

COMPARISON OF ACTUAL COSTS AND INA-CBGs TARIFFS UNDER THE JKN SYSTEM: FACTORS INFLUENCING HOSPITAL TARIFFS

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ABSTRACT

The Social Security Administration (BPJS), as the organizer of the National Health Insurance (JKN) program, applies the INA-CBGs tariff system. In the INA-CBGs system, payments are based on grouping patient cases into specific categories according to diagnoses and medical procedures performed. The hospital payment system has shifted from a fee-for-service model to a prospective payment system. BPJS no longer considers the actual costs incurred by hospitals but instead focuses on the standardized INA-CBGs tariffs. This study aims to examine previous research comparing real hospital costs with INA-CBGs tariffs, and to identify the factors that contribute to discrepancies between the two. A narrative literature review was conducted by searching for articles in the PubMed and Google Scholar databases. Data extraction was performed using predefined inclusion and exclusion criteria, and the article selection process followed the PRISMA method. From the selected articles, seven studies related to the comparison of real hospital costs and INA-CBGs tariffs and the factors influencing these discrepancies were identified. The review found that factors influencing real costs include the length of hospital stay, treatment class level, patient severity, and the presence of comorbidities.

Keywords: Real hospital costs; INA-CBGs tariffs; JKN

1. INTRODUCTION

Hospitals are health care institutions that organize comprehensive individual health services, including inpatient, outpatient, and emergency services. Hospitals are complex organizations because they are capital intensive, business intensive, and labor intensive, so their management requires a balance between service quality and patient satisfaction. Along with the increasing demands for quality and efficient services, hospitals must not only be oriented towards patient satisfaction, but also towards creating customer value on an ongoing basis.

Based on the Minister of Health Regulation (Permenkes) Number 30 of 2022 concerning National Indicators of Health Service Quality, all hospitals in Indonesia, both public and private, are required to provide optimal, safe, and efficient health services by paying attention to quality and cost control. In order to support the National Health Insurance (JKN) program, hospitals must be able to adjust to the BPJS Health claim rates as stipulated in Permenkes Number 3 of 2023. For this reason, various quality and cost control strategies are implemented so that service sustainability is maintained amid limited resources (Indonesia, 2022; Nugraheni, et al., 2021).

The healthcare tariff system in Indonesia has changed from a fee-for-service model to a prospective tariff system. In the fee-for-service model, each medical procedure is paid based on the number of services provided, whereas in the prospective tariff system, tariffs are predetermined for certain diagnosis categories, without considering the actual costs incurred by

the hospital. The transition from a fee-for-service payment system to a case group-based prospective payment system, beginning with the implementation of INA-DRGs around 2008 and followed by the national implementation of INA-CBGs in 2014, marked an important transformation in healthcare financing. In the INA-CBGs system, BPJS Kesehatan pays based on groupings of medical diagnoses and treatments, rather than the real costs incurred by hospitals (Wika, et al., 2024; Clarias, et al., 2018).

Since its implementation in 2014, the INA-CBGs tariff has undergone several adjustments. The Ministry of Health conducts periodic evaluations of service tariffs within the National Health Insurance scheme, with reviews carried out at least once every two years. One of the latest tariff adjustments is regulated in the Minister of Health Regulation Number 3 of 2023 (Rahayuningrum, et al., 2016; Tandah, et al., 2021). However, there are limited studies that comprehensively identify the factors that influence the size of real costs compared to INA-CBGs rates, especially in the context of the latest changes in 2023. Therefore, this study has the novelty of analyzing the comparison of real costs with the latest INA-CBGs tariffs and the factors that influence these differences. The main problem in this study is the discrepancy between the hospital's real costs and the established INA-CBGs rates, which may pose a risk to the hospital's financial sustainability. The purpose of this study is to identify the comparison between real costs and INA-CBGs tariffs based on previous studies, and to examine the factors that contribute to the cost differences.

2. METHODS

This study is a narrative literature review with a systematic approach. The process began with a comprehensive search for relevant articles through Harzing's Publish or Perish application, using two main databases: PubMed and Google Scholar. The search strategy employed specific keywords, namely "real hospital tariff," "INA-CBGs tariff," and "JKN."

