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RADIOLOGY SERVICE TARIFF CALCULATION MODEL USING THE ACTIVITY BASED COSTING (ABC) METHOD AT NAIBONAT REGIONAL HOSPITAL, KUPANG REGENCY

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ABSTRACT

Determination of health service tariffs also determines optimal health service outcomes. Determination of radiology examination rates at Naibonat Hospital until 2023 still refers to Regional Regulation No. 5 of 2012 concerning public service fees, where the determination of fees still uses the conventional calculation system, and there are changes in image processing modalities, tools, and materials used, this demands a rate adjustment. Calculation of rates using the Activity Based Costing (ABC) method, can be a solution to determine more accurate rates, supported by Pramawati's research (2021) which shows the results of determining rates are more accurate using the ABC method. The purpose of this study was to calculate the tariff pattern for radiological examinations at Naibonat Hospital using the ABC method and obtain an accurate tariff calculation model for radiological examinations. This research is a descriptive explorative study, with a quantitative approach using numerical data which aims to calculate a unit cost-based examination rate model by implementing an Activity Based Costing system on ultrasound examination of the abdomen, chest x-rays, abdomen, skull, and extremities. The data obtained was then subjected to qualitative analysis to obtain the steps for calculating tariffs using the ABC method. The results of this study indicate that the calculation model for radiological examination rates using the ABC method is valid. To find rates, first, determine the basic rate with the formula unit cost = direct cost + overhead, the results obtained are then calculated. Examination rates = cos unit + hospital services, so the examination rates at the Radiology unit of Naibonat Hospital, namely abdominal USG Rp 242.036, photo thorax Rp. 116,995, photo abdomen Rp. 150,321, photoskull Rp. 153,262, and a photo extremity Rp. 121,409.

Keywords: *Calculation model, ABC, Tarif pattern, Radiology, Unit Cost*

INTRODUCTION

According to WHO (World Health Organization), a hospital is an integral part of a social and health organization with the function of providing complete (comprehensive) services, healing (curative) and preventing disease (preventive) to the community (Badar, 2022; World Health Organization (WHO), 2022). Based on Law No. 44 of 2009 concerning hospitals, what is meant by a hospital is a health service institution that provides comprehensive individual health services that provide inpatient, outpatient, and emergency services. The aim of hospitals according to the law is to facilitate access to health services, protect all aspects, and provide good legal certainty, one of which is to improve the quality and maintain standards of hospital services (Suharto et al., 2019).

One of the health service providers that is experiencing transformation along with its development is hospitals. It was stated that a hospital was originally an agency or institution that had a social function when it was first established, but with changes in technology the existence of private hospitals, and changes in the service era, hospitals are now moving as an industry that provides health services through similar management practices. with business (Badar, 2022). Hospitals need to pay attention to their economic stability to provide good service, this is supported by research conducted at five hospitals in Germany and five hospitals

in Israel, this research shows the importance of hospitals setting more than one goal, apart from It is also important for hospitals to pay attention to economic goals for health services (Greve, 2022). From these two studies, it can be seen that to achieve hospital goals both in terms of service and quality development, as well as to maintain service standards, good economic management is also needed.

Research on control strategies in one hospital in Africa shows that the era of modern health services is characterized by new disease patterns, the need for advanced technology, unpredictable patient needs, physical infrastructure, and the need for a diverse workforce (Gaturu et al., 2017). well supported by studies, and strategic orientation. There are three types, customer orientation (knowledge of customers and how to serve them), competitor orientation (knowledge of key competitors and how to overcome their related challenges), and cost orientation (knowledge of product or service costs and how to save costs) (Hunitie, 2018; Obeidat, 2016). The current era of health services demands the implementation of organizational strategies to survive and compete, hospitals must also have a strong foundation, especially in facing tariff competition. Implementing a management accounting system that can calculate unit costs more commonly called integrated unit costs can be used as a basis for hospital management to make decisions and policies, as well as cost adjustments and cost control (Mowen et al., 2022).

