Surgical Inpatient Unit Cost Analysis Compared to INA-CBG Rates

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ABSTRACT

One of the most visited hospitals in West Java Indonesia, is Soreang Hospital. Unfortunately, with the high level of visitation, the hospital is still unable to calculate the unit cost for surgical inpatient services. Based on that evidence, surgical inpatients unit cost analysis compared to INA-CBG's rates at Soreang hospital was conducted. The purpose of this study was to analyze unit costs using the double distribution method in surgical inpatient services and determine the difference in hospital rates for inpatient surgical services with INA-CBG's rates. The research method was conducted descriptively and qualitatively using analytic observational study with a cross sectional approach. Data collection techniques used were interviews, observation and documentation where the data used in this study were primary data obtained from interviews with financial sector, education sector, observing and analysing information and secondary data in the form of Soreang Regional Hospital organizational structure, financial data and non-financial data. The method of cost analysis in this study is a double distribution method. The unit analysis in this study was the surgical inpatient service of Soreang Hospital and the sample used in this study was the surgical inpatient medical records at Soreang Hospital. Based on the results of calculation with 2019 data, it was obtained class 1 surgical inpatient unit cost, namely 472,861 IDR, unit cost of inpatient surgery class 2 is 394,051 IDR and the unit cost of class 3 inpatient surgery was at 283,717 IDR. The conclusion shows that the unit cost is lower than the set INA-CBG's rate.

INTRODUCTION

In the last couple of years, Indonesian hospital management has received a number of criticisms from different parties, both medical and non-medical communities. One of the most frequently discussed issues is the disparity of Indonesian Case Base Group (INA-CBG) package rates and the total billing based on hospital rates, which often faced by hospitals that are connected to Indonesian National Health Insurance program (known as JKN). This disparity that often generate negative balance, raises an important question of whether the INA-CBG rate is too low or the hospital rate is too high. The indication of low INA-CBG rate is evident by the abundant amount of complaints posed by hospitals and existing resistance of the program, by refusing services provisions towards patients participating in JKN program issued by Indonesian Social Security Administrator for Health [1]. A number of hospitals and healthcare providers witness that the INA-CBG rates are unable to meet the adequacy of the services actual costs, and the calculation process implemented by Ministry of Health is too complicated. It is important to be able to acknowledge the measurement unit in order to enable hospitals to apply adequate services rates without taking excessive profits. Rates are set based on unit cost plus a profit margin

with the amount depending on hospital policy [2]. To be able to survive, hospitals require sufficient financial resources to support their operational activities and development capacities. For general hospitals that emphasize on healthcare service optimization, it is important that the rates are able to meet minimum cost requirement and future service developments. Because hospital financial health is determined by their revenue, service rates become important because it determines the ability to create in-cash flow [3].

Research by Edya [4] discovered that the cost recovery rate for inpatients of Indonesian National Health Insurance program is 83.20%, which means that the income generated from the program still unable to cover the operational costs. Another research by Yuniarti et al. [5] explained that the current INA-CBG's rates are lower than hospital rates. The calculation implemented in JKN program consists of different components of health financing. The difference is characterized by the centralization of health financing for curative services [6]. Indonesian National Health Insurance that was initiated in January 2014, changed the payment system from retrospective to prospective payment system at the INA-CBG rate. The change has generated fundamental problem that pushes hospitals to practice extra efforts to achieve quality and cost control [7]. The retrospective payment method is a payment method made for health services provided to patients based on each service activity provided, the more health services provided, the greater the fee to be paid. An example of a retrospective payment pattern is Fee For Services (FFS) [8]. The prospective payment method is a method with precalculated amount before the health services are provided. Examples of prospective payments are global budget, Per Diem, Capitation and case-based payments. No single financing system is perfect, each financing system has advantages and disadvantages [9].

