Wiadomości Lekarskie

Official journal of the Polish Medical Association

Memory of
dr Władysław
Biegański

VOLUME LXXV, ISSUE 5 PART 1, MAY 2022

Since 1928

ALUNA Publishing House

Wiadomości Lekarskie is abstracted and indexed in: PUBMED/MEDLINE, SCOPUS, EMBASE, INDEX COPERNICUS, POLISH MINISTRY OF EDUCATION AND SCIENCE, POLISH MEDICAL BIBLIOGRAPHY

Wiadomości Lekarskie
monthly journal

You can order the subscription for the journal from Wydawnictwo Aluna by:
prenumerata@wydawnictwo-aluna.pl
Wydawnictwo Aluna
Z.M. Przesmyckiego 29
05-510 Konstancin-Jeziorna
Poland

Place a written order first.

If you need, ask for an invoice.
Payment should be done to the following account of the Publisher:
account number for Polish customers (PLN):
82 1940 1076 3010 7407 0000 0000
Credit Agricole Bank Polska S. A., SWIFT: AGRIPLPR

account number for foreign customers (EURO):
57 2490 0005 0000 4600 7604 3035
Alior Bank S. A.: SWIFT: ALBPPLPW

Subscription of twelve consecutive issues (1-12):
Customers in Poland: 480 PLN/year
Customers from other countries: 360 EURO/year

Wiadomości Lekarskie

Distribution and Subscriptions:
Bartosz Guterman prenumerata@wydawnictwo-aluna.pl
Graphic design / production:
Grzegorz Sztank www.red-studio.eu

Publisher:
ALUNA Publishing House
ul. Przesmyckiego 29,
05-510 Konstancin – Jeziorna
www.wydawnictwo-aluna.pl
www.wiadomoscilekarskie.pl
www.wiadlek.pl

CONTENTS

ORIGINAL ARTICLES

ORIGINAL ARTICLE

NATIONAL HEALTH EXPENDITURE TRENDS, 2000 TO 2019

DOI: 10.36740/WLek202205116

Valery N. Lekhan[1], Mykola I. Zaiarskyi[1], Viktoriia V. Vudvud[2], Daria A. Kovalevych[2]
[1]DNIPRO STATE MEDICAL UNIVERSITY, DNIPRO, UKRAINE
[2]CHERNIVTSI INSTITUTE OF TRADE AND ECONOMICS OF THE KYIV NATOINAL UNIVERSITY OF TRADE AND ECONOMICS, CHERNIVTSI, UKRAINE

ABSTRACT

The aim: To assess the long-term dynamics of health spending in Ukraine from the standpoint of readiness to make progress in the universal health coverage (UHC)

Materials and methods: Data from the Global Health Expenditure Database, European Health for All database, World Bank Open Data, collected during 2000-2019 were used. The research was conducted using bibliosemantic, historical methods and benchmarking.

Results: All indicators of health spending in Ukraine showed some growth: total and government health spending of % Gross Domestic Product (GDP) by 34% (95% CI 13-55) and 28% (95% CI 8-48), total and government health spending per capita in US $ by 7.1 and 6.5 times and in Purchasing power parity (PPP) – by 4 and 3.8 times. Growth was interrupted during the global (2008) and national (2017-2019) financial crises. Out-of-pocket spending in Ukraine grew and amounted to 51.1% in 2019, which is by 2.1 times more than in the European region – 24.0% (15.5; 36.6). In 2019 Ukraine ranked among 10% of the countries with the worst combination of government health spending per share of GDP and share of OOPS in total health spending.

Conclusions: The study found an unsustainable upward dynamic in health spending. In the last decade, there has been a clear trend towards an increase % OOPS in total health spending against low, aimed at reducing government health spending as % of GDP, which could negatively affect UHC.

KEY WORDS: health spending of % GDP, health spending per capita, % OOPS, universal health coverage

Wiad Lek. 2022;75(5 p1):1141-1147

INTRODUCTION

Universal health coverage (UHC) is being of critical importance for achieving any country's sustainable development goals. A key role in achieving this is played by sustainable funding systems, which, despite all the difficulties, are able to mobilize the necessary health care funds from public and quasi-public sources, reducing the burden of personal costs and thus increasing access to health care, especially for vulnerable groups of people [1].

Achieving UHC requires increasing health funding, especially in low- and middle-income countries [2] and reducing the share of out-of-pocket health payments. (OOPS), which remains the main financial barrier along the way [3]. The UHC problem is even more pressing in the wake of the COVID-19 pandemic, which has been the worst economic shock in decades [4].

