



PRINCIPLE OF VARIABLE COST FOR INFORMATION MANAGEMENT IN A NETWORK OF DENTAL CLINICS

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ABSTRACT

The purpose of this article is to demonstrate the benefits of using the variable cost principle for the generation of managerial information in ontological clinic. For that, an exploratory, qualitative-quantitative research was carried out in a private ontological clinic in Santa Catarina State. The data collection was carried throughout the study out on the spot, taking into account, the information passed during meetings with the managers of the organization. The obtained data were processed and analyzed with the computational aid, in order to generate more information about the costs incurred in the activities of the organization. These new information proved to be of great value, bringing greater reliability and effectiveness to the planning, control and decision making processes of its managers.

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INTRODUCTION

For which an organization has a positive financial result, it is necessary that your expenses and total costs do not exceed the ability of revenue generation. With this, the management of costs should be seen as a tool of essential character for the financial sustainability of any operation. When an organization does not perform the control and management of costs, the decisions that require such information shall be performed intuitively by their managers. Oliveira (1992), elucidates the decision-making process in three stages: the recognition of the problem, identification of alternatives followed by actions and the potential evaluation and choice. Being the information, the basic raw material for the decision-making process. In the context above, sought to validate the use of variable costing in a Ontological clinic, so guide the decision-making of managers.

To achieve the objectives of the study were carried out the mapping of variable costs in steps of analysis and delivery of exams, billing and reports of tests conducted in each business unit, model and data processing obtained with the computer assistance and data analysis. With the constant increase in demand for its Ontological clinic services, the study's focus has expanded and grown. The described growth, managerial complexity increased considerably, so that the current system of absorption costing used, does not contemplate the needs of managers in their decision-making. Abbas (2001), demonstrates that a cost system must generate sufficient information for planning, control and decision-making. Due to the complexity related to the volume of data and management difficulties, the present study advocates the need for use of a costing system more robust, which provides managers with more accurate and detailed information on the costs incurred in the operation, as well as assist in the development of indicators, targets and strategies for the business units of the clinic.

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MATERIALS AND METHODS

For application of new criteria relating to costs in the company concerned, the understanding of the multiplicity of concepts involved is necessary. The company's managers were heard, as well as internal and external environmental analysis carried out in order to raise the points to be optimized. In a first moment the weightlifting of the variable costs incurred in the stages of collection, analysis and delivery of various examinations offered was conducted. At a later time, data and information regarding the billing forms for each segment and customers were obtained, as well as information related to billing and quantity of tests carried out in each business unit. Finally the information related to internal processes necessary for the provision of ontological clinic services have been catalogued and crossed with other data. With computer assistance, through the Microsoft Excel 2013, the data were processed through graphic analyses, generating the results. Taking into account the due proportions of the company and the difficulty in the sphere of management, attentive to the exhibition by the Ministry of health, which emphasizes that the lack of planning in clinical analysis services can result in high idle equipment, inefficiencies in quality control, precarious control of warehouse and consequently, not carrying out the examinations. The bad management of resources precariously funded, can result in unnecessary achievement analyses, waste of reagents, outdated techniques and preparation of professionals may result to a high cost services, a low productivity and loss of reliability Diagnostics (BRAZIL, 2002).

therefore, a focus for each service and uses of resources involved proved to be the most sensible option upon review with managers. Thus, Megliorini (2012) reports that through the variable costing, you can obtain the contribution margin for each product, product line, customers, services, business units, and precisely at that point the conjunction of data that converge to the developments in decision-making processes. According to Santos et al. (2006), the variable costing allows the complete elimination of fixed costs and indirect cost of products and services, and consequently gives focus to the goods total produced by the company, since the fixed costs correspond to resources necessary to keep the company and no costs of resources consumed by goods in processes. Were also goals of the results, the evaluation of methods of costing that according to be in Borna (2010), match the operational part of the cost system pointing to data management that will be processed after the analysis of the principles. In short, these results will allow studies to future application of a new methodology, in which the costs of the organization can be allocated to products or services.

RESULTS AND DISCUSSION

Variable costs: First, the variable costs were raised with inputs used in the activities of collecting, lifting and delivery data analysis of 1425 exams offered by the lab. Because it is a series of standardized processes, the query of the datasheet of the product was held for verification of the cost of the raw materials employed. Table 1 illustrates the technical data of the products in the labs, linked to the sector of Parasitology lab.

