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## Operation of Healthcare Institutions under conditions of martial law

### Функціонування закладів охорони здоров'я в умовах воєнного стану

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Written by:

**Ievgenii Andrieiev<sup>1</sup>** <https://orcid.org/0000-0002-0727-8166>**Dmytro Tyshko<sup>2</sup>** <https://orcid.org/0000-0003-4271-0812>**Serhii Petryk<sup>3</sup>** <https://orcid.org/0000-0001-9942-1937>**Natalia Kryzyna<sup>4</sup>** <https://orcid.org/0000-0003-2074-961X>**Olena Kryzyna<sup>5</sup>** <https://orcid.org/0000-0002-9618-8540>

#### Abstract

The most significant value of society is the life and health of the people. Therefore, the main goal of the healthcare system is to ensure the continuity of medical services for the population. Organizing the healthcare sector within the community during the war presents an unprecedented challenge for government authorities and local self-governance.

The article aims to define the peculiarities of organizing healthcare institutions under martial law in the country, highlighting key factors that influence the field of medicine and directions for optimizing the activities of medical establishments. The research employed various philosophical methods for analysis and information study, including dialectical, metaphysical, synergistic, and intuitive methods. Besides, the authors used systemic analysis, synthesis, and abstraction. At the same time, such particular scientific methods as formal-logical (dogmatic), comparative, sociological, hermeneutical, instrumental, axiological, and a synthesis of institutional and axiological approaches were used. The research results

#### Анотація

Найголовнішою цінністю суспільства є життя і здоров'я людей. Тому головною метою системи охорони здоров'я є забезпечення безперервності медичного обслуговування населення. Організація сфери охорони здоров'я в громаді під час війни є безпрецедентним викликом для органів державної влади та місцевого самоврядування.

Метою статті є визначення особливостей організації закладів охорони здоров'я в умовах воєнного стану в державі, виділення ключових факторів, що впливають на сферу медицини, та напрямів оптимізації діяльності лікувальних закладів. У дослідженні використовувалися різні філософські методи аналізу та вивчення інформації, включаючи діалектичні, метафізичні, синергетичні та інтуїтивні методи. Крім того, автори використовували системний аналіз, синтез та абстрагування. При цьому використовувалися такі частнонаукові методи, як формально-логічний (догматичний), порівняльний, соціологічний, герменевтичний, інструментальний, аксіологічний, а також синтез інституційного та аксіологічного

<sup>1</sup> Doctoral Student, PhD in Medical Science, Department of National Security, Public Administration and Management, Faculty of Public Administration, Law and International Relations, Zhytomyr Polytechnic State University, Zhytomyr, Ukraine.

<sup>2</sup> Doctoral Student, PhD in Medicine, Department of National Security, Public Administration and Management, Faculty of Public Administration, Law and International Relations, Zhytomyr Polytechnic State University, Zhytomyr, Ukraine.

<sup>3</sup> Doctoral Student, PhD in Public Administration, Department of National Security, Public Administration and Management, Faculty of Public Administration, Law and International Relations, Zhytomyr Polytechnic State University, Ukraine.

<sup>4</sup> Doctor of Sciences in Public Administration, Professor, Educational Medical Institute of Kyiv International University, Educational and Scientific Medical Institute, Ukraine.

<sup>5</sup> Doctor Philosophy P(h)D, Department of General Medicine, Educational and Scientific Medical Institute of Kyiv International University, Ukraine.

identified crucial theoretical aspects regarding the operation of healthcare institutions during the war. The article also examines scholars' viewpoints on the key problems of medical institutions during hostilities.

**Keywords:** Medical care continuity, healthcare management, legal system in the medical sphere, healthcare efficacy under martial law.

## Introduction

Today's essential component of the global socio-economic sphere is the healthcare system. It ensures the expanded reproduction of human capital through the utilization and redistribution of temporarily available resources of all participants involved in the reproductive process - the state, the population, and economic entities. The main goal of healthcare management is to ensure accessible medical care and improve the efficiency of healthcare services. The scope, type, and quality of these services should correspond to disease indicators and the population's needs based on the guiding principles of medical science.