The method for calculating tariffs or service costs currently used by the Naibonat Hospital, Kupang district, is the traditional method of calculating tariffs, where the cost calculation is based on the units produced. Traditional accounting is a system where all costs are assigned to products, even production costs that are not caused by the product. In the current era of health services, calculating accurate and appropriate unit costs using traditional cost calculation methods is difficult because radiographic examinations include many indirect costs (Kalhor et al., 2016). Traditional calculation systems have shortcomings in their application, namely causing underprices or overprices, high volume products are charged. costs are too large, leading to wrong decision-making (Aeenparast et al., 2015; Javid et al., 2016). The main drawback of the traditional cost calculation system is that the unit cost calculation is not by the original production price, either too low or too high, it is considered unstrategic because it causes cross-subsidies between unit costs (Miller & O'leary, 2019). Palsis J.A., et al, in a study in the states Of America, specifically in South Carolina, the use of traditional costing methods which produce inappropriate output costs also causes negative assessments of institutions and margins on the service products produced (Palsis et al., 2018).

The inaccuracy in determining tariffs in the radiology unit is due to the influence of reference rates for radiology services which are based on Kupang district regional regulation number 5 of 2012 concerning levies, where at the time the budget was prepared it still used an unsophisticated modality with lower production costs compared to the current modality. This regional regulation has not been reviewed in the last 11 years, but in that period the use of image processing technology, legal regulations regarding JKN, and many factors have changed, and require adjustments to new service rates with methods that can accurately calculate the unit cost of each radiology services provided.

The rates for radio diagnostic services at Naibonat Regional Hospital are determined based on regional regulation number 5 of 2012 concerning general service charges. There are several types of examinations based on the tariff reference regulations in the Kupang district, namely,

abdominal photos, BNO and vertebrae photos, extremity and head photos, children's photos, dental photos, panoramic dental photos, and ultrasound. There are several obstacles in the field which are the impact of the application of tariffs that are less appropriate, for example in the current service year in the middle of the year consumables for radiological examinations such as empty stocks of consumables (BHP) such as radiological films. Obstacles that occur in the field like this are quite disruptive to the flow of services to people who need radiology services. Recognizing the weaknesses in the traditional tariff determination system, it is necessary to implement a unit cost determination system with adequate accounting methods.

One of the calculation methods that can be used to determine health service rates is Double Distribution (DD), Activity Based Costing (ABC), and Time Driven Activity Based Costing (TDABC). The principle of calculating unit costs using the double distribution method or DD is to move costs incurred in non-revenue center units to producing units (revenue center) gradually so that costs incurred in non-revenue center units are exhausted or become zero. because everything has been moved to the producing unit or revenue center (Wulan et al., 2019). The TDABC method is a cost calculation that is determined based on the activities carried out in completing a product or service which is controlled by a unit of time. The ABC method is one of the methods used to calculate activity-based costs. Based on research by Kont K.R. (2011) and research by Alves R.J (2018) states that both TDABC and ABC have their respective advantages, however, if they have complex data then ABC can provide an accurate picture of rates. In research conducted at the PKU Muhammadiyah Hospital in Yogyakarta, it was stated that to calculate the unit cost of hospital services, there is an activity-based determination method designed to overcome distortions in traditional cost accounting called the ABC method.

The ABC method is a cost accounting method, which focuses on calculating costs based on the activities in a production stage. Activities, resources, and cost objects are all measured using the ABC method (Keel et al., 2017; Sujarweni, 2015). Work is broken down into activities, then resources are assigned to activities, and then objects are costed based on how much they are used. The ABC method recognizes causal relationships between activities and cost drivers. The use of the ABC method in health services can help in determining rational calculations of tariffs and costs for service production units (Rahmaniar & Rochmah, 2017). The following are some of the advantages of ABC 1) resources used at the activity level are determined and reflected more precisely 2) resources consumed by certain cost objects are tracked directly and identified to a higher level. ABC has been used in health care organizations 20–22 and several researchers have applied ABC to radiographic examinations (Jalalabadi et al., 2018; Rubin, 2017). Purwati's research concluded that it is necessary to adopt the ABC approach as a replacement method for calculating the unit cost of a good or service because it can produce more accurate information about product prices (Pramawati et al., 2021).

