

SECTIO CAESAREA UNIT COST ANALYSIS BASED ON REAL COST METHODS AND INA-CBG TARIFF CALCULATIONS

Luthfi Dwi Risyanda^{1*}, Muhandi², Rachmat Suyanto³

¹Magister of Management Study Program, Faculty of Economics and Business, Universitas Islam Bandung, Indonesia

²Magister of Management Study Program, Faculty of Economics and Business, Universitas Islam Bandung, Indonesia

³Magister of Management Study Program, Faculty of Economics and Business, Universitas Islam Bandung, Indonesia

ABSTRACT

BPJS Health was established to provide affordable and equitable access to health services for Indonesian. By participating in BPJS, people gain protection against expensive health costs, because BPJS covers most of the costs of health services, including basic examinations, hospitalization, and complex medical procedures. The National Social Security System (SJSN) through BPJS Health implements non-discriminative payment rate mechanism. The payment rate is based on Indonesia Case Base Groups (INA-CBG); a health service payment system based on groups of similar diagnoses and treatment costs. However, hospital management policies are proven to be ineffective and inefficient. This research uses a quantitative descriptive method to compare unit costs between real cost calculation methods and INA-CBG rates in inpatient services for Sectio Caesarea cases in 2021 at Dr. Hj. Karmini EH Hospital in Tasikmalaya City West Java. This research aims to analyze the unit cost of the Sectio Caesarea action based on the real cost method calculation, analyze the INA-CBG package tariff for the Sectio Caesarea action, analyze the comparison of the unit cost of the Sectio Caesarea action based on the real cost method calculation with the INA-CBG package tariff, and analyze the unit cost comparison The Sectio Caesarea procedure is based on the real cost method calculation using hospital rates. The research results show that the real cost method calculation provides a more accurate picture of costs because it includes direct costs, direct overhead costs, and indirect overhead costs involved in Sectio Caesarea services. Although the INA-CBG rates provide cost certainty to patients, the results of the analysis show that these rates are insufficient to cover the real costs of patient care, especially in the case of Sectio Caesarea. There is a significant difference between the INA-CBG tariff and the real cost of treatment, with the INA-CBG tariff tending to be lower than the real cost required. This shows that determining rates must carefully take into account the need for treatment costs so as not to result in losses for the hospital.

Keyword: Unit Cost, Sectio Caesarea, Real Cost, INA-CBG

1. INTRODUCTION

The Poverty Line represents the minimum expenditure required for food and non-food needs to avoid being categorized as poor. Individuals with an average monthly per capita expenditure below this threshold are considered poor. Unfortunately, in Indonesia, the economic situation exacerbates this issue, as the costs of medicines, medical equipment, and healthcare services are high and continue to rise. This increase places an additional burden on the poor.

While services at Puskesmas (community health centers) are relatively affordable, many people still struggle to access them. Hospital services, in particular, are more expensive and increasingly out of reach for the poor.

Indonesian hospitals are mandated to allocate 30% of their beds for BPJS (Indonesia's national health insurance) patients, which aim to improve access to healthcare services for the poor. Despite this, challenges such as transportation costs and long waiting times remain significant barriers for many individuals seeking medical care.

To address the issue of high healthcare costs, the Indonesian government has implemented BPJS (Badan Penyelenggara Jaminan Sosial) insurance services. BPJS operates on the principles of mutual cooperation and non-profit, and its success relies on the support of the entire community. By participating in BPJS, individuals are alleviated from the worry of expensive health costs, as the program covers a significant portion of healthcare expenses. BPJS insurance includes a wide range of services, from basic examinations and inpatient care to complex medical procedures. Additionally, the JKN (Jaminan Kesehatan Nasional) system managed by BPJS Health is designed to ensure that all services provided meet appropriate medical standards and address patients' needs. This system aims to reduce the financial burden on individuals requiring medical care and ensure they receive necessary treatments without facing excessive economic hardship.

The implementation of BPJS Health aims to enhance the quality of healthcare services through stringent supervision and adherence to service standards by collaborating health facilities. This oversight ensures that the community receives adequate healthcare services, providing certainty and a sense of security. Overall, participation in BPJS Health is a crucial step in addressing the challenge of rising healthcare costs. It also plays a vital role in ensuring wider and more equitable access to health services for all Indonesian citizens.

BPJS Health in Indonesia has a history rooted in various earlier social security programs. In 1968, the Indonesian government introduced its first health insurance program by establishing the Health Care Fund Organizing Agency (BPDPK) for civil servants. Over the years, different health insurance schemes were developed to cater to various groups within society. One notable program was the Community Health Insurance (Jamkesmas), launched in 2008 to help poor individuals access health services.

To realize the National Health Insurance (JKN) program, the Indonesian government enacted Law No. 40 of 2004 concerning the National Social Security System (SJSN). This legislation was established with the aim of providing social security and developing Universal Health Coverage (UHC) for all Indonesian citizens. The law also established the Social Security Administering Body (BPJS) as the organization responsible for managing the Health Insurance program. Health service providers under BPJS include all health facilities that collaborate with BPJS, categorized into First Level Health Facilities (FKTP) and Advanced Level Referral Health Facilities (FKTRL), as outlined in PMK No. 52 of 2016.