The current JKN program situation is not in accordance with the so-called health sector reform which expects policy changes in various components of the health system together [6]. Since the implementation of the program, there are a number of problems such as low quality and inadequate services. Patients are often forced to revisit the facilities to receive supporting examinations, for example laboratory and radiological examinations because the allotted financing has exceeded the INA-CBG package. It is also common to witness patients complains at pharmacies due to unavailable medicine or insufficient medicine doses [7]. On different perspective, hospitals are complaining about the financing rates regulated in Minister of Health Regulation Number 76 of 2016 concerning Guidelines for Indonesian Case Based Groups (INA-CBG) [10] in implementing the National Health Insurance and Minister of Health Regulation Number 6 of 2018 concerning the third amendment to the Regulation of the Minister of Health Number 52 of 2016 concerning Standard Health Service Rates in the Implementation of the Health Insurance Program [11] and also Regulation of the Minister of Health Number 85 of 2015 Concerning the National Hospital Rates Pattern [12]. The level of regulated rates is considered too low and not in accordance with medical services, prices for medicines and reagents or the latest consumables goods. As a result, from the patient's point of view, the impression arises that hospitals only provide minimum healthcare services fitted with unfriendly health workers [13]. The latest regulation regarding JKN program is Presidential Regulation Number 82 of 2018 Concerning Health Insurance [14]. In this regulation, it is stated that INA-CBG rates are the amount of claim payments by Indonesian National Health Insurance to health facilities for service packages based on disease diagnosis groupings, by using Regulation of the Minister of Health Number 6 of 2018 concerning the Third Amendment to Regulation Number 52 of

2016 concerning Standard Rates in the Implementation of the Health Insurance Program[11].

It is certain that the development and operation of primary health care facilities will require fundings. Income may come from a variety of sources, for example the government, donations or clients. However, it is important to determine the amount of costs required for the services, by familiarizing ourself with the cost concept and cost analysis. Cost analysis is an attempt to decipher and find/calculate hospital costs for various types of services [15], to provide clear picture of the cost components. Cost analysis is often referred to as cost tracking, which is the allocation of costs absorbed by non-revenue-generating to revenue-generating departments or service units. This cost allocation in relation to statistical data that measures the amount of service provided by each department to other departments. The most common cost analysis method used in hospitals is to generate unit cost information, which is the result of total cost divided by the number of services [16].

In the health sector, most of the products produced are in the form of services, namely health services in the form of health improvement (promotive), disease prevention (preventive), healing (curative) and health restoration (rehabilitative) which are carried out in a comprehensive, integrated and sustainable manner [17]. In order to produce these services, a number of inputs in the form of human resources and other resources such as facilities (buildings) infrastructure and tools, materials, subscriptions to power (electricity, telephone, water, internet), are vital.

Hospital rates or price is the price in terms of money that must be paid by patients to obtain or access certain healthcare services [18]. Rates can be set to increase hospital cost-recovery, and treated as an important and highly considered aspect in both private and general hospitals. In general hospitals, rates are determined based on regulations issued by the Minister of Health or Regional Government. This shows that there is strict government control as the owner of the hospital. However, government rates are often constructed with relatively low cost-recovery capacity [19]. To overcome this problem, we can improve hospital management capabilities and avoid the possibility of formulating a change in the financial management system. The ultimate goal of managing costs is actually to return capital (break-even) and to not lose money. Break-even point is the volume of sales where the total income and total expenses are at the same level [20].

Based on the description, the purpose of this study was to analyze unit costs using the Double Distribution Method in surgical inpatient services and to determine differences in hospital rates for surgical inpatient services with INA-CBG's rates. The results of this study can provide vital evidence that support or dispute hospital management complains regarding health financing system regulated in Indonesian National Health Insurance program, which often considered as burdensome. To answer the situation, research related to unit-cost-based hospital rates with INA-CBG rates on the income of surgical inpatient services at Soreang Hospital was conducted.