All retrieved articles were compiled and organized for further processing. A duplication check was conducted to eliminate repeated articles. The inclusion criteria for article selection were as follows: (1) articles published within the last nine years (2014–2023), (2) articles written in English, and (3) articles that discussed the comparative analysis of real hospital costs versus INA-CBGs tariffs and influencing factors. Meanwhile, the exclusion criteria were: (1) incomplete articles, (2) inaccessible full-text articles, and (3) non-original research articles.

Selected articles were managed using the Mendeley reference management software to facilitate citation and bibliography organization. The literature review process adhered to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. Following PRISMA (Figure 1), the stages of the review included identification, screening, eligibility assessment, and final inclusion, as illustrated in the PRISMA flow diagram presented below.

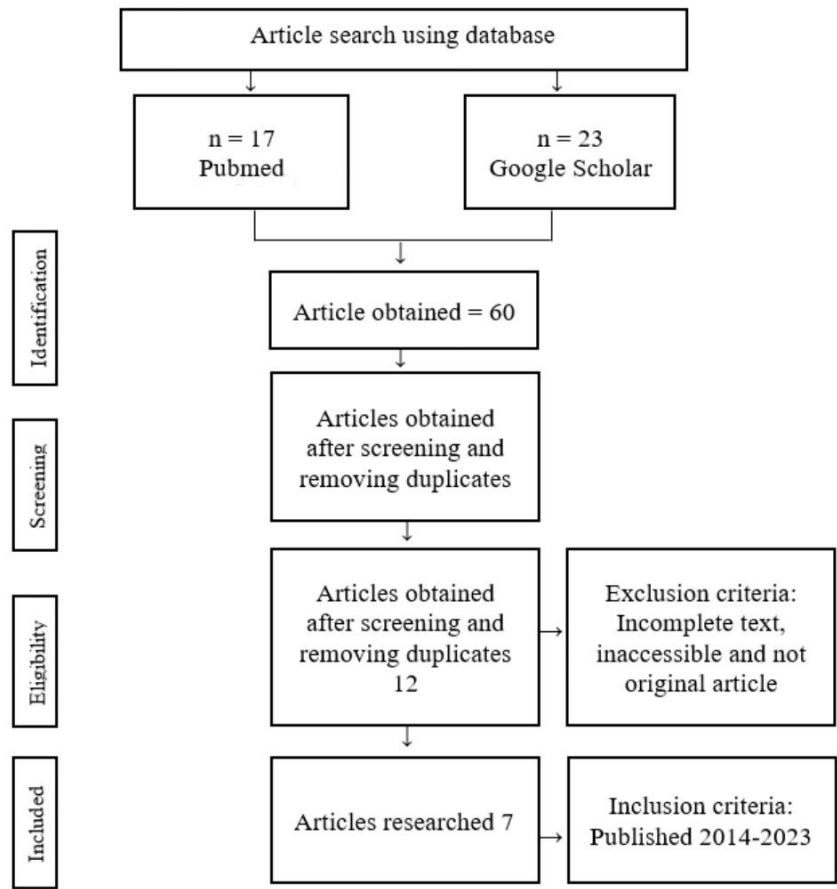


Figure 1. PRISMA flow diagram showing the article selectio process for this literature review.

3. RESULTS AND DISCUSSION

At the initial stage of the article search, 60 research articles were identified. These articles were then screened based on their titles and abstracts to ensure alignment with the research objectives. Duplicate articles were removed, followed by a full-text assessment, resulting in the selection of 7 articles for further analysis. The focus of the review was on research articles that discussed the comparative analysis of real hospital costs and INA-CBGs tariffs, as well as the influencing factors (Table 1).

