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## SURVEY OF MEDICAL DEVICE COSTS AND PATIENT CO-PAY

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**Abstract:** Over the last five years, there has been a persistent trend of increasing total health care costs in Bulgaria. It has been established that the ratio between public and private health care costs is steadily changing in the direction of a continuous increase in the costs of the private sector, incl. and households, at the expense of a reduction in public. The changes that have taken place in recent years in the mechanisms and especially in the financing system of the health insurance system are mainly at the expense of the increased financial participation of Bulgarian citizens. The article presents a study of the types of costs for medical devices/implants invested in medical activity in Bulgaria. Aim: to determine the trend in medical device/implant costs in health insurance settings over the past five years. Methodology: The costs of medical devices/implants during the investigated period of 2018. – 2022. A statistical method was used to analyze data from the National Health Fund in Bulgaria for the period 2018-2022. Results: During the considered five-year period, it was found: a decrease in the total costs of medical devices/implants. Incremental costs – paid by the patient, compared to total costs and public costs – of the national health fund. The rate of increase of private expenditure on medical devices from total expenditure is fifty-three percent. In the last three years of the five-year period, private spending exceeded public spending by over one hundred percent. A tipping point of a sharp excess of private costs paid by patients compared to public costs and total costs of medical devices/implants is the period of the Covid-19 pandemic, when an excess of one hundred percent is found. Discussion: The data from the study of costs for medical devices/implants, during the period "2018 - 2022", repeat the trend of distribution of health care costs among the subjects of the health insurance market from the previous period in Bulgaria. There are significant differences in the structure of healthcare costs in Bulgaria and the same in the European Union. According to the structure of healthcare costs, Bulgaria ranks first in the European Union in terms of the relative share of private (non-public) costs. Private payments are nearly 45.4% of all payments, and public payments are fifty-four percent, calculated according to data from the World Health Organization. In other European countries, this ratio is up to thirty percent private and over seventy public expenditures. The financial burden in Bulgaria is shifting to the area of private funds (cash payments) and not to public funds. The low share of public funds for health care as an absolute amount and as a share of total health care costs is a factor in the deterioration of the quality of medical care. Poor quality is the cause of rising production costs (of health services). Conclusion: There is a tendency for private expenditure on medical devices/implants to exceed public expenditure from the health fund and total expenditure. The private expenditure on medical devices/implants from the survey follows the trend of private expenditure in the structure of health expenditure in Bulgaria. Additional payment for medical services is a new phenomenon in the health system of Bulgaria, which is being formed and modified in the conditions of health system reform. In Bulgaria, the concept of "surcharge" is not precisely defined and regulated in law as a phenomenon in the health insurance system. There is ambiguity in the legislation of Bulgaria regarding the amount of co-payment and the type of medical activities. Additional payment by health insured persons has been introduced only for some activities, but the threshold from which the patient should pay for the services has not been specified. The reason for this ambiguity can be found in the solidarity model of health insurance. a new trend in health policy is being created: co-payment.

**Keywords:** implants, medical devices, co-payment, public and private costs, health system

### 1. INTRODUCTION

According to data from the National Statistical Institute in Bulgaria during the period "2000 - 2017", there is a persistent trend towards an increase in total health care costs. It has been established that the ratio between public and private health care costs is steadily changing in the direction of a continuous increase in the costs of the private sector, incl. and households, at the expense of a reduction in public. The changes that have taken place in recent years in the mechanisms and especially in the financing system of the health insurance system are mainly at the expense of the increased financial participation of Bulgarian citizens. The article presents a study of the types of costs for medical devices/implants invested in medical activity in Bulgaria.

The Objective of the study is to determine the trend in medical device/implant costs in health insurance settings over the past five years.