Table 1. Cost of inputs used in the conduct of the examination "Parasitology of feces"

Type of input	Input	Unit cost	Quantity.	Total
Collection	Plastic cup	R \$0.078	1	R \$0.078
Collection	Plastic cup lid	R \$0.045	1	R \$0.045
Collection	Tag	R \$0.030	2	R \$0.060
Collection	Box	R \$0.126	1	R \$0.126
Collection	Printed collection instruction	R \$0.047	1	R \$0.047
Collection	Wooden spoon	R \$0.016	1	R \$0.126
Analysis	A4 sheet	R \$0.090	0,5	R \$0.045
Analysis	Gauze Compress 8.5 x 8.5 mm	R \$0.042	1	R \$0.042
Analysis	Cover microscope analysis	R \$0.018	2	R \$0.036
Analysis	Disposable grip	R \$0.042	1	R \$0.042
Analysis	Iodine (0, 06ml)	R \$0.004	4	R \$0.016
Analysis	Pipette tip	R \$0.012	1	R \$0.012
Delivery	+ Print Report sheet	R \$0.270	1	R \$0.270
Delivery	Report	R \$0.099	1	R \$0.099

To do so, in respect of the funding system, it is necessary to proper and methodical application of studies and observations for definition of the principle of funding before the steps until the processing of the data. According to be in Borna (2010), the costing principles should define what information and considerations matter at the time of calculation of the cost of a product, and subsequently the costing method, defines how the costs will be distributed to the products. Therefore, the loss of precision opportunities in decision-making in the lab in question, since the absorption cost system became inadequate, a larger issue of detail observation of costs was required through the principle variable costing. To the principle of absorption costing currently used in the lab, in be in Borna (2010), it is observed that both the variable costs as fixed costs are allocated to the final product, and here therefore, a focus on evaluation of stocks, directing cost accounting in addition to financial accounting, favouring mainly external environment information. In the context of management,

Hospitals that request the services of the ontological clinic provide your own material, that way when they made the calculations for this customer segment were not considered the costs with the collection of the samples. Currently the lab already has the onlinereport issuance, so delivery costs of R \$0.28 should not be considered, since in hospitals is carried out the printing of reports after the release of the result by the biochemical authorize. After lifting of variable costs with the inputs, a study of unitary contribution margin of the exams offered in all forms of revenue used in the lab. Table 2 presents the unit contribution margin of some of these tests for billing to hospitals that pass values from the table of the unified health system (SUS). Were used as examples, the exams that represent the largest portion of the volume of each sector of the ontological clinic requisition. Analyzing the table 2, we see that the lab is having negative contribution margin in carrying out some tests, that is, profits do not cover the costs of their achievements.

Table 2. Examples of contribution margins in character of billing for hospitals in the SUS

Sector	Exam	Total cost c/inputs	Sale price	MC	IMC
Urinalysis	Part of urine	R \$0.354	R \$1.850	R \$1.547	82.32%
Parasitology	Parasitology of feces	R \$0.242	R \$5.120	R \$2.981	89.50%
Microbiology	Stool test	R \$2.866	R \$3.180	-R \$0.286	-14.93%
Hematology	Complete blood count	R \$1.977	R \$3.190	R \$0.393	14.85%
Biochemistry	Anticoagulant	R \$0.479	R \$27.250	R \$26.871	88.41%
Immunology	Rheumatoid factor	R \$8.121	R \$0.890	-R \$7.865	-805.32%

Table 3. Examples of contribution margins of the three main forms of billing

Sector	Exam	IMC	IMC	IMC
		UHS Hospitals	Health plans	Particular
Urinalysis	Part of urine	83.12%	81.90%	95.36%
Parasitology	Parasitology of feces	93.50%	89.90%	95.13%
Microbiology	Stool test	-15.83%	75.10%	89.49%
Hematology	Complete blood count	14.84%	73.60%	89.90%
Biochemistry	Anticoagulant	97.41%	92.85%	96.63%
Immunology	Rheumatoid factor	-695.32%	5.10%	60.84%

Table 4. Contribution of business units for the formation of the global contribution margin

