

A Systematic Review of Reimbursement Mechanisms: Effectiveness, Efficiency, and Patient Satisfaction in Insurance-Based Health Financing Systems

¹Neliyana*, ²Ummi Kalsum, ³Asparian

¹Master's Program in Public Health, Faculty of Medicine and Health Sciences, Universitas Jambi, Jambi, Indonesia*; email: neliyaneliyana21@gmail.com

² Universitas Jambi, Jambi, Indonesia

³ Universitas Jambi, Jambi, Indonesia

*Correspondence

Article Information

Submitted: 19 May 2026

Accepted: 18 June 2026

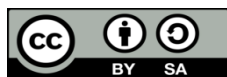
Publish: 23 June 2026

Keyword: Reimbursement Mechanism; Health Financing; Service Effectiveness; Cost Efficiency; Patient Satisfaction;

Copyright holder: Neliyana, Ummi Kalsum, Asparian

Year: 2026

This is an open access article under the [CC BY-SA](https://creativecommons.org/licenses/by-sa/4.0/) license.



Abstract

Introduction: The reimbursement mechanism is a fundamental component in an insurance-based financing system that affects service effectiveness, operational efficiency, and patient satisfaction. **Objective:** This study aims to conduct a systematic review of the literature that discusses reimbursement mechanisms with a focus on these three main dimensions. **Method:** Using the Systematic Literature Review approach following the PRISMA 2020 guidelines, a comprehensive search was conducted through four electronic databases to identify peer-reviewed articles for the 2021-2025 period. Of the 30 articles initially identified, six studies met the inclusion criteria and were analyzed in depth. **Results and Discussion:** Results show that the Diagnosis Related Groups system is effective in reducing costs but has the potential to negatively impact the quality of service. Differential reimbursement and cost-sharing mechanisms have been shown to be able to direct healthcare seeking behavior, although their effectiveness is highly contextual dependent on geographic and socio-economic factors. Patient satisfaction shows significant variation by service class with disparities in the dimensions of effectiveness, accessibility, patient-centeredness, and equity. The utilization rate of health services in Indonesia's National Health Insurance system is still relatively low, indicating the need for a comprehensive evaluation of the design of reimbursement mechanisms. **Conclusion:** This study emphasizes that optimizing the reimbursement system requires a holistic approach that balances cost efficiency, service quality, and patient satisfaction as interrelated outcomes in the health financing ecosystem

Introduction

The insurance-based health financing system is a key pillar in achieving universal health coverage (UHC), including in Indonesia through the National Health Insurance (JKN) program, which has covered more than 95% of the population by 2023 (Juda, 2024); (Sudrajat, 2022); (Widjaja, Yustanti, Sijabat, & Dhanudibroto, 2025). The reimbursement mechanism is an important component that not only functions as a payment instrument, but also affects the quality of service, operational efficiency of health facilities, and patient satisfaction. However, the JKN system still faces various fundamental problems, including late payment of claims, inconsistency between INA-CBG rates with actual service costs, and gaps in access to health services between regions which ultimately have an impact on the financial sustainability of health facilities and the quality of services received by patients (Zahara & Fitriani, 2025); (Kunarti & Sudrajat, 2024); (Putri, Yektiningtyastuti, Hakim, & Gunawan, 2025); (Nilmawati, Yanie, & Saputera, 2025); (Wiriadiputri, Nursanty, & Maulina, 2025).

Various reimbursement models such as fee-for-service, capitation, bundled payment, and value-based reimbursement have different consequences for provider behavior, service utilization, and patient clinical outcomes. Recent studies show that the relationship between reimbursement mechanisms and patient satisfaction is not simple—low patient satisfaction scores are sometimes found to coincide with higher reimbursement rates, a paradox that requires a deeper understanding. Therefore, a systematic evaluation of the reimbursement mechanism is an urgent need to find a financing model that best suits the characteristics and needs of the national health system.