The last long-term analysis of health spending in Ukraine.was completed in 2013 [5]. More recent studies of this kind have not been conducted in the country.

THE AIM

To assess the long-term dynamics of health spending in Ukraine from the standpoint of readiness to make progress in the universal health coverage.

MATERIALS AND METHODS

This study accessed health spending data that were pre-collected and pre-summarized by the WHO in the Global Health Expenditure Database (https://apps.who.int/nha/database). This accessed database contained materials representing comparable data for 192 countries over 20 years (2000-2019), each of which, according to the World Bank, is classified into specific income group – with high, upper-middle, lower-middle and low incomes. Ukraine's Health Expenditure profile (https://apps.who.int/nha/database/country_profile/Index/en) was also analyzed to describe the situation in detail. The information base of the study was supplemented by the materials of European Health for All database (https://gateway.euro.who.int/ru/datasets/european-health-for-all-database/); World Bank Open Data (https://data.worldbank.org/), State Statistics Service of Ukraine (National Health Accounts of Ukraine – http://www.ukrstat.gov .ua /) and working materials on budget expenditures on health care of one of the regional health departments. An analysis was made of total and government health spending as a % of GDP; total and government health spending per capita in US$ and in Purchasing power parity – PPP (current international $); share of health expenditures from different sources of funding; primary health care spending per capita (US$).

The study used bibliosemantic, historical methods and benchmarking.

Statistical processing of results was performed with STATISTICA 6.1 (StatSoft Inc, serial number AGAR909E-415822FA) and Excel-2010, using methods of parametric and non-parametric statistics, time series analysis. To describe the normal distribution of the sample data we used the arithmetic mean (M) with a 95% confidence interval (95% CI); for asymmetric distribution we used median (Me) with interquartile range (25%; 75%). For relative values, 95% CI was calculated using the adjusted Wald method. The relationships between the variables were evaluated using Pearson's correlation coefficient (r). The critical value of statistical significance for all types of analysis was taken at the level of $p < 0.05$.

The study has a positive response on the use of research methods from the commission on bioethics (minutes of the meeting of the commission on biomedical ethics of the Dnipro State Medical University №5 from 07.02.2022).

RESULTS

The level of national health spending, calculated in % of GDP, is considered one of the key indicators of social development. Total health spending (THS) as a % of GDP in Ukraine averaged 6.7% over a 20-year period (6.05; 7.12), growth by 34% (CI 95% 13-55); government health spending (GHS) as a % of GDP – 3.5% (3.23; 3.69), growth by 28% (CI 95% 6-48) (Fig. re 1).

Fig. re 1 shows that the dynamics of total and government spending (% of GDP) for the observation period was not linear, but was characterized by a number of extreme points, when periods of growth were alternated with periods of decline due to features both of internal and external financial and economic situation. For two decades in trends THS (% of GDP) conditionally one can distinguish 5 periods: 1st (2000-2003) – growth (126.9%; from 5.3% to 6, 6% GDP), associated with the strengthening of the national economy; 2nd (2004-2006) – relative stability (97%; 6.2÷6.4% GDP), 3rd (2007-2008) – decline due to

