Asian Journal of Social Science and Management Technology
ISSN : 2313-7410
Volume 6, Issue 2, March-April, 2024
Available at www.ajssmt.com

Examining the Disparities of INA CBG's: Unveiling the Actual Cost using Activity-Based Costing as a Cost Containment Strategy (Systematic Literature Review)

Deni T. Sugiarto[1,2]; Mohammad Roziq[1]

[1] *Doctoral Students, Postgraduate School, University of Pancasila – Jakarta – INDONESIA*
[2] *Director of Operations – Andhika Hospital – Jakarta – INDONESIA*

ABSTRACT:
This systematic literature review delves into the intricacies of healthcare cost disparities by scrutinizing the differences between actual costs and Indonesia's Case-Based Groups (INA CBG) standard costs. Focused on the application of Activity-Based Costing (ABC) as a strategic cost containment approach, this research aims to provide a comprehensive synthesis of existing knowledge in the field. As healthcare systems strive for financial transparency and equity, the disparities between INA CBG standards and actual costs pose critical challenges. Our systematic literature review navigates through a wealth of scholarly contributions, offering insights into the complexities and potential solutions associated with this disjunction. The findings reveal a nuanced landscape where statistical evaluations demonstrate significant differences in some instances while remaining non-significant in others. Beyond statistical significance, the real-world implications of these differences demand careful consideration by governmental bodies and stakeholders. By meticulously analysing the literature, we unravel the potential of ABC as a proactive cost containment strategy, shedding light on its capacity to bridge the gap between INA CBG standards and actual costs. Through this exploration, we seek to contribute actionable insights for policymakers, healthcare administrators, and researchers, fostering a deeper understanding of the challenges and opportunities inherent in the pursuit of just and sustainable healthcare financing systems.

Keywords: Disparities, INA CBGs, Activity-Based Costing (ABC), Cost Containment

---

1. INTRODUCTION

In Indonesia's rapidly evolving healthcare landscape, managing costs and ensuring the efficient allocation of resources are critical factors for sustainable healthcare delivery. Effective healthcare cost accounting practices play a pivotal role in accurately measuring, allocating, and analysing costs associated with patient care, services, and operations. This research aims to investigate the implementation of Activity-Based Costing (ABC) and cost containment strategies to minimize the variability of Indonesia's Case Base Groups (CBGs) [1].

In the dynamic landscape of healthcare, cost containment has become an imperative pursuit for healthcare providers worldwide. As countries grapple with the intricacies of managing their healthcare expenditure, attention is increasingly drawn towards understanding and addressing the disparities between actual costs incurred and the standard costs set by Indonesia's Case-Based Groups (INA CBG). This quest for precision and

efficiency in cost measurement has led to the exploration of innovative methodologies, with Activity-Based Costing (ABC) emerging as a promising strategy [2][3].

The inherent complexity of healthcare services demands a nuanced approach to cost assessment, and INA CBG's standard cost serves as a benchmark for reimbursement and financial planning. However, the growing disparities between actual costs and these standards pose significant challenges, necessitating a thorough investigation into the underlying factors contributing to this misalignment. Case Base Groups (CBGs) are widely used in Indonesia's healthcare system as a classification system for grouping patients with similar diagnoses and treatments. However, the variability in costs within these CBGs poses significant challenges for healthcare organizations in accurately determining the costs associated with providing care and allocating resources effectively. As a result, there is a need to explore and implement advanced cost accounting methodologies, such as Activity-Based Costing, to enhance cost transparency and decision-making[4]–[6].

Activity-Based Costing (ABC) is a cost accounting method that focuses on identifying and tracking the resources consumed by specific activities or services. By implementing ABC in healthcare organizations, it becomes possible to assign costs more accurately, as it recognizes the complexity and diversity of activities involved in patient care. This research will investigate the implementation of ABC in Indonesia's healthcare context and explore its potential to provide more precise cost allocation and analysis, leading to improved financial decision-making and resource optimization [7]–[9].

This article embarks on a comprehensive exploration, utilizing a Systematic Literature Review (SLR) to synthesize existing research and insights. By delving into the realms of Activity-Based Costing, we aim to dissect the intricacies of healthcare expenses, offering a strategic lens to identify and rectify the disparities in INA CBG's standard cost. As we navigate through the literature, we will uncover the potential of ABC as a cost containment strategy, shedding light on its effectiveness in promoting transparency, precision, and overall financial sustainability within the healthcare sector.

The journey through the literature, as we unravel the intricacies of INA CBG's, decoding the discrepancies between actual costs and standard cost through the lens of Activity-Based Costing. In doing so, we strive to contribute valuable insights to the ongoing discourse on healthcare cost containment, offering a roadmap for policymakers, healthcare administrators, and researchers seeking to optimize financial efficiency in the pursuit of equitable and sustainable healthcare systems.

