

## Cost structure for the Pharmaceutical Service in an Oncological Health Care Institution (HCI)

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### ABSTRACT

*Oncological institutions are a vital part of the development of society, as they allow people with cancer to maintain a better quality of life; the proper management of the costs incurred is essential for the service to be sustainable over time. For this reason, it's proposed to develop a structure for the Pharmaceutical Service of an oncological HCI. Through a diagnosis and characterization of the current system, the relevant aspects to be treated according to their influence and dependence are determined. The method used to describe operations is the process costing, since the institution has established procedures that allow to understand in an organized way which are the most used, the most expensive and relevant. A database is established that makes up the structure of the service, giving greater importance to the accounts that have more participation at the economic level, to have a clear view of each of the procedures, to generate analysis and evaluations oriented towards the decision making of the HCI and subsequently expand the offer of services. The information is obtained from the members of the entity and demonstrates results according to the reality of the current operations of the Pharmaceutical Service.*

**Keywords** -Processes, pharmacy, costing, decision making, operations

Date of Submission: 05-02-2022

Date of Acceptance: 18-02-2022

### I. INTRODUCTION

Cost systems are widely used by companies because they allow to observe the operation and behavior that the institution is having in relation to its products, its processes, activities, and everything in which the organization is immersed; in the same way, they allow strategic analysis with which decisions can be made and improvement plans can be made [1].

The institution under study has three main areas aimed at fulfilling the corporate purpose, which are: Medical, Administrative and Pharmaceutical Service. To optimize the performance within the operations, it was decided to create a cost structure that benefits the entity through the process that represents most of the revenue, which is the Pharmaceutical Service, so that a regulation can be made on the most influential factors within the operations they carry out.

Although the Oncological HCI is a non-profit institution, it must maintain economic and financial stability through the sale of its different products and services; like any other institution, the HCI has administrative and operational expenses, so

it's necessary to carry out this project and evaluate whether there is consistency in pharmacy operations, being this a service organization, its structures must be properly reviewed and find the valid bases for the allocation of indirect costs [2]. This would be a first approach between the services provided and the costs, making use of different tools to improve profitability and define a structure that guarantees that decision-making in the offer of pharmacy services and the management of the opportunities offered by suppliers is not only for the institution but also for customers [3].

Five moments were carried out for the execution of the project, the diagnosis, characterization of the system, development of structures, simulation, and impact evaluation. After knowing the behavior of the area, it's determined jointly that for the establishment of the cost structure, a model of process costing must be proposed, which allows to take into account the procedures already established in the internal QMS and include the direct and indirect costs related to each of them; thus, the information is received through the documentary review, matrices and interviews with the workers that allow to focus on

the central axes to be solved and in turn, that allows to solve the errors present within the current model.

The final tool is organized so that the information is filtered in aspects relevant to the development of the structure, among which are salaries, positions, scheduled and work time, equipment, procedures, accounts, and indirect costs; so that the detail of the operations that are carried out within the service can be evidenced and obtain a result according to reality.

## **II. METHODOLOGY**

The methodology used in the project is of a mixed type, so qualitative and quantitative data were used, to define the implementation of the best cost system according to the activities and processes carried out by the Pharmaceutical Service.

In relation to staff, 100% of the population of the area was used, which corresponds to 13 workers, however, due to eventualities that occurred during the development of the project, there were frequent changes in terms of employees, but it should be clarified that the activities of the Pharmaceutical Service continued to perform as normally as possible.

According to the methodological aspects, 5 phases were established, which will be considered to work properly on the development of this.

Taking into account the processes established in the QMS implemented by the Oncological HCI, the project seeks to have agreement with these; so the objectives were raised taking into account the basis of the NTC ISO 9001 quality standard, through which the PDCA cycle is carried out, which consists of carrying out a Planning process, Doing, Checking and Acting, in this way, "allows an organization to ensure that its processes are adequately resourced and managed, and that opportunities for improvement are determined and acted upon"[4].

The five phases are divided as follows:

### **2.1. Diagnosing the current state**

In the first instance, data collection is carried out through surveys of the officials of the financial area and an interview is also carried out with the direction of the Pharmaceutical Service; in the same way, an analysis of the operation of the current method is made, taking into account the processes that have been executed and the results obtained. Subsequently, a synthesis of the collected data and its respective study is made, making use of office tools, to then understand what are the advantages and disadvantages that the cost system is having, through previous knowledge and research of the environment that surrounds the institution.

