

Economic determinants in healthcare quality optimization in Ukrainian metropolises

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ABSTRACT

Aim: The objective of the study is to analyze the economic determinants that contribute to enhancing the quality of medical care in the context of metropolitan zoning.

Materials and Methods: The study draws on statistical data from the Center for Medical Statistics of the Ministry of Health of Ukraine, the State Statistics Service of Ukraine, and the Health Departments of the metropolitan cities of Dnipro and Kharkiv for the years 2010, 2013–2014, and 2018–2020. The research employed methods of statistical analysis and synthesis, logical analysis, generalization, and systems approaches.

Conclusions: An analysis was conducted of morbidity trends in the Dnipro metropolis during 2010, 2013–2014, and 2018–2020 with respect to socially significant diseases – hypertension, myocardial infarction, stroke, HIV/AIDS, as well as AIDS-related mortality, all of which pose risks of premature death (18 years and older). Consideration was also given to the human resources available in primary health care and prevailing demographic trends. A comparative analysis of the effectiveness of health care systems in the metropolises of Dnipro and Kharkiv was undertaken by assessing the number of emergency medical service calls per 100,000 average annual population. The study proposes approaches to assessing the influence of metropolitan health care infrastructure on medical institutions within the metropolitan region and substantiates the prospects for establishing a unified metropolitan health care system.

In the context of the ongoing war in Ukraine, there is an urgent need to create a competitive health care environment in metropolitan areas, prioritizing economic determinants of quality optimization. This will require the joint efforts of government, business, academia, and the media in developing modern competitiveness strategies for metropolitan development, supported by the adoption and implementation of legislation on the status and functions of metropolises. Such measures are expected to reduce irrational and unjustified financial expenditures in the health care sector.

KEY WORDS: Ukrainian metropolises, quality of medical care, economic determinants, city of Dnipro

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INTRODUCTION

Ukraine needs a scientifically grounded approach to the development of modern organisational and financial strategies for establishing new metropolises (according to the criteria of France – 10–13) with strong competitive potential at the national, regional, and, eventually, global levels. This need primarily concerns the development of a competitive model of the health care system within metropolitan areas, one that ensures high-quality individualisation of primary care services [1], specialisation of medical services and the concentration of specialised healthcare in regional centres and metropolitan cities. The impact of metropolitan areas on public health is revealed through the assessment of the process of spatial growth and urban development as a system of human viability; the issues of socio-medical interventions to reduce prenatal mortality among people living

in disadvantaged socio-economic conditions [2], the peculiarities of the socio-economic status of the population and mental health conditions [3], the state of mental and physical health of metropolitan residents, taking into account their gender and areas of influence of metropolitan areas in the provision of specialised medical care [4], inequalities in access to medical care for urban and rural residents, including the lower likelihood of rural residents receiving influenza vaccinations or having a regular healthcare provider [5]. The use of attacks on the healthcare system as a weapon of war in Ukraine has been studied [6], as well as the survival characteristics of patients with rare diseases under wartime conditions [7], the health consequences for refugees from Ukraine due to the war with the Russia [8], the catastrophic medical consequences of the war in Ukraine [9], the effects of war on children's health given the existing

levels of child mortality, low rates of routine immunisation, and high prevalence of infectious diseases [10], and the health needs of refugees from Ukraine [11].

Ukrainian researchers define a metropolis as an urban agglomeration formed as a result of the territorial unification of a large city with surrounding settlements, or an agglomeration of the metropolitan area (two or more cities) [12, 13].

The idea behind the study is to justify the current development priorities of the healthcare system within the metropolitan areas, based on decentralisation reform and the establishment of modern models for delivering primary healthcare at the community level, and specialised care at the district, metropolitan, and regional (oblast) levels. In this context, the influence of the metropolitan healthcare system will be inversely proportional to the level of development and accessibility of medical services in communities and regions.

