

HOW EFFECTIVE ARE THE HOSPITALS IN ROMANIA? AN ASSESSMENT OF SIX HOSPITAL UNITS IN THE WEST OF THE COUNTRY

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Abstract: *It is known that Romania allocates the lowest amounts for health each year, relative to GDP, relative to the other member countries of the European Union, and we can speak of a chronic underfunding of the health system. Even though the percentage of GDP allocated to health is low, over time, the amounts spent on health have increased substantially, influenced by the growth of gross domestic product. However, although the amounts spent on health have been increasing in the last 11 years, the population's perception towards the Romanian health system is unsatisfactory, and the population does not always have access to quality or high-performance medical services. Almost half of the health expenditures in Romania are consumed by hospital units, and a quarter of the allocated budget is directed to pharmaceutical units and other providers of medical goods. The present work carries out a qualitative and quantitative research of the indicators of six hospital units in the west of the country, over a period of 11 years (2012 – 2022), with the aim of analyzing how efficiently the financial resources allocated to the analyzed hospital units are used. The conclusions of the present study show us that the majority proportion of expenditures in hospital units is represented by personnel expenses, respectively operation, and the budget available for capital expenditures remains at a very low level, which leads to the impossibility of ensuring the investments necessary to increase the quality of the medical services offered.*

Key words: *health expenditure; financing of hospitals; efficiency of hospital units*

JEL classification: **H51, H75, I15, I18, P43**

Introduction

Although major reforms have been carried out, including in terms of the health system model, moving from the Semashko model (used in the former socialist countries) to the Bismark model, based on social security, the Romanian health system remains tributary to the Semashko model through the existence of a large number of beds in hospital units (7 per 1,000 inhabitants, the EU average being 5.3).

Medical services are offered mainly in hospital units, patients resorting to emergency units including for care that does not represent an emergency, primary health care services being avoided.

This reflects on the structure of health expenditures, in 2020, 47% of the total amounts being allocated to hospitals, 14% to outpatient, retail and other providers of medical goods having allocated a percentage of 25%.

Compared to the average health expenditure in hospitals in the European Union (37.41%), Romania is at the highest level by 10% and by over 19% compared to Germany, the country with the lowest expenditures in hospital units out of total expenditures. (Eurostat, Health care expenditure by provider, 2023)

Hospitals cannot be assimilated to production units and there can be no discussion of making a profit, the main purpose being to provide medical services for the benefit of patients.

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However, given that resources are limited, the funds allocated to health must be used as efficiently as possible, especially at a time when the health system is underfunded.

Literature review

Efficiency and the necessary reforms in hospital units has been treated in numerous studies, being a very important subject, especially given the high percentage of funds allocated to this segment, out of the total health expenditure. The World Health Organization (WHO, 2009) considers that hospital performance is influenced by several factors, including: low bed occupancy rate, exceedances of average hospital stays, healthcare-associated infections, or poor management. Some studies (Clemens, Timo, et al., 2014) look at how EU Member States take measures to mitigate health effects in times of financial crisis by reforming hospitals. For the reforms to be successful, measures must be taken both at the organizational level and in terms of financing hospital care. McKee, Martin (2004) analyzes the impact of reducing the number of hospital beds on the medical services provided to the population, and the reduction of the hospitalization period (Hensher M, 1996) is considered a factor in improving the efficiency of a hospital unit. In Romania, the financing of hospitals for acute cases is carried out based on DRG (Diagnostic Related Groups), but the literature also shows the interest in different methods of financing (Endrei, Dóra, 2014), respectively financing with the performance limit (PVL) that can lead to savings in the budget allocated to health in certain situations.

The performance of hospitals and how to improve it has been the subject of many researchers among which we can mention: (Healy J, 2002), (Hensher M, 1999), (Dunnigan MG, 2003), (Healy J, 2002), (Shanahan M, 1999), (Shamian, J., 1998), (Vallgård, 2001), (Yannick de Harlez, 2016), (Abernethy, 2001), (Adler, 2003), (Wang, B.B., 2001), (S.M. Shortell, 1988), (María Caballer-Tarazona, 2010), (Matthias Staat, 2006), (E. Sánchez, 1996), (Michael C, Anna Saiti, 2019), (Ravaghi Hamid et al., 2023), (Sebastian M, 2022).

The study is the value of the hospital's performance in three dimensions (Peter Davis, 2013), with reference to efficiency, effectiveness, and equity, shows that it is difficult to achieve precisely because of the complexity of the activity of providing medical services.

