

Analysis of Inpatient Service Tariff Calculation using the Activity Based Costing (ABC) Method

Diah Ratnaningsih¹, Muhammad Ryman Napirah², Jamaludin M. Sakung³

^{1,2,3}Faculty of Public Health, Palu 94117, Tadulako University, Indonesia

ABSTRACT: This study aimed to calculate inpatient service tariffs using the Activity-Based Costing (ABC) method at Tora Belo Regional General Hospital. A descriptive quantitative design was applied using interviews and document review. Cost elements were identified, classified, and allocated based on activity cost drivers for VIP, Class I, Class II, and Class III wards. The findings show substantial tariff differences across classes and between ABC and traditional costing methods. ABC provided more accurate cost allocation by linking expenses to actual activities, resulting in tariffs that better reflect real resource consumption. This method supports more effective cost control, improved tariff evaluation, and enhanced hospital financial decision-making.

KEYWORDS: Activity-Based Costing, Hospital Tariff, Inpatient Services, Unit Cost, Cost Allocation

INTRODUCTION

Universal Health Coverage (UHC) is a health insurance system aimed at ensuring that every citizen has equal access to high-quality healthcare services at an affordable cost, including promotive, preventive, curative, and rehabilitative services. This concept emerged to guarantee that all individuals have access to quality healthcare without exception. According to the World Health Organization (WHO), UHC means that everyone can access the health services they need, whenever and wherever they need them, without being burdened by financial constraints (Septiana et al., 2024).

According to the World Health Organization (2024), Universal Health Coverage (UHC) ensures that every individual can obtain the necessary quality healthcare services at any time and in any place, without suffering financial hardship. It encompasses a full spectrum of essential services—health promotion, disease prevention, treatment, rehabilitation, and palliative care. To achieve this, every country must build a resilient, efficient, and equitable health system that is strongly rooted within the communities it serves (Dhynianti & Darmawan, 2024).

Hospital tariff determination for various services, including inpatient tariffs, is closely linked to rising operational costs driven by investment in technology and the use of expert personnel. To manage and control these costs efficiently and to generate accurate information regarding service expenditures, hospitals must implement an appropriate accounting system, one that requires a reliable cost calculation method (Unsale et al., 2023).

Hospital tariff determination in Indonesia is regulated under the Ministry of Health Regulation No. 85 of 2015 on the National Hospital Tariff Structure, which states that tariff setting must consider the principles of mutual cooperation, fairness—prioritizing the interests of low-income communities—and must not prioritize profit-seeking. Hospital tariffs must refer to the National Tariff Structure and the maximum tariff ceiling. The National Tariff Structure is established based on the components of unit cost and with consideration of regional conditions (Ministry of Health Regulation No. 85 of 2015).

Unit cost is defined as the ratio between the total cost incurred for a production unit and the number of units produced. This cost integrates all cost components, including fixed and variable costs involved throughout the production process. In other words, unit cost refers to the cost attached to each product unit or each service delivered (Mamonto et al., 2024).

Determining the unit cost of disease-related services is crucial and significantly influences hospital profitability. With numerous facilities in the emergency department and high indirect (overhead) operational costs, hospitals are required to allocate actual costs more accurately (Baviga, 2021).

One of the most significant costing innovations, Activity Based Costing (ABC), first emerged as a concept in the United States during the 1970s and 1980s, supported by theoretical and practical research. At the same time, global consulting groups such as the Consortium for Advanced Management played an important role in developing and standardizing this concept. ABC seeks to establish cause-and-effect relationships for objective cost allocation. Compared with Traditional Cost Accounting (TCA), ABC offers higher accuracy in calculating real production and service costs. With precise cost information, management can make more informed decisions and better understand the economic aspects of their operations (Yuniawati et al., 2023).

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MATERIALS AND METHODS

The type of research used in this study is descriptive quantitative research aimed at calculating inpatient service tariffs using the Activity Based Costing (ABC) method at Tora Belo Regional General Hospital, Sigi Regency.

Primary data collection was conducted through interviews with the heads of inpatient units in each class, the head of the planning division of Tora Belo Hospital, administrative staff of Tora Belo Hospital, and document review.

