

Estimating the Unit Cost of Non Capitation

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Abstract: The purpose of this study was to analyse the determination of the cost of hospitalization in the General Public Hospital Arifin Achmad, Riau Province. This study is a descriptive analytical cross sectional one carried out to calculate the cost of service through the use of activity based technique and the data relating to the year 2015. The research result showed that the strategy of determining Activity Based Costing (ABC) need to be calculated through cost driver of each department. For unit cost of service, it can be calculated through identification clinical pathway and it also can be used as base unit cost of outpatient and also called as non-capitation cost units. The use current unit cost at it hospital till today is by adopting with similar hospital rates. As an implication, there is no conformity between the costs incurred at the prevailing tariff. The results showed that the use of ABC system model on tariff determination was appropriate at it Hospital. At least, there are a recalculation of the costs incurred by the level of service provided to the patient and as results the hospital income becoming increase if compared to the previous unit cost.

1 INTRODUCTION

The problem in public health at this time is the amount of service tariff charged to the public. Hospital tariffs are an essential element for hospitals that are not fully funded by the government or third parties. All hospitals in Indonesia should be able to establish a service tariff that may vary depending on the form of the hospital itself. Consideration of the condition of the surrounding community or the targeted community is often very dominant in the determination of the hospital tariff. This is related to social functions and aspects of general commodities in various health services.

There are several hospitals that are central to treatment and is a reference for the general public in Riau Province, especially in the city or district in Riau Province. Starting from hospitals that are considered low end class capacity up to high-end hospital capacity is available at this time. Of course, this distinction becomes the people's choice. The problem at this time, whether the services provided by each hospital whether it has been in accordance with tariffs that should be given to patients. With Arifin Achmad General Public Hospital established with type B Education and status of Public Service Agency starting in 2010, the public hospital area

Arifin Achmad should develop a model that became the basis of determining the tariff of services provided to the public.

If the management of Arifin Achmad General Public Hospital misplaced the tariff, the amount of income will decrease or if the tariff is too expensive and not comparable with the quality of service provided, people will be reluctant to seek treatment. Regional General Hospital Arifin Achmad in this case still use the old tariffs charged to the people in accordance with Riau Governor Regulation of 2012. The first tariff regulation issued by Minister of Health Decree no. 1165/SK/X/2007 dated 31 October 2007 concerning the tariff pattern of hospitals of the Public Service Board, where in Article 1 (28) stating unit cost is the unit cost of each hospital service activities calculated based on Hospital Accounting Standards and article 2(7) stating that the Health Insurance tariff should be adjusted to hospital rates.

On January 30, 2013 the Ministry of Health Regulation No. 12, the tariff of the Public Hospital Service Board in the Ministry of Health stipulates the hospital tariff covers the service component and the amount of service is the same as for all types of treatment. Then the Minister of Health issued Ministerial Regulation no. 69 dated November 1,

2013 effective on January 1, 2014 as amended by Decree of the Minister of Health No. 59 dated 22 August 2014 which contains that the service uses capitation and non-capitation rates. From the exposure, it can be seen that the hospital has not implemented the service tariff adjustment while the government regulation has changed.

Many techniques to counting are carried out by other researchers in unit cost calculations. (Conteh & Walker, 2004) uses SDCA (Step down Cost Accounting) which offers a relatively easy method to generalize the cost and unit cost data at the facility level, but only for a small hospital. Carey & Stefos) 1992 uses a cost-function approach (measuring inpatient and outpatient costs) in the determination using complete data such as number of beds, major teaching, minor teaching and non-teaching, visitors (major urban, small urban and rural), classification of hospitals (non-profit, for profit or government). Adam & Evans (2006) also used the same model for unit cost determination in different countries i.e. the average cost of the ratio of inpatients and outpatients is based on GDP per capita, hospital size, ownership and occupancy rate.

Kiffer et al (2015) conducted a study based on the IRAS Brazil Project using the Monte Carlo Method which is the estimated occupation day cost associated with Healthcare Associated Infection (HAI). The result of his research concludes that total inpatient with HAI, unit cost produced is quite expensive compared to using total inpatients without HAI. This is because the impact of HAI on occupation costs in high complexity Brazilian hospitals. Rezapour et al (2012) applies cost center data adopted from Shepard (1998), which outlines the seven steps required for implementing step-down cost accounting.