Research methodology

This study carries out a qualitative and quantitative research, for a period of 11 years (2012 – 2022), regarding the financing and effectiveness of the use of the allocated funds in six hospital units in the west of the country, respectively: Alba Iulia County Emergency Hospital, Arad Emergency County Clinical Hospital, Deva County Emergency Hospital, Reșița County Emergency Hospital, Sibiu Emergency County Clinical Hospital and "Pius Brînzeu" Emergency County Clinical Hospital Timișoara.

For the period studied, we analyzed 792 monthly reports on the budget execution of the six hospital units, 66 reports about the number of beds for each hospital, 11 reports on the Case Complexity Index (ICM) and 66 reports on indicators of hospitalized morbidity, existing in the official databases (data.gov.ro, ec.europa.eu, insse.ro, ms.ro, drg.ro).

The qualitative research was provided by studying the literature relevant to the present research, by accessing the "Web of Science" (Clarivate) and Google Academic databases and using the search terms "hospital performance", "hospital efficiency", "hospital strategy", individuals or combinations thereof.

This research examines, over the course of 11 years, the budget allocation for the analyzed hospitals, the use of funds from two basic perspectives: personnel and capital expenditures, as well as the evolution of the number of beds and their occupancy.

The findings of the present research show that, although, over the 11 years analyzed, the funds allocated to the hospital units from the selected panel have increased substantially, these

expenses do not necessarily bring an increase in the quality-of-care services at hospital level, which is also reflected in the general perception of the population towards the Romanian health system.

Financing the Romanian healthcare system

In 2020, Romania allocated 6.27% of GDP to health, 4.63% less than the European Union average and 6.55% less than Germany, the country with the highest budget allocation for health among the member countries (Figure 1).

The financing health system in Romania registers every year the lowest percentages allocated, relative to GDP, which leads to a chronic underfunding and to the impossibility of developing and improving the medical services provided to the population.

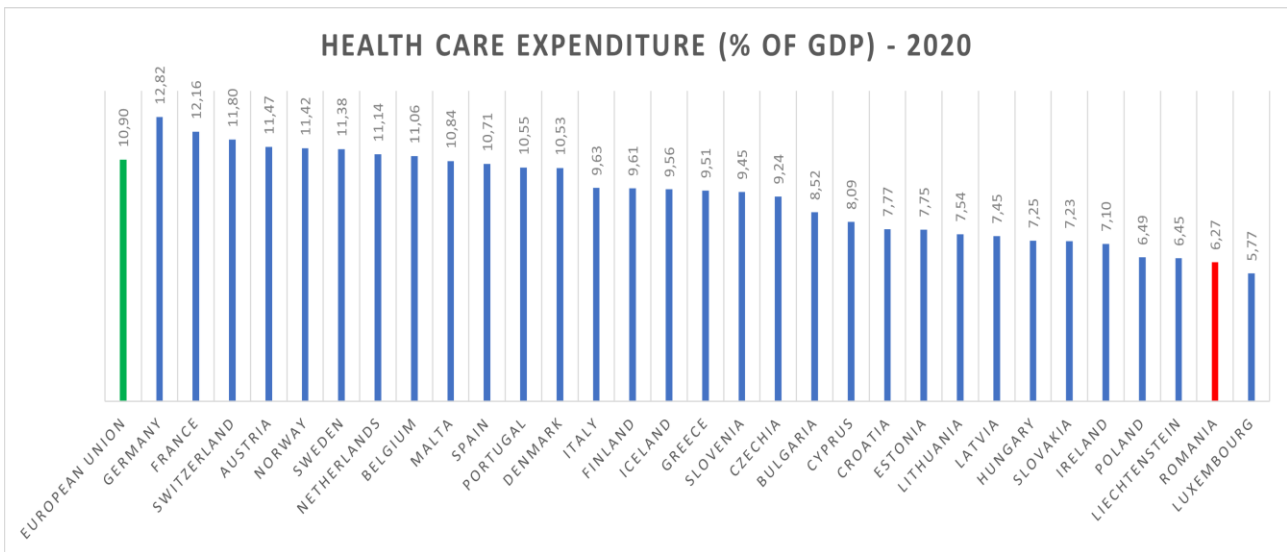


Figure 1. Health spending relative to GDP at EU level – 2020

Source: Eurostat, https://ec.europa.eu/eurostat/databrowser/view/hlth_sha11_hf_custom_5003772

From the analysis of the expenses made by types of medical service providers, it can be seen that almost half (48%) of the budget is allocated to hospital units, 25% to retailers and providers of medical goods, 14% to outpatient care providers, the remaining 13% being distributed to other areas (Figure 2).

