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## RESULTS OF A COMPARATIVE ANALYSIS OF THE DYNAMICS OF HEALTHCARE EXPENDITURE FROM THE GDP OF COUNTRIES, CASH PAYMENTS FROM FAMILIES AND STATE EXPENDITURES ON HEALTHCARE IN UKRAINE, POLAND AND IN THE WHO EUROPEAN COUNTRIES

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**The aim:** to conduct a comparative analysis of the dynamics of health expenditures from GDP, cash expenditures of families and public expenditures on health in Ukraine, Poland and the countries of the WHO European Region.

**Materials and methods.** The object of the research was the data of the WHO European Office. Historical, analytical-comparative, systemic, logical, graphic, mathematical-statistical and other research methods were used.

**Research results.** It was found that all indicators of the analysis in Ukraine had an unstable character of changes in the years dynamics. Since 1995, Poland and European countries have seen a systematic increase in total health spending (%) of the country's GDP. The indicator of out-of-pocket expenses of families on medical and pharmaceutical support in Ukraine was significantly higher than in Poland and European countries, and its average values in Ukraine were 1.5 times higher than in Poland. In 2014, this indicator reached its maximum (46.2 %) against the background of an increase in government spending (%) of total health spending (from 11.9 % to 12.7 %). In 2014, this indicator exceeded similar values in Poland by 2.0 times and 1.7 times in European countries. In contrast, in Poland, the out-of-pocket expenses of families on medical and pharmaceutical support have been steadily decreasing from 30.0 % to 22.1 %, and since 2010 they have been lower than in European countries. According to government spending as a percentage of total health spending in Europe and Poland, there was a trend towards a gradual increase from 11.0 % to 13.2 % (European countries) and from 8.2 % to 10.7 % (Poland). The corresponding Ukrainian data were higher than in Poland and lower than in European countries (from 10.8 % to 11.4 %). Against the background of the unstable nature of the dynamics of changes in indicators characterizing the participation of the state in financing health care in Ukraine, since 2005, there has been an increase in the cash expenditures of Ukrainian families for relevant needs. As a result of systemic transformations in Poland, on the threshold of its accession to the EU (May 1, 2004), since 2005, there has been a decrease in the out-of-pocket expenditures of families against the background of a slight increase in % of public spending on health care.

**Conclusions.** The unstable nature of the dynamics of changes in domestic indicators, in comparison with similar data that was observed in Poland and the countries of the WHO European Region, suggests the need to introduce more decisive actions, which should lead to a reformatting of the role of the state in financing the health system

**Keywords:** medical care; healthcare, pharmaceutical care, healthcare financing

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### 1. Introduction

In any country, the issue of providing affordable medical and pharmaceutical care to the population appears as one of the most important areas of public policy in accordance with the objectives of the National Medical Policy [1, 2]. Given the growing tendencies to increase society's demands for efficiency of services provided in the health care system, as well as given the significant gap in the levels of availability of these services for different social groups, the role of the state in financing this industry is constantly transformed [3, 4]. Given the permanent nature of the rising cost of medical services and the constant expansion of the range of drugs, solving the problem of increasing the availability of services provided to the population in health care can not be considered only as a linear process of increasing funding [5, 6]. At the same time, according to the literature,

the issue of shortage of funds in the health care system is common to all countries, regardless of their level of economic development [7, 8]. In addition, this problem is relevant for health care systems, which differ in the type of funding and organizational and administrative structure [9, 10].

Most countries, especially developing ones, are considering increasing the availability of health services through the prism of introducing new approaches and methods for the rational use of limited financial resources, as well as the formation of a responsible attitude to the population to maintain their health [11, 12]. Particular successes in solving this problem have been achieved by countries moving towards the introduction of socially oriented forms and methods of serving the population with low and relatively low incomes in society [13, 14].

