



e-ISSN 3041-2498

Public Management and Policy

<https://www.eu-scientists.com/index.php/pmap>


Mechanisms of Public Governance for Strengthening the Strategic Resilience of Ukraine's Healthcare System under Conditions of War and Post-Pandemic Transformations

Oleksandr Voronov ^{1*} • Mykola Popov ²

¹ Odessa Polytechnic National University (Ukraine). Professor at the Department of Social and Human Sciences of the Educational and Scientific Institute of Public Service and Administration, Doctor of Science in Public Administration, Associate Professor.

² Odessa Polytechnic National University (Ukraine). Professor at the Department of Public Administration and Regionalism of the Educational and Scientific Institute of Public Service and Administration, PhD in Public Administration, Professor.

* Corresponding Author, e-mail: voronov.o.i@op.edu.ua

ARTICLE INFO

ABSTRACT

Research Article

DOI:

[10.70651/3041-2498/2025.12.05](https://doi.org/10.70651/3041-2498/2025.12.05)

Received:

25 October 2025

Accepted:

28 November 2025

Published online:

12 December 2025

Copyright © 2025
by authors



This is an open access journal and all published articles are licensed under a Creative Commons Attribution—NonCommercial 4.0 International (CC BY-NC 4.0)



The relevance of the study is determined by the increased vulnerability of Ukraine's healthcare system to wartime threats, resource scarcity, and post-pandemic transformations, which require a reassessment of public governance mechanisms and the development of a new model of strategic resilience. Under conditions of prolonged crises, conventional management instruments lose effectiveness, creating the need for flexible, digitally supported and institutionally coordinated solutions capable of ensuring the continuity and stability of healthcare provision. The purpose of the article is to scientifically substantiate and define public governance mechanisms that can maintain long-term resilience and uninterrupted functioning of Ukraine's healthcare system under wartime conditions and post-pandemic impacts, while creating foundations for sustainable modernization and recovery. The research methods included systemic and structural-functional analysis, comparative analysis, synthesis and generalization, a risk-oriented approach, as well as content analysis of regulatory documents and international reports. The application of these methods made it possible to comprehensively assess the managerial capacities of state institutions, identify systemic constraints, and outline possible directions for enhancing governance effectiveness in the healthcare sector. The results of the study revealed key institutional, resource-related and digital factors shaping the adaptive capacity of public governance in crisis environments. It was identified that fragmented coordination, uneven resource allocation, insufficient workforce support, delayed infrastructure recovery and the lack of integrated data systems significantly hinder the formation of strategic resilience. It was substantiated that managerial instruments aimed at ensuring service continuity, accelerating infrastructure renewal and strengthening the healthcare workforce represent critical levers for enhancing system functionality. In the conclusions it was demonstrated that strategic resilience emerges from synchronized managerial decisions, integrated digital platforms, flexible financial mechanisms and strengthened inter-agency interaction. It was proven that the effectiveness of public governance depends on the ability of state institutions to ensure proactive forecasting, resource autonomy and workforce readiness in healthcare facilities. The prospects for further research include the development of risk-oriented models of healthcare governance, the improvement of digital analytic systems, the formulation of standardized metrics for assessing system resilience, and the study of mechanisms for integrating international assistance into long-term health sector strategies.

KEYWORDS

public administration, public management mechanisms, healthcare, medical services, healthcare system, staffing, digital solutions, medical reform, healthcare system management, COVID-19, financing, war, digitalization, medical insurance, human resources, resource autonomy.



Механізми публічного управління стратегічною стійкістю системи охорони здоров'я України в умовах війни та постпандемічних трансформацій

Олександр І. Воронов ^{1*} • Микола П. Попов ²

¹ Національний університет «Одеська політехніка» (Україна). Професор кафедри соціально-гуманітарних наук Навчально-наукового інституту публічної служби та управління, д-р наук з держ. упр., доцент.

² Національний університет «Одеська політехніка» (Україна). Професор кафедри публічного управління та регіоналістики Навчально-наукового інституту публічної служби та управління, канд. наук з держ. упр., професор.

* Автор-кореспондент, e-mail: voronov.o.i@op.edu.ua

СТАТТЯ

АНОТАЦІЯ

Дослідницька

DOI:

[10.70651/3041-2498/2025.12.05](https://doi.org/10.70651/3041-2498/2025.12.05)

Отримана:

25.10.2025 р.

Прийнята:

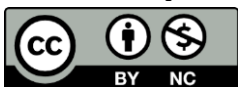
28.11.2025 р.

Опублікована:

12.12.2025 р.

Авторське право

© 2025 авторів



Цей твір ліцензовано на умовах Ліцензії Creative Commons «Із Зазначенням Авторства – Некомерційна 4.0 Міжнародна» (CC BY-NC 4.0).