At the level of the European Union, Romania occupies the first position regarding the expenses incurred in hospital units, the percentage of expenses being 10.54% higher than the European average and 19.14% higher than Germany, the country with the lowest percentage in the EU.

According to the legislation (Law 95, 2006) public hospitals are financed entirely from their own revenues coming from the amounts collected for medical services, other services performed on a contract basis, as well as from other sources, the main source being obtained from the contract concluded with the county health insurance house.

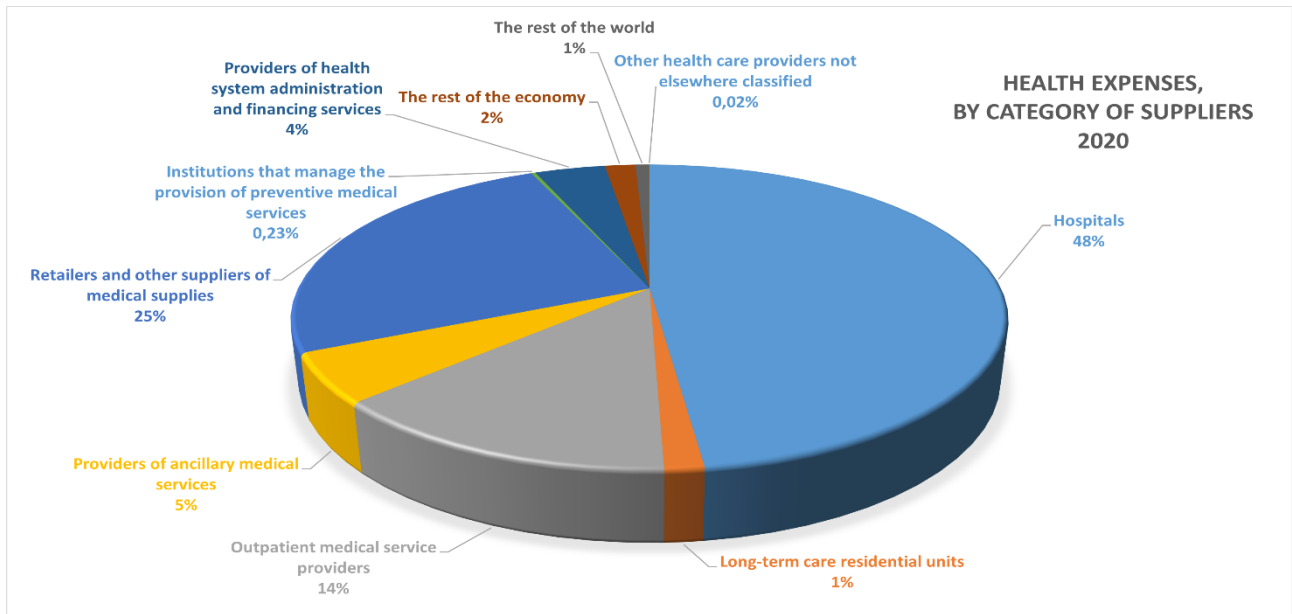


Figure 2. Health spending by type of providers, out of total expenses - 2020
 Source: Author processing from www.insee.ro database, 2020

Analysis on the financing of hospital units in the west of the country

By analyzing the monthly budget execution, for a period of 11 years (2012 – 2022) of the main hospital units in the west of the country, substantial increases for this period are observed, for all the analyzed hospitals (Figure 3).

