

Legal foundations and emerging trends in the reform of Ukraine's healthcare system

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Abstract. The relevance of the study lies in the need to clarify the organisational and legal basis and current trends in reforming the healthcare system in Ukraine during the war, since the effective functioning of this system is directly related to maintaining the national security of the state. The purpose of the study was to identify current trends in reforming the healthcare system of Ukraine. The research was based on the use of a historical approach and problem analysis, during which such methods as: formal legal, historical legal, and comparative legal were used. The study examined the process of reforming the Ukrainian healthcare system since 2015 and drew attention to the events that had the most significant impact on it. The main findings of the study were the specification of current trends in reforming the healthcare system in Ukraine. The results of the reforms include universal healthcare coverage through the introduction of an effective integrated service delivery model, enhanced human resources to meet the urgent needs of the Ukrainian healthcare system, and ensuring the professional well-being of employees. The introduction of innovations and intensification of international cooperation in the field of medicine contributed to the integration of Ukrainian education and science into the international context, exchange of experience with American and European experts, and access to advanced technologies in the medical field from partners. These trends aimed at improving the quality and accessibility of medical care for all citizens of Ukraine

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can manifest themselves in a significant improvement in the state of the Ukrainian healthcare system. The study also analysed the draft strategy for the development of the healthcare system until 2030 and other regulatory legal acts to clarify state policy in this area. The scientific originality consisted in a comprehensive analysis of the organisational and legal foundations and current trends in reforming the healthcare system of Ukraine in the context of armed conflict, systematisation of changes since 2015, and identification of specific challenges and adaptation mechanisms. The results of the study can be used to compare the Ukrainian healthcare system with such systems in other countries

Keywords: human resources; public service; martial law; physical and psychological injuries; vector of development of medical care

Introduction

Healthcare is a set of state actions in ensuring public access to high-quality medical services in order to preserve and restore their health. In turn, the healthcare system of Ukraine is a certain conglomerate of all state bodies, institutions, and organisations through which the state implements national policy in the field of providing medical services and whose activities are aimed at providing the population of Ukraine with access to qualified medical services. The quality and timeliness of medical care that citizens receive is one of the main criteria for assessing healthcare in a particular state, but in some territories of Ukraine, due to the war and occupation, the population does not have a real opportunity to receive qualified medical care due to the high probability of shelling or the danger that the occupation forces create for medical personnel. Lack of adequate healthcare leads to higher civilian mortality rates and contributes to the spread of infectious diseases, thus creating additional challenges for the health system (Levy & Leaning, 2022). However, the healthcare system of Ukraine is constantly adapting to new challenges associated with the war and new types of injuries that have to be treated. Urgent needs for high-quality medical care of the population and outdated legislative norms that slow down the effective operation of the healthcare system of Ukraine are the main factors determining the vector of its reform for the near future.

Numerous researchers have considered these issues, including Y. Gorodnichenko *et al.* (2022), whose research suggests specific strategies for achieving key goals in Ukraine's recovery, in particular its healthcare system. All strategies are created with the help of expert analysis by leading researchers, each chapter explores different aspects of the reconstruction of Ukraine, determining their interrelation and importance for the overall success of the country. The study also argues for the need for deep modernisation of Ukraine, emphasising that a simple restoration will not be sufficient. In particular, it expresses the belief that Ukraine needs to join the European Union and suggests ways to achieve this goal through systemic reforms in the economy and society. Overall, the study suggests a deep and progressive approach to Ukraine's post-war recovery and development, focusing on systemic reforms and European integration as key elements of this process. Another study conducted by S.O. Kravchenko and V.V. Shpachuk (2022), examines the importance of public health and the role of national policy in this area in Ukraine, focusing on the analysis of the health system in Ukraine, considering the current state policy in this area, and examines its features, problems and challenges that arise in the reform process. The study also considers urgent tasks such as European integration, implementation of modern health standards, protection of national interests and changing needs of society, and identifies the need for changes in the health system to respond to these

challenges. The study also identified the areas of healthcare reform in Ukraine.

The study by I. Kurylo (2022) focuses on analysing the dynamics of mortality and life expectancy in Ukraine, in particular, considering complex demographic challenges. It is the indicators of mortality and life expectancy that are one of the criteria for evaluating the effectiveness of the healthcare system of Ukraine. The study analyses the latest trends in mortality and life expectancy, comparing them with similar trends in Russian military aggression and its intensification. Research conducted by E. Quirke *et al.* (2022), describes the situation of healthcare workers in Ukraine due to the military conflict with Russia, facing attacks on healthcare facilities and personnel. The study also reveals the situation of medical personnel in international humanitarian law, emphasising their neutrality in conflict zones. Attention should be paid to the publication by R. Rubin (2022), which emphasises that emergencies can be catalysts for the development of mental health problems. The paper argues for the need to increase the level of information training of citizens for certain critical situations, and considering the needs of vulnerable groups of the population.