One of the important directions of reforming national health care systems is to maintaining a socially reasonable level of state guarantees for affordable medical and pharmaceutical care to all members of society against the background of a gradual transition to flexible financial policy for the formation of appropriate funds and their rational use [15, 16]. Thus, attracting additional sources of funding, constant monitoring of rationality and targeted use of funds, constant revision of existing regulations and standards in the organization of the treatment process, as well as state guarantees in the field of medical and pharmaceutical care can effectively solve many health problems [17]. According to the data of the special literature, the traditionally dominant role of the state remains in the process of providing appropriate services to low-income people, chronic patients with incurable pathologies [18]. The main financial burden is also borne by the state in the treatment of patients with socially dangerous diseases (tuberculosis, HIV, AIDS, malaria, etc.), children and adolescents [19, 20]. All the shortcomings in the work of the public health sector, which is financed by public funds, became apparent during the COVID-19 pandemic [21]. This global event necessitated a reconsideration of the role of the state in the process of financial guarantees for the preservation of the health and life of people provided in society. Unfortunately, despite considerable efforts by governments, the issue of equal access to effective medical and pharmaceutical care remains open.

Ukraine is one of the countries currently undergoing a period of health care reform to review the role of the state in financing relevant services. A few years ago, Poland went through a painful path of systemic changes in the health care system [22, 23]. Historically, this country has had many problems in common with Ukraine in organizing the functioning of the public health sector [24]. Thy given information led to our research.

**The aim** of the work is to conduct a comparative analysis of the dynamics of health care expenditures from the GDP of countries, cash expenditures of families and government expenditures on health care in Ukraine, Poland and the countries of the WHO European Region.

## 2. Planning (methodology) of research

To achieve this goal, we have developed the following stages of the research:

- analysis of existing literature sources on a range of issues related to the financing of national health care systems and changes in the role of the state in the provision of public guarantees for the provision of affordable medical and pharmaceutical care to the population (**I stage** – introductory and preparatory);
- outlining the issues and formulation of the main directions of the research that need to be conducted (taking into account the scientific and applied value of the expected results), defining the purpose, objects and

methods of the research, development of general methods of applied research (**II stage** – methodological);

- collection, pre-processing of data, testing of the use of existing software packages for statistical data processing, preliminary analysis of the results (**III stage** – mathematical and statistical);

- in accordance with the outlined at the second stage of the research analysis of the results obtained by group of countries (**IV stage** – result analytical);

- delineation of objective limitations in the practical use of the obtained data and formulation of directions of perspective researches in the specified direction (**V stage** – critical-analytical);

- registration of the obtained results and preparation of materials for publication in open access (**VI stage** – summing up).

As you can see, the overall design contained six main stages. In our opinion, they, on the one hand, corresponded to the generally accepted structure of organizational and economic work in pharmacy, and on the other – reflected the specifics of those studies that are conducted on the border of public, financial and medical-pharmaceutical interests of the subjects of relations in the health care system.

## 3. Materials and methods

For analysis, we have selected some of the most important macroeconomic indicators used in assessing the state of health and pharmaceutical supply in general and the role of the state in financing appropriate measures to preserve and maintain the health of citizens [25, 26]. These are indicators such as: total health care expenditures, % of the country's GDP; cash expenditures of families for medical and pharmaceutical provision in % of total health expenditures; public expenditure (or public sector expenditure) on health care as a percentage of total health expenditure. Given the fact that we needed to conduct a comparative analysis between the two countries, we used data presented on the official website of the WHO European Bureau [27]. The content of these indicators is given in Table 1. For the convenience of analysis and interpretation of the obtained results, all three indicators received the symbol “A”, “B”, “C”.

The analysis of the dynamics of changes in the relevant indicators was carried out for 1995–2014, which corresponded to the content of information presented on the WHO website. Given Ukraine's European integration intentions in a wide range of areas, including health, the values of indicators A, B, and C by country were also compared with the corresponding data in the EU, which were also presented on the website of the WHO European Bureau. Given the significant time interval for which the indicators were studied for the convenience of the analysis and the clarity of the results we took the following key points of the analysis – 1995, 2000, 2005, 2010 and 2014.