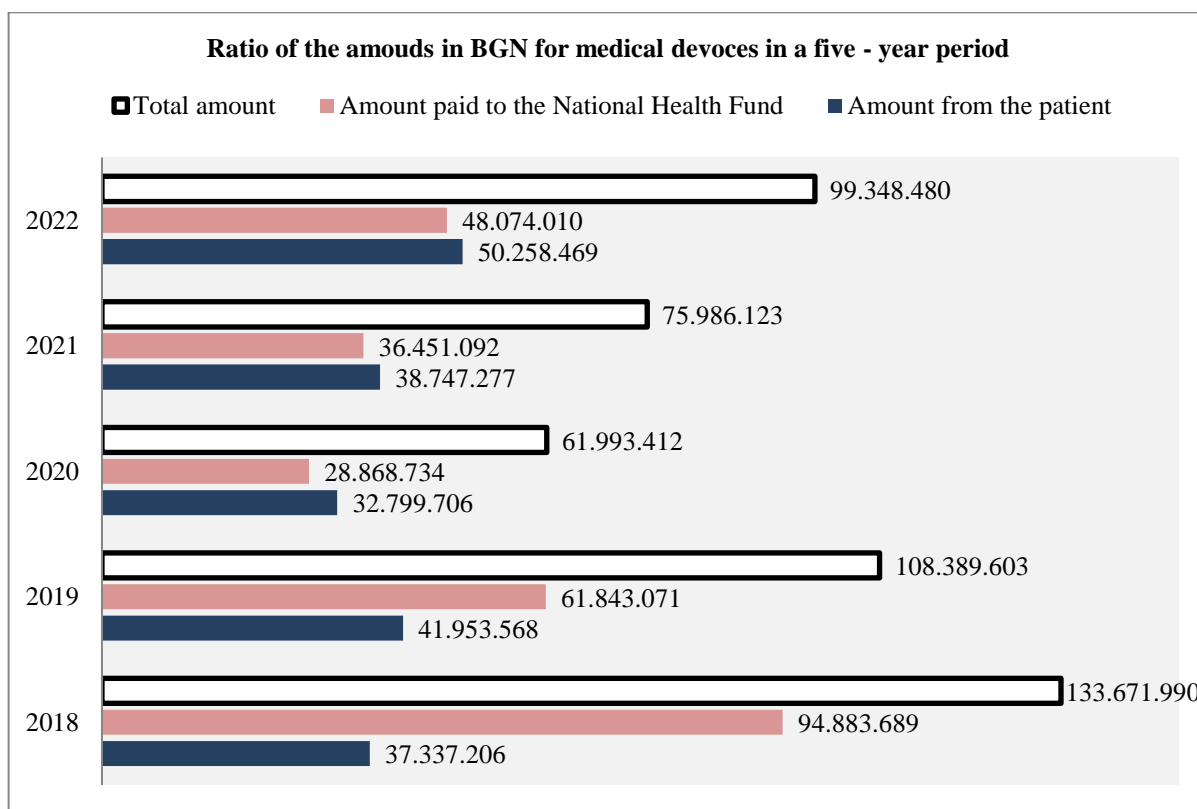
## 2. METHODOLOGY

The costs of medical devices/implants during the period 2018 were investigated. – 2022". A statistical method was used to analyze data from the National Health Fund in Bulgaria for the period 2018-2022.

## 3. RESULTS

During the period "2018 - 2022" the total costs for medical devices/implants applied to the medical activity in the hospital care, financed through public funds under the health insurance, amounts to BGN 478,389,609. Of these, BGN 270,120,596 were paid to medical institutions from the national health fund, which constitutes 56% of the total funds and BGN 201,096,226 were paid additionally by health insured persons, which constitutes 42% of the total funds. Figure 1 presents the share of participation in the financing of implants by the national health fund and the health insured persons and the total costs, by year.

*Figure 1 Amounts in BGN for medical devices paid with public funds and private payments by health insured*