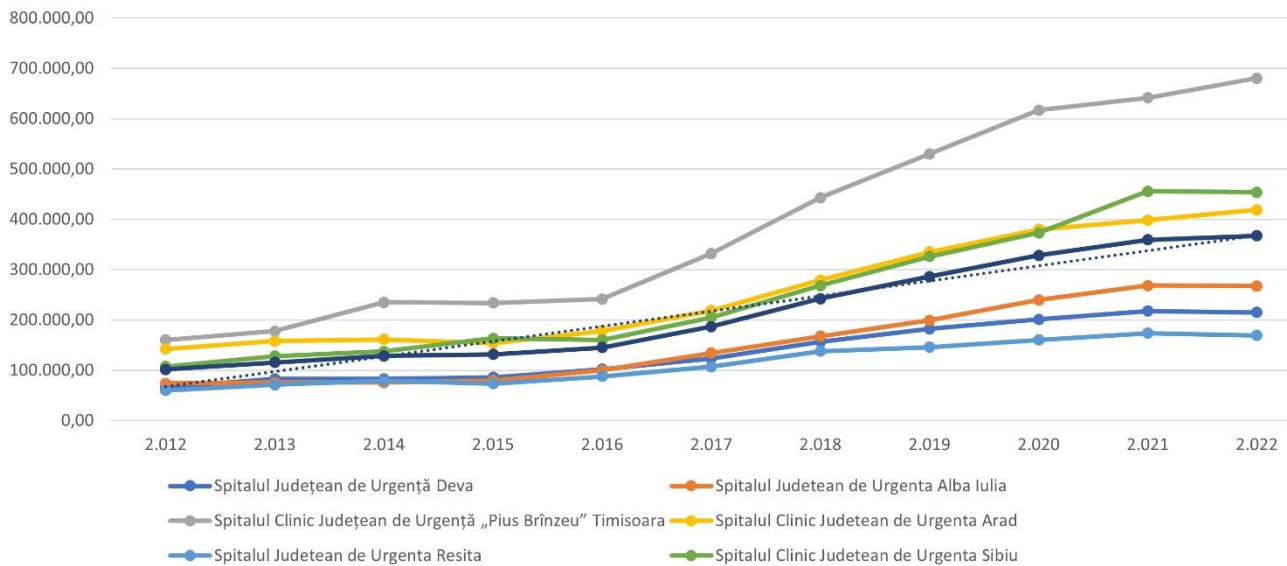


Figure 3. Hospital unit revenues (thousand lei), 2012 - 2022

Source: Author processing from hospital budget executions reported to the Ministry of Health

For the period 2012 - 2022, there are substantial increases in the revenues obtained by hospitals, which register added values between 194% and 324%, which represents an average increase of almost 300%, for the hospital panel analyzed. The average return of the incomes of the analyzed hospital units was 3.6 times, from 101,833.65 thousand lei (2012) to 367,530.05 thousand lei (2022) (Figure 3).

Table 1. Number of beds, comparison 2012 - 2022

	2012	2022	Differences
Deva County Emergency Hospital	812	778	-34
Alba Iulia County Emergency Hospital	763	763	0
"Pius Brînzeu" Emergency County Clinical Hospital Timișoara	1.174	1.182	8
Arad Emergency County Clinical Hospital	1.368	1.322	-46
Reșița County Emergency Hospital	835	835	0
Clinical Emergency County Hospital Sibiu	1.054	1.104	50
Average	1.001	997	-4

Source: Author processing from ministry of health database

During the analyzed period, two hospital units register a decrease in the number of beds, and another two register an increase, the average over the 11 years at the analyzed hospitals not being significantly modified (Table 1).

According to the legislation in force (Order 1490, 2008) The rate of use of beds in the hospital is obtained based on the formula:

$$\text{Utilization index of beds (Iu)} = \frac{\text{Man-day hospitalization (of patients in and out of date)}}{\text{Average number of beds}}$$