Table 1

Characteristics of the main macroeconomic indicators of the analysis (WHO edition) [27]

Code, name of the indicator and its symbol	Brief description of the indicator
340103. Total health expenditure, % of the country's GDP as estimated by the WHO Indicator "A"	General indicators of public and private expenditures in % of the country's GDP. These indicators are calculated by country based on national health systems, as well as the results of evaluations by international organizations such as the International Monetary Fund, the World Bank, the United Nations, the Organization for Economic Cooperation and Development (OECD). Therefore, in the final analysis, the indicators presented on the WHO European portal may differ from those presented by national agencies or line ministries and agencies.
40402. Cash expenditures of families for medical and pharmaceutical provision in % of total health expenditures Indicator "B"	They include all forms of payment to health care workers, as well as to providers of medicines, other goods and services, which are related to the process of restoring or strengthening the health of individuals or groups of the population. These include payments made by families to government services, non-profit institutions, and non-governmental organizations for this purpose. In addition, they include those payments that are not reimbursed from any public funds, deductibles, joint payments for the provision of services in the health care system. The presented indicator is calculated without taking into account the health care payments made by the institutions that provide medical and paramedical services, permitted by law or not, to their employees. In addition, the indicators related to the payment of the population for the relevant services abroad should be excluded from these costs.
340202. Public expenditure (or public sector expenditure) on health care as a % of total health expenditure, WHO estimate Indicator "C"	It is formed as the sum of payments for maintenance, restoration, strengthening of health, which are presented in value or in kind by the relevant state bodies, such as ministries of health, other ministries, social insurance bodies (excluding double counting of government transfers to social insurance funds and other extra-budgetary funds). This indicator also includes the amounts paid to households to compensate for the cost of provided medical care, as well as the extrabudgetary funds allocated to health care financing. It is calculated according to the data provided by the national health care systems, and can also be adjusted by the International Monetary Fund, the World Bank, the UN, OERS. Therefore, they may differ from those submitted by the country's authorities to the WHO.

The dynamics of changes in indicators was analyzed using growth rates (%) and growth (%), as well as chain values of growth/decrease coefficients ( $k_{k+1}$ ). We also calculated the average chronological  $\bar{Y} = \frac{x_1 + x_2 + \dots + x_n}{n}$  [28]. Fluctuations in indicators were determined using the variation range of indicators ( $R = N_{\max} - N_{\min}$ ). For statistical data processing we used the statistical analysis package Statistica (version 12.0, StatSoft, Tulsa, USA). A p-value <0.05 was considered statistically significant.

In addition to mathematical and statistical methods of analysis, the research also used historical, logical, analytical-comparative, graphical, systematic, logical and other general theoretical methods that are typical for applied research in organizational and economic areas in pharmacy and health care.

#### 4. Research results

The results of processing statistical indicators are given in Tab. 2. Indicator A in Ukraine ranged from 5.6 % (2000) to 7.8 % (2009, 2010), and the average value was 6.76 %. In Poland, this figure ranged from 5.4 % (1995) to 7.0 % (2009), and the average was 6.2 %. The highest growth of indicator A in Ukraine was observed in 2009, so these data increased by 18.0 % compared to the previous 2008. In turn, a significant

decrease in data on indicator A took place in 1999. This year the indicator decreased by 11.0 % from 6.6 % in 1998 to 5.9 %. The analysis of data in Poland allowed to determine the period with the highest (+10.0 %) increase in the values of the indicator, first of all, in 2008 (A=6.6 %) and the lowest (-7.0 %) – in 1997 (A=5.5 %). In Fig. 1. the results of the analysis of the dynamics of indicator A by reference countries in comparison with the European data on key points of analysis are given.

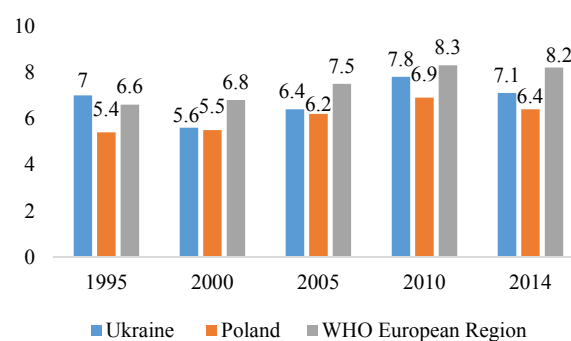


Fig. 1. Analysis of the dynamics of changes in indicator A in Ukraine, Poland and in general in the countries of the WHO European Region