Hex et al (2012) used a top-down approach to estimate costs for type 1 diabetes-adult, type 1 diabetes-child, type 2 diabetes-adult and type 2 diabetes-child. In addition, the results of this study using sensitivity analysis as a tool for underlying uncertainty of providing an estimate of costs of diabetes. Riewpaiboon et al (2016) compared three methods. I.e., method 1: Economic methods with a 3% discount rate and fixes useful life for capital assets; Method 2: Economic methods with extended useful life to study year in case working time was beyond the reference useful life; And Method 3: Accounting methods with fixed useful life and no cost beyond the useful life. Choudhary et al (2013) uses break-even analysis in healthcare setup. Aboagye et al (2010) in his research using the cost burden (full costing), Barnett (2009) conducted a

study on the determination of unit cost in the form of cost-effectiveness analysis. In research cost effectiveness analysis using four principal methods of cost determination, i.e. Method 1: micro costing requires direct measurement and is ordinarily reserved to cost novel interventions; Method 2: ABC systems have the promise of finding accurate costs of all services provided; Method 3: Cost adjusted charges or Total Reimbursement need analysis Method 4: Gross costing methods specify the quantity of services used an employ a unit cost but not homogeneous services.

Many researchers suggest using ABC in hospital research such as Sugiyarti (2013), Zinia (2013); Aris et al (2012), Riadi (2012); Jeina (2013), , Tabita (2013), Shita and Syarifah (2014) while Ronnie (2009) stated that the total cost of care based on the Diagnosis Related Groups (DRG) is better. Asri (2012) Research also provides a new way of using modified activity based costing method which is a combination of step down costing and activity based costing method. Dian et al (2011) stated that at Muhammadiyah Unit I implemented a real cost method in determining the tariff. Primadinta et al (2011) suggests the need for cost sharing so that the tariff price is not too cheap or well below the real cost price. Ryryn et al (2013) using a double distribution model based on the relative value unit (RVU) in his research.

A Rajabi et al (2012) used the calculation of cost price based on unit level, batch level, hospital level and sustaining level cost are one the important conclusion their research, Kazemi et al (2015) made conclusion ABC is a suitable tool to determine cost price for services and allow the cost of each activity and therapy or combination therapies, to be determined and aids measures to improve management. It is recommended to use this costing method to determine of Diagnosis Related Groups (DRGs).

Nouroozi et al (2013) conclusion that ABC puts a price on service system and recognize the opportunities for saving the cost. Popesko (2013) analyses the specifics of application of ABC method in hospital management especially have face a number of obstacles, very complex structure of outputs (products), customers, perform activities and financing flows than an ordinary enterprise.

Popesko & Novák (2011) made conclusion that ABC application in healthcare have a great deal in methodology, data collection technique and the setting. Because of the important differences between individual procedures and departments in hospital, the complex application of ABC which

could replace the obsolete costing and accounting systems are very unique. Barnett (2003) determinate unit cost of U.S Department of Veteran Affairs (VA) with Decision Support System (DSS). On DSS using an ABC system. As DSS becomes more accurate, it will become the standard sources of follow-up costs and population costing.

This study is using ABC model, this is due to the complex service provided by the General Public Hospital Arifin Achmad, Riau Province. Due to the limited data possessed and not yet systemized properly, the researcher assumes it is appropriate to use the ABC model. ABC system is expected to have efficiency and effectiveness to remember health financing payment system which has changed according to requirement.

2 METHODS

This study is an analytic-descriptive study through observation and review financial documents; data from hospital management system information; filling costs and services form from different parts of hospital extracted. Study the cost price of service has been carried out regarding Activity Based Costing (ABC) by having information for the year 2015.

2.1 Subject and Data

The subject in this research is Arifin Achmad General Public Hospital that located in Pekanbaru City, Riau Province, on Diponegoro Streets number 2. The data was collected by using collection forms based on services, hospital expenditure, outputs and activities.

2.2 Design and Analyse Data

This study uses quantitative data in the form of financial statements and operational reports of companies in the form of medical records and also use qualitative data in the form of an interview is about the implementation of service delivery in relation to quantitative data to be taken.

