Unit Cost Analysis of Sectio Caesarea with Activity-Based Costing in Yogyakarta Hospital

Rijal Maulana Haqim*, Firman Pribadi*

* Correspondence Author: rijalmaulanaaqim@gmail.com

* Master of Hospital Management, Universitas Muhammadiyah Yogyakarta, Indonesia

INDEXING

Keywords:

Unit Cost;
Sectio Caesarea;
Activity-Based Costing;

ABSTRACT

The selection of unit cost calculation method in hospital services is a challenge for hospitals. Errors in the selection of the calculation method will make a big difference in the final results of the total costs required after the service. Yogyakarta City Hospital still uses traditional methods of determining service rates. Design of this study is a qualitative study with a case study approach to the unit costs required for uncomplicated section Caesarea which is calculated using the activity-based costing method compared to the unit cost of section Caesarea calculated using traditional methods. The purposes are to know the differences between the two methods. The results of this study indicate the unit cost of uncomplicated section Caesarea using the ABC method is IDR 2,703,919. the action rate by the hospital is IDR. 3,051,000, greater than the ABC method. The difference obtained is Rp 347,081. The Conclusions is a positive difference between the unit cost of the ABC method and the hospital rate so it is necessary to evaluate the service rates in Yogyakarta City Hospital.

Kata Kunci:

Biaya Satuan;
Sectio Caesarea;
Activity Based-Costing;

Pemilihan metode penghitungan unit cost pelayanan Rumah Sakit menjadi tantangan bagi Rumah Sakit, karena kesalahan dalam pemilihan metode penghitungan akan dapat memunculkan selisih yang besar dalam hasil akhir dari total biaya yang diperlukan setelah pelayanan. RSUD Kota Yogyakarta masih menggunakan metode tradisional dalam menentukan tariff pelayanan. Desain penelitian ini adalah penelitian kualitatif dengan pendekatan studi kasus terhadap biaya satuan / unit cost yang dibutuhkan untuk tindakan sectio caesarea tanpa penyulit yang dihitung menggunakan metode Activity-Based Costing dibandingkan unit cost tindakan sectio caesarea yang dihitung menggunakan metode tradisional. Tujuannya adalah mengetahui selisih diantara kedua metode tersebut. Hasil penelitian ini menunjukkan unit cost tindakan sectio caesarea tanpa penyulit menggunakan metode ABC sebesar Rp 2.703.919,00 Tarif tindakan yang ditetapkan rumah sakit sebesarRp 3.051.000,00 lebih besar dari pada metode ABC. Selisih yang didapatkan adalah sebesar Rp347.081,00. Terdapat selisih positif antara unit cost metode ABC dengan tariff Rumah Sakit sehingga perlu dilakukan evaluasi terhadap tarif pelayanan di RSUD Kota Yogyakarta

© 2019 JMMR. All rights reserved

Article history: Received 2019-Jan-13; Revised 2019-Jan-14; Accepted 2019-Apr-18

INTRODUCTION

Indonesia is a country that uses the social security system as a system in its world of health. According to the law of the Republic of Indonesia Number 40 of 2004, social security is a form of social protection to guarantee that all people can fulfill the basic needs of a decent life. Social security is regulated in a system called the National Social Security System. The National Social Security System is a procedure for the implementation of social security programs by several social security implementing agencies (BPJS).¹ The National Social Security System has a target to meet Universal Health Coverage (UHC) in 2019.²

Universal health coverage is a situation where everyone can receive health services according to their needs without experiencing difficulties in terms of payment.³

Warranty era will make all health services at the first level focus on activities of promotion, prevention, rehabilitation and palliative care. This situation will make hospitals have to move more effectively and efficiently.³ Doctors can no longer provide excessive therapy to patients. This will make the costs spent by the hospital going to be greater than the claim cost given by the national health insurance institution. The Hospital plays a major role in determining its business strategy including determining the unit price / unit cost of services.⁴ The more complex and competitive a hospital market, will make the service rates lower.⁴

Sectio Caesarea (SC) is an artificial labor, which the fetus is born through an incision in the abdominal wall and uterine wall provided that the uterus is intact and the fetus weighs above 500 grams.⁵ According to Riskesdas 2013,

the incidence of sectio caesarea in Indonesia has a figure of 9.8 percent. The cost package of sectio caesarea between hospitals has a high rate of variation.⁶ The selection of unit cost calculation method in hospital services is a challenge for it hospitals, because errors in the selection of the calculation method will be able to cause a large difference in the final results of the required total costs after the service.