Table 1. Similar research has been conducted

No	Tittle	Study Design	Result

1	Analysis of real cost differences with INA-CBGs rates and influencing factors for chronic renal failure in the national health insurance era (Sulistyaningrum, et al., 2021).	Analytic descriptive method in a retrospective manner with a cross-sectional approach. Data in the form of quantitative.	There is a difference between real hospital costs with INA-CBG rates for chronic renal failure, the largest difference occurs at severity level II, with an amount of Rp 5,727,097. This is because, in severity level II, the costs are higher than in severity levels I and III. In addition, severity level II also has a large number of patients, which is 41 patients. There are no factors that affect the real costs of chronic renal failure patients. Either class of care, or length of treatment (LOS).
2	Comparative of real cost against the price of INA-CBG's breast cancer and its factors in JKN program era (Santoso, et al., 2020).	Non experimental (observational) research.	There is a difference in real hospital costs with INA-CBG rates, the statistical results show a significance value of $p < 0.05$, which indicates a significant difference. The difference between INA-CBG rates and real costs amounted to Rp (187,228,700), indicating that INA-CBG rates were lower than real costs. For breast cancer in the JKN era at the Sultan Agung Islamic Hospital Semarang for the period January 2017 - October 2017, the factors that influence costs are class of care and length of stay(LOS).
3	Real cost analysis of hypertension treatment of inspired patients on INA-CBG's rates at rsnu jombang (Istiqomah, et al., 2022).	Descriptive cross-sectional method with retrospective study design.	In 2017, the actual inpatient costs for hypertension were influenced by comorbidities, length of stay, and disease severity. However, in 2018, no variables were found to significantly impact the real costs. The gap between real expenses and the INA-CBGs reimbursement rates in both 2017 and 2018 showed a significant positive value, with the average per-patient difference ranging from about Rp 233,104 to Rp 1,722,427 in 2017 and from roughly Rp 386,864 to Rp 1,722,427 in 2018. These findings suggest that the actual spending was below the INA-CBGs tariff, indicating that hospitals were able to maintain cost efficiency in providing inpatient care for hypertension cases.
4	The disparity between INA-CBGs rates and hospital rates for hospitalized BPJS patients at Kolonodale Regional General Hospital, north Morowali district (Dewi, et al., 2019).	Descriptive research with document study and observation.	The disparity between INA-CBGs rates and hospital rates applicable in the Kolonodale Regional General Hospital, especially in the cesarean delivery procedure according to claims in October - December 2017 is very large, amounting to Rp. -110,530,344. Hospitals are required to implement clinical flow so that no variation in services can affect the amount of tariffs. The results of the unit cost calculation obtained in each class of care, namely VIP amounting to Rp. 7,131,200, Class I Rp.6,293,944 and Class III Rp.6,148,056. INA-CBGs rates are lower than unit costs for cesarean section services in VIP class, class I, and class III. From the number of cases based on

data from October - December 2017, most cases are in class III of 23 cases while in VIP class and class I of 10 cases, which means that the cesarean delivery procedure without complication in the Kolonodale Regional General Hospital is detrimental to the hospital.

5	INA-CBGs Claim versus Total Hospital Cost: A Vaginal Delivery Investigation at Airlangga University Academic Hospital, Indonesia (Wardhana, et al., 2020)	Ccross-sectional observational research	The cost of vaginal delivery from the national health insurancesystem was below the actuarial value. The average total hospital cost for all vaginal delivery cases was IDR 9,238,022 ± 1,265,801 and the average INA-CBG cost for all vaginal delivery cases was IDR 1,881,521 ± 12,830. The average cost disparity between the total hospital costs and the INA- CBGs costs was IDR 7,356,501. There is a significant difference, where the funding collected from the Indonesian government in the form of INA-CBGs is lower than the hospital costs.
6	Comparison of Real Costs against the Price of INA-CBG's Ischemic Stroke in Bethesda Hospital (Muslimah, et al., 2017)	This cost of illness research method is an observational study with an analytic approach using a cross-sectional design. The analysis was conducted from the hospital's perspective.	The largest cost component of inpatient care is the cost of rooms and outpatient care in the group of drugs and medical goods. The total real cost of hospitalization was IDR 1,067,232,824 and the cost from INA-CBGs was IDR 611,745,100, resulting in a negative difference and costs that must be borne by the hospital of IDR 455,487,724. The total real cost of outpatient care was IDR 45,841,500 and the cost from INA-CBGs was IDR 36,222,600 so the difference in costs to be borne by the hospital was IDR 9,618,900. Overall, the budget for stroke disease from the BPJS is not sufficient to finance the treatment of ischemic strokepatients.
7	Comparison of Real Cost Versus the Indonesian Case Base Groups (INA-CBGs) Tariff Rates Among Patients of High-Incidence Cancers Under the National Health Insurance Scheme (Satibi, et al., 2019)	Observational study (non-experimental). Data was collected retrospectively.	The results showed a significant difference in non-chemotherapy expenditure based on real costs and INA-CBG rates, where costs were lower for real costs. The average cost for grade 1 breast cancer of severity 1 was Rp.1,109,456 (real cost) and Rp. 5,209,221 (INA-CBGs tariff), the average cost for grade 2 cervical cancer of severity 2 was Rp.863,563 (real cost) and Rp. 8,228,218 (INA-CBGs rate) and the average cost for grade 3 nasopharyngeal cancer severity 3 was Rp. 1,995,305 (real cost) and Rp. 9,668,865 (INA-CBGs rate). Factors significantly associated with real costs were number of procedures, type of inpatient room, and length of stay.