Unit Cost, essentially, compares the sum of activities with cost driver. For the calculation of non-capitation unit cost are using Activity Based Costing (ABC) in order to avoid distortion in charging cost so that it can assist management in taking decision as base of determination of tariff of inpatient. For that, the following steps to determination non-capitation unit cost are;

2.2.1 Classification of Costs into Various Activities

Classification of cost into various activities consist of two (2); first, based on on unit level activity cost. This activity is carried out for each unit of production. Unit-level activity costs are proportional to the number of production units. Activities included in this category are the provision of electricity, water and consumption nutrition costs.

This activity is carried out for each unit of production. Unit-level activity costs are proportional to the number of production units. Activities included in this category are the provision of electricity, water and consumption nutrition costs. Second, based on batch related activity cost. This activity is carried out every time a batch is processed regardless of how many units are in the batch. This activity depends on the number of batches generated.

Costs in this activity include administrative costs or medic records, patient care costs and cleanliness costs. And third is based on facility sustaining activity cost. This activity is related to activities to maintain the facilities owned. Activities included in this category include the cost of building depreciation, the cost of preparation of facilities, laundry fees and building maintenance costs.

2.2.2 Identifies Driver Cost

After these activities are identified in accordance with the category, the next step is to identify the cost driver of the activity cost. This identification is intended in the determination of group and tariff per unit cost driver.

2.2.3 Determine Per Rate Unit Cost Driver

After identifying the cost driver then determine the tariff per unit cost driver. Because each activity has a cost driver by dividing the amount of cost with the cost driver. Tariff per unit cost driver can be calculated by the following formula;

$$\text{Unit cost driver tariff (UCD)} = \frac{\text{Sum of Activities (SA)}}{\text{Cost Driver (CD)}}$$

3 RESULTS AND DISCUSSION

This study is an analytic-descriptive study through observation and review financial documents; data from hospital management system information;

filling costs and services form from different parts of hospital extracted. Study the cost price of service has been carried out regarding Activity Based Costing (ABC) by having information for the year 2015.

3.1 Classification of Costs into Various Activities

The first step is to classify the activity with the cost driver used. The classification of cost drivers implemented based on existing activities. The cost driver classifications can be seen in table 1.

Table 1: Grouping of activity based costing.

Sub Activity	Total Cost	Activity
Medical service fees	41,398,879,656	Level activity cost unit
Cost of consumption	5,746,452,967	Level activity cost unit
Laundry fee	496,685,201	Batch Related Activity Cost
Building maintenance fee	793,678,700	Facility sustaining activity cost
Cost of inpatient supplies	198,937,750	Facility sustaining activity cost
Cost of maintenance of medical devices	185,717,219	Facility sustaining activity cost

From table 1 indicates that the medical service fee and cost of consumption are category activity categories, laundry fee is categorized into batch related activity cost, building maintenance fee, cost of inpatient supplies and cost of maintenance of medical devices including facility sustaining activity cost category. After obtained cost driver and activity hence the researcher can calculate base tariff of inpatient patient.

Based on unit level activity cost, there are several costs. That cost consist of; 1) medical service fees, 2) cost of consumption, 3) laundry fee, 4) building maintenance fee, 5) cost of maintenance of medical devices, 6) cost of inpatient supplies and 7) other relevant costs. In this study, there are two types of cost drivers used i.e. cost driver number of patient days treated and cost driver number of patients treated. In table 2, the unit cost driver used shows that sum of days about 138,200 days and total patients about 29,338 patients.

3.2 Identifies Driver Cost

The next step is to determine the cost driver as a divisor in the determination of unit cost. There are two (2) types of cost drivers in this case i.e. the cost driver in the form of days and the number of inpatients. The data cost driver number of days is obtained from the LoS or Length of Stay of the patient in the hospital in each class. So also with the number of patients is the number of inpatients from each class. For more details the data can be seen in table 2.

Table 2: Cost driver.

Activity	Cost Driver
Sum of days	138,200 days
a. Royal VIP / VIP	15,699 days
b. First Class	13,799 days
c. Second Class	21,935 days
d. Third Class	73,460 days
e. ICU	1,422 days
f. CVCU	1,235 days
g. PICU	1,280 days
h. SCN	6,152 days
i. HCU	3,218 days
Total of patients	29,338 patients
a. Royal VIP / VIP	3,562 patients
b. First Class	3,038 patients
c. Second Class	4,778 patients
d. Third Class	15,162 patients
e. ICU	456 patients
f. CVCU	557 patients
g. PICU	214 patients
h. SCN	798 patients
i. HCU	773 patients