Currently, in Ukraine, medical institutions operate under martial law conditions. It requires applying new approaches to managing the healthcare system and organizing the functioning of the medical system that would effectively assist both the army and civilians. In this regard, the responsibility of the state and law enforcement agencies for the functioning of the healthcare system and ensuring its effectiveness in times of war is particularly relevant.

The theoretical part of this study substantiates the importance and main prerequisites for the formation of state policy regarding the management of healthcare institutions during wartime. The article focuses on the specifics of medical care for the military and provides an overview of the current operation of healthcare institutions under martial law. The paper outlines the features of legal and financial support for healthcare institutions during hostilities.

The practical part of the research includes an assessment of the destruction of medical institutions as a prerequisite for applying modern management tools in the healthcare sector under martial law conditions. It identifies critical steps necessary for the restoration of the healthcare sector during wartime, highlights the

підходів. Результати дослідження виявили найважливіші теоретичні аспекти діяльності закладів охорони здоров'я під час війни. У статті також досліджено погляди науковців на ключові проблеми медичних установ під час бойових дій.

**Ключові слова:** Безперервність надання медичної допомоги, управління охороною здоров'я, правова система в медичній сфері, ефективність охорони здоров'я в умовах воєнного стану.

components of strengthening the financial stability of the healthcare sector, and establishes key directions for the modern achievements of scientists regarding the organization of work in healthcare institutions.

Based on the research results, the conclusions have been drawn regarding the issues that have been addressed. In particular, it was found that the most important aspects of optimizing the medical institutions' system are strengthening the components of the national healthcare system's general policy and the quality management system of medical services.

The paper assesses financial support as the most essential factor in the successful functioning of the sector. It emphasizes that solving economic issues related to the activities of healthcare institutions primarily requires encouraging donors, increasing the total amount of state healthcare funding, and introducing flexible and result-oriented methods of healthcare financing.

The study aims to identify statistical and analytical trends describing healthcare institutions' operation and highlight the most critical factors that enable their successful functioning and development during the war. The paper also highlights the most common areas of current research by scholars on the organization of healthcare institutions' operations during hostilities.

## Literature Review

In the current conditions, the responsibilities of public administration in the healthcare system include the following:

- high-quality provision of medical services;
- improvement of the management of healthcare institutions system;

- ensuring an adequate regulatory system in the healthcare sector;
- adaptation of the healthcare sector to the external environment.

Today, public administration in the healthcare sector is based on the principles and priorities of state policy development in the healthcare sector. These principles are defined by national regulations, the international legal framework for healthcare, and the current mechanism of public administration in the national healthcare system (Catanzaro, Pesenti & Ronco, 2023), (Rawtani et al., 2022), (Borger, 2022).

Under martial law, the main tasks of healthcare facilities and state institutions involved in providing primary and secondary medical care to wounded service members are to ensure the provision of special beds to accommodate wounded soldiers and to stock up on medical supplies. The delivery of medical equipment, donor blood, and its components, and the possibility of simultaneously receiving a set number of wounded (sick) servicemen are particularly relevant (Perdana, Vielle & Schenckery, 2022).

The state's primary responsibility for the healthcare system development and efficiency during wartime lies in ensuring that the respective ministry is ready to bring certain medical institutions and other necessary forces and resources to ensure the provision of medical care to military personnel during martial law. Additionally, regional government administrations, in collaboration with local self-governing bodies and based on recommendations from the Ministry of Defense, identify municipal healthcare institutions that can be involved in providing medical care. Scientific institutions specializing in medical sciences provide consultative and scientific-methodological support to healthcare facilities offering medical assistance during the war (Storonyanska et al., 2022), (Beckley, 2018), (Pastukhov et al., 2022).

The medical workers are subject to military registration according to their specialization and are enrolled in the mobilization reserve. With the ongoing hostilities, the national healthcare system is now gradually adapting to these changes (Pereira et al., 2022).