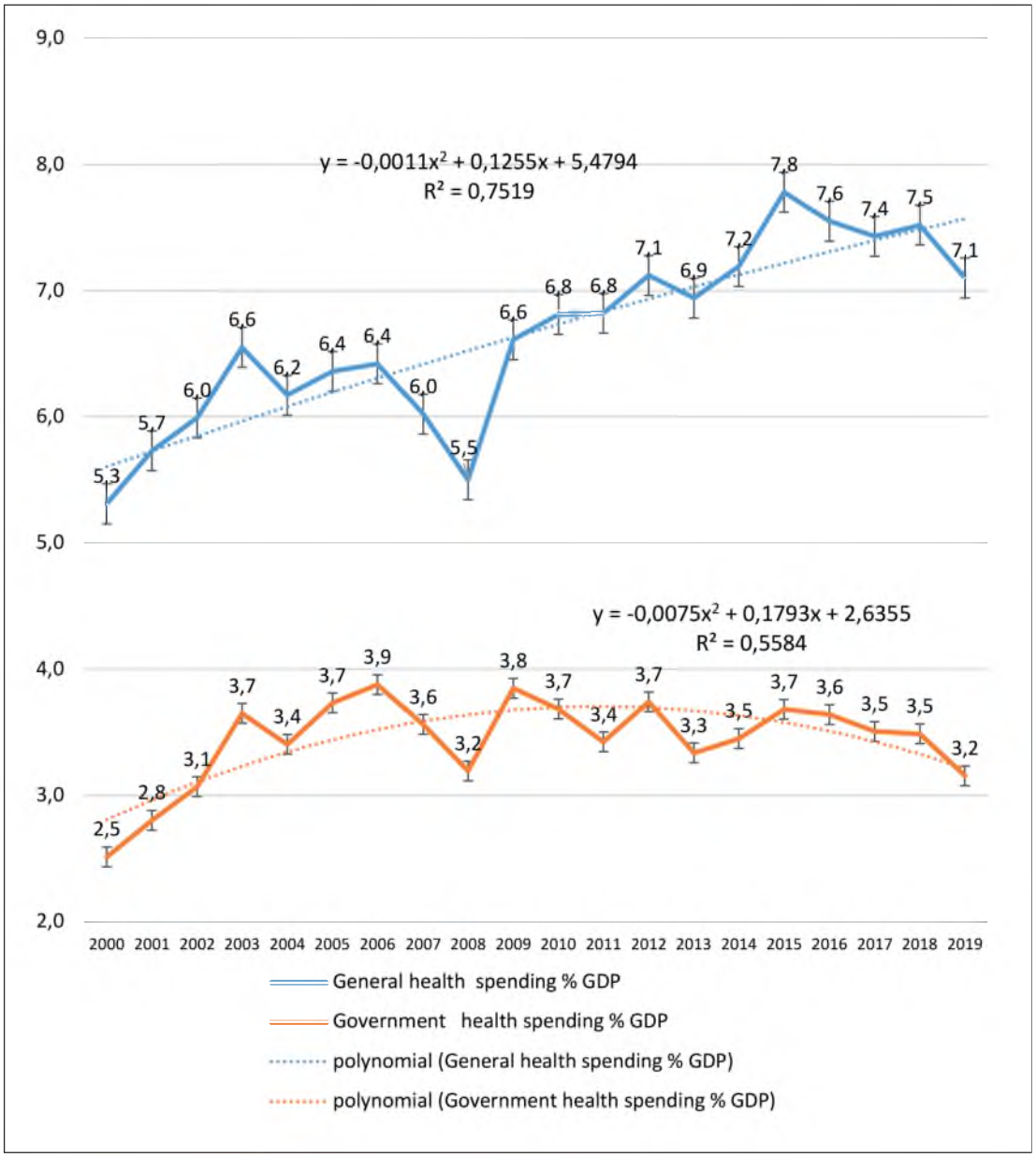

Fig. 1. Dynamics of total and government health spending as a % of GDP in Ukraine for the period 2000-2019
Note. R2 – Reliability Approximation

