-I	Miscellaneous respiratory system symptoms, signs and diagnosis (mild)	83
J-4-16-II	Simple pneumonia & whooping cough (moderate)	83
J-4-16-I	Simple pneumonia & whooping cough (mild)	80
J-4-16-III	Simple pneumonia & whooping cough (severe)	76
J-4-15-II	Respiratory inflammation and infection (moderate)	65
J-4-21-II	Miscellaneous respiratory system symptoms, signs and diagnosis (moderate)	41
J-4-17-II	Chronic obstructive pulmonary disease (moderate)	32
O-6-10-I	Caesarean section surgery (mild)	28
J-4-15-III	Respiratory inflammation and infection (severe)	28

Table 4. Top 10 Inpatient Case Groups in 2023

INACBG	INACBGS DESCRIPTION	Σ CASES
J-4-16-I	Simple pneumonia & whooping cough (mild)	180
J-4-21-I	Miscellaneous respiratory system symptoms, signs and diagnosis (mild)	152
J-4-16-III	Simple pneumonia & whooping cough (severe)	114
J-4-16-II	Simple pneumonia & whooping cough (moderate)	106
O-6-10-I	Caesarean section surgery (mild)	103
J-4-15-I	Respiratory inflammation and infection (mild)	101
P-8-16-I	Neonatal, birth weight > 2499 grams with congenital/perinatal infection (mild)	91
M-1-80-I	Upper limb procedure (mild)	64
J-4-15-II	Respiratory inflammation and infection (moderate)	59
O-6-13-I	Vaginal delivery (mild)	53

Table 5. Top 10 Inpatient Case Groups in 2024

INACBG	INACBGS DESCRIPTION	Σ CASES
J-4-16-I	Simple pneumonia & whooping cough (mild)	180
J-4-21-I	Miscellaneous respiratory system symptoms, signs and diagnosis (mild)	152
J-4-16-III	Simple pneumonia & whooping cough (severe)	114
J-4-16-II	Simple pneumonia & whooping cough (moderate)	106
O-6-10-I	Caesarean section surgery (mild)	103
J-4-15-I	Respiratory inflammation and infection (mild)	101
P-8-16-I	Neonatal, bbl > 2499 gr with congenital/perinatal infection (mild)	91

M-1-80-I	Upper limb procedure (mild)	64
J-4-15-II	Respiratory inflammation and infection (moderate)	59
O-6-13-I	Vaginal delivery (mild)	53

The pattern of inpatient services at Surakarta General Government Hospital during the period 2020 to 2022 shows a dominance of cases related to respiratory system disorders, which is likely to be influenced by the high incidence of respiratory infections, including the impact of the COVID-19 pandemic. This is in line with findings from a study by Purwanto et al. (2021), who noted that during the pandemic, most JKN inpatient reimbursements in government hospitals were dominated by cases of pneumonia, bronchopneumonia, and upper and lower respiratory tract infections, along with a high burden of COVID-19 patients. In addition, a study by Wijaya and Sari (2022) also found that public hospitals in Central Java experienced a significant spike in reimbursements related to respiratory diagnoses in 2020 and 2021, showing a similar pattern to that in Surakarta General Government Hospital. In 2023 and 2024, there was a shift to a more diverse case pattern, with an increase in the number of reimbursements for inpatient services for cases from other specialities, such as cardiology, metabolic diseases, and surgery. This shift is indicative of the post-pandemic recovery of the hospital service system. Research by Yulianti et al. (2023) corroborates this, stating that after the relaxation of COVID-19 protocols, hospitals began to return to serving previously delayed non-infectious cases, especially chronic and elective cases such as diabetes, hypertension, and elective surgery. This variation reflects a return to a more balanced trend of hospital services and an increase in community access to specialised health services that had been hampered during the pandemic. This dynamic also shows the adaptation of the hospital service system to dynamic epidemiological conditions and health service policies.