METHODS

The research design is a qualitative descriptive study using a case study with a cross sectional approach [21]. Qualitative research is general, flexible, evolving, and emerges in the research process [22]. This research requires the availability of primary data and secondary data. Primary data was obtained from field surveys in the form of in-depth interviews with managers and officers related to financial and non-financial documents at Soreang General Hospital, Bandung Regency. For secondary data, the researcher previously asked permission from the Director of the Soreang General Hospital to access all data, including the medical record files for research purposes. Primary data collection techniques and secondary data that will be

used in this study are interviews, observation and documentation. The population in this study were all medical record files of surgical inpatients participating in BPJS Kesehatan at the hospital where this research took place, namely in 2019, there were 1297 medical record files consisting of class 1 = 145 medical record files, class 2 = 340 medical record files and class 3 = 813 medical record files. The sample is small, not representative, purposive, snowball, developing during the research process [22]. In this study, the double distribution method will be used. This method is often used to analyze hospital operational costs [23]. The double distribution method or often called the double apportionment method is a refinement of other cost analysis methods. According to the double distribution method, support/non-service units, as an alternative to hospital cost analysis, are considered more equitable in cost distribution compared to other methods. The reason is that the results of this cost analysis are quite reliable because all costs incurred, especially costs absorbed by support/non-service units, are distributed to production units. The visible components of unit costs include: (1) Material costs (medical goods, food ingredients, non-medical goods); (2) Employee costs; (3) Depreciation costs; (4) maintenance costs; (5) electricity costs; (6) Travel expenses; (6) Other costs.

RESULTS
The financial performance of the Soreang Hospital includes costs/expenses absorbed for service activities and revenues generated for the 2019 period. Expenses absorbed for service activities at the Soreang Hospital for the 2019 period whose funds come from hospital revenue (excluding government subsidies). The total costs absorbed by the work units (cost centres) within the Soreang Hospital in 2019, whose funds came from hospital revenue reached IDR 72,856,059,281. The total cost consists of HR costs of IDR 722,600,000 (0.99%), non-HR costs (operational costs) of IDR

68,918,485,201 (94.60%) and depreciation costs of IDR 3,214,974,080 (4.41%). Costs according to the cost components mentioned above are absorbed by work units in the framework of service activities, both cost centre work unit groups and profit centre work units. Especially for the medical cost component, it is only absorbed by the production unit (profit centre). The costs of the Soreang Hospital in 2019 amounted to IDR 72,856,059,281, the largest part of which was absorbed for the service activities of the production unit (profit centre), which was IDR 65,350,049,560 (86.26%), while for the support unit service activities (cost centre) it was only IDR 7,506,009,721 (13, 74%).

The INA-CBG package rates are predetermined based on government regulation as payer, so the system and the amount are beyond hospitals control. Therefore, with regard to patient services participating in JKN program, hospitals can only intervene from a cost and quality standpoint (Quality and Cost Constraints Team). To find out how much the hospital's ability to make efficient and cost-effective in providing health services to patients participating in JKN Program by applying the predetermined INA-CBG rates, the Cost-to-Charge Ratio (CCR) analysis method was used. That is, in the analysis costs are compared to income at a predetermined rate. According to Zelman [24], historically, the cost-to-charge ratio (CCR) was one of the most common methods dentists and doctors used to estimate costs. This is based on the relationship between assumed costs and costs to charges, usually determined by industry norms or special studies. CCR starts with a selling price/rate (or replacement) and the assumed cost is a certain percentage of the amount. For example, a dental practice group might use a rule of thumb that indirect expenses are 22% of selling prices/rates. The advantage of this approach is simplicity. While the weaknesses are the ratio utilized may not be suitable for certain industries, and the actual

volume or service mix might be inaccurate.

In analysing the unit cost of health services for surgical inpatients at Soreang Hospital in 2019, this study used the double distribution (simple) method. Simply putting, the method uses original cost of each work unit, both cost and profit centres, consisting of several cost components (HR, pharmaceuticals, non-medical goods, food, power subscriptions, maintenance, services, other services, official travel, and depreciation). The results of this cost analysis obtain full cost information for surgical inpatient care. Full cost is the original cost of the profit centre plus additional costs from the cost centre. Because the surgical inpatient ward facilities and non-surgical inpatient ward facilities at Soreang Hospital are relatively the same, the calculation can be carried out as a whole. The difference lies only in the area of the treatment class room. As regulated in the Technical Guidelines for Hospital Buildings, Inpatient Rooms should be in sizes of class III = 7.2 m^2, class II = 10 m^2, class I = 12 m^2 and VIP = 18 m^2 [25]. At this stage, the unit cost is calculated based on the full cost and the number of patient days served. In calculating the unit cost of surgical and non-surgical inpatient care, that is, the total costs absorbed amounted to IDR 22,240,509,906 resulting in service output in the form of treatment days of 61,451 treatment days per year.