The analytical steps in this study are as follows:

1. Identifying activities.
2. Classifying costs based on activities into various activity categories.
3. Identifying cost drivers.
4. Determining the rate per unit of cost driver to establish the unit tariff.
5. Allocating costs to products using cost drivers and activity measures. Overhead cost allocation for each service is calculated using the formula:

Allocated Overhead Cost = Rate per Cost Driver Unit $\times$ Selected Cost Driver

6. Calculating the tariff for each service using the activity based costing system with the following formula:

Service Tariff = Service Cost $\times$ Expected Profit

7. Analyzing the activity based costing system (ABC) using Microsoft Excel

RESULTS AND DISCUSSION

1. VIP Class

The calculation of inpatient service tariffs using the ABC method for the VIP inpatient ward was carried out by calculating each cost element: telephone, water, and electricity costs with a unit rate of IDR 36,250; meal costs with a unit rate of IDR 269,164; nursing salaries with a unit rate of IDR 16,236; cleaning costs with a unit rate of IDR 27,248; administrative costs with a unit rate of IDR 255,041; facility maintenance costs with a unit rate of IDR 1,383,068; and building maintenance costs with a unit rate of IDR 189,103. These seven cost elements were then multiplied by the cost driver, namely 15 inpatient days in the VIP ward. The cost driver for the above cost elements is the length of stay because these cost components are directly related to and experienced by inpatients (Table 1).

Table 1. Inpatient Service Tariff for VIP Class at Tora Belo Regional General Hospital, Sigi Regency

Cost Element	Unit Rate (IDR)	Cost Driver	Total (IDR)
Telephone, Water, and Electricity	36,250	15	543,750
Nursing Cost	16,236	15	243,540
Meal Cost	269,164	15	4,037,460
Cleaning Cost	27,248	15	408,270
Administrative Cost	255,041	6	1,530,246
Facility Maintenance	1,383,068	512.42	708,711,704
Building Maintenance	189,103	512.42	96,900,159
Total Cost (VIP Class)			812,375,129
Length of Stay			15
Tariff per Day			54,158,342

Source: Processed Data, 2025

The ABC method improves the accuracy of cost-of-production calculations by recognizing that many fixed overhead costs vary in relation to factors other than production volume. By understanding the factors that cause cost increases and decreases, managers can calculate product costs more accurately, leading to better interpretation for decision-making. To meet customer needs, the ABC design focuses on the work carried out by labor and equipment. Everything that requires company resources is classified as an activity. The ABC system helps individuals understand, manage, and improve business operations by focusing on activities rather than departments or functions (Fadli et al., 2022).

The findings of this study align with the research conducted by Hanum & Wahyudi (2020), which showed that the ABC method and traditional costing yield different inpatient tariff calculations for each class. These differences result in higher or lower tariffs. The tariffs set by Haji General Hospital Medan were lower in the VIP class, with a difference of IDR 174,587. Conversely, research conducted by Bachtiar & Putri (2019) found that the VIP class tariff was higher, with a difference of IDR -1,709.11

2. Class I

The inpatient service tariff using the ABC method for Class I was calculated by determining each cost element: telephone, water, and electricity with a unit rate of IDR 36,250; meal costs at IDR 269,164; nursing salaries at IDR 16,236; facility maintenance at IDR 1,303,068; and building maintenance at IDR 189,103. These five cost elements were multiplied by the cost driver, namely

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2,100 inpatient days in the Class I ward. The cost driver for these components is the length of stay because these costs are directly experienced by inpatients

Table 2. Inpatient Service Tariff for Class I at Tora Belo Regional General Hospital, Sigi Regency

Cost Element	Unit Rate (IDR)	Cost Driver	Total (IDR)
Telephone, Water, and Electricity	36.250	2.100	76.125.000
Nursing Cost	16.236	2.100	34.095.600
Meal Cost	269.164	2.100	565.244.400
Cleaning Cost	27.248	2.100	57.220.800
Administrative Cost	255.041	607	154.809.887
Facility Maintenance	1.383.068	512,42	708.711.704
Building Maintenance	189.103	512,42	96.900.159
Total Cost (Class 1)			1.693.107.550
Length of Stay			2.100
Tariff per Day			806.242

Source: Processed Data, 2025

The cost drivers used differentiate the activity-based costing system from traditional costing. Unlike conventional costing systems that rely on a single unit-based cost driver, ABC uses multiple activity-based cost drivers. The ABC method provides more accurate information for determining production costs and enables better cost control. This system also tracks the origin of costs, and by eliminating non-value-added activities, managers can focus on reducing costs while improving service quality (Intihanah et al., 2024).