3.3 Determine Per Rate Unit Cost Driver

Unit cost obtained from the total cost divided by the cost drivers that have been set as in table 2. For example Royal VIP / VIP class obtained unit cost of 4,702,756,959 rupiahs. This figure is obtained from the total cost of Medical service fees amounting to

41,398,879,656 rupiahs divided by 138,200 days. So we get unit cost per unit for Medical service fees of 299,557 rupiahs. Then medical service fee for Royal VIP / VIP class is 299,577 rupiahs multiplied by 15,699 days so that obtained 4,702,756,959 rupiahs. Similarly, the calculation for unit cost of each other cost driver such as cost of consumptions, laundry fee, building maintenance fee, cost of inpatient supplies and cost of maintenance of medical devices.

Table 3: Basic tariff determination.

Activity	Cost Driver	Unit Cost (IDR)
Medical service fees	138,200 days	41,398,879,656
a. Royal VIP / VIP	15,699 days	4,702,756,959
b. First Class	13,799 days	4,133,597,253
c. Second Class	21,935 days	6,570,799,025
d. Third Class	73,460 days	22,005,511,574
e. ICU	1,422 days	425,971,106
f. CVCU	1,235 days	369,953,809
g. PICU	1,280 days	383,433,907
h. SCN	6,152 days	1,842,879,216
i. HCU	3,218 days	963,976,807
Cost of consumption	29,338 patients	5,746,452,967
a. Royal VIP / VIP	3,562 patients	697,691,236
b. First Class	3,038 patients	595,055,018
c. Second Class	4,778 patients	935,869,939
d. Third Class	15,162 patients	2,969,790,711
e. ICU	456 patients	89,317,014
f. CVCU	557 patients	109,099,949
g. PICU	214 patients	41,916,318
h. SCN	798 patients	156,304,774
i. HCU	773 patients	151,408,008
Laundry fee	29,338 patients	496,685,201
a. Royal VIP / VIP	3,562 patients	60,303,793
b. First Class	3,038 patients	51,432,601
c. Second Class	4,778 patients	80,890,377
d. Third Class	15,162 patients	256,688,971
e. ICU	456 patients	7,719,969

Activity	Cost Driver	Unit Cost (IDR)
f. CVCU	557 patients	9,429,874
g. PICU	214 patients	3,622,968
h. SCN	798 patients	13,509,946
i. HCU	773 patients	13,086,702
Building maintenance fee	138,200 days	793.678.700
a. Royal VIP / VIP	15,699 days	90,158,914
b. First Class	13,799 days	9,247,268
c. Second Class	21,935 days	125,972,086
d. Third Class	73,460 days	421,878,707
e. ICU	1,422 days	8,166,506
f. CVCU	1,235 days	7,092,570
g. PICU	1,280 days	7,351,004
h. SCN	6,152 days	35,330,762
i. HCU	3,218 days	18,480,883
Cost of inpatient supplies	29,338 patients	198,937,750
a. Royal VIP / VIP	3,562 patients	24,153,530
b. First Class	3,038 patients	20,600,344
c. Second Class	4,778 patients	32,399,092
d. Third Class	15,162 patients	102,811,854
e. ICU	456 patients	3,092,086
f. CVCU	557 patients	3,776,956
g. PICU	214 patients	1,451,110
h. SCN	798 patients	5,411,150
i. HCU	773 patients	5,241,628
Cost of maintenance of medical devices	138,200 days	185,717,219
a. Royal VIP / VIP	15,699 days	21,096,777
b. First Class	13,799 days	18,543,501
c. Second Class	21,935 days	29,476,897
d. Third Class	73,460 days	98,717,706
e. ICU	1,422 days	1,910,925
f. CVCU	1,235 days	1,659,629
g. PICU	1,280 days	1,720,102
h. SCN	6,152 days	8,267,238
i. HCU	3,218 days	4,324,443

After the results of the counting unit cost per driver is obtained, then we do a calculation of each digit in the same class even though it has a different cost driver. For example, the Royal VIP class is 5,596,161,209 rupiahs.