In turn, the paper by M.S. Baker *et al.* (2023) is entirely devoted to the introduction of specialised training for medical personnel in Ukraine. The study also highlights the importance of mastering Advanced Trauma Life Support (ATLS) and Point of Care Ultrasound (POCUS), as well as improving patient monitoring during resuscitation, surgery, and blood transfusions. M. Jaroszewicz *et al.* (2022) draw attention to the issue of migration provoked by Russian aggression in Ukraine. The study analyses the situation and provides a comprehensive discussion of the consequences of the influx of refugees, highlighting the reaction of the European Union, the Polish government, and Polish society as a whole. The study by L.L. Lawry *et al.* (2024) was based on highlighting the shortcomings in the system of trauma care in Ukraine. The study identified outdated administrative practices, inefficient communication between patient evacuation stages, limited equipment, insufficient infectious disease control measures, insufficient quality of pre-medical care, and lack of structured trauma response protocols.

In many publications related to the healthcare sector of Ukraine, only aspects that affect or have affected the state of the healthcare system of Ukraine in a certain specific period are outlined, without considering the trends towards its reform that these events created. Among these aspects, it is necessary to highlight the damage and shortcomings of the healthcare system of Ukraine, but it is also necessary to focus on its capabilities for restoration and modernisation, the effectiveness of the existing system, national policy in this area, and the assistance of foreign experts. Therefore, the purpose of the study was to systematise the current

legislative acts, further critical analysis of the organisational and legal foundations of the healthcare system of Ukraine, and trends in its development. The objectives of the study were: to identify the key challenges and problems faced by the healthcare system in Ukraine during the war, and to identify trends in its reform.

Materials and methods

During the study of the organisational and legal foundations and current trends in reforming the healthcare system in Ukraine during the war, a deep and comprehensive analysis of various sources of information was carried out. The main problems that arise in the health system in the context of military operations, such as limited access to medical care, a shortage of qualified medical personnel, and insufficient provision of medical equipment and medicines, were identified through problem analysis. The impact of military operations on the mental and physical health of the population and problems related to the provision of medical care in the war zone due to security restrictions, were also analysed.

The historical and legal method was used to study the reforms initiated in 2015, their results and impact on the current state of the healthcare system. The attention paid to previous achievements and shortcomings helped to better understand the context and needs of the modern healthcare system in Ukraine. Trends in the development of the healthcare system in the context of the COVID-19 pandemic were also considered, and the challenges that the healthcare system faced during the crisis were investigated. This included analysing the system's response to the pandemic threat, the effectiveness of measures taken to contain the spread of the virus, and identifying weaknesses that need to be improved. This analysis revealed how the health system can be prepared for future pandemics and emergencies. Additional consideration of the historical context and challenges associated with the COVID-19 pandemic provided an opportunity to gain a deeper understanding of what aspects require priority attention when reforming the health system in times of war and crisis.

A comparative analysis of the results of the study revealed key trends in the reform of the healthcare system during the war. One of these trends was the need for support and assistance from international partners. It was noted that military conflicts pose complex challenges to the health system, and international cooperation can be a key factor in providing the necessary assistance and resources. Then it was considered why international assistance for the Ukrainian health system is important in times of war. In particular, various types of support were analysed, such as: financial support, which provides resources for medical institutions and the purchase of equipment and medicines; technical assistance provides advice, introduces the latest technologies and trains medical personnel according to new standards. The exchange of experience encourages the use of effective strategies and ensures high quality of medical care.

Results

The Ukrainian healthcare system has undergone a significant restructuring, the foundations of which were established in 2015 and began to be officially implemented in 2017. These changes and additions to the legislation covered the creation of the National Health Service of Ukraine (NHS), which received the authority to strategically purchase medical

services to optimise costs. The reform also provided for the autonomy of healthcare providers and their transformation into communal non-profit enterprises to avoid conflicts of interest. One of the main aspects of this restructuring was the transition from cost-based financing to real-demand procurement, which allowed focusing on the most popular and necessary services for the population. Primary healthcare providers are now paid by capital, while hospitals are compensated by various methods, such as global budgets and reimbursement of service costs. Although these changes were ambitious and met the needs of Ukraine's healthcare system and the requirements of its European partners, the following years were marked by significant challenges (Gorodnichenko *et al.*, 2022).

