COST ANALYSIS OF GOOD PRACTICE – A CASE STUDY FOR DENTISTRY SERVICES IN ROMANIA

Duțescu Adriana¹, Ponorîcă Andreea Gabriela²
and Stănăilă Georgiana Oana³

¹,²,³ The Bucharest Academy of Economic Studies, Romania
E-mail: adriana.dutescu@bsm-mba.ro
E-mail: andreea.ase@gmail.com
E-mail: gostanila@gmail.com

Abstract

The vital decisions of the enterprise are connected to knowing the costs, their structure and characteristics. From this perspective, one can say that, by classifying costs, we can rapidly choose those costs that correspond to the specific needs of information.

From the good practice spectrum, the medical research is expected to continue producing a high number of alternatives to detect, prevent and treat different affections. There is a wide set of theories, techniques and instruments for the allocation of expenses through the so-called allocation keys.

In completion of this practice, management accounting involves the allocation of costs among responsibilities centers, in order to predict the effects of the decisions taken into management, the computation of tariffs, motivation of employees, assets evaluation and income determination, opportunity costs estimation. This study refers to allocation of resources in a systematic manner and not an intuitive one.

Keywords: efficiency, cost, budget, analysis, benefit, good practice

JEL Classification: I11, M41

Introduction

In the modern society, the right to be healthy is an incontestable value for all of us, being the result of a continuous process of social negotiation which is focused on defining the health needs that should be satisfied. The concept of need is imprecise and because every need generates other needs, there is the risk that they will become infinite. Thus, society must elaborate principles of good practices and afterwards, to apply the mechanisms that allow it to define the health objectives which are compatible with these principles.

The identification of optimal allocation of resources, in order to maximize the health level of the population, will be a key challenge for the healthcare system in Romania, which will affect both the state organisms and the private ones in the next decade. The medical research is expected to continue producing a high number of alternatives to detect, prevent and treat different illnesses. Nevertheless, the budgetary constraints will limit the access to
these solutions, or at least to a part of them. This has been recognized by the ones who make the decisions in the healthcare systems, in different countries, but the answers to this challenge are heterogeneous.

The economists have focused on the economic evaluation of treatments and health programs. Nevertheless, the existing economic evaluation methodologies can at best be used only for specific health programs.

1. Fundamental economic ways to evaluate health programmes.


**Cost efficiency analysis** in healthcare measures the net health benefit or the decrease of the proportion of diseases through applying the targeted services in direct relation with the cost. It can either be expressed in monetary units for lost years of life. CEA is a complete economic evaluation that examines both costs and the results/consequences of the health programmes.

The term “efficiency” (Cochrane 1972) applied to the system and health policies can be understood as a growth to the maximum of health services and/or reduction to the minimum of the used effort and resources.

**Cost-utility analysis** is similar to CEA, but it concentrates on the quality of the results determined by the health programs. A description of the methods that measure de health services is accessible in Torrance (1982). There are three known methods to measure the health services: evaluation scales, risk standard and time trade-off.

**Cost-benefit analysis (CBA)** tries to transform all costs and benefits of the health programs in the same monetary union. CBA is maybe the most complete form of economic evaluation, but its usage in practice is limited by measuring difficulties.

Before trying to economically evaluate their own healthcare system, the first thing that former socialist countries should do is to adopt policies of fast correlation among prices, costs and benefits. The ideal result of the reforming of national health care systems in former socialist countries consists of improvement in the same time of: health state or healthcare, economic efficiency, the satisfaction of major centres of power from the system.

There are two essential functions of the management that strongly rely on, the information that was developed by the managerial accounting, and those are the activity of planning and the one of control. The management will evaluate the effectiveness of these activities by analyzing some determined performance indicators. The budgeting process and budgetary execution are also some areas in which the information produced by the managerial accounting is crucial.

Managerial accounting produces information that is exclusively designed to managers and it represents the process under which information that supports the managers in reaching the objectives of the organization is being identified, evaluated, accumulated, analyzed, interpreted and communicated. An important area covered by the managerial accounting, without limiting it to this, is the computation of costs for different products/services/activities realized by the organization.
2. “Cost-effectiveness” analysis of the oro-dental system

A group of countries (Australia, Canada and Great Britain) have implemented, explicitly or implicitly, strategies of guiding the decisions related to resources allocation, on the basis of economic-sanitary analysis, the most popular type, used currently being cost effectiveness analysis. In the other countries the cost-effectiveness analysis or other types of economic analysis are not key inputs in decision making in healthcare systems. Nevertheless, there is an increasing attention to the fact that resources allocation must be done systematically and not intuitively. As the cost-effectiveness analysis becomes more and more used in the assistance of decision making in healthcare system, the decision makers will become more consistent.