AIM

The aim of the study is to substantiate methodological approaches for determining the key priorities in the development of the medical space of metropolitan areas in Ukraine, and to examine the specific impact of specialised healthcare infrastructure located in metropolitan areas or regional medical centers on the healthcare sector. The study also analyses the features of the healthcare system in the metropolitan area of Dnipro and its development priorities in the context of Russia's full-scale war against Ukraine.

MATERIALS AND METHODS

The study draws on statistical data from the Center for Medical Statistics of the Ministry of Health of Ukraine, the State Statistics Service of Ukraine, and the Health Departments of the metropolitan cities of Dnipro and Kharkiv for the years 2010, 2013–2014, and 2018–2020. The research employed methods of statistical analysis and synthesis, logical analysis, generalization, and systems approaches.

REVIEW AND DISCUSSION

Taking into account the structuring of metropolitan influence zones, the authors define the healthcare system space of a subregion (several regions) as the healthcare system space of the area within a 300 km radius of influence from the agglomeration centre and the agglomeration healthcare system space with consideration of a 5 km zone beyond the city limits [12–14]. This corresponds to a 10 km zone from the center of the agglomeration (metropolis), including 5 km within the city and 5 km beyond its boundary. Thus, for example, the agglomeration boundary for Kharkiv is 5–15

km, and for Dnipro – 15–20 km. Thus, the metropolitan space of the healthcare system of the area is the healthcare infrastructure within the radius of influence of the agglomeration centre (300 km). It is assumed that the spatial influence of the metropolitan center in the healthcare sector is strongest within the first zone of influence (up to 5 km), and decreases with distance, being weakest in the third zone (up to 300 km).

According to the decentralisation reform, initiated in 2014, the city community is responsible for organising primary healthcare (metropolitan influence zone No. 1), the district – for specialised medical care (influence zone No. 2, with a radius of up to 60 km), the region – for specialised healthcare from the perspective of the metropolis and regional centres (influence zone No. 3, serving a population of no less than 1 million people).

According to the author's estimates, the strength of influence of the metropolitan infrastructure in the healthcare sector from 1991 to 2014, the beginning of real reforms, was determined using the following formula:

$$P_{if} = f \left(\frac{D_{smc}, D_{emc}, M_p, Q_r, F_{av}, Q_q}{D_{pmc}, D_{prmc}, D_{emmc}, E_{health}, D_{tlm}, Dis_{hc}} \right)$$

P_{if} – power of influence;

D_{smc} – development of specialised medical care in metropolises and regional centres;

D_{emc} – development of emergency medical care;

M_p – morbidity of the population;

Q_r – quality of roads;

F_{av} – financial accessibility;

Q_q – quality of communication;

D_{pmc} – development of preventive medical care;

D_{prmc} – development of primary medical care;

D_{emmc} – development of emergency medical care;

E_{health} – development of electronic healthcare;

D_{tlm} – development of telemedicine;

Dis_{hc} – distance to a healthcare facility.

After 2014, in addition to these indicators, it is also determined by the effectiveness of the National Health Service of Ukraine (NHSU) in each type of medical care according to the formula:

$$P_{if} = f \left(\frac{D_{smc}, D_{emc}, M_p, Q_r, F_{av}, Q_q}{D_{pmc}, D_{prmc}, D_{emmc}, E_{health}, D_{tlm}, Dis_{hc}, Q_{nszu}} \right)$$

Q_{nszu} is the quality of services provided by the NHSU in financing the healthcare facility network, based on the compliance of services with licensing requirements.