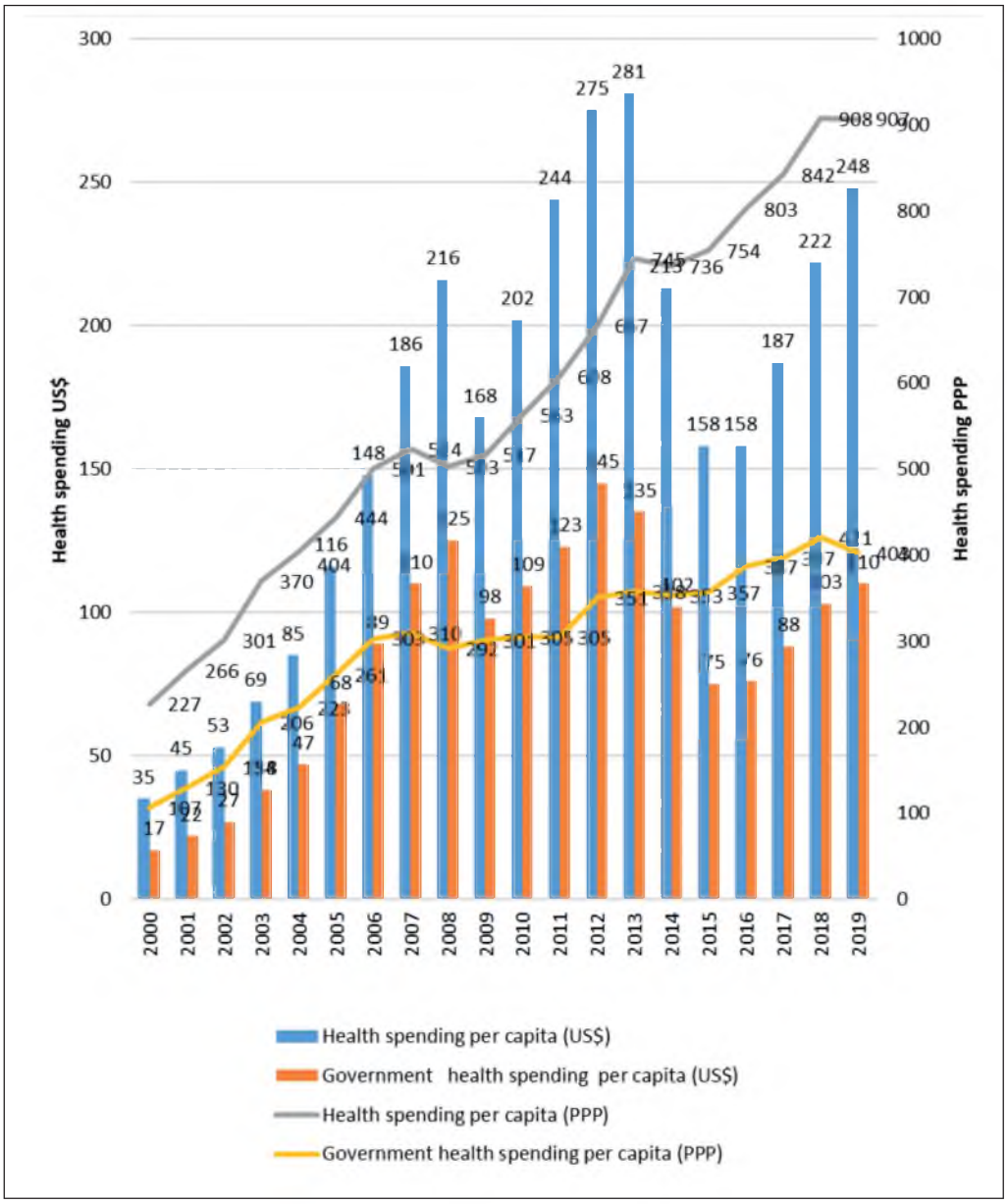

Fig. 2. Dynamics of total and government health spending per capita in Ukraine (in US $ and PPP), 2000-2019

the global financial and economic crisis (85.9%; from 6.4% to 5.5% GDP); 4th (2009-2015) – post-crisis recovery and growth (121.9%; from 5.5% to 7.8% GDP); 5th (2016-2019) – a slow decline, determined by revolutionary events and by the military conflict in the east of the country (91.0%; from 7.8% to 7.1% GDP).

The dynamics of changes GHS (% of GDP) had some differences. The number of periods decreased to 4 due to the extension of the 1st period of growth (2000-2006 – 156.0%; from 5.3% to 6.6%), when the positive trend of the general economic situation was supported by increasing the priority of health care in government spending. Other periods coincided with the dynamics of THS (% of GDP), but the depth of change was greater (Table I). Between the THS and GHS (% GDP) the relationship is average ($r = 0.56$; $p < 0.05$).

THS (% of GDP) in Ukraine, which belongs to the number of countries with incomes below the average, in 2019 amounted to 7.1%. According to this indicator, Ukraine occupied the middle position (28th rank) among 53 countries in the European region. Compared to the CIS countries, which included countries with different income levels (upper-middle, lower-middle, low income) THS (% of GDP) in Ukraine was by 16.3% (95% CI 5-37) higher, almost identical for the European region – 7.11 (6.18; 9.14) and lower by 10% (95% CI 0-20) compared to EU countries, all of which, except Bulgaria, belonged to high income countries.

According to the GHS (% of GDP) Ukraine's ranking was much lower – 43rd (3.15% of GDP). In general, GHS (% of GDP) in Ukraine was by 31.25% (95% CI 5-67) higher compared to CIS countries and by 1.56 and 2.37 times lower compared to European region and the EU countries (Table II).

Over a 20-years' period (2000-2019) in Ukraine THS per capita (US $) increased by 7.1 times (from 35 to 248 US $ per capita); GHS per capita increased significantly, although slightly less – by 6.5 times (from 17 to 110 US $ per capita).