Research into calculating rates based on unit costs in radiology has been carried out before, one of which was research by Kalhor R. in 2016 in Iran which aimed to compare rates for radiology services calculated using ABC and rates determined by the government, with the results showing significant differences based on statistical tests. carried out between the two rates (Pramawati et al., 2021). Another research by Cecep Heriana in 2015 was carried out at Linggarjati Kuningan Regional Hospital, West Java, to calculate radiological examination rates using the ABC method (Cecep Heriana, Afif Kosasih, 2015). There is a difference from several

previous studies, namely research on calculating the cost of radiology examinations using a single modality or determining a single rate. This research was conducted in two examination modalities with five types of rates. Another difference between previous research conducted by Purwanti in 2022 and Dinda R.'s research in 2017 is that in the previous research, the cost drivers were general, in this research radiology needs will be taken into account in detail to allow a picture that is close to the actual costs incurred for each examination.

Based on the background above, for the development of services at the Naibonat Regional Hospital, Kupang Regency, it is very important to research the Radiology Service Rate Calculation Model Using the Activity Based Costing (ABC) Method at the Naibonat Regional Hospital, Kupang Regency.

METHOD

This research uses an exploratory descriptive research method. Descriptive research carries out analysis only at the descriptive level, namely systematically analyzing and presenting data so that it is easier to understand and draw conclusions, while exploratory research is a type of research that seeks to find something new in the form of a certain set of information, symptoms, events and conditions. Exploratory descriptive research aims to describe a situation and explore a phenomenon. This research does not aim to test a particular hypothesis but only describes what a variable or situation is (Sugiyono, 2017).

This research uses a quantitative approach because research aims to calculate an inspection rate model based on unit costs by applying the ABC system in the calculations, as well as using numerical data and creating an objective picture or description of a situation, starting with data collection, data interpretation, and analysis. data (Nurlan, 2019).

Research Population

Determining the source of research data requires consideration to obtain data results that are relevant to the problem being studied (Roflin & Liberty, 2021). Population is a generalization area of research consisting of objects or subjects that have certain quantities and characteristics determined by the researcher to be studied and then conclusions drawn (Suandi et al., 2016). Based on this statement, the population in this study is the rates for radiological examinations at Naibonat Regional Hospital, Kupang district.

Research Sampling

Sampling is a technique used to determine the samples to be taken. To determine the sample to be used in research, various sampling techniques are used. The sampling technique in this research is purposive sampling (Sugiyono, 2013). Purposive sampling is a sampling technique with certain considerations. Researchers considered the 5 most frequent radiological examinations in 2022, to represent existing radiological examinations, namely 4 conventional examinations and 1 ultrasound examination. The 5 examinations are abdominal ultrasound, thorax photo, abdominal photo, extremity photo, and skull photo.

Subjects and Objects of Research

The author chose research subjects and objects as targets and objectives to be researched because this research focuses on collecting data from various sources through research subjects and what objects will be researched from each existing research subject.

Data was obtained from the document study process in the financial management department and observation of the examination stages in the radiology unit at Naibonat Regional Hospital. The data obtained is secondary data related to the variables studied.

RESULTS AND DISCUSSION

Radiology Service Tariff Calculation Model Using the ABC Method

Activity-based costing (ABC) is a costing methodology that assigns costs to products or services based on the activities involved in producing them. This approach has been the subject of extensive research to ensure its effectiveness in providing accurate cost information and assisting the decision-making process. Previous theory and research studies have laid the foundation for understanding and discussing the advantages and disadvantages of ABC (Aeenparast et al., 2015; Alves et al., 2018; Damanik et al., 2023; Sujarweni, 2015). In preparing the radiology examination rate model using the ABC method, there are four main stages in this research, namely the stage of determining the activity, determining costs based on the activity, determining the activity center, and the final stage of determining the examination rate (Raymond, 2020).