This figure is derived from the Royal VIP / VIP sub-activity of each unit cost driver. Figures 5,596,161,209 rupiahs obtained sub activity medical services fees 4,702,756,959 rupiahs plus sub activity class Royal VIP / VIP from cost of consumption equal to 697,691,236 rupiahs plus sub activity class Royal VIP / VIP from laundry fee equal to 60,303,793, plus sub activity class Royal VIP / VIP From building maintenance fee of 90,158,914 rupiahs, plus Royal VIP / VIP class activity sub from cost of inpatient supplies amounted to 24,153,530 rupiahs and added Royal VIP / VIP class sub activity from cost of maintenance of medical devices amounted to 21,096,777 rupiahs. For more clearly shown by table 4 and the number of units cost per class can be seen in table 5.

Table 4: Sub activity unit cost for royal VIP / VIP class.

Sub Activity	Unit Cost (IDR)
Medical service fees	4,702,756,959
Cost of consumption	697,691,236
Laundry fee	60,303,793
Building maintenance fee	90,158,914
Cost of inpatient supplies	24,153,530
Cost of maintenance of medical devices	21,096,777
Total Unit Cost Royal VIP / VIP	5,596,161,209

Table 5: Number of units cost per class.

Class	Total Unit Cost
a. Royal VIP / VIP	5,596,161,209
b. First Class	4,898,475,984
c. Second Class	7,775,407,417
d. Third Class	25,855,399,522
e. ICU	536,177,606
f. CVCU	501,012,787
g. PICU	439,495,409
h. SCN	2,061,703,087
i. HCU	1,156,518,471

After the number of unit cost per class is obtained, the researcher divides it by the normal amount of capacity of the existing class at Arifin Achmad Provincial General Hospital. After that it can be known ABC tariff if it is distributed with the number of activity days.

As for the reason the divider using the patient is due to the current financing system, should be able to predict the number of patients suffering from illness from the time of entry until healed. Every hospital should be able to predict how many patients will stay, this means the concept of effectiveness and efficiency goes. Unlike the previous hospital financing system, however long the patient started to get sick until healed it will still be paid.

For classroom standards, a patient in a hospital may be different in number. It depends on the policy of the hospital. In Table 6 shows the normal number of patients in a room that depends on the type of class and sum of activity days

Table 6: Number of units cost per class.

Class	Sum of Days Activity	People in Room
a. Royal VIP / VIP	15,699	1
b. First Class	13,799	2
c. Second Class	21,935	3
d. Third Class	73,460	4
e. ICU	1,422	1
f. CVCU	1,235	1
g. PICU	1,280	1
h. SCN	6,152	1
i. HCU	3,218	1

After the standard of each class and the number of days of activity are known, we can calculate the unit cost of ABC per class. Unit cost ABC is obtained from the unit cost per class divided by the number of days of class activity divided by the number of patients in one class.

For example, to determine the unit cost of first class ABC is done by dividing the unit cost per class by 4,898,475,984 rupiahs divided by the number of class activities day 13,799 days divided by the number of patients in one class that is two (2) persons are 177.494 Rupiahs. Similarly for other class unit calculations, for more details, see Table 7.

Table 7: Unit cost ABC.

Class	ABC Tariff
a. Royal VIP / VIP	356,466
b. First Class	177,494
c. Second Class	118,158
d. Third Class	87,991
e. ICU	377,059
f. CVCU	405,678
g. PICU	343,356
h. SCN	335,127
i. HCU	359,390

3.4 Comparison between Unit Cost ABC with Current Tariff

Table 8: Difference of cost unit ABC with applicable rate (IDR).

Class	Unit Cost ABC	Applicable Rate	Difference
a. Royal VIP / VIP	356,466	350,000	6,466
b. First Class	177,494	125,000	52,494
c. Second Class	118,158	75,000	43,158
d. Third Class	87,991	45,000	42,991
e. ICU	377,059	250,000	127,059
f. CVCU	405,678	350,000	55,678
g. PICU	343,356	200,000	143,356
h. SCN	335,127	200,000	135,127
i. HCU	359,390	300,000	59,390

After the estimated unit cost ABC at the hospital, the researchers tried to compare with the current rate. There is a difference, but this is only the unit cost calculated, while the pricing has not been done. If seen from table 8, it can be concluded that Arifin Achmad General Public Hospital Riau Province suffered losses because there are price difference. The estimation of loss can be done through the difference of unit cost with the current rate that is by multiplying the number of days multiplied by the difference in price between unit cost and the prevailing rate.