Discrepancy between Reimbursement Tariff and Hospital Tariff Based on Class of Care

Table 6. Tariff Discrepancy Based on Class of Care in 2020

CLASS	Σ CASES	% CASES	DISCREPANCY	AVERAGE
1	64	16%	79,918,356	1,248,724
2	54	14%	56,348,513	1,043,491
3	276	70%	70,239,492	254,491
TOTAL	394	100%	206,506,361	524,128

Table 7. Tariff Discrepancy Based on Class of Care in 2021

CLASS	Σ CASES	% CASES	DISCREPANCY	AVERAGE
1	73	12%	73,166,858	1,002,286
2	147	24%	69,907,871	475,564
3	383	64%	29,330,626	76,581
TOTAL	603	100%	172,405,355	285,913

Table 8. Tariff Discrepancy Based on Class of Care in 2022

CLASS	Σ CASES	% CASES	DISCREPANCY	AVERAGE
1	215	13%	188,865,293	878,443
2	345	21%	130,066,998	377,006
3	1114	67%	-405,156,895	-363,696
TOTAL	1674	100%	-86,224,604	-51,508

Table 9. Tariff Discrepancy Based on Class of Care in 2023

CLASS	Σ CASES	% CASES	DISCREPANCY	AVERAGE
1	423	13%	-252,359,625	-596,595
2	755	23%	-14,555,339	-19,279
3	2138	64%	-1,821,733,988	-852,074
TOTAL	3316	100%	-2,088,648,952	-629,870

Table 10. Tariff Discrepancy Based on Class of Care in 2024

CLASS	Σ CASES	% CASES	DISCREPANCY	AVERAGE
1	652	11%	-970,458,837	-1,488,434
2	1293	23%	-1,507,981,296	-1,166,266
3	3742	66%	-5,918,680,170	-1,581,689
TOTAL	5687	100%	-8,397,120,303	-1,476,547

During the period 2020 to 2024, the pattern of inpatient services for National Health Insurance (JKN) participants in Surakarta General Government Hospital was dominated by the utilisation of class 3 services, with a proportion ranging from 64% to 70% of total inpatient reimbursements. This high rate reflects the preference of the majority of JKN participants for the most basic class of service that is fully covered by BPJS Kesehatan, as well as the limited financial capacity of participants to choose a higher class of service. In addition, the dominance of class 3 may also be an indicator of challenges in equitable access to more comprehensive healthcare services, potentially affecting the quality of the patient experience.

In line with a study by Nuraini et al. (2021), which shows that the majority of JKN participants choose class 3 due to economic limitations and lack of information about class of service options. Their research also revealed that the burden of class 3 facilities in government hospitals is increasing, especially in type C and D hospitals, which causes the risk of overcrowding and potentially reduces service quality. In addition, research by Saputra and Hadi (2020) found that the dominance of inpatient reimbursements in class 3 has implications for hospital operational costs because INA-CBGs rates for these classes often do not cover the actual cost of services, thus impacting hospital efficiency and sustainability. Another study by Dewi and Kurniawan (2022) also reinforces this phenomenon, showing that the socio-economic structure of JKN participants generally correlates with the choice of inpatient class, and participants from low-income groups tend to dominate the use of class 3. This phenomenon of class 3 dominance needs to be further examined as a strategic issue in the management of the JKN system, because in addition to reflecting socio-economic challenges, it also shows the need to improve the financing system and equalise service quality between classes. A more adaptive policy approach based on the local needs of hospitals is important so that broad access does not compromise the quality and sustainability of services.

Based on the data analysed, it can be observed that there is a tendency for negative tariff differences in class 3 services, where the reimbursement rates paid through the INA-CBGs system are lower than the real rates incurred by hospitals. This indicates a potential mismatch between the INA-CBGs standard tariff and the actual cost of class 3 services, which could impact on the efficiency of hospital operations and the quality of services provided. This phenomenon also reflects the need for further evaluation of the suitability of INA-CBGs tariffs, especially for basic services, so that financing remains proportional without compromising the quality of service to JKN participants.