A study did by ⁷ showed a significant difference in the rate of medical action in a hospital in Iran when calculated using the Activity-Based Costing (ABC) method compared to the Traditional Cost System (TCS) method. The ABC method produces a higher price on the action rate. This will be the first step for the hospital to avoid loss of money.

The purpose of this study was to determine the unit cost of Sectio Caesarea in Yogyakarta City Hospital using the Activity-Based Costing method and find out the difference in it using Activity-Based Costing method compared to real cost.

LITERATURE REVIEW

Sectio caesarea is an artificial labor, in which the fetus is born through an incision in the abdominal wall and uterine wall provided the uterus is intact and the fetus weighs above 500 grams.⁵ Sectio caesarea is an artificial labor in which the fetus is born through an incision in the front wall of the stomach and uterine wall with uterine conditions intact accompanied by certain indications. The risk of sectio caesarean action must be considered and examined, because it can threaten the lives of both the mother and the fetus.

There are two perspectives on indications of sectio caesarea. the first is an indication to the mother: (1) Narrow pelvis. (2) Ruptur uteri. (3) Pre eklampsi / eklampsi. (4) Placenta Previa. The second perspective is seen from the fetus; (a) Severe Fetus, (b) Fetal presentation, (c) Twins, (d) Fetal size.

Costs are cash or assets worth of cash that are issued to obtain services or goods and are expected to be investments that will bring benefits now and / or in the future for an organization.⁸ Unit cost is the cost of a unit of goods / services. Service coverage must be determined in advance to be able to calculate a unit cost.

Calculation of unit cost is broadly obtained from Total cost (TC) divided by Number of Products (Q). High and low unit costs can be influenced by the products produced (output) and the amount of costs incurred by the Hospital in order to provide services.⁹ The smaller the unit

cost is, the more complex the method of calculating unit costs is used.⁹

Cost analysis is a method or action whose purpose is purely for evaluation, carried out entirely without regard to the possibility of using the results of a decision, or as input to a decision.¹⁰ In this research, Activity-based costing calculation method is used. It is a method of determining production prices by using cost drivers to assess indirect costs needed to produce products / services.¹¹

Determining service fees from a hospital is not easy. Hospitals need to choose the right method after compiling and dividing expenditure costs into direct costs and indirect costs. Rates of action that need to be taken at the Hospital include tariffs for surgical services, hospitalization rates per day, rates for visiting doctors, etc. The service tariff is very important determined in the era of prospective payments, ie the service rates are informed in advance before services are provided.

Activity-Based Costing was developed to replace other methods that have weakness.⁷ It uses a cost driver by measuring the activities used in producing an item / service so that indirect costs can be calculated. The ideal cost driver is one that presents all activities carried out in an effort to procure goods / services.¹¹

There are two important elements in Activity-Based Costing,

1. Cost measure
2. Performance measure.

Activities, resources and cost objects are used to measure a cost and performance. ABC does not deny the relationship between the cost driver for activity. The traditional view of cost accounting is that the product or service will consume resources, while the ABC's view of cost accounting is that the product or service will consume activities, then consume resources.¹²

The basis for calculating costs using the ABC method is to look at and identify cost drivers or cost triggers for each activity. Errors in seeing and identifying cost drivers can trigger errors in the classification of costs that will have an impact on the decisions taken. The ABC method is a method that takes an approach to developing the amount of costs used in financing. A distinctive feature of ABC is the focus on activity as a cost object.¹²

Advantages of ABC

Activity-based costing is an applicable unit cost calculation method for various hospitals.⁷ One study conducted by ¹³ stated in a Hospital in the City of London, with management experiencing pressure due to the

economic conditions of the Hospital, using the Activity-Based Costing method as an effective method for the Hospital. Research conducted by ¹⁴, shows that the application of the activity-based costing method in the financial system for knee replacement measures can save costs of USD 827.62 each time the operation. Research conducted by ¹⁵ regarding unit cost analysis of appendectomy operating procedures with activity based costing methods at PKU Muhammadiyah Hospital in Bantul states that the activity-based costing method has a positive difference compared to real cost which indicates that there are several calculated cost sources well using this method. Another advantage of using activity-based costing in calculating unit costs includes:

1. Activity-based costing can calculate by considering the relationship between cause and effect of a relationship between activities and costs of services.¹⁶
2. Activity-based costing also provides actual information from the results of unit cost calculations¹⁶
3. Activity-based costing focuses on data activities carried out in the process sequence of a product or service ¹⁷ (AN, 2009).
4. Activity-based costing can potentially improve management resources.¹⁷
5. Activity-based costing consequently increases the efficiency of health service organizations by prioritizing the value of customers.¹⁸

RESEARCH METHOD

The research chosen by the author is a qualitative study with a case study approach to the unit cost / unit cost needed for sectio caesarea without complications which is calculated using the Activity-Based Costing method then seen the difference / difference with the sectio caesarea rate of action calculated using the real cost method

This research has been conducted at Yogyakarta City Hospital, the number 1 street in Yogyakarta in October 2018 – December 2018.

The research subjects included the head of the finance department, the head of the Central Surgical Installation, the Gynecologist, Surgical Nurse, the Head of Medical Records, the Head of CSSD (Central Supply Sterile Department) and the maintenance department to obtain comprehensive data at Jogja Hospital. The research's object are all activities that occur in the Central Surgical Installation of Yogyakarta City Hospital for the realization of the caesarea sectio service.

The instruments used in this study:

1. Documentation and financial data of Yogyakarta City Hospital
2. Stop watch.

In collecting data, the author uses interview and observation methods.

This study uses primary and secondary data. Primary data is data obtained directly through interviews. Secondary data is data from existing information, which is the financial data of Yogyakarta City Hospital. The processing of primary data and secondary data is processed into direct and indirect cost data during the operation of cesarean sectio without complications which is the cost allocation of the related units (service, support, and non-medical)

The data analyzed using the activity based costing method and described as follows

1. Determine activity centers in the related unit and cost driver categories of each cost category.
2. Imposing direct costs for sectio caesarea without complications.
3. Determine direct resource overhead and indirect resource overhead
4. Charges overhead costs in each activity center
5. Add direct and overhead costs
6. Comparing costs using ABC calculations with the costs set by the Hospital

RESULT AND DISCUSSION

Hospital Profile

Yogyakarta City Hospital is government hospital located in Wirosaban street number 1 Yogyakarta. The vision of Yogyakarta City Hospital is *The realization of excellent service and the main choice of the community*. RSUD Kota Yogyakarta have 6 missions to realize it's vision:

1. Realize the highest standards of service based on patient safety, according to customer needs and expectations;
2. Improve employee competency and performance on an ongoing basis;
3. Realizing Education Hospital, a vehicle for research, training and development;
4. Establishing a reliable Hospital Information and Management System;
5. realize effective and efficient management in an integrated and conducive work climate;

6. join in realizing Yogyakarta as a city with a healthy environment

Hospital Facility

1. Emergency Unit
2. Outpatient Unit

Outpatient services in RSUD Kota Yogyakarta include Gynecology and Obstetrics Polyclinic, Internal Medicine Polyclinic, General Surgery Polyclinic, Orthopedic Polyclinic, Urology Polyclinic, Pediatric Polyclinic, Neural Polyclinic, Eye Disease Polyclinic, ENT Polyclinic, Mental Polyclinic, Skin and Gender Polyclinic, Rehabilitation Polyclinic Medical, Heart Polyclinic, Agreement Polyclinic, Medical Check Up Service, Psychology Consultation, Child Immunization, VCT HIV, Nutrition Consultation Service

3. Inpatient Unit

Inpatient services in RSUD City Yogyakarta include the Vinolia Ward (VIP), Class I Ward, Class II Ward, Class III Ward, Perinatal Room, Intensive Care Unit (ICU), Intensive Cardiac Care Unit (ICCU).

4. Maternity Room Services

Maternity Room Services in RSUD Kota Yogyakarta prioritize comfort and privacy for patients who will give birth.