$$\text{Usage rate of beds} = \frac{\text{Iu} \times 100}{365 \text{ days}}$$

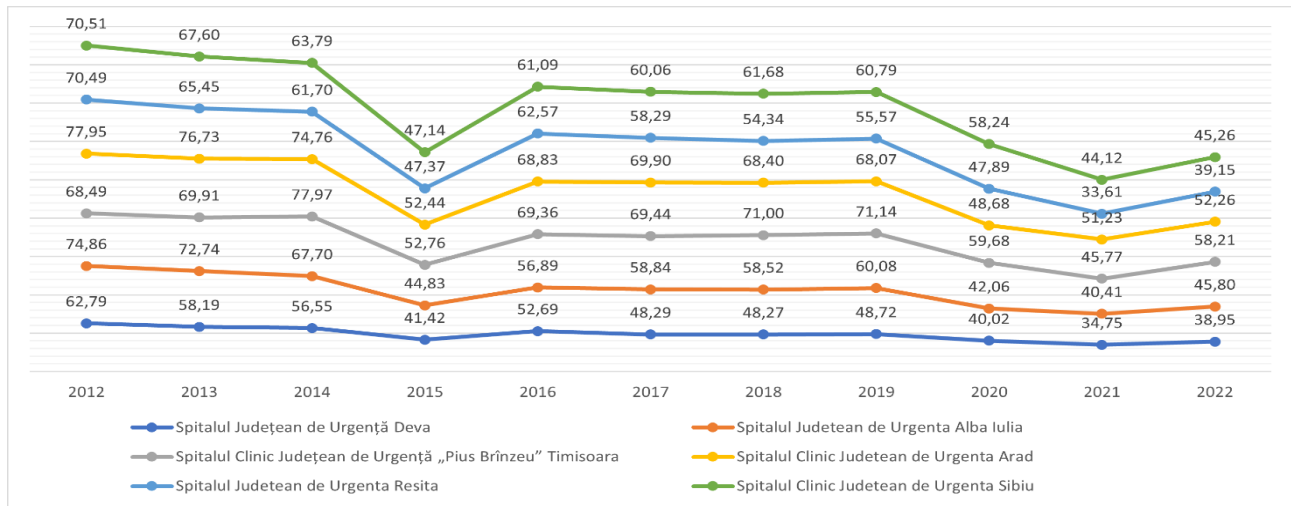


Figure 4. Rate of use of beds per hospital, 2012 – 2022 (DRG)

Source: Author processing from DRG database and Ministry of Health

For the analyzed period, low rates regarding the use of beds at all hospital units are observed, the year 2012 being the only year when the use rates are approaching the optimal level, in the rest of the years the general trend being of continuous decrease, this being accentuated by the period of the SARS-CoV-2 pandemic (Figure 4).

Table 2. Surplus/Deficit Analysis for the period 2012 – 2022 (average)

Health facility	Surplus/Deficit (thousand lei) 2012 - 2022
Alba Iulia County Emergency Hospital	23.342
Arad County Emergency Clinical Hospital	6.213
Deva County Emergency Hospital	27.595
Reșița County Emergency Hospital	4.102
Clinical County Emergency Hospital Sibiu	54.035
Clinical Emergency County Hospital "Pius Brînzeu" Timișoara	5.727

Source: Author processing from ministry of health database

Overall, the hospital units analyzed record a surplus for the 11-year period analyzed, with values between 4,102 thousand lei and 54,035 thousand lei. With one exception, the hospital units also went through difficult periods, in which, at the end of the year, they recorded a deficit, the value of which was between 63.87 thousand lei and 9,569 thousand lei.