The creation of a unified healthcare space in metropolitan areas should be based on a shared information space within the healthcare system built on electronic

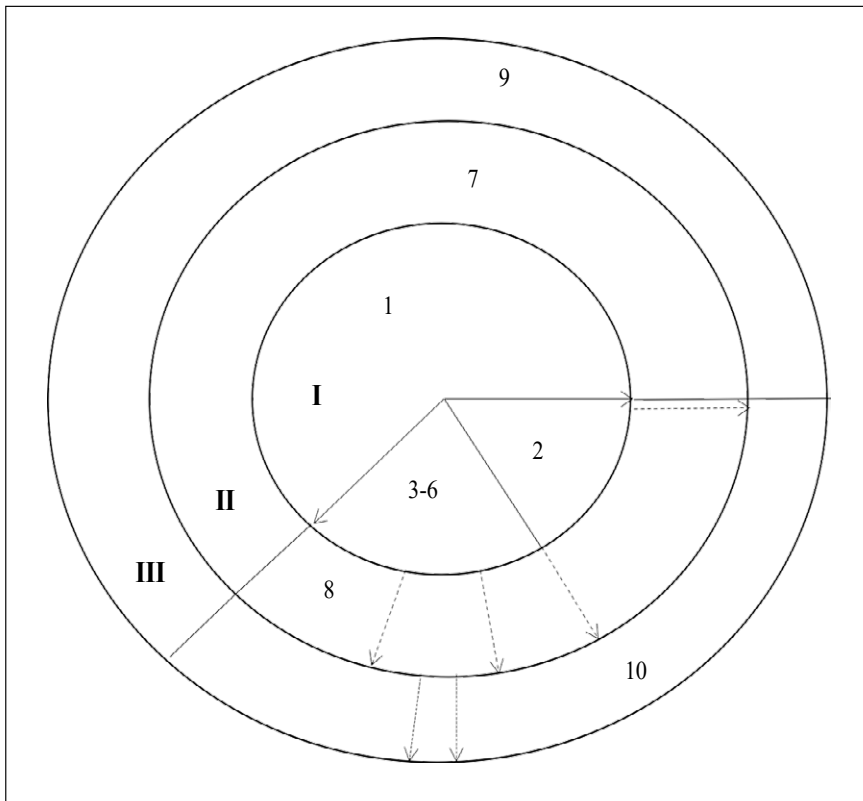


Fig. 1. Prospective medical space of the metropolis in the healthcare sector.

Directions and strength of metropolitan influence in the first zone

Directions and strength of influence of a metropolis in the second zone

Directions and strength of influence of a metropolis in the third zone

I-III - zones of metropolitan influence;

1 - primary healthcare facilities in the first zone of influence;

2 - specialised healthcare facilities in the first zone of influence;

3-6 - a unified integrated medical care space of supra-cluster institutions of the metropolis;

(3 - infrastructure of the Ministry of Healthcare facilities in the first zone of influence;

4 - infrastructure of the National Academy of Medical Sciences of Ukraine in the first zone of influence;

5 - infrastructure of institutions of ministries and departments in the first zone of attraction;

6 - infrastructure of specialised medical care of the metropolis in the first zone of attraction);

7 - primary healthcare facilities in the second zone of influence;

8 - specialised medical care facilities in the second zone of influence;

9 - primary healthcare facilities in the third zone of influence;

10 - specialised medical care facilities in the third zone of influence.

Picture taken by the authors

healthcare and telemedicine, including the implementation of electronic patient records. Access to these records should be granted not only to family doctors and specialists (with the patient's permission), but also to the patients themselves [15], [16].

At the same time, taking into account both external and internal threats related to attempts by the Russian Federation to impose a federal or confederal system on Ukraine, experts consider the top priority to be the completion of the formation of 30% of new territorial communities and the reorganisation of 20% of existing ones in accordance with scientifically grounded profiles of their development potential [17], [18].

Until 2014, the healthcare system of metropolitan areas was characterised by underdevelopment of primary healthcare across all three zones of influence, alongside the dominance of specialised medical care in the areas of specialised healthcare, metropolises and regional centres. Since the onset of reform, there has been an expansion of primary healthcare services in all three zones of influence.