Table 2

Analysis of indicators affecting the availability of medical and pharmaceutical care (WHO data)

Years	Ukraine						Poland					
	Index of analysis «A <sub>1</sub> »		Index of analysis «B <sub>1</sub> »		Index of analysis «C <sub>1</sub> »		Index of analysis «A <sub>2</sub> »		Index of analysis «B <sub>2</sub> »		Index of analysis «C <sub>2</sub> »	
	%	k	%	k	%	k	%	k	%	k	%	k
1	2	3	4	5			8	9	10	11	12	13
<b>1995</b>	<b>7.0</b>	–	<b>24.5</b>	–	<b>11.4</b>	–	<b>5.4</b>	–	<b>27.1</b>	–	<b>8.2</b>	–
1996	6.9	0.99	26.8	1.09	11.4	1.00	5.9	1.09	26.6	0.98	8.3	1.01
1997	6.9	1.00	35.5	1.32	11.4	1.00	5.5	0.93	28.0	1.05	8.5	1.02
1998	6.6	0.96	43.0	1.21	11.6	1.02	5.9	1.07	34.6	1.24	8.5	1.00
1999	5.9	0.89	46.2	1.07	11.0	0.95	5.6	0.95	28.9	0.84	9.3	1.09
<b>2000</b>	<b>5.6</b>	<b>0.95</b>	<b>44.1</b>	<b>0.96</b>	<b>10.2</b>	<b>0.93</b>	<b>5.5</b>	<b>0.98</b>	<b>30.0</b>	<b>1.04</b>	<b>9.2</b>	<b>0.99</b>
2001	5.7	1.02	41.8	0.95	11.3	1.11	5.9	1.07	28.1	0.94	9.4	1.02
2002	6.3	1.11	40.4	0.97	13.2	1.17	6.3	1.07	25.4	0.90	9.9	1.05
2003	6.9	1.10	38.7	0.96	14.3	1.08	6.2	0.98	26.4	1.04	9.5	0.96
2004	6.6	0.96	38.6	0.99	13.2	0.92	6.2	1.00	28.1	1.06	9.7	1.02
<b>2005</b>	<b>6.4</b>	<b>0.97</b>	<b>37.5</b>	<b>0.97</b>	<b>11.9</b>	<b>0.90</b>	<b>6.2</b>	<b>1.00</b>	<b>26.1</b>	<b>0.93</b>	<b>9.7</b>	<b>1.00</b>
2006	6.4	1.00	36.3	0.97	12.1	1.02	6.2	1.00	25.6	0.98	9.7	1.00
2007	6.4	1.00	34.7	0.96	12.5	1.03	6.3	1.02	24.6	0.96	10.3	1.06
2008	6.6	1.03	39.4	1.14	11.7	0.94	6.9	1.10	22.8	0.93	11.1	1.08
2009	7.8	1.18	42.0	1.07	12.8	1.09	7.0	1.01	22.7	0.99	11.3	1.02
<b>2010</b>	<b>7.8</b>	<b>1.00</b>	<b>40.5</b>	<b>0.96</b>	<b>12.7</b>	<b>0.99</b>	<b>6.9</b>	<b>0.99</b>	<b>22.1</b>	<b>0.97</b>	<b>10.7</b>	<b>0.95</b>
2011	7.0	0.90	43.6	1.08	11.6	0.91	6.7	0.97	22.3	1.01	10.8	1.01
2012	7.5	1.07	42.0	0.96	11.8	1.02	6.6	0.99	22.7	1.02	10.8	1.00
2013	7.7	1.03	43.1	1.03	12.0	1.02	6.4	0.97	23.5	1.04	10.7	0.99
<b>2014</b>	<b>7.1</b>	<b>0.92</b>	<b>46.2</b>	<b>1.07</b>	<b>10.8</b>	<b>0.9</b>	<b>6.4</b>	<b>1.00</b>	<b>23.5</b>	<b>1.00</b>	<b>10.7</b>	<b>1.00</b>
Average value	6.76	1.01	39.25	1.04	11.95	1.00	6.2	1.01	25.96	0.99	9.82	<b>1.01</b>

