

Analysis of Cost Components in Hospital Cost Units, to Choose Component of Cost which will be Decreased

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Abstract:- The purpose of this study is to find out the order of the cost components of the hospital tariff, then do further analysis, which components of these costs still need to be streamlined based on the priority scale of the hospital. In the Universal Health Coverage, health service providers are always required to provide quality services in efficient way. The cost component analysis was taken randomly in the 5 most action procedures carried out in the hospital, which then broke down the unit cost of each component of the cost. The focus of cost analysis is only carried out on 4 cost components, medical services, pharmaceutical, laboratory and radiology. The results of this study, out of the 5 tariff procedures for observed, the pharmaceutical cost component is the largest, followed by the cost component of medical services, radiology and laboratory services.

Keywords:- JKN, BPJS, Fee for Service, Inacbg's, Unit Cost

I. INTRODUCTION

Universal Health Coverage / UHC in Indonesia, called Jaminan Kesehatan Nasional / JKN, means that all people and communities can use the promotive, preventive, curative, rehabilitative and palliative health services which they need, effectively in good quality. In addition, UHC also ensures that users of these services do not experience financial difficulties when pay for the health services which provided to them [1].

The implementation of the UHC program held by Badan Penyelenggara Jaminan Sosial (BPJS) is believed to bring major changes in health services in Indonesia. Financial risk protection is a key component of UHC, which is defined as access to all qualified health services needed without financial difficulties for participants. Health payments are a heavy financial burden for millions of people around the world. Financial risk protection is related to protecting people from financial difficulties related to payments for health services [2].

One of the most highlighted changes in the JKN era today is the payment mechanism of claims from BPJS to health service providers (PPK) such as Puskesmas, Clinic, and Hospitals. For payment of claims from BPJS to advanced PPK (hospitals), the INA-CBGs mechanism was

used. INA-CBGs are health service package rates that cover all components of hospital costs, from non-medical services to medical treatment. The purpose of the tariff system in Indonesia is a Diagnosis Related Group (DRG) / casemix. DRG's is a system of providing service fees for PPK that is determined based on diagnostic groups, regardless of the number of procedure/services provided. The DRG payment system is done by looking at the diagnosis of the disease experienced by the patient.

BPJS has paid for hospitals that serve the JKN program with a prospective payment system that is packaged in the form of a DRG. This system came into effect in 2014 through the JKN program. BPJS pays hospitals based on the amount set according to the patient's diagnosis with the Ina CBG's (Case-Based Group) system set in the Decree of the Minister of Health of the Republic of Indonesia Number 440/MENKES/SK/XII/2012 concerning hospital rates based on Indonesia Case-Based Groups (INA-CBGs). All hospital personnel must understand the change paradigm in the tariff system in the JKN era, from the Fee For Service (FFS) to Ina CBG's.

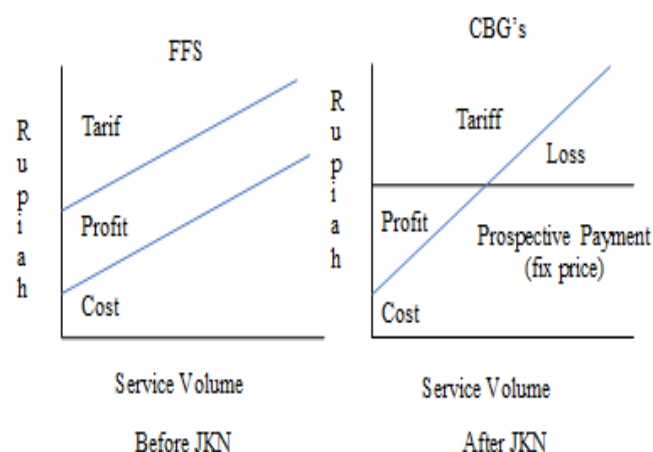


Fig 1:- Payment system before and after JKN

The change in the claim payment system creates the potential for a difference in the cost of positive or negative claims. This is very influential in the financial risk of health care providers. Therefore, it requires quality control and control of RS operational costs to avoid losses.