Table 9: Loss Prediction

Class	Difference	Sum of Activity Days	Amount
a. Royal VIP / VIP	6,466	15,699	10,150,973
b. First Class	52,494	13,799	72,436,471
c. Second Class	43,158	21,935	94,667,073
d. Third Class	42,991	73,46	31,581,189
e. ICU	127,059	1,422	1,806,779
f. CVCU	55,678	1,235	6,876,233
g. PICU	143,356	1,28	18,349,568
h. SCN	135,127	6,152	8,313,013
i. HCU	59,39	3,218	19,111,702
Total			6,386,018,262

From the calculation data, the prediction of loss of 6,386,018,262 rupiahs in one year of study if the hospital does not adjust the ABC tariff. One of the causes that Arifin Achmad General Public Hospital of Riau Province is still running is because the amount of salary has been paid by the government and assets derived from government funds. However, for the improvement of performance, it is necessary to adjust the unit cost as the basis for determining the tariff.

3.5 Non Capitation Rate

3.5.1 Cost Variable per Service Unit Cost

In this study, we can calculate the variable cost unit cost per service based on the identification of services provided to the patient. The variable cost of unit costs in this case the researcher takes on the basis of the medical consumables used. Based on the results of the identification and clinical pathway in the service area at Arifin Ahmad General Public Hospital obtained only from 3 (three) existing services provide good enough information. The part is part haemodialisa, radiology, dentistry and obstetrics and gynecology. The results of the analysis on the obstetrics and gynecological content and parts of the dental service that the service provided is only the outpatient, not inpatient services. So that researchers can only analyze on the

haemodialisa and radiology. In the haemodialisis the lowest cost is 7,356 rupiahs and the highest cost is 575,289 rupiahs. In the radiology of the lowest cost is 9,524 rupiahs and the highest cost is 1,956,227 rupiahs.

3.5.2 Determination of Non-Capitation Rate

According to Minister of Health Regulation no. 59 of 2014, the Non-Capitation Rate is the amount of payment of claims by the Social Security Assurance Body to the First Level Health Facility based on the type and amount of health services provided. In practice, non-capitation tariffs should be filed by the Arifin Achmad public hospital in Riau Province in accordance with the tariff determined by unit cost calculation. Although the maximum payment using INA CBG's tariff after through verification. As an illustration of an inpatient patient in class II with hemodialysis identification and should be through radiology. The unit cost calculation is as follows;

Unit Cost = Class II rate multiplied by three days plus the cost of haemodialisa⁵ service plus Abdomen USG

$$\text{Unit Cost} = (118.158 \times 3) + (20.148) + (356.987)$$

$$\text{Unit Cost} = 731,609.$$

The calculation result of 731,609 rupiahs is unit cost so that the management of Arifin Achmad General Public Hospital must take the percentage of profit. In addition, they also must calculate the use of consumables that are small, such as gloves and masks. There is a significant difference between prevailing inpatient tariffs and unit cost calculations, so there is a need for tariff adjustments. To calculate unit cost of non-capitation tariff the researcher determine the following formula;

$$\text{Unit Cost} = (\text{Class Rate} \times \text{number of days of service}) + (\text{unit cost non-capitation tariff per service})$$

In this study can be concluded that ABC is very appropriate to be done as an effort to calculate unit cost, so that they can make the right decision. This is in line with the research of Agus (2006), Asri (2012), Primandita (2011) and Ronnie (2009) in the development of unit cost calculations using DRG (related group's Diagnosis) or related diagnostic groups referring to the Australian DRG. INA-DRG here, what is meant by the tariff setting should be the total cost per inpatient disease that has been calculated based on the clinical pathway was added with the possibility of margin expected by the hospital or simply with the Break Even Point (BEP) pattern where the tariff is set Quite the same as the

cost that has been issued by the hospital. Or with the short term determination of unit cost is to use the ABC method with the method of simple distribution. The results also in addition to determining the use of ABC calculations based on clinical pathway for the determination of unit cost also with Ability to pay and Willingness to Pay.