It is noteworthy that in all years the average data for European countries exceeded the corresponding data in Ukraine (except 1995) and in Poland. In addition, it should be noted that in Ukraine the indicator A for all years of analysis was relatively higher than in Poland. This is a characteristic feature in the dynamics of the indicators we analyzed. As we see from Fig. 1. for pan-European data during 1995–2010 was characterized by a gradual increase in the relevant data with a slight decrease in 2014 (A=8.2 %). A similar nature of changes in indicators was observed in Poland. In contrast to the EU countries in Ukraine, indicator A had a wave-like character of changes.

Cash expenditures of families related to the provision of medical and pharmaceutical care to citizens is one of the important indicative indicators, which determines the level of available services provided in the health care system [29, 30]. Despite the significant efforts of national governments, the rate of cash expenditures is growing disproportionately to changes in income indicators of different social strata and countries around the world [29]. Thus, the indicator A ranged from 24.5 % (1995) to 46.2 % (2014), the range of variation was equal to 21.7 %. In Poland, the value of indicator B was observed in the range from 22.1 % (2010) to 34.6 % (1998), the range of variation was equal to 12.5 %. The average value of data in Ukraine was 39.25 %, and in Poland – 25.96 %, i.e. Ukrainian data on average cash expenditures of families for medical and pharmaceutical services were 1.5 times higher than similar data in Poland. Another

important characteristic of the dynamics of changes in indicator B in the two countries is due to the fact that in Ukraine the average value of the rate (%) of growth of indicators was 104 %, and in Poland 99 %. That is, in Ukraine there was an increase in relevant data, and for Poland – on the contrary, a decrease. In the following Fig. 2 there are results of a comparative analysis of key points in the analysis of the dynamics of indicator B. As you can see, in Ukraine this indicator is much higher than in Poland and in the countries of the WHO European Region. For example, in 2000 it was 1.5 times higher than similar indicators in Poland and 1.7 times higher than in European countries as a whole. In 2014, it exceeded similar values in Poland by 2.0 times and 1.7 times than in European countries. It should be emphasized that since 2010, for the first time in the entire observation period, there has been a decrease in the data of cash expenditures of Polish families, compared with similar data in European countries. Thus, this figure in Poland in 2014 was 23.5 % against 26.6 % on average in the European region. In general, it can be argued that since 2000 in Poland there has been a systematic decline in the relevant indicators, which was observed for ten years and in 2014 we observed a slight (1.4 %) increase in data compared to 2010.

The next indicator that characterizes the participation of the state in financing measures to preserve and maintain the health of citizens is the public spending (or public sector spending) on health care in % of total health care spending (indicator C). According to the

special literature, the assessment of the financial role of state institutions and the level of regulatory impact of the availability of medical and pharmaceutical care to the population is an issue that is constantly discussed [31, 32]. According to the analysis of indicator C by reference countries, we found the following. In Ukraine, this indicator ranged from 10.2 % (2000) to 14.3 % (2003), so the variation range was 4.1 %. Similar data in Poland ranged from 8.2 % (1995) to 11.3 % (2009), and the variation range was 3.1 %. Accordingly, the average values of C in Ukraine were 11.95 %, and in Poland - 9.82 %. That is, as we see, the state's contribution to the financing of relevant measures in Ukraine was financially greater than in Poland.

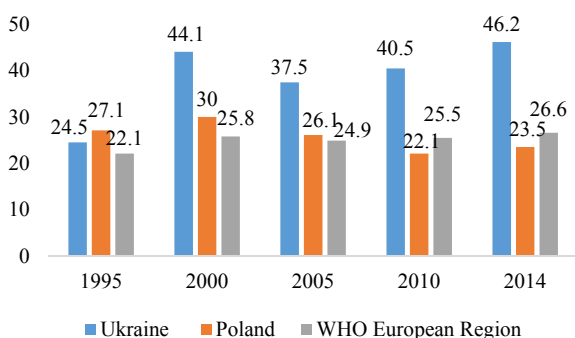


Fig. 2. The results of a comparative analysis of the dynamics of changes in cash expenditures of families for medical and pharmaceutical care in Ukraine, Poland and the countries of the WHO European Region