This study aligns with the findings of Nurhidayah et al. (2023), which showed differences between ABC and traditional methods in calculating inpatient tariffs for each class, resulting in higher or lower tariffs. The tariffs set by Mitra Medika Amplas Hospital were lower for Class I with a difference of IDR 45,222.08. Conversely, Agustin & Dewi (2023) found that Class I produced higher tariffs with a difference of IDR -934,254

3. Class II

The inpatient service tariff using the ABC method for Class II was calculated using the following unit cost elements: telephone, water, and electricity at IDR 36,250; meal costs at IDR 269,164; nursing salaries at IDR 16,236; facility maintenance at IDR 1,383,068; and building maintenance at IDR 189,103. These five cost elements were multiplied by the cost driver, namely 2,874 inpatient days in Class II. The cost driver was the length of stay, given that these cost components are directly experienced by patients

Table 3. Inpatient Service Tariff for Class II at Tora Belo Regional General Hospital, Sigi Regency

Cost Element	Unit Rate (IDR)	Cost Driver	Total (IDR)
Telephone, Water, and Electricity	36.250	2.874	104.182.500
Nursing Cost	16.236	2.874	46.662.264
Meal Cost	269.164	2.874	773.577.336
Cleaning Cost	27.248	2.874	78.310.752
Administrative Cost	255.041	915	233.362.515
Facility Maintenance	1.383.068	512,42	708.711.704
Building Maintenance	189.103	512,42	96.900.159
Total Cost (Class 1I)			1.236.095.367
Length of Stay			2.874
Tariff per Day			430.096

Source: Processed Data, 2025

Hospitals can set service tariffs that are fairer and more aligned with the actual costs incurred by using the Activity-Based Costing (ABC) method, which provides a more detailed and accurate approach to identifying and allocating costs based on existing activities (Dewi, 2024).

The ABC method offers several advantages, such as the ability to evaluate tariffs and facilitate service standardization. Service standardization can be used by hospitals to monitor each service process, which will improve the efficiency of activities and costs. This is consistent with Horngren's theory (2000), which states that activity-based costing is a unit cost calculation method that focuses on activities as the primary cost drivers and uses activity costs as the basis for allocating expenses to goods, services, or customers.

The findings of this study are in line with research conducted by Agustin & Dewi (2023), whose calculations showed that the ABC method and the traditional method produce different inpatient tariffs for each class. These differences result in higher or lower tariff

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outcomes. The tariffs set by Buleleng District General Hospital were higher for Class II, with a difference of Rp –882,000. In contrast, research conducted by Nurhidayah et al. (2023) found that Class II produced a lower tariff, with a difference of Rp 35,518.51

4. Class III

The inpatient service tariff using the ABC method for Class III rooms was calculated by determining each cost element. The telephone, water, and electricity costs resulted in a rate per unit of Rp 36,250; consumption costs resulted in a rate per unit of Rp 269,164; nurse salary costs resulted in a rate per unit of Rp 16,236; facility maintenance costs resulted in a rate per unit of Rp 1,383,068; and building maintenance costs resulted in a rate per unit of Rp 189,103. These five cost elements were then multiplied by the cost driver, which is the total number of inpatient days—22,132 days in the Class III inpatient ward. The cost driver for all five cost elements is the length of stay because these elements are directly related to and experienced by inpatients

Table 4. Inpatient Service Tariff for Class III at Tora Belo Regional General Hospital, Sigi Regency

Cost Element	Unit Rate (IDR)	Cost Driver	Total (IDR)
Telephone, Water, and Electricity	36.250	22.132	802.285.000
Nursing Cost	16.236	22.132	359.335.152
Meal Cost	269.164	22.132	5.957.137.648
Cleaning Cost	27.248	22.132	603.052.736
Administrative Cost	255.041	6.686	1.705.204.126
Facility Maintenance	1.383.068	512,42	708.711.704
Building Maintenance	189.103	512,42	96.900.159
Total Cost (Class III)			9.427.014.662
Length of Stay			22.132
Tariff per Day			425.945

Source: Processed Data, 2025

The ABC system is built on the assumption that the activities carried out by a company are the drivers of costs; therefore, it is reasonable that the allocation of indirect costs is based on those activities. Consequently, calculations performed using the ABC method can help measure profitability more accurately and provide more precise and informative product cost data. The level of accuracy of the ABC method can be seen from the classification of costs conducted (Perdana, 2020).

Activity-based costing is an accounting system that focuses on the activities performed to produce goods or services. In activity-based costing calculations, this method provides information on each activity as well as the resources used for those activities. An activity is any transaction that generates a specific cost, serving as the reason a company incurs expenses. This is in line with the theory of Johnson and Kaplan (1987), which states that the ABC system helps identify and measure the work related to the production and delivery of products more accurately. Companies can calculate a more precise cost of production by gaining a better understanding of activity-related costs

V. CONCLUSIONS

The Activity-Based Costing method produces more accurate inpatient tariffs by allocating costs according to actual activities and resource usage. Across all inpatient classes at Tora Belo Hospital, ABC revealed significant differences compared with traditional costing, demonstrating its superiority in identifying real service costs. By improving cost accuracy, ABC supports fairer tariff determination, enhances efficiency, and strengthens hospital financial management. This method is therefore recommended as a more reliable approach for hospital tariff formulation.

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