4 CONCLUSIONS

There is a difference between the ABC unit cost calculation and the current tariff, this is caused by the increase of electricity price and the maintenance of the building cost for example. The tariff of the services of the facilities does not need to be calculated anymore because ABC principle is already included in the cost component of tariff-making service facilities such as maintenance cost. As for the cost of consumable medical materials is one of the separate components but is the forming of non-capitation tariffs at the Regional General Hospital Arifin Achmad. The lack of information and the difficulty of clinical pathway information causes the difficulty of information as a unit of cost. The part of the sample is the haemodialisa, radiology, dentistry and obstetrics and gynecology. The results of the analysis on the obstetrics and gynecological content and parts of the dental service that the service provided is only the outpatient, not inpatient services. So that researchers can only analyze on the haemodialisa and radiology. The unit cost non-capitation tariff calculation strategy is the class rate multiplied by the number of hospitalized days plus the unit cost of non-capitation tariff per service. What distinguishes this research from others is that unit cost calculation at Arifin Achmad Hospital is not done by calculating fixed cost and variable cost, but through behavior cost approach. This is because existing data such as depreciation costs are not obtained. Arifin Achmad General Public Hospital is a government hospital so that for their employees have been paid by the government and not considered a hospital burden. So that the calculation of government hospitals with private hospitals can be implemented differences, especially government hospitals must carry out healthy business according to legislation.

As the implication, Arifin Achmad General Public Hospital needs to implement unit cost adjustment through unit cost calculation. The revamping of existing data through existing hospital management information systems is essential. Due to the existence of good data then the management

can take decisions well too, especially with the determination of unit cost. The changes in government policy on health insurance has been made loss for hospital in several times as long as they are not applying adjusted unit i.e. ABC system. For further research it is better to consider the use of unit cost model that is adjusted to the state of the data at Arifin Achmad General Public Hospital as a comparative decision-making material. Not only that, in the case of unit cost ABC can also predict the amount of losses due to not implementing price adjustment. So it opens up opportunities for further research.

REFERENCES

- Aboagye, a Q.Q., Degboe, a N.K. & Obuobi, a D., 2010. Estimating the cost of healthcare delivery in three hospitals in southern Ghana. *Ghana medical journal*, 44(3), pp.83–92.
- Adam, T. & Evans, D.B., 2006. Determinants of variation in the cost of inpatient stays versus outpatient visits in hospitals: A multi-country analysis. *Social Science and Medicine*, 63(7), pp.1700–1710.
- Asri, Maharani. 2012. Persiapan rumah sakit swasta dalam menerapkan tarif pelayanan jaminan persalinan: studi kasus di rumah sakit khusus ibu dan anak di Kotamadya Malang. *Jurnal Manajemen Pelayanan Kesehatan*, 15(3), hal. 111-114.
- Aris Suparman Wijaya et al., 2012. Analisis perhitungan unit cost sewa kamar kelas II ar rahman dengan metode activity-based costing. *Jurnal Medicoeticolegal dan Manajemen Rumah Sakit*, 1(1), hal.1-9
- Barnett, P.G., 2009. An improved set of standards for finding cost for cost-effectiveness analysis. *Med Care*, 47(7 Supple 1), pp.S82-8. Available at: <http://ovidsp.tx.ovid.com/ovftpdfs/FPDDNCIBAHC CP00/fs047/ovft/live/gv024/00005650/00005650-200907001-00014.pdf>.
- Carey, Kathleen & Theodore Stofos., 1992. Measuring inpatient and outpatient costs: A Cost-function approach. *Health Care Financing Review*, 14(2), pp.115-124.
- Conteh, L. & Walker, D., 2004. Cost and unit cost calculations using step-down accounting. *Health Policy and Planning*, 19(2), pp.127–135.
- Coudhary, Pranav Kumar et al, 2013. Break-even analysis in healthcare setup. *International Journal of Research Foundation of Hospital & Healthcare Administration*. 1(1), pp.29-32.
- Dian Alfiah, et al. 2011. Analisis penerapan tarif paket pelayanan esensial (ppe) jamkesmas pada pelayanan operasi Caesarea kelas III di Rumah Sakit PKU Muhammadiyah unit I Yogyakarta tahun 2009. *KES MAS*, 5 (2), hal. 162-232
- Hex, N. et al., 2012. Estimating the current and future costs of Type1 and Type2 diabetes in the UK, including direct health costs and indirect societal and productivity costs. *Diabetic Medicine*, 29(7), pp.855–862.
- Kazemi, Z. & Zadeh, H.A., 2015. Activity based costing: A practical model for cost price calculation in hospitals. *Indian Journal of Science and Technology*, 8(27).
- Jeina Ivone Kula. 2013. *Metode penetapan biaya rawat inap pada blu rsup Prof. DR. R. D. Kandou Manado*. Jurnal Emba, 1(3), hal. 793-803.
- Kiffer, Carlos R. V et al, 2015. Exploratory model for estimating occupation-day costs associated to Hospital Related Infections based on data from national prevalence project: IRAS Brasil Project. *Journal Infect Control*, 4(1)
- Nouroozi, Tooran et al., 2013. Prime cost of hospital services in ghaem hospital in firozabad, Fars. *Journal of Natural and Social Sciences*. 2(3), pp. 3067-3074.
- Rajabi, A. & Dabiri, A., 2012. Applying activity based costing (ABC) method to calculate cost price in hospital and remedy services. *Iranian Journal of Public Health*, 41(4), pp.100–107.
- Popesko, B., 2013. Specifics of the Activity-Based Costing applications in Hospital Management. *International Journal of Collaborative Research on Internal Medicine & Public Health*, 5(3), pp.179–186.
- Popesko, B. & Novák, P., 2011. Application of ABC Method in Hospital Management. *Proceeding of the 6th IASME/WSEAS International Conference on Economy and Management Transformation*, pp.73–78.
- Primadinta, et al. 2011. Analisa cost sharing perhitungan tarif hemodialisis (HD) masyarakat miskin di rumah sakit umum PKU Muhammadiyah unit I Yogyakarta. *Kesmas*, 5 (3), hal. 162-232.
- Rezapour, Aziz et al., 2012. Microeconomic analysis of healthcare service in bou Ali sina university hospital. 1(1), pp.41-50
- Riadi Budiman. 2012. Implementansi metode activity based costing system dalam menentukan besarnya tarif jasa rawat inap. *Jurnal Elkha*, 2 (4), hal. 19-24
- Riewpaiboon, A., Malaroje, S. & Kongsawatt, S., 2007. Effect of costing methods on unit cost of hospital medical services. *Tropical Medicine and International Health*, 12(4), pp.554–563.
- Ronnie, Rivany. 2009. Indonesia Diagnosis Related Groups. *Kesmas*, 4 (1), hal. 3-9.
- Ryryn Suryaman Prana Putra et al. 2013. Analisis biaya satuan (unit cost) perjenis tindakan berdasarkan relative value unit (rvu) pada bagian persalinan rumah sakit umum daerah Ajjapange Kabupaten Soppeng Tahun 2011. *Jurnal AKK*, 2 (1), hal. 35-41
- Shita Tiara, Syarifah Lidya Hadini. 2014. Penerapan activity based costing system dalam menentukan harga pokok (studi kasus penentuan besarnya tarif jasa rawat inap pada rumah sakit umum daerah Deli Serdang Lubuk Pakam). *Jurnal Ekonomikawan*, 14 (2), hal. 103-117.