Consequently, it is reasonable for us to expect a growth of the interest and usage of cost effectiveness analysis in order to fundament decisions in this field as well. This will unavoidable generate more transparency and consistency in the decision making process.

The concept of threshold was initially proposed by de Weinstein and Zeckhauser in 1973 and it refers to the level of costs and effects that an intervention should reach, in order to be accepted by a given health care system. This threshold represents the ratio between the monetary cost, usually expressed in the national currency, over the evaluation of the growth of the level of health. The decision to use cost effectiveness analysis comes from the optimization constraints for the resources allocation in reaching health objectives. The controversies related to this method and its possibility to offer relevant comparisons are mostly connected to the difficulties of determining concretely one single value, universally accepted of the health state growth.

Another weak point of the applicability of the cost effectiveness analysis and of the threshold concept is represented by the types of costs that have to be included in this context. There are opinions according to whom one should not only consider the costs (direct and indirect) generated by the specific disease, but also the costs of image or of covering the risks (technical drawbacks, taking again some therapist maneuvers in the guarantee period etc) and also prospecting some future costs. Recently, Johannesson and some other researchers have demonstrated how including or excluding some future costs affect the cost effectiveness indicator and, especially, connected to those interventions that improve life expectancy and improve he quality of life.

Following the recommendations of good application of the methods of economic evaluation of the therapist strategies defined under the aegis of the French Economists of Health College(Association des economistes de la sante www.ces-asso.org), during the presidency of Emile Levi, we name direct costs the value of resources used for treating a pathology, (medical costs: hospital, medical assistance, medicines.., non-medical costs: transportation of the patients, home medical assistance); the indirect cost is the value of losses of productivity, related to the disease, for the patient and their entourage (for example, the long treatment of chronic parodonthis whose treatment is not paid according to the number of sessions involved) and intangible cost, the value of the losses caused by not fully satisfying the desires of the patient, which will be reflected in the image of dentistry practice because the most efficient way to promote it is exactly the content patient that will recommend to his family and entourage the dental service that he benefited of.

The decision process is vital for companies, as it is related to knowing the costs, their structure and their characteristics, contributing to performances growth.
3. Methods of cost computation, applicable to dental surgery. Techniques of allocation of indirect expenses

There is a wide set of theories, techniques and instruments for the allocation of expenses through the so called allocation keys. Managerial accounting involves the allocation of costs among responsibilities centers, in order to predict the effects of the decisions taken by management, the computation of tariffs, motivation of employees, assets evaluation and income determination, opportunity costs estimation.

There are used two alternative methods to allocate the costs of products on responsibility centers.

The first is the method of computation of the complete cost (absorption cost/full cost), where all indirect expenses, fixed and variable, that are allocated for products/services/activities are included in the computation of the complete cost. The method is used for external financial reporting and for the computation of taxes that have to be paid by the commercial company; it also represents a good starting basis in the computation of the respective treatment.

The second costs computation method is based on determining some partial costs (variable cost/direct cost/marginal cost), indispensable to realizing the treatment, the indirect fixed operational expenses being assimilated to the cost of the respective period and, consequently, not included in the cost of the treatment. The method is more appropriate for analyzing operational decisions that require the separation of fixed components from the variable ones, within the cost, and taking some measures to make more efficient the activity in the dental surgery.

As far as the dental surgery is concerned, there is a distinction between the allocation and absorption of the indirect expenses that are generated by these, for each cost unit. First, there has to be established “the cost unit” or “the computation object” or “the cost centre”, that can be represented by the treatment as a whole, by a certain therapist manoeuvre or even by the dental “chair”, doctor X, dental surgery Y. Choosing the object of computation is essential in dimensioning and allocating expenses.

Depending on the function of aggregation of costs, there are more methods to compute costs, methods that can be extended to dental surgeries.