This study aims to conduct a systematic review of the reimbursement mechanism in the insurance-based health financing system, with an emphasis on evaluating the effectiveness of various reimbursement models on service quality and clinical outcomes, their efficiency in resource management and cost control, and their relationship with patient satisfaction as a benchmark of service quality. The results of this study are expected to be a reference for policy makers in improving the JKN reimbursement mechanism to be more effective, efficient, and in favor of patient satisfaction

Method

This study adopts the *Systematic Literature Review* (SLR) approach by following the *guidelines of Preferred Reporting Items for Systematic Reviews and Meta-Analyses* (PRISMA) 2020 to ensure the transparency and reproducibility of the review process. A comprehensive literature search was conducted through four major electronic databases, namely PubMed/MEDLINE, Scopus, Web of Science, and Cochrane Library using a combination of the keywords "reimbursement", "healthcare financing", "health insurance", "effectiveness", "efficiency", and "patient satisfaction" with Boolean operators. The inclusion criteria include *peer-reviewed* articles in English for the period 2021-2025 that discuss reimbursement mechanisms in the health insurance system. The selection process was carried out through the stages of identification, *screening*, feasibility assessment, and inclusion by two independent researchers. Data were systematically extracted and analyzed using structured narrative synthesis based on the dimensions of effectiveness, efficiency, and patient satisfaction

Result and Discussion

1. Results

Search Results and Study Selection

The literature search process was carried out systematically using four main electronic databases, namely PubMed/MEDLINE, Scopus, Web of Science, and Cochrane Library with a publication time range of 2021-2025. The search strategy resulted in the initial identification of 30 articles relevant to the topic of *reimbursement* mechanisms in the insurance-based health financing system. After removing duplicates using reference management software, 10 duplicate articles were found, leaving 20 articles for *further screening*.

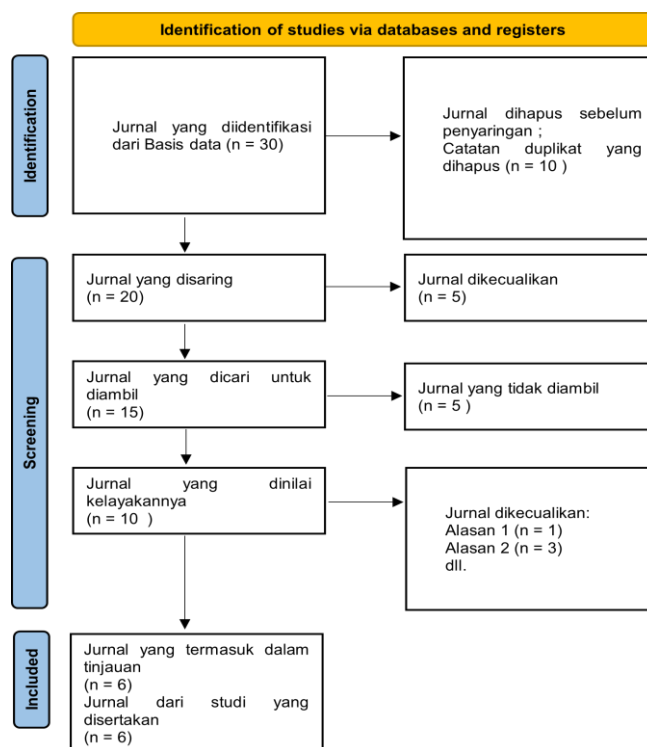


Figure 1. Prism Flow Diagram

The *title* and abstract screening stage was carried out by two independent researchers based on the inclusion and exclusion criteria that had been set, resulting in 5 articles that were excluded because they were not in accordance with the focus of the research. A total of 15 articles were then assessed for eligibility through a *full-text assessment*, where 5 additional articles were excluded for various reasons: 1 article due to inadequate methodology, 3 articles because they did not discuss the *reimbursement* mechanism specifically, and other reasons. The final selection process resulted in 10 articles that were assessed for in-depth eligibility, and 6 articles that met all inclusion criteria were included in this systematic review. The entire selection process is documented in a PRISMA flowchart showing the transparency and reproducibility of the research.

A Systematic Review of Reimbursement Mechanisms: Effectiveness, Efficiency, and Patient Satisfaction in Insurance-Based Health Financing Systems