Актуальність дослідження зумовлено високою вразливістю системи охорони здоров'я України до воєнних ризиків, ресурсних обмежень та постпандемічних трансформацій, що висуває вимоги до оновлення механізмів публічного управління і формування нової моделі стратегічної стійкості. Наголошується, що в умовах довготривалих криз традиційні підходи до управління медичною сферою втрачають ефективність, що зумовлює потребу у гнучких, цифрово підтриманих та інституційно узгоджених рішеннях. Метою статті є наукове визначення та обґрунтування управлінських механізмів державних інституцій, здатних забезпечувати довготривалу стійкість і безперервність функціонування системи охорони здоров'я України в умовах воєнних загроз та наслідків пандемії, а також формувати підґрунтя для її модернізації й відновлення. Методи дослідження включали системний і структурно-функціональний аналіз, методи порівняння та узагальнення, ризик-орієнтований підхід і контент-аналіз нормативних документів та міжнародних звітів. Застосування цих методів дало змогу комплексно оцінити управлінські можливості держави, виявити системні дисфункції та окреслити напрями вдосконалення управління у сфері охорони здоров'я. У результатах дослідження встановлено ключові інституційні, ресурсні та цифрові чинники, що визначають адаптивність державного управління медичною системою у кризових умовах. Виявлено проблеми фрагментованої координації, нерівномірного розподілу ресурсів, недостатності кадрової підтримки та затримок відновлювальних процесів. Обґрунтовано управлінські інструменти, що забезпечують безперервність медичних послуг, прискорюють інфраструктурне відновлення та зміцнюють кадровий потенціал у регіонах з підвищеним ризиком. У висновках доведено, що стратегічна стійкість медичної системи формується як результат синхронізованих управлінських рішень, інтегрованих цифрових платформ, гнучких фінансових механізмів та посиленої міжвідомчої взаємодії. Підкреслено, що ефективність публічного управління значною мірою залежить від здатності держави забезпечити проактивне прогнозування, ресурсну автономність і кадрову готовність закладів охорони здоров'я. Перспективи подальших досліджень полягають у розробленні ризик-орієнтованих моделей управління, удосконаленні цифрових систем аналітики, формуванні стандартів оцінювання стійкості медичних систем та вивченні механізмів інтеграції міжнародної допомоги у довгострокові стратегії розвитку охорони здоров'я.

КЛЮЧОВІ СЛОВА

публічне управління, механізми державного управління, охорона здоров'я, медичні послуги, система охорони здоров'я, кадрове забезпечення, цифрові рішення, медична реформа, управління системою охорони здоров'я, COVID-19, фінансування, війна, цифровізація, медичне страхування, кадровий потенціал, ресурсна автономність.

1. Introduction

The strategic resilience of Ukraine's healthcare system in the context of war and post-pandemic transformations is shaped by multidimensional challenges that simultaneously affect the institutional, resource, personnel, infrastructure, and digital components of public administration. Russia's continued aggression has caused large-scale destruction of medical facilities, disruptions in supply logistics, staff shortages, and critical funding gaps that make it impossible to perform basic health care functions sustainably. The lessons of the COVID-19 pandemic have demonstrated the insufficient preparedness of the system for long-term crisis loads, weak integration of digital services, uneven territorial capacity and fragmentation of interagency coordination, which significantly reduces the adaptability of management decisions.

In such conditions, public administration needs to rethink the mechanisms of strategic planning, organization, regulation, financing and monitoring, which should ensure the continuity of the provision of medical services, the resilience of supply chains, the prompt mobilization of resources and the restoration of damaged infrastructure. The scientific problem is the lack of a holistic model of strategic resilience management that would take into account the simultaneous impact of war risks, post-pandemic changes, digital transformation, and financing reform on the principle of "money follows the patient". The practical significance of the task is due to the need to form effective tools for managerial decision-making that can ensure the flexibility and efficiency of the health care system, optimize the use of limited resources, improve the quality of medical services and strengthen citizens' trust in the state policy in the field of healthcare. As a result, the problem becomes of strategic importance, as it determines the ability of the state to maintain the viability and functionality of the health care system in long-term crisis conditions and create reliable prerequisites for post-war recovery and modernization.