There are several methods commonly used in cost analysis (top down costing) in hospitals, namely: direct apportionment, step-down method and double distribution method [3]. At this stage the researcher distributes the costs absorbed by work units in cost centres whose main function is to support services (does not generate income) to work units in profit centres whose main function is to generate income. In carrying out this cost distribution, researchers used the double distribution method approach because this method is an alternative to hospital cost analysis which is considered more equitable in cost distribution compared to other methods. The results of

cost allocation using the double distribution (simple) method, in which all profit centre work units get the first step cost allocation based on the number of human resources and the second step is based on the floor area allocation in the profit centre work unit. Specifically for hospitalization, the original fee of IDR 18,510,990,945 received additional costs from the first allocation based on the number of human resources, amounting to IDR 2,307,633,235 and received additional costs from the second allocation based on floor area of IDR 1,421,885,725, - so that the total full hospitalization costs (full cost) of IDR 22,240,509,906.

The results of the cost analysis using the double distribution (simple) method, obtained the final unit cost per treatment class as follows:

1) Class III inpatient unit cost of IDR 283,717
2) Class II inpatient unit cost of IDR 394,051
3) Class I hospitalization unit cost of IDR 472,861
4) The unit cost of inpatient VIP class is IDR 709,292

One method of determining rates is the cost-based pricing method. In this method, tariffs or prices are determined based on costs. The principle of this method is that tariffs or prices should be able to cover all costs, this is a very reasonable thing in the business world. Therefore, if the unit cost is the definitive actual cost calculation result and the intervention rate (hospital fee/fee for service), then the method of analysis is the Cost Recovery Rate (CRR). This means that the determination of hospital rates is based on unit costs. But if the rates at the hospital are definitive (INA-CBG rates) and the costs involved in the intervention, then the analytical method is the Cost-to-Charge Ratio (CCR). control costs.

The results of the study show that the unit cost of the average component of hospitalization and surgery (without medicinal costs because the data is not available) is compared with the average

income based on the INA-CBG rates. In this study, researchers were constrained to obtain data on drug use for each patient, so it was not included in the unit cost component in this study. The results of the CCR analysis show that the CCR for class 1 services is 79%, this illustrates that without the use of drugs, the use of costs for inpatient services for surgical cases is efficient. Costs are lower compared to prices (rates). While for class 2 and class 3 it is still slightly higher (without the component of medicinal use). The Cost Recovery Rate (CRR) is a value in percent which indicates the ability of the Hospital to cover costs by receiving it from patient fees (revenue). Total patient fees (total revenue) are revenue per unit (tariff) times the quantity. The results of calculating the unit cost of the Soreang Hospital in 2019 using the double distribution (simple) method are compared to the hospital rates. Surgical inpatient rates which include facility services (accommodation) and services (visit rates) are all below the unit cost. Class III (three) surgical inpatient rates can only cover unit costs of 47.67%, class II can only cover unit costs of 55.83%, class I can only cover unit costs of 87.76% and VIP class can only cover unit costs of 85.30%. The results of this study were cross checked the results of interviews with the Head of Finance that the average cost recovery rate (CRR) was around 80%. The results of this study illustrate that hospitals set rates that are still low (assuming a definitive unit cost) so that the rates for all treatment classes are still below the unit cost. Confirmation results through interviews with the Head of the Fund Mobilization Section of Soreang Hospital that hospital rates are prepared based on estimates of the use of consumables (fixed costs) for an action plus action services (variable costs), not based on unit costs. This condition does not meet the provisions in setting hospital service rates (BLU/Hospital BLUD), as stipulated in Regulations of Indonesian Health Minister No. 12 of 2013 that the calculation of facility services.