In this study, we analyzed the discrepancy between actual (real) hospital costs and INA-CBGs tariffs, as well as the influencing factors in chronic renal failure cases during the era of the National Health Insurance (JKN) program. Descriptive analysis by age revealed that the highest incidence of chronic renal failure occurred among patients aged 40–50 years, with 82

cases (34.5%). A high incidence was also observed in the 51–60 years age group, accounting for 28.6% of cases. This trend may be attributed to the aging process, which is often accompanied by multiple comorbidities requiring polypharmacy. The accumulation of drugs, especially those metabolized through the kidneys, increases renal workload and may elevate the risk of chronic renal failure. Cost analysis demonstrated a noticeable difference between the real costs and INA-CBGs rates, with the greatest discrepancy observed at severity level II. This level showed the highest treatment costs and patient volume. The chi-square test indicated a statistically significant difference between real costs and INA-CBGs rates. This study provides insights into the characteristics of chronic renal failure patients in the hospital setting. Variables examined for their influence on real costs included gender, age, inpatient class, severity level, and length of stay. However, none of these variables were found to have a statistically significant effect. Thus, the study concludes that factors such as gender, age, inpatient class/severity, and length of hospitalization do not significantly influence the actual cost of treating chronic kidney disease patients (Sulistyaningrum, et al., 2021).

A study comparing real hospital costs with INA-CBGs rates for breast cancer treatment in the era of National Health Insurance (JKN) revealed that the average length of stay (LOS) was 4 days. This figure was obtained by dividing the total number of inpatient days by the total number of patients. A longer average LOS generally reflects poorer hospital performance, as it indicates a slower patient recovery process. Additionally, an extended LOS increases the total medical costs borne by the patient. An LOS range of 3–12 days is considered ideal and indicative of effective hospital care. Therefore, Sultan Agung Islamic Hospital in Semarang can be regarded as effective in managing inpatient services for therapeutic treatments, including those for breast cancer, as it maintains an ideal LOS. This efficiency may be attributed to the hospital's implementation of clinical pathways for high-cost conditions such as breast cancer. These findings are consistent with (Muslimah, et al., 2017), who stated that the class of care significantly affects real costs, with higher care classes incurring greater expenses. Statistical analysis of the LOS variable in this study showed a significant result ($p < 0.05$), indicating that LOS has a meaningful impact on hospital costs. This supports previous research by (Muslimah, et al., 2017) which found that the length of hospitalization affects treatment costs because the longer a patient is treated, the more services are provided, resulting in higher expenses. In conclusion, there is a significant difference between real hospital costs and INA-CBGs rates for breast cancer treatment at Sultan Agung Islamic Hospital Semarang during the period of January to October 2017. The factors influencing these costs include the class of care and length of stay (LOS) (Santoso, et al., 2020).

In the study Analysis of the real cost of treatment of hospitalized hypertensive patients against INA-CBGs tariffs in Jombang hospitals, the first factor that affects is LOS, the longer the LOS time, the more medical actions given to the patient, and the more drugs needed to overcome the disease, thereby increasing the cost of drugs, accommodation costs and supporting costs which will affect the overall real cost. The second factor is comorbidities that can affect the amount of medical costs such as urinary tract infections, because the more comorbidities experienced by patients will slow down the patient's recovery and prolong the patient's LOS. The third factor is severity, the higher the severity experienced by the patient, the longer the treatment requires, so that the patient gets more treatment both in terms of supporting examinations, drug costs, medical action costs, and patient hospitalization costs (Istiqomah, et al., 2022).