The traditional method is a specific method for those economic entities that realise products or services whose indirect costs are important and that represent the major proportion in the total costs. The indirect costs have a low proportion and are allocated with one repartition key.

The global method of computation (also “process costing”) is appropriate for those economic entities (pharmaceutical industry, energy, chemical industry etc) that produce big volumes of identical products (the same category of product or service) and where allocation of indirect expenses – with a significant proportion in the total production costs – is made by the end of the period for which production costs are calculated, by simple division of indirect expenses to quantity (or the value of direct corresponding expenses) of products/services made; even if dental surgeries are far from this type of activity, in Romania this system of allocating indirect expenses has been observed at many of these workshops (consequently in dental cabinets as well).
Job order cost is used within those economic entities (consultancy cabinets, private medicine cabinets, dental surgery, law offices, architecture offices etc) that produce a "small scale production" or an individual/special one, where the actual work is basically made out of projects. The computation object is represented by the specific treatment, or patient. On the computation object there are aggregated all direct expenses and the indirect ones are allocated proportionally with the value of determined direct expenses.

ABC Method (Activity Based Costing) – represents a methodology of computation of costs that are based on the performances of the processes, the cost of resources and the cost of objectives. The main premises of the ABC method are those whose activities are based on resource-consumers (salaries, materials, commodities etc) in order to produce results.

4. Establishing costs in a dental cabinet

The managerial aspect of the cabinet is often neglected, as the preoccupation for the medical and professional aspects of dentistry are too high. Even if it does not seem so, the costs of a cabinet are relatively complex and especially extremely variable, which discourages their computation. As far as the team is concerned, besides the primary role of the doctors, the auxiliary staff is also important – assistant, receptionist, hygienist.

Hereby, we proposed to follow some examples of dental procedures and treatments from the Romanian practice places that in our study we analyse in the context of good practice.

Example 1: Primary consultation

Goals – setting a diagnosis, establishing the treatment plan. Reserved time – usually 10 minutes are enough; Difficulty – very low; Due to the low difficulty this “treatment” is identified with a therapist manoeuvre. Starting from the description presented in the specialty procedures there have been identified the related expenses of this first example.

Therefore, in the direct expenses category, there have been included: expenses with protection equipment of singular usage (gloves, mask,); expenses with the consultation set, other direct consumables, direct salaries, CCHCF, CCSSF. In the category of general operational expenses (GOE) there have been identified three categories of expenses: with instruments, equipment depreciation and other operational expenses. In a dental cabinet in month “n” the total operational expenses were N. The problem that arises refers to the margin that is allocated to the manoeuvre in the total collected expenses. If we start from the classic model, “the procedure of relative figures of structure”, and we consider as allocation basis direct salaries (by justifying that these include, on the one hand, the complexity of the manoeuvre, and on the other hand the time dedicated to it), then the margin of general operational expenses is determined like this:

\[ K_1 = \frac{\text{Expenses with the manufacture related to the manoeuvre}}{\text{Total direct expenses with manufacture of month “n”}} \times 100\% \]

Margin GOE \( K_1 = K_1 \times N \)

\( K_1 \) = coefficient of manufacture expenses allocation

\( N \) = total general operational expenses
In order to discount the general administrative expenses of the manoeuvre taken as example, we consider the allocation basis the total direct expenses ($s_1$)

\[ K_2 = \frac{\text{Direct expenses of the manoeuvre } s_1}{\text{Total direct expenses of the cabinet}} \times 100\% \]

And the margin that corresponds to the basis manoeuvre is

**Margin GAE** $K_2 = K_2 \times \text{total general administrative expenses}$

GAE = General Administration Expenses

$K_2 = \text{coefficient of general administration expenses}$

As a consequence to this example we notice the high “relativity” of the cost of the manoeuvre because if we strictly refer to the general operational expenses we have identified eight positions out of the few tens that are possible.

**Example 2: Treating, in an urgent situation, an acute inflammation**

We can distinguish two therapist manoeuvres: primary consultation and calming dressing.