2. Literature Review

The analysis of modern research on the mechanisms of public management of the strategic sustainability of the health care system of Ukraine allows us to identify four interrelated scientific directions. The first direction concerns the conceptualization of personnel management as a key factor of institutional sustainability of health care institutions. A modern paradigm of the personnel management system of a health care institution has been formed, which emphasizes the need for adaptive approaches to motivation, development and use of human resources in the context of an increasing burden on the health care system [1]. V. V. Zverych reveals the methodological foundations and principles of improving the mechanism of personnel management in the field of health care, emphasizing the importance of systematic, normative consistency and transparency of management decisions [2]. T. V. Yevas and A. O. Ogorodnik focus on approaches to improving personnel management of health care institutions, substantiating the need for flexible organizational models and strengthening the role of personnel management in the context of reforms and crisis changes [3]. R. R. Avgustyn and O. V. Stakhiv define strategic priorities for managing the systemic development of health care institutions, linking personnel policy with long-term goals of sustainable functioning of medical organizations [4]. Further research in this direction should be directed to the development of models of personnel resilience that integrate war risks, psychological burden and digital competencies of medical personnel.

The second direction is related to the development of approaches to managing personnel development and organizational resilience of medical institutions in a broader institutional context. L. Cherchyk and R. Serhiychuk clarify the essence and components of management of the development of personnel of health care institutions, highlighting structural, motivational and educational elements that ensure the reproduction and strengthening of human resources [5]. R. Shevchuk analyzes the peculiarities of the implementation of public-private partnership mechanisms in the field of health care in Ukraine, demonstrating that the involvement of the private sector, subject to proper public control, can become one of the tools for strengthening the resilience of medical infrastructure and personnel practices [6]. M. Kopytko and D. Tkachuk investigate the management of resilience and personnel in organizations and health care institutions in crisis situations, in particular in wartime, emphasizing the importance of crisis management, psychological support and flexible organizational structures for maintaining the performance of teams [7]. Further research in this direction should be aimed at

substantiating integrated models of personnel development that combine tools public-private interaction, adult education and crisis management.

The third direction covers the study of foreign experience in the functioning of health care systems, reforming public mechanisms and management principles of financing in the context of strategic sustainability. G. Mulyar analyzes the foreign experience of the functioning of the health care system in the context of ensuring the implementation of the right to health care, highlighting institutional models that ensure a balance of accessibility, quality and financial sustainability [8]. D. G. Gavrichenko considers modern approaches to reforming public mechanisms in the field of health care in foreign countries, emphasizing the importance of integrated management models, multi-level coordination and performance orientation [9]. V. Budzyn examines the managerial principles of health care financing in the public context of humanitarian policy, focusing on the European experience and prospects for its implementation in Ukrainian realities to ensure balanced financial support for the system [10]. O. A. Shulga analyzes the foreign experience of managing innovations in healthcare organizations, showing that innovative management solutions, digital technologies and flexible organizational models are an important condition for strengthening the resilience of medical systems [11]. Further research in this direction should be directed to the adaptation and modeling of foreign financial and organizational practices in wartime, resource constraints and the need to restore infrastructure.

The fourth direction is related to the assessment of the effectiveness of public policy and the preparedness of the health care system for emergencies in the European and global dimensions. O. Rudik analyzes the EU experience in measuring the effectiveness of public policy in the field of health care on the example of integrated medical care, demonstrating the importance of complex indicators, interagency coordination and orientation to patient-centric models [12]. E. Belfroid and co-authors in their work define the key principles of public health emergency preparedness in the European Union, emphasizing the importance of cross-sectoral interaction, scenario planning and institutionalized preparedness mechanisms [13]. S.L. Greer and H. Jarman find out what EU public health is and why it has such a scope and structure, explaining the distribution of powers, the logic of political decisions and the organization of instruments for influencing the health systems of the Member States [14]. Further research in this direction should be directed to the development of indicative models for assessing the resilience and preparedness of the Ukrainian health care system, based on European approaches to integrated care and crisis response, taking into account the conditions of war and the need to protect critical medical infrastructure.

Despite the available research, the key aspects of shaping the strategic sustainability of the healthcare system still remain unresolved. The complex interaction of war risks, post-pandemic changes, financial and digital transformations has not been sufficiently studied; the mechanisms of inter-institutional coordination that determine the continuity of services and infrastructural stability have been studied to a limited extent; holistic approaches to assessing the managerial capacity of state institutions have not been formed; there are no integrated methods for analyzing personnel, resource and organizational constraints in crisis conditions. The proposed study addresses these gaps through a comprehensive analysis of resilience factors, assessing the impact of multidimensional crisis determinants, substantiating the role of state institutions in ensuring continuity of services and recovery, systematically identifying scientific and practical barriers, and forming well-founded recommendations for improving public administration mechanisms. This provides an expansion of scientific understanding of the problem and creates the basis for further research on the strategic sustainability of medical systems.

3. Problem Statement

The article is aimed at identifying and scientifically substantiating the mechanisms of public administration that can ensure the strategic sustainability of the healthcare system of Ukraine in the context of war and post-pandemic transformations.