Table 1
Synthesis Systematic Literature Review

No	Author	Title	Method	Sample	Data Analysis Techniques	Hypothesis Test	Researchers' Findings	Relevance to the Topic
1	(Wang, Chen, Wang, & Lao, 2023)	The impacts of medical insurance payment methods on medical bills and medical service quality: Evidence from Xiangtan, China	Quantitative with pseudo-experimental approach	Hospitalization data and patient discharge information from public hospitals in Xiangtan, China	Fixed-effects difference-in-differences (DID) model	Testing the causal effect of DRG payment methods on medical costs and quality of service	DRG significantly reduces various medical costs but does not significantly affect the quality of care. The DRG increases the burden on patients in Grade III hospitals and has a substantial negative impact on the quality of medical services, which is contrary to the objectives of the DRG's payment reform.	Highly relevant: Evaluate the effectiveness and efficiency of the DRG reimbursement system in controlling health costs and their impact on the quality of services in the health insurance-based financing system.
2	(Han, Hu, Zhang, Pei, & Fu, 2025)	Rebalancing healthcare utilization: Rural-urban health insurance integration and health-seeking behavior of rural residents in China	Quantitative with a longitudinal approach	Four waves of data from the China Health and Retirement Longitudinal Study (2011-2018) cover rural populations	Multi-period DID model nested within sample selection model	Testing the impact of insurance integration on the health service search behavior of rural residents	Integration increased outpatient visits by 1.9% and the likelihood of choosing a primary health center (PHC) by 7.2%. Hospitalizations increased by 1.4% but there was no significant change in the choice of inpatient institution. Cost-sharing changes are effective in encouraging rural patients to use primary services, especially outpatient services.	Highly relevant: Shows how reimbursement and cost-sharing mechanisms in health insurance affect the efficiency of healthcare utilization and patient behavior in choosing health facilities.

A Systematic Review of Reimbursement Mechanisms: Effectiveness, Efficiency, and Patient Satisfaction in Insurance-Based Health Financing Systems

3	(Wulandari, Rachmawaty, Ilkafah, & Erfina, 2021)	Patient satisfaction towards healthcare quality in Indonesian Public Hospital	Quantitative with an analytical observational approach	39 Indonesian public hospital inpatient respondents using proportional stratified random sampling	Descriptive and comparative statistical analysis	Test of patient satisfaction differences based on inpatient class and length of stay (p-value)	Patient satisfaction with the quality of healthcare differed significantly by type of inpatient class (p=0.000), with differences found in four dimensions: effectiveness (p=0.009), accessibility (p=0.001), patient-centeredness (p=0.003), and equity (p=0.001). There is no statistical difference based on length of stay.	Relevant: Measuring patient satisfaction as an indicator of the quality of health services in Indonesia's public hospital system, which is one of the important aspects in the evaluation of an insurance-based health financing system.
4	(Cheng et al., 2025)	Determinants of healthcare utilization under the Indonesian national health insurance system – a cross-sectional study	Quantitative with a cross-sectional approach	31,864 individuals from the ENHANCE Study (Equity and Health Care Financing in Indonesia)	Multi-level logistic regression models with Andersen's behavioural model framework	Testing of factors affecting the utilization of primary and secondary health services	About 14% used outpatient services in the past month, less than 5% used hospital inpatient services. Age, gender, and self-rated health are key determinants of service utilization. Insurance status has an effect on the unfairness of the utilization of hospital services. People who receive subsidized JKN premiums are more likely to receive primary services from public facilities.	Highly relevant: Evaluate the effectiveness of Indonesia's national health insurance system (JKN) in terms of health service utilization and access equity, as well as identify factors that affect the efficiency of the reimbursement system.
5	(Li, Liang, & Qi, 2025)	The effect of health insurance reimbursement	Quantitative with a cross-sectional	China Health and Retirement	Ordered logit model with instrumental	Testing the effect of reimbursement rates on hospital	The higher the hospital's reimbursement rate, the	Highly relevant: Demonstrate how the reimbursement rate

A Systematic Review of Reimbursement Mechanisms: Effectiveness, Efficiency, and Patient Satisfaction in Insurance-Based Health Financing Systems

		rates on middle-aged and elderly people's hospital choices: evidence from China	approach using longitudinal data	Longitudinal Study (CHARLS) data covers middle- and elderly populations	variables (Bartik IV, financial income per capita, health risk perception bias) and propensity score matching; Mediating Effects Model	choice by identifying causal relationships	more likely a patient is to choose to seek treatment there. Every 1% increase in reimbursement rates decreases the probability of choosing primary hospitals by 5.75%, secondary hospitals by 1.47%, and increases the choice of tertiary hospitals by 7.22%. Health signals from medical examinations have a significant impact on a patient's healthcare choices.	mechanism in health insurance affects the efficiency of medical resource allocation and patient behavior in choosing the level of health facility.
6	(Levy et al., 2024)	Association between health insurance cost-sharing and choice of hospital tier for cardiovascular diseases in China: a prospective cohort study	Quantitative with a prospective cohort study approach	0.5 million adults from 10 areas in China with 9-year follow-up; analysis of stroke (urban n=20,302; rural n=21,130) and IHD (urban n=19,283; rural n=17,890)	Conditional logit models with adjustment of individual socio-economic and health characteristics	Testing the association between cost-sharing differential and hospital-level choice	Around 64-68% of stroke and IHD cases in urban areas and 27-29% in rural areas choose tier 3 hospitals. In urban areas, higher reimbursement rates and lower tier 3 deductibles are associated with a greater likelihood of choosing the hospital tier. In rural areas, the cost-sharing effect is modest, indicating that the contribution of other factors is greater. Higher socio-economic	Highly relevant: Analyze the effectiveness of differential cost-sharing and reimbursement mechanisms in health insurance to drive patient healthcare seeking behavior and improve hospital utilization efficiency by tier.