II. LITERATURE REVIEW

A. Concept Changes from FFS to Inacbg's

The health system has been specifically developed that allows people to use the health services needed but protects them from the financial consequences of the cost of care [3]. This goal is now widely known as universal health insurance. That is the motivation for the social health insurance system developed in Europe, National Health Services in the United Kingdom, and recent reforms in the US which are now known as Obama care [4]. This also motivates the low and middle-income countries to make many adjustments to the health system and health financing system [3].

Health is a basic need in society, and the financial sector is one of the key points of health sustainability. It cannot be denied without the availability of financial resources, health development can be stagnant or stagnant. The problem that arises after JKN is how to show the results of good service to the community with the system that has been made. Health care providers continue to be required to provide quality and high services with limited resources.

InaCBG's is a case-mix system that was implemented in Indonesia in the JKN era. The basis of grouping is using ICD-10 for Diagnosis (consisting of 14,500 codes) and ICD-9 CM for procedures (consisting of 7500 codes) grouped into 1,077 InaCBG's group codes (789 inpatient codes and 288 outpatient codes). Grouping (algorithm) is run by using grouper by software. Component claims with the Ina CBG's system are [5]:

- Classification (accuracy) of diagnosis using ICD-10
- Classification (accuracy) procedure using ICD-9 CM
- Software grouper (including costing)
- Completeness of administrative files
- Software verification

The following is a comparison payment before and after JKN era (between the FFS and Ina CBG's payment system).

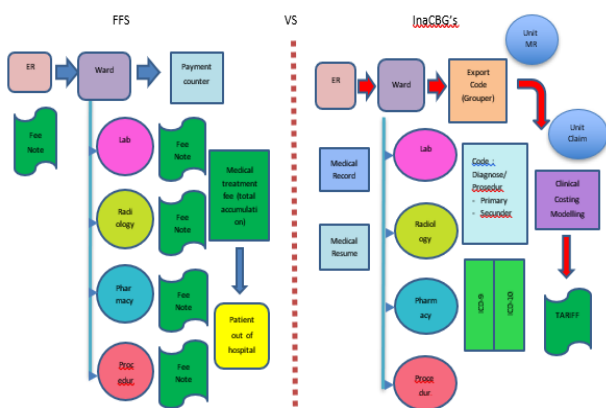


Fig 2:- Differences in the Fee for Service and Inacbg's Concepts

Source: Presentation of JKN-BPJS

The completeness of making a medical resume and the accuracy of the Medical Record staff make coding from primary and secondary diagnose, greatly affecting the costing generated by the grouper into the available system.

This change requires hospital management to conduct an evaluation of its operating strategy. The Institute of Medicine (IOM) advises management to stay focused on service quality objectives and the need to adopt various quality approaches originating from other industries/manufacturing (IOM, 2015). These various quality approaches offer improved quality and efficiency. Lean Healthcare management is one of them.

B. Tariff, Cost, and Profits

Patient safety is the main goal of a hospital organization. Patient safety is influenced by various things, including among others, how the Hospital is managed. Although most hospitals do not aim for profit, financial management needs to be done well. Hospital inefficiency can increase costs which will eventually become a barrier for patients to get quality services. Therefore, to achieve the goal of patient safety, there must be business safety. Hospitals still need profits to develop businesses [6].

As a Public Service Agency (Badan Layanan Umum/BLU), hospitals have their own rules for determining the number of tariffs. Tariff determination is regulated in Article 9 of the Government Regulation of the Republic of Indonesia Number 74 of 2012 concerning Amendments to Government Regulation Number 23 of 2005 concerning Financial Management of Public Service Agencies. Broadly speaking in Article 9, it is informed that BLU can collect fees to the community in return for goods/services provided, rewards for goods/services provided are stipulated in the form of tariffs arranged on the basis of calculation of cost per service unit or yield per investment fund. Service tariff must consider aspects: continuity and development of services; people's purchasing power; the principle of justice and propriety; and healthy competition. In addition, Article 9 also regulates in detail the parties responsible for determining the tariff.

The following is an understanding of tariff, costs, and profits. Tariff is the amount of value charged to consumers for the benefits of owning/using certain products/suits (Kotler and Armstrong, 2001 Marketing principles, Jakarta: Erlangga). Rates are those that provide income for the organization (Tjiptono, Fandy, 1999, Marketing Strategy, Yogyakarta: ANDI). Profit is the amount of money earned from the sale of goods/services after deducting the cost of producing goods/services (Failte Ireland, 2013, Understanding Cost and Profit, Dublin). Cost is total expenditure in creating a product/service (Failte Ireland, 2013, Understanding Cost and Profit, Dublin).