5. Surgery Room

Surgery Room Services in RSUD Kota Yogyakarta provide specialist and subspecialty surgical services with sophisticated equipment. Services available include general surgery, urology surgery, orthopedic surgery, digestive surgery, obsgyn, eye, and oral surgery. There are 4 operating rooms available in the operating room of Yogyakarta Public Hospital.

6. Medical Support Services

Medical support services in RSUD Kota Yogyakarta include 24-hour Laboratory Services, Hemodialysis, X-Ray Radiology Services, CT Scan, MMR, Mammography, Colon in Loop, HSG, Endoscopy, Colposcopy, Audiometry, Spirometry,

Electrocardiography, Ultrasound, Treadmill, BERA, EEG, Laparoscopy

Patient Visit

The population of the Yogyakarta in 2017 amounted to 410,921 with details of 200,425 male, 210,496 women. Patient visit in RSUD Kota Yogyakarta can be seen in the following graph. Total patient visit in Yogyakarta city is 580.709 patient. The details can be seen in table 1.

Table 1. Patient Visit in Yogyakarta city 2017

Unit	Patient	Percentage (%)
Inpatient Unit	121044	21
Outpatient Unit	9626	2
Surgery Room	3874	1
Emergency Unit	26701	5
Medical Support	419464	72
Total	580709	100

Surgery unit experienced an increase in the last 5 years

Graph 1. Patient Visit in Yogyakarta city

On graph 1. it can be seen that the number of visits in the operating unit tends to be stable

Result

Sectio caesarea services

Sectio caesarea services in Yogyakarta City Hospital were carried out in the operation room of the Central Surgery Installation. Central Surgical Installation Yogyakarta Hospital has four operating room, each operating room is equipped with an operating table, operating lights, air conditioner, caution machine, suction and anesthesia machine.

Surgical measures without complications in the Yogyakarta City Hospital were carried out by a team consisting of 1 obstetrician as an operator, 1 assistant, 1

assistant instrument, anesthesiologist, anesthetist, and mobile nurse (on loop).

Unit Cost *Sectio Caesarea*

Determine activity centers and cost driver

The first step of this research is determine the activity center and cost driver of *sectio caesarea*. According to obstetric and gynecologist doctor, there are the activity centers in operation room to realize *sectio caesarea* services.

Table 2. Activity centers of *sectio caesarea*

ACTIVITY CENTER	COST DRIVER
Operating Room (Preoperative)	
Patient admission by IBS officers from ward nurses	Activity
Giving antibiotic profilaksis	Activity
500 cc NaCl infusion liquid	Activity
Operating Room (operating durante)	
Examination of vital signs by the anesthetist	Activity
Regional Anesthetic Actions (Spinal)	Activity
The action of <i>sectio caesarea</i>	Activity
Check for complications and bleeding	Activity
Post Operation Operating Room	
Score by anesthetist	Activity
Handover of patients by IBS officers to nurses	Activity

Determine direct cost

Then followed by direct costs of *caesarea sectio* without complications, direct costs borne by the patient are the cost of sterilizing equipment, doctor services and consumables.

Table 3. Direct cost of *sectio caesarea*

Cost Category	Cost (Rp)
Obstetric doctor services	780,000
Anesthetis doctor services	260,000
Instrument sterilization	188,829
Standart set <i>Sectio caesarea</i>	18,606
Ringer Lactat 500 cc x 4	34,320
Threeway	12,540
Transfusi set	16,764
Jelco 18	10,440
DC no 16	18,612
AmbacimInj 1 gr/vial	118,550
NaCl	12,097
Urine Bag	5,148