The average real cost of treatment for hypertension patients shows a significant difference between the real cost and the INA-CBGs cost package rate. This is influenced by several factors such as comorbidities, severity, and LOS, because the higher the severity experienced by the patient, the more comorbidities are caused, so the LOS will be longer. In addition, the difference between the average real cost and the INA-CBGs cost package rate is influenced by the drugs

used during the patient's hospitalization. The longer the patient is hospitalized, the longer the need for drugs will increase. The increase in drug rates given to patients is also influenced by the age of the patient because, with differences in the age of the patient, the dose of drugs given will also be different, this will affect the total amount of cost rates incurred. Based on the Minister of Health Regulation No. HK.02.02 / Menkes/068 / 2010 concerning the obligation to use generic drugs in government health service facilities, the INA-CBGs cost package rates for drug services in government health facilities are required to use generic drugs ([Indonesia, 2010; Istiqomah, et al., 2022](#)).

The large tariff disparity between INA-CBG rates and Kolonodale hospital rates, especially for uncomplicated cesarean section services in the October-December 2017 period, amounted to Rp110.53 billion. The results of the calculation of the unit cost of uncomplicated cesarean section services at Kolonodale Hospital for VIP, class I, and class III treatment classes are greater than the INA-CBGs rates. The INA-CBG tariff was only able to cover the cost of services in class I, while for VIP and class III the INA-CBG tariff was lower than the real cost/unit cost that the hospital had to incur. The large difference between tariffs and costs results in losses for hospitals in uncomplicated cesarean section services. It is necessary to adjust and synchronize the INA-CBGs tariff scheme with the real costs incurred by the hospital. Factors that cause INA-CBGs tariffs to only cover the cost of services in class I, while for VIP and class III the INA-CBGs tariff is lower than the real cost/unit cost are: The first factor is that the INA-CBGs tariff calculation method based on diagnosis (diagnosis related group/DRG) prospectively cannot fully adjust to variations in real costs based on treatment class, the second factor is that the cost of cesarean section services is higher in VIP and class III treatment classes than class I due to the facilities and services provided (for example, inpatient rooms, food menus, etc.), the third factor is that INA-CBGs tariffs are set by the government in general without considering the diversity of conditions and costs between service facilities, and the fourth factor is that hospitals have not been able to maximize cost efficiency to adjust the set tariffs. There are suggestions for future researchers to examine cesarean section accompanied by complications ([Dewi, et al., 2019](#)).

Based on the results of a study of INA-CBG claims with total hospital costs: Investigation of normal delivery at the academic hospital of Airlangga University Indonesia. It was found that the amount of vaginal delivery cost claims based on the government's INA-CBGs payment scheme was lower than the total real costs incurred by the hospital. The higher the difficulty level of vaginal delivery based on the INA-CBGs classification, the longer the patient's hospital stay, the higher the total hospital costs, and the disparity between INA-CBGs claims and total real costs tended to increase significantly. This indicates that the midwifery service rates set by the government through the INA-CBGs scheme are still below the actuarial value. For this reason, it is deemed necessary to revise the obstetric service payment system policy and adjust its rates according to actuarial values, to improve the quality of maternal and infant health services and efforts to reduce maternal mortality in Indonesia. In other words, the government needs to increase the number of claims for vaginal delivery costs in the INA-CBGs scheme to support the implementation of quality and cost-effective maternal health services ([Wardhana, et al., 2020](#)).