status and greater severity of illness are associated with a greater likelihood of seeking treatment in a higher-tier hospital.

Characteristics of Inclusive Studies

The six studies included in this review showed quite diverse variations in characteristics. The distribution of the publication year shows an increasing trend of research with 1 study from 2021, 2 studies from 2023, 2 studies from 2024, and 1 study from 2025. The research was dominated by studies from China (5 studies) and Indonesia (1 study), reflecting a geographical focus on developing countries with transitioning health insurance systems. The research designs used all adopted a quantitative approach with a variety of methods ranging from pseudo-experimental, *cross-sectional*, longitudinal, to *prospective cohort studies*.

Table 2
Characteristics of Included Studies

No	Author	Year	Country	Research Design	Sample Size	Reimbursement Mechanism
1	Wang et al.	2023	China	Pseudo-experimental	Hospital hospitalization data	DRG payment
2	Han et al.	2025	China	Longitudinal	4 CHARLS waves	Integration & cost-sharing
3	Wulandari et al.	2021	Indonesia	Observational analytics	39 patients	Inpatient classes
4	Cheng et al.	2025	Indonesia	Cross-sectional	31,864 individuals	JKN system
5	Li et al.	2025	China	Cross-sectional	CHARLS Dates	Differential reimbursement rates
6	Levy et al.	2024	China	Prospective cohort	0.5 million adults	Differential cost-sharing

The types of *reimbursement* mechanisms studied include *Diagnosis Related Groups (DRG) payments*, insurance integration with *cost-sharing*, the National Health Insurance (JKN) system, *differential reimbursement rates*, and *differential cost-sharing*. The health service setting varies from public hospitals, primary health facilities to tertiary hospitals with different levels. The sample size of the study varied widely, ranging from 39 respondents to 500,000 participants, indicating a methodological heterogeneity that needs to be considered in the interpretation of the findings.

Effectiveness of the Reimbursement Mechanism

The effectiveness of reimbursement mechanisms shows mixed results. The DRG system in China is able to reduce medical costs, but it does not always maintain the quality of services, and there are even indications of deterioration in quality in Grade III hospitals (Wang et al., 2023). Rural-urban insurance integration increases service utilization, including outpatient visits, primary service selection, and hospitalization, thus demonstrating the potential for improved access and referral patterns (Levy et al., 2024). In the Indonesian context, the utilization of JKN services is still low, with around 14% of the population using outpatient and less than 5% using inpatient services. Factors of age, gender, self-rated health, and insurance status also affect access to services, so the effectiveness of reimbursement needs to be assessed from the aspect of equity and accessibility (Cheng et al., 2025).

Efficiency of Reimbursement Mechanism

Reimbursement efficiency has to do with cost control and resource allocation. Differences in reimbursement rates affect the choice of health facilities; Rate increases tend to decrease the selection of primary and secondary hospitals, but increase the selection of tertiary hospitals (Li et al., 2025). This can lead to patient concentration in high-level facilities and potentially lead to inefficiencies. The DRG system has the potential to reduce costs, but it still has the trade-off risk of increasing patient burden and decreasing service quality if not accompanied by quality control (Cheng et al., 2025). Therefore, efficiency needs to be balanced with quality and patient protection.

Patient Satisfaction with the Reimbursement Mechanism

Patient satisfaction is influenced by service class, accessibility, and quality of service. In Indonesian public hospitals, satisfaction differs significantly based on the class of hospitalization, especially in the dimensions of effectiveness, accessibility, patient-centeredness, and equity (Wulandari et al., 2021). The cost-sharing mechanism also affects patients' perceptions of the affordability of services. JKN subsidy recipients tend to use public primary facilities, so satisfaction is highly dependent on the quality of primary services (Han et al., 2025). In addition, socio-economic status plays a role in the selection of high-level hospitals as it relates to the ability to pay and the perception of service quality (Levy et al., 2024).

