

IMPLEMENTATION OF ACTIVITY BASED COSTING OF LABORATORIUM AND RADIOLOGY UNIT IN INDONESIA: A LITERATURE STUDY

El Wahyuningsih¹, Henny A. Manafe², Hedwigh H. T. Lejap³
Departement of Magister Management Widya Mandira Catholic University^{1,2,3}

ARTICLE INFO

Keywords:

Activity based cost, service rate, laboratory and radiology unit

ABSTRACT

This literature study aims to examine the application and benefits of using the activity based costing method in calculating laboratory and radiology examination service rates in Indonesia. Activity based costing method can produce more accurate cost information. In addition, this method can avoid cost distortions, so it can help control operations, control costs and provide information for the hospital or clinic budget process. This study used a descriptive method and a literature review by identifying 11 articles that examined the application of the activity based costing method in calculating laboratory and radiology service rates in the 2016 – 2023 range. The results showed that the activity based method was able to increase accuracy in providing relevant cost information, improve cost control and allocate indirect costs accurately, identify activity costs properly and increase operational efficiency in laboratory and radiology units. To apply the activity based costing method, accuracy and precision are needed in identifying activities and determining the amount of drive costs and pool costs.

E-mail:
elisabethwahyuningsih@gmail.com

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1. INTRODUCTION

Growth population, government's policy, penetration of technology, and competition effect on the quality of services provided by the hospital. Therefore, hospitals need to establish appropriate strategies in order to remain have competitive advantage. However, on the other hand, this policy will require hospitals to incur additional costs, as a form of investment to improve the quality of their services. This will certainly affect the operational costs incurred by the hospital, which will ultimately affect the increase in service rates that must be paid by patients (Raymond, 2020). Hospital management needs to realize that economic principles must still be considered, in addition to the quality of the service itself (Pratiwi, 2021). This means that hospitals maintain that their revenue centers can improve their performance, so that they can provide optimal profits.

Laboratory and radiology units play a role in assisting doctors in making a diagnosis in order to determine the patient's health condition. Therefore, it can be said that the laboratory and radiology units play a vital part in the hospital's operating cycle. However, in terms of determining service rates, laboratory and radiology units are often became the main contributors to the high operating costs of hospitals. Therefore, the hospital management is always careful in determining the cost of laboratory and radiology services. To support this process, a careful method is needed, so that rates can be determined efficiently and competitively (Sudirman, 2020) . However, in reality, the determination of hospital service rates sometimes still uses a traditional approach system. Utami, (2016), explains that traditional methods are less effective because they will cause cost distortions, in the sense that costs are set too low or too high. This is due to the inaccurate allocation of costs into audit services. Meanwhile, calculations using the ABC method can provide more accurate product price information, because it prioritizes costs based on various activities that have been carried out, so that the allocation needs can be known (Purwanti et al., 2022) .

This study aims to examine the extent to which the activity based cost method is used in calculating service rates in laboratory and radiology units in Indonesia. The results of this study will show whether the rates set are higher or lower than the calculations obtained by the activity based cost method, and why this can happen.

2. METHOD

The method used in this research is charting the field Hesford et al., (2007). The initial stage was to identify research articles that adopted the activity based costing method in calculating laboratory and radiology unit service rates. The second stage is to identify which research articles were published in international and national journals in the 2016-2023 period. The end result of this stage is the discovery of eight studies which are then used as material in this literature study.

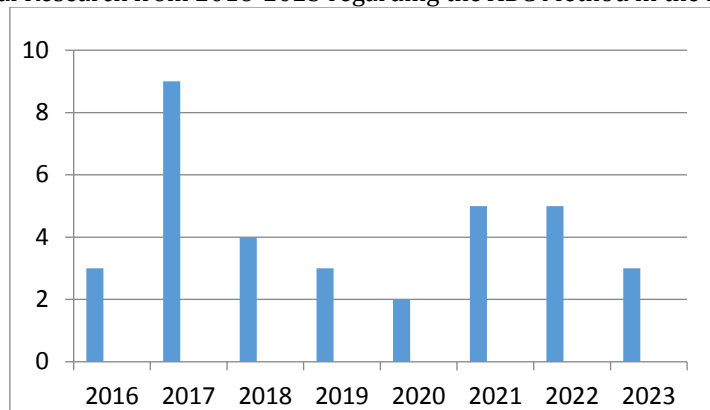
Table 1. List literature Application Activity Based Costing method on inspection Laboratory And Radiology unit