This finding is reinforced by research by Widayanti et al. (2021), which showed that hospitals with a predominance of class 3 patients experienced a higher funding deficit than hospitals with a proportion of class 1 or 2 patients. The study highlighted that the INA-CBGs tariff structure has not been able to accommodate actual costs in basic services, especially for non-complex cases commonly found in class 3. In addition, a study by Lestari and Suryani (2020) found that the disparity between actual costs and INA-CBGs rates was greatest for class 3 inpatient cases with severity level 1, which often did not include various components of operational and overhead costs incurred by hospitals. Research by Anas et al. (2022) also revealed that hospital operational expenses increased along with the volume of JKN class 3 patients, but without adequate tariff adjustments, hospitals experienced significant financial pressure. The problem of consistently negative tariff differences in class 3 services is not only an internal financial issue for hospitals, but also a systemic indicator that the tariff structure

in the JKN financing scheme needs to be reviewed. Evaluating tariffs based on case complexity, treatment class, and hospital characteristics is essential to ensure the sustainability of the service system and maintain the quality of public health services.

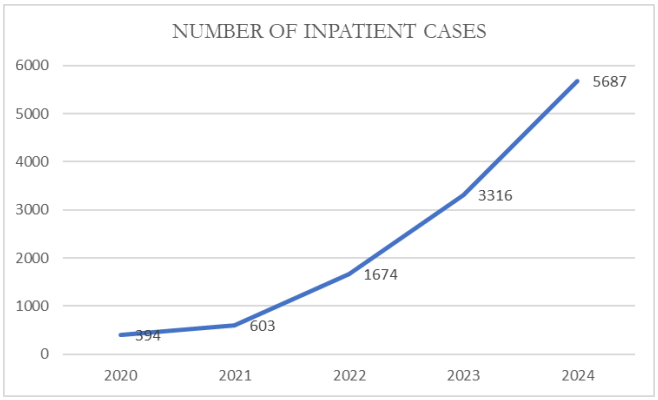

Figure 1. Number of Inpatient Cases in 2020-2024

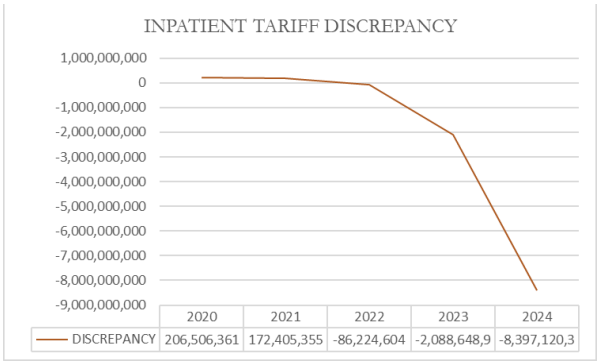

Figure 2. Inpatient Tariff Discrepancy 2020-2024

Based on Figure 1 and Figure 2, there is a contrasting phenomenon between the trend in the number of inpatient cases and the trend in the INA-CBGs tariff difference. Figure 1 indicates an increasing trend in the number of inpatient cases each year during the period 2020 to 2024, while Figure 2 shows a decrease in the tariff difference, which means that the value of INA-CBGs reimbursement rates received by hospitals tends to be increasingly insufficient to cover the real cost of services. This contradictory phenomenon indicates an imbalance between service volume and financial compensation, which if it continues, could negatively impact service sustainability, especially in the class 3 inpatient segment or in low-margin cases.

This finding is in line with research by Adisasmito et al. (2020), which showed that INA-CBGs tariffs often do not reflect the real cost of health services, especially for government hospitals facing an increase in JKN service volume. Another study by Wulandari and Prasetyo (2021) also showed that an increase in the number of JKN patients is not always accompanied by an increase in hospital revenue, due to a fixed tariff system that is less flexible to variations in caseload. Similarly, Nurrahmah and Fitriani (2022) examined type C hospitals and found that financial burden increased significantly as service utilisation increased, but was not accompanied by a commensurate increase in tariffs. The study by Santosa et al. (2021) highlights the sustainability risk of regional hospitals in the JKN system, especially if the proportion of class 3 patients dominates, which has the lowest tariff differential. Their findings reinforce the notion that increasing case volumes can be a burden if not matched by an adaptive tariff structure. Research by Permana and Iskandar (2023) also supports this by stating that the declining trend of tariff difference in the context of increasing service volume is a sign of the need to reformulate the INA-CBGs tariff policy to be more responsive to changes in service needs and hospital economic conditions. The contradictory phenomena shown in the graph do not only reflect local hospital conditions, but are also a reflection of systemic issues in

reimbursements-based health financing in Indonesia. Periodic evaluation of the tariff structure and service burden is absolutely necessary to ensure the sustainability of services, especially for first-level referral hospitals.