Synthesis of Key Findings

In general, reimbursement mechanisms affect effectiveness, efficiency, and patient satisfaction. Key findings show a trade-off between cost control and service quality. Differential reimbursement and cost-sharing can direct service utilization behaviors, but their impact is influenced by geographical, socio-economic, and health system contexts. In the Indonesian context, research related to reimbursement in the JKN system is still limited, so further studies are needed on effectiveness, efficiency, equity, and patient satisfaction.

2. Discussion

Interpretation of Effectiveness Findings

The findings of the effectiveness of reimbursement mechanisms show that the health payment system has a contextual impact. The implementation of DRG in China is able to lower medical costs, but it is not always followed by maintenance of quality of service. This indicates risks when service providers are under cost-efficiency pressures, such as reduced service intensity or patient selection. On the other hand, rural-urban insurance integration has been proven to increase the utilization of primary services through changes in the cost-sharing structure, thereby strengthening the referral system. However, the long-term effectiveness still needs to be evaluated so as not to cause delays in access to specialist services. In the Indonesian context, the low utilization of JKN services shows that insurance coverage is not enough to guarantee access to services. Factors of age, gender, socio-economic status, insurance status, and health conditions continue to affect the utilization of services, so it is necessary to strengthen the system in terms of service providers and public education

Interpretation of Patient Satisfaction Findings

Patient satisfaction is influenced by reimbursement design, class of service, access, and socio-economic status. The difference in satisfaction by inpatient class suggests that payment systems can create different service experiences, especially in terms of effectiveness, accessibility, patient-centeredness, and equity. Cost-sharing also affects patients' perceptions of the affordability and value of the services received. Patients with higher economic ability tend to have a wider choice of facilities and access to services that are considered more qualified. Therefore, patient satisfaction evaluation needs to pay attention to socio-economic differences so that service experience inequities can be identified.

Patient satisfaction as an important outcome in the evaluation of the health system shows a high sensitivity to the design of *reimbursement mechanisms* and service stratification. The disparity in satisfaction by inpatient class in the Indonesian hospital system reflects the segmentation inherent in the insurance-based health financing system. Significant differences in the dimensions of effectiveness, accessibility, *patient-centeredness*, and equity indicate that *reimbursement mechanisms* that create disparities in service packages can result in very different patient experiences, potentially compromising the principles of fairness in the health system. The relationship between *cost-sharing* and patient satisfaction is mediated by the perception of *value for money* and concrete experience in accessing services. Patients who incur *higher out-of-pocket costs* tend to have higher expectations for service quality, creating pressure on service providers to improve *the patient experience*. However, too high *cost-sharing* can be a financial barrier that lowers overall satisfaction, especially for populations with limited economic capabilities. The role of socio-economic factors in influencing the choice of health facilities and potential satisfaction suggests that *reimbursement mechanisms* do not operate in a vacuum but interact with broader social structures. Populations with higher socio-economic status have more choice and ability to *navigate* the health system, potentially accessing better quality services and achieving higher levels of satisfaction. These inequalities suggest that patient satisfaction evaluations need to be disaggregated based on socio-economic characteristics to identify gaps in service quality experienced by different segments of the population.

Integration of the Three Dimensions (Effectiveness, Efficiency, Satisfaction)

These three dimensions are interrelated and often cause trade-offs. Efforts to improve cost efficiency can have an impact on quality and patient satisfaction if not designed in a balanced manner. The ideal reimbursement model needs to combine cost control, improved health outcomes, and a good patient experience. However, there is no one reimbursement model that fits all contexts. The success of the system is highly dependent on the characteristics of the health system, facility capacity, geographical, socio-economic conditions, and the strength of regulations and health information systems. Therefore, reimbursement reform needs to be adaptive and based on continuous evaluation.

Conclusion

This review shows that the reimbursement mechanism has an effect on the effectiveness, efficiency, and satisfaction of patients in the insurance-based health financing system. The DRG system can reduce costs, but it risks lowering the quality of

A Systematic Review of Reimbursement Mechanisms: Effectiveness, Efficiency, and Patient Satisfaction in Insurance-Based Health Financing Systems

service if it is not accompanied by quality control. Differential reimbursement and cost-sharing can direct service utilization behaviors, but the impact is influenced by the patient's geographical and socio-economic conditions. The integration of rural-urban insurance shows the potential to increase the use of primary services, while in Indonesia the utilization of JKN is still relatively low, so insurance coverage does not fully guarantee effective access. Patient satisfaction also varies based on service class, accessibility, and financial ability. Thus, reimbursement optimization needs to be carried out holistically by balancing cost efficiency, service quality, equity, and patient experience.