Determine Activities

Based on research, it was found that determining activities is subjective for each agency. The author took the example of Cecep Heriana's 2015 research on the application of the ABC method in calculating radiology rates at Linggajati Kuningan Regional Hospital (Cecep Heriana, Afif Kosasih, 2015), in this research Cecep Heriana determined six main activities, whereas in this study there were seven main activities and four supporting activities.

The main activities in this research are patient registration, equipment preparation, patient preparation, image acquisition process, radiologist interpretation, registration of exit photos, and submission of image results. This main activity is taken from the existing examination stages at Naibonat Regional Hospital, and reviewed through the existing examination SOPs. Differences in activities can occur based on the results of researchers' analysis for different agencies due to the subjectivity of each agency in carrying out the stages of radiology services.

There are four supporting activities in this research, namely all activities that are not directly related to radiology, but the activities of these units influence the services of the radiology unit. Firstly, the activities of the management unit, the activities of this unit affect all producing units in the hospital, because all activity management centers start from planning and the realization of services is determined by the activities of the management unit. Both IPSRS and sanitation activities, at Naibonat Regional Hospital, these activities are related to radiology services starting from the care and maintenance of radiology equipment, to cleaning the radiology room which is under the activities of this unit. The three pharmaceutical activities are related to the demand for consumable medical materials such as film, ultrasound gel, and other materials, so their activities affect radiology services. The four medical record activities affect radiology services in terms of the recording system and also requests for printing photo request sheets, only in this case the request for printed materials for the radiology unit is directly under the procurement of the medical support section.

The urgency in determining activities is that inaccuracies in determining activities can lead to incorrect calculations, due to not identifying activities that should be part of the calculation process, thereby causing costing, or conversely including activities that are not related either directly or indirectly to the audit as well. will cause overcosting. It is important in the step of determining activities, especially supporting activities, to see whether the impact of supporting activities has an impact on the part for which the tariff is calculated, either directly or indirectly, this can be done by communicating with many parties, therefore it is important to have a tariff preparation team to carry out an initial survey. in determining rates.

Determine Costs Based on Source Activities

The first activity-based cost determination is determining direct costs. Direct costs in Susmiati S.'s 2020 research were stated to consist of the costs of medical consumables, costs of medical personnel, and costs of consumable medical equipment. In this study, direct costs only consist of the cost of medical consumables because it is a government hospital, so medical personnel costs can be excluded because payment for medical personnel is included in the APBD, consumable medical equipment is also excluded because there was no use of medical equipment in the five examinations examined.

Direct costs in this study were sought based on the costs of consumable medical materials required for ultrasound examinations and plain photo examinations. For ultrasound, the consumables needed are ultrasound film, envelope, ultrasound gel, hand scoop, mask, and tissue. These materials are the direct materials needed to carry out an ultrasound examination, and each material incurs costs. Likewise, the four plain photo examinations require direct material, namely x-ray films, both large and small, according to the needs of the examination, in this case, 11'x14' sized films for abdominal and skull examinations, while for thorax and extremity examinations, 8'x10' sized films are used. The next direct materials are photo envelopes, hand scoops, and masks.

The determination of direct costs varies depending on the direct equipment and materials used by each agency, but it is important to pay attention to the method of determining cost drivers in dividing or determining the unit cost of materials. Determining what is the cost driver of a cost and the amount or percentage of a cost driver is very influential in determining tariffs, especially in charging overhead costs. The importance of determining cost drivers is also stated by previous research and also based on theoretical studies which state that determining cost drivers needs to be paid attention to by companies because they determine valid and relevant calculation results (Khainuddin et al., 2019; Lestari, 2017). Determining this requires analysis and discussion with various parties. Looking at this research, to determine cost drivers in overhead distribution, for example, first analysis and discussion are carried out to obtain cost drivers that cover and are relevant to all units involved in charging overhead costs.