2. LITERATURE REVIEW

2.1. Case-Based Groups (CBGs) and Indonesia Case-Based Groups (INA-CBGs)

Case-Based Groups (CBGs) represent a classification system used in healthcare to group patients based on their clinical characteristics and resource utilization patterns. These groups aim to simplify the complexity of healthcare services by categorizing patients with similar clinical conditions and treatment requirements. CBGs facilitate a standardized approach to reimbursement and resource allocation, allowing healthcare providers and payers to estimate the cost of care for specific patient groups. The grouping is typically based on factors such as diagnosis, procedures, and patient demographics [4], [6], [10].

The implementation of the National Health Insurance starting in January 2014 made a change in the payment system from the Retrospective Paymant System to the Prospective Payment System with INA-CBG's rates [11]. INA CBGs, or Indonesia Case-Based Groups, are a variant of the CBG system specifically designed and implemented in the healthcare context of Indonesia. INA CBGs plays a crucial role in the country's healthcare financing and reimbursement mechanisms. These groups serve as a foundation for setting standard costs associated with different medical conditions and treatments, providing a framework for calculating reimbursement rates to healthcare providers. INA CBGs, like other CBG systems globally, aim to enhance transparency, efficiency, and fairness in healthcare financing by aligning costs with specific patient groups [10], [12].

The primary purpose of implementing INA CBGs is to streamline and standardize the reimbursement process in Indonesia's healthcare system. By categorizing patients into specific groups based on their clinical profiles, INA CBGs help establish a systematic and transparent method for determining the cost of care. This, in turn,

facilitates equitable reimbursement to healthcare providers, fostering a more sustainable and efficient healthcare financing model. INA CBGs is instrumental in providing a common ground for negotiations between healthcare providers and payers, contributing to a fair and standardized approach in the allocation of resources. While INA CBGs offers a structured approach to healthcare financing, challenges and disparities often arise in the practical implementation of this system. Variations between the standard costs set by INA CBGs and the actual costs incurred by healthcare providers can create financial imbalances. Factors such as evolving medical technologies, changing patient demographics, and variations in healthcare delivery patterns contribute to these disparities. Addressing these challenges is crucial for maintaining the effectiveness and sustainability of the INA CBG system.

2.2. Activity Based Costing (ABC) and ABC in Healthcare

Activity-Based Costing (ABC) is a management accounting methodology that aims to allocate costs more accurately by linking them to the specific activities that drive those costs. Traditional costing methods often distribute overhead costs uniformly across products or services, leading to inaccuracies. ABC, however, identifies various activities within an organization and assigns costs based on the actual consumption of resources associated with each activity. This approach provides a more granular and precise understanding of the cost drivers, enabling better decision-making and resource optimization [7], [9].

In the context of healthcare, Activity-Based Costing has gained prominence as a strategic tool for cost management. Healthcare organizations, with their complex and multifaceted service delivery, benefit from the detailed insights ABC provides. By associating costs with specific activities such as patient admissions, diagnostic procedures, or surgical interventions, healthcare providers can ascertain the true cost of delivering each service. This level of granularity allows for informed pricing strategies, resource allocation, and identification of inefficiencies, ultimately contributing to improved financial sustainability and quality of care.

While ABC offers substantial benefits, its implementation in healthcare is not without challenges. The intricacies of healthcare processes and the multitude of variables involved can make the identification and measurement of activities complex. Furthermore, resistance to change within organizations and the initial resource investment required for implementing ABC systems may pose barriers. Addressing these challenges is crucial for healthcare institutions to fully harness the potential of ABC in enhancing cost transparency and efficiency[9].

ABC in healthcare has a profound impact on decision-making processes. Healthcare administrators and managers armed with accurate cost information can make more informed decisions regarding resource allocation, pricing structures, and service optimization. This, in turn, contributes to improved financial performance, enhanced patient outcomes, and the overall efficiency of healthcare delivery. The ability to understand the true cost of healthcare services allows for strategic planning and the identification of areas where process improvements can be implemented.

2.3. Cost Containment

Cost containment is a significant challenge in healthcare, given the rising costs of medical services, advancements in technology, and the complex reimbursement landscape. Healthcare cost accounting plays a crucial role in identifying areas of excessive costs, waste, or inefficiency. By implementing cost containment strategies, healthcare organizations can optimize resource utilization, streamline processes, negotiate favourable contracts with vendors, and improve overall financial performance [13], [14].

Activity-Based Costing is a method used in healthcare to allocate costs based on the specific activities or services provided. It involves identifying and tracking the resources consumed by each activity and assigning costs accordingly. ABC provides a more accurate understanding of the true costs of healthcare services, allowing organizations to make informed decisions regarding pricing, resource allocation, and process improvement [15], [16].

Cost accounting information is vital in healthcare decision-making processes. Accurate cost data helps healthcare organizations evaluate the financial viability of new programs, assess the profitability of different services or procedures, and determine pricing structures. It also enables informed decision-making regarding

resource allocation, capital investments, cost-saving initiatives, and strategic planning for long-term financial sustainability.

Activity-Based Costing (ABC) stands out as a valuable cost containment strategy in healthcare due to its ability to provide a more accurate and detailed understanding of the costs associated with healthcare services. Traditional costing methods often allocate overhead costs based on broad categories, leading to inaccuracies in assessing the actual cost drivers. ABC, on the other hand, traces costs to specific activities and processes, offering a more precise view of resource consumption in healthcare. This granularity allows healthcare organizations to identify the true cost of individual services, procedures, or patient care activities. By pinpointing cost drivers, ABC enables organizations to make informed decisions about resource allocation, identify areas for cost reduction, and optimize operational efficiency.