Title of the article:

1. Identify the key determinants of the strategic sustainability of the healthcare system and assess the impact of military, post-pandemic, financial and digital factors on the public management of the industry.

2. To substantiate the managerial capacities of state institutions to ensure the continuity of medical services, infrastructure recoverability and human resource sustainability, while identifying scientific and practical barriers to the formation of resilience.

3. To formulate scientifically based recommendations for improving public administration mechanisms to increase the adaptability and long-term sustainability of the health care system of Ukraine.

4. Methods and Materials

The research methods included system and structural-functional analysis, methods of comparison and generalization, risk-based approach and content analysis of regulatory documents and international reports. The use of these methods made it possible to comprehensively assess the managerial capabilities of the state, identify systemic dysfunctions and outline directions for improving management in the field of healthcare.

5. Results and Discussion

The strategic stability of the health care system in the face of prolonged crisis loads is determined by a set of interrelated factors that form the ability of the state to ensure the continuity of medical services, maintain the functioning of infrastructure, promptly mobilize resources and maintain human resources. At the systemic level, these factors are manifested through the institutional integrity and coherence of actions of public administration entities, the effectiveness of the financial model, the flexibility of digital services, the ability of the infrastructure to adapt and quickly recover from destruction, as well as the sustainability of staffing in the context of migration processes, relocations, increased risks and psychological exhaustion. In the crisis conditions of war and post-pandemic transformations, it is the interaction of these factors that determines the extent to which the health care system is able to remain functionally effective, respond to the growing needs of the population and ensure equal access to vital services (Table 1).

Table 1. Main Factors of Strategic Stability of the Health Care System in the Context of Crisis Impacts

Factor	Content of characteristics	Practical significance
Institutional coherence	Coordination of the actions of the Ministry of Health, the National Health Service of Ukraine, local self-government; availability of management protocols and uniform regulations	Ensuring fast decision-making and reducing management fragmentation
Financial stability	Sufficiency of funding, flexibility of budget allocation, effectiveness of NHSU contracting	Guaranteeing continuity of payment for services and sustainability of medical institutions
Infrastructure capacity	The state of medical institutions, the possibility of recovery from destruction, logistical accessibility	Ability to support the provision of health services even in areas of hostilities
Personnel resilience	Availability of personnel, their motivation and psychological readiness, staff mobility	Ensuring the functioning of the system in the context of migration and increased risks
Digital Readiness	Development of eHealth, telemedicine, registers, analytics tools	Operational data accounting, rapid response and resource management

Source: Formed by the author on the basis of [1; 4–6; 9].

In practical terms, the interaction of these factors determines the real ability of the healthcare system to function in the conditions of war and post-pandemic load. Institutional coherence is manifested through the rapid adoption of decisions on the evacuation of patients, the redistribution of equipment and the formation of stabilization points, which became possible thanks to the unified protocols of the Ministry of Health and the National Health Service of Ukraine [15–18]. Financial stability ensures the continuity of the activities of medical institutions: the contracting mechanisms of the NHSU allow directing funds to those regions where traditional budget financing is disrupted due to hostilities. Infrastructure capacity is manifested in the rapid deployment of mobile outpatient clinics, modular hospitals and the use of backup energy solutions, which guarantees access to medical care even in areas

with partial destruction [4]. Staffing resilience is supported by the possibility of temporary staff rotation, the involvement of volunteer medical teams, and the use of digital tools to reduce the administrative burden on doctors. Digital readiness is manifested in the use of telemedicine for patient counseling in frontline communities, digital registries for drug control, and integrated analytical panels for monitoring bed stock and resource needs. Combined, these mechanisms provide adaptability, responsiveness, and targeted management, enabling the healthcare system to remain functionally viable even in highly turbulent environments.

The impact of hostilities, post-pandemic changes, financial imbalances, and digital transformations is significantly changing the architectonics of public health management, increasing the need for rapid management responses, flexible reallocation of resources, and integrated digital solutions. The war has actualized crisis management, relocation of medical facilities, and staff mobilization, while the post-pandemic consequences have deepened staffing shortages and the need for sustainable monitoring systems. Financial challenges lead to the reformatting of the financing model, and digitalization provides tools to increase the manageability and transparency of processes, but reveals disproportions between communities. The cumulative influence of these factors determines the quality of management decisions and the level of stability of the health care system (Table 2).