- Sugiyarti, A.T., Nuryadi & Christyana Sandra, 2013. Analisis biaya satuan (unit cost) dengan metode activity based costing (ABC) (studi kasus di poli mata RSD Balung Kabupaten Jember). *Pustaka Kesehatan*, 1(1), hal .1–8.
- Tabita, Dwilova Wijayanti. 2013. Penentuan tarif jasa rawat inap pada rumah sakit bersalin Jeumpa Pontianak menggunakan metode activity based costing system. *Jurnal TIN*, 1(3), hal.1-12
- Zinia, Th. A. Sumilat. 2013. Penentuan harga pokok penjualan kamar menggunakan activity based costing pada Rsu Pancaran Kasih Gmim. *Emba*, 1(3) pp. 454-464
- _____. 2007. Keputusan Menteri Kesehatan No. 1165/Menkes/SK/X/2007 tentang Pola Tarif Rumah Sakit Badan Layanan Umum
- _____. 2013. Peraturan Menteri Kesehatan Republik Indonesia Nomor 69 Tahun 2013 Tentang Standar Tarif Pelayanan Kesehatan Pada Fasilitas Kesehatan Tingkat Pertama Dan Fasilitas Kesehatan Tingkat Lanjutan Dalam Penyelenggaraan Program Jaminan Kesehatan
- _____. 2014. Peraturan Menteri Kesehatan No. 59 Tahun 2014 tanggal 22 Agustus 2014 Tentang Standar Tarif Pelayanan Kesehatan Dalam Penyelenggaraan Program Jaminan Kesehatan
- _____. 2012. Peraturan Gubernur Riau No. 20 Tahun 2012 tentang Tarif Badan Layanan Umum Daerah Rumah Sakit Umum Daerah Arifin Ahmad Provinsi Riau

