

## SARS-COV-2 INFLUENCES IN HOSPITAL FUNDING

**Sebastian MEZEI**

*"Lucian Blaga" University of Sibiu, Romania*  
sebastian.mezei@ulbsibiu.ro

**Abstract:** *The challenges to which all health systems in the world are subjected put pressure on the government to find solutions, mainly for their financing, but also the possibility of ensuring the highest possible level of quality of the medical services provided to the population.*

*During the SARS-Cov-2 pandemic, very often, health systems have been outdated and unable to provide medical services at the expected level, including in countries considered to offer medical services at the highest level.*

*Spending on supporting health systems during the pandemic has been substantial, with each state applying different strategies to support the health system, especially hospital units.*

*In Romania, half of the budget allocated to health is spent by hospitals, and during the pandemic they have benefited from a series of facilities in order to support their activity and ensure the medical services offered to patients.*

*Among the extremely important measures taken in Romania, during the pandemic, there is the financing of hospitals at the level contracted with the health insurance houses, given the limitation of patients' access to the medical services offered in hospitals.*

*This paper is based on qualitative and quantitative research of the indicators in six hospital units in the west of the country, which analyzes the level of funding and the rate of bed use before the pandemic and the challenges after it.*

*The conclusions of the study show that the rate of use of beds in analyzed hospitals is decreasing, especially influenced by the pandemic period, which leads, in addition to the increasing costs necessary for operation, to additional pressures in providing the necessary funds to provide medical services to patients.*

**Keywords:** *the impact of the pandemic on hospitals, hospital funding, bed use rate*

**JEL Classification:** A12; H51; I15; I18; P46

### 1. Introduction

The period of the SARS-CoV-2 pandemic has subjected health systems around the world to countless pressures, both of a medical nature, to find appropriate solutions and treatments for treating patients, and of a financial nature, the governments of the countries being forced to substantially supplement the budgets allocated for health.

In the early period of the pandemic, hospital spending increased exponentially, especially for the provision of protective materials and equipment, the market not being prepared to cover the extremely high demand, as well as the possibility of

purchasing equipment and consumables necessary for testing the population, and in aggressive waves, hospital units needed the necessary funds to cope with the extremely high influx of patients.

In the face of these challenges, the governments of the countries have adopted different strategies to support the health systems, which have often been overwhelmed, by managing the pandemic with the involvement of several institutions and especially by providing the necessary financial funds.

During the pandemic, Romania created county command centers, coordinated from the central level, in which were mainly involved institutions within the Ministry of Internal Affairs and the Ministry of Health, and the hospitals financed by the contracts concluded with the health insurance houses benefited from exceptions regarding the settlement at the entire contract value, regardless of the number of patients admitted.

The specialized staff involved in the transport, diagnosis, equipment, evaluation, diagnosis and treatment of patients diagnosed with Covid-19 benefited from a risk incentive in the amount of 2,500 lei gross monthly (OUG 43, 2020), and the staff who effectively participated in the application of the measures to limit the epidemic, benefited from increases ranging from 55% to 85% of the basic salary (HG 153, 2018).

Thus, during 2020 – 2021, bonuses or incentives totaling 470,105 thousand lei were granted for a number of 398,302 employees, and 32 projects were also carried out through the POIM for the endowment of hospitals (CCR Report, 2023).

Also, substantial funds were allocated from the state budget for the purchase of protective equipment, medical devices and specific anti-covid treatments, the situation being reflected in the percentage increase of funds allocated to health, respectively 5.5% of GDP for 2020, compared to 5.0% in 2019 [Eurostat, 2023].

The pandemic period has strongly influenced the addressability of patients to hospital medical services, registering a steady decrease in the number of cases, which leads to a decrease in the incomes of hospital units and puts additional pressure on them.

## **2. Literature review**

During the SARS-CoV-2 pandemic, all health systems in the world have been subjected to extreme challenges both from a medical and financial point of view, regardless of the strategy adopted by each country, the pressure being mainly on hospital units, especially on certain specializations, but also on other medical service providers (Elie M. Ferneini, 2020), (Frank J. Lexa, 2020), (Sanjay S et al, 2020).

Hospital expenses have increased substantially, with hospitalized patients requiring longer periods for recovery, in most cases not covered by settled amounts, and limitations on admissions have led to reduced revenues (Michael L. Barnett et al, 2020), (Alan D. Kaye et al, 2021).