The payment system implemented by BPJS Health to Advanced Level Referral Health Facilities (FKTRL) is in the form of the Indonesia Case Based Groups' Tariff (INA-CBG). The INA-CBG Tariff is the amount of claim payments made by BPJS Health to FKTRL for service packages based on groupings of disease diagnoses and procedures. Health financing is a crucial aspect of implementing the National Health Insurance (JKN) program. There are two hospital payment systems (tariffs) used: the retrospective payment system and the prospective payment system. The retrospective payment system is a payment method based on the health services provided to patients for each service activity performed. The more health services provided, the higher the costs incurred. This system determines the amount of health service costs after the patient has received the services. The fee-for-service tariff is included in this system. On the other hand, the prospective payment system is a payment method for health service providers, including hospitals and doctors, where the payment amount is determined before the medical service is provided, irrespective of the medical action taken or the length of hospital stay. Payment methods under this system include capitation, global budget, per diem, and case-based payment (INA-CBG), commonly referred to as casemix.

INA-CBG rates cover all hospital equipment used for medical and non-medical activities. In contrast, non-INA-CBG rates pertain to specific services, including health support equipment, medicines for chronic diseases, chemotherapy drugs, CAPD, and PET scans. The INA-CBG tariff is a package rate, meaning that for the same medical case, the tariff remains consistent. However, under the fee-for-service model, even if the medical case is identical, the charges can vary. Several factors influence hospital rates, including the number of procedures performed, comorbid diagnoses, and the length of stay. Consequently, the longer a patient is treated, especially with serious accompanying diagnoses and in higher treatment classes, the higher the costs due to accommodation expenses. Conversely, INA-CBG rates are influenced by the treatment class and severity level.

In the era of National Health Insurance, which employs the DRG-Casemix system, disease codes are based on ICD-10, ICD-9-CM, and procedures and costs. Casemix is a classification system that groups patients with similar diagnoses and procedures into homogeneous groups for rate-setting purposes. This system allows hospitals to receive payments based on specific groups of cases rather than individual services provided. In this way, casemix incentivizes hospitals to offer efficient and effective care, as payments are predetermined based on the group of cases. Clinical pathways can serve as a tool for conducting medical audits aimed at improving service quality. Due

to their evidence-based and standardized preparation, implementing clinical pathways is expected to reduce treatment and facility costs, shorten the duration of treatment (length of stay and early discharge), improve the quality of life index, enhance clinical outcomes, and reduce unnecessary interventions.

Although the use of the DRG-Casemix system is recognized for its many advantages, it also has potential weaknesses, such as the risk of supplier-induced demand reduction. Supplier-induced demand reduction occurs when providers (doctors or hospitals) set demand below what it should be. Research by Tristina Wardani et al. (2017) concluded that the INA-CBG package rates for PICU (Pediatric Intensive Care Unit) are lower than hospital rates. This situation poses a significant challenge for hospital management. If the intensive INA-CBG package rate remains consistently lower than the actual costs, hospitals may resort to two problematic actions: first, refusing intensive care patients; and second, charging additional fees to BPJS participants, which is against regulations.

According to data from Dr. Hospital Hj. Karmini EH in 2019, there were 741 inpatient cases, with BPJS patients constituting 57% of these inpatients. This hospital, located at Jalan Hospital No. 56, Tasikmalaya, West Java, specializes in maternal and child health and collaborates with BPJS Health. From 2019 to 2021, the number of BPJS Health patients hospitalized at RSIA Dr. Hj. Karmini EH Tasikmalaya significantly increased, rising from 718 patients to 2,385 by the end of 2021, based on both clinical and non-clinical indicators.

Analysis of individual patient claims at RSIA Dr. Hj. Karmini EH reveals that childbirth with medical complications is a significant concern. Research indicates that the cost of treating birth complications varies widely depending on the specific medical conditions encountered by the pregnant woman. These high costs underscore the importance of hospital preparedness for obstetric emergencies. Moreover, variations in procedure rates and length of stay highlight the need for effective and efficient cost management to ensure fair and equitable access to quality health services. To address the challenges of complicated births and ensure optimal safety and health for mothers and babies, RSIA Dr. Hj. Karmini EH must continuously update its medical facilities and enhance its staff's skills. Additionally, in 2021, caesarean section cases at RSIA Dr. Hj. Karmini EH Tasikmalaya City constituted the highest proportion compared to other cases, reaching 70.75%.

2. METHOD

This research utilizes a quantitative descriptive approach, employing a comparative quantitative descriptive analysis method. The goal is to compare unit costs based on actual cost calculations with INA-CBG rates, aided by clinical pathways, and hospital rates for inpatient caesarean section cases in 2021 at RSIA Dr. Hj. Karmini EH Tasikmalaya. The research uses secondary data sourced from hospital financial records and clinical pathways related to patient samples. Data collection is conducted through purposive sampling, focusing on medical records of inpatients with caesarean sections in 2021 at RSIA Dr. Hj. Karmini EH Tasikmalaya. The data collected includes medical record numbers, patient age, relevant clinical pathways, actual hospital rates, and INA-CBG rates. Collected data is documented on data collection sheets and subsequently analyzed using cost analysis techniques. The analysis aims to compare real costs with INA-CBG tariffs and other relevant factors, providing insights into the costs of treating caesarean section patients and evaluating the effectiveness of the existing health financing system.