Table 2. The Impact of War, Post-Pandemic, Financial and Digital Factors on the Effectiveness of Public Health Care Management

Factor	Key management changes	Practical consequences
Hostilities	Crisis management, accelerated coordination, operational solutions	Mobile medical modules, stabilization points, relocation of institutions
Post-pandemic changes	Enhanced monitoring, remote forms of assistance	Telemedicine, electronic patient referral, incidence analytics
Financial imbalances	Flexible financing, targeted transfers	Priority packages of the National Health Service of Ukraine, support for hospitals in the frontline regions
Digital transformations	Data integration, digital routing, analytics platforms	Monitoring of resources, control of the bed fund, management of patient flows

Source: Formed by the author on the basis of [1; 2; 6; 11].

In practice, each of the factors considered significantly transforms management processes. The hostilities have led to an intensive deployment of mobile medical solutions: in 2024, the WHO handed over large batches of medical kits, equipment and materials to Ukraine for emergency stabilization points in regions where hospitals were destroyed. This provided support for primary care in the most affected communities of Chernihiv and Kharkiv regions [19]. Post-pandemic dynamics have stimulated a sharp increase in digital interaction in the healthcare system: in 2023, the Ministry of Health updated key eHealth modules, which made it possible to introduce remote consultations, electronic referrals, and digital management of chronic patients – this has become critically important for frontline areas, where the shortage of doctors reaches 40–60% [20]. Financial imbalances have led to the emergence of special mechanisms to support hospitals in risk areas: in 2023, the NHSU introduced a priority financing model for institutions in Donetsk, Kharkiv, and Kherson regions, thanks to which hospitals receive increased payment coefficients and separate compensation payments to maintain basic capacity [21]. In addition, digital tools made it possible to increase situational awareness: in 2023, the integrated monitoring panel of the Ministry of Health provided control over the bed stock, lack of resources, and patient routing during massive attacks, allowing for prompt adjustments to management decisions at the national level [22]. Taken together, these practices demonstrate the transition of the healthcare system from a normatively stable regime to highly dynamic, flexible and technologically supported management.

The managerial capabilities of state institutions in ensuring the continuity of medical services, restoring infrastructure and strengthening human resources are determined by the range of functions that these institutions are able to perform in conditions of increased risks. Unlike responding to external factors or building strategic resilience, these capabilities reflect specific managerial action implemented by public authorities – the Ministry of Health, the National Health Service of Ukraine, the Center for Public Health, local administrations and international aid partners. They include regulatory regulation, centralized resource provision, coordination of medical routes, management of infrastructure cycles,

personnel support and implementation of crisis protocols. It is these actions that form the ability of the health care system to function smoothly in conditions of war and high turbulence (Table 3).

Table 3. Main Managerial Actions of State Institutions in Ensuring Continuity of Services, Infrastructure Recovery and Human Resources Support

Managerial direction	What exactly do state institutions do?	Implementation mechanism
Ensuring the continuity of medical services	They regulate patient routes, create reserves of medicines, ensure the autonomy of institutions (generators, communications, oxygen supply), and repurpose departments	Operational orders of the Ministry of Health, centralized logistics networks, digital monitoring
Restoration of medical infrastructure	They conduct technical surveys, approve reconstruction plans, attract donors, and finance the modernization of departments	State-international projects, budget programs, coordination with USAID/UNICEF/WHO
Strengthening human resources	They are launching programs of training, certification, psychological support, increased payments, creating conditions for safe work	National training platforms, partner trainings, programs of the Ministry of Health and WHO

Source: Formed by the author on the basis of [4; 5; 11–13].

The practical implementation of the managerial capabilities of state institutions is manifested in a set of specific actions aimed at maintaining the operation of the medical system during the war. To ensure the continuity of medical services, the Ministry of Health, local administrations and international partners are deploying autonomous support networks for institutions, which allows them to function even in conditions of prolonged power outages. According to the UNICEF report for mid-2024, state institutions, together with the organization, provided 337 medical institutions with generators, emergency power supply systems, and equipment for mobile teams, which guaranteed the continuity of the operation of institutions during blackouts and missile strikes [23].

Infrastructure recovery is managed through targeted coordination of government programs and the involvement of international resources. In 2023, the WHO emphasizes that the limited access of the population to medicines and medical services is overcome through systematic interaction between the Ministry of Health, UN humanitarian agencies, and local administrations that deliver medical supplies, equipment, create temporary medical centers, and support the logistics of moving medical supplies to the frontline regions [24]. This demonstrates that state institutions act as a key coordinator between donors, communities and medical institutions, ensuring the restoration of the basic capabilities of the system.

In the field of staffing, state institutions conduct large-scale programs of professional training and psychological support for medical workers. According to the WHO, in 2022 alone, more than six thousand Ukrainian doctors and nurses were trained in mass trauma, first aid, psychological support for patients, and emergency response. This training was conducted in partnership with the Ministry of Health, military administrations and university clinics and has become one of the key tools for strengthening the human resilience of the healthcare system [25]. Thus, the managerial actions of state institutions include operational autonomy, coordination of recovery processes and continuous strengthening of human resources - three components that ensure the real ability of the health care system to function in wartime.