Reference

- Cheng, Q., Fattah, R. A., Susilo, D., Satrya, A., Haemmerli, M., Kosen, S., ... Hayen, A. (2025). [Determinants of healthcare utilization under the Indonesian national health insurance system-a cross-sectional study](#). *BMC Health Services Research*, 25(1), 48.
- Han, J., Hu, W., Zhang, R., Pei, T., & Fu, L. (2025). [Rebalancing healthcare utilization: Rural-urban health insurance integration and health-seeking behavior of rural residents in China](#). *Journal of Rural Studies*, 119, 103761.
- Huraerah, A. (2024). [Strategi Pencapaian Universal Health Coverage Melalui Program Jaminan Kesehatan Nasional Indonesia](#). *Jurnal Ilmu Pekerjaan Sosial*, 3(2), 1–11.
- Kunarti, S., & Sudrajat, T. (2024). [Satu Dekade Kebijakan Jaminan Kesehatan Nasional: Tantangan Dan Rekomendasi Kebijakan Di Masa Mendatang](#). *Konferensi Nasional Asosiasi Pengajar Hukum Tata Negara Dan Hukum Administrasi Negara*, 2(1), 109–144.
- Levy, M., Buckell, J., Clarke, R., Wu, N., Pei, P., Sun, D., ... Yu, C. (2024). [Association between health insurance cost-sharing and choice of hospital tier for cardiovascular diseases in China: a prospective cohort study](#). *The Lancet Regional Health-Western Pacific*, 45.
- Li, B., Liang, X., & Qi, X. (2025). [The effect of health insurance reimbursement rates on middle-aged and elderly people's hospital choices: evidence from China](#). *Health Economics Review*, 15(1), 17.
- Nilmawati, Y., Yanie, A., & Saputera, M. M. A. (2025). [Analisis Selisih Biaya Riil Dan Tarif Paket INA-CBG's Dengan Faktor-Faktor Yang Mempengaruhi Biaya Pada Pasien JKN Rawat Inap Di Klinik Utama Setara Barito Kuala](#). *Jurnal Farmasi SYIFA*, 3(1), 17–21.
- Putri, C. I., Yektiningtyastuti, Y., Hakim, A. O., & Gunawan, G. (2025). [Analisis Penyebab dan Kendala Pengajuan Klaim BPJS Kesehatan Pasien Rawat Inap di RSUD Majenang Tahun 2023](#). *Health Information: Jurnal Penelitian*, 17(1), 103–118.
- Sudrajat, A. T. H. (2022). [Program universal health coverage \(UHC\) di Indonesia](#). *Jurnal Endurance: Kajian Ilmiah Problema Kesehatan*, 7(2), 462–473.
- Wang, Y., Chen, Y., Wang, J., & Lao, Y. (2023). [The impacts of medical insurance payment methods on medical bills and medical service quality: evidence from Xiangtan, China](#). *Journal of Business Research*, 169, 114292.
- Widjaja, G., Yustanti, D. E., Sijabat, H. H., & Dhanudibroto, H. (2025). [Evaluasi Implementasi Kebijakan Jaminan Kesehatan Nasional \(JKN\) dalam Meningkatkan Akses Layanan Kesehatan Masyarakat di Indonesia](#). *Jurnal Kesehatan*, 3(2), 177–188.
- Wiriadiputri, R., Nursanty, O. E., & Maulina, I. (2025). [Analisis Faktor Perbedaan Tarif Riil Rumah Sakit dengan Tarif Ina-CBG's Pasien RSDH Cianjur](#). *Jurnal Masyarakat Sehat Indonesia*, 4(03), 154–165.
- Wulandari, A. R. C., Rachmawaty, R., Ilkafah, I., & Erfina, E. (2021). [Patient satisfaction towards healthcare quality in Indonesian Public Hospital](#). *Enfermeria Clinica*, 31, S745–S750.
- Zahara, L. A., & Fitriani, B. U. (2025). [Analisis Perbedaan Tarif Pelayanan Rumah Sakit Dengan Tarif INA-CBGs Pada Rsia Permata Hati Lotim](#). *Jurnal Riset Mahasiswa Akuntansi*, 5(3), 318–333.