3. LITERATURE REVIEW

In 2017, BPJS Health encountered significant financial challenges, recording a substantial deficit. Claims disbursements amounted to 84 trillion rupiah, while contributions received totaled only 74.25 trillion rupiah, resulting in a deficit of 9.75 trillion rupiah. This shortfall raised concerns about the financial sustainability of the health insurance program. Several factors contributed to this deficit, including the high cost of health claims relative to participant contributions and issues with compliance in contribution payments. In response, efforts to address the deficit have included increasing contribution rates and securing additional funds from the state budget (APBN), which have progressively increased each year. The government is also working to enhance the payment system and improve cost and claims management to increase efficiency. To address these challenges, the government has implemented the casemix system as part of its strategy.

The casemix system was first developed in Indonesia in 2006 under the name INA-DRG (Indonesia-Diagnosis Related Group). The implementation of payments using INA-DRG began on September 1, 2008, at 15 vertical hospitals and was expanded to all hospitals participating in the Jamkesmas program on January 1, 2009. On September 30, 2010, the nomenclature was updated from INA-DRG (Indonesia Diagnosis Related Group) to INA-CBG (Indonesia Case Based Group), in conjunction with the transition from the 3M Grouper to the UNU (United Nations University) Grouper. Therefore, from October 2010 to December 2013, payments to Advanced Health Service Providers (PPK) under Public Health Insurance (Jamkesmas) were based on the INA-CBG system [1]. RSIA Dr. Hj. Karmini EH Tasikmalaya has experienced financial losses as a result of the INA-CBG payment system. The

INA-CBG rates set are frequently insufficient to cover the actual costs of patient care, leading to operational losses for the hospital.



Figure 1. Casemix Components

1. **Costing**

Casemix focuses on calculating treatment costs based on diagnoses and medical procedures performed. The primary goal is to determine the cost incurred by a hospital to provide specific treatments, allowing for the establishment of appropriate and equitable rates for health services.

2. **Clinical Pathway**

Clinical pathways are guidelines that direct doctors and other medical personnel in treating patients based on specific diagnoses. They outline the care steps that must be followed to ensure patients receive optimal and consistent care. Additionally, clinical pathways assist in cost control by reducing variations in clinical practice.

3. **Information Technology**

Information technology plays a critical role in Casemix by providing the necessary infrastructure to collect, store, and analyze patient data. This includes electronic medical record systems, patient databases, and analytical software that support patient grouping and cost management.

4. **Coding**

Medical coding is the process of converting medical diagnoses and procedures into standardized codes. Accurate coding is crucial in Casemix as it affects patient grouping and cost determination. These codes are typically based on international classification systems, such as the International Classification of Diseases (ICD).

All these components are interrelated and work together to create an effective Casemix system. By integrating costing, clinical pathways, information technology, and coding, hospitals can enhance operational efficiency, control costs, and deliver high-quality patient care [2].

One of the health services covered by BPJS insurance is the cost of caesarean sections. Caesarean sections are a crucial procedure within the national health services, with INA-CBG claim costs for classes 1, 2, and 3 serving as references in the National Health Insurance (JKN) system. For caesarean sections, the INA-CBG claim amounts are as follows: Class 1 is IDR 6,965,200; Class 2 is IDR 5,970,200; and Class 3 is IDR 4,970,200. However, at Karmini Hospital, the actual costs for caesarean sections exceed the ranges set for classes 1, 2, and 3. This discrepancy raises questions about the reasons behind these elevated costs, particularly when compared to other hospitals such as Anisa Hospital Tangerang, Tulungagung Hospital, Dustira Hospital, and Gatot Subroto Hospital, which have demonstrated effective cost control and received awards for their efficient financial management. Although specific details regarding the real costs for caesarean sections at these hospitals are not available, they are known for their effective management of operational costs. This suggests that the cost of a caesarean section at these institutions may be at a competitive level or lower than expected. The author suspects that potential errors in management, governance, or cost calculations at Karmini Hospital may be contributing to the higher costs. Identifying these issues forms the basis for this research.

To address the discrepancy between actual hospital rates and INA-CBG rates, hospitals must focus on controlling their costs. One effective strategy to mitigate inflation and manage costs is the implementation of clinical pathways. A well-executed clinical pathway serves as a tool for quality control, cost management, and reducing fraud by ensuring consistency and reliance on accurate data. One of the health services covered by BPJS insurance is the cost of caesarean sections. Caesarean sections are a critical procedure within the national health services. In the National Health Insurance (JKN) system, the INA-CBG claim costs for caesarean sections are as follows: Class 1 ranges from IDR 6,000,000 to IDR 8,000,000; Class 2 ranges from IDR 5,000,000 to IDR 7,000,000; and Class 3 ranges from

IDR 4,000,000 to IDR 6,000,000. The costs incurred by service providers can be calculated based on clinical pathways (CP) and compared with the INA-CBG rates that have been established. If the cost of services provided to patients exceeds the INA-CBG rates, the hospital will experience operational losses [1], [3].