The formation of the strategic sustainability of the health care system in wartime, resource shortage and complex multi-level coordination is accompanied by a number of scientific and practical problems that are systemic and mutually reinforcing. A key problem is the fragmentation of managerial decisions: there are differences between the central level, military administrations, local governments and international partners in priorities, procedures and timing of decision-making, which complicates coordinated planning and prompt response [3]. An additional barrier is the uneven provision of resources - from the shortage of oxygen stations and critical equipment to the lack of vehicles for the movement of patients and medical teams. This is exacerbated by the destruction of logistics infrastructure, which disrupts the supply of medicines and consumables even in regions that have not suffered significant physical damage.

An important problem is the lack of up-to-date and integrated data for management decisions. Despite the development of digital tools, much of the data remains incomplete, ununified or delayed, and therefore cannot be used to quickly predict needs and allocate resources. This limits the ability of

the state to carry out an accurate load on medical institutions and timely adjust patient routes [7]. The staffing problem is also becoming systemic: the shortage of doctors and nurses, their high migration mobility, burnout, as well as the need for constant retraining in the field of trauma and emergency care exceed the capabilities of existing educational programs. In a number of regions, the personnel shortage is aggravated by the inability to provide safe working conditions due to shelling or the lack of shelters in medical institutions [4]. Scientific and practical constraints are also exacerbated by weak infrastructural resilience: many hospitals need urgent modernization of energy systems, ventilation, and oxygen networks, but restoration work is often delayed due to bureaucratic procedures, insufficient design capacity, and the difficulty of coordination between donors and government institutions. At the same time, there is a problem of discrepancy between recovery plans and the actual medical needs of the regions, which is associated with the insufficient involvement of local communities in planning processes. A separate layer of restrictions is regulatory and legal imbalances: some regulatory acts do not take into account the conditions of martial law, and certain procedures for public procurement, licensing or accreditation of medical institutions remain excessively long and inflexible [5]. All of this creates systemic barriers to rapid capacity deployment, adaptation of medical routes, and continuity of care.

Increasing the adaptability, effectiveness and long-term sustainability of the healthcare system of Ukraine requires the formation of recommendations aimed at modernizing management mechanisms, taking into account war risks, resource constraints and growing dependence on digital solutions. First of all, it is advisable to develop an integrated model of coordination between central authorities, military administrations and communities, which will ensure the unity of management decisions and synchronization of actions in the field of planning, logistics and infrastructure restoration. Improvement of digital management systems should provide for the full integration of registers, analytical panels and telemedicine platforms, which will allow the formation of management decisions based on reliable and timely data. Expanding the autonomy tools of medical institutions, including backup energy systems, mobile points and flexible patient routes, will help reduce the vulnerability of the system to external threats.

Financial sustainability requires the introduction of more flexible contracting models that take into account regional risks, the level of infrastructure destruction and the staffing situation. A reasonable combination of public funding with international technical assistance should be used not only to compensate for losses, but also to modernize equipment, energy-efficient solutions and create infrastructure for long-term sustainability. The human resources component requires strengthening vocational training programs, psychosocial support and incentives for professionals to work in high-risk communities through special support packages, including financial, social and security guarantees. At the same time, it is necessary to develop personnel mobility mechanisms that will allow redistributing specialists between regions without losing the quality of services.

It is recommended to improve the regulatory framework to speed up procurement procedures, adapt licensing and simplify the rules for commissioning temporary or modular medical structures in wartime. It is also important to introduce innovative approaches to planning a network of medical institutions that will combine territorial, demographic and risk-based criteria. In the strategic perspective, the state should move to a management model based on proactive forecasting, sustainable infrastructure solutions, digital intellectualization of processes and strengthening human capital, which will ensure the long-term viability and security of the healthcare system of Ukraine.

6. Conclusions

The strategic stability of the health care system of Ukraine is formed as a complex property that depends on the ability of state institutions to ensure the continuity of medical services, the integrity of managerial decisions and the prompt mobilization of resources in crisis conditions. It has been determined that the key barriers to the formation of resilience are fragmentation of coordination between levels of government, uneven resource provision, lack of relevant data for management decisions, personnel shortage and low infrastructural adaptability in regions with increased risk.