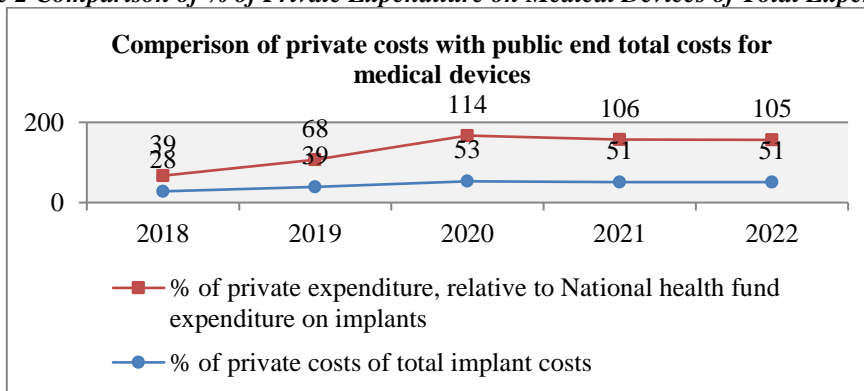
Then comparing the three parameters: total amount/costs for medical devices/implants, national fund costs for medical devices/implants and costs paid by patients, it is evident that for the period "2018 - 2022", the total expenditure on medical devices/implants is decreasing, the expenditure of the national health fund is also decreasing, and the patient expenditure on medical devices is increasing.

During the period under review, there is a tendency for the funds paid by health insured persons to increase, as a percentage of the total costs and of the costs paid by the national health fund.

The funds paid by health insured persons as a percentage of the total costs for 2018 were 28% of the total funds in 2019. – 39%, in 2020 – 53% in 2021 as well. and 2022 is the trend is permanent – 51%. There is a sustained trend of copay/participation of health insurance for implants at a rate of 53% (Figure 2).

Funds paid by health insured persons, as a percentage, exceed the costs of the national health fund for medical devices. in 2018 the excess was 39% of public funds, in 2019 – 68%, in 2020 – 114% in 2021 as well. – 106% and 2022 is the trend is permanent – 105% (figure 2).

Figure 2 Comparison of % of Private Expenditure on Medical Devices of Total Expenditure'



Of importance to the analysis is the graph depicting the excess of costs paid by patients as a percentage of the costs paid by the National Health Fund for medical devices, especially the upward trend and excess of more than one hundred percent.

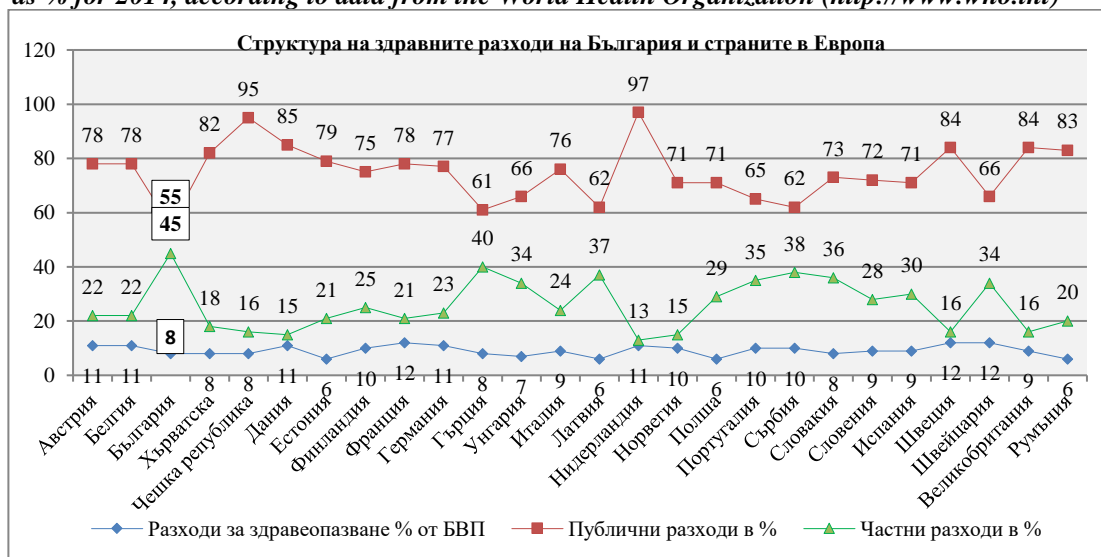
The constellation of the types of expenses in 2020 is interesting, which is probably due to the **COVID-19 pandemic**. A decrease in the three types of expenses for medical products/implants was found. However, private costs paid by patients show the highest relative share to total costs and publicity costs during the five-year period, respectively – 53% and 114%. This means withdrawing the state from a commitment to cover the costs of medical devices/implants and maintaining the trend for the next two years. A new trend is taking shape in the healthcare policy of co-payment.