A clinical pathway is a guideline designed to implement evidence-based clinical practices within health service facilities. It is also referred to by various other terms, such as critical care pathway, integrated care pathway, coordinated care pathway, or anticipated recovery pathway. Clinical pathways are developed by integrating general clinical guidelines into localized protocols that can be applied in specific health service settings. The Indonesian government mandates the use of clinical pathways as outlined in Law No. 29 of 2004, Article 44, Paragraph 1, which states:

1. Doctors or dentists are required to adhere to medical or dental service standards when conducting their practices.
2. The service standards mentioned in paragraph (1) are differentiated according to the type and level of health service facilities.
3. The service standards for doctors or dentists as outlined in paragraphs (1) and (2) are regulated by Ministerial Regulations.

Law No. 29 of 2004, Article 49, states that "Every doctor or dentist, in carrying out medical or dental practice, is obligated to conduct quality control and cost control." The article also specifies that medical audits may be carried out by professional organizations to achieve these controls. The implementation of clinical pathways aims to create "best practices" that can be applied in local health service facilities. This involves establishing standards for the length of care, examinations, and clinical procedures, as well as formulating strategies to enhance service effectiveness. Clinical pathways also help clarify the general service objectives and roles to all involved staff, provide material for documentation, analysis, and evaluation, and educate patients about the procedures they will undergo. At the national level, service standards are developed through the National Guidelines for Medical Services (PNPK) and then adapted into Clinical Practical Guidelines (PPK) to suit local conditions. Clinical pathways, as step-by-step implementation guides, can be included in the PPK [4].

Hospitals are required to have clinical pathways to comply with the Hospital Accreditation Standards set forth in the Decree of the Minister of Health of the Republic of Indonesia No. HK.01.07/Menkes/1128/2022. The existence of clinical pathway documents alone is not sufficient; their effective implementation in quality control and cost management is crucial. Creating a clinical pathway necessitates effective collaboration among various departments, including the medical team (doctors), nursing, and pharmacy [5]. This collaboration should be integrated with algorithms or evidence-based guidelines from professional organizations and literature, as well as Medical Service Standards, Standard Operating Procedures, and Standard Formulary Lists for procedures and treatments [6].

In relation to financing through the Health Social Security Administering Agency (BPJS), hospitals use and implement clinical pathways to ensure that costs for necessary actions are specified for each type of disease within the pathway. Doctors treating patients covered by BPJS Health must adhere to these clinical pathways. The costs for these actions are "budgeted" to ensure they remain within the limits covered by BPJS Health, thereby preventing financial losses for the hospital [7], [8], [9].

A caesarean section, or *sectio caesarea*, is a surgical procedure in which the fetus is delivered through an incision in the abdominal and uterine walls, provided that the uterus is intact and the fetus weighs more than 500 grams [4]. This procedure involves laparotomy (opening of the abdominal wall) and hysterectomy (opening of the uterine wall) to deliver one or more babies. *Sectio caesarea* is performed to prevent potential complications during vaginal delivery that could endanger the fetus or mother [10]. Performing a caesarean section (SC) without clear medical indications is considered unethical, unless it has been preceded by thorough counseling. Patients have the right to autonomy in requesting a caesarean section, provided they are fully informed and make the decision without pressure. However, medical indications for SC should be clearly established, and normal delivery should be prioritized when possible. Despite this, there remains a lack of consensus on the use of SC, leading to both vaginal delivery and SC being considered childbirth options. SC is typically reserved for emergencies that arise during labor [11].

The main complications associated with caesarean section delivery include damage to organs such as the urinary bladder and uterus during the procedure, complications from anesthesia, bleeding, infection, and thromboembolism. Maternal mortality rates are higher with caesarean sections compared to vaginal deliveries [11], [12], [13]. Newborns may experience momentary tachypnea, which is more common in caesarean sections, and there is a risk of birth trauma. Long-term risks associated with caesarean sections include placenta previa, placental abruption, placenta accreta, and uterine rupture. Postoperative complications can significantly increase maternal morbidity compared to vaginal delivery, with major causes being endomyometritis, bleeding, urinary tract infections, and

thromboembolism [10]. Although rare, pelvic infections and surgical site infections can occur, and may, in severe cases, lead to necrotizing fasciitis.

4. RESULTS

RSIA Dr. Hj. Karmini EH Tasikmalaya calculates costs for caesarean section procedures by utilizing the real cost method, which encompasses all direct and indirect costs (full cost). This includes expenses for consumables, medical services, overhead, and equipment depreciation. In contrast, the INA-CBG (Indonesia Case Based Groups) package tariff is a standardized payment system that consolidates various cost components into a single package based on the diagnosis and severity of the condition. The INA-CBG tariff represents the fixed payment rate for health services covered by BPJS Health. For the hospital, income from services provided to BPJS Health patients is a significant revenue source, given the large and growing patient population. Tariffs play a crucial role as they significantly impact revenue generation. Income from health services is essential for covering financial needs, including cost recovery and future service development, which requires maintaining reserve funds. Additionally, for hospitals operating with a profit motive, tariffs must also ensure that the owners receive financial benefits, such as dividends.

The INA-CBG (Indonesia Case Based Groups) package rates for caesarean section procedures at RSIA Dr. Hj. Karmini EH Tasikmalaya are crucial for various stakeholders. Prospective patients use these rates to estimate delivery costs and prepare their finances. Insurance companies refer to them to determine the claims that will be submitted, while the government monitors and evaluates the INA-CBG system's effectiveness. The INA-CBG package rates consolidate several cost components into a single payment, providing cost certainty for patients undergoing caesarean section surgery at the hospital. The following table (Table 4.7) presents the package rates according to class classification.