Determining indirect or overhead costs in this step requires accuracy because, in the health sector, overhead costs are greater than direct costs. There are two types of overhead costs, namely indirect overhead and direct overhead. Indirect overhead is costs generated by supporting activities that have been determined at the activity determination stage. These costs must be distributed to the producing units, one of which is radiology, based on determining the appropriate cost driver. Direct overhead is another cost required to carry out main activities, apart from the direct material costs discussed above.

Indirect overhead in this research is costs incurred by supporting activities, namely management, IPSRS and sanitation, pharmacy, and medical records. The costs used by this supporting activity are the sum of the costs used within one year, consisting of BHP, ART, ATK, mold costs, fixed asset maintenance, fixed asset depreciation, building depreciation, electricity, water, and telephone from each unit.

Management unit costs are distributed to related producing units, one of which is radiology, with the cost driver being the proportion of the number of employees, so the greater the number of employees in a unit, the greater the cost of the management unit. The costs of the IPSRS and sanitation units are distributed based on the cost driver, the proportion of the building area of other units that are charged from the IPSRS and sanitation units, taking into account that the units charged are units that are related to or use the services of the IPSRS and sanitation units. Pharmaceutical unit costs are distributed based on the proportion of consumable medical materials consumed by each unit that utilizes consumable medical materials issued by the pharmaceutical unit. Medical record unit costs are distributed based on the proportion of printing costs used by each unit.

Direct overhead is the costs used by the radiology unit to provide services in one year apart from direct costs, this is the sum of the costs used within one year which consist of costs for maintaining fixed assets, electricity, stationery, telephone, and radiology permits. The direct overhead added to the indirect overhead will produce the total overhead costs.

The results of this research are in line with Lestari's theory in his book Cost Accounting which states that the ABC method can be used as an analytical tool to save costs. It can be seen from this research that each activity that causes costs has different cost drivers and each consumes different costs. Information regarding which activities consume the highest costs, as well as cost driver information, can be used as a reference for adjusting which activities can be controlled for cost expenditure so that management can be more effective in making tariff adjustments on a clear basis.

Determine the Activity Center

At this stage, overhead costs will be distributed to the main activities of each inspection based on the length of time required by each main activity for each inspection. This examination time data can be taken by observing while the examination is being carried out and taking the average time for each type of examination being examined. The patient registration activity time is observed starting from the patient submitting the photo request sheet until the recording in the register book and registration in the hospital SIM is completed. The equipment preparation time is the time needed to prepare the tools and materials related to the examination, including appropriate cassettes, grids, etc. -other, patient preparation time is the time needed to prepare the patient depending on the examination such as removing objects that interfere with the examination, image acquisition time is the time needed to position the patient, set exposure factors, carry out exposure, to print the image, time Radiologist interpretation is the time needed to get a radiologist's interpretation for an image, outgoing photo registration time is the time needed to write the identity and prepare the envelope and record it in the outgoing registration book, image submission time is the time needed to submit the photo from the admin to the patient.

Determine the service rates for Naibonat Hospital, Kupang Regency

The final step in the radiology service tariff calculation model using ABC is calculating the service tariff, with the tariff components that have been previously calculated, the examination tariff can be calculated. Radiology examination rates consist of the unit cost for each examination or unit cost added up to the service according to hospital regulations. The unit cost of a radiology examination consists of the direct costs added to the total overhead to obtain the unit cost of each examination. The existing unit costs are then added together with the services that have been determined by the Naibonat Regional Hospital, which will produce an inspection rate. The services themselves are different for each agency because Naibonat Regional Hospital is a non-profit organization owned by the government, so services are made based on management policies taking into account the community's willingness to pay and the community's ability to pay.

Research findings related to previous theories have highlighted several benefits of implementing ABC 10,20,40,48. Based on the tariff calculation model using the ABC method in this research, allows for more accurate cost allocation by focusing on activities. This leads to a better understanding of cost drivers and allows management or rate accounting teams to identify and address inefficiencies in activities, potentially reducing costs. ABC can provide relevant cost information to make the right decisions regarding pricing and process improvement. By knowing the costs associated with each activity, the team can identify inspections that have high unit costs as well as those that are low and can optimize resource allocation.