The maximum (+17.0 %) growth of the relevant data in Ukraine was observed in 2002 (13.2 %), and the minimum - according to 2005. Thus, this year the indicator (C=11.9 %) decreased by -10.0 % relative to previous data (13.2 %). In Poland, the maximum growth (9.0 %) in the dynamics of the years, we observed in 1999 (9.3 % vs. 8.5 % in 1998). In turn, a significant decrease (-5.0 %) took place according to 2010, when the figure was equal to 10.7 % against 11.3 %, which was observed in 2009. As we can see, the periods of maximum growth and decline data on the group of reference countries differ by periods. In Fig. 3 there is result of a comparative analysis of the dynamics of indicator C with the average data for the group of countries in the WHO European Region.

It should be noted that the data of indicator C in Europe in 1995-2014 increased from 11.0 % to 13.2 %. A similar trend can be seen in the data from Poland. Thus, the figure is from 8.2 % to 10.7 %. At the same time, in Ukraine there was an unstable trend in the change of C in the dynamics of years. Thus, the indicator in 2000 decreased, compared to 1995 (11.4 %) to 10.2 %. Subsequently, we observed an increase in data over ten years to 12.7 %, followed by a decrease in 2014 to 10.7 %. It should also be noted that domestic indicators exceeded the European average only in 1995, then they were lower than the data provided by the WHO for a group of countries in the European region. At the same time, the fact that during 1995-2014 domestic data ex-

ceeded similar indicators in Poland is characteristic. It is also noteworthy that government spending (or public sector spending) on health care, as a percentage of total health care spending in Poland, was lower than not only Ukrainian data, but also the European average.

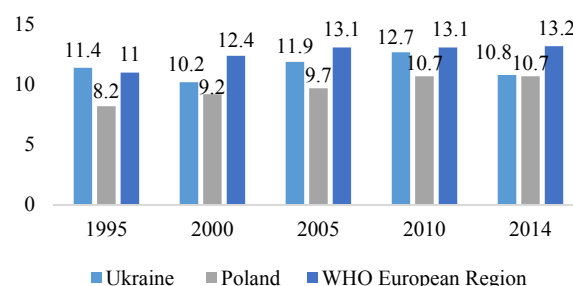


Fig. 3. The results of the analysis of the dynamics of changes in C indicator in Ukraine, Poland and European countries

## 5. Discussion of research results

Analyzing the results of the study, we can identify the following characteristics in the dynamics of changes in indicators A, B and C. Separately, we will analyze the dynamics of changes in each of these indicators in Ukraine, Poland and the WHO European Region as a whole. The fact that in European countries, according to indicator A, there is a systematic growth of data (except for 2014) is positive. A similar trend is observed in Poland. In Ukraine, on the contrary, we have unstable changes in the relevant indicator. It is noteworthy that the Ukrainian indicators A were higher than in Poland during the whole analysis period. This was observed given the fact that the cash expenditures of families for medical and pharmaceutical provision in Ukraine were significantly higher than in Poland and European countries, and were also characterized by a systematic increase since 2005 (37.5 %), reaching its maximum (46.2 %) according to 2014. It is interesting to note that the increase in cash expenditures of families for medical and pharmaceutical provision in the period from 2005 to 2010 also occurred against the background of an increase in government spending on health care (%) of total health care expenditures from 11.9 % to 12.7 %. In Poland, since 2000, we have seen the opposite trend, i.e. B has been steadily declining from 30.0 % to 22.1 % in 2014. In addition, Polish data on family cash expenditures since 2010 have been lower than in the WHO European region. This is an important qualitative characteristic of the dynamics of changes in the indicator that we analyzed. It should also be noted that in 1995 this indicator in Ukraine (24.5 %), Poland (27.1 %) and the countries of the WHO European Region (22.1 %) fluctuated in a small range of values (R=5.0 %), and according to 2014, its value by country was already 46.2 %, 23.5 % and 26.6 %, respectively, and the range of variation was 22.7 %. That is, at the end of the observation period, Ukraine took the lead in the anti-rating on indicator B, which is an important indicator that allows to assess the level of availability of medical and pharmaceutical care

to the population and the implementation of relevant state guarantees.