Business unit	Total turnover	Total variable cost	Contribution margin	BMI business unit	Mc global participation
UCN 01	R \$121,940.62	R \$54,316.89	R \$76,412.71	54.83%	12.60%
UCN 02	R \$98,040.20	R \$42,188.81	R \$55,851.39	56.97%	12.24%
UCN 03	R \$81,650.97	R \$35,175.25	R \$46,475.72	56.92%	8.35%
UCN 04	R \$40,640.49	R \$16,760.70	R \$23,879.79	58.76%	5.80%
UCN 05	R \$68,040.51	R \$29,427.19	R \$38,613.32	56.75%	8.77%
UCN 06	R \$47,905.30	R \$21,859.21	R \$26,046.09	54.37%	4.24%
UCN 07	R \$53,540.60	R \$22,046.86	R \$31,493.74	58.82%	7.34%
UCN 08	R \$33,105.18	R \$13,409.69	R \$19,695.49	59.49%	2.96%
UCN 09	R \$16,816.21	R \$7,139.16	R \$9,677.05	57.55%	3.95%
UCN 10	R \$8,254.36	R \$3,289.74	R \$4,964.62	60.15%	2.00%
UCN 11	R \$27,120.02	R \$13,497.49	R \$13,622.53	50.23%	4.74%
UCN 12	R \$48,427.43	R \$25,509.76	R \$22,917.67	47.32%	3.61%
UCN 13	R \$57,325.01	R \$18,711.11	R \$38,613.90	67.36%	7.77%
UCN 14	R \$451.00	R \$227.25	R \$223.75	49.61%	0.05%
UCN 15	R \$2,681.92	R \$1,275.07	R \$1,406.85	52.46%	0.28%
CDN	R \$5,420.91	R \$1,971.60	R \$3,449.31	63.63%	0.69%
ECN	R \$3,328.73	R \$1,725.47	R \$1,603.26	48.16%	0.32%
01 HSP	R \$89,304.02	R \$22,178.65	R \$67,125.37	75.17%	12.50%
HSP 02	R \$12,101.52	R \$4,500.10	R \$7,601.42	62.81%	2.53%
HSP 03	R \$3,878.57	R \$988.94	R \$2,889.63	74.50%	0.58%
HSP 04	R \$2,997.97	R \$1,126.94	R \$1,871.03	62.41%	0.38%
HSP 05	R \$8,310.13	R \$3,840.64	R \$4,469.49	53.78%	0.90%
HSP 06	R \$18,652.67	R \$11,646.02	R \$7,006.65	37.56%	1.41%
TOTAL	R \$848,924.34	R \$351,813.52	R \$579,210.31	--	100%

Business units: (UCN), Collection (CDN) Home Collection (ECN) Business Collection, (HSP) Hospital

On the other hand, some tests are being overpriced, showing even contribution margin next to 99%. Through more in-depth studies on the amount of negative margin, the organization may still choose to support them. As mentions Megliorini (2012), keep such trade conditions for strategic economic and financial issues, can in some cases lead to losses at one point but keep gain on another diametrically opposed and complementary. Table 3 presents a comparison between the unit contribution margin of the three main forms of billing performed by the ontological clinic. As shown in table 3, the carrying out of examinations on a particular billing option is the most recommended and sensible to the lab, since they have higher contribution margins and consequently generate higher revenue for the Organization.

Overall Contribution Margin: After studying the unit contribution margin of the examinations offered by the ontological clinic, a study of the contribution of each business unit to the formation of the Organization's global contribution margin. By means of the difference between the revenues and the total variable cost of each business unit find the global contribution margin, which serves to cover all the fixed costs incurred in operation.

Table 4 shows the contribution of each business unit to the formation of the global contribution margin from the lab in a given period. As shown in table 4, the lab performed in the period under review a global contribution margin R \$579,210.31 (52.25%), which should be used to cover all the fixed costs and expenses incurred in the operation, as well as generate profit by the shareholders.

Through an analysis of Table 4, the 14 and 15 collection units; as well as the clinics 03, 04, and 05, are having a very low participation in contribution margin. Thus, when subtracted their fixed costs, these may have a negative financial income (loss). Front of these indications, the managers of the Organization should assess with their strategic planning groups, the possibility to discontinue the activities of these business units, or promote actions aimed at raising the amount of tests carried out, in order to increase their individual contribution margins, thus covering, its fixed costs. Another point noted in Table 4, is that despite the collection unit 01 introduce greater participation in global contribution margin among the collection units, is the unit 13 featuring the highest individual contribution margin.