The results of this research are the theory put forward by the inventors of the ABC system, namely Cooper and Kaplan, as well as the theory of the development of the ABC system by Hansen and Mowen (Cooper & Kaplan, 1988; Mowen et al., 2022), which states that ABC is a system tariff calculation which is a solution to the traditional tariff calculation system. The limitations of the traditional system cause overprice or underprices. From this research, it was found that the difference in tariffs was quite significant so that it could overcome the shortcomings of the old tariffs which tended to be underpriced, causing losses for hospitals.

The results of this research are also by the theory of the ABC method, which is a method for calculating rates based on activity and producing accurate rates. In this research, activities are traced, both main activities which are related to direct costs, and supporting activities which are related to indirect costs. The costs of each activity are traced so that a unit price is obtained that is close to the actual price that must be paid for each inspection. The unit costs produced based on this research are closer to the actual prices when compared to the current rates.

Feasibility of the Radiology Service Tariff Calculation Model Using the ABC Method

The feasibility of the tariff calculation model that has been carried out in this research is carried out using a feasibility test or validation of the tariff calculation model, this is aimed at ensuring the suitability of the calculation model with the applicable calculation theory. Validation is carried out by two validators, each validator has good mastery and understanding of the concept and application of the ABC method. The validation process lasted for three days, the instrument used was a validation sheet containing indicators of the feasibility of the ABC method.

There are three indicators to assess the feasibility of the tariff calculation model in this research. These indicators adopt expert validation indicators for the ABC method from the

book by M. Michael Umble & Elisabeth J. Umble in 2000 entitled Activity-Based Costing: An Evaluation (Umble & Umble, 2000). The first validation indicator is the suitability of the principles of the ABC calculation method based on theory with the calculation model carried out in this research. This indicator ensures that the calculations carried out in this research are by theory. The first indicator ensures that there are no calculation concepts that are not by the principles of theory because the ABC method has some freedom in determining items in the calculation, one of which is the cost driver. Based on the results of the expert assessment for the first indicator, the two experts stated that the tariff model in this study was by the principles of calculation based on theory.

The second indicator is the suitability of the steps of the ABC calculation method based on theory with the calculation model carried out in this research. This indicator is intended to ensure that the steps and stages of the tariff calculation carried out are by theoretical rules. The third indicator is the suitability of applying field data to the ABC calculation method in this research. Both the second indicator and the third indicator are important to ensure that apart from the calculation steps, the output, namely the calculated inspection rate, is a valid rate and can be accounted for. These validation indicators are also to cover the gap in the background of the author who is a health practitioner with the theme taken.

During the validation process, there is not only filling out the validation sheet but also a discussion process regarding the concept and application of ABC in the health sector, as well as input and revisions from expert validators to perfect the tariff calculation model using the ABC method. Through the validation process, the tariff calculation model in this research was declared feasible and by the applicable ABC theory in terms of indicators of suitability of application of the ABC concept, suitability of calculation steps, and suitability of application of data in calculations referring to theory.

Standard Operating Procedure (SOP) Calculation of Radiology Service Rates at Naibonat Regional Hospital Using the ABC Method

The stages and calculation processes that have been discussed in this research are then used as a systematic structure that aims to serve as a reference for the hospital support department in determining and compiling rates for radiological examinations at Naibonat Regional Hospital, in the form of a Standard Operating Procedure (SOP) document. The preparation of this SOP document is intended to provide a reference for concrete work steps in implementing the radiology examination rate calculation model using the ABC method.

The work steps for calculating tariffs based on the existing draft SOP consists of nine work stages. The first step is to form a team to prepare rates for radiology examinations. To form a team for calculating rates, management must select members who have the required competencies, not only representatives from radiology but also from the support department and finance department. This team will design the tariff calculation and adapt it to the type of inspection desired, whether carrying out partial or comprehensive calculations.