**Primary consultation:** goals – stabilizing the diagnosis and passing to emergency register
time allocated- 5-10 minutes, difficulty level – very low

**Calming dressing:**
Goals: temporizing the inflaming process, calming the pain, preparing for the final treatment intervention (taking out the nerve) in a future session. Time allocated 10-15 min, depending on the position of the tooth and the degree to which it is affected; difficulty level – low; for the first manoeuvre identifying and allocating expenses is similar to the first example. If a supplementary manoeuvre occurs, this involves the discount of GOE and GAE also for this. In this sense, the direct expenses of the second manoeuvre are: expenses with protection equipment of singular usage, expenses with materials (gums discolours, black spoons, milling cutters, spatulas) expenses with other direct materials (dressings, singular usage glasses), direct manoeuvre (direct salaries, CCHCF, CCSSF and all the taxes and fiscal and social duties).

The general operational expenses are also diversified as a result of the increase in complexity of the manoeuvre. In this sense, there have been identified more categories: expenses with instruments, depreciation of the equipment, other operational expenses etc.

To allocate the margin of general operational expenses, it is proceeded as follows:

\[ M_2 = \frac{\text{Expenses with the manufacture related to the manoeuvre}}{\text{Total direct expenses with the manufacture of month “n”}} \times 100\% \]

**Margin GOE** $M_2 = K_2 \times N$

$M_2 = \text{coefficient of extra manufacture manoeuvre cost allocation}$

$N=\text{total general operational expenses}$
To discount the general administrative expenses of the manoeuvre taken as example we consider the allocation basis the total direct expenses $s_0$

$$M_3 = \frac{\text{Direct expenses of the manoeuvre } s_1 + s_2}{\text{Total direct expenses of the cabinet}} \times 100\%$$

And the margin that belongs to the basis manoeuvre is:

**Margin CGA = $M_3 \times \text{total general administrative expenses}**

$M_3 = \text{coefficient of extra manoeuvres allocation}$

CGA = general administration costs

$s_1 = \text{sum of direct costs of extra manoeuvre 1}$

$s_2 = \text{sum of direct costs of extra manoeuvre 2}$

This allocation of indirect costs not according to accrual principle may lead to wrong strategic decisions. As a consequence there are also some other methods that suppose an allocation of the indirect expenses as fine as possible, for the objects of expenses related to the classical method, without affecting the direct expenses. The method that ensures the best allocation of these expenses so as the information given ensures the managerial requests of the dental cabinet is searched.

5. Methods to set the prices

A major management decision, in any industry, is setting the price of the products, respective of the services that will be sold to the clients the price being correlated with the cost of production of that product/service, meaning that the minimum price should start from the cost of resources used to produce it. It is, in fact the basic principle of any efficient good practice, which is an optimal effort-effect ratio. Regarding the dental services in Romania it should also be taken into consideration the income level of the population because there are for instance, very costly materials, usually imported, that can generate extremely high complete costs and cannot be supported by an “average” patient of a dental cabinet.

A widely spread method to determine prices is “cost-plus” pricing, where the starting point is establishing referential costs (that can be represented by the complete cost or the variable cost of production) and to that there is added a desired profit margin. The profit margin can be freely set or it can be restricted, according to professional levels, professional non-competition agreements etc. This method can be used in the situation of those products or services where the managerial decisions can influence the price on the market. Most of the dental cabinets in the world adopt this method to establish the prices of the services made in private system.

In case that the decisional factors can not influence the market price of the products/services, because it is upper limited, or because it is limited to the amounts that the Health Care Fund can discount (totally or partially), or because of very tough competition, then the only alternative, in order to make a high profit margin, is to “work” on costs and limit their value. This method is called “target-costing” – and starts from the predicted price out of which the desired profit is extracted and gets therefore to determining the “targeted” price, according to which the product/service is configured afterwards.
Conclusions

Even if they do not seem to be, the costs in a dental cabinet are complex and extremely variable, therefore difficult to be computed and forecasted.

Our study referred to establishing costs and expenses in such a cabinet/practice place, in order to properly allocate the resources in a systematic and not an intuitive manner. To underline this issue we considered a series of issues that refer to: “cost efficiency” analysis of oro-dental health system, methods of computation of cost applicable to dental cabinets and techniques of allocation of indirect expenses.

To establish the costs and expenses we suggested a few examples of procedures and treatments from Romanian cabinets/practice places, but also procedures applied to establish prices. They are good practices in dental cabinets, as “cost-efficiency” analysis becomes widely spread in making decisions and the decision-makers will become more consistent in applying them.

References

1. Association des économistes de la sante www.ces-asso.org