The expenses incurred in treating covid-19 patients are difficult to estimate (Beck da Silva Etges et al, 2021), with very large decreases in hospital admissions (Kruse FM, 2020), (Shin J-h et al, 2020), which led, in some cases, to the closure of hospitals as they failed to cope with the high expenses (Saghafian, S. et al, 2022). Some specialized studies analyze the strategies adopted by the states to compensate for the differences between the revenues obtained by hospitals and the increasing expenses (Ruth Waitzberg et al, 2022), during the pandemic period most countries have not changed the financing mechanisms, being granted complementary amounts from the budget, while others have introduced new tariffs for medical services (Quentin, Wilm, et al, 2020), (Waitzberg, Ruth, et al, 2020), (Erik Hefti et al, 2022).

### **3. Research methodology**

The present study analyzes the impact of the SARS-CoV-2 pandemic on six hospitals in the west of the country, from the perspective of the number of cases treated, respectively the revenues obtained, compared to the period before the pandemic.

During the research, we analyzed the official data on the number of cases admitted in the six hospitals in 2012, 2019 and the period 2020 – 2022, making a graphical representation of the evolution of this indicator, based on the reports on the indicators of hospitalized morbidity.

For the period 2012 – 2022 we have aggregated the data from the financial statements, according to the reports on the budget execution of the six hospitals, namely: Alba Iulia County Emergency Hospital, Arad County Emergency Clinical Hospital, Deva County Emergency Hospital, Reșița County Emergency Hospital, Sibiu Emergency County Clinical Hospital and Timișoara Emergency County Clinical Hospital , with a view to determining the evolution of the surplus or deficit recorded for the 11-year period under review.

The qualitative research was carried out by studying the articles of interest for the studied topic, having as main themes the impact of the pandemic on the financing of health systems, especially on the indicators that generate income within them.

The findings of the present research show that, in addition to the financial pressure on health budgets, there is a major impact on addressability within hospitals, with the number of hospital cases being decreasing, which leads to diminished revenues and the impossibility of hospitals to cover expenses or to develop through new investments.

### **4. Situation of hospital financing in Romania**

Budgetary allocations for health in Romania, relative to GDP, are among the lowest in the European Union, and more than half of them are spent by hospital units.

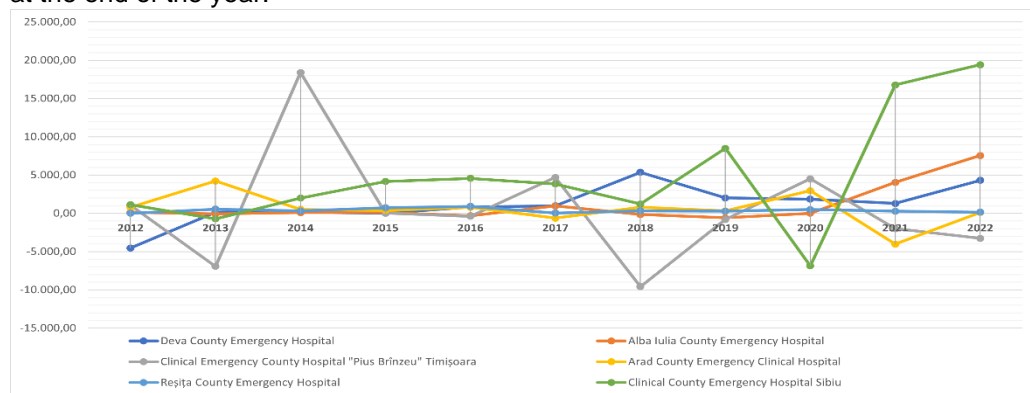
By aggregating the data and analyzing the financial statements reported by the analyzed hospitals, between 2012 and 2022, it is observed that the financial results are heterogeneous, with high fluctuations from one year to the next (Table 1).

**Table 1:** Situation regarding the annual Surplus/Deficit (thousands of lei)

County Emergency Hospital	2012	2013	2016	2018	2019	2021	2022
Alba	137	-63	-310	-164	-582	4.038	7.551
Arad	792	4.214	786	784	321	-4.019	114
Hunedoara County	-4.525	132	832	5.361	2.023	1.288	4.305
Caraș-Severin	0,00	557	917	328	279	272	153
Sibiu	1.122	-708	4.568	1.214	8.494	16.773	19.414
Timiș	1.059	-6.930	-393	-9.569	-800	-2.006	-3.259

Source: Author processing from hospitals' financial statements [www.ms.ro](http://www.ms.ro)

As can be seen, with the exception of one hospital, all hospitals have faced financially difficult situations over the period under review, with substantial deficits at the end of the year.



