

THE TARIFF WITHIN SURGERY MEDICAL SERVICES. WHICH HOSPITAL COSTS?

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Nowadays, as well as in the commercial sector, a sanitary unit must know its costs in order to be competitive, no matter her status. Although these ones can be approached in many perspectives, three classifications are possible from the point of view of the sanitary institutions: accounting, medical and economic, the regrouping of the expenses being operated depending on the finality of the study: the perspective of the decision, the perspective of the management through budgetary deviations or the perspective of the financing of the hospital structures. Starting with a constructive research (literature review) concerning the definition and the classification of the costs, the paper proposes to offer a practical pattern regarding the methodology of establishment of the cost per patient and per hospitalization day within a surgery section.

Keywords: hospital costs, tangible costs, intangible costs, decease costs, future costs

JEL classification: M41

1. The definition and the clarification of the costs

The costs can be approached from a various number of perspectives: thus, they appear in book-keeping as money which reflects what it is paid in reality, but, in an economic evaluation we talk about the *opportunity's cost*. **The cost of a resource opportunity** represents the benefits that could be generated by the usage of the resource in the best alternative possible. Concerning the health services, the cost of a health service is established depending on the burden imposed to the other health services (which cannot be supplied) and to society. For example: *the time a doctor needs to consult a patient is the time in which he cannot consult another patient, or the medicine he uses represents resources that cannot be received by another patient*. This approach regarding the costs is preferred by economists and it represents *the cost of the failed opportunity by using the resources in a certain direction and not in another one*.

A main classification of the costs is that of direct and indirect costs.

The direct costs are the costs determined by the supply of a health service. The organizational costs are a part of the direct costs. They represent the totality of costs (those in the sanitary sector) involved to realize the activity meant to be economically evaluated. Another part of the direct costs is represented by direct payments made by patients, as well as other resources used by the patient and family for the treatment. When calculating the costs for a patient in a hospital, the direct costs are represented by the totality of the expenses made by the hospital for that patient, expenses that can be identified and demonstrated as being used directly for that patient. For example, the expenses for the patient's medicine or food (it can be determined what medicine he received and what he ate in particularly).

The indirect costs are the costs which are not given by the effective supply of the respective service but it is associated to it. In the category of indirect costs we add the costs due to missing from labour and psychical costs. When calculating the costs for a patient in a hospital, indirect

costs are represented by the totality of the expenses made by the hospital for that patient, expenses that cannot be directly identified as being used for the respective patient. For example, the expenses made by the hospital for the hygiene of the respective patient (the water used by the patient during his hospitalization, etc.) or for the administration of his hospitalization. This classification in direct and indirect costs is useful for the manager of the hospital because this way he can notice better the places where he can interfere in the control of the afferent costs of a patient as well as in the decentralization of the management towards the clinic sections (a section chief can be responsible for direct expenses on the medication of the patients in his section but he cannot be responsible for indirect expenses - for example, the number of employed personnel in the administrative compartments of the hospital). In their turn, the indirect costs are divided in:

a) Tangible costs - for example, the production losses produced by stopping the professional activity of the patient and which, from the point of view of the society is presented in lost physical units without value.

b) Intangible costs - refer to the loss of the quality of the patient's life (human cost) – for example the psychological consequences caused by a handicap.

Total cost - TC -of an entity represents the cost necessary for the realization of the production (at a given level). It consists in many other costs: fixed cost, semivariable costs and variable costs.

Fixed costs - FC - are those costs which remain independent to the level of production. They can vary in time, but they are not dependent on the production (for example, the closure of a space necessary for the development of the activity). For a hospital, the best example is the cost of renting the space where the respective supplier functions or the personnel costs, etc.

Variable costs - VC - are those costs dependent on the level of production, varying together with each new product (for example the cost of the primary product). For a hospital, these costs are those which depend on the number and the type of ill people treated in the hospital (for example, the costs of medicine and sanitary materials).

Semivariable costs - SVC - are those costs which vary only when they realize certain levels of production (for example, the cost necessary for hiring new wage-earners). It is noticed that in fact, semivariable costs are a particular case of variable costs.

The definitions of another two types of costs are very important, that is the average cost and the marginal cost.

The average cost represents the cost for the production of a good or service unit and it is obtained by dividing total costs to the number of produced units.

The marginal cost is the supplementary cost necessary to produce a new unit from a product (how much do total costs grow if the level of the production grows with one unit). For a hospital, the marginal cost would be for example the effective cost of treating a patient supplementary, despite the number of cases contracted with the Health Insurance).

2. The general pattern of calculation of the cost per patient

I. Defining the final product. The expenses per hospitalized patient as account which are given to the patient when he leaves the hospital together with the ticket of discharge.