Numerous studies emphasize the effectiveness of ABC in healthcare cost management. Cooper and Kaplan's seminal work, "Measure Costs Right: Make the Right Decisions," underscores the importance of accurately measuring costs to support informed decision-making in various industries, including healthcare (Cooper & Kaplan, 1988). Additionally, Young and McClean's analysis in "A Critical Analysis of the ABCM and its Adaptation in Healthcare Environments" provides insights into the application of ABC in healthcare settings and its potential for enhancing cost containment). These references highlight the relevance of ABC in achieving cost containment goals within the complex and dynamic landscape of healthcare. ABC's impact on healthcare cost containment extends beyond cost measurement to strategic decision-making. By understanding the true cost of healthcare services, organizations can implement targeted cost reduction initiatives and allocate resources more efficiently. This aligns with the broader goals of healthcare reform and financial sustainability in the face of increasing demands and challenges in the healthcare industry.

3. RESEARCH METHOD

A Systematic Literature Review (SLR) is a methodical and structured approach to reviewing and synthesizing existing scholarly literature on a specific research question or topic. The primary purpose of an SLR is to systematically identify, evaluate, and summarize relevant studies, providing a comprehensive and unbiased overview of the existing knowledge in a particular field. Unlike traditional narrative reviews, an SLR follows a predefined protocol to minimize bias and ensure replicability.

The first step in conducting an SLR involves defining a clear research question and establishing inclusion and exclusion criteria. Researchers meticulously design a search strategy, often involving multiple electronic databases, to identify relevant articles. The criteria for including or excluding studies are established to ensure that only high-quality, pertinent research is incorporated into the review. This rigorous approach helps maintain the integrity and reliability of the synthesized information.

The next step is to develop a search strategy to identify relevant literature. In this case, we search for literature in the Google Scholar database, using a combination of keywords such as "INA CBG's" 5.190 articles "INA CBG's" "ABC" 136 articles" "INA CBG's" "Disparities" 63 articles and finally, "INA CBG's" "Disparities" "ABC" 39 articles.

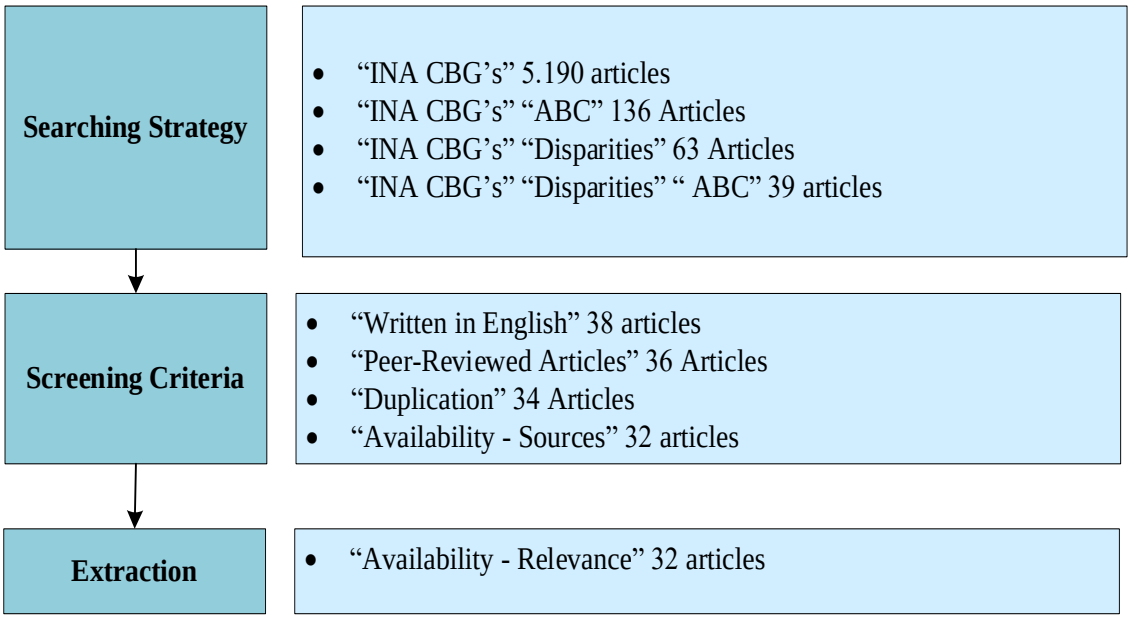

Figure 1: Searching Strategy and Extraction of Data

Once relevant studies are identified, researchers systematically extract data using a standardized approach. Information such as study design, sample size, key findings, and methodological quality is extracted and organized. The synthesis phase involves aggregating and summarizing the extracted data, identifying patterns, themes, or discrepancies across studies. This systematic process ensures that the review's conclusions are based on a comprehensive understanding of the existing literature rather than individual study findings.