The prospect of developing a metropolitan healthcare space is linked to the need to create a unified healthcare space by transferring all departmental healthcare institutions (those under ministries and other state agencies) under the authority of local or regional

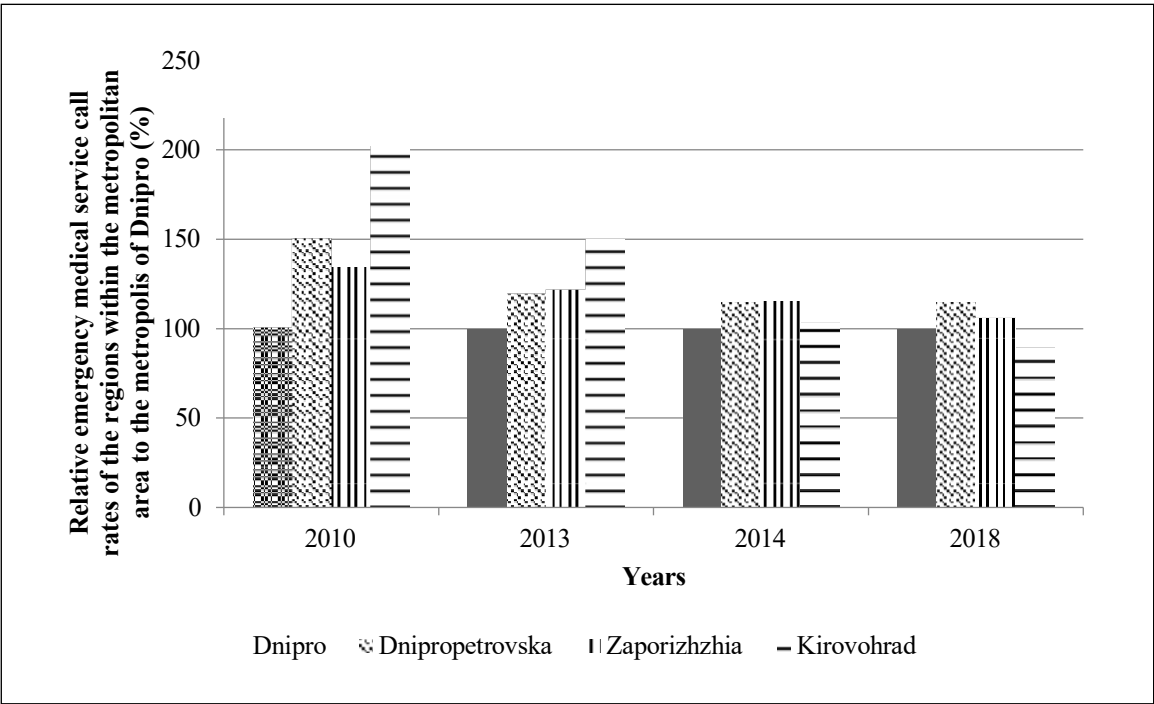


Fig. 2. Relative emergency medical service (EMS) call rates in the regions of the metropolitan area compared to the metropolis of Dnipro (%)
Note: Data for 2021–2022 are unavailable
Source: compiled by the authors based on [21]

governments. This process should take place after the completion of the decentralisation reform and on the territories liberated from the occupation after the end of hostilities (Fig. 1).

This process will likely be accompanied by the expansion of primary healthcare across all zones of influence and the concentration of specialised medical care resources in metropolises and regional centers through their consolidation at the regional level.

These processes will imply the integration of the metropolitan space for specialised medical care across metropolitan areas and regional centres (1-4), as well as a significant improvement in the quality of primary healthcare services within the metropolitan community (5) supported by autonomous financing..

In the second zone of metropolitan influence, a significant improvement in primary healthcare (7) is also likely, which, in turn, may lead to a reduced demand for specialised medical care services (8). This is expected to be accompanied by the continued influence of specialised medical care provided in metropolises and regional centers.