The INA-CBG package rate represents the amount BPJS Health reimburses hospitals for caesarean section (SC) procedures provided to its participants. This rate is crucial for evaluating whether it can sufficiently cover the unit costs incurred by hospitals, as well as contribute to their reserve funds and profit margins. To determine the effectiveness of the INA-CBG package rate in covering costs and generating a profit margin, this study compares the INA-CBG package tariff with the unit costs incurred by hospitals. The following table illustrates this comparison, highlighting how well the INA-CBG package rate aligns with or exceeds the real costs associated with SC procedures, and whether it supports the hospital's financial sustainability and profitability.

Table -1: SC INA-CBG Package Rates According To 2021 Class

KLASIFIKASI	TARIF LAMA	TARIF BARU
SC INA-CBG First Class	IDR 6,965,200.00	IDR 6,967,500.00
SC INA-CBG Second Class	IDR 5,970,200.00	IDR 6,103,200.00
SC INA-CBG Third Class	IDR 4,975,200.00	IDR 5,238,800.00

Table 1 provides a detailed comparison of the unit costs for Class 1 Caesarean section (SC) services at RSIA Dr. Hj. Karmini EH Tasikmalaya against the INA-CBG (Indonesian Case-Based Groups) rates for the same service in 2021. The unit costs are categorized into three primary components: Direct Costs, Direct Overhead Costs, and Indirect Overhead Costs. The INA-CBG tariff for Class 1 SC services is set at IDR 6,965,200. The analysis reveals that the INA-CBG package tariff exceeds the unit cost for Class 1 SC services. For Class 2 SC services, the INA-CBG package tariff is evaluated against the unit cost calculated using the real cost method, as detailed in Table 2.

Table -2: Comparison of INA-CBG Tariffs with Unit Costs for Class 1 SC Services in 2021

No.	Type of Costs	Cost Amount	Cumulative Cost	INA-CBG Tariff	Recovery
1	Direct Cost	4.255.046	4.255.046	6.965.200	163,69
2	Overhead Direct Cost	540.000	4.795.046	6.965.200	145,26
3	Indirect Overhead Cost	1.500.000	6.295.046	6.965.200	110,65

The recovery rate measures how well the INA-CBG tariffs cover each cost component. A recovery rate above 100% indicates that the INA-CBG rate exceeds the costs incurred, leading to a profit margin for the hospital. For Class 1 Caesarean section (SC) services, a recovery rate of 146.06% shows that the INA-CBG tariff significantly covers direct costs, resulting in a surplus that can be allocated to other expenses or contribute to direct profit. A recovery rate of 129.02% demonstrates that the INA-CBG tariff also covers direct overhead costs effectively, reflecting

efficient management and adequate rate coverage for these expenses. The recovery rate of 102.45% indicates that the INA-CBG tariff covers indirect overhead costs, though with a smaller margin compared to direct costs and direct overhead. Despite the smaller margin, there remains a surplus, indicating that the tariff sufficiently covers all indirect costs. The unit cost results for Class 3 SC cases, calculated using the real cost method, are compared with the applicable INA-CBG package rates for BPJS Health reimbursement, as detailed in Table 3.

Table -3: Comparison of INA-CBG Tariffs with Unit Costs for Class 2 SC Services in 2021

No.	Type of Costs	Cost Amount	Cumulative Cost	INA-CBG Tariff	Recovery
1	Direct Cost	4,087,506	4,087,506	5,970,200	146.06
2	Overhead Direct Cost	540,000	4,627,506	5,970,200	129.02
3	Indirect Overhead Cost	1,200,000	5,827,506	5,970,200	102.45

The recovery rate measures how well the INA-CBG tariffs cover each cost component. A recovery rate above 100% indicates that the INA-CBG rate exceeds the costs incurred, leading to a profit margin for the hospital. For Class 1 Caesarean section (SC) services, a recovery rate of 146.06% shows that the INA-CBG tariff significantly covers direct costs, resulting in a surplus that can be allocated to other expenses or contribute to direct profit. A recovery rate of 129.02% demonstrates that the INA-CBG tariff also covers direct overhead costs effectively, reflecting efficient management and adequate rate coverage for these expenses. The recovery rate of 102.45% indicates that the INA-CBG tariff covers indirect overhead costs, though with a smaller margin compared to direct costs and direct overhead. Despite the smaller margin, there remains a surplus, indicating that the tariff sufficiently covers all indirect costs. The unit cost results for Class 3 SC cases, calculated using the real cost method, are compared with the applicable INA-CBG package rates for BPJS Health reimbursement, as detailed in Table 4.

Table -4: Comparison of INA-CBG Tariffs with Unit Costs for SC Class 3 Services in 2021

No.	Type of Costs	Cost Amount	Cumulative Cost	INA-CBG Tariff	Recovery
1	Direct Cost	3,834,316	3,834,316	4,975,200	129.75
2	Overhead Direct Cost	540,000	4,374,316	4,975,200	113.74
3	Indirect Overhead Cost	1,050,000	5,424,316	4,975,200	91.72

The recovery rate measures how well the INA-CBG tariffs cover each cost component. When the recovery rate is above 100%, it indicates that the INA-CBG rate exceeds the incurred costs, providing a profit margin for the hospital. Conversely, a rate below 100% signifies that the hospital faces losses or must subsidize costs. For instance, a recovery rate of 129.75% demonstrates that the INA-CBG tariff covers direct costs with a significant margin, resulting in a surplus that can be allocated to other expenses or contributes directly to profit. A recovery rate of 113.74% indicates that the INA-CBG tariff also effectively covers direct overhead costs, reflecting efficient management and adequate coverage of these expenses. However, a recovery rate of 91.72% shows that the INA-CBG tariff does not fully cover all indirect overhead costs, meaning that hospitals must absorb losses or provide subsidies for these costs.