Table 3. (continued) Direct cost of *sectio caesarea*

Cost Category	Cost (Rp)
Folamil Tab x 10	11,790
Aqua Pro Inj 25 ml x 3	10,287
Modres Trans Dressing	5,346
HS Non Steril Gloves x 19	15,960
Sputit 10 cc Terumo	2,400
HandscoonSterilTeruglove x 7	53,130
Spinal needle 25	38,401
Sputit 5 cc Terumo x 3	5,736
Sputit 3 cc Terumo x 3	6,534
InfusAsering x 4	46,604
AsamTraneksamatInj 100 x 3	15,468
OndansetronInj 2 mg/ml	1,285
yarn ATR r-VIO	77,979
Masker disposable x 4	1,532
OksitosinInj 10 IU/ml x 2	2,878
Hibice 1 L x 0.03	6,194
Terastarch	112,200
Hibiscrub 1 L x 0.05	13,068
Folding gauze DRC x 60	100,980
HandscoonSterilGamex x 3	34,452
O2	20,400
Polifix x 0,02	3,116
Regivel	74,382
Alkohol 70% 1 L x 0.01	2,401
Povidone Iodine 1 L x 0.10	5,520
Yarn T-plane catgut	48,520
EfedrinInj 50 mg/ml x 2	20,565
MetilergometrinInj x 2	6,838
ElofonInj 30 mg	33,660
Benang T-cromic Catgut	60,071
Bisturi FG 23	3,348
NaClinfus (Sanbe)	25,186
Underpad Healer	3,864
KetorolakInj 30 mg/ml x 3	9,819
Sputit 5 cc OneMed x 5	3,145
Sensipad x 3	9,966
Sputit 3 cc Terumo x 6	13,068
RL 500 cc x 4	34,820
Ketoprofen Tab 100 mg	15,075
TOTAL	2,437,332

According to the table 3, direct cost of *sectio caesarea* is Rp 2.437.332,00. The biggest cost is allocated in medical doctor services that consumes 43% from total of direct cost.

The next step is determine overhead costs. Overhead costs consist of indirect resource overhead and direct resource overhead costs

Determine direct resource overhead and indirect resource overhead

Table 4. Indirect resource overhead nonfunctional unit

Cost Category	Cost (Rp)
Labour Related	
Laboursalary	8,134,901,585
Equipment related	
Cost of furniture and office equipment	185,219,514
Spaced-related	
Maintenance and repair costs	2,422,727,855
Depreciation costs for non-functional buildings	*80,812,523
Service-related	
Cost of using procurement goods	573,907,565
Office and subscription fees	1,291,058,615
Total	12,688,627,658

From the total of indirect resource costs nonfunctional unit, the overhead will be charged to each functional unit in accordance with the proportion of its income

Table 5. Income Proportion each unit 2017

Unit	Income (Rp)	(%)	Cost Indirect Resource Overhead (Rp)
Inpatient	13.382.887.000	19%	2.355.967.922
Outpatient	13.343.467.000	19%	2.349.028.294
Operation	9.552.014.000	13%	1.681.568.303
Support	35.798.364.674	50%	6.302.063.138
Total	72.076.732.674	100%	12.688.627.658

From the table5, it is known that the indirect resource overhead for the Operation room unit is Rp. 1.681.568,00. To find out the charging fees of each patient in IBS, then it is carried out according to the type of surgery the patient receives, as in the following table

Table 6. Operation in 2017 and impositions factors

Classification	Operation	Impositions
Small Surgery	0	0.5
Midle Surgery	271	1
Big Surgery	1,022	1.5
Special Surgery	2,554	2

Total **3,874** **5**

According to the Mayor of Yogyakarta Regulation Number 104 of 2009 concerning the tariff for health services at Yogyakarta public hospitals, Sectio Caesarea surgery is included in the category of major surgery. Based on table 5, the imposition of all IBS major operations in Yogyakarta City Hospital is Rp.134.018415,00.* By looking at the number of major operations in 2017 in the Yogyakarta City General Hospital as many as 1022, indirect costs for each large operation are Rp 131.133,00**. Details of imposition based on the activities carried out or obtained by the patient as follows

Table 7. Impositions Indirect Resource Overhead per patient

Activity Center	Time (minute)	Cost (Rp) ***
Operating Room (Preoperative)		
Patient admission by IBS officers from ward nurses	5	5,961
Giving antibiotic profilaksis	25	29,803
500 cc NaCl infusion liquid	5	5,961
Operating Room (operating durante)		
Examination of vital signs by the anesthetist	5	5,961
Regional Anesthetic Actions (Spinal)	10	11,921
The action of sectio caesarea	45	53,646
Check for complications and bleeding	5	5,961
Post Operation Operating Room		
Score by anesthetist	5	5,961
Handover of patients by IBS officers to nurses	5	5,961
Total	110	131,133

* $\left\{ \frac{\text{Major surgery} \times \text{impositions factor}}{\text{total surgery} \times \text{impositions factor}} \right\} \times \text{Indirect resource overhead Operation room}$

**Rp 134.018.415,00/ 1022 (major surgery)

*** (time / time total) x total cost indirect resource overhead per patitent

Next step is determine the direct overhead resource operating room.