In this way, it seeks to identify the specific interests of the stakeholders of the Pharmaceutical

Service, accuracy within the most relevant problems, their causes, and effects; the documents issued by the regulatory institutions and the main market trends.

### **2.2. System characterization**

Based on the internal procedures of the HCI obtained within the first objective, a study of the procedures developed by the Pharmaceutical Service and the accounting movements related to the pharmacy is carried out, identifying their relevance, for later, evaluate the importance of each one to establish a relationship between the cost systems, taking into account the point of view that the HCI has and in the same way the benefit would be obtained by placing it to the test.

In this way, the most relevant aspects within the cost systems present today are known, so that they can be compared between them to obtain the most appropriate one(s), considering the present needs for the Pharmaceutical Service in terms of its activity.

### **2.3. Development of structures**

After studying what are the options of cost systems that can be implemented, the documentary review and the activities developed by the institution were used to determine which could be best coupled with the procedures carried out by the Pharmaceutical Service. A series of meetings are held with those in charge within the HCI to make the approach of the cost structure that may favor the current returns.

This structure will include the approaches delivered by the areas of Accounting, Quality and Pharmaceutical Service, to align the processes previously established in the institution. Considering the factors related to the grouping of accounts, the direct and indirect costs, and the relationship of the staff in terms of the times during which each procedure is executed so that it's recorded according to the reality of the operations.

To complete this stage, a meeting was held with the interested parts to present the proposal to be implemented and make the respective updates before its implementation.

### **2.4. Simulation**

After the implementation of the cost structure in a part of the Pharmaceutical Service, the team proceed to identify within it what are its advantages and disadvantages, considering the results obtained and the indicators prior to its initiation. Constant communication with stakeholders is necessary to determine the degree of scope and ease of handling by them. According to

the results obtained, the necessary adjustments are made for its optimal operation.

### 2.5. Impact evaluation

Finally, to achieve the expected impact, all Pharmaceutical Service workers are trained on the characteristics of the new system, the methodology is explained to them; then, the operation of the method that is proposed is modified, identifying the changes that have been presented in relation to the old system, so that an analysis of these can be made; in the same way a comparison is made between the data obtained in each stage. The changes brought by the implementation of the technique are identified and, finally, the delivery is made to the HCI in search of the continuous improvement of the same and the establishment of new projects in related areas.

## III. RESULTS

### 3.1. Diagnosing the current state

In search of strategies that guarantee the adequate identification of the costs that must be considered within the Pharmaceutical Service of the HCI, tools are used to review what are the needs that subsequently carry out the definition of a structure equivalent to the reality of the institution. Through diagnosis, it's possible to know the current situation in which the organizational process finds itself, what it has, what it can or should do to overcome the obstacles that prevent it from reaching the expected result [5].

The first tool used was the survey, so that it was sought to obtain data directly from the staff in a systematic and standardized way, requesting information related to the knowledge of the population about the system [6].

From there it was identified that the people who are part of the Pharmaceutical Service didn't have sufficient information related to costs, however, they expressed the order of importance among the businesses, since according to the criteria of the respondents it's indicated that of the three business units managed by the Pharmaceutical Service, the most important is the wholesale, followed by the delivery to the chemotherapy unit and finally, the outpatient service, generated by the volumes of medicine sales.

After identifying the aspects related to the survey, a Vester matrix is made to prioritize the problems, where, after making the respective identification, the level of causality between them is established [7]. The causative problems are related to the classification of operational and administrative costs, the discrimination of costs by activity, the cost/space ratio and the analysis of the management of goods and services; on the other hand, the

consequences are determined, which are related to the stagnation of the current activities of the service and the in proper use of resources. Resulting in a lack of a solid cost structure for area procedures.

To close the diagnosis and know the external factors that affect the development of the institution, a Pestel matrix was made, to understand the growth or decline of the market and at the same time, the position, potential and direction of the business [8]. Each of the letters present in the name of this matrix refers to the factors to be analyzed. These are: Political, Economic, Social, Technological, Environmental and Legal.