The second step in preparing rates based on the draft SOP is that the rate preparation team carries out studies and analyses related to the preparation of radiology examination rates at Naibonat Regional Hospital, using the ABC method. This stage is a preparatory stage before moving on to the next stage, by holding a meeting with the tariff preparation team, discussing the basic concepts of tariff preparation, and determining the agenda and timeline of activities.

This stage is also used to harmonize or equalize perceptions between the tariff preparation team which comes from various scientific disciplines so that they have the same concept.

The third step is that the rate preparation team collects the data needed in the process of calculating radiology examination rates. At this stage, the tariff preparation team plans to collect all the data needed to calculate radiology examination rates. The tariff preparation team must determine the data that will be taken from each unit related to the radiology tariff calculation. If a plan has been prepared and has also determined the sequence of data that will be taken, then make an appointment with the relevant units.

The fourth step, fifth step, and sixth steps are sequential steps, namely making observations to the units that provide the required data, and then coordinating with related fields with the required data, if the data has been obtained it is presented in the form of digital data for makes data processing easier. This step requires the involvement of many parts in terms of data collection. The parts involved start from the management unit, inpatient unit, intensive unit, and support unit, one of which highlights data from the radiology unit. Fifteen data need to be prepared as discussed, and all data is listed in the draft SOP that has been prepared.

The seventh and eighth steps are the tariff calculation stages using the ABC method, at this stage, the author adopts the tariff calculation model to become a radiology tariff calculation in the form of Microsoft Excel software, this Excel contains the four stages of tariff calculation starting from determining the activity until the tariff is calculated. The purpose of using this software in calculating tariffs is to simplify the calculation stages and to minimize errors that might occur with manual calculations. Using this software also shortens the tariff calculation time. This software-based calculation step is divided into nine stages as follows:

1. Instructions for filling in, on this worksheet there are instructions on how to fill in the calculation model and the completeness of the data needed to carry out tariff calculations.
2. In The first work step, on this worksheet the user will fill in data on the number of radiology examinations and income in the calculation year. The initial stage for each work step is for the user to first read the filling instructions in the bottom left corner of each worksheet.
3. Second work step, on this worksheet the user will fill in data on the amount of hospital income in the calculation year.
4. In The third work step, on this worksheet the user will fill in the main activity data and supporting activity data.
5. Fourth work step, on this worksheet the user will fill in direct cost data for radiology examinations.
6. Fifth work step, on this worksheet the user will fill in management cost data for the calculation year, as well as the allocation of indirect management costs charged to support units and service units.
7. Sixth work step, on this worksheet the user will fill in data on IPSRS and sanitation costs in the calculation year, as well as the allocation of indirect IPSRS and sanitation costs charged to support units and service units.
8. Seventh work step. On this worksheet the user will fill in the medical record (RM) cost data for the calculation year, as well as the allocation of indirect RM costs charged to support units and service units.

9. Eighth work step, on this worksheet the user will fill in pharmaceutical cost data for the calculation year, as well as the allocation of indirect pharmaceutical costs charged to support units and service units.
10. Ninth work step, on this worksheet the user does not need to fill in data, this step is a total indirect cost sheet that is automatically filled in if the previous data is filled in sequentially and correctly, the user can decide after seeing the data display in this step.
11. Tenth work step, on this worksheet the user will fill in the data on direct overhead costs consumed by the radiology unit in providing services in the calculation year.
12. Eleventh work step, on this worksheet the user will fill in the time data for the inspection stages that have been obtained through direct observation. After filling in the data, the total overhead costs for each inspection will appear automatically.
13. In The twelfth work step, on this worksheet, the user fills in the hospital's benefits or services, and then the inspection rate will automatically appear. This stage is the final step and you can find out the inspection rates by using the Master Excel tariff calculation.