#### 4. DISCUSSION

The data from the study of the costs of medical devices/implants, during the period "2018 - 2022", repeat the trend of distribution of health care costs among the subjects of the health insurance market from the previous period in Bulgaria. There are significant differences in the structure of healthcare costs in Bulgaria and the same in the European Union.

According to the structure of health expenditures, Bulgaria ranks first in the EU in terms of the relative share of private (non-public) expenditures. Private payments are nearly 45.4% of all payments, and public payments are 54.6%, calculated according to WHO data. In other European countries, this ratio is up to 30% private and over 70% public. The financial burden in Bulgaria shifts to the area of private funds (cash payments) and not to public funds (Figure 3).

Figure 3 Health expenditure as % of Gross Domestic Product, total and private health expenditure as % for 2014, according to data from the World Health Organization (<http://www.who.int>)



The low share of public funds for health care as an absolute amount and as a share of total health care costs is a factor in the deterioration of the quality of medical care. Poor quality is the reason for an increase in production costs (of health services) (Petrova, Zl., K. Chamov, St. Gladilov, (2008)).

Additional payment for medical services is a new phenomenon in the health system of Bulgaria, which is being formed and modified at the present time.

Co-payment or co-payment (Petrova Zl., Genev Str., Enchev N., Vodenicharova Al., 2014) is a form of cost sharing for medical care of health insured persons, which requires the insured person to pay an amount specified in the regulations when receiving medical assistance. The insurer is responsible for the rest of the amount.

The form of co-payment has been introduced in Bulgaria by the National Health Insurance Fund and is applied according to the order and conditions specified in the National Framework Agreement and the decisions of the Management Board of the National Health Insurance Fund.

Since 2003, there has been a text in the National Framework Agreement specifying that the cost of imaging studies paid by the National Health Insurance Fund does not include the cost of contrast material.

Since 2004, the National Framework Agreement has introduced a fee for taking biological material in medical-diagnostic laboratories.

In 2006, consumables, single-use instruments and implants were specified in the clinical pathways, for which the National Health Insurance Fund does not pay.

Additional payment for health-insured persons in outpatient care is not regulated in the Bulgarian legislation.

In the world, joint payments take a different form and can be:

- A certain amount (payment at the same rate for each service);
- Co-insurance (percentage of the total cost of the service);
- Deductible (the patient pays the amount up to a certain ceiling, and above it is paid by the insurance fund).

Copayment amounts can be calculated for procedures, visits, a specific hospital stay or day, a prescription, a type of drug, a prescription, and other activities.

The user fee, which is paid by patients for each visit to a doctor in outpatient care, is established and regulated in the Health Insurance Act. The amount of the user fee is not related to the type and volume of medical assistance received.

In other countries – Finland health care out-of-pocket payments can create barriers to access or lead to financial distress. (Ra'itto' H, Aaltonen K (2021). Surcharge also has an ethical component. A surcharge of this kind is associated with various ethical considerations. These range from concerns that it has a negative impact on the well-being of patients and on healthcare institutions, to concerns that co-payments conflict with the core values of publicly funded healthcare systems (Joakim Färdow, Linus Broström Mats Johansson (2019).

## 5. FINDINGS AND CONCLUSION

1. Increase in total costs for the application of medical devices/implants;
2. Growth in private spending on medical devices/implants over a five-year period by 42%;
3. Exceeding the private costs of medical devices, compared to the public ones from the health fund.
4. The private expenditures for medical devices/implants from the study follow the trend of private expenditures in the structure of health expenditures in Bulgaria.

*In Bulgaria, the concept of "surcharge" is not precisely defined and regulated in law as a phenomenon in the health insurance system. There is ambiguity in the legislation of Bulgaria regarding the amount of co-payment and the type of medical activities.*

*Supplemental payment by health insured persons through the Health Insurance Act has been introduced only for some activities, but the threshold from which the patient should pay for the services is not specified. The reason for this ambiguity can be found in the solidarity model of health insurance. A new trend in health policy is taking shape.*

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