For the political factor, 2 points are observed that can negatively affect in the short term, the "*Ley de Techos*" and the "*Rutas de Atención Integral en Salud (RIAS)*", because they must be complied with and influence the supply of medicines and the integrality of the services offered; on the other hand, *CONPES 155* contributes positively in the short term, providing guidelines for the rational use of medicines, minimizing differences with respect to access to these, as well as ensuring their quality. On the economic side, there are 4 points that have a positive impact in the short term: Competition in the sale and distribution of medicines, rates in accordance with current regulations, the expansion of services and attention to new customers. In relation to the social part, three points are defined, two in the short term (Cancer prevention and customer service campaigns) and one in the medium term (Competencies of human resources) generating positive impacts. Regarding the technological aspects, "*Plan de Vigilancia Tecnológica*", the "*Sistema Nacional de Evaluación de Tecnologías en Salud*" and the stimulation of research are considered in the short term in a positive way. In relation to the environmental factor, 4 short-term points are discussed, which are: Recycling of materials, reduction of materials, waste and technical standards that contribute to the improvement of quality. Finally, in the legal factor, there are 4 points to consider which are: Price regulation circulars, regulations in the provision of services, confidentiality, and information security law, the first three in the short term and the last, in the medium term, giving the guidelines of the services to be provided.

### 3.2. System characterization

The reduction of costs, the increase in quality and the optimization in the use of resources are aspects to be achieved through the design of a procedure that favors the implementation of a cost system that responds to the activity that is developed [9]. To characterize the system in which the

structure is made, the accounting area is requested to report the costs of the Pharmaceutical Service, so that the current situation is determined and the aspects to work and their relevance are clear.

It's evident that costs are grouped in a cost center; within this are 12 large accounts, which in turn are composed of sub-accounts that allow to expand the detail of the costs conceived during the year 2020. The 12 large accounts are as follows: Amortization, cleaning and cafeteria, employee benefit, depreciation, packaging, honorarium, supplies, maintenance, stationery, insurance, services, and transportation.

It's important to bear in mind that for the items of amortization, services, stationery, supplies and cleaning and cafeteria, 27.71% of the total general expenses of the HCI are charged according to the policy established in the accounting area. The percentage was established taking into account the number of employees who are in charge of the Pharmaceutical Service and the area of use of the space within the institution. This percentage has been established since 2018.

Regarding the evidenced values, the impact of each of these is shown, on the total of the year 2020 in percentage as follows:

TABLE 1. Percentage per Pharmaceutical Service 2020

| DESCRIPTION            | PERCENTAGE |
|------------------------|------------|
| Amortization           | 0,21%      |
| Cleaning and cafeteria | 0,93%      |
| Employee Benefit       | 63,21%     |
| Depreciation           | 6,68%      |
| Packaging              | 1,53%      |
| Honorarium             | 0,74%      |
| Supplies               | 2,19%      |
| Maintenance            | 5,14%      |
| Stationery             | 0,78%      |
| Insurance              | 1,90%      |
| Services               | 8,96%      |
| Transportation         | 7,75%      |

Source: Authors based on information provided by the accounting area, 2021

Each of the accounts mentioned is reviewed in detail, to show the movements from two perspectives. The first is to observe each of the months with its respective monetary value; the second is to observe the percentage variation of costs and expenses from one month to another during the year 2020 to see the monthly percentage behavior, this is expressed by dividing the value of the month that is being analyzed between the immediately previous month and expressing the value in percentage.

The most common reasons found in terms of the changes presented are related to aspects of pandemic, locative repairs, transportation methods, readjustment of salaries and other benefits to employees, purchase of supplies, variations in public services and maintenance of medicine conservation equipment.

It also gives a clearer view as to the fact that the accounts with the greatest relevance within the structure should be Employee benefit, services, transportation, and depreciation.

On the other hand, in relation to all these methods, an analysis was carried out considering the activities, processes and operation that the HCI has, so the parameters that were considered are: the use of the processes already standardized by the institution; the management that is given to the indirect costs and finally, whether the methodology is adapted to a service model.

Companies that are in the pharmaceutical sector are constantly confronted against their competition, so they're always aiming for innovation and process improvement, to minimize costs and maximize profits. Cost systems are quite important, because they allow an institution to compete against others in different markets, so that in the same way they can participate and define the price of the goods and services offered in these [10]. Additionally, they are widely used by organizations because they allow them to observe the operation and behavior they are having in relation to their products, their processes, activities and everything in which they are immersed to fulfill their corporate purpose; this tool allows strategic analysis with which decisions can be made and improvement plans can be made [11]. It's important to note that the most used methods in the health sector are ABC, costs for production orders and process costing [12].