Discrepancy between Reimbursement Tariff and Hospital Tariff Based on Severity Level

Table 11. Tariff Discrepancy Based on Severity Level in 2020

SEVERITY	Σ CASES	% CASES	DISCREPANCY	AVERAGE
I	220	56%	55,204,897	250,931
II	144	37%	99,534,149	691,209
III	30	8%	51,767,315	1,725,577
TOTAL	394	100%	206,506,361	524,128

Table 12. Tariff Discrepancy Based on Severity Level in 2021

SEVERITY	Σ CASES	% CASES	DISCREPANCY	AVERAGE
I	273	45%	-73,071,068	-267,660
II	197	33%	111,283,576	564,891
III	133	22%	134,192,847	1,008,969
TOTAL	603	100%	172,405,355	285,913

Table 13. Tariff Discrepancy Based on Severity Level in 2022

SEVERITY	Σ CASES	% CASES	DISCREPANCY	AVERAGE
I	831	50%	-458,279,030	-551,479
II	486	29%	108,057,167	222,340
III	357	21%	263,997,259	739,488
TOTAL	1674	100%	-86,224,604	-51,508

Table 14. Tariff Discrepancy Based on Severity Level in 2023

SEVERITY	Σ CASES	% CASES	DISCREPANCY	AVERAGE
I	1907	58%	-1,621,439,851	-850,257
II	781	24%	-598,540,052	-766,377
III	628	19%	131,330,951	209,126
TOTAL	3316	100%	-2,088,648,952	-629,870

Table 15. Tariff Discrepancy Based on Severity Level in 2024

SEVERITY	Σ CASES	% CASES	DISCREPANCY	AVERAGE
I	3342	59%	-4,273,504,128	-1,278,727
II	1553	27%	-2,849,356,720	-1,834,744
III	792	14%	-1,274,259,455	-1,608,913
TOTAL	5687	100%	-8,397,120,303	-1,476,547

The trend of the lowest tariff difference, even reaching negative values in the period 2020 to 2023, was consistently found in the case group with severity 1. This condition indicates that services for non-complex cases have the potential to create an imbalance between INACBGs tariffs and actual hospital costs, which in turn can affect the efficiency and sustainability of the financing system. Therefore, strategic intervention through the Quality and Cost Control (QCC) mechanism is required to ensure that services for minor cases meet quality standards while remaining within the corridors of rational and sustainable financing. This effort is also important to avoid potential waste of resources and maintain the financial stability of health care facilities, especially in type C hospitals that more often handle low severity cases.

Research by Baharuddin et al. (2021) showed that in class C hospitals, cases with severity level 1 had a larger negative tariff difference than severity levels 2 and 3, indicating systemic losses in basic services. In addition, a study by Hidayati and Winarsih (2022) emphasised that

the INA-CBGs tariff for severity level 1 has not been able to cover the actual cost of services, especially for class 3 patients, so that hospitals experience budget deficits. Research from Harbi and Fauziah (2021) also reinforces these findings, stating that the gap between tariffs and actual costs is often caused by the suboptimal efficiency of service management and the lack of control over drug use and length of stay. Furthermore, a study by Yuliani et al. (2020) suggested that there is a need to periodically evaluate INA-CBGs tariff adjustments based on case profiles and hospital service loads, in order to prevent long-term deficits that impact service quality. Meanwhile, research by Wahyuni and Firmansyah (2023) highlighted the importance of strict clinical pathway utilisation in non-complex cases as a strategy to reduce wasteful costs and ensure hospital financial sustainability in the JKN system. Thus, these findings reinforce the urgency of evidence-based policy interventions to ensure that JKN tariffs reflect real costs, especially in low-severity inpatient cases.