The study compared real costs to INA-CBG rates for ischemic stroke treatment at Bethesda Hospital Yogyakarta. Aims to analyze in detail the cost of stroke care based on cost components and compare it with the rates set by INA-CBGs. The method used was analytic observational research with a cross-sectional design. Secondary data sources were medical records, financial data, and INA-CBG claims. The research subjects were 96 inpatient and outpatient ischemic stroke patients. several factors affect the real cost of ischemic stroke patients, namely: The first factor is the length of treatment, the longer the patient is treated, the greater the costs incurred because of the accumulation of costs every day of treatment for various cost components such as drugs, beds, doctor services, examinations, and others. The

second factor is the class of care, the higher the class of care chosen, the greater the treatment rate charged. This is by the facilities received by patients in each class. The third factor is the type of medical action, the more and more complicated medical actions the patient receives, such as surgery or certain pathologies, the greater the cost will be. The fourth factor is complications, patients who experience complications during treatment will incur additional costs for handling their complications. The fifth factor is the number of visits, the more often the patient makes outpatient visits, the costs for doctor services, medicines, and examinations will be greater. The results show that the characteristics of length of treatment and class of care affect the amount of real costs. The largest cost components of inpatient care are room costs, medicines, and medical actions. The largest outpatient costs are medicines and doctors' services. There is a significant difference between real costs and INA-CBG rates for outpatient and inpatient class 1. INA-CBG rates are less able to finance the care of ischemic stroke patients (Muslimah, et al., 2017).

A comparison between real costs and INA-CBGs rates in high-incidence cancer patients under the national health insurance program in the case of breast cancer, cervical cancer, and nasopharyngeal cancer patients, this study showed significant differences in non-chemotherapy expenditure based on real costs and INA-CBGs rates. Factors significantly associated with real costs were number of procedures, type of hospitalization room, and length of stay. This study supports the need for the evaluation of INA-CBG rates to be adjusted to real healthcare expenditure. On the other hand, hospitals need to evaluate the quality of patient care services by optimizing the budget allocated by health insurance (Satibi, et al., 2019).

Based on the articles that have been analyzed, the disparity between INA-CBG rates and hospital rates for inpatient BPJS patients is still not balanced because the costs incurred by the hospital are still greater than the costs paid by BPJS. According to the regulation of the minister of health of the Republic of Indonesia Number 3 of 2023 article 48, it is stated that national health insurance participants who want a higher class of care than their rights can increase the class of care by paying the difference in costs but if the patient does not want a higher class of care then the difference or difference in costs between the rates of BPJS health participants for outpatient and inpatient care classes I, II, III is borne by the hospital as a health service provider, providing services without additional costs beyond the provisions is one of the promises of national health insurance services that must be implemented by hospitals that work with BPJS. INA-CBGs tariffs include tariffs for services: service administration; basic medical examination, treatment, and consultation; specialized examination, treatment, and consultation; specialized medical procedures, both surgical and non-surgical by medical indications; drug services, medical devices, and consumable medical materials; advanced diagnostic support services by medical indications; medical rehabilitation; blood services; body recovery of participants who died at the health facilities; family planning services; non-intensive inpatient care; and inpatient care in the intensive room (Indonesia, 2024).

In the INA-CBGs system, payment is based on grouping patient cases into certain categories based on the diagnosis and medical procedures applied. BPJS no longer considers how much costs are actually incurred by hospitals with various services provided in one episode of hospitalization, but rather focuses on the INA-CBGs tariff. From the results of the article analysis several factors must be considered so that the real costs can be balanced or smaller than the INA-CBGs tariff, as for these factors are the first factor increasing the length of treatment period has implications for increasing the total cost of care, which involves all components of patient costs such as drugs and medical goods, medical services, medical support costs, hospital service costs, and room costs. This means that the longer the patient is treated, the higher the accumulated costs incurred. The second factor is the class of care. In the INA-CBGs system, BPJS reimburses hospitals according to the patients's entitled class of care (class 3, class 2, and class 1). The lower the class of care, the lower the reimbursement received by the hospital:

therefore, if patients remain hospitalized longer in lower classes, the actual hospital costs that exceed the INA-CBGs tariff may result in potential financial losses for the hospital. Meanwhile, if patients upgrade their class of care, the additional cost is borne by the patients themselves, not BPJS. The third factor is that patients with more severe or complex diseases or medical conditions may be categorized into groups that require more intensive care, and the payments made to healthcare providers may reflect that severity. The fourth factor of comorbidity is when a person has more than one disease or medical condition at the same time. In the INA-CBGs system, the presence of comorbidities may affect the disease group category or case assigned, which in turn may affect the payment. Comorbidities can increase the level of treatment complexity and risk, thus also affecting the amount of payment to health care providers.