In the third zone of metropolitan influence, an increase in primary healthcare services (9) is also likely, along with the alignment of specialised medical care services with the actual needs of the population (10). This will make it possible to concentrate infrastructure, personnel, and information flows, and to scale up the provision of spe-

cialised medical services in metropolises and regional centers. As a result, it may also lead to reduced costs for the population for this type of medical care

The application of a functional approach to the assessment of metropolitan processes within settlement systems suggests that, prior to 2014, the concentration of specialised medical care in metropolises and regional centres within the zone of metropolitan influence played a system-forming role in the healthcare infrastructure. This infrastructure primarily included primary and specialised medical care. Patients' routes were not coordinated by primary care physicians and often began with spontaneous and chaotic visits to specialised medical personnel in metropolitan or regional healthcare facilities. This was largely due to the functional dominance of specialised medical care in metropolitan and regional centres, which spread concentrically from the point of service delivery, especially during the transition period of establishing modern primary health care based on family medicine principles.

Since 2014, the healthcare system in metropolitan areas has been able to build and strengthen the capacity of primary healthcare at the community level, specialised medical care at the district level, and specialised medical care in metropolises and regional centers. However, the pace of positive change lags behind societal needs due to the existing post-Soviet system of monopolised control over human, financial,

Table 1. Emergency medical service call rate per 100,000 average annual population in the metropolitan area of Dnipro city in Dnipro, Zaporizhzhia and Kirovohrad regions in 2010, 2013–2014, and 2018

2010		2013	
Bipolar metropolis (zones of influence 1–3)	Call rate per 100,000 average annual population	Bipolar metropolitan area (zones of influence 1–3)	Call rate per 100,000 average annual population
Dnipro	20934,9	Dnipro	21984,9
Dnipropetrovska	31365,6	Dnipropetrovska	26161,5
Zaporizhzhya	28070,4	Zaporizhzhya	26664,9
Kirovograd	42202,4	Kirovohradska	32901,1
2014		2018	
Bipolar metropolitan area (zones of influence 1–3)	Calls per 100,000 average annual population	Bipolar metropolitan area (zones of influence 1–3)	Call rate per 100,000 average annual population
Dnipro	22814,3	Dnipro	22070,7
Dnipropetrovska	26120,4	Dnipropetrovska	25239,5
Zaporizhzhya	26256,5	Zaporizhzhya	23258,2
Kirovohrad	23389,9	Kirovohradska	19615,3
2019		2020	
Bipolar metropolis (zones of influence 1–3)	Calls per 100,000 average annual population	Bipolar metropolitan area (zones of influence 1–3)	Call rate per 100,000 average annual population
Dnipro* city	7114,2	Dnipro* city	6892,5
Dnipropetrovska	24058,8	Dnipropetrovska	22272,0
Zaporizhzhya	21850,0	Zaporizhzhya	18497,5
Kirovohrad	22583,8	Kirovohradska	16014,4

Note: * Data for the city of Dnipro in 2019–2020 are inaccurate; data for 2021–2022 are unavailable.

Source: compiled by the authors based on [21]

Table 2. Emergency medical service calls per 100,000 average annual population in metropolitan areas of Kharkiv and Dnipro in 2010, 2013–2014, 2018–2020

2010		2013		2014	
Metropolitan areas	Call rate per 100,000 average annual population	Metropolitan areas	Call rate per 100,000 average annual population	Metropolitan areas	Call rate per 100,000 average annual population
Dnipro	20934,9	Dnipro	21984,9	Dnipro	22814,3
Kharkiv	19982	Kharkiv	24214	Kharkiv	17294
2018		2019		2020	
Dnipro	22070,7	Dnipro* city	7114,2	Dnipro*	6892,5
Kharkiv	17715	Kharkiv	21341,7	Kharkiv	20101,3

Note: * data for the city of Dnipro are inaccurate for 2019–2020 - incorrect; data for 2021–2022 – are unavailable

Source: compiled by the authors based on [21]

and informational resources by the chiefs of medical institutions. This is partly attributable to the focus of the Ministry of Health of Ukraine and local authorities (until May 2019) on the deployment of modern primary healthcare. Meanwhile, the implementation of a unified telemedicine space is based on World Bank projects aimed at enabling specialised healthcare institutions in metropolises and regional centers to provide such services to patients referred from primary and specialised care facilities.