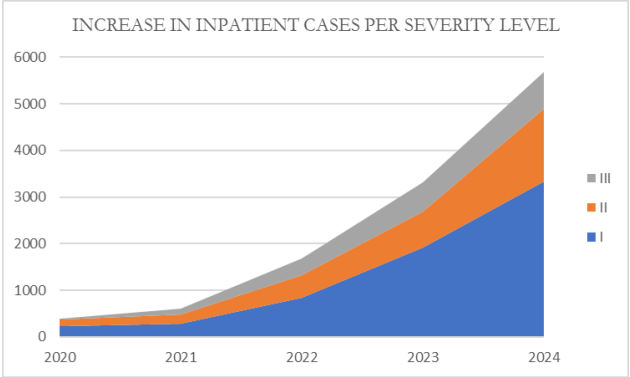

Figure 3. Increase in Inpatient Cases per Severity Level 2020-2024

The distribution of inpatient cases during the 2020-2024 period shows a predominance of severity 1, with proportions ranging from 45% to 59%. This pattern is in line with the characteristics of Government Surakarta General Government Hospital, which is a type C hospital, which generally treats cases with mild to moderate severity. This reflects the role of type C hospitals as first-level referral facilities that mostly serve cases that do not require intensive treatment or complex medical measures. The variation in percentages each year may also reflect the dynamics of the types of cases admitted and the availability of specialised services at the hospital.

This finding is reinforced by a study conducted by Hermawan and Dewi (2022), which showed that type C hospitals in Indonesia mostly serve inpatient cases with severity levels 1 and 2, due to limited supporting facilities and specialists. In the study, more than 60% of cases handled by type C hospitals were from the low-complexity disease group, such as upper respiratory tract infections, gastric diseases, and dengue fever. In addition, a study by Ramadani and Kusumawardhani (2021) also mentioned that the characteristics of JKN patients in type C hospitals tend to be homogeneous and concentrated in non-complex cases, which is due to the tiered referral system and limited advanced service capabilities in these types of hospitals. Both findings support the interpretation that the predominance of severity level 1 in Surakarta General Government Hospital is not only a result of service preferences, but also reflects the systematic function of type C hospitals in the national healthcare ecosystem. Therefore, there is a need to optimise resources at this basic level of care, as well as monitor caseload variations to ensure efficiency and quality of care.

Conclusions

This study shows that the pattern of JKN inpatient services in Surakarta General Government Hospital during the 2020-2024 period is dominated by cases with severity level 1, especially in class 3 treatment classes, which account for 64-70%. This reflects the characteristics of type C hospitals, which systemically treat more mild to moderate cases, as well as the high dependency of JKN participants on basic care classes due to economic limitations. In 2020 to 2022, inpatient cases were dominated by respiratory diseases, in line with the high caseload due to the COVID-19 pandemic, while 2023-2024 saw a shift towards other speciality cases such as cardiology and metabolic diseases, indicating a post-pandemic recovery of the service system. This reflects the mismatch between INA-CBGs rates and actual hospital

costs, which has the potential to disrupt the operational efficiency and financial sustainability of hospitals. The contradictory phenomenon between increasing service volumes and decreasing tariff differences suggests systemic pressures in the JKN financing scheme. Therefore, periodic evaluation of the INA-CBGs tariff structure and the implementation of Quality Control and Cost Control (QCC) strategies, especially in non-complex cases, are required in order to improve the quality of care.

This study has limitations in terms of scope, as it only focuses on one type C hospital and one type of service (inpatient) within a certain period of time. In addition, the research approach is quantitative descriptive using secondary data, thus not capturing qualitative aspects such as patient experience or internal hospital policies that may also affect efficiency and reimbursement patterns. Future research is recommended to include several hospitals across types and regions to obtain a broader and more representative picture of the implementation of the INA-CBGs scheme in JKN services. In addition, a mixed-method approach could be used to explore the perspectives of health workers and hospital managers regarding constraints in reimbursements management and cost-efficiency strategies. Policy research should also be conducted to evaluate the effectiveness of JKN tariff reformulation on improving the sustainability of public health services.

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