It has been established that scientific and practical problems are systemic in nature and are manifested in delays in managerial reactions, overloading of individual links of the system, the complexity of integrating digital tools and the insufficient capacity of state institutions to predictive planning. At the same time, it is substantiated that the potential for increasing resilience lies in the

development of flexible management mechanisms, full integration of digital platforms, reforming financial logic taking into account the risk profiles of regions, and supporting human resources through systematic training and motivation programs.

The prospects for further research are determined by the need to form risk-based models of strategic management, assess the effectiveness of digitally supported management decisions, develop methods for forecasting the workload and create standardized approaches to measuring the resilience of health care systems in the face of long-term crises.

References

1. Borshch, V. I. (2019). Suchasna paradyhma systemy upravlinnia personalom zakladu okhorony zdorovia [Modern paradigm of personnel management in healthcare institutions]. *Problemy systemnoho pidkhodu v ekonomitsi*, 1(3), 73–79. <https://doi.org/10.32782/2520-2200/2019-1-11> (in Ukrainian).
2. Zvirych, V. V. (2022). Metodichni zasady ta pryntsypy udoskonalennia mekhanizmu upravlinnia personalom u haluzi okhorony zdorovia [Methodological foundations for improving personnel management in healthcare]. *Publichne uriaduvannia*, 2(30), 32–39. [https://doi.org/10.32689/2617-2224-2022-2\(30\)-4](https://doi.org/10.32689/2617-2224-2022-2(30)-4) (in Ukrainian).
3. Yevas, T. V., & Ohorodnik, A. O. (2021). Pidkhody do udoskonalennia upravlinnia personalom zakladiv okhorony zdorovia [Approaches to improving personnel management in healthcare institutions]. *Podilskyi naukovyi visnyk*, (1), 17. http://www.pnv.in.ua/images/Magazine/1_2021.pdf#page=35 (in Ukrainian).
4. Avhustyn, R. R., & Stakhiv, O. V. (2023). Vyznachennia stratehichnykh prioritytiv upravlinnia systemnym rozvytkom zakladiv okhorony zdorovia [Strategic priorities for systemic development management of healthcare institutions]. *Akademichni vizii*, (17). <http://dx.doi.org/10.5281/zenodo.7763346> (in Ukrainian).
5. Cherchyk, L., & Serhiichuk, R. (2022). Sutnist ta skladovi upravlinnia rozvytkom personalu zakladiv okhorony zdorovia [Essence and components of personnel development management in healthcare institutions]. *Ekonomichni chasopys Volynskoho natsionalnoho universytetu imeni Lesi Ukrainky*, 1(29), 58–66. <https://doi.org/10.29038/2486-4618-2022-01-58-66> (in Ukrainian).
6. Shevchuk, R. (2022). Osoblyvosti realizatsii derzhavno-privatnoho partnerstva u sferi okhorony zdorovia Ukrainy [Features of PPP implementation in Ukrainian healthcare]. *Naukovi pratsi MAUP. Politychni nauky ta publichne upravlinnia*, 4(64), 109–114. [https://doi.org/10.32689/2523-4625-2022-4\(64\)-14](https://doi.org/10.32689/2523-4625-2022-4(64)-14) (in Ukrainian).
7. Kopytko, M., & Tkachuk, D. (2024). Upravlinnia stiikistiu i personalom v orhanizatsiakh ta zakladakh okhorony zdorovia u kryzovykh sytuatsiakh [Managing resilience and personnel in healthcare institutions during crises]. *Vcheni zapysky Universytetu "KROK"*, 3(75), 93–101. <https://doi.org/10.31732/2663-2209-2024-75-93-101> (in Ukrainian).
8. Muliar, H. (2020). Zarubizhnyi dosvid funktsionuvannia systemy okhorony zdorovia v konteksti realizatsii prava na okhoronu zdorovia [Foreign experience of healthcare systems in ensuring the right to health]. *Journal of Academy of Labour, Social Relations and Tourism*, (1–2), 43–52. <https://doi.org/10.33287/11206> (in Ukrainian).
9. Havrychenko, D. H. (2022). Suchasni pidkhody do reformuvannia publichnykh mekhanizmiv u sferi okhorony zdorovia u zarubizhnykh krainakh [Modern approaches to reforming public mechanisms in healthcare in foreign countries]. *Derzhava ta rehiony. Seria: Publichne upravlinnia i administruvannia*, 1(75), 12–17. <https://doi.org/10.32840/1813-3401.2022.1.2> (in Ukrainian).
10. Budzyn, V. (2023). Upravlinski pryntsypy finansuvannia okhorony zdorovia v suspilnomu konteksti humanitarnoi polityky [Management principles of healthcare financing in the context of humanitarian policy]. *Naukovyi visnyk Vinnytskoi akademii bezperervnoi osvity. Seria "Ekolohia. Publichne upravlinnia ta administruvannia"*, (4), 52–57. <https://doi.org/10.32782/2786-5681-2023-4.08> (in Ukrainian).
11. Shulha, O. A. (2023). Zarubizhnyi dosvid upravlinnia novovvedenniamy v orhanizatsii sfery okhorony zdorovia [Foreign experience in managing innovations in healthcare]. *Biznes-navigator*, 3(73), 47–51. <https://doi.org/10.32782/business-navigator.73-8> (in Ukrainian).
12. Rudik, O. (2022). Dosvid YeS shchodo vymiriuvannia efektyvnosti derzhavnoi polityky v sferi okhorony zdorovia [EU experience in evaluating healthcare public policy]. *Aspekty publichnoho upravlinnia*, 10(1), 12–19. <https://doi.org/10.15421/152271> (in Ukrainian).
13. Belfroid, E., Roßkamp, D., Fraser, G., Swaan, C., & Timen, A. (2020). Towards defining core principles of public health emergency preparedness. *BMC Public Health*, 20(1), 1482. <https://doi.org/10.1186/s12889-020-09307-y>
14. Greer, S. L., & Jarman, H. (2021). What is EU public health and why? *Journal of Health Politics, Policy and Law*, 46(1), 23–47. <https://doi.org/10.1215/03616878-8706591>