**Figure 1:** Evolution regarding the Annual Surplus/Deficit, in the period 2012 – 2022, (thousands of lei)

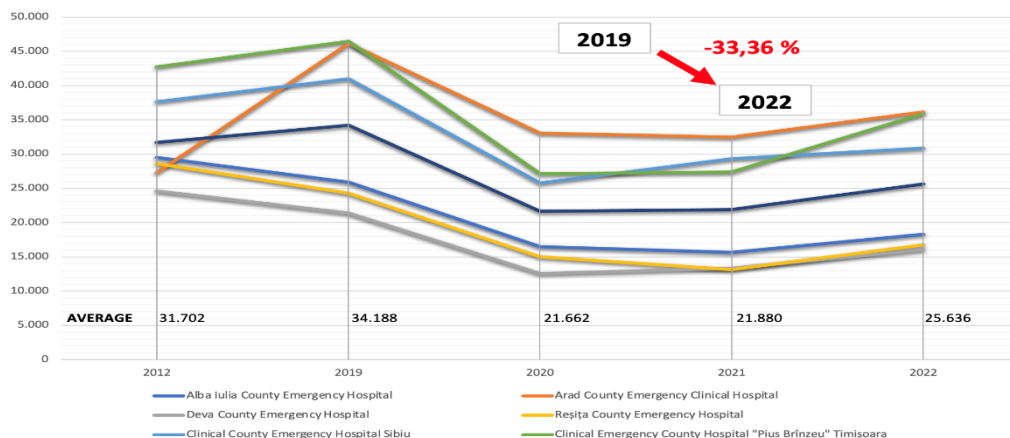
Source: Author processing from hospitals' financial statements [www.ms.ro](http://www.ms.ro)

The average income of the hospital units, for the period of 11 years analyzed, is positive being recorded in surplus in the aggregate financial statements, but the evolution is uneven and there is no constancy in the realization of incomes, and the values are relatively low, which makes it impossible to forecast capital investments necessary to improve and increase the quality of the medical act (Figure 1).

The situation regarding the number of cases treated in the six hospital units analyzed shows us that there is a major decrease during the pandemic, motivated

by the limitations imposed on the acceptance of only medical emergencies, as well as by the avoidance of patients accessing hospital services for fear of infection with Covid-19 (Figure 2).

Compared to 2019, there is a decrease of over 12,000 cases treated, in the period 2020-2021, especially cases of patients with Covid-19 infections and medical-surgical emergencies.



**Figure 2:** Evolution in the number of cases for the hospitals analysed

Source: Author processing from hospitals' financial statements [www.ms.ro](http://www.ms.ro)

For 2022, there is a moderate increase, but insufficient to ensure the necessary revenues to cover all the expenses incurred by hospitals, which also benefit during the year from certain exceptions regarding the financing, respectively the settlement at the full value of the contract, regardless of the number of patients admitted.

In 2022, there is a decrease of 33.36% in the number of cases treated in the analyzed hospitals, compared to the year before the beginning of the pandemic (2019), respectively an insignificant increase compared to 2021.

**Table 2:** Situation regarding hospitalized cases and surplus/deficit Trim. I (thousand lei) – 2023

Hospitals	Cases	Excedent / Deficit
<b>Alba Iulia County Emergency Hospital</b>	5.175	5.779
<b>Arad County Emergency Clinical Hospital</b>	9.846	-14.349
<b>Deva County Emergency Hospital</b>	4.980	3.749
<b>Reșița County Emergency Hospital</b>	5.205	-23.645
<b>Clinical County Emergency Hospital Sibiu</b>	8.222	-563
<b>Clinical Emergency County Hospital "Pius Brînzeu" Timișoara</b>	9.876	13.727

Source: Author processing from hospitals' financial statements [www.ms.ro](http://www.ms.ro)

For the first quarter of 2023, all hospitals register a low number of hospitalized and treated cases, and keeping the current trend will register at the end of the year values below those recorded before the SARS-Cov-2 pandemic (2019), meaning that hospitals will have difficulties in providing medical services at the entire amount contracted with health insurance houses.

Regarding the financial results for the first quarter, there are substantial deficits in half of the hospitals analyzed and surplus in the others, the situation being also influenced by the recording of overdue payments.

## 5. Conclusions

The influences of SARS-CoV-2 on the health system were major, with an impact on all components of the system, from medical staff, therapeutic protocols or equipment, to the pressure on the allocated budgets.

In order to deal with the pandemic period, the executive took measures to finance hospitals with funds from the state budget, to cover the expenses incurred, the main measure being the development of normative acts that allow the full payment of the amounts contracted with health insurance companies, regardless of the number of patients or the medical services provided.

Starting in 2023, the financing facilities were removed, and hospitals returned to financing according to the services offered, without taking into account the impact of the pandemic on the address of hospital services.

There is a significant change in the behavior of the population regarding the access to medical services, which is also confirmed by the evolution of the number of hospitalized cases.

Patients use the services provided by hospitals in particular through emergency services, with requests for outpatient treatment of conditions or day hospitalization services.

Also, another effect of the pandemic is manifested by the tendency of hospitals to artificially increase the rates of use of beds by prolonging hospitalization periods also for cases with low complexity, which generates additional costs, and finally, at reduced settlement values by decreasing the complexity index of cases on the basis of which their financing is calculated.