An important issue of medical support during martial law is the medical care of the army. The management of the military medical support system during wartime and in emergencies is carried out within a unified management system per the country's existing legislation. The state provides guidance and involvement of the national industry to meet the needs of military medicine in the design and production of Ukrainian land, marine, and aircraft transport that can be easily adapted to evacuate the wounded and sick. Besides, the medical training programs for healthcare specialists of all educational and qualification levels in Higher Medical Education Institutions currently include studying the relevant topics on medical care for troops and civilians during the war (Anjum, Aziz & Hamid, 2023), (Driedger, 2023).

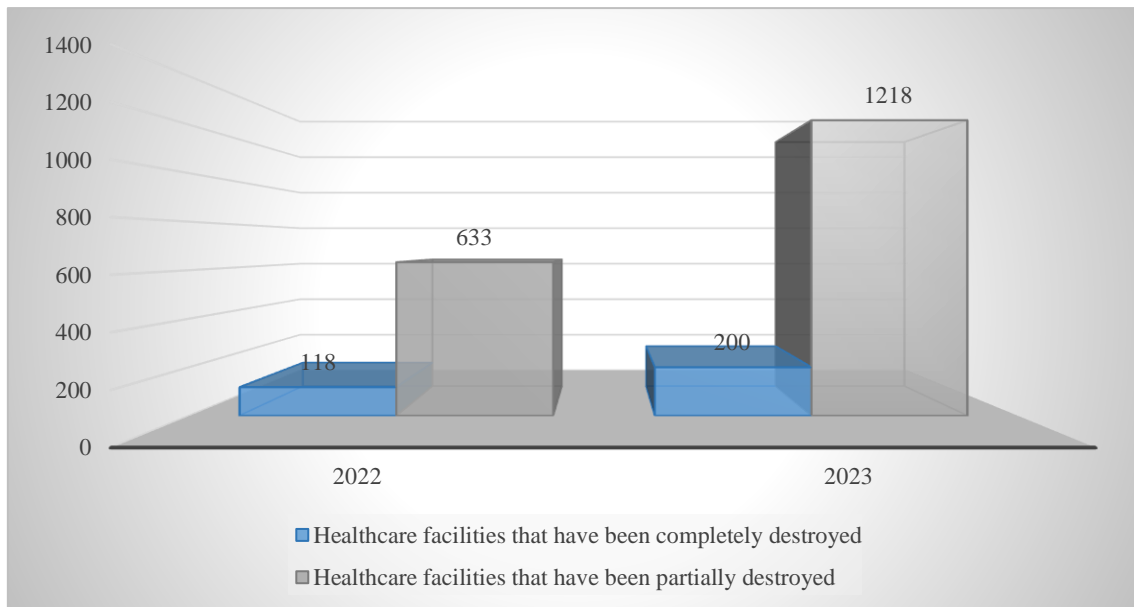
### Materials and Methods

A practical study of current trends in the development of the healthcare system under martial law was conducted by analyzing and processing statistical data on the functioning of the healthcare sector in Ukraine. Also, the authors critically evaluated scientific articles and publicistic reviews on the research topic in forming proposals for optimizing healthcare institutions' management during martial law.

The theoretical background of the study includes the data from the International Organization for Migration on the damages to the healthcare system in Ukraine as a factor of the sector's functioning and optimization, along with the contributions of scholars from many countries on the financial and administrative support of the healthcare system during martial law.

### Results

A practical description of the healthcare system management features during the war was made on the example of the medical system organization in Ukraine between 2022 and 2023. The war started by Russia in 2022-2023 devastated the lives and health of Ukrainians and caused significant damage to the healthcare system. According to official data, as of mid-June 2022 and 2023, the statistics of complete and partial destruction of healthcare facilities are as follows (Figure 1).