In the context of decentralisation and the introduction of the subsidiarity mechanism, the function of coordinating patient routes in a certain way removes patients from a chaotic pattern of healthcare-seeking behavior and coordinates this process accordingly through family doctors, general practitioners, or pediatricians. According to the Ministry of Health of Ukraine, 75% of citizens have already chosen their primary care physician and signed the corresponding agreement with them through the National Health Service of

Table 3. Number of primary healthcare physicians, proportion of pensioners in the average annual population of the Dnipro metropolitan area, as well as patients (18 years and older), as well as prevalence of hypertension, stroke, heart attack, ischemic heart disease; HIV/AIDS and AIDS mortality per 10,000 average annual population of the metropolitan area

Metropolis	Number of primary care doctors	Pensioners	Number of patients with hypertension	Number of patients with stroke	Number of patients with heart attack	Number of patients with ischemic heart disease	Number of patients with HIV/AIDS	AIDS-related mortality rate
2010								
Dnipro	-	21,5	3243,0	13,7	4,9	2044,1	45,7	2,92
2013								
Dnipro	5,2	22,5	3221,0	10,4	4,8	1824,0	69,6	2,8
2014								
Dnipro	5,6	22,9	3514,0	13,2	5,0	1958,0	64,7	2,2
2018								
Dnipro	5,9	24,6	3915,0	10,0	4,8	2408,0	58,2	2,7
2019								
Dnipro	4,9	31,4	*	*	*	*	215,2	2,4
2020								
Dnipro	4,7	31,7	*	*	*	*	243,5	*

Note: * data for 2019–2020 were not provided by the city; data for 2021–2022 are unavailable

Source: compiled by the authors based on [21]

Ukraine [19].

Thus, the spatial monopolised medical dependence of patients on healthcare facilities, primarily primary healthcare, specialised care in general and cluster facilities, and specialised care in supra-cluster institutions in metropolitan areas or regional centres, if necessary, is replaced by their conscious choice of a facility in a metropolitan centre that is capable of providing appropriate care.

The application of the functional approach in studying the characteristics of the healthcare sector in metropolitan areas indicates that the provision of primary healthcare services does not depend on the size of the city or other settlement, nor on the metropolitan region itself, but is determined by the efforts and activities of community leadership to create appropriate conditions for the work of this category of physicians and the conclusion of agreements with the National Health Service of Ukraine.

The availability of specialised medical services in metropolitan cities or regional centers, as well as in communities, depends on the number of individuals whose income is equal to or exceeds that of the middle-class incomes. According to the State Statistics Service of Ukraine, up to 40% of the population does not seek necessary medical care due to financial constraints. [20].

The dynamics of metropolitan changes in the healthcare sector will likely indicate an increase in the metropolitan function at both regional and global levels. This will likely be evidenced by an increase in the provision

of specialised medical services in metropolises or regional centers to foreign legal entities and individuals, as well as the expansion of medical education for international students.

The metropolitan healthcare space of the city of Dnipro includes healthcare facilities across three zones of influence, within the jurisdictions of communities, districts and regions that are part of its metropolitan area of influence.

The characteristics of the healthcare system within the metropolitan space of the city of Dnipro, which includes Dnipropetrovsk, Zaporizhzhia, and Kirovohrad regions, were examined through a comparative analysis for the years 2010, 2013–2014, and 2018–2020 (Table 1), based on the rate of emergency medical service (EMS) calls per 100,000 population. This indicator is one of the indicators of the accessibility and quality of primary health care, as well as the level of medical literacy of the population.

In the metropolis of Dnipro, the lowest emergency medical service (EMS) call rates were recorded in 2010, 2013, and 2014. The Kirovohrad region demonstrated the most favorable trend in reducing EMS calls [22] (Fig. 2). In 2014 (excluding the city of Dnipro and the Kirovohrad region) and in 2018 (excluding the Kirovohrad region), the call rates in the metropolitan region exceeded the national average (23477,1 and 21107,56, respectively).