An essential component of an SLR is the critical appraisal of the quality of included studies. Researchers assess the methodological rigor, validity, and reliability of each study to gauge its contribution to the overall body of evidence. This quality assessment helps in identifying potential biases and strengthens the credibility of the synthesized results. The transparency and systematic nature of the SLR methodology contribute to minimizing the risk of cherry-picking studies that align with a particular bias.

The findings of a Systematic Literature Review hold implications for both research and practice. Researchers gain a nuanced understanding of the current state of knowledge in the field, identifying gaps and areas for future investigation. Practitioners, policymakers, and stakeholders benefit from evidence-based insights that can inform decision-making and contribute to the development of effective strategies. The transparent and reproducible nature of an SLR enhances its credibility and positions it as a valuable resource for guiding future research endeavours and shaping evidence-based practices.

4. RESEARCH FINDINGS AND DISCUSSION

The existence of a difference between INA-CBGs and actual costs, regardless of statistical significance, raises pertinent questions about the accuracy and fairness of the current reimbursement system. This realization underscores the necessity for a thorough evaluation by government bodies and stakeholders. Addressing these discrepancies is vital to ensure justice in healthcare financing, promoting a system that accurately reflects the true costs incurred by healthcare providers and aligns with the principles of fairness and transparency.

In navigating the intricacies of healthcare reimbursement, the government and stakeholders must collaborate to delve into the practical implications of the observed differences. By conducting a comprehensive evaluation, they can discern whether adjustments are needed in the INA-CBGs system to better align with actual costs and enhance its efficacy in promoting equitable healthcare financing. Such assessments are pivotal for establishing a reimbursement framework that not only adheres to statistical rigor but also addresses the real-world

challenges faced by healthcare providers, fostering a system that is not only statistically robust but also just and sustainable.

4.1. Disparities of INA CBGs

Rahayuningrum et al,. [10] concluded that average hospital inpatient cost was lower than average INA-CBGs tariff. Hospital type, use of ICU, and length of stay, are important determinants of hospital inpatient cost. Putra et al,. [17] found that there was significant difference cost between INA CGGs and actual cost for many diseases. Opitasari and Nurwahyuni [18] conclude that there is incomplete discharge summary and inaccurate coding of diagnosis and procedure generate loss of hospital revenue by an average 4%. Contrary, Pahlawani et al,. [19] conclude that there is no significant difference between the real cost and INA-CBGs.

Wardhana [6] stated that vaginal delivery costs in INA-CBGs scheme are underneath the actual value. There was also an increase in total hospital costs and a more significant disparity in the higher severity levels of vaginal delivery. Handayani et al,. [20]conclude when implemented on paediatric DHF treatments at PKU Muhammadiyah Hospital, Yogyakarta, clinical pathways can shrink LoS by up to 1.58 times and, consequently, save the cost by IDR 919,238 per one-day reduction off of the average LoS. Purba et al,. [21] added that multifocal infections and LRTIs are the major focal infections with the highest burden of sepsis. This study showed varying cost estimates for sepsis, necessitating a new reimbursement system with adjustment of the national prices taking the particular foci into account.

Happy [12] found that the implementation of the INA-CBGs system with the prospective payment system can provide a positive impact on the financial performance in public hospital, when the hospital could reduce inefficient cost of treatment. Furthermore, public hospitals achieve a surplus since they receive a donation from the government for salary expenses and investment-related expenses. Satibi et al,. [22]supports the necessary of evaluation of the INA-CBG's tariff rates to adjust to the real healthcare expenditure. On the other hand, the hospital needs to evaluate the service quality of patient treatment by optimizing budget allocated by the health insurance. Wulandari et al,. [23] conclude that the UNS Hospital cost for stroke patients exceeds the INA-CBGs tariff, which is influenced by medicine tariff and intensive care use. Contrary, Maryati, et al,. [24] conclude that public-private hospitals with class B experienced a decrease in income of IDR 46,081,900 (-17.50%), while special government hospitals with class A experienced an additional income of IDR 99,733,869 (38.31%). An accurate diagnostic code can increase the odds by 42.128 times the accuracy of the INA-CBGs rate (b=42.128; 95% CI=11.127 to 159.497; p<0.001). The results showed the financing for treating heart failure patients in October–December 2021 amounting to Rp13,207,307, following INA CBG's tariff guidelines [25]. Santika et al,. [26] state that the existence of an electronic medical resume is believed to be a solution and make the claim process more effective.

Fitri & Sundari [2] found that there are cost difference in which the hospital rate is higher than the Ina CBGs rate. There are 31 % of total cases as high-cost cases, for the bulk of the cost difference. Surgical procedures, room and accommodation cost are the cost components that have the most impact to the dominant cost differences. The study supports the necessary for hospitals to evaluate the cost difference of hospital rate and Ina CBGs rate periodically for improving quality and cost efficiency at hospitals. There was a significant difference ($p = 0.004$) in the mean medical costs per year between the complication groups. Drug costs significantly differed ($p = 0.010$) between the complication groups. Drug costs are the most expensive and are strongly associated with the medical costs of complicated type 2 diabetes mellitus [27]. Contrary, Fuad et al,. [1] found that the INA-CBG's rates for inpatient care were higher than the average real cost. This shows that the real cost of hospitalization was sufficient to pay for patient care except for stroke hospitalization in mild cases.