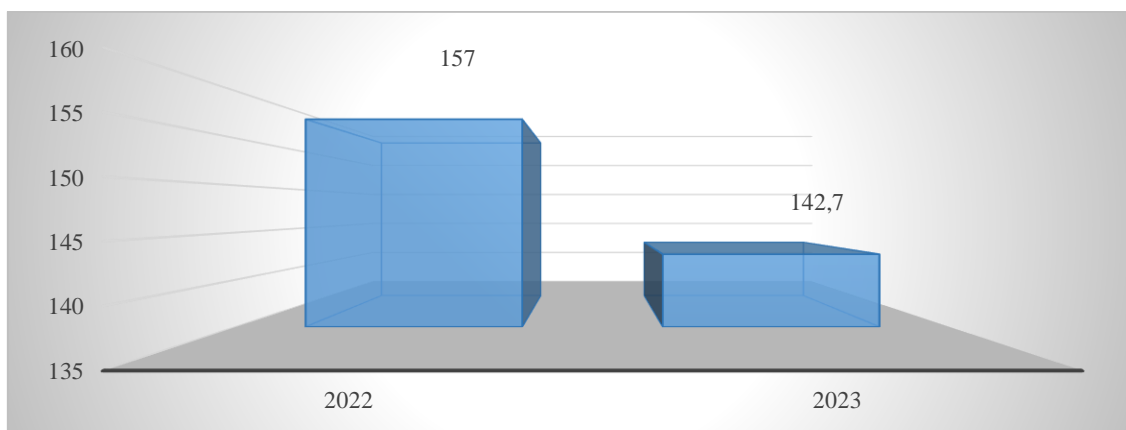


**Figure 1.** Annual destruction volumes dynamics of healthcare institutions as a basis for managing the healthcare sector under martial law, number of institutions.

Source: compiled by the authors based on (Darden, 2023), (International Organization for Migration, 2023).

Terrorist attacks on medical facilities were a part of the Russian invaders' strategy and tactics. The destruction of the medical infrastructure, shortage of personnel, and disruption of logistics have all become obstacles to the timely and complete provision of medical supplies to the population.

While studying the amount of funding for the healthcare sector as one of the key indicators of its development, the dynamics of funds allocated under the medical guarantee program for 2022 and 2023 are as follows (Figure 2). As can be seen from the foregoing data, the amount of funding for the industry has been significantly reduced.



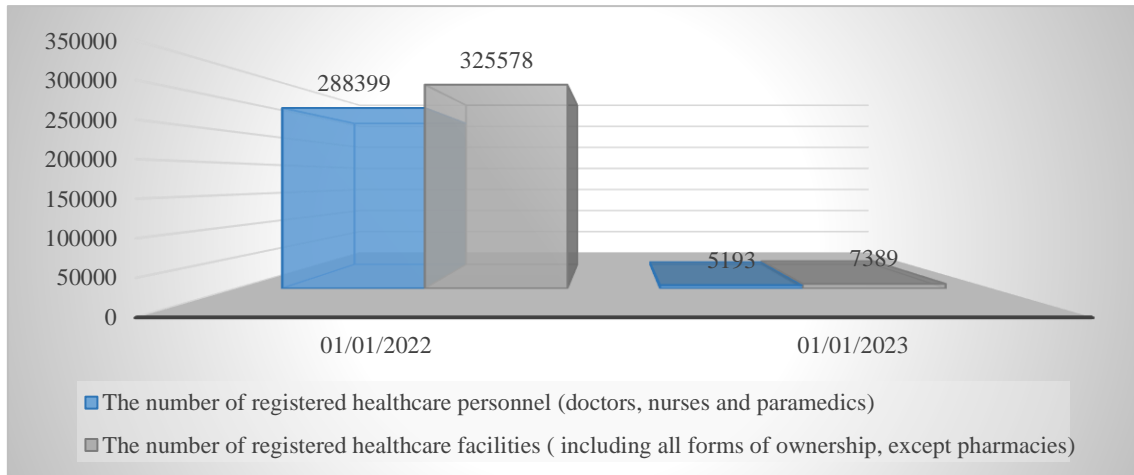
**Figure 2.** The amount of funding under the medical guarantee program for 2023, billion UAH.

Source: compiled by the authors based on (International Organization for Migration, 2023).

One of the indicators of the sector's development is the dynamics of healthcare facilities and healthcare workers' registration in the Electronic Healthcare System (EHS) (Figure 3).

When institutions are registered, their medical staff is registered accordingly. It led to a

significant increase in the number of registered medical personnel in the Electronic Healthcare System (EHS) in 2023, which indicates a certain development in the healthcare sector, despite the difficulties caused by the war in Ukraine.