Frame 1. Sort the appropriation of fixed costs from the lab to the business units

FIXED COSTS	CLASSIFICATION AND OWNERSHIP
Electrical energy; water and sewage; telephony and internet collection units.	Direct cost -takes the invoice directly to contracting services business unit.
Electrical energy; water and sewage; telephony and internet of the CTO.	Indirect Cost -If necessary the use of a costing method for the assessment of invoices for services, in order to pass these values to the sectors that use the property and later the business units.
Rent collection units.	Direct cost -takes ownership directly to business unit that uses commercial room.
Costs and expenses with employees of collection units.	Direct cost -takes ownership directly to business unit in which the employee is linked/engaged.
Costs and expenses with employees of the NTO (technical area and support area).	Indirect Cost -If necessary the use of a costing method for the assessment of the costs and expenses of these professionals to their sectors, and pass the values proportional to the business units.
Costs for the disposal of biowaste and infective collection units.	Direct cost -takes ownership directly to business unit, according to amount of waste generated by the same.
Costs for the disposal of biowaste and infective of NTO.	Indirect Cost -is necessary to use an internal control of waste generated by sector and of a costing method to perform the assessment of invoices to collect technical sectors, to subsequently pass these values to business units.
Costs for the transport of samples (motofrete).	Direct cost -takes ownership directly to business unit, according to the invoices billed/issued.

Table 5. Tests showed reduced costs when examined externally

Sector	Exam	C/costs reduction analysis	Clin. third	Qty.	Cost reduction
Sector 1	Exam 1	R \$1.245	(B)	1,466	R \$1,825.17
Sector 2	Exam 2	R \$0.943	(B)	1,102	R \$1,039.18
Sector 3	Exam 3	R \$0.852	The	695	R \$592.14
Sector 4	Exam 4	R \$1.085	The	391	R \$424.23
Sector 5	Exam 5	R \$0.923	The	326	R \$300.90
TOTAL	-	-	-	-	R \$4,181.62

Probably customers of this collection unit, tend to pay for the services of the ontological clinic in particular billing character, justifying thus the difference. After a historical analysis be proven that feature UCN 13 clients, organization managers can choose to increase the dissemination of its ontological clinic services in this region, since, as shown in Table 3, this form of billing is the more sensible for the financial health of the lab.

Ownership of Fixed Costs

Direct costs are those that can be measured on the basis of an activity, sector, product, or even a business unit. Already the indirect costs are not easily assigned to units produced or services performed, requiring apportionment or allocation for this. The frame 2 brings the relationship of some of the fixed costs of the Organization, dividing them into direct and indirect, explaining the ways of appropriation of the same to the business units. The Frame 1 demonstrates the complexity of the procedure of allocation of fixed costs of the organization under study. This is due to the fact that indirect costs should be thoroughly studied, so that the organization can set the best method of costing and internal controls to be used for the appropriation of these business units from the clinic.

Review or Outsource

As demonstrated, the use of variable costing assists managers in decision making processes such as deciding between buying or producing particular component of a product. In this sense, the principle of variable costing can assist the ontological clinic managers in the decision between outsource or perform the stage of the examination of the samples internally, since there are large ontological clinic that offer such a service. In table 5 are presented the examinations showed financially advantageous as this outsourcing in the studied period.

As displayed in Table 5, only 5 examinations offered presented analysis costs reduction, when examined externally, however, an alternative to outsourcing can render the Organization a cost reduction of about R\$ 4,100.00 per period used in the study. It is worth noting that a study should be carried out as the adoption of such a strategy, since the external analysis of samples offers the disadvantage to the release of randashed dreams, being the 24 hours, foreign and internal depending on factors of urgency, less than 2 hours.

Conclusion

The study was able to glimpse the importance and the benefits of using the principle of variable costing as auxiliary tool for the control and support making decisions now that managers are provided with information about contributions of each business unit to achieve results. The use of the product for the removal of variable costs was only possible by standardizing its processes, but in spite of the Organization, the negative margin presented in conducting some tests, apontao for studies about discontinuation or new strategies for the same. Statements of contribution margin and the operation's global business units, should be driven in their strengths, since the principle of variable costing proved effective in observing nuances before not covered by the managers. It is worth mentioning that the use of this principle is only recommended for ontological clinic, with a minimum of standard and quality management system deployed, so that the necessary data may be obtained with precision. Opportunities for future studies are underway, such as the application of the method steps of cost centers for the allocation of fixed costs to business units, since it is only through the correct appropriation of these, the ontological clinic managers will be able to show even more, which the business units that actually generate positive financial results for the organization.

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