4.2. Activity Based Costing (ABC) and Cost Containment Strategy

Kurniawan & Pribadi (2018) concluded that unit cost in mild head injury patients with ABC method in Panembahan Senopati Bantul hospital obtained lower cost than the real cost and INA CBG's tariff. It shows that ABC can be use one on containment strategy. Saputro & Pribadi [14] assert that collaborative action of coding officers, nurses, doctors, and other health professionals improve inpatient care efficiency and increases the

effectiveness of claims management. Syagran [28] concluded that the implementation of BPJS examination of specialist dental polyclinic at RS Islam Surabaya did not give the maximum benefit Deviandri et al., [29] concluded that ACLR procedures in Indonesia are likely underbudgeted. Adjustments of reimbursement prices for ACLR are needed to facilitate adequate access of Indonesians to the procedures. This study demonstrated varying costs determined for ACLR in Indonesia, which entails that a new reimbursement system with improvement of national prices should become the core of transformation. Munawaroh [3] suggest the factors associated with the actual costs for chemotherapy were the length of stay (LOS), while for surgery, the factors included LOS, secondary diagnosis, procedure, and severity level, with a p-value < 0.05. Cost analysis on five squamous cell cervical cancer patients with stage IIB-IIIB with six series of paclitaxel cisplatin chemotherapy viewed from the perspective of BPJS Kesehatan, hospital was IDR 24,703,470.00, IDR 6,619,204.00, and IDR 9,149,300.00, respectively [5]. There is a significant discrepancy between hospital cost and INA-CBGs claim (from 67% to 158%) for obstetric services in SoE Rural General Hospital [30].

In essence, ABC's impact extends beyond cost measurement, providing a framework for organizations to implement targeted cost reduction initiatives and allocate resources judiciously. As healthcare faces ongoing challenges and demands, the adoption of innovative and precise cost containment strategies like ABC becomes increasingly imperative for achieving financial sustainability and delivering quality care [4], [7]–[9]. Chen et al,. [31]propose a novel framework of a macro-efficiency score to assess welfare-maximizing aggregate health expenditure. This allows us to assess the extent to which selected major economies underspend or overspend on health relative to their gross domestic products per capita.

Fahlevi et al,. [32] found that the hospital can used the tested statistical model to control patient cost, evaluate the treatment and improve cost-effectiveness of patient treatment. The results showed that the comparison of haemodialysis unit cost in RSU Puri Asih in 2020 with Activity Based Costing (ABC) method is higher compared to INA-CBG's rate, while when compared to hospital rate is lower. The calculation of the Cost Recovery Rate (CRR) is still less than 100%. Factors that affect the cost difference include direct costs, overhead costs, and the number of medical treatments [8]. Desitama & Habib [9]show the presence of inefficiency in the accommodation cost pool and the cleaning service cost pool. Inefficiency in caesarean surgery services can be determined after analysing the utilization of capacity, which is the end result of cost calculation using the TDABC method. Muslimah et al,. [33] assert the consideration in the determination of health policy, health insurance, and data source for pharmacoeconomic. Rahayu et al,. [34] suggested that the CRR determinants can be used to improve cost management in the Indonesian public hospitals through case evaluation and CRR prediction.

5. CONCLUSION

The culmination of our systematic literature review underscores the existence of significant disparities between the rates set by Indonesia's Case-Based Groups (INA CBG) and the actual costs incurred within the healthcare sector. This incongruity, as revealed by previous research, signifies a critical challenge in achieving precision and equity in healthcare financing. The multifaceted nature of healthcare services, coupled with the evolving landscape of medical technologies and patient demographics, contributes to the complexity of accurately aligning reimbursement rates with the true costs of care.

Activity-Based Costing (ABC) serves as a pivotal and effective cost containment strategy within the healthcare sector. The method's ability to offer a detailed and precise understanding of the costs associated with healthcare services sets it apart from traditional costing approaches. Amidst these challenges, Activity-Based Costing (ABC) emerges as a pivotal and effective cost containment strategy within the healthcare sector. The systematic analysis of literature reveals the power of ABC in dissecting and understanding the intricate cost structures associated with diverse healthcare activities. By allocating costs based on specific activities and processes, ABC provides a granular view of resource utilization, enabling healthcare organizations to make informed decisions on resource allocation, identify areas for efficiency improvements, and ultimately enhance financial sustainability. The findings of this review underscore the potential of ABC to bridge the gap between the rates established by INA CBGs and the actual costs, offering a strategic pathway toward achieving greater transparency and fairness in healthcare financing.

As the healthcare sector continues to grapple with the imperative of optimizing costs without compromising quality, the insights derived from this systematic literature review highlight the need for further exploration and implementation of ABC as a dynamic and adaptive cost containment strategy. Moving forward, policymakers, healthcare administrators, and researchers can leverage these findings to shape more effective and equitable reimbursement models, fostering a healthcare financing system that aligns with the realities of service delivery and promotes the overarching goal of accessible, high-quality healthcare for all.