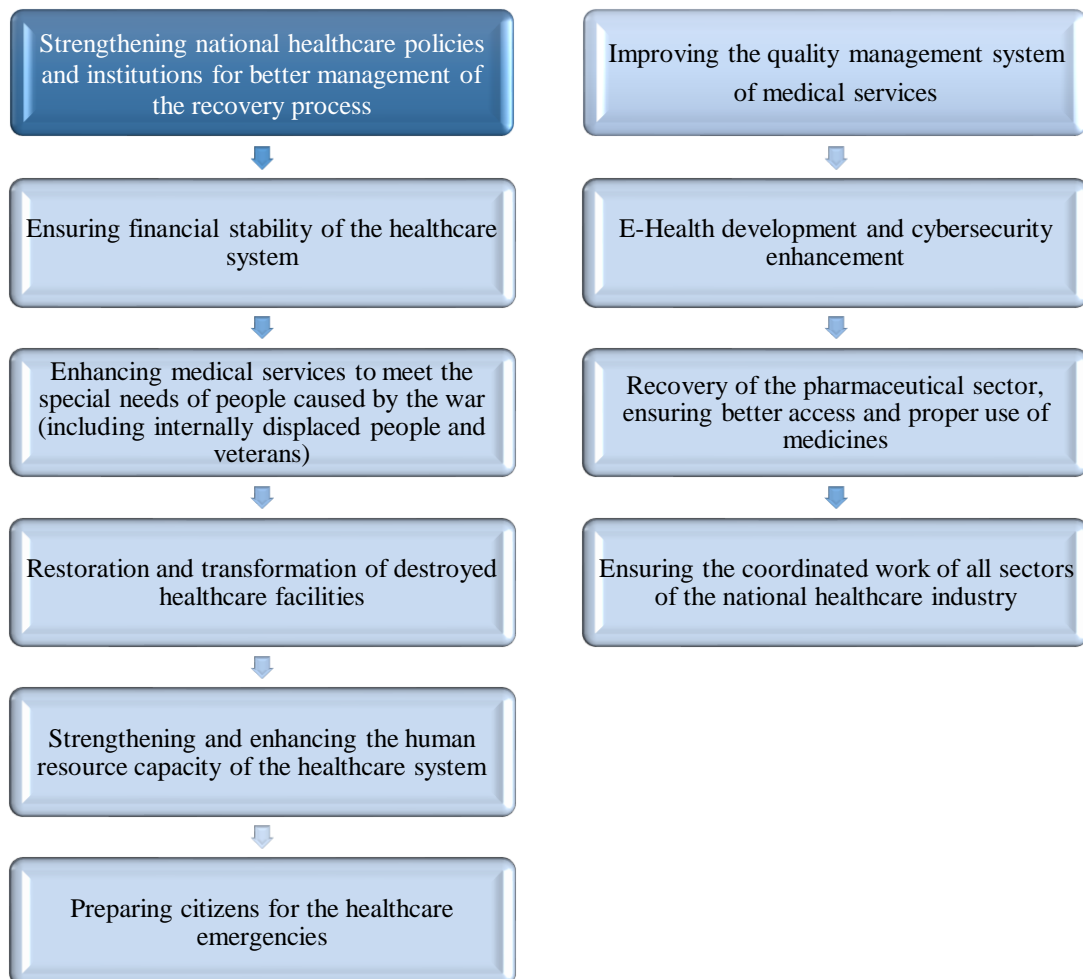


**Figure 3.** The dynamics of medical institutions and healthcare personnel registration in the Electronic Healthcare System, the number of persons and institutions registered.

Source: compiled by the authors based on (International Organization for Migration, 2023).

