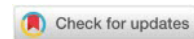


DYNAMICS IN COSTS AND THE NUMBER OF PATIENTS OF THE FIVE MOST RESOURCE-CONSUMING DISEASES PAID WITH PUBLIC FUNDS FROM THE NATIONAL HEALTH INSURANCE FUND FOR HOME TREATMENT

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Abstract: On a global scale, health care costs are constantly growing, with a large part of them taking up the costs of medicinal products. The trend for the increase in the consumption of medicinal products is due to the following main reasons: the aging of the population, the possibility of medical treatment of more and more diseases and the development of new medicinal products. A challenge for the governments of individual countries is how, with limited financial resources, to ensure access for the widest possible range of patients to the best medicines. One way to contain health care costs is the reimbursement method. At the same time, a guarantee is needed that decisions to pay for publicly funded medicines are based on cost-effectiveness criteria.

The purpose of the current study is to track the dynamics of the costs of medicinal products, medical devices and dietetic foods for home treatment and the number of sick health insured persons from the five most resource-intensive diseases, paid with public funds from the National Health Insurance Fund in Bulgaria for 2021 and 2022.

Materials and methods: Documentary method - monthly statements of the National Health Insurance Fund for costs and number of patients for medicinal products, medical devices and dietary foods for home treatment, according to the ICD code of the disease; Economical analysis; Medical statistical methods; Tabular and graphical analyzes - to visualize the obtained results.

Results and analysis: Based on the results obtained from the study, it is clear that for the observed period the total costs of medicinal products for home treatment reimbursed by the NHIF increased by 11.43%. Of the five most resource-intensive diseases, the disease for which the most public funds are spent on medicinal products for home treatment is Non-Insulin-Dependent Diabetes Mellitus, with neurological complications, and the highest rate of increase in spending in 2022 is Non-Insulin-Dependent Diabetes Mellitus, without complications – with 18.3%.

Conclusion: In contrast to the upward trend in the costs of medicinal products, we observe a slight downward trend in the total number of sick persons with mandatory health insurance in 2022 compared to 2021. In the total number of patients for whom public funds were spent on medicinal products for home treatment by the NHIF, the reduction was 0.97%. Despite the general trend, with the most resource-intensive diseases under consideration, the number of patients slightly increased, with the exception of only one of them.

Keywords: costs of medicinal products, number of patients, public funds, most resource-intensive diseases, non-insulin-dependent diabetes mellitus

Field: 3) Medical sciences and Health

INTRODUCTION

On a global scale, health care costs are constantly growing, with a large part of them taking up the costs of medicinal products. The trend for the increase in the consumption of medicinal products is due to the following main reasons: the aging of the population, the possibility of medical treatment of more and more diseases and the development of new medicinal products. A challenge for the governments of individual countries is how, with limited financial resources, to ensure access for the widest possible range of patients to the best medicines. One way to contain health care costs is the reimbursement method. [3] At the same time, a guarantee is needed that decisions to pay for publicly funded medicines are based on cost-effectiveness criteria. [4]

In Bulgaria, the Health Insurance Law provides funds to the NHIF for the expenditure and payment

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of medical activities, including the provision of medicinal products and medical devices for them. The funds are determined in the Law on the budget of the NHIF for the relevant calendar year. The Minister of Health determines by regulation a list of diseases for the home treatment of which the National Health Insurance Fund pays in full or in part medicinal products, medical devices and dietary foods for special medical purposes. [1]

Purpose

The purpose of the present study is to track the dynamics of the costs of medicinal products, medical devices and dietetic foods for home treatment and the number of sick health insured persons from the five most resource-intensive diseases, paid with public funds from the National Health Insurance Fund in Bulgaria for 2021 and 2022.

MATERIALS AND METHODS

To fulfill the purpose of the study, we used the following research methods: Documentary method - monthly statements of the NHIF for costs and number of patients for medicinal products, medical devices and dietary foods for home treatment, according to the ICD code of the disease - Annex 1 of the PLS; Economical analysis; Medical statistical methods; Tabular and graphical analyzes - to visualize the obtained results.

RESULTS

Figure 1 presents the monthly dynamics in the costs of the 5 most resource-intensive in terms of medicinal products, medical devices and dietary foods for home treatment of diseases reimbursed by the National Health Insurance Fund for 2021 and 2022. It can be seen that, compared to other diseases, the costs for medicinal products, medical devices and dietary foods for the disease "Non-insulin-dependent diabetes mellitus with neurological complications" stand out the most.