C. Unit Costs

Cost classification is based on 2 components: that is based on changes in the number of products and based on their functions in production. The two classifications are described as follows [7]:

➤ Based on changes in the number of products:

- Fixed cost
- Variable cost
- Semi-variable cost
- Total cost

➤ Based on its function in the production process :

- Direct costs
- Indirect costs

The cost component used by this hospital in calculating unit costs uses classification based on its function in the production process, namely direct costs, and indirect costs.

DIRECT COSTS							INDIRECT COSTS					
Employee Salary	Power & Services	Pharmacy	Medical devices Depreciation	Medical Services (doctor fee)	Lab	Radiology	Building Depreciation	Non Medical Bhp	Non Medical Depreciation	CSSD	Main tenance	Over head
5%	2%	31%	4%	30%	5%	4%	2%	2%	2%	4%	4%	5%

Table 1:-Unit Cost Component

Table 1 is the average percentage of some procedure costs in the hospital. From table 1, it is illustrated that the direct cost component ranks first in the unit cost calculation of a total of 81%, and indirect costs of 19%. Then the research will be focused on analyzing the direct cost component.

The following tables are descriptions of matters related to the calculation of the unit cost component in the hospital where the research was conducted. We do not describe it as a whole, but only as a partial example.

No	Human Resources (Employee Salary)	Total (Month)
1	Nurse	12
2	TU (Administration)	12
3	Pramu Husada	12
4	Technician	12
5	Cleaning Service	12

Table 2:- Employee Salary Component

No	Power And Services	Total (Month)
1	Electricity (Per M ²)	12
2	Water (Per M ²)	12
3	Telephone	12

Table 3:- Power and Services component

No	Pharmacy Supplies	Unit	Total
1	Kassa sterile	sheet	x
2	Depper steril	sheet	x
3	Folley cath	piece	x
4	Disposable gloves sterile	pair	x
5	Disposable gloves nonsterile	pair	x
6	Urine bag	piece	x
7	Elasticon/leukocrape	roll	x
8	Plester	roll	x
9	Bisturi no.11	piece	x
10	etc s/d 43 item	lot	x

Table 4:- Pharmacy component

No	Penyusutan Alat Medis	Unit	Total
1	Defibrillator	piece	x
2	Mesin Angiografi	set	x
3	Whole Blood Oximeter	piece	x
4	NBP + O2 Saturation	piece	x
5	Bedside Monitor	piece	x
6	Stethoscope	piece	x
7	Mesin EKG	piece	x
8	Generator Temporary	piece	x
9	Trolley Instrument	piece	x
10	Etc to 22 item	set	x

Table 5:- Medical Equipment Depreciation

No	Other Non-Medical Costs	Unit	Total
1	Building Depreciation	Month	x
2	Non-Medical Supplies	Month	x
3	Medical Print Paper	Month	x
4	Water Supplies, etc	Month	x
5	Computer Supplies	Month	x
6	Mechanical Costs	Month	x
7	Non-medical Print Paper	Month	x
8	Office stationery	Month	x
9	Instruments	Month	x
10	Etc to 22 item	Month	x

Table 6:- Building Depreciation & Non-Medical supplies

No	Non-Medical Equipment Inventory	Total
1	Chair	x
2	Cabinet	x
3	Table	x
4	Computers	x
5	Dispenser	x
6	Etc to 24 item	x

Table 7:- Depreciation Non Medical cost Component

No	Sterilization & Laundry	Total
1	Invasive Doctor Uniform	x
2	Surgery Doctor Uniform	x
3	Radiographer Uniform	x
4	Radiographer Shoes	x
5	Administration Uniform	x
6	Nurse Uniform	x
7	Nurse Shoes	x
8	Patient Linen	x
9	Medical Linen	x
10	Etc to 12 item	x

Table 8:- Depreciation CSSD Cost Component

From table 1, the direct cost component shows that the highest cost component is in the pharmaceutical unit (the cost of medical supplies and drugs) is 31%. Followed by the cost of medical services ranked second by 30%. Lab checks and employee salaries are 5% each. Then the shrinkage of medical devices and radiological examination is 4% each.