The contributions of Ukrainian and foreign scholars allow identifying the key steps needed

to optimize the healthcare sector during the war (Figure 4):

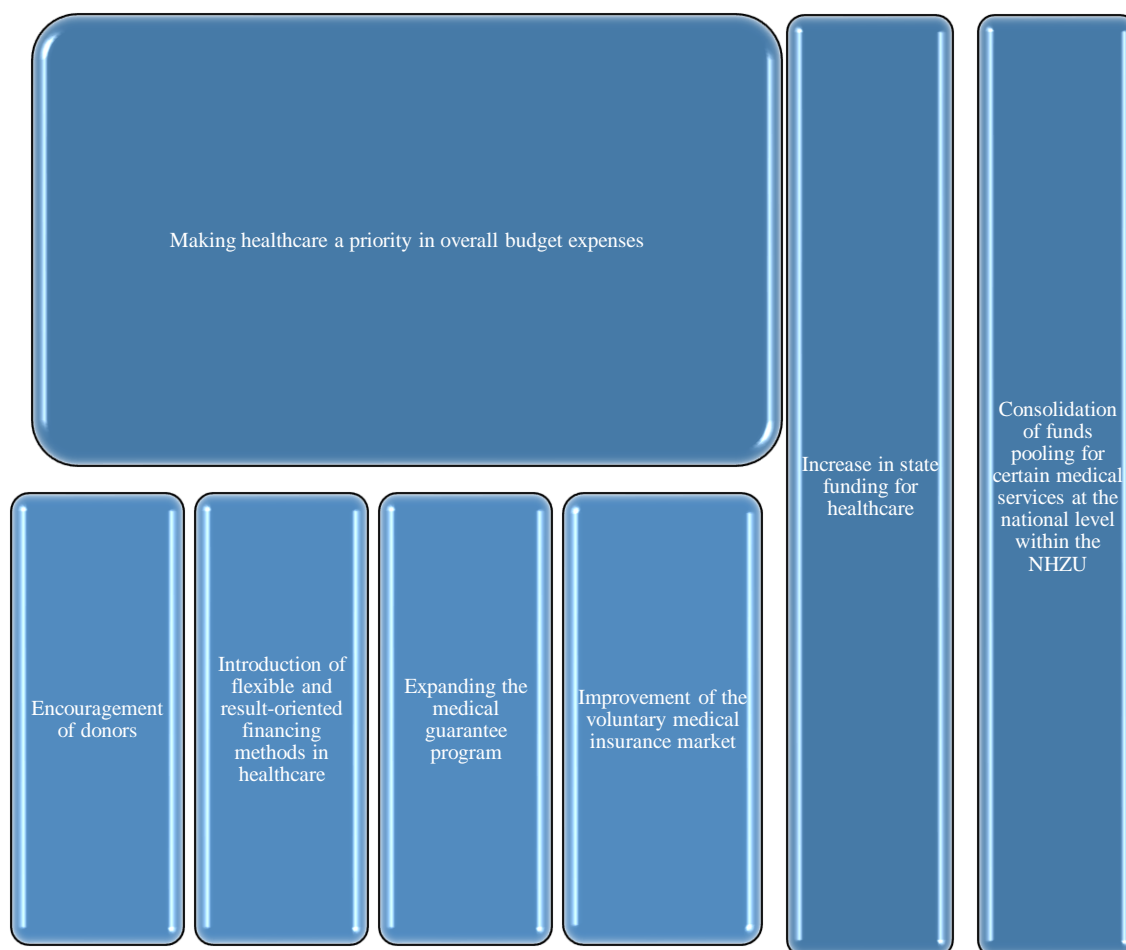


**Figure 4.** The key steps needed to restore the healthcare sector during the war.

Source: compiled by the authors based on (Gallo-Cajiao et al., 2023), (Pereira et al., 2022).

As can be seen from Figure 4, the most important aspects of healthcare system optimization are strengthening the national healthcare system's public policy components and enhancing the

quality management system. An important aspect of managing the healthcare system is to strengthen the financial stability of the healthcare industry, as shown in Figure 5.



**Figure 5.** The components of strengthening the financial stability of the healthcare industry.

Source: compiled by the authors based on (Darden, 2023), (Morales et al., 2022).