15. State Expert Center of the Ministry of Health of Ukraine. (2019). *Reiestr medyko-tekhnologichnykh dokumentiv zi standartyzatsii medychnoi dopomohy* [Register of medical-technological documents for standardization of care]. <https://www.dec.gov.ua/mtd/home/> (in Ukrainian).
16. State Expert Center of the Ministry of Health of Ukraine. (2025). *Haluzevi standarty ta klinichni nastanovy* [Sectoral standards and clinical guidelines]. https://www.dec.gov.ua/cat_mtd/galuzevi-standarti-ta-klinichni-nastanovi/ (in Ukrainian).
17. Ministry of Health of Ukraine. (2018). *Onlain-platforma z protokolamy na zasadakh dokazovoi medytsyny* [Online platform with evidence-based medical protocols]. <https://moz.gov.ua/uk/onlain-platforma-z-protokolami-na-zasadakh-dokazovoi-medicini> (in Ukrainian).
18. Cabinet of Ministers of Ukraine. (2023). *Deiaki pytannia realizatsii prohramy derzhavnykh harantii medychnoho obsluhovuvannia naselennia* [Some issues regarding the implementation of the state guarantees program for medical services to the population]. Resolution No. 1394. <https://zakon.rada.gov.ua/go/1394-2023-%D0%BF> (in Ukrainian).
19. World Health Organization. (2022). *WHO delivers life-saving medical supplies to Kherson*. <https://www.who.int/europe/news/item/18-11-2022-who-delivers-life-saving-medical-supplies-to-kherson>
20. Ministry of Health of Ukraine. (2023). *Elektronna systema okhorony zdorov'ia (ESOZ)* [Electronic Health Care System (EHCS)]. <https://moz.gov.ua/uk/elektronna-sistema-okhoroni-zdorov-ya-esoz-2> (in Ukrainian).
21. Ministry for Development of Communities and Territories of Ukraine. (2025). *Prohrama pidtrymky pryfrontovykh rehioniv: medychni zaklady otrymaly vzhe ponad 280 mln hrn dodatkovoho finansuvannia* [Support program for frontline regions: Medical facilities have already received over UAH 280 million in additional funding]. <https://mindev.gov.ua/news/prohrama-pidtrymky-pryfrontovykh-rehioniv-medychni-zaklady-otrymaly-vzhe-ponad-280-mln-hrn-dodatkovoho-finansuvannia> (in Ukrainian).
22. National Institute for Strategic Studies. (2022). *Resursy systemy okhorony zdorov'ia v umovakh viiny* [Healthcare resources in wartime]. <https://niss.gov.ua/en/node/4701> (in Ukrainian).
23. UNICEF. (2024). *Ukraine Humanitarian Situation Report, Mid-Year 2024*. <https://www.unicef.org/media/159691/file/Ukraine-Humanitarian-SitRep-Mid-Year-2024.pdf>
24. United Nations in Ukraine. (2023). *Every fifth person in Ukraine has problems with access to essential medicines*. <https://ukraine.un.org/en/240516-every-fifth-person-ukraine-has-problems-access-essential-medicines-dr-jarno-habicht-who>
25. World Health Organization. (2022). *WHO trains thousands of health care workers in mass casualty and trauma care amid the war*. <https://www.who.int/europe/news/item/23-12-2022-who-trains-thousands-of-health-care-workers-in-mass-casualty-and-trauma-care-amid-the-war>