As for 2019–2020, due to the incorrect information from the city of Dnipro, it is not possible to perform calcula-

tions for the metropolitan region. Notably, in 2020, the indicator for Dnipropetrovsk region (22272,0) was 17.1% higher than the national average (19017,0), while in Zaporizhzhia (18497,5) and Kirovohrad regions (16014,4), it was lower by 2.7% and 15.8%, respectively [21].

In 2018, compared to 2010, the city of Dnipro showed a 5.4% increase in emergency medical service calls. The same trend is observed when comparing these indicators with those of the metropolis of Kharkiv (Table 2).

The decrease in this indicator over several years, while meeting the standards of emergency medical care, may to some extent indicate an improvement in the provision of primary health care.

An analysis of the incidence of socially dangerous diseases – hypertension, heart attack, stroke, HIV/AIDS, and AIDS-related mortality, which pose risks of premature death (among the population aged 18 and older), was conducted for the years 2010, 2013–2014, and 2018–2020 per 10,000 average annual population (Table 3).

This analysis takes into account the decrease in the number of family doctors in 2019–2020 compared to 2013 and 2018, as well as the increase in the proportion of pensioners.

In 2018, compared to 2010, the proportion of people with hypertension in the city increased by 20.7% (from 3915 to 3243). At the same time, the share of pensioners in the average annual population increased from 21.5 % in 2010 to 22.9 % in 2017.

The incidence of ischemic heart disease in the city increased by 17.8% between 2010 and 2019 [21].

There was a persistent trend of the highest AIDS-related mortality in Dnipro compared to other metropolitan areas in both 2010 and 2019 (2,9 and 2,4 per 10,000 population, respectively). The city also recorded the highest incidence rate of HIV/AIDS among Ukraine's metropolitan areas in 2019 (215,2) and 2020 (243,5) [21].

In 2018, compared to 2010, mortality rates due to hypertension increased by 14.5% (220,3 vs. 192,3), ischemic heart disease by 27.6% (762,7 vs. 597,8) (in 2020, compared to 2019, an 11% increase), heart attack compared to 2019, an increase of 11%), heart attack by 29% (35,6 and 27,6) (in 2020, an increase of 14.4% compared to 2019) and stroke by 8.2% (81,6 and 75,4) (in 2020, an increase of 19.5% compared to 2019) [21].

DISCUSSION

In the course of providing specialised medical care, high-cost medical equipment is used by healthcare institutions in the regional centers of Dnipropetrovsk, Zaporizhzhia, and Kirovohrad regions. Due to the lack of proper load, this equipment often remains idle,

leading to inefficient and unjustified expenditures of financial resources. The reason for this is the lack of legal mechanisms that would enable the Department of Health of the metropolis of Dnipro to coordinate the activities of healthcare facilities in communities, towns, villages, and settlements within the metropolitan zone of influence. In advanced countries, such coordination is regulated by laws and government resolutions under the framework of “metropolisation”.

For the city of Dnipro, a comparable example is the successful metropolis of Lyon. The alignment of master development plans among the communities of Lyon's metropolitan region enabled the creation of joint coordination bodies involving managers, economists, legal experts, and entrepreneurs. This facilitated highly favorable conditions for investment, including in healthcare projects. This has helped to eliminate duplication of funding for the construction of facilities and to ensure proper statistical support of processes, including in the healthcare sector.

When substantiating the perspective tasks for the development of the healthcare system in the metropolis of Dnipro, the positive changes associated with the expansion of primary healthcare based on family medicine and emergency medical care infrastructure should be taken into account.

To develop the Dnipro metropolitan area in line with European and international standards, it is advisable to design and implement a competitive model for the healthcare system's development. In addition, the central government should facilitate the adoption of the Law of Ukraine “On the Development of Metropolitan Areas”. This is particularly relevant in the context of the full-scale war.