As seen in Figure 5, addressing the financial aspects related to the functioning of healthcare institutions primarily requires the following:

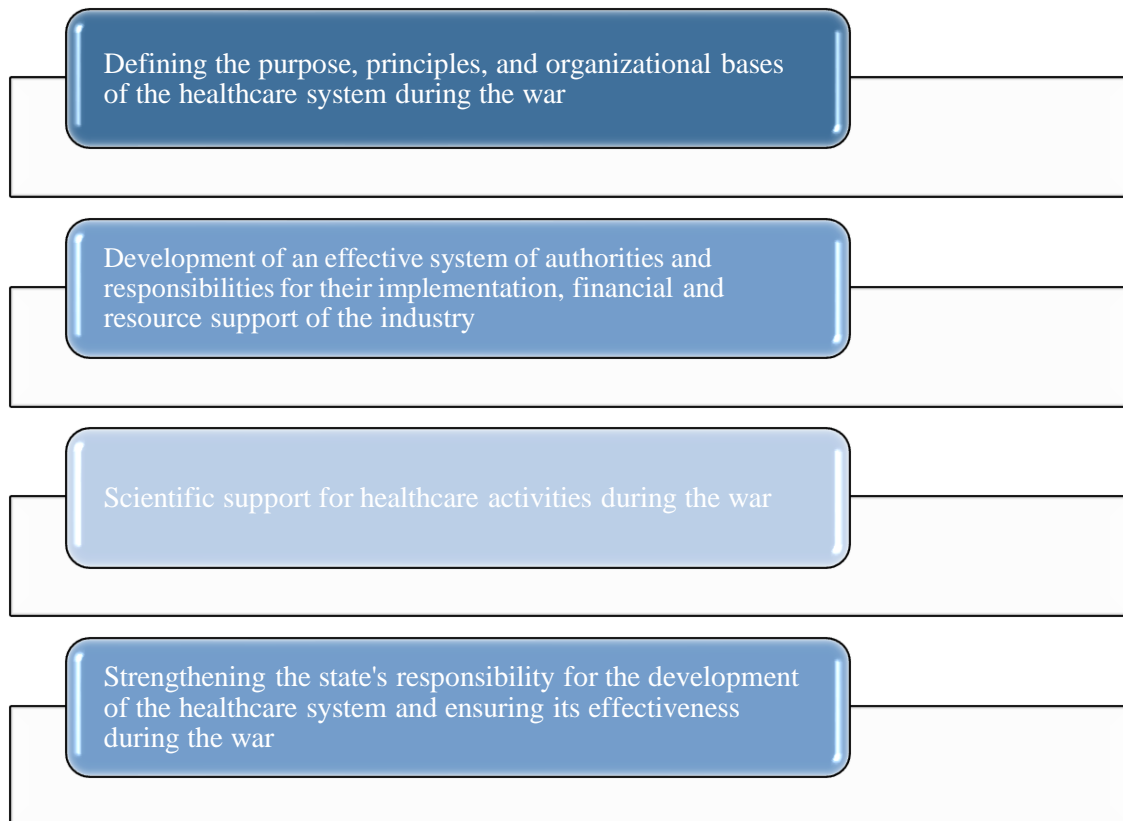
- encouragement of donors;
- increasing the overall state funding for healthcare;
- gradually enhancing the sector's capacity as a unified strategic purchaser of medical services by implementing flexible and outcome-oriented healthcare financing methods.

International donors and institutions are ready to provide complex financial support to healthcare institutions under martial law. The prospects for restoring medical infrastructure and attracting capital investments to the sector, transparency of

healthcare institutions' financial, economic, and medical activities is an integral part of attracting international financial support for individual targeted programs and projects. It is also the basis for effective and transparent reallocation and use of large amounts of medical humanitarian aid. The analysis of scientific papers on this topic has shown that the key areas of research on issues related to the organization of healthcare institutions' operations during hostilities include:

- "Strengthening the state's responsibility for the healthcare system;"
- "Development of an effective system of financial and resource support for the industry;"
- "Scientific support for healthcare activities during the war" (Figure 6).





**Figure 6.** The key directions of scientists' modern achievements on issues related to the organization of healthcare institutions' operations.

Source: compiled by the authors based on (Cornwall, 2022), (Kuzio, 2022).