4. DISCUSSION

The recovery rate measures how effectively INA-CBG tariffs cover each cost component. When recovery rates exceed 100%, it indicates that the INA-CBG tariff surpasses the costs incurred, resulting in a profit margin for the hospital. For instance, a recovery rate of 163.69% signifies that the INA-CBG tariff covers direct costs with a substantial surplus, allowing this excess to be allocated to other expenses or contribute directly to profit. Similarly, a recovery rate of 145.26% shows that the tariff effectively covers direct overhead costs, reflecting both efficient cost management and adequate coverage. A recovery rate of 110.65% demonstrates that while the INA-CBG tariff covers indirect overhead costs, the margin is narrower compared to direct costs and overhead. Nonetheless, the surplus indicates that all indirect costs are still covered.

The INA-CBG tariff for Class 1 SC services is greater than the total unit cost (IDR 6,965,200 vs. IDR 6,295,046), indicating that this tariff sufficiently covers all cost components, including direct costs, direct overhead, and indirect overhead. With the INA-CBG tariff exceeding the unit cost, there is a profit margin of approximately 10.65%. This margin not only allows the hospital to cover its operational costs but also to generate a profit from this service. The high recovery rates for direct costs and direct overhead reflect the hospital's efficiency in utilizing resources for SC

services. Profits from this margin can be reinvested into improving service quality, including acquiring new medical equipment, enhancing staff training, and upgrading hospital facilities. A high recovery rate contributes to the hospital's financial sustainability, enabling continued provision of high-quality medical services without financial deficits. Surplus funds can also be directed towards long-term investment projects such as technology upgrades, new service development, or facility expansion. While the INA-CBG rates are currently adequate, hospitals must continuously monitor cost changes and adjust rates as necessary to ensure they reflect actual costs and provide reasonable margins. This comparison of INA-CBG rates with unit costs demonstrates that RSIA Dr. Hj. Karmini EH Tasikmalaya has an effective costing strategy and successfully leverages INA-CBG tariffs to support its operations and sustainable service development.

The INA-CBG tariff for Class 2 SC services exceeds the total unit cost (IDR 5,970,200 vs. IDR 5,827,506), indicating that this tariff adequately covers all cost components, including direct costs, direct overhead, and indirect overhead. With the INA-CBG tariff surpassing the unit cost, there is a profit margin of approximately 2.45%. This margin demonstrates that the hospital not only covers its operational costs but also earns a profit from this service. The high recovery rates for direct costs and direct overhead reflect the hospital's efficiency in utilizing resources for SC services. Profits from this margin can be reinvested into improving service quality, such as acquiring new medical equipment, enhancing staff training, and upgrading hospital facilities. A high recovery rate supports the hospital's financial sustainability, allowing it to continue offering quality medical services without financial deficits. Surplus funds can be directed towards long-term investments, such as technology updates, new service development, or facility expansion. Although the INA-CBG rates are currently adequate, it remains crucial for hospitals to continuously monitor cost fluctuations and adjust rates as necessary to ensure that they remain reflective of actual costs and provide reasonable margins. This comparison of INA-CBG rates with unit costs illustrates that RSIA Dr. Hj. Karmini EH Tasikmalaya has an effective costing strategy and successfully leverages INA-CBG tariffs to support its operations and sustainable service development.

The INA-CBG tariff for Class 3 SC services is insufficient to cover all cost components. While it manages to cover direct costs and direct overhead, it falls short in addressing indirect overhead costs, leading to a deficit. The hospital incurs a loss of IDR 449,116 per case, which is 8.28% of the total unit cost. This shortfall indicates that the INA-CBG tariff does not adequately cover all operational costs, particularly indirect overhead costs. Hospitals cannot adjust INA-CBG rates independently as these rates are set by the guarantor, in this case, the government. Consequently, hospitals must seek alternative solutions to address this deficit. If the current situation persists without changes to INA-CBG rates or improvements in cost efficiencies, the hospital could face severe financial difficulties. A loss of IDR 449,116 per case significantly impacts the hospital's financial sustainability. With an assumed constant number of 100 Class 3 SC cases per year, the annual loss amounts to IDR 44,911,600. Over three years, this loss totals IDR 134,734,800; over five years, IDR 224,558,000; and over ten years, IDR 449,116,000, if no adjustments are made.

To mitigate these losses, hospitals need to explore strategies for covering the deficit, such as enhancing operational efficiencies, improving cost management, or identifying additional revenue sources. Collaborating with the government to review and potentially revise the INA-CBG tariff could also offer a long-term solution. Additionally, investing in technology and process improvements to increase operational efficiency can help reduce indirect overhead costs and enhance financial margins. The comparison between INA-CBG rates and unit costs for Class 3 SC services at RSIA Dr. Hj. Karmini EH Tasikmalaya reveals that the hospital incurs losses. Although the INA-CBG tariff sufficiently covers direct costs and direct overhead, it does not fully address indirect overhead costs, resulting in a deficit. To ensure financial sustainability, hospitals must seek efficiency improvements and work with the government to potentially revise INA-CBG rates.