II. Defining the cost centres:

1. The cost centres are established after the administrative chart for hospitals approved by OMS
2. Cost centres
3. Structures of receiving urgencies
4. Sections, compartments with beds
5. Para-clinic laboratories
6. Specialty ambulatory
7. Pharmacy
8. Other functional structures – sterilization, operatory bloc, transfusion place, etc.
9. Supplies, transport and public acquisitions

10. Technical and administrative

11. Book-keeping

12. Financial

13. RUNOS, medical statistics and informatics, contentious, nosocomial infections, public relations, audit

14. Management – general director, deputy general director, chief medical assistant, administrative director, chief book-keeping

III. Identifying the total cost for each patient: The cost consists in: direct, indirect and general expenses.

The direct expenses belong to the following **cost centres:** *Structures of receiving urgencies; Sections; compartments with beds; Specialty ambulatory.* **The direct expenses consist in:** *the expenses of the cost centre's personnel, material expenses of the centre: unidentifiable for each patient (light, heat, water, laundry, inventory objects, etc.) and identifiable for each patient (medicine, food; analysis and investigations depending on the case).* **The direct expenses** are introduced for each patient at the section where he is hospitalized.

The indirect expenses belong to the following **cost centres:** *Para-clinic laboratories, Pharmacy, Sterilization, Transfusion Place, Operatory bloc.* **The indirect expenses** are introduced for each patient depending on the documents given by the mentioned cost centres and **consist in:** *personnel expenses, material expenses afferent to the realized medical services.*

The general expenses belong to the following **cost centres:** *Supplies, Transport and Acquisitions, Technical and administrative, Book-keeping, Financial, RUNOS, Medical statistics and informatics, contentious, nosocomial infections, public relations, audit; the management - general director, deputy general director, chief medical assistant, administrative director, chief accountant.* **The general expenses** are realized depending on distribution keys approved by the management of the hospital and **consist in:** *personnel expenses, material expenses.*

IV. Organizing the patients in cost centres: *Structures of receiving urgencies, Sections, Compartments with beds, Specialty ambulatory.*

V. The allocation of all costs to final cost centres: *Direct expenses, Indirect expenses, General expenses.*

VI. The calculation of the total of expenses and of the unitary cost per patient at each final cost centre. As a following to those presented previously, **The methodology of establishing the cost of hospitalisation per day** is rendered in the table below:

The structure of the cost centres	Expenses types (**)	Method (***)	Result
Direct expenses: (*) a) Structures of receiving urgencies b) Sections, compartments with beds c) Specialty ambulatory	1. Personnel expenses 2. Expenses on materials and service: a) Afferent to the structures that do not identify with the patient's level b) Medicine per patient c) Sanitary materials per patient	1. Sums afferent to the personnel according to the state of functions 2. Mixte: a) Distribution keys per UPU/Section/Ambulatory b) The sums regarding the input of medicine and materials per patient.	a) Tariff/day hospitalization per section b) The cost of medicine and sanitary materials per section

The structure of the cost centres	Expenses types (**)	Method (***)	Result
Indirect expenses: (*) a) Para-clinic laboratories b) Pharmacy c) Sterilization d) Transfusion place e) Operatory bloc	1. Personnel expenses 2. Expenses on materials and service: a) Afferent to the structures that do not identify with the patient's level b) Tariffs/ medical service /patient	1. Sums afferent to the personnel according to the state of functions 2. Mixte: a) Distribution keys b) Tariffs of the service per patient	Tariff/ service / para-clinic laboratory, pharmacy, sterilization, transfusion place, bloc
General expenses: (*) a) Supplies, transport and public acquisitions b) Technical and administrative c) Book-keeping d) Financial e) RUNOS, medical statistics and informatics, contentious, nosocomial infections, public relations, audit f) Management – general director, deputy general director, chief medical assistant, administrative director, chief accountant.	1. Personnel expenses 2. Expenses on materials and service: a) Afferent to the structures that do not identify with the patient's level b) Medicine per patient	1. Sums afferent to the personnel according to the state of functions 2. Distribution keys	Tariff/hospitalization day/ supplies, transport and public acquisitions, technical and administrative, book-keeping, financial, RUNOS, medical statistics and informatics, contentious, nosocomial infections, public relations, audit, management – general director, deputy general director, chief medical assistant, administrative director, chief accountant.
TOTAL			

(*) It is registered at the level of the structure which makes the expense.

(**) According to the approved budgetary classification, excepting the capital expenses.

(***) The distribution keys are established according to the type of expense, surface, number of patients, etc.