6. FUTURE RESEARCH AGENDA

Building on the foundation of the article investigating the disparities between actual costs and INA CBG's standard costs using Activity-Based Costing (ABC), the following future research agenda suggestions aim to deepen understanding, address potential gaps, and guide further exploration in this critical area:

The future research needs to explore advanced methodological approaches within ABC for a more refined analysis of cost disparities. This could include incorporating machine learning algorithms or predictive modeling techniques to enhance the accuracy of cost predictions and provide a more dynamic understanding of the factors influencing healthcare costs within the INA CBG framework. The future research needs to shift the focus towards patient-centric costing methodologies within ABC. Investigate how incorporating patient-level data and outcomes into the ABC model can enhance the precision of cost assessments and provide insights into the value of specific interventions and services from the patient's perspective. The future research needs to examine the intersection of ABC with value-based care models. Assess how aligning reimbursement structures with the actual value delivered to patients, as opposed to just cost containment, can influence healthcare provider behaviors.

The longitudinal studies also needed to track the impact of implementing ABC on cost containment over an extended period. Explore how organizational learning, adaptability, and evolving healthcare dynamics influence the sustained effectiveness of ABC strategies, providing insights into the long-term viability of this cost containment approach. In the context of policy and regulatory frameworks, the future research needs to investigate the role of policy and regulatory frameworks in either facilitating or impeding the successful implementation of ABC for INA CBG disparities. Analyze the impact of regulatory changes on healthcare providers' willingness and ability to adopt ABC methodologies and suggest policy recommendations to optimize their integration. Finally, the future research needs to encourage interdisciplinary collaboration between finance, healthcare management, and clinical disciplines. Explore how collaboration across these domains can enhance the accuracy of ABC models, promote better communication between stakeholders, and ensure that cost containment strategies align with both financial and clinical objectives.

7. References:

[1] W. Fuad, L. W. Jayanti, and Z. M. Maharani, “Analysis of Differences in Indonesian Case Base Groups (INACBGs) rates and Inpatient-Outpatient Real Costs of Ischemic Stroke Patients at Panti Rapih Hospital Yogyakarta,” *1st Lawang Sewu Int. Symp.*, vol. 1, no. November, pp. 1–10, 2022.

[2] D. El Fitri and S. Sundari, “The Cost Difference of Hospital Rates and Indonesia Case Base Grup (Ina CBGs) Rates of Inpatient with National Health Insurance Scheme at Private Hospital,” *J. Aisyah J. Ilmu Kesehat.*, vol. 8, no. 2, pp. 701–708, 2023, doi: 10.30604/jika.v8i2.1986.

[3] V. Munawaroh, R. Herowati, and T. M. Andayani, “Analysis of Actual Costs and Compliance with the INA-CBGS Tariff for Inpatient Nasopharyngeal Cancer Patients at Dr. Moewardi Regional General Hospital, Surakarta In 2018,” *J. Med. Heal. Stud.*, vol. 4, no. 4, pp. 54–64, 2023, doi: 10.32996/jmhs.2023.4.4.7.

[4] W. Maryati, M. F. Othman, S. Musyarofah, P. I. Listyorini, F. D. Aryanti, and M. Jannah, “Disparities in hospital cost and INA-CBGs tariff with unit cost analysis of inpatient services,” *Proceeding Int. Conf. Sci. Heal. Technol.*, pp. 100–104, 2021.

[5] N. K. R. L. Ekayanti, R. Noviyani, S. C. Yowani, K. Ariawati, and I. N. G. Budiana, “Cost Analysis of Patients With Squamous Cell Cervical Cancer Stage Iib-Iiib With Paclitaxel Cisplatin Chemotherapy From the Societal Perspective,” *J. Pharm. Sci. Appl.*, vol. 5, no. 1, p. 34, 2023, doi: 10.24843/jpsa.2023.v05.i01.p05.

[6] M. P. Wardhana, K. E. Gumilar, P. Rahmadhany, E. R. Dewi, and M. A. C. Laksana, “Ina-cbgs claim versus

total hospital cost: A vaginal delivery investigation at airlangga university academic hospital, Indonesia," *J. Public health Res.*, vol. 9, no. 4, pp. 538–543, 2020, doi: 10.4081/jphr.2020.1999.

[7] S. Kurniawan and F. Pribadi, "Analysis Unit Cost In Mild Head Injury Patient With Activity Based Costing Method At The Hopital In Yogyakarta," *Arch. Bus. Res.*, vol. 6, no. 1, 2018, doi: 10.14738/abr.61.4079.

[8] R. Verdika, N. Nurdin, and D. Kusnadi, "Analisis Perbandingan Biaya Satuan Pelayanan Hemodialisa Dengan Metode Activity Based Costing (ABC) Terhadap Tarif Rumah Sakit Dan Tarif INA-CBGs Serta Cost Recovery Rate (CRR)," *Humantech J. Ilm. Multidisiplin Indones.*, vol. 1, no. 12 SE-Articles, pp. 1907–1922, 2022, [Online]. Available: http://www.journal.ikopin.ac.id/index.php/humantech/article/view/2521.