Direct resource overhead devided into 4 categories: *labour-related, equipment-related, space-related, serviced-related*

Table 8. Direct Resource Overhead

Direct Resource overhead	Cost (Rp)
Labour-related	
Labour salary	1,404,531,259

*Equipment-related***Table 8. (continued) Direct Resource Overhead**

Direct Resource overhead	Cost (Rp)
Medical equipment costs	360,567
Non-Medical equipment costs	8,757,424
IBS equipment and building maintenance costs	22,545,052
<i>Space-related</i>	
The cost of depreciating	15,804,257
<i>Serviced-related</i>	
Electricity costs for surgery room	56,037,132
water costs for surgery room	172,009,456
telephone costs for surgery room	4,710,888
Cleaning costs for surgery room	75,413,712
Total	1,588,332,300

From table 8 can be seen that the direct overhead resource of the Central Surgical Installation of Yogyakarta City Hospital is Rp. 1,588,332,300.00. These costs will be borne by all patients in the Central Surgery Installation by observing the type of operation performed (according to table 5). According to Mayor's regulation number 104 of 2009 concerning the tariffs for Yogyakarta City Hospital, the Actions of Sectio caesarea fall into the category of major surgery. Then the major surgery operation received a charge of Rp. 126,587,648.30*. In 2017, there are 1022 major surgery, so each operation of major surgery costs Rp 123.863,00** for direct resource overhead. The details of imposing direct resource overhead costs on activities are in the following table

Table 9. Impositions Direct Resource Overhead per Patient

Activity Center	Time (minute)	Cost (Rp)***
Operating Room (Preoperative)		
Patient admission by IBS officers from ward nurses	5	5,630
Giving antibiotic profilaksis	25	28,151
500 cc NaCl infusion liquid	5	5,630
Operating Room (operating durante)		
Examination of vital signs by the anesthetist	5	5,630
Regional Anesthetic Actions (Spinal)	10	11,260
The action of sectio caesarea	45	50,671
Check for complications and bleeding	5	5,630
Post Operation Operating Room		
Score by anesthetist	5	5,630
Handover of patients by IBS officers to nurses	5	5,630

Total

110

$$\left\{ \frac{\text{major surgery} \times \text{impositions factor}}{\text{total surgery} \times \text{impositions factor}} \right\} \times \text{direct resource overhead operating room}$$
 **Rp 126.578.643,00/ 1022 (total major surgery)
 *** (time/total time) x total direct resource per patient

From table 9 can be seen each activities in *Sectio caesarea* operation produce costs in detail according to the time needed. Total costs produce per patient is Rp 123.863,00**

Charges overhead costs in each activity center

After knowing the indirect costs and direct resource overhead, the next step is calculate total overhead then impose the activities carried out during the delivery of the caesarea sectio service. The number of activities is calculated, based on the results of observations directly in the operating room on the caesarean sectio surgery without complications in Yogyakarta City Hospital

Table 10. Total Overhead Cost

Activity Center	Activity	Total Overhead (Rp)	Cost (Rp)
Operating Room (Preoperative)			
Patient admission by IBS officers from ward nurses	1	11,591	11,591
Giving antibiotic profilaksis	1	57,594	57,594
500 cc NaCl infusion liquid	1	11,591	11,591
Operating Room (operating durante)			
Examination of vital signs by the anesthetist	2	11,591	23,181
Regional Anesthetic Actions (Spinal)	1	23,181	23,181
The action of sectio caesarea	1	104,317	104,317
Check for complications and bleeding	1	11,591	11,591
Post Operation			
Operating Room			
Score by anesthetist	1	11,591	11,591
Handover of patients by IBS officers to nurses	1	11,591	11,591
Total			266,287

From table 10 can be seen summary of indirect overhead resources and direct overhead resources (total indirect resources) applied to how many

times, an activity in single service. The result is Rp 266,287.00

Next step is add overhead cost with direct cost, so we can find cost of *section caesarea* services by using activity-based costing.