Due to the anticipated intensity of hostilities in Eastern Ukraine, all the aforementioned circumstances will have a prolonged and indefinite nature. They will result in an increasing trend of expenses and burdens on healthcare facilities and allow for obvious conclusions regarding the need to effectively manage an integrated network of medical services at the local level to bridge the financial gap between the revenues and expenditures on healthcare services of healthcare institutions.

During martial law, due to the significant weakening of entrepreneurial and economic activities, municipal budgets experienced a decrease in revenues from taxes and fees. This decrease, combined with the change in priorities in the expenditure part of municipal budgets during the state of martial law, leads to a reduction in local budget programs for healthcare financing. Often, it affects the reimbursement of energy supplies to healthcare facilities.

An essential condition for the functioning of the healthcare system at the current stage of its development is creating an appropriate and effective legal framework that will ensure the realization of the existing citizens' interests

within the administrative and territorial units regarding healthcare in case of martial law. According to scholars, overall modern trends in the Ukrainian healthcare system development, which are caused by the hostilities, include as follows:

- an increase in the number and volume of medical services and changes in their structure;
- an increase in the costs of medical institutions and municipal budgets not only for medicines and medical devices but also for labor costs when engaging specialists from among internally displaced persons and for their additional medical equipment;
- the support of infrastructure for healthcare institutions, etc. (O'Grady & Khudov, 2022), (Kottasova & Sarbu, 2022).

Even the current quick assessment of healthcare facilities shows the need for additional analysis and further optimization of their reserve capabilities, considering the martial law factors. The evaluation of the healthcare facilities operations in small communities under martial law confirms the tendency towards the need to introduce new integrated models of healthcare

facilities operations with flexible management of a limited capacity and a range of medical services focused on additional patients' needs (Papageorgiou et al., 2020), (Bratko, 2022), (Lkhaajav, 2022).

## Discussion

Healthcare management performs one of the most essential functions in implementing a country's domestic policy. It is based on making public administration decisions regarding implementing the concept of accessible medical care for all citizens of the country. Managing healthcare institutions is based on the principles of systematicity, legal responsibility, and continuous qualification improvement and considers a range of external and internal factors. Only the state develops the implementation of the legal framework for healthcare activities, the structures of the national security sector, and the civil healthcare system. Also, the state provides material and financial support for the needs of the civilian population during the war (Lukin, 2019).

The current and prospective analysis of healthcare institution activities, as well as the implementation of a unified management system and decision-making, will provide answers to many questions, such as:

- the need for the quantity and profiles of hospital beds;
- an assessment of the required number of specialists and their medical expertise;
- the need for medications and surgical materials, considering changes in the hospitalization structure;
- the proper handling of applications for humanitarian aid or procurement using budgetary funds and donor finances (Semenenko et al., 2022), (Aqeel et al., 2022), (Papageorgiou et al., 2020), (Badotra & Sundas, 2020).

A comprehensive analysis of available information obtained from medical information systems regarding the quantity and structure of hospitalizations, surgeries, and patient visits in full detail allows for planning the demand for medical and human resources (Pastukhov et al., 2022), (Shulzhenko & Gaydulin, 2022). The provision of medical services by civilian healthcare institutions, planning their capabilities in martial law conditions at the community level, and even distributing humanitarian medical goods within regional centers or communities should align with the commands of respective services and military hospitals. Such

coordination is only possible by implementing a medical and economical information management system directly in healthcare institutions and at the municipal level. An effective interaction among healthcare service providers will contribute to the adaptation of municipal healthcare institutions to the changes caused by war. In addition, it will make them ready for the post-war recovery and development stage, enabling these institutions to become a part of an integrated network for deploying medical services at all levels throughout the country (Semenenko et al., 2021), (Mishra et al., 2022).

## Conclusions

The analysis of scientific literature on the research topic has revealed that employing a range of specialized tools and unique approaches to its administrative and resource support is necessary. These tools will facilitate the smooth operation of healthcare facilities and ensure affordable and high-quality medical services to the public under martial law. Healthcare statistics and records can help better understand the healthcare system's needs and improve medical care. There is a need to continue the reform of the healthcare sector, including expanding investments in healthcare infrastructure and adapting approaches to the delivery of medical services.

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