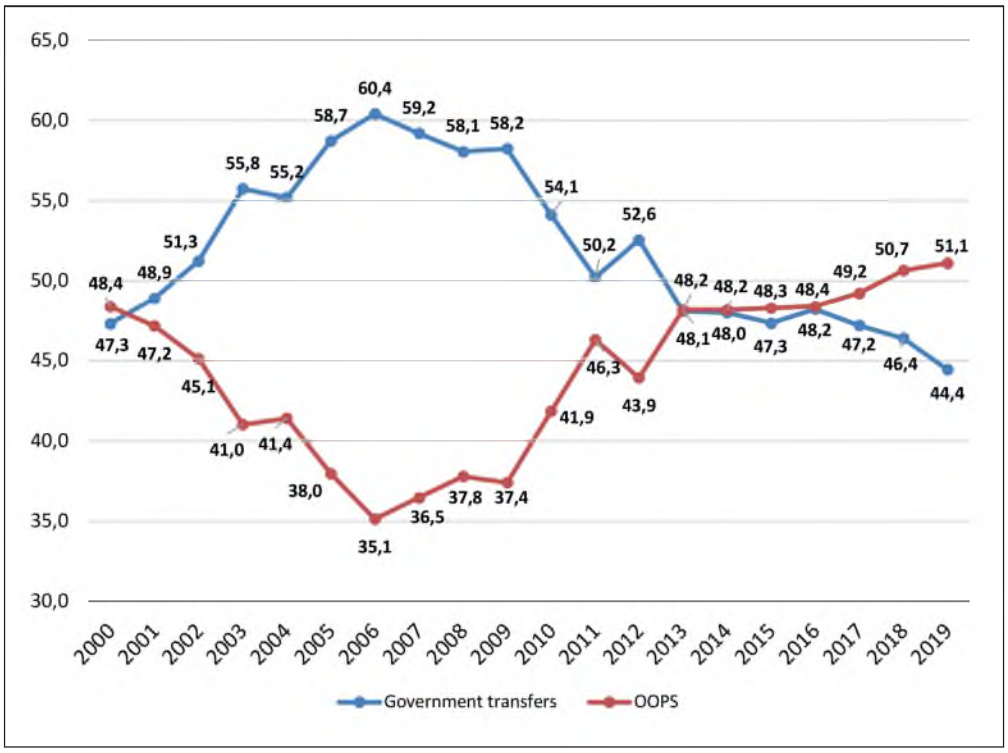

Fig. 3. Relationship between % of government health spending and % of OOPS, Ukraine (2000-2019)

Table I. Analysis of the dynamics of total and government health spending (% of GDP), Ukraine (2000-2019)

Indicators		Characteristic of periods				
		Growth	Stabilization	Decline	Recovery and growth	Slow decline
THS (% of GDP)	Observation period	2000-2003	2004-2006	2007-2008	2009-2015	2016-2019
	Visibility index	126,9	97,0	85,9	121,9	91,0
	Average annual growth rate	7,6	-1,02	-7,3	6,0	-3,1
GHS (% of GDP)	Observation period	2000-2006		2007-2008	2009-2015	2016-2019
	Visibility index	156,0		82,1	115,6	86,5
	Average annual growth rate	7,7		-9,4	2,5	-4,7

Table II. Comparative characteristics of total and government health spending (% of GDP) in Ukraine, CIS countries, European Region WHO and the EU, 2019. (Me (25%; 75%))

Indicators	Ukraine	CIS countries	WHO European Region	EU countries
Total health spending (% of GDP)	7,1	6.12 (4,77;6.99)	7.11 (6,38; 9,14)	7.84 (6,69; 10,045)
Government health spending (% of GDP)	3,2	2.325 (1,47;,38)	4.66 (3,77; 6,39)	5.48 (4,58;7,25)

A more accurate estimate of the dynamics of health spending can be obtained by means of PPP – a purchasing power parity that shows the ratio of prices in national currencies for the same product or service in different countries relative to the currency of the base or reference country (e.g. US $). THS and GHS per capita in PPP have increased almost by 4 times over a 20-years' period (Fig. re 2).

Despite the overall positive dynamics, all health spending indicators are catastrophically different from the Middle European and those of EU countries. In 2019 THS and GHS per capita in US $ were by 9.7 and 15.7 times lower than the average in the European Region WHO (2405 and 1724 US $ respectively) and by 14 and 22.9 times lower than the EU average (3452 and 2520 US $); the levels of THS and GHS per capita in PPP – by 3.5 and 5.2 times lower than in the region as a whole (3167 and 2119 US $) and by 4.7 and 7.4 times less than in the EU (4280 and 3021 US $). In terms of THS and GHS per capita (US $) in 2019, Ukraine ranked 49th and 47th among 53 countries in the European Region WHO; according to THS and GHS per capita in PPP – 46th and 44th place respectively.