Some literature it is stated that the components in pharmacy account for more than a quarter of total health expenditure in some Low and Middle-Income Countries (LMIC) or Low and Middle-Income Countries. LMIC spends up to 67% of its total health expenditure on medicines (Lu Y, Hernandez P, Abegunde D, Edejer Medical Affairs

expenditures. In: World medicines situation 2011. Geneva: World Health Organization; 2011 [8].

The main component of health system inefficiency is in pharmacy. This is caused by high drug prices and improper use of drugs [9]. One step to improve efficiency in the UHC era is the implementation of a one-stop pharmacy procurement process, to reduce prices [10].

Therefore, in addition to Pharmacy (BHP Drug / Medical Devices), services, laboratories, and radiology, are variables that will be examined in this study, because the four are services that are directly given to patients.

III. METHODOLOGY

The research design is qualitative and quantitative, in the form of unit cost data analysis. What will find is what is the most appropriate cost component to complement the framework below, so that what can be chosen at Lean is a cost control strategy tool to improve efficiency and productivity. The data needed is the RS tariff for all procedures and unit costs from the selected procedures.

The first frame of mind is that RS as a health care provider accepts patients who need health services, with the guarantee that is used is JKN, and a fixed payment system implemented by BPJS as the social security management body.

Furthermore, an analysis of the cost components that form the RS tariff is then analyzed, to be sorted by the percentage of costs, from the largest to the smallest. The research was conducted in a government-owned Special Hospital in Jakarta. Tariff data is taken randomly, where randomly 5 tariffs of procedures in the hospital are taken.

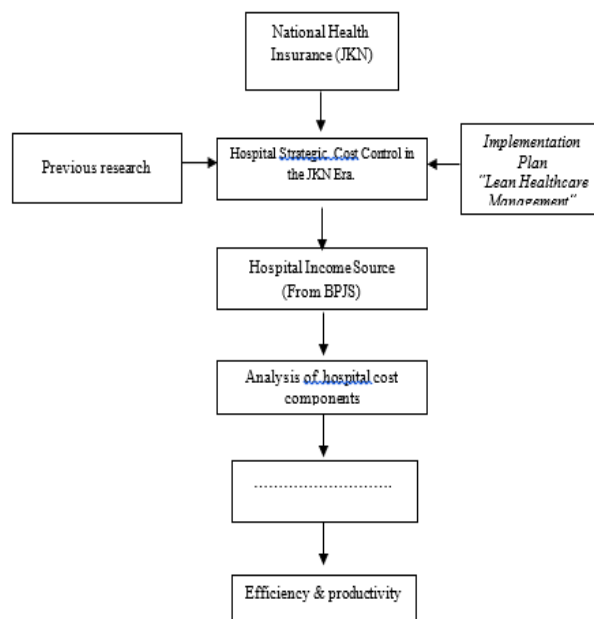


Fig 3:- Research Framework

IV. RESULT AND DISCUSSION

Cost component analysis. The following data are selected procedure data taken to see the percentage of costs at the hospital. There are 5 selected procedures, that is Coronary Artery Bypass Graft (CABG), Tetralogy Of Fallow (TOF), Coronarography, Percutaneous Transluminal Coronary Angioplasty (PTCA) and Permanent Pace Maker (PPM). The selected procedure is a type of procedure that is mostly done in this hospital. The percentage of each cost component is obtained from the unit cost of each procedure, compared to the total tariff of the procedure. The cost component observed only focuses on 4 components, which is: Medical services cost, laboratory cost, pharmaceutical costs (drugs and consumable medical devices) and radiological examination costs. The following are the results of the unit cost analysis. The red color in the table shows the first highest cost, the second yellow, the third green and the fourth is blue.

A. CABG Procedure Cost Analysis

No	Procedure	Medical Services	Lab	Pharmacy	Radiology
1	CABG				
	Class 3	28 %	2,5 %	46 %	1 %
	Class 2	27 %	2,3 %	41 %	1 %
	Class 1	34 %	2,0 %	36 %	1 %

Table 9:- Percentage of 4 Cost Components in the CABG Procedure

From the table above, we find that the largest cost component is held by the use of drugs and pharmaceutical supplies, followed by second order in medical services, third on laboratory tests and fourth on the cost of radiological examinations.