The ninth step is that the calculated rates that have been obtained by the rate preparation team are prepared in the form of a draft report on radiology examination rate proposals, and presented to the management of Naibonat Regional Hospital. This stage is the final stage in the process of calculating radiology rates. The proposed rates will be used as input to management for new proposals, and if carried out every year, they can be used as an evaluation material and also to consider the rationality of inspection rates so that they can be used as a basis for making strategic decisions.

Comparison of Current Radiology Examination Rates with Radiology Rates Calculated Using the ABC Method

The comparison of the rates calculated in this study and the rates currently in force is quite significant, the old rate for abdominal ultrasound was Rp. 65,000 so there is a difference of Rp. 177,036 or a difference of 272% with the new rate. This is a very significant difference, this is due to the large overhead costs because one of the focuses of the ABC method is paying attention to overhead costs, unlike conventional calculation methods, and also the service charges charged for ultrasound examinations are quite high because the level of difficulty and time consumed is quite high. when compared with plain radiographs.

Plain photo examinations also have quite a significant difference, the current rate for all plain photo examinations is Rp. 97,500 so the difference with the current calculated rate for thorax photos is Rp. 48,308, or has a percentage difference in rates of 20.0%, for abdominal photos the rate difference is Rp. 55,209 in other words, it has a percentage difference in rates of 54.2%, and the rate of Skull photos has a difference of Rp. 55,209, or has a tariff difference percentage of 57.2%, for extremity photos it has a tariff difference of IDR 48,309 or a tariff difference percentage of 24.5%. The most basic difference in plain photo examination rates is that the amount of direct costs charged is due to the direct purchase of raw materials such as computed radiography (CR) film instead of using conventional ones, CR film tends to be higher in terms of purchase price compared to conventional type film. The following reason is the amount of overhead costs charged because the focus of the ABC calculation method is more specific overhead cost assignments using certain cost drivers, so that starting from the

distribution of indirect overhead costs, direct costs can be calculated more precisely according to the activities that have been determined.

Through this research, it can be said that the ABC tariff calculation system has shortcomings in terms of complexity and implementation time, but this can be resolved by involving many parties and the preparation is carried out in teams. Despite its complexity, the ABC calculation method has the advantage of accuracy in calculating unit costs close to actual costs. In an ABC system, missed overhead costs can be identified and allocated to inspections more accurately. By using ABC, cost analysis can be easily improved so that management can make more appropriate strategic decisions and improve service quality.

CONCLUSION

The model for calculating rates for radiology services using the ABC method at Naibonat Regional Hospital, Kupang Regency, produces:

a. Inspection stages:
    1. Determining activities, there are main activities, namely the radiological examination stages and supporting unit activities.
    2. Determining costs based on activity, obtained direct material costs for radiology examinations, and indirect costs originating from support units and the radiology unit
    3. Determine the activity center, namely the indirect cost assignment for radiology examinations based on the time consumption of the main activity.
    4. Calculate radiology rates, by adding up the unit cost with hospital services. Radiology rates are abdominal ultrasound Rp. 242,036, thorax photo Rp. 116,995, abdominal photo Rp. 150,321, skull photo Rp. 153,262, and extremity photo Rp. 121,409

Feasibility of the radiology service tariff model using the ABC method, and also the calculated tariff results are declared valid and suitable for use. Draft Standard Operating Procedures (SOP) for calculating tariffs for radiology services at Naibonat Regional Hospital using the ABC method and there is a master tariff calculation in the form of Microsoft Excel to support the calculation process. Comparison of the current examination rates with the examination rates calculated in this study results in the difference between the examination rates calculated and the rates currently in effect, namely, an abdominal ultrasound examination of Rp. 117,319, chest photo Rp. 19,495, abdominal photo Rp. 52,821, skull photo Rp. 55,762, and extremity photos Rp. 23,909. The difference between the examination rates calculated by this study and the comparison hospital is the average difference with SK Hospital. Lerik Kupang City IDR 255,390 or 25% lower than the SK Hospital rate. Lerik has a difference of Rp. 411,890 with Bhayangkara Hospital Kupang City or 34% lower. The calculation rate for this examination is rational.

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