No	Judul	Penulis	Jurnal
1	Penerapan Metode Activity Based Costing pada tarif layanan Radiologi dan laboratorium terhadap rumah sakit paru pamekasan	Sayuri, (2016)	Aktiva Jurnal Akuntansi dan Investasi Vol 1, No 2/ Nov 2016
2	Penentuan Biaya pemeriksaan dengan metode Activity Based Costing pada laboratorium Klinik Prima	Utami, (2016)	Jurnal Ilmu dan Riset Akuntansi Volume 5 Nomor 11 November 2016
3	Penerapan Activity Based Costing System dalam menghitung tarif jasa pemeriksaan laboratorium (studi kasus pada RSI Aisyiyah Malang)	Farudi, (2018)	Jurnal ilmiah Mahasiswa FEB universitas Brawijaya
4	Analisis Unit Cost Pelayanan Unit Laboratorium Rumah sakit Naili DBS Tahun 2017 dengan Metode <i>Activity Based Costing</i>	Oasthttamadea et al., (2019)	Jurnal Kesehatan Andalas 8(2S): 8
5	Penerapan Metode Activity based Costing dalam perhitungan unit cost sebagai metode alternatif pada penentuan tarif pemeriksaan Laboratorium dan Radiologi (studi kasus di RSOP)	Purwanti et al., (2022)	Jurnal Ekonomi Bisnis dan Akuntansi (JEBA) volume 24 No 1 Tahun 2022
6	Calculation of Health Service Rate using Activity Based Costing Method at Laboratory Installation of RSUP Dr. Tadjuddin Chalid Makasar	Normansyah, (2022)	International Journal of Economics, Business and Innovation Research. IJEBIR E-ISSN: 2964-0865
7	Analisis Perhitungan Tarif jasa pemeriksaan laboratorium dengan menggunakan Metode Activity Based Costing pada PT Wenang Wahana Bhakti Husada Cabang Manado	Lalamentik, (2023)	Jurnal LPPM Bidang EkoSosBudKum (ekonomi, Sosial, Budaya dan Hukum) Vol 6 No 2 Januari – Juni 2023
8	Activity Based Costing Method As The Basis For Determining Service Rates In The Radiology Unit At Royal Prima Hospital Medan	Arts et al., (2023)	International Journal of Health and Pharmaceutical Vol 3 No. 4 (2023)

Article identification

The first step to identify the required articles is to search in Google Scholar. Articles with topics regarding activity based costs with application in the health industry were then collected. From here, we then sort out which ones will focus on laboratory and radiology units.

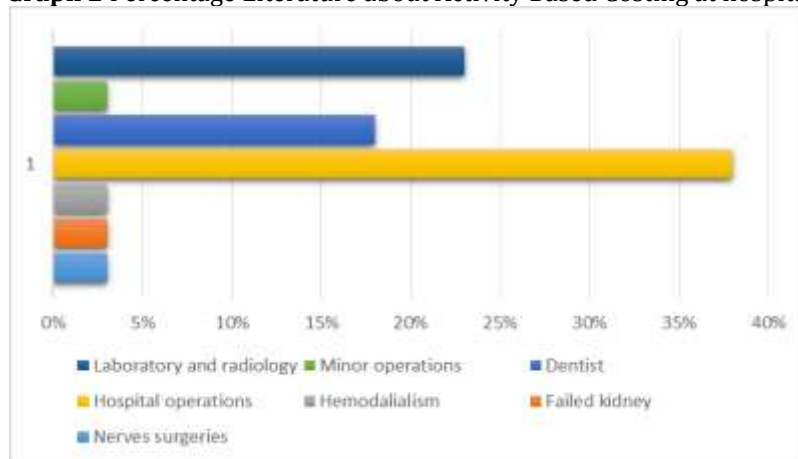
Graph 1 Total Research from 2016-2023 regarding the ABC Method in the health industry



Source: Self-processed (2023).

Based on graph 1.1, it is known that the most articles were published in 2017, with a total of nine. Whereas in 2020 the least number of articles was published, namely two. In total, from 2016 to 2023 there were 34 articles on activity based costs adopted in the health industry.

Graph 2 Percentage Literature about Activity Based Costing at hospital



Source: Self-processed (2023).