3. Example regarding the determination of the cost per patient in the surgery section

Patient: Tarteia Nicolae sex: masculine age: 55 years

Ensured: OPSNAJDOLJ wage-earner certificate nr. 248 from 15.11.2009

Diagnosis: relapsed neogastric

The calculation of the costs (EXCERPT):

GENERAL SURGERY COMPARTMENT

CONSUMPTIOND MATERIALS

Date	Medical service name	M.U.	Quantity	Value	To encash
18.11.09	Sanitary alcohol	Millilitre	5	0,015	0,015
	Adhesive bandage	Centimetres	10	0,000	0,000
	Syringes 20 LM	Pieces	1	0,170	0,170

ADMINISTRATED MEDICATION

Date	Medical service name	M.U.	Quantity	Value	To encash
18.11.09	Glucose 10 % 500 ml	Sack	2	3,554	3,554
	Physiological serum 0,9 % 500 ml	Sack	1	1,461	1,461
	Arginine sorbitol	Phial	1	7,140	7,140
	Aminoven 10 % 500 ml	Phial	1	21,473	21,473

LUNCH SERVICE

Date	Medical service name	M.U.	Quantity	Value	To encash
18.11.09	COLON	Days	1	5,500	5,500
	FLUID	Days	1	5,500	5,500
	DIGESTIVE 2	Days	4	22,000	22,000

HOSPITALIZATION TARIFF

Date	Medical service name	M.U.	Quantity	Value	To encash
18.11.09	Hospitalisation tariff	Days	4	636,720	636,720
	Hospitalisation tariff	Days	8	1.273,440	1.273,440
TOTAL SURGERY COMPARTMENT				704.806	704,806

ATI COMPARTMENT**ADMINISTRATED MEDICATION**

Date	Medical service name	M.U.	Quantity	Value	To encash
18.11.09	Sulperazone 2 g	Phial	6	162,714	162,714
	Physiological serum 0,9 % 500 ml	Sack	6	8,766	8,766
	Glucose 5 % 500 ml	Sack	6	9,744	9,744

LUNCH SERVICE

Date	Medical service name	M.U.	Quantity	Value	To encash
18.11.09	Fluid	Days	2	11,000	11,000
	Hidrolactat	Days	4	22,000	22,000

HOSPITALIZATION TARIFF

Date	Medical service name	M.U.	Quantity	Value	To encash
18.11.09	Hospitalisation tariff	Days	5	795,900	795,900
	Hospitalisation tariff	Days	1	159,180	159,180
TOTAL ATI COMPARTMENT				2874,295	2874,295

ANALYSIS LABORATORY COMPARTMENT

Date	Medical service name	M.U.	Quantity	Value	To encash
18.11.09	TGO	Pieces	1	3,780	3,780
	Serum creatinine	Pieces	1	3,790	3,790
	Direct bilirubine	Pieces	1	3,790	3,790
	Serum Glucose	Pieces	1	3,790	3,790

Specification	Value	To encash
Total analysis compartment	162,974	162,974
Total of the total cost presentation per patient	5.037,632	5.037,632
Number of days of hospitalization	18	
Unitary cost per patient per hospitalisation day	279,8684	

4. Conclusion

In the **medico-economic literature** the following categories of costs are used:

- a) **Direct costs** - they are the costs associated to goods, resources and services consumption directly within the health or disease programme. They include **direct medical costs** equivalent to the consumption of medicine and medical resources (hospitalization equipment) and **direct non-medical costs** (expenses on the patient's transportation).
- b) **Indirect costs** - they are costs associated to losses of productivity for the patient and its company in report with the health and disease program (example, medical leave).
- c) **Intangible costs** - represented by human and psychological costs concerning the disease. Difficult to evaluate, they are usually quantified by measuring the utility for the patient (in terms of health unit), or by the disposition of paying in monetary terms (WTP method).
- d) **Total cost** = direct costs plus indirect costs.
- e) **Average cost** - it is the cost per unit of the produced efficiency (example m.u. per avoided deceases).
- f) **Marginal cost** - it is the cost associated to obtaining a supplementary unit of efficiency.
- g) **Incremental cost (differential)** - it is the cost associated to obtaining the supplementary unit of efficiency within an ALFA intervention in report with a BETA intervention different from ALFA.
- h) **Fixed costs** - they are constants no matter the level of activity (example, medical equipment).
- i) **Variable costs** - they evolve depending on the level of activity (example, medicine consumption).

In the **analysis cost-benefit**, besides direct and indirect costs several categories are used: **decease costs**, specific to the analysis cost-benefit and **future costs** - are taken into consideration if they are medical costs and neglected if they are non-medical costs. In conclusion, from the point of view of the sanitary institution, **three types of classifications of the hospitalisation expenses** are possible: **the accountant classification** which corresponds to the *distinction direct-indirect expenses*, **the medical classification** which distinguishes *medical expenses, logistic expenses and structure expenses* and the **economic classification** which underlines the antithesis between *variable-fixed costs*. **The regrouping of the expenses must be managed depending on the finality of the study: the perspective of taking the decision, the perspective of management through budgetary deviation or the perspective of the financing of the hospital structures.**

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