According to the indicator C for the countries of the European region and in Poland, during 1995–2014 we observed a tendency to a gradual increase from (European countries from 11.0 % to 13.2 %; Poland from 8.2 % to 10.7 %). In Ukraine, this indicator was unstable and was higher than in Poland during the entire observation period. That is, against the background of unstable dynamics in Ukraine of changes in indicators A and C, which characterize the participation of the state in financing the relevant measures, we observed an increase in cash expenditures of Ukrainian families (indicator B) in the process of preservation and maintenance of health.

**Study limitations.** Analyzing the results of research, we can identify the following limitations on their interpretation and practical use. As you know, in Poland, systemic transformations in health care began in the late 90's and were further developed with the accession of the country in 01.05.2004 to the EU. Thus, the dynamics of these indicators demonstrates the impact of large-scale transformations on macroeconomic indicators, which allow to characterize the influence of the state on the financing of the public health sector and the level of cash expenditures of families for appropriate activities. Unfortunately, after the collapse of the USSR, Ukrainian health care system remained for many years within the administrative-command model of functioning by M. O. Semashko [33, 34]. At the beginning of the new millennium, there was an opportunity for government agencies to reform the health sector, but there were no significant structural changes [35, 36]. Therefore, the dynamics of domestic indicators to a greater extent characterizes the process of state efforts to change the situation in the security system for the better without the introduction of a systematic approach to the implementation of radical reforms. Thus, the comparison of these indicators in the two countries that have gone through different historical paths since the late 1990s should be considered in terms of assessing the effectiveness of the implementation of their opposing strategies for health care reform. This significantly narrows the scale of their use in domestic realities. Another limitation of our research is that the demonstration of positive changes in the dynamics of indicators A, B and C in Poland and the EU without outlining the directions of their further development in Ukraine does not allow to fully use the results. As a result, it is necessary to identify the main factors that may have the greatest impact on these indicators in Ukraine. In addition, the lack of data from 2014 to 2019 also creates artificial restrictions on research in this area, because it is from 2017 in Ukraine began and continues large-scale reforms that have affected virtually all aspects of

the organization, administration and financing of the health care system. and pharmaceutical supply of the population. Therefore, the formation of a holistic picture and assessment of the processes that are currently taking place in the domestic health care system is impossible without updating the indicators that we study.

**Prospects for further research.** The analysis and comprehension of the obtained results, as well as the formed restrictions on their practical use allow to determine the directions of our perspective researches. Against the background of large-scale reform of the domestic health care system, some areas of which, such as the government program “Affordable Medicines” are already highly praised by the WHO [37]. A promising area of further research is to analyze the dynamics of changes in indicators A, B, and C in the post-Soviet countries, which is moving towards the introduction of socially oriented models of medical and pharmaceutical care for patients (Moldova, Georgia, Uzbekistan, etc.). In addition, it is promising to analyze the impact of various factors on the indicators that we have studied over the years.

## 6. Conclusions

Summarizing the results of the research we can say the following. There was no country that has reformed its national health systems has taken this path painfully, as it is both a socially sensitive and a financially attractive sector of the country's macroeconomic complex [38]. These processes are especially difficult in countries that are experiencing a system of crisis or are in a state of internal and external conflict [39]. According to our research, despite the economic and social crisis that Poland has been experiencing since the late 1990s, the country has been systematically reducing the level of cash expenditures of families on medical and pharmaceutical support against the background of a slight increase in public spending. Since 2010, these data in Poland were lower than the European average. That is, the introduction of a systematic approach and decisive action to reform the national health care system, which Poland began on the threshold of EU accession, had positive socio-economic consequences. We believe that the use of such experience in Ukraine will contribute to the effective reformatting of the financial role of the state in the functioning of the public health sector and will lead in the future to increase the level of access to medical and pharmaceutical care provided to the population.

## Conflict of interests

The authors declare that they have no conflicts of interest.

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