Graph 1.2 shows the details of the adoption of activity methods on various lines in the hospital. It is known that patient services have the highest number of articles, namely 38%. Furthermore, the least is service on nerves surgeries, service of hemodialysis, service of inspection dentistry, ultrasound service, service of failed kidney, service of minor operation, & hospitals operational, with a total percentage of 3%. Meanwhile, laboratory and radiology service units hold the second largest number, namely 23%.

Table 2. The method category used in the research is the Application of the Activity Based Costing Method in Laboratory and Radiological Examinations

Method	Amount
Descriptive Quantitative	4
Descriptive Qualitative	2
Descriptive Comparative	1
Mixed method research (MMR)	1

Source: Self-processed (2023).

Based on Table 2, it is known that research on determining service rates for laboratory and radiology units mostly uses quantitative descriptive methods. This method was chosen because it can explain in detail the calculation steps using activity based cost, so that it can be known in detail the allocation of direct and indirect costs based on activity. While the qualitative descriptive method occupies the second position most often used. The technique used in this method is Focus Discussion Group (FGD), because it can provide various perspectives regarding the reasons and the process of determining service rates using activity based costs. Besides that, open interview techniques were also used, to ascertain whether the details and allocation of overhead costs were in accordance with each activity carried out.

4. RESULT AND DISCUSSION

Table 3. Research Findings

Rates	A B C	Study
Pamekasan Pulmonary Hospital Rates Thorax Radiology Examination	Higher	Sayuri, (2016)
Pamekasan Lung Hospital Rates for Laboratory Examination	Higher	
Prima Clinic Rates for Hematology examination (clinical, clinical chemistry, immunology, microbiology)	Lower	Utami, (2016)
Examination rates at RSI Aisyiah: Full Blood, Creatinine, Ureum, Momentary GD, SGPT, SGOT	Lower	Farudi, (2018)
Examination at RSI Aisyiah: RBT/CT, Complete Urine, Fasting GD, Fasting GD	Higher	
Naili DBS Hospital rates on random blood sugar checks	Higher	Oastttamadea et al., (2019)
Hospital laboratory rates at RSOP	Higher	Purwanti et al., (2022)
Laboratory examination rates at Tadjuddin Chalid Hospital on examination: Ureum, Creatinine, Electrolytes	Higher	Normansyah, (2022)
Laboratory examination rates at Tadjuddin Chalid Hospital: Routine Blood, SGOT, SGPT, Glucose, Albumin, HbsAg (Rapid), LDL Cholesterol	Lower	
Rates General RT PCR examination PT . Wenang Wahana Bhakti Husada , General TCM , General Antigen RDT .	Higher	Lalamentik, (2023)
Rates inspection Thorax RS Royal Prima Hospital's photo	Lower	Arts et al., (2023)

Source: Self-processed (2023).

Based on table 3, it is known that there are 7 laboratory service cost that are higher than the ABC method. While the other 4 are lower than the ABC method. In Sayuri, (2016), finds that the cost calculation using the ABC method is higher than the traditional method, due to the imposition of overhead costs for each product on many cost drivers, so as to be able to allocate activity costs to each laboratory appropriately based on consumption in each activity. Whereas in the findings of Oastttamadea et al., (2019), overpricing occurs because unit costs are calculated individually & work as a whole, resulting in price differences. To overcome this, Purwanti et al., (2022) , explains that there are two methods that can be used. First, management needs to optimize the utility of the various inspection tools used, so that productivity can increase, and thereby reduce unit costs and overhead. The second is to maintain consistent maintenance of the tools used, so as to reduce the cost of repairs and replacement of spare parts.

Farudi, (2018), in his findings that the calculation results with the ABC method get a lower price compared to the Relative Value Unit (RVU) method used by RSI Aisyah Malang. This is caused because the RVU method emphasizes the weight and value of raw material costs, employee costs, and equipment costs as a basis for calculations. Determining the weights and units that are incorporated in one cost driver makes the RVU calculation results higher. Whereas in the findings of Utami, (2016), it shows that the results of calculations using the ABC method are lower due to the same imposition of indirect operational costs for each activity. This resulted in the hospital management being unable to know the allocation of costs, and distortions occurred, causing the calculated price to be higher, because the details were known.

Calculation of production prices using the ABC method can provide higher results than the price set by the hospital management. However, hospital management needs to pay attention to other factors that need to be taken into account before implementing the ABC method. Purwanti, et al., (2022), explained that in determining the selling price, one must pay attention to the purchasing power of market share, so that it is known whether it is too high or not. However, if the pricing is lower, it can cause losses for hospital management. Therefore hospital management must properly consider all of these factors in depth.