According to the system of costs by production orders can be divided considering the gradual needs established by the management [13]; on the other hand, ABC costing analyzes the activities of indirect departments of the company to determine the appropriate cost of given products [14].

Process costing is a type of system that accumulates production costs for a certain process or per production department. Some of the advantages it has are Management of unit costs and allows to include several areas of the organization within the same process [15].

This methodology has many advantages, so it was identified as the best option, the system of process costing, because it allows an accuracy and precision in the prices handled by the institution, in addition to the fact that it can make use of what is

already stipulated by the HCI, with its respective denomination, classification and activities.

### 3.3. Development of structures

After having as a reference the most relevant accounts identified during the diagnostic phase, the cost structure is created through Microsoft Excel. There an order is established that will be interrelated to reach the final cost of each of the procedures.

The first account to be discussed is the one related to salaries or "Employee Benefits", there are considered the issues related to the areas present within the institution, the name and position of each employee, the salary they receive, the assigned time of work, the technological equipment assigned and the procedures where they execute their work. This table serves as the basis for linking everything related to staff payments and how they will be reflected later in the other matrices. The shape of this table is identified below:

TABLE 2. Salaries

| POSITION                    | NAMES AND SURNAME S | BUSINESS UNIT    | AREA      | BASIC SALARY                    | Monthly total                      | Hours per month           | Days per month           | Minutes per month           |
|-----------------------------|---------------------|------------------|-----------|---------------------------------|------------------------------------|---------------------------|--------------------------|-----------------------------|
| Position defined by the HCI | Full name           | Business section | Unit area | Value perceived by the employee | Value paid by the IPS the employee | Scheduled hours per month | Scheduled days per month | Scheduled minutes per month |

Source: The authors, 2021

In addition to this, the allocation of computer and communication equipment per worker is made, which is reflected according to table 3:

TABLE 3. Equipment assignment

| Team            | Responsible | Name      |
|-----------------|-------------|-----------|
| Computer Coding | Charge      | Full name |

Source: The Authors, 2021

After obtaining the salaries, the activities that each of the employees have in the procedures were analyzed, organizing them in table 4, placing the name of the step, the position (responsible) and the name of the person in charge of developing the activity; in the same way, the codification of the procedure, the time spent in carrying it out and if there is any observation.

TABLE 4. General table

| Step | Step Name     | Responsible | Name                         | Process      | Time              | Observations |
|------|---------------|-------------|------------------------------|--------------|-------------------|--------------|
| 1    | Activity name | Position    | Name of the person in charge | Process code | Time per activity |              |

Source: The Authors, 2021

Then, for the analysis of the equipment, services and other costs incurred by the Pharmaceutical Service, table 5 is completed, to define the fixed cost that will be divided according to the participation of each process considering the total time it uses.

TABLE 5. Cost Summary

| Cost Type   | Fixed asset  | Description                      | State  | IFRS origin cost                              | C. Cost/Account    | Periods to depreciate IFRS / Percentage |
|---|--|----------------------------------|--|---|--------------------|---|
| Depreciation, services, inputs, fees, transportation, maintenance | Asset code   | Asset name                       | If active or retired                           | Initial cost                                  | Account you are on | Depreciating periods (if applicable)    |
| Periods for depreciating IFRS                                     | Percentage   | Values per month                 | Allocation                                     | Assignment value                              | Detail             |   |
| Periods remaining to depreciate (if applicable)                   | 1/Periods to be depreciated or percentage allocated for the SF | If the percentage*cost is active | Defines whether it is a fixed or variable cost | Value that corresponds to being a fixed asset | Remarks            |   |

Source: The Authors, 2021

Subsequently, all the processes are taken with the sum of the time used to do so, and the percentage of participation that each process has is established, finally, the total of the fixed cost is taken and multiplied by the percentage as shown in table 6.

TABLE 6. Fixed cost allocation procedures

| Process       | Time                 | Participation         | Fixed Value                                     | Cost |
|---------------|----------------------|-----------------------|---|------|
| Process code  | Duration per process | % participation       | Value in pesos of the fixed cost of the process |      |
| Overall total | Total duration       | % total participation | Total value of fixed cost                       |      |

Source: The Authors, 2021

Finally, to complete the information, table 7 is completed with the data requested in the relevant fields.