Based on the INA-CBG unit cost and tariff data, projections for RSIA Dr. Hj. Karmini EH Tasikmalaya indicate potential significant losses if no corrective measures are taken. Assuming the number of Class 3 caesarean section (SC) cases remains constant at 100 per year, and there are no changes in operational costs or INA-CBG rates, the hospital could face cumulative losses exceeding IDR 134 million over three years and approaching IDR 450 million over ten years. These financial challenges could undermine the hospital's stability and its capacity to invest in facility and service improvements.

To address these potential losses, RSIA Dr. Hj. Karmini EH Tasikmalaya should consider implementing several strategies, including:

1. **Direct Cost Efficiency:** Streamlining operations to reduce the costs directly associated with caesarean sections.
2. **Overhead Optimization:** Identifying and managing indirect costs to enhance overall efficiency.
3. **Material and Tool Use Control:** Monitoring and managing the use of consumables and equipment to prevent waste.

4. **Human Resource Optimization:** Ensuring effective use of staff to improve productivity and reduce unnecessary labor costs.

Technological Integration: Leveraging technology to enhance operational efficiency and cost management.

These measures, based on scientific approaches and expert recommendations, are essential to mitigate financial losses and maintain the hospital's sustainability and growth. Given the projected substantial long-term losses, it is imperative for RSIA Dr. Hj. Karmini EH Tasikmalaya to undertake immediate and comprehensive corrective measures. Implementing strategies informed by expert opinions in health management is essential for mitigating financial losses, enhancing operational efficiency, and ensuring the sustained delivery of high-quality healthcare services.

Research on unit cost calculation using the real cost method provides a more accurate reflection of actual expenses. This approach not only analyzes the costs associated with primary activities in the clinical pathway, including direct and direct overhead costs, but also incorporates indirect overhead costs from non-service units that indirectly support cesarean section (SC) services. The analysis of unit cost components for SC cases at RSIA Dr. Hj. Karmini EH Tasikmalaya reveals that, as the BPJS Health patient care class decreases, the proportion of direct costs and direct overhead costs increases, while the proportion of indirect overhead costs decreases. Specifically, for Class 1, direct and direct overhead costs account for 23.83% of the total, for Class 2, 20.59%, and for Class 3, 19.30%.

The INA-CBG SC package rates at RSIA Dr. Hj. Karmini EH Tasikmalaya offer financial predictability for patients, facilitating their financial planning prior to undergoing cesarean section (SC) surgery. Patients have the flexibility to select treatment classes that align with their needs and budget. The package rates are as follows: IDR 6,965,200 for SC INA-CBG Class 1, IDR 5,970,200 for SC INA-CBG Class 2, and IDR 4,975,200 for SC INA-CBG Class 3.

The unit cost analysis for caesarean section procedures, based on the real cost method, reveals that for BPJS Health patients, the unit costs (acquisition price) for Class 1 and Class 2 services exceed the INA-CBG tariffs (selling price). This indicates that the hospital will realize a profit for SC cases treated under Classes 1 and 2. Conversely, for Class 3 services, the unit cost surpasses the INA-CBG tariff, leading to a deficit (subsidy) for the hospital.

RSIA Dr. Hj. Karmini EH Tasikmalaya primarily generates income through general patient services using hospital rates (fee-for-service system) and BPJS Health patients using INA-CBG rates (package system). With the trend shifting from general patients to BPJS Health patients, this change presents both opportunities and challenges from a financial perspective. The research indicates that income from BPJS Health claims, calculated using INA-CBG rates, is lower compared to income calculated using hospital rates. On average, the potential income loss is 28.31%. This loss is more pronounced in lower treatment classes: Class 1 experiences a 22.95% potential income loss, Class 2 shows a 28% potential income loss, and Class 3 faces a 34.99% potential income loss.

5. CONCLUSIONS

This research demonstrates that the real cost method provides a more accurate assessment of costs for Sectio Caesarea procedures. RSIA Dr. Hj. Karmini EH Tasikmalaya should maintain and consistently apply this method across all medical procedures. By doing so, the hospital will enhance cost transparency and improve budget planning and cost management. Additionally, further analysis of how overhead costs are distributed across different care classes can uncover opportunities for further efficiencies.

The INA-CBG SC package rates offer patients cost certainty and aid in financial planning prior to surgery. However, given that the research indicates that the unit costs for Class 1 and Class 2 treatments exceed the INA-CBG rates, it is advisable for hospitals to review these established rates. Coordination with BPJS Health to consider tariff adjustments that more accurately reflect the actual service costs is crucial, particularly for Class 3, where a deficit has been identified.

Given that the unit costs for Class 1 and Class 2 treatments exceed the INA-CBG rates, hospitals should focus on efficient resource management and explore additional income sources. Strategic actions include developing new services to attract general patients and enhancing service quality to retain BPJS Health patients. Additionally, hospitals should evaluate and optimize resource allocation in non-service units that support SC procedures to reduce overhead costs.