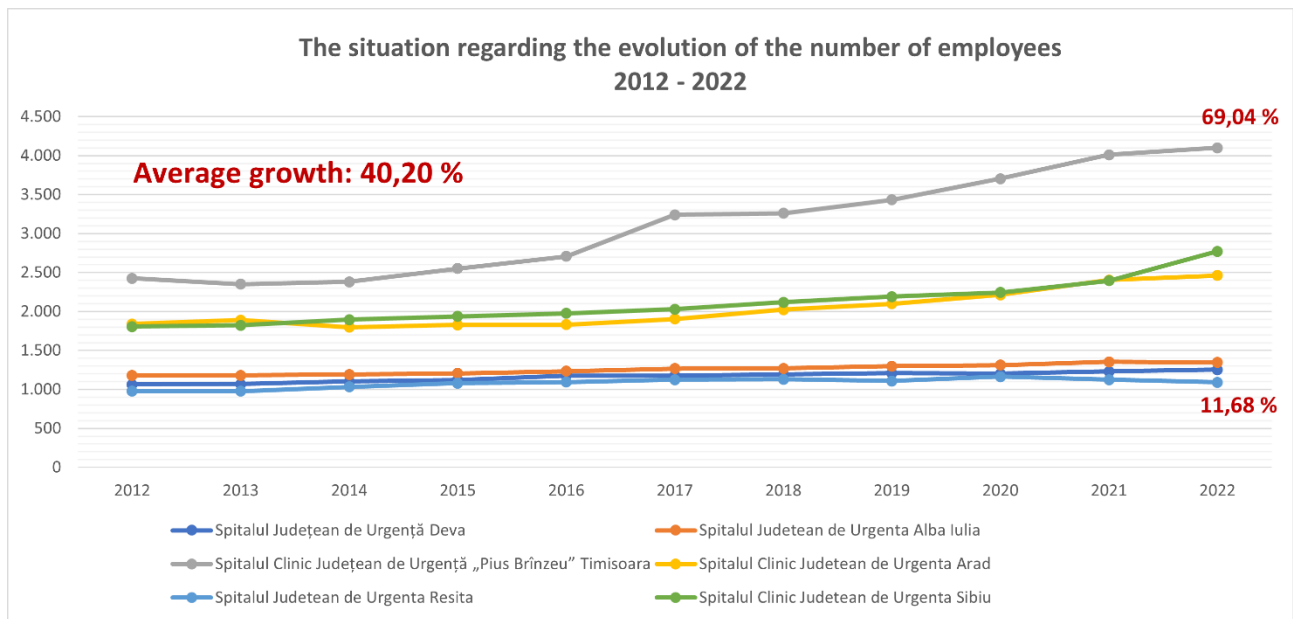


Figure 5. Situation regarding the evolution of the number of employees, 2012 - 2022

Source: Author processing from hospital reports to ministry of health

Between 2012 and 2022, there is a substantial increase in the number of employees in all the analyzed hospitals, the average of this increase registering at 40.20%, with a minimum of 11.68% and a maximum of 69.04% at the County Emergency Clinical Hospital "Pius Brînzeu" Timișoara, 1,675 additional employees (Figure 5).

Table 3. The increase in personnel and capital expenses in 2022 compared to 2012

	Salaries	Capital
Alba Iulia County Emergency Hospital	275%	26%
Arad Emergency County Clinical Hospital	297%	92%
Deva County Emergency Hospital	272%	323%
Reșița County Emergency Hospital	285%	147%

Clinical Emergency County Hospital Sibiu	401%	401%
Clinical Emergency County Hospital "Pius Brînzeu" Timișoara	493%	235%

Source: Author processing from hospital reports to ministry of health

The average share of the analyzed period the highest in total expenditures for each hospital unit is represented by personnel expenses, with percentages between 62% and 72%, other expenses (treatments, administrative, operating, etc.) are in the second position with percentages between 27% and 34%, and the last position is occupied by capital expenditures with percentages between 1% and 5%.

Table 4. Average expenditure on staff, capital and other expenses for the period 2012 - 2022

	Personal	Capital	Other
Alba Iulia County Emergency Hospital	62%	5%	33%
Arad Emergency County Clinical Hospital	66%	3%	31%
Deva County Emergency Hospital	66%	2%	32%
Reșița County Emergency Hospital	72%	1%	27%
Clinical Emergency County Hospital Sibiu	65%	3%	32%
Clinical Emergency County Hospital "Pius Brînzeu" Timișoara	62%	4%	34%

Source: Author processing from hospital reports to ministry of health

Conclusions

The Romanian healthcare system is subject to the challenges posed by the rising costs of providing health services, as in the rest of the Member States of the European Union. Although Romania has the lowest percentages of GDP allocated to health, at EU level, in the last years analyzed (2012 - 2022) there is a steady increase in the amounts allocated to health. However, the general impression of the population, even though it has improved in recent years, is a negative one and of dissatisfaction with the medical services and hospital infrastructure to which patients have access.

This paper shows that almost half of the budget allocated to health is spent in hospital units, and a significant percentage of what is spent in them does not necessarily bring an improvement in the health of the population.

The result of the research shows us the existence of a health system, in terms of hospital units, still tributary to the Semasko system, keeping a high number of beds, with low rates of use, which leads to a decrease in efficiency and the impossibility of securing the necessary funds for development. The majority costs in the hospital units are represented by the personnel expenses (65.5% on average for the six hospitals analyzed), followed by those of administration and provision of medical services, and the capital ones, necessary for the development of the hospital and ensuring the improvement of the quality of medical services are only at 3% of the total expenses.

Personnel expenses are also closely related to the number of beds, the legal norms that establish the number of staff who must serve a section being correlated with them, without considering the rate of use or the addressability of that section.

The limitations of research are given by the fact that health systems and in particular, hospital units are very complex, and the efficiency of a hospital must also be analyzed from other points of view, which are related to the provision of medical services. In Romania very often hospitals offer medical services that can be treated in outpatient settings, a fact highlighted in their

reports of a high number of medical services with relative value, respectively low level of complexity.

There is also a significant percentage of exceedances of the average hospitalization times or unnecessary and unnecessary hospitalizations, a cause being also the existence of an inefficient outpatient system.

An extension of research, by analyzing cases of unjustified admissions, exceeding of average hospital stays and cases with relatively low values or a combination of them, can show us much better the level of efficiency and that of unjustified expenditure in hospital units.

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