TABLE 7. Procedure table

| Codification of the procedure |  |                              |                              |                                 |                             |                            |   |
|-------------------------------|--|------------------------------|------------------------------|---------------------------------|-----------------------------|----------------------------|---|
|                               | CONCEPT  | NAME                         | RESPONSIBLE                  | UNIT VALUE MONTH OR WORK        | UNIT VALUE HOUR OR WORK     | MINUTES                    | TOTAL VALUE   |
| STAFF                         | Charge   | Name of the person in charge |                              | Salary per month                | Hourly wage                 | Time per responsible       | (hour/60 value) x minutes                               |
|                               | Subtotal personnel costs                       |                              |                              | Total sum of salaries per month | Total sum of hourly wages   | Total of times             | Sum total of values                                     |
| TECHNOLOGICAL COSTS           | Equipment Code                                 | Computer Name                | Name of the assigned manager | Cost per month                  | Cost per hour               | Time of use by responsible | (hour/60 value) x minutes                               |
|                               | Subtotal costs of technological development    |                              |                              | Total sum of costs per month    | Total sum of costs per hour | Total of times             | Sum total of values                                     |
| OVERHEADS                     | All kinds of expenses (fixed costs) are placed |                              |                              |                                 |                             |                            |   |
|                               | Subtotal overhead                              |                              |                              |                                 |                             |                            | Total sum of expenditures                               |
| TOTAL                         |  |                              |                              |                                 |                             |                            | Sum of general expenses, technological costs, and staff |

Source: The Authors, 2021

After taking the data from the previous tables to each of the records by procedure, the behavior of each of them, the total costs of the Pharmaceutical Service and the relevance they

present within the operations of the area can be evidenced.

### 3.4. Simulation

Once the process of developing the structure was finished, a simulation was carried out, to identify different scenarios that can be presented according to the time it takes each process.

For this reason, 4 additional time shots were made again for each process, for a total of 5 times; however, we sought to obtain more data, but due to the eventualities that arose with Covid-19 and the change of personnel, we worked with the information obtained.

Table 8 shows the percentage of the total costs per procedure, considering that the values from 1 to 5 represented in the column headings correspond to an independent time taking carried out, in order to determine the probability of occurrence in each case.

TABLE 8. Total costs

| Code       | Value1 | Value2 | Value3 | Value4 | Value5 |
|------------|--------|--------|--------|--------|--------|
| PRO SF 001 | 2,55%  | 2,62%  | 2,39%  | 2,64%  | 2,38%  |
| PRO SF 002 | 6,47%  | 7,33%  | 5,80%  | 4,99%  | 4,94%  |
| PRO SF 003 | 6,85%  | 6,90%  | 4,91%  | 5,42%  | 5,48%  |
| PRO SF 004 | 5,05%  | 4,08%  | 6,15%  | 4,60%  | 4,66%  |
| PRO SF 005 | 4,49%  | 3,77%  | 5,41%  | 4,51%  | 4,56%  |
| PRO SF 006 | 0,00%  | 0,00%  | 0,00%  | 0,00%  | 0,00%  |
| PRO SF 007 | 0,16%  | 0,15%  | 0,13%  | 0,15%  | 0,13%  |
| PRO SF 008 | 9,46%  | 11,51% | 9,52%  | 11,58% | 11,88% |
| PRO SF 009 | 18,30% | 17,38% | 18,27% | 19,36% | 19,21% |
| PRO SF 010 | 10,77% | 9,26%  | 12,08% | 9,25%  | 9,34%  |
| PRO SF 012 | 7,93%  | 8,87%  | 6,71%  | 8,13%  | 8,26%  |
| PRO SF 014 | 0,14%  | 0,12%  | 0,14%  | 0,13%  | 0,13%  |
| PRO SF 024 | 1,11%  | 1,21%  | 1,01%  | 1,29%  | 1,26%  |
| PRO SF 041 | 4,29%  | 4,42%  | 4,50%  | 4,39%  | 4,26%  |
| PRO SF 051 | 4,18%  | 4,45%  | 3,97%  | 4,45%  | 4,64%  |
| PRO SF 060 | 5,44%  | 5,85%  | 5,07%  | 5,73%  | 5,52%  |
| PRO SF 064 | 4,71%  | 3,89%  | 5,55%  | 4,83%  | 4,75%  |
| PRO SF 065 | 3,11%  | 3,15%  | 2,80%  | 3,44%  | 3,22%  |
| PRO SF 066 | 5,00%  | 5,03%  | 5,59%  | 5,11%  | 5,26%  |
| Total      | 100%   | 100%   | 100%   | 100%   | 100%   |

Source: The Authors, 2021

Subsequently, a meeting was held with the specialists so that they could define the percentage of occurrence of each of the cases, to define the probability and range, as shown in Table 9.