This research reveals that hospital income from BPJS Health claims, calculated using INA-CBG rates, is lower than that from hospital rates, resulting in an average potential revenue loss of 28.31%. To mitigate this issue, hospitals should adopt strategies to minimize these potential losses. These strategies include improving operational efficiencies, negotiating more favorable rates with BPJS Health, and enhancing service offerings to provide additional value to patients. Additionally, strengthening collaboration with hospital associations and other stakeholders is essential to advocate for rate adjustments that more accurately reflect the actual costs of medical services.

6. REFERENCES

- [1] M. Hafiz, T. P. Nadapdap, and I. Muhammad, "Analisis Implementasi Kebijakan Case Mix INA-CBG'S (Indonesian Case Base Groups) Berdasarkan Permenkes NO. 59 Tahun 2014 Di Rumah Sakit Pabatu Kabupaten Serdang Bedagi," *Media Publ. Promosi Kesehat. Indones.*, vol. 3, no. 2, pp. 113–122, 2020, doi: 10.56338/mppki.v3i2.1080.
- [2] L. Al-Qatawneh and K. Hafeez, "Healthcare logistics cost optimization using a multi-criteria inventory classification," 2011. [Online]. Available: <http://ieomsociety.org/ieom2011/pdfs/IEOM075.pdf>
- [3] D. Aulia, S. F. Ayu, and N. H. Nasution, "Analisis Upaya Rumah Sakit dalam Menutupi Kekurangan Biaya Klaim Indonesia Case Base Group (INA-CBGs) Yang Dihitung dengan Metode Activities Base Costing pada Rumah Sakit Swasta Kelas C di Kota Medan Tahun 2017," *J. Ekon. Kesehat. Indones.*, vol. 1, no. 4, pp. 159–166, 2017, doi: 10.7454/eki.v1i4.1783.
- [4] T. T. Tetriadi and A. Nurwahyuni, "Analisis Biaya Satuan Pelayanan Sectio Caesaria dan Upaya Efisiensinya di RSD Kol. Abundjani Bangko," *J. Ekon. Kesehat. Indones.*, vol. 5, no. 1, pp. 1–9, 2020, doi: 10.7454/eki.v5i1.3340.
- [5] E. Azzolini, G. Furia, A. Cambieri, W. Ricciardi, M. Volpe, and A. Poscia, "Quality improvement of medical records through internal auditing: A comparative analysis," *J. Prev. Med. Hyg.*, vol. 60, no. 3, pp. E250–E255, 2019, doi: 10.15167/2421-4248/jpmh2019.60.3.1203.
- [6] F. Salesman, A. R. Tualeka, and M. D. Bolilera, "The Controversy of Views About Health Service Quality Between Health Provider and Patients With Bpjs Insurance: A Case Study in Mamami Hospital – Kupang," *Glob. J. Health Sci.*, vol. 10, no. 9, p. 18, Aug. 2018, doi: 10.5539/gjhs.v10n9p18.
- [7] F. Rahman, "Analisis Biaya Layanan Diabetes Melitus dengan Komplikasi dan Faktor Penentu Inefisiensi Penanganan Diabetes Melitus di Rawat Inap RSUD Banyuasin Tahun 2015," *J. Adm. Rumah Sakit Indones.*, vol. 3, no. 1, pp. 29–41, 2016, doi: 10.7454/arsl.v3i1.2210.
- [8] S. P. Arso and A. S. Putro, "The Effectiveness of Internal Audit in Regional Public Hospitals as Regional Public Service Agencies," 2022. doi: 10.14710/jmki.10.1.2022.65-72.
- [9] M. F. A. Adhikara, Maslichah, N. Diana, and M. Basjir, "Organizational Performance in Environmental Uncertainty on the Indonesian Healthcare Industry: A Path Analysis," *Acad. J. Interdiscip. Stud.*, vol. 11, no. 2, pp. 365–377, Mar. 2022, doi: 10.36941/ajis-2022-0058.
- [10] E. S. Ari, J. O. Sotunsa, T. A. Leslie, S. Inuwa Ari, and P. R. Kumzhi, "Impact of an educational intervention on postpartum perineal wound care among antenatal mothers in Jos: A quasi-experimental study," *Clin. Pract.*, vol. 16, no. 6, 2019, doi: 10.37532/fmcp.2019.16(6).1409-1422.
- [11] L. Candrayanti, "Faktor-Faktor Yang Mempengaruhi Ruptur Perineum Pada Ibu Bersalin Normal di Rumah Sakit Bhayangkara Mappaouddang Makassar Tahun 2014," *J. Islam. Med.*, vol. 3, no. 2, pp. 9–16, 2019, doi: 10.18860/jim.v3i2.8239.
- [12] N. Indrasari, J. Kebidanan, P. Kesehatan Tanjungkarang, and J. Keperawatan, "Pengaruh Teknik Vulva Hygiene terhadap Jumlah Kuman Vulva pada Ibu Nifas di BPM Kota Bandar Lampung."
- [13] E. Erfina, W. Widyawati, L. McKenna, S. Reisenhofer, and D. Ismail, "Exploring Indonesian adolescent women's healthcare needs as they transition to motherhood: A qualitative study," *Women and Birth*, vol. 32, no. 6, pp. e544–e551, Dec. 2019, doi: 10.1016/j.wombi.2019.02.007.