Add Direct cost and Overhead cost

Table 11. Total cost

Cost structure	Cost (Rp)
Direct Cost	2,437,332
Overhead Cost	266,287
	2,703,919

Discussion

Based on the research that has been done, it is obtained the action rate data *sectio caesarea* in Yogyakarta City Hospital still uses the traditional method in determining the tariff of Rp 3,051,000.00 while the rate of *sectio caesarea* in Yogyakarta City Hospital uses the Activity based-costing calculation of Rp2.703.919,00 the difference between the two rates is Rp347.081,00 with rates at larger hospitals

Table 12. Unit cost ABC Method and tariff Yogyakarta City Hospital

	ABC (Rp)	Tarif RSUD Kota Yogyakarta (Rp)
Calculation	2,703,919	3,051,000

The initial stage of calculating the unit cost of cesarean *sectio* without complication in Yogyakarta City Hospital is to determine the activities carried out during the *Caesarea* *sectio*. The unit related to the *sectio caesarea* at the RSUD Kota Yogyakarta is a central surgical installation unit. According to the mayor's regulation number 104 of 2009 regarding the rates of Yogyakarta City Hospital, the *sectio caesarea* was included in major surgery.

The direct cost in the calculation of the unit cost of the *caesarea* *sectio* is Rp. 2,437,332.00 with the details of the largest costs in the cost of doctor services, namely Rp. 1,040,000.00 with details of Rp. 780,000 for obstetricians, and Rp. anesthetist. In addition to doctors' fees, other costs that arise are costs for consumables, namely drugs and ingredients used during surgery. The drugs used in RSUD Kota Yogyakarta are generic drugs and the use of materials in action is tailored to the needs of the patient. Yogyakarta City Hospital itself does not have a package of consumables

in one action *sectio caesarea*. The use of consumables depends on the patient's condition in the operating room.

The next direct cost that arises is the cost incurred for the process of once sterilizing the *sectio caesarea* tools. RSUD Kota Yogyakarta does not have a fixed rate used for the sterilization process. This is because the sterilization unit of Yogyakarta City Hospital is still relatively new, namely in 2015.

After making direct cost calculations, the next cost that arises is overhead. Overheads are costs that are difficult to be charged directly to patients. Overhead costs are divided into two: indirect feedback and direct resource overhead.¹² The results of the study show that the highest costs in overhead costs are in the salary of non-functional units. Assessment of employee salary efficiency policies requires further research on workload and job analysis.

The next highest cost of overhead costs lies in the cost of maintenance and repairs. Maintenance and repair costs consist of costs needed for maintenance of buildings / buildings, maintenance of equipment and office supplies, and maintenance costs for cleaning. The three posts require further details to analyze whether efficiency needs to be done or not.

Costs incurred later in overhead costs are related and service-related equipment costs. Yogyakarta City Hospital has just purchased a surgical medical instrument in 2015 so that medical devices used in the *caesarean* *sectio* operation still have economic value.

Based on the results of the study with the difference in unit cost obtained, it was concluded that the activity-based costing method has a lower value and is in accordance with the activities carried out. This lower difference needs to be taken into consideration in relation to other units that also support the implementation of *caesarean* *sectio* services such as inpatient units so that the management of Yogyakarta City Hospital can conduct a review of the *Caesarea* *sectio* action rates whether it is appropriate or not.

Activity-based costing (ABC) is a cost calculation method that changes the way business management is managed. If in the traditional method, the calculation of rates uses a function as its main view, then the ABC method uses activities as its views. Focusing on calculations for activities is based on the belief that activities are things that cause costs. By looking at activities, it will be able to reduce unnecessary costs and even eliminate costs that have minimal value. The use of this method will make changes in the form of changes in orientation from cost management to focus on value through cost effective. The ABC method will also create integration between functions aimed at

value.¹⁹ Changes achieved by the use of the ABC method are believed to be more accurate in calculating costs.

CONCLUSION

From the results of this study the following conclusions are obtained that unit cost of caesarean sectio without complications in Yogyakarta City Hospital using Activity-based costing method is Rp2,703,919.00. There is a difference in unit cost between the ABC method and the rate that has been determined by the Yogyakarta City General Hospital of Rp347,081.00 with the lower ABC method. Suggestion are: Calculation of unit costs using Activity-based costing method can be a consideration for management in determining rates by paying attention to other units involved such as inpatient units in the framework of evaluation, BPJS era requires hospitals to be careful in calculating rates. BPJS will only pay according to the amount of the predetermined claim. by knowing the unit cost of sectio caesarea in the operating room, it will make it easier for hospitals to estimate existing costs in the area in order to do a complete service..