Despite the overall positive dynamics, all health spending indicators are catastrophically different from the Middle

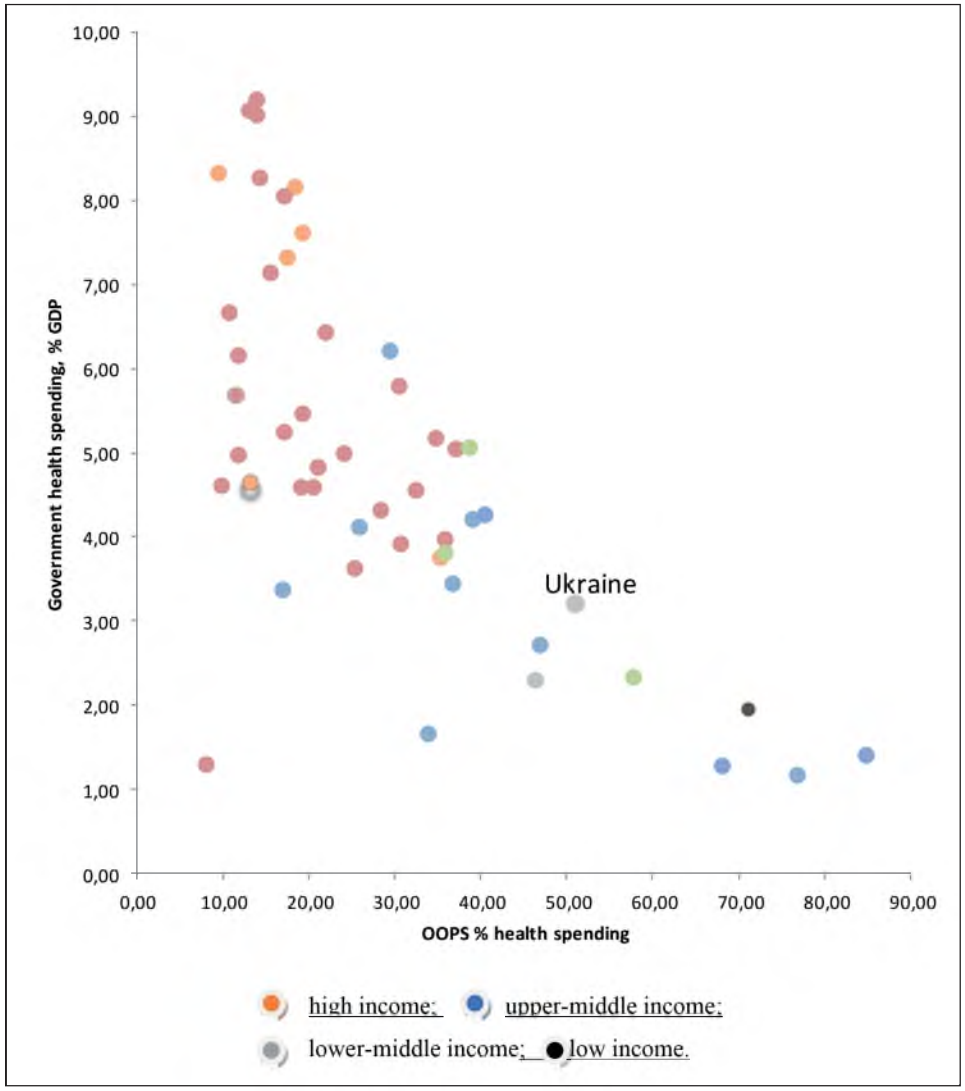

Fig. 4. OOPS share of health spending and government health spending as a share of GDP in the WHO European Region countries, 2019

European and those of EU countries. In 2019 THS and GHS per capita in US $ were by 9.7 and 15.7 times lower than the average in the European Region WHO (2405 and 1724 US $ respectively) and by 14 and 22.9 times lower than the EU average (3452 and 2520 US $); the levels of THS and GHS per capita in PPP – by 3.5 and 5.2 times lower than in the region as a whole (3167 and 2119 US $) and by 4.7 and 7.4 times less than in the EU (4280 and 3021 US $). In terms of THS and GHS per capita (US $) in 2019, Ukraine ranked 49th and 47th among 53 countries in the European Region WHO; according to THS and GHS per capita in PPP – 46th and 44th place respectively.