DISCUSSION

The costs of the Soreang Hospital in 2019, sourced from hospital revenue is at IDR 72,856,059,281. This income consists of service income (operational) and non-service income (non-operational). Soreang Hospital's revenue in 2019 generated from non-service income such as giro services, leases, contract administration, ambulances, medical documents, training, parking, and other sources reached IDR 2,353,784,435, or 3.02% from hospital total revenue. Meanwhile, the income generated from profit centre service activities whose main function is to provide health services reached IDR 75,710,457,655 (96.98%). The profit centre income consists of general patient services with a fee for service (FFS) rate of IDR 14,894,773,146 (19.08%), and patient services for JKN program participants reaching IDR 60,815,684,509 (77.90%).

The financial performance referred to in this study is the ability of the work unit to generate income at the expense it absorbs. To obtain financial performance information, the costs absorbed by each work unit (original costs/direct costs) are compared (juxtaposed) with the income generated by the work unit. However, because the treatment of tariffs for general patients and patients participating in BPJS Health is different, especially income from health services for BPJS Health patients which is a package tariff that is difficult to trace (trace) to each profit centre work unit, so it cannot describe the financial performance of each individual. each work unit. An overview of the financial performance of the Soreang Hospital in 2019 as a whole which includes service and non-service income generated and costs, namely that the costs absorbed to provide health services to the community in 2019 amounted to IDR 72,856,059,281 (not including government subsidies such as civil servant salaries), while total income generated in the same year amounted to IDR 78,064,242,090, which consisted of service activities at IDR 75,710,457,655 (96.98%),

and non-service income at IDR 2,353,784,435 (3.02%), which created an excess budget financing of IDR 5,208,182,809. RSUD Soreang applies two rate systems, namely fee for service (FFS) for non-JKN program patients and INA-CBG rates for JKN program participating patients. The results of the study show that hospital revenue from inpatient surgical services for JKN program participating patients is different from hospital revenue if calculated based on the FFS rate.

1) Class I revenue

From 10 (ten) inpatient surgical cases, patients participating in JKN program who were treated in class 1 generated an income of IDR 57,452,400.00 or an average per patient of IDR 5,745,240.00. If calculated based on the FFS rate (hospital rate), the hospital will earn revenue of IDR 103,240,054.00 or an average income per patient of IDR 10,324,005.00. The difference of IDR 45,787,654.00 (45%) is the potential lost hospital income.

2) Class II revenue

From 25 (twenty-five) inpatient surgical cases, patients participating in JKN program who were treated in class 2 generated income of IDR 105,448,600.00 or an average per patient of IDR 4,217,944. If calculated based on the FFS rate (hospital rate), the hospital will earn revenue of IDR 135,998,387.00 or an average income per patient of IDR 5,439,935.00. The difference of IDR 30,549,787.00 (22%) is the potential lost hospital income.

3) Class III revenue

From 58 (fifty-eight) inpatient surgical cases, patients participating in JKN program who were treated in class 3 generated income of IDR 227,960,500.00 or an average per patient of IDR 3,930,353.00. If calculated based on the FFS rate (hospital rate), the hospital will earn revenue of IDR 392,522,084.00 or an average income per patient of IDR 6,767,622.00. The difference of IDR

164,561,584.00 (42%) is the potential for lost hospital revenue.

CONCLUSION

Soreang General Hospital never conducted full cost analysis to discover the amount of cost per unit (full cost). The cost recording system is still oriented towards the need for financial reports as financial management accountability. Even though the cost recording system has not been adapted to the needs of cost analysis, the data required is still available and can be traced, so that cost analysis to obtain unit cost information for inpatient health services using the double distribution method at Soreang General Hospital, can still be implemented. Surgical inpatient rates for class III, II, I and VIP in 2019 set by the hospital cannot cover unit costs. Cost management for JKN program patients at Soreang General Hospital for class 1 is efficient, while for class 2 and class 3, without medicinal use, it is still slightly higher. Soreang General Hospital applies two rate systems, namely fee for service (FFS) for non-JKN program patients and INA-CBG rates for JKN program participating patients. The results of the study show that hospital income from surgical inpatient services for JKN program patients is different from hospital income if calculated based on the FFS rate. In class I, based on the FFS rate, the potential for loss of hospital income is 45%, 22% for class II patients, and for class 3 patients the potential loss is at 42%.

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