Make a package of consumables for sectio caesarea: At the time of the study, the researchers saw no minimum package for consumables used for patients with sectio cesarean without complications. During the process the procedure for sectio caesarea is very dynamic for the needs requested. Sometimes it can be more expensive, sometimes it can be cheaper according to the patient's condition. it will be more efficient if there is already a package of consumables, in order to be able to control the use of existing items.

Making clinical pathway actions sectio caesarea in Yogyakarta City Hospital: At the time of the research, RSUD Kota Yogyakarta did not have a clinical pathway in writing, among doctors the obsgyn adhered to the agreed upon procedures.

REFERENCE

1. Presiden RI. Undang-undang Republik Indonesia No. 40 Tahun 2004 tentang Sistem Jaminan Sosial Nasional-[PERATURAN]. 2004;
2. BPJS K. InfoBPJS. BPJS Kesehatan; 2016.
3. WHO. Universal Health Coverage: Supporting Country Needs. 2017.
4. Melnick GA, Zwanziger J, Bamezai A, Pattison R. The effects of market structure and bargaining position on hospital prices. *journal of Health Economics*. 1992;11(3):217–233.
5. Prawirohardjo S. Ilmu Bedah Kebidanan. I. Yayasan Bina Pustaka Sarwono Prawirohardjo; 2000. (3).
6. Liweru MD, Lengkong VP, Kaunang Wp. Analisis Kelayakan Penggunaan Tarif Sectio Caesarea Berdasarkan Relative Value Unit Di Bagian Obstetri Dan Ginekologi Rsup Prof. Dr. Rd Kandou Manado Tahun 2015. *ikmas*. 2017;2(5).
7. Javid M, Hadian M, Ghaderi H, Ghaffari S, Salehi M. Application of the Activity-Based Costing Method for Unit-Cost Calculation in a Hospital. *Global Journal of Health Science*. 2015 May 17;8(1):165.
8. Honsen, Mowen. Managerial accounting (akutansi biaya). Salemba Empat, Jakarta. 2009;1.
9. Setiaji H. Analisis Biaya Pelayanan Rawat Inap Di Ruang Vip Cendrawasih RSUD Dr. Soeselo Kabupaten Tegal Tahun 2006 [PhD Thesis]. Program Pascasarjana Universitas Diponegoro; 2008.
10. Posner RA. Cost-Benefit Analysis: Definition, Justification, and Comment on Conference Papers. *The Journal of Legal Studies*. 2000 Jun;29(S2):1153–77.
11. Nowicki M. The Financial Management of Hospital and Healthcare Organizations. 4th ed. United States of America: Health Administration Press; 2008.
12. Baker J. Activity--based Costing and Activity-Based Management for Health Care. United States: Aspen Publisher; 1998.
13. Demeere N, Stouthuysen K, Roodhooft F. Time-driven activity-based costing in an outpatient clinic environment: development, relevance and managerial impact. *Health policy*. 2009;92(2):296–304.
14. Grandlich C. Using activity-based costing in surgery. *AORN J*. 2004 Jan;79(1):189–92.
15. Rahma AY. Analisis Unit Cost Tindakan Operasi Appendiktomi dengan Metode Activity Based Costing di RS PKU Muhammadiyah Bantul. 2015.
16. Bayati M, Ahari AM, Badakhshan A, Gholipour M, Joulaei H. Cost Analysis of MRI Services in Iran: An Application of Activity Based Costing Technique. *Iranian Journal of Radiology*. 2015;12(4).
17. Lexa FJ, Mehta T, Seidmann A. Managerial accounting applications in radiology. *Journal of the American College of Radiology*. 2005 Mar;2(3):262–70.
18. Kumar A. Towards the use of ontologies for activity-based costing in healthcare organizations. *Stud Health Technol Inform*. 2006;124:537–42.
19. Mulyadi. Activity-based costing system, sistem informasi biaya untuk pemberdayaan karyawan, pengurangan biaya, dan penentuan secara akurat kos produk dan jasa. Yogyakarta: UPP STIM YKPN; 2007.