Funding for health care in Ukraine throughout the observation period came from a variety of sources, but the leading were government transfers – 50.7% (47.8; 56.3) and out-of-pocket (OOPS) – 45.7%. (40.3; 48.3). Contribution from other sources – voluntary health insurance (0.9%, 07; 1.0), other private (2.4%, 1.9; 2.8) and external (0.7%, 0.4; 0.9) expenditure was extremely insignificant. Therewith an increase in % of government health spending was accompanied by a fall % of OOPS (2000-2006, 2011-2012) and vice versa – with a decrease % of government health spending – % of OOPS grows (2007-2019) (Fig. 3). The correlation coefficient between % of government health spending and % of OOPS is negative and very strong ($r = -0.996$; $p < 0.001$).

In 2019 in Ukraine the % of OOPS was 51.1%, which is close to the indicator in the CIS countries – 54.4% (36.4; 68.8), but 2.1 times more than the mean values for European region as a whole – 24.0% (15.5; 36.6) and 2.8 times compared to the EU countries – 18.2% (13.1; 25.3). Proportion of households with catastrophic health spending in 2019. was one of the highest in the European region – 16.68% (comparable situation, according to available data recorded only in Bulgaria – 19.23% and Georgia – 17.39%) and increased by 44.8% compared to 2010. (11.52%).

As can be seen from Fig. re 4, which shows the position of the countries of the European Region WHO, based on the ratio of government health spending as a share of GDP and OOPS share of total health spending, Ukraine is one of the 10% of countries with the worst combination of these indicators (low levels of government health spending as % of GDP and high % OOPS in total health spending). It should be noted that this group includes not only countries with low and lower-middle income, but also countries with upper-middle income.

Based on the priority role of primary health care (PHC) in the universal health coverage), the analysis of PHC spending is of particular importance. As there are no national data on PHC expenditures, they were estimated on the basis of regional information (Dnipropetrovsk region) with their subsequent extrapolation to the country level on the basis of international estimates. It is established that Government Primary health care expenditure per capita (US $) in 2021 in the amount of 23.9 US $, of which 73.5% came from the National Health Service of Ukraine, 22.5% – from local budgets, 4 % – the income of health care facilities from paid services. Taking into account that in countries with incomes below the average % of government Primary health care expenditure is 35%, it is estimated that in Ukraine the projected level of total primary health care expenditure per capita (US $) may be 68 US $, which corresponds to the spending of countries in this income group – 61 US $ (38; 66). At the same time, in the structure of total health spending. primary health care expenditure in Ukraine is projected at 27.4%, which is significantly less than the data for lower-middle income countries – 58% (51; 67) [6].

DISCUSSION

For the first time in Ukraine, a health expenditure analysis was conducted in two decades (2000-2019). It was found that during the study period, all indicators of health spending in Ukraine increased, which corresponds to the global dynamics recorded in a number of reports of the WHO and WHO/Europe [4,7]. The annual growth rates of total and government health spending in % of GDP made up 1.5 and 1.2% per year; however, this growth was interrupted during the global economic crisis of 2008, when total and government spending in % of GDP) fell by 7.3% and 9.4%, respectively, compared to the previous period. At the same time, government health spending in % of GDP was negatively affected more than total health spending. The growth rates of nominal total and government spending per capita in US $ and PPP were higher (7.2% and 6.0%). At the same time, there remains a gap in all indicators of health spending, especially government health spending, between Ukraine and the WHO European Region and the EU, which is primarily due to the country's lower middle income [6].

Government health spending largely reflects policy choices regarding the priority of health care and the state's commitment to universal health services [4]. WHO Director-General Tedros Adhan Gebrejesus in 2019 stated: «Increasing public funding for health spending is a prerequisite for achieving overall coverage of health services and health-related goals in the field of sustainable development» [8].

However, in Ukraine, after some recovery from the shock of the 2008 global crisis. government health spending in % of GDP gradually decreased, which is to some extent related to the armed conflict in eastern Ukraine. This trend continued after the adoption in 2017 of the Law of Ukraine on State Medical Guarantees program [9], which stipulates that the amount of state budget funds allocated for the implementation of the Medical Guarantee Program must be at least 5% of GDP of Ukraine. As a result, in 2018 this figure was 3.5%, and in 2019 – only 3.2% of GDP. At the same time, the share of out-of-pocket spending payments increased, which in 2013 – 2016 equaled government health spending, and since 2017. began to exceed them, reaching 51%. The share of households with catastrophic health spending is also growing. The WHO believes that restrictions on public funding for health care are having a negative impact on progress towards universal health coverage [6]. At the same time, Ukraine, like most countries, is able to mobilize more resources to achieve this important task [10].