In the long term, it is important to delineate the zones of influence of metropolitan areas in the healthcare sector in relation to morbidity rates and to assess how well specialised healthcare facilities meet the needs of these populations. It is especially important to identify the so-called “uncovered zones”, which include settlements whose population has difficulty accessing the services of specialised medical care in metropolitan or regional centres of a particular metropolis. This lack of access may result in increased mortality and disability rates among the working-age population, especially among men.

Significant challenges in the provision of specialised medical care are associated with the preservation of outdated district hospitals, maintained not based on criteria of consolidation for scaling and improving service quality, but for political motives, specifically, preserving obsolete staffing structures. This occurs despite the fact that modern European practices are

shifting towards the creation of multi-profile hospitals at the district level, serving populations of no less than 120,000-150,000 residents. Legislative preservation of outdated general hospitals poses a threat of delayed and low-quality services, which leads to excessive spending from both public budgets and households and increasing mortality rates.

Legislative efforts to preserve the human resources of medical personnel should be based on mechanisms that prioritise the preservation and promotion of public health, as well as the provision of high-quality and timely treatment by healthcare professionals who meet international standards and criteria of professional competence. This becomes possible only under conditions of a high workload for medical staff that enables them to continuously improve their professional competence. The laws "On a Capable Network of Hospitals" and "On Public Health" adopted in 2022 preserve the ineffective network of district hospitals with low capacity and increase centralisation by transferring functions from the local and regional levels to the Ministry of Health [23], [24]. The current policy of prioritising salary payments to medical personnel for the sake of job preservation without accounting for actual efficiency and combined with fixed wage increases demotivates healthcare staff and significantly undermines their ability to provide high-quality medical care.

CONCLUSIONS

Ukraine faces a need to establish a modern, European-style metropolitan healthcare space, building on the successful decentralisation reform. In the context of decentralisation, Ukraine requires the consolidation of governmental authorities, businesses, science, and the media within metropolitan areas to develop contemporary and competitive strategies for metropolitan regional development, including healthcare systems at both national and regional levels. This process must be based on the genuine devolution of powers from the central government to local communities, specifically, entrusting communities with the organisation of primary healthcare services, newly established districts

with responsibility for the operation of general and cluster-based specialised healthcare institutions, and metropolitan cities with the provision of specialised care through supracluster medical facilities. In this transformation, the scientific and expert community, civil society, Parliament, and the government, as well as individual citizens, are expected to retain their roles as leading forces in finalising decentralisation reform and initiating the subsequent stage of metropolitan development.

Two of the three regions of the Dnipro metropolitan area – Dnipropetrovsk and Zaporizhzhia are currently located within the immediate zone of active hostilities in the ongoing Russo-Ukrainian war. Moreover, a significant part of Zaporizhzhia region is occupied. This requires accelerating the integration of the Dnipro metropolitan area by combining human, financial, intellectual, scientific, entrepreneurial, and humanitarian resources to generate high added value in the economic domain and to establish an effective healthcare system in each of the three zones of metropolitan influence. Such integration must be underpinned by effective coordination among levels of local governance, adhering strictly to the principle of subsidiarity.

A priority task is the development of five-year programs for the healthcare system of the Dnipro metropolitan area, focusing on reducing mortality from non-communicable diseases, particularly under conditions of large-scale military aggression.

This goal is to be achieved by promoting projects within metropolitan area and facilitating their funding, primarily in the healthcare sector. These initiatives must be grounded in the principle of full compliance and autonomy at all levels of medical service delivery within a unified electronic system for healthcare management, centered on the use of an electronic patient card to which the patient should have access.

Looking ahead, it is essential to study international best practices in the development of metropolitan healthcare spaces and the organisation of their infrastructure to ensure the delivery of high-quality and accessible medical care. Relevant case studies include countries such as France, Poland, Canada, and others.

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CONFLICT OF INTEREST

The Authors declare no conflict of interest

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