4. CONCLUSION

The laboratory and radiology unit play a vital role in the process of diagnosing patient disease by doctors at the hospital. This causes the majority of hospital service rates to be formed there. Therefore, it is important for hospital management to be able to determine laboratory and radiology unit rates carefully and efficiently. The activity based cost method was then chosen as an instrument in determining the appropriate rate, because it can show a list of overhead costs based on each activity in detail. This

makes the calculation results with the ABC method more detailed and comprehensive. In some literature it is found that rates with the ABC method are higher, due to the large number of overhead costs that have not been identified by the traditional method. Whereas in other literature, it was found that the rates with the ABC method were lower, this was because the Relative Value Unit (RVU) method emphasized higher values and weights. Subsequent research can focus on the use of Time Driver Activity Based Costs (TDABC). This method is considered to be more objective, because it emphasizes changes in circumstances and overhead costs that are charged directly to products and costs.

REFERENCES

- Arts, T. M., Ginting, C. N., & Ginting, R. (2023). Determining Service Rates In The Radiology Unit At Royal Prima Penerapan Metode Activity Based Costing pada tarif layanan Radiologi dan laboratorium terhadap rumah sakit paru pamekasan Hospital Medan. *Journal Of Health and Pharmaceutical*, 3(4).
- Farudi, M. I. (2018). Penetapan Activity Based Costing System Dalam Menghitung Tarif Jasa Pemeriksaan Laboratorium. *Journal of Chemical Information and Modeling*, 53(9), 1689–1699.
- Hesford, J. W., Lee, S. S., Stede, W. A. V. d., & Young, S. M. (Eds.). (2007). *Management accounting: A bibliographic study*. The Netherlands: Elsevier.
- Lalamentik, Y. (2023). Analisis Perhitungan Tarif Jasa Atas Pemeriksaan Laboratorium Dengan Menggunakan Metode Activity Based Costing Pada PT. Analysis of Calculation of Service Rates for Laboratory Examination Using the Activity Based Costing Method at PT. Wenang Wahana Bhakti. *LPPM Bidang EkoSosBudKum (Ekonomi, Sosial, Budaya, Dan Hukum)*, 6(2), 1477–1488.
- Normansyah, M. (n.d.). *Calculation of Health Service Rate Using Activity-Based Costing Method At Laboratory Installation of RSUP Dr . Tadjuddin Chalid Makassar*. 01(01).
- Oasthtttamadea, R., Manjas, M., & Yurniwati, Y. (2019). Analisis Unit Cost Pelayanan Unit Laboratorium Rumah Sakit Naili DBS Tahun 2017 dengan Metode Activity Based Costing (ABC). *Jurnal Kesehatan Andalas*, 8(2S), 8. <https://doi.org/10.25077/jka.v8i2s.952>
- Pratiwi, I. P. (2021). *Pelaksanaan Kegiatan Penghijauan dalam Menjaga Lingkungan di Desa Kampung Madura Kecamatan Kuantan Hilir Kabupaten Kuantan Singingi Implementation of Greening Activities in Protecting the Environment in Kampung Madura Village , Kuantan Hilir District , Kua*. 1(2), 57–61.
- Purwanti, R., Sudarto, & Rusmana, O. (2022). Penerapan Metode Activity Based Costing dalam Perhitungan Unit Cost Sebagai Metode Alternatif pada Penentuan Tarif Pemeriksaan Laboratorium dan Radiologi (Studi Kasus di RSOP). *Jurnal Ekonomi, Bisnis Dan Akuntansi (JEBA)*, 24(1), 74–97.
- Raymond, T. (2020). *Penerapan Activity Based Cost dalam Menghitung Unit Cost Pelayanan di Rumah Sakit*. google books.
- Sayuri. (2016). Penerapan metode activity based costing pada tarif layanan radiologi dan laboratorium terhadap pendapatan rumah sakit paru pamekasan. *Aktiva Jurnal*, 1(2), 123–139.
- Sudirman, I. (2020). *Strategi Penetapan Tarif Rumah Sakit Berdasarkan Unit Cost*.
- Utami, I. setya. (2016). Penentuan Biaya Pemeriksaan Dengan Metode Activity Based Costing Pada Laboratorium Klinik Prima. *Jurnal Ilmu Dan Riset Akuntansi*, 5(November), 1–19.