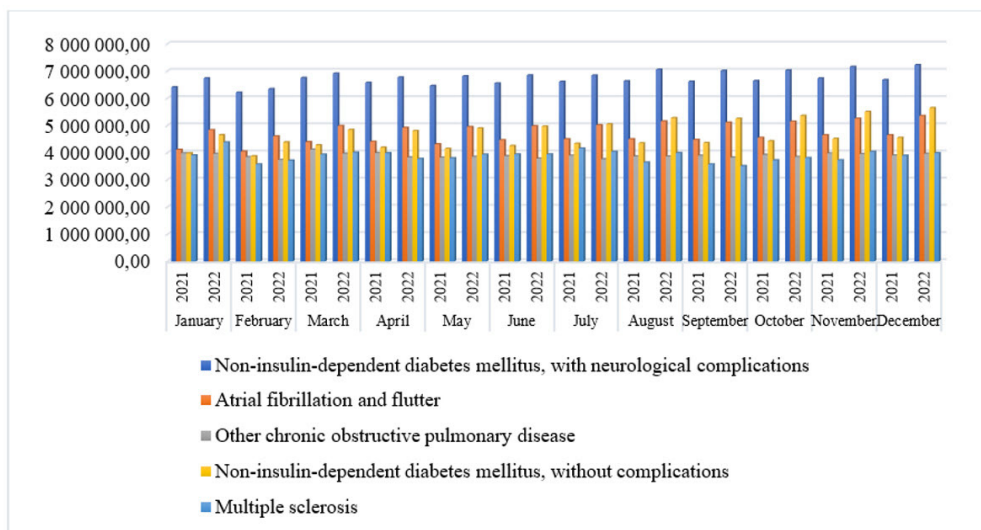


Fig. 1. Monthly dynamics in the costs of the 5 most resource-intensive diseases, paid with public funds by the NHIF according to Annex 1 of the PDL for 2021-2022.

We see the trend of a smooth increase in the costs under consideration in 2022 compared to 2021.

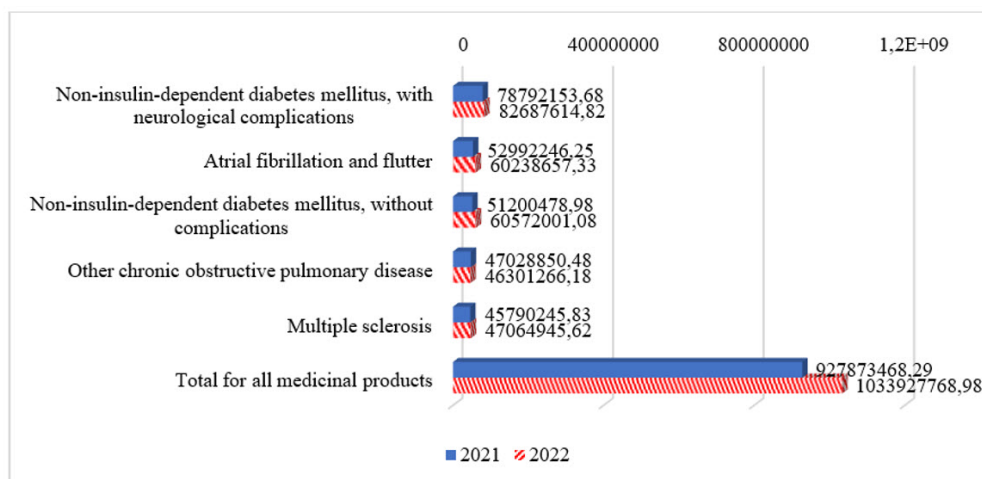


Fig.2. Annual costs of the 5 most resource-intensive diseases and total costs of drugs, medical devices and dietetic foods for home treatment

Figure 2 presents the annual costs – total for all medicinal products, medical devices and dietary foods for home treatment and the specific costs for the 5 most resource-intensive diseases. The relative share of each of the 5 diseases from the total share of costs for all medicinal products reimbursed by the NHIF under Annex 1 of the PDL was also calculated.

From Figure 2 and Table 1, it is clear that the rate of increase in costs in 2022 was the highest for “Non-insulin-dependent diabetes mellitus, without complications” - at 18.3%, followed by the costs of the disease “Atrial fibrillation and flutter”. – with 13.67%. A 1.55% decrease in spending was seen for the treatment of ‘Other Chronic Obstructive Pulmonary Disease’, thus for 2022 this disease ranks fifth, moving ‘Multiple Sclerosis’ to fourth. In this disease, the cost of drug therapy increases by 2.78%. Drug costs for the treatment of the most expensive disease - “Non-insulin-dependent diabetes mellitus with neurological complications” are rising by 5%.