Since the implementation of the case-mix system in Indonesia, there have been five changes in tariff rates, namely the INA-DRG tariff in 2008, INA-CBGs tariff in 2013, INA-CBGs tariff in 2014, INA-CBGs tariff in 2016 and INA-CBGs tariff in 2023. This is in line with Presidential Regulation No. 12 of 2013 on National Health Insurance as amended by Presidential Regulation No. 111 of 2013, which mandates that tariffs be reviewed at least every 2 years. This may include an evaluation of the amount of payments made to health providers, adjustments based on changes in policy or economic conditions, or other changes deemed necessary (Satibi, et al., 2019; Nurwahyuni & Setiawan, 2019).

With Presidential Regulation No. 111 of 2013 mandating tariffs to be reviewed at least every 2 years, this provides an opportunity for research on the comparison of real costs with INA- CBGs tariffs for each disease and medical procedure in hospitals that provide services to patients with national health insurance. The results of the study are expected to provide input for hospital managers in applying the principles of cost efficiency, as well as for the government in evaluating and adjusting INA-CBGs rates to ensure the continuity of the JKN program without reducing the quality of health services and this is the background for the author to conduct a comparative analysis of real costs and INA-CBGs rates in sinusitis, tumors and selection criteria delivery with complication (Indonesia, 2013).

INA-CBGs is a payment system based on the grouping of disease diagnoses and procedures that have similar clinical and resources. Disease diagnosis grouping is based on the 2010 version of ICD-10 and procedure grouping is based on the 2010 version of ICD-9-CM. INA-CBGs grouping uses the INA-CBGs E-claim application, the coder codifies the diagnosis and action/procedure written by the doctor treating the patient to produce the INA-CBGs code and tariff, the INA-CBGs code determines the amount of tariff paid by the BPJS to the hospital, therefore coders in hospitals must have the expertise and a good understanding of coding rules and applicable regulations to avoid pending claims, dispute, and return of claim payments that are not by coding rules. The ability to manage claims is very important, hospitals with efficient claims management will avoid financial risk (Ulandari, et al., 2020).

Facing the era of national health insurance, where the payment system for health insurance patients to hospitals uses the INA-CBGs package system based on disease diagnosis, hospitals need to develop clinical flow, then the results of the calculation of action-based unit costs can be the basis for the preparation of disease diagnosis-based unit costs or clinical flow unit costs. Clinical flow is a multidisciplinary approach that involves all health professionals. Its function is as a tool to guide evidence-based health care by translating clinical practice guideline (CPG) recommendations into clinical care processes in health facilities. The importance of clinical flow lies in its crucial role in improving the quality of healthcare, which results in decreased hospital length of stay (LOS), patient costs, and improved patient outcomes. The process of implementing Clinical flow is a complex challenge, especially in changing behavior in a specialized environment. Dealing with natural resistance when implementing clinical flow requires continuous change and strong support from management and clinicians. In this context, adherence to clinical flow should be measured before the clinical flow development and

implementation phase as an indicator of the impact of implementing clinical practice guidelines (CPRs) (Rabiulyati & Nurwahyuni, 2023).

4. CONCLUSION

The disparity between INA-CBGs rates and actual hospital costs for BPJS inpatient services remains a significant challenge, as hospital expenditures often exceed the reimbursements provided by BPJS. This gap is influenced by several factors, including the patient's length of stay (LOS), level of treatment class, severity of illness, and the presence of comorbidities, with higher values in these aspects leading to increased hospital costs. The implementation of clinical flow protocols has proven effective in enhancing healthcare quality by reducing LOS, lowering patient expenses, and improving patient outcomes. Although this study highlights these findings, it also acknowledges limitations in the current scope of INA-CBGs calculations, particularly for complex cases. Future research should aim to address these limitations by exploring strategies to refine INA-CBGs rates, with the goal of achieving a better balance between hospital costs and BPJS reimbursements, especially for patients requiring intensive care. This approach could contribute to a more sustainable healthcare reimbursement model that benefits both healthcare providers and patients.

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6. CONFLICT OF INTEREST

All authors declare that there is no conflict of interest.

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