Keeping a high number of beds in hospitals, among the largest in Europe, generates high costs for hospitals, with medical staff being sized according to them, and the low rate index of bed use is a component of the funding calculation formula.

In order to establish as fully as possible the influence of the SARS-CoV-2 pandemic on the financing of the hospital units, it is also necessary to analyze, in addition to the number of hospitalized cases, the average duration of hospitalization, respectively the rates of use of beds and the complexity of the hospitalized cases, all these indicators influencing the amounts settled by the health insurance houses.

## References

1. Alan D. Kaye et al, 2021, Economic impact of COVID-19 pandemic on healthcare facilities and systems: International perspectives, *Best Practice & Research Clinical Anaesthesiology*, Volume 35, Issue 3, Pages 293-306
2. Beck da Silva Etges et al, 2021, The Economic Impact of COVID-19 Treatment at a Hospital-level: Investment and Financial Registers of Brazilian Hospitals. *J Health Econ Outcomes Res.* 2021 Apr 16;8( 1):36-41. doi: 10.36469/jheor.2021.22066
3. Center for Human Resources, Evaluation and Analysis of Health Services, [online], ([www.drg.ro](http://www.drg.ro), Accessed 10.05.2023)
4. Romanian Court of Accounts, 2023, Summary of the Performance Audit Report on human resources management and infrastructure development of hospital health facilities, for the period 2014-2021 at the Ministry of Health, p. 59, 67
5. Elie M. Ferneini, 2020, The Financial Impact of COVID-19 on Our Practice, *American Association of Oral and Maxillofacial Surgeons*
6. Erik Hefti et al, 2022, Access to Telepharmacy Services May Reduce Hospital Admissions in Outpatient Populations During the COVID-19 Pandemic. *Telemedicine and e-Health.* 1324-1331. <http://doi.org/10.1089/tmj.2021.0420>
7. Eurostat, General government expenditure by function (COFOG), [online], ([https://ec.europa.eu/eurostat/databrowser/view/GOV\\_10A\\_EXP](https://ec.europa.eu/eurostat/databrowser/view/GOV_10A_EXP), Accesat 20.05.2023)
8. Frank J. Lexa, 2020, Private Equity–Backed Hospital Investments and the Impact of the Coronavirus Disease 2019 (COVID-19) Epidemic, *Journal of the American College of Radiology*, Volume 17, Issue 8, Pages 1049-1052
9. GD 153/2018 for the approval of the Framework Regulation on the establishment of jobs, categories of personnel, the concrete size of the increase for working conditions, for the occupational family of budgetary positions "Health and social assistance"
10. Kruse FM, Jeurissen PPT, 2020, For-Profit Hospitals Out of Business? Financial Sustainability During the COVID-19 Epidemic Emergency Response. *Int J Health Policy Manag.* 2020 Oct 1;9(10):423-428. doi: 10.34172/ijhpm.2020.67. PMID: 32610731; PMCID: PMC7719221
11. Michael L. Barnett et al, 2020, Covid-19 and the Upcoming Financial Crisis in Health Care, *NEJM Catalyst*, April 29, 2020
12. Ministry of Health, [online], ([www.ms.ro](http://www.ms.ro), Accessed 10.05.2023)
13. GEO 43/2020 for the approval of support measures settled from European funds, as a result of the spread of coronavirus COVID-19
14. Quentin, Wilm, et al, 2020, Adjusting hospital inpatient payment systems for COVID-19, *Eurohealth* 26.2, pag. 88-92
15. Ruth Waitzberg et al, 2022, Balancing financial incentives during COVID-19: A comparison of provider payment adjustments across 20 countries, *Health Policy*, Volume 126, Issue 5, Pages 398-407
16. Saghafian, S. et al, 2022, Towards a more efficient healthcare system: Opportunities and challenges caused by hospital closures amid the COVID-19

- pandemic. *Health Care Manag Sci* 25, 187–190. <https://doi-org.am.e-information.ro/10.1007/s10729-022-09591-7>
17. Sanjay S et al, 2020, Impact of COVID-19 on a tertiary eye hospital. *Indian J Ophthalmol*. Jul;68(7):1485-1486. doi: 10.4103/ ijo. IJO\_921\_20
  18. Shin J-h et al, 2020, Economic impact of the first wave of the COVID-19 pandemic on acute care hospitals in Japan. *PLoS ONE* 15(12): e0244852. <https://doi.org/10.1371/ journal.pone.0244852>
  19. Waitzberg, Ruth, et al, 2020, Compensating healthcare professionals for incoming losses and extra expenses during COVID-19. *Eurohealth*, 26.2: 83-87