B. TOF Procedure Cost Analysis

No	Procedure	Medical Services	Lab	Pharmacy	Radiology
2	TOF				
	Class 3	20 %	3 %	54 %	1 %
	Class 2	19 %	2,7 %	48 %	1 %
	Class 1	23 %	2,3 %	40 %	1 %

Table 10:- Percentage of 4 Cost Components in the TOF Procedure

Just like the CABG cost component, the largest cost component of TOF procedure is also held by the use of pharmaceutical drugs and pharmaceutical supplies, followed by second order on medical services, third on laboratory examinations and fourth on the cost of radiological examinations.

C. Coronarography Procedure Cost Analysis

No	Procedure	Medical Services	Lab	Pharmacy	Radiology
1	Coronarography				
	Class 3	37 %	2 %	28 %	6 %
	Class 2	40 %	2 %	27 %	6 %
	Class 1	51 %	2 %	22 %	5 %

Table 11:- Percentage of 4 Cost Components in the Coronarography Procedure

For Coronarography procedure, the largest cost component is held by the medical services, followed by the second in the use of drugs and pharmaceutical supplies, third place on the cost of the radiological examination and fourth place on laboratory examination.

D. PTCA Procedure Cost Analysis

No	Procedure	Medical Services	Lab	Pharmacy	Radiology
1	PTCA Elective 1-2 Vessel				
	Class 3	30 %	2 %	54 %	3 %
	Class 2	32 %	2 %	52 %	3 %
	Class 1	38 %	2 %	47 %	3 %

Table 12:- Percentage of 4 Cost Components in the PTCA Procedure

In the PTCA procedure, the largest cost component is held by the use of pharmaceutical drugs and pharmacy supplies, followed by second order on services, third on the radiology examination and fourth on the cost of laboratory examination.

E. PPM Procedure Cost Analysis

No	Procedure	Medical Services	Lab	Pharmacy	Radiology
1	PPM				
	Class 3	28 %	1,2 %	12 %	2 %
	Class 2	28 %	1,1 %	11 %	2 %
	Class 1	40 %	1 %	8 %	2 %

Table 13

the results of the PPM, the largest cost component held by the medical service, followed by the second order for the use of drugs and pharmaceutical alchemy, third place on the cost of radiological examinations and fourth place on laboratory examinations.

From the fifth data of the table above, it was found that the largest cost component was dominated by the cost of the pharmacy, followed by the cost component of the service, then the laboratory and radiology examination in the last order. This means that we can determine the targets for efficiency from the pharmaceutical side, then to medical services and so on in the order of priority. Recapitulation of the sequence of RS cost components from the five procedures above can be seen in the following table:

Procedure	Medical Services	Lab	Pharmacy	Radiology
CABG	2	3	1	4
TOF	2	3	1	4
CORONAROGRAPHY	1	4	2	3
PTCA	2	4	1	3
PPM	1	4	2	3

Table 14:- Recapitulation of the Order of Cost Components in the 5 Selected Procedures

V. CONCLUSION

Of the 5 selected procedures carried out by analyzing the cost component, to make efficiency improvements the first priority is pharmacy cost. Efficiency can be done through the efficiency of consumable medical devices (again carried out an analysis of the unit cost breakdown) because the price of the pharmacy supplies is quite expensive. The second order of priority is efficiency in medical services, followed by supporting radiology examinations and laboratory.

Further research needs to be done to analyze the components of pharmaceutical costs. As is known, that most pharmaceutical needs still have to be imported and the price is relatively expensive, so controlling the price of these components does need to be done first.

Results may not be generalized, because observations are only carried out at a special hospital, and the samples taken cannot yet represent the total unit cost analysis of the overall procedure in the hospital. Here the author only wants to share the thinking concept to determine which parts are the priority for efficiency measurement next by implementing Lean Management. Then make improvements to the understanding of the concept of InaCBG's at the management level, doctor-level, and all staff in the hospital. Other changes can be made to the system of payment for fee-for-service services to the remuneration system.

Next research is implementing lean healthcare management to make efficiency in pharmaceutical costs. Lean is one way to cut costs even though it does not directly focus on cost. The lean healthcare approach focuses on reducing existing waste and providing the right value for patients [11].

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