TABLE 9. Odds

| Process    |   | Time     | Probability | accumulated | Time     |
|------------|---|----------|-------------|-------------|----------|
| PRO SF 001 | 1 | 1180,41  | 0,26        | 0           | 1180,41  |
|            | 2 | 1568,915 | 0,23        | 0,26        | 1568,915 |
|            | 3 | 1570,7   | 0,21        | 0,49        | 1570,7   |
|            | 4 | 1670,616 | 0,2         | 0,7         | 1670,616 |
|            | 5 | 2020,82  | 0,1         | 0,9         | 2020,82  |

Source: The Authors, 2021

Each probability was defined according to the total time it takes to perform the procedure, where it considers, the events, events or activities that must be developed for each of these.

The range established for each of the procedures corresponds to the 5 values taken previously, hence the data is established as the lower

limit with the minimum time and in the same way, the upper limits related to the maximum value; it is to be clarified that the times were established as minutes per month.

Finally, Table 10 was made so that the Oncology HCI could simulate different scenarios, according to the times they want to place according to the established probabilities and ranges.

TABLE 10. Simulation

| Rank         | Code       | Time  | Probability | Value Min Sim |
|--------------|------------|-------|-------------|---------------|
| 1181 - 2100  | PRO SF 001 | 1600  | 0.21        | 2.45%         |
| 3478 - 7300  | PRO SF 002 | 5000  | 0.1         | 5.96%         |
| 3840 - 10000 | PRO SF 003 | 8000  | 0.15        | 5.73%         |
| 4427 - 5500  | PRO SF 004 | 4600  | 0.25        | 4.86%         |
| 4027 - 5000  | PRO SF 005 | 4400  | 0.1         | 4.66%         |
|              | PRO SF 006 | 0     | 0           | 0.00%         |
| 115 - 300    | PRO SF 007 | 170   | 0.1         | 0.14%         |
| 6548 - 14300 | PRO SF 008 | 10000 | 0.5         | 9.81%         |
| 7585 - 15100 | PRO SF 009 | 11000 | 0.15        | 18.99%        |
| 9961 - 15400 | PRO SF 010 | 11500 | 0.2         | 9.78%         |
| 3436 - 6500  | PRO SF 012 | 5500  | 0.3         | 8.23%         |
|              | PRO SF 014 | 0     | 0           | 0.14%         |
| 660 - 1400   | PRO SF 024 | 940   | 0.1         | 1.33%         |
| 3895 - 7500  | PRO SF 041 | 5300  | 0.5         | 4.45%         |
| 3199 - 6800  | PRO SF 051 | 6000  | 0.2         | 4.34%         |
| 3320 - 6500  | PRO SF 060 | 4600  | 0.25        | 5.84%         |
| 4952 - 7100  | PRO SF 064 | 6300  | 0.4         | 4.89%         |
| 2240 - 4900  | PRO SF 065 | 3700  | 0.1         | 3.23%         |
| 3660 - 5600  | PRO SF 066 | 4400  | 0.17        | 5.18%         |
| Tiempo       |            | 93010 | 100%        |               |

Source: The Authors, 2021

In this way, the HCI can observe the impact that can be generated by increasing or decreasing the times of its processes.

### 3.5. Impact evaluation

An analysis was carried out for the Pharmaceutical Service, where you can observe the benefits that would be obtained with the implementation of a Cost Structure, and at the same time, contribute to financial performance and decisions, to avoid complications that may arise.