The low share of Primary health care spending as a share of total health spending (about 30%), which is significantly lower than in countries with different income levels, should be considered as a factor of adverse impact on service coverage [6].

Our study has several limitations, including the following:

1. The Health Expenditure Analysis was conducted prior to the COVID 19 pandemic, as a result of which the world is already experiencing the economic consequences of the global economic downturn, the impact of which on health financing is uncertain.
2. Data on primary health care expenditures are obtained on a regional scale and only on government expenditures and are therefore indicative.

CONCLUSIONS

The study found an unsustainable upward dynamic in health expenditure. In the last decade, there has been a clear trend towards an increase the share of OOPS in total health spending against a background of low with a focus on reducing government health spending (% of GDP). The results of the study can be used in forming a strategy for the development of the health care system to ensure the achievement of the established goals of sustainable development goals of the country.

REFERENCES

1. New perspectives on global health spending for universal health coverage World Health Organization. Geneva: WHO. 2018, 44 p.
2. Saxenian H., Bharali I., Ogbuoji O. et al. A quantitative analysis of sources of changes in government expenditures on health, 2000 to 2015: what can we learn from experience to date? Gates Open Res. 2021;3:5. doi: 10.12688/gatesopenres.12900.2.
3. Vian T., Feeley F.G., Domente S. et al. Barriers to universal health coverage in Republic of Moldova: a policy analysis of formal and informal out-of-pocket payments. BMC health services research. 2015; 319:1–15. doi:10.1186/s12913-015-0984-z.
4. Spending on health in Europe: entering a new era. Copenhagen: WHO Regional Office for Europe. 2021, 122 p.
5. Lekhan V.N., Rudiy V.M., Shevchenko M.V. et al. Ukraine: Health system review. Health Systems in Transition. 2015; 17(2):1–153.
6. Global expenditure on health: public spending on the rise? Geneva: WHO. 2021, 92 p.
7. Global spending on health 2020: weathering the storm. Geneva: WHO. 2020, 100 p.

8. WHO. Countries are spending more on health, but people are still paying too much out of their own pockets. https://www.who.int/news/item/20-02-2019-countries-are-spending-more-on-health-but-people-are-still-paying-too-much-out-of-their-own-pockets [date access 03.10.2021].
9. Pro derzhavni finansovi harantii medychnoho obsluhovuvannia naselennia. Zakon Ukrainy vid 19 zhovtnia 2017 roku № 2168-VIII (In Ukrainian). https://zakon.rada.gov.ua/laws/show/2168-19?find=1&text=5+%D0%B2%D1%96%D0%B4%D1%81%D0%BE%D1%82%D0%BA%D1%96%D0%B2#Text [date access 03.10.2021].
10. Stenberg K., Hanssen O., Edejer T.T. et al. Financing transformative health systems towards achievement of the health Sustainable Development Goals: a model for projected resource needs in 67 low-income and middle-income countries. Lancet Glob Health. 2017; 5:875–887. doi: 10.1016/S2214-109X(17)30263-2.

The study was performed within the research of the Department of Social medicine, public health and health management of the Dnipro State Medical University: «Scientific substantiation of organizational and methodological foundations of the system of continuous improvement of the quality of medical care» (2020-2023, № state registration 0119U101403).

ORCID and contributionship:
Valery N. Lekhan: 0000-0003-2953-3292 [A-F]
Mykola I. Zaiarskyi: 0000-0003-2351-5755 [B, D, F]
ViktoriiaV Vudvud: 0000-0003-3100-9449 [B-D]
Daria A. Kovalevych: 0000-0003-1760-7725 [B, C, F]

Conflict of interest:
The Authors declare no conflict of interest.

CORRESPONDING AUTHOR
Valery N. Lekhan
Dnipro State Medical University
9 V. Vernadsky str., 49044 Dnipro, Ukraine
Tel: +38 0677137118
e-mail: v.n.lexan@gmail.com

Received: 06.11.2021
Accepted: 06.04.2022

A – Work concept and design, **B** – Data collection and analysis, **C** – Responsibility for statistical analysis, **D** – Writing the article, **E** – Critical review, **F** – Final approval of the article