Table 1. Relative share of the change in the average monthly expenditure on medicinal products, medical devices and dietary foods for home treatment of the 5 most resource-intensive diseases

Diseases	Years	Average monthly cost x	% Change
Non-insulin-dependent diabetes mellitus, with neurological complications	2021	6,566,012.81	4.94%
	2022	6,890,634.57	
Atrial fibrillation and flutter	2021	4,416,020.52	13.67%
	2022	5,019,888.11	
Non-insulin-dependent diabetes mellitus, without complications	2021	4,266,706.58	18.3%
	2022	5,047,666.76	
Other chronic obstructive pulmonary disease	2021	3,919,070.87	- 1.55%
	2022	3,858,438.85	
Multiple sclerosis	2021	3,815,853.82	2.78%
	2022	3,922,078.80	

Figure 3 shows the monthly distribution of the number of sick persons with compulsory health insurance from the 5 most resource-intensive diseases of the National Health Insurance Fund for medicinal products for home treatment.

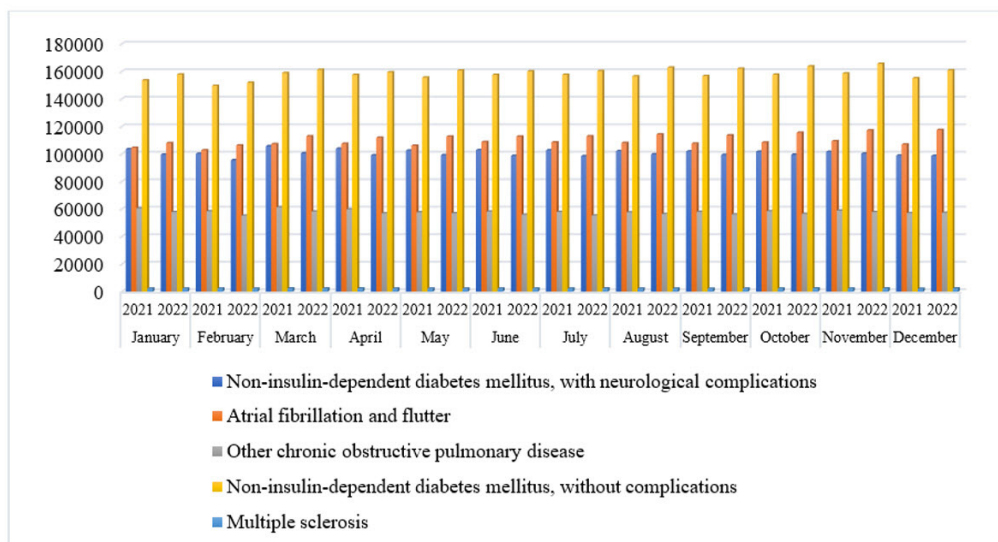


Fig. 3 Monthly distribution of the number of sick persons with mandatory health insurance from the 5 most resource-intensive diseases of the National Health Service for medicinal products, medical devices and dietary foods for home treatment

For the diseases included in our study, we observe a slight increase in the number of patients from the various diseases under consideration in 2022 compared to 2021.

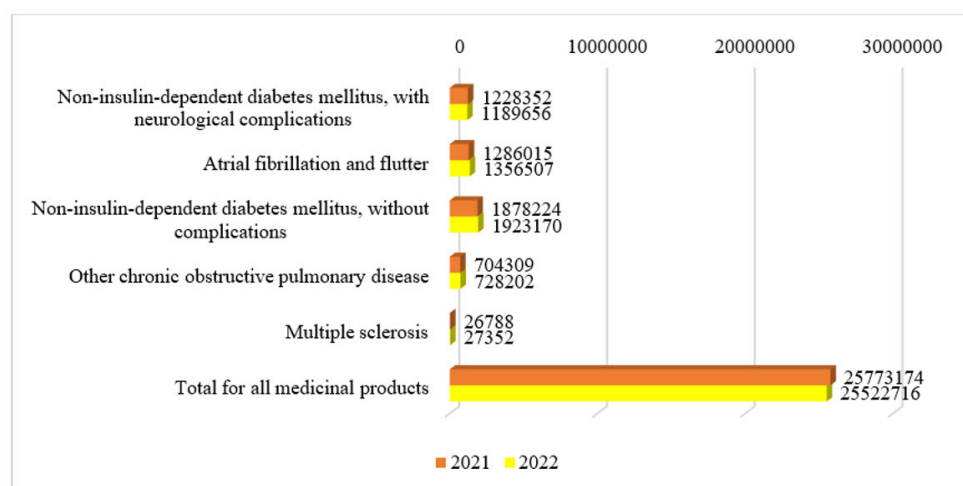


Fig. 4. Number of sick persons with mandatory health insurance

Table 2. Relative share of the change in the average monthly number of sick persons with mandatory health insurance for the 5 most resource-intensive diseases