Next, you can see what are the main benefits that can be obtained:

- Expansion of cancer prevention services and campaigns, by optimizing resources
- Use of new technologies and medicine alternatives
- Projects promoted by government institutions to strengthen research, development, and production of medicines
- Identification of intermediation in the purchase and sale of medicines
- Improving the quality of services

On the other hand, it was established what are the most important aspects for the implementation of the Cost Structure of the Pharmaceutical Service:

- Salary structure of employees: It is important to manage a clear structure of salaries, since these serve as the basis for the monetary allocation per employee of the cost of their work
- Operating times in procedures: Having clear procedures and the times that each person lasts performing an activity allows that together with the salary the cost of the execution time of the activities is defined and at the same way, the cost of the downtime
- Assignment of storage equipment: Within the impact that is evidenced in the structure, the load of all the equipment can be reflected, for this reason it is important to ensure that these are used in the operation, since the disuse of some of them can be seen as an unnecessary cost
- Allocation of public services and other costs: The load established by the accounting area must be focused on the use that is given by each department to these, for this reason, maintain a clear percentage and monitor this, is of great importance so as not to increase in excess the costs in the structure
- Implementation equipment of the structure: To carry out the structure it is important to have computer equipment for those who manage it, office automation elements, desks, chairs, and other office equipment

However, there are costs that cannot be quantified which are related to:

- Indirect costs: Within the operation of the structure, it is difficult to identify costs related to the inadequate execution of the procedures established by the HCI, which can be reflected in the increase in operating times and in turn in the hidden costs
- Customer confidence: There is reputational risk, which directly affects the value chain of the SF; maintain the trust of customers, will allow the sustainability of the cost structure

To carry out the analysis of the social criteria that impact the development of the project, the multi-criteria index method is analyzed. Table 11 shows the rating scale used for this methodology [16].

TABLE 11. Scale

| Scale |           |
|-------|-----------|
| 1     | Very low  |
| 2     | Low       |
| 3     | Middle    |
| 4     | High      |
| 5     | Very high |

Source: The authors based on ECLAC methodology, 2021

With the scale, an evaluation of criteria is carried out according to its variable, as shown in Table 12.

TABLE 12. Multi-criteria index

| Evaluation criteria | Evaluation Variable       | Weighting | Qualification | Result |
|---------------------|---------------------------|-----------|---------------|--------|
| Social              | Importance                | 15%       | 4             | 0,6    |
|                     | Impact of the cost system | 20%       | 5             | 1      |
|                     | Scope                     | 15%       | 4             | 0,6    |
|                     | Effectiveness             | 15%       | 4             | 0,6    |
| Economic            | Investments               | 10%       | 4             | 0,4    |
|                     | Cost allocation           | 15%       | 4             | 0,6    |
| Institutional       | Acceptance                | 10%       | 4             | 0,4    |
| Total               |                           | 100%      |               | 4.2    |

Source: Authors based on ECLAC methodology, 2021.

To define what is the importance of each variable and in turn of each criterion, in order to determine the impact that the implementation of the cost system would generate in the Pharmaceutical Service, for which a rating of 4.2 was obtained; resulting in it being very important to use this tool.

#### IV. CONCLUSIONS

The allocation that was given to the equipment and services for the pharmacy area was incorrect because more things were loaded than it really had, generating an excess in the distribution of fixed costs for all procedures.

When reviewing the times of the pharmaceutical service staff, an imbalance in their distribution was evident, causing some of the employees to be overloaded with tasks or activities, as in the case of chemists and pharmacy regents, as well as some auxiliaries.

It is important to clarify that strategic positions have shorter times, because the tasks they perform are not contemplated within the procedures.

The longer the time to perform a procedure, the lower the fixed cost, however, the total cost will increase. In the same way, it is reiterated that the times were taken in pandemic.

#### V. PROPOSAL FOR IMPROVEMENT

It is recommended that the Oncology HCI make use of the proposal of the cost system for the Pharmaceutical Service, since this allows it to know

what is the value for each procedure that the institution has standardized, the duration of each activity within each of these, the remaining or extra time per employee and determines what are the critical tasks; in order to allow the institution to make an analysis on the workloads and distribution of tasks, as well as the performance of each procedure.

On the other hand, it is proposed that the required personnel be hired according to the initial conditions of the project so that the activities are developed in the best way.

Also, a periodic control must be carried out on the assignment of communication and computer equipment to employees and the area, finally, consider the use of the system instructions, because this will allow them to know the operation of the system, so that the HCI can modify or adapt it according to their needs.

#### ACKNOWLEDGEMENTS

For the correct development of this project, the participation of the areas of Accounting, Quality and the Pharmaceutical Service is appreciated, as well as the support provided by the Universidad Libre.

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