[9] F. S. Desitama and M. A. F. Habib, "Health Service Efficiency: Cost Analysis of Time Driven Activity Based Costing Methods in Caesar Surgery Services in PKU Muhammadiyah Hospital, Yogyakarta," *Balanc. J. Islam. Account.*, vol. 4, no. 1, pp. 66–87, 2023, doi: 10.21274/balance.v4i1.8092.

[10] I. O. Rahayuningrum, D. Tamtomo, and A. suryono, "Comparison Between Hospital Inpatient Cost and INA-CBGs Tariff of Inpatient Care in the National Health Insurance Scheme in Solo, Boyolali and Karanganyar Districts, Central Java," *J. Heal. Policy Manag.*, vol. 01, no. 02, pp. 102–112, 2016, doi: 10.26911/thejhpm.2016.01.02.05.

[11] O. Oktamianiza, D. Maisa Putra, Y. Yulia, A. Fahira, and A. Afridon, "Analysis of Differences in Tariff for Health Service Based on Sustability of Diagnosis on Admision and Summary Discharge Form with INA-CBGs Verification," *Int. J. Eng. Sci. Inf. Technol.*, vol. 1, no. 3, pp. 82–86, 2021, doi: 10.52088/ijesty.v1i3.114.

[12] A. Happy, "The Implementation of INA-CBGs System Impact on Financial Performance of Public Hospital, the Indonesia Case: A Systematic Review," *KnE Life Sci. 2nd Int. Conf. Hosp. Adm.*, vol. 4, no. 9, p. 1, 2018, doi: 10.18502/kls.v4i9.3553.

[13] N. Stadhouders, F. Kruse, M. Tanke, X. Koolman, and P. Jeurissen, "Effective healthcare cost-containment policies: A systematic review," *Health Policy (New. York).*, vol. 123, no. 1, pp. 71–79, 2019, doi: 10.1016/j.healthpol.2018.10.015.

[14] A. D. Saputro and F. Pribadi, "The Utilization of Inpatient Medical Record Data in Improving Quality of Claims to the Health BPJS Patients at B Hospital in Yogyakarta," *Turkish J. Physiother. Rehabil.*, vol. 32, no. 3, pp. 507–517, 2021, [Online]. Available: https://turkjphysiotherrehabil.org/pub/pdf/321/32-1-66.pdf.

[15] C. Kastanioti, G. Mavridoglou, H. Karanikas, and N. Polyzos, "ABC analysis: a tool of effectively controlling pharmaceutical expenditure in Greek NHS hospitals," *J. Pharm. Heal. Serv. Res.*, vol. 7, no. 3, pp. 173–179, 2016, doi: 10.1111/jphs.12137.

[16] C. F. Lascu, C. D. Cheregi, L. Davidescu, and F. Manole, "A Review of Factors, Drivers, and Barriers to Improving Hospital Cost Management," *Entomol. Appl. Sci. Lett.*, vol. 10, no. 2, pp. 50–55, 2023, doi: 10.51847/zkan9ofevu.

[17] P. B. I. Putra, Y. Peristiowati, and I. Indasah, "Analysis of the Accuracy of Ina-CBG's Cost Based on the Type of Disease and Influencing Factors in the Inpatient Installation of RSUD dr. Soegiri Lamongan," *J. Qual. Public Heal.*, vol. 2, no. 1, pp. 79–88, 2018, doi: 10.30994/jqph.v2i1.30.

[18] C. Opitasari and A. Nurwahyuni, "The Completeness and accuracy of clinical coding for diagnosis and medical procedure on the INA-CBGs claim amounts at a hospital in South Jakarta," *Heal. Sci. J. Indones.*, vol. 9, no. 1, pp. 14–18, 2018, doi: 10.22435/hsji.v9i1.464.

[19] A. A. C. Pahlawani, A. Gani, and C. K. Rahayu, "Cost Difference between INA-CBGs Tariff and Hospital Real Cost in The Treatment of Type 2 Diabetes Mellitus within The National Health Insurance Program," *6th Int. Conf. Public Heal.*, vol. 1, no. October, pp. 236–245, 2019, doi: 10.26911/the6thicph-fp.04.03.

[20] R. P. Handayani, D. A. Perwitasari, D. Setiawan, and A. A. Suwantika, "Cost-Effectiveness analisys on the implementation of clinical pathway of pediatric treatment for dengue hemorrhagic fever in PKU Muhammadiyah Hospital Yogyakarta," *Pharmaciana*, vol. 10, no. 1, p. 51, 2020, doi: 10.12928/pharmaciana.v9i2.12332.