Diseases	Years	Average monthly cost \bar{x}	% Change
Non-insulin-dependent diabetes mellitus, with neurological complications	2021	102,363	- 3.15%
	2022	99,138	
Atrial fibrillation and flutter	2021	107,168	5.48%
	2022	113,042	
Non-insulin-dependent diabetes mellitus, without complications	2021	58,692	3.39%
	2022	60,684	
Other chronic obstructive pulmonary disease	2021	156,295	2.54%
	2022	160,264	
Multiple sclerosis	2021	2,232	2.11%
	2022	2,279	

DISCUSSION

The disease for which the most public funds are allocated "Non-insulin diabetes mellitus, with neurological complications" occupies 8.5% in 2021 and 8.0% in 2022 of the total expenditure on medicinal products, medical devices and dietetic foods .

The second cost-intensive disease "Atrial fibrillation and flutter" occupies 5.7% in 2021 and in 2022 - 5.8% of the total costs, moving to the third position.

In third place for 2021 is "Non-insulin diabetes mellitus, without complications", which occupies 5.5% of the total expenditure on medicinal products, while in 2022 it occupies 5.9% and moves to second place in terms of expenditure.

The fourth most costly disease in 2021 was "Other Chronic Obstructive Pulmonary Disease" accounting for 5.1% of total expenditure, but in 2022 it moved to fifth position accounting for 4.5%.

In fifth place in 2021 is the disease "Multiple Sclerosis", occupying 4.9% of total spending, and in 2022 it moves to fourth place, occupying 4.6 percent of total spending on drugs and medical devices for Home treatment.

In contrast to the upward trend in the costs of medicinal products, the data show a slight decrease in the total number of sick HCWs in 2022 compared to 2021. In the total number of patients treated with public funds by the NHIF, the reduction is by 0.97%.

Despite the general trend, for the considered most resource-intensive diseases, the dynamics of the change in the number of patients is as follows:

"Non-insulin-dependent diabetes mellitus, with neurological complications" saw a 3.15% decrease in the number of patients and was the only disease with a decrease in patients in 2022. Of the total number of sick persons with mandatory health insurance for 2021, they account for 4.77%, and in 2022, 4.66%.

The number of patients with "Atrial fibrillation and flutter" increased by 5.48 percent. These patients account for 4.99% of the total number of patients in 2021 and 5.32% in 2022.

The number of patients with "Non-insulin-dependent diabetes mellitus, without complications" increased by 2.54 percent, and of the total number of sick persons with compulsory health insurance, treated with funds from the National Health Insurance Fund, their relative share is 7.28% and 7.54% for 2021 and 2022, respectively.

The number of patients with "Other chronic obstructive pulmonary disease" increased by 3.48%. Of the total number of sick persons with compulsory health insurance, treated with home treatment, these sick people accounted for 2.73% in 2021 and 2.85% in 2022.

In 2022, the number of patients with "Multiple Sclerosis" increased by 2.11%, accounting for 0.11% of the total number of health-insured patients treated with public funds for 2021 and 2022.

CONCLUSIONS

From the research carried out on the five most resource-intensive diseases, for the treatment of which the National Health Insurance Fund pays with medicinal products, medical devices and dietary foods for home treatment with public funds, we come to the conclusion that the disease for which the most public funds are allocated is Non-insulin dependent diabetes mellitus, with neurological complications, as well as type 2 diabetes, without complications. The disease of diabetes takes on an epidemic character worldwide, and according to a statistical forecast, the number of patients is expected to reach 522 million in 2030.

In contrast to the upward trend in the costs of medicinal products, we observe a slight downward trend in the total number of sick persons with mandatory health insurance in 2022 compared to 2021. In the total number of patients for whom public funds were spent on medicinal products for home treatment by the NHIF, the reduction was 0.97%. Despite the general trend, with the most resource-intensive diseases under consideration, the number of patients increased slightly, with the exception of the first of them.

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