[21] A. K. R. Purba *et al.*, "The burden and costs of sepsis and reimbursement of its treatment in a developing country: An observational study on focal infections in Indonesia," *Int. J. Infect. Dis.*, vol. 96, pp. 211–218,

2020, doi: 10.1016/j.ijid.2020.04.075.
[22] S. Satibi, T. M. Andayani, D. Endarti, I. P. T. Suwantara, N. P. Wintariani, and N. P. D. Agustini, "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," *Asian Pacific J. Cancer Prev.*, vol. 20, no. 1, pp. 117–122, 2019, doi: 10.31557/APJCP.2019.20.1.117.
[23] D. Wulandari, D. Indarto, and D. Tamtomo, "Determinants of Cost Differences Between Indonesian- Case Based Groups Tariff and Hospital Tariff for Stroke Patients: A Path Analysis Evidence from UNS Teaching Hospital Sukoharjo, Central Java," *J. Heal. Policy Manag.*, vol. 4, no. 3, pp. 176–181, 2019, doi: 10.26911/thejhpm.2019.04.03.05.
[24] W. Maryati, N. Yuliani, A. Susanto, A. O. Wannay, and A. I. Justika, "Reduced hospital revenue due to error code diagnosis in the implementation of ina-cbgs," *Int. J. Public Heal. Sci.*, vol. 10, no. 2, pp. 354–360, 2021, doi: 10.11591/ijphs.v10i2.20690.
[25] F. Hasbi, A. H. Kurniawan, K. Nida, and M. Oktaviani, "Analysis of Heart Failure Treatment Costs based on the INA-CBGs (Indonesian Case Base Groups) Tariff Package for Patients with National Health Insurance," *Asian J. Soc. Sci. Manag. Technol.*, vol. 4, no. 5, pp. 41–47, 2022.
[26] F. Santika, N. A. Gumanti, L. Herfiyanti, and C. M. Sufyana, "Outpatient Medical E-Resume in Support INA-CBGs Claims for Covid-19 Patients at Hospital," *MATRIK J. Manajemen, Tek. Inform. dan Rekayasa Komput.*, vol. 21, no. 1, pp. 87–98, 2021, doi: 10.30812/matrik.v21i1.1401.
[27] Royyan Ashri, Destanul Aulia, and F. A. Siregar, "Analysis of Medical Costs of Type 2 Diabetes Mellitus Outpatient Muhammadiyah Hospital North Sumatra," *JMMR (Jurnal Medicoeticolegal dan Manaj. Rumah Sakit)*, vol. 12, no. 2, pp. 188–195, 2023, doi: 10.18196/jmmr.v12i2.77.
[28] E. Syagran, B. Setianto, A. A. Adriansyah, E. Setiyowati, and N. Sa'adah, "Analysis of Patient Characteristics, Financing of Actions and Diagnosis of Disease in BPJS Patients," *J. Qual. Public Heal.*, vol. 5, no. 1, pp. 231–236, 2021, doi: 10.30994/jqph.v5i1.225.
[29] R. Deviandri, H. C. van der Veen, A. M. Lubis, G. A. Utoyo, I. van den Akker-Scheek, and M. J. Postma, "Burden and Cost of Anterior Cruciate Ligament Reconstruction and Reimbursement of Its Treatment in a Developing Country: An Observational Study in Indonesia," *Clin. Outcomes Res.*, vol. 14, pp. 479–486, 2022, doi: 10.2147/CEOR.S368840.
[30] R. Surya, A. Gani, and Y. B. Saroyo, "Hospital Cost vs INA-CBGs Claim for Obstetrics Procedure In Soe Rural General Hospital , East Nusa Tenggara," *Indones. J. Obs. Gynecol.*, vol. 11, no. 4, pp. 201–208, 2023.
[31] S. Chen, M. Kuhn, K. Prettner, D. E. Bloom, and C. Wang, "Macro-level efficiency of health expenditure: Estimates for 15 major economies," *Soc. Sci. Med.*, vol. 287, no. July, p. 114270, 2021, doi: 10.1016/j.socscimed.2021.114270.
[32] H. Fahlevi, T. R. I. Putra, and R. S. Oktari, "Predicting Cost Recovery Rate of Ischemic Stroke Patients: A Potential Application of Big Data Analysis in Hospital," *J. Phys. Conf. Ser.*, vol. 1500, no. 1, 2020, doi: 10.1088/1742-6596/1500/1/012106.
[33] M. Muslimah, N. A. Noviasari, and N. L. Anantaizaldy, "Direct Medical Costs Related To Clinical Outcomes And Patterns Of Ischemic Stroke Drug Therapy In Panti Rapih Hospital Yogyakarta," *Int. J. Heal. Pharm.*, vol. 2, no. 2, pp. 259–274, 2022, doi: 10.51601/ijhp.v2i2.40.
[34] M. Rahayu, H. Fahlevi, and R. Mulyany, "Determinants of Cost Recovery Rate of Inpatient Cases: Evidence from Indonesian Public Hospitals," *J. Ilm. Akunt.*, vol. 8, no. 1, pp. 147–166, 2023, doi: 10.23887/jia.v8i1.59019.

Info

Corresponding Author: Deni T. Sugiarto, Doctoral Students, Postgraduate School, University of Pancasila – Jakarta – INDONESIA.

How to cite/reference this article: Deni T. Sugiarto, Mohammad Roziq. Examining the Disparities of INA CBG's: Unveiling the Actual Cost using Activity-Based Costing as a Cost Containment Strategy (Systematic Literature Review). ***Asian. Jour. Social. Scie. Mgmt. Tech*****. 2024; 6(2): 235-245.**