An effective criterion for determining the quality of medical care for the population is the dynamics of mortality and life expectancy, but in Ukraine these aspects pose a complex demographic challenge. From 2009 to 2013, life expectancy in Ukraine increased, but from 2014 to 2019, the situation worsened due to political, military, and economic factors. Since 2020, life expectancy has also worsened due to the COVID-19 pandemic. Although mortality from cardiovascular diseases shows an overall decline over the past fifteen years, since 2019, these figures have noticeably worsened due to the COVID-19 pandemic (Kurylo, 2022).

The topic of healthcare was actively discussed in society, which indicates its great importance for all citizens. The development and implementation of state health policy was one of the most pressing problems in Ukraine during the pandemic. The need for changes in the healthcare system was then substantiated by the requirements for European integration, the need for wider implementation of modern healthcare standards, considering the situation in the state and the national interests of Ukraine. However, not only did the Ukrainian healthcare system face a pandemic, but it was also an unexpected scenario for most healthcare systems. At one time, much attention was paid to studying the effectiveness of public health systems in different European countries at different stages of the COVID-19 pandemic, which is very important for understanding the causes and factors that affect the spread and consequences of the pandemic. The emergency situation caused by a pandemic requires systematic analysis and evaluation of the effectiveness of the response of countries' healthcare systems. It should be noted that during the first wave, concomitant diseases, age, and population density played an important role. During the period of easing quarantine restrictions or in some localities remote from government agencies, it was important to maintain the ability of government agencies to coordinate and implement effective measures to limit and control the pandemic. Thus, the healthcare systems of European countries should show flexibility and adaptability in planning and implementing crisis management measures to ensure maximum efficiency and protect public health.

Despite the reforms at the beginning of the war in 2022, the system of traumatology in Ukraine turned out to be outdated both in administrative practice and in procedures for responding to injuries. Communication between different levels of the patient evacuation process has constantly created problems, often based on written notes. Patient care has been hampered by limited equipment resources, such as ventilators, and insufficient infection control procedures. Pre-medical care was of different quality, and in some cases

it was limited or even not provided at all. Problems with patient transportation also affected the quality of medical care. The lack of structured recommendations for responding to injuries has led to a lack of standardisation of medical care. Rehabilitation services were also limited. The trauma care system needed to be standardised by improving the training of medical personnel and public awareness, improving pre-medical care and transportation, and providing sufficient equipment. In addition, it was assumed that the need for rehabilitation services would increase in the second year of the conflict and the issue would be relevant throughout its course and sometime after (Lawry *et al.*, 2024). Although the war was a significant test for the Ukrainian healthcare system, the challenge for European healthcare systems was the massive flow of refugees and the need for their medical care.

Improving the situation and reducing waiting times at the Ukraine-Poland border was one of the main issues during the mass evacuation. Prolonged waiting for both motorists and pedestrians puts life and health at risk, contributing to panic and insecurity. Since temperatures were low at the time, there was a shortage of tents and other shelter options where people could keep warm. Cooperation between Poland and EU institutions, and other countries, is important to provide for those refugees who will remain in Poland and other EU countries until the end of the war. This implies long-term efforts to integrate refugees into local communities, including adjustments to various institutional functions in various sectors, such as the labour market, health and education (Jaroszewicz *et al.*, 2022). Due to the war in Ukraine, there was a significant increase in the number of wounded people, including civilians and military personnel. This influx of wounded has created serious difficulties for the Ukrainian health system, requiring immediate and effective medical care. In this regard, it was decided to transport patients to hospitals in Germany and other countries for further treatment. The process and organisational challenges associated with coordinating the distribution of wounded people to hospitals, especially in Germany, were significant.

Organising and coordinating the transportation of wounded people from Ukraine to Germany required detailed planning and cooperation with various medical services. This included choosing the best routes that can provide the necessary medical care during transportation. The arrival of the wounded in hospitals in Germany required the readiness of medical institutions to accept patients and provide them with the necessary treatment. This consisted of organising hospitalisation, appropriate medical personnel, and providing the necessary medical equipment and medicines. An important part of the process was also effective coordination between Ukrainian and German medical services to provide prompt and effective care to the wounded and informational and moral support to their relatives (Friemert & Pennig, 2023). However, the war has serious consequences for public health, which go beyond the direct injuries and injuries associated with the conflict. Disruptions in the supply of healthcare products and services pose a significant risk of disease and mortality from non-communicable diseases such as heart disease, diabetes, and cancer. One of the biggest challenges in providing medical care to refugees has also been maintaining continuous treatment for chronic diseases and addressing mental health issues that can become difficult due to relocation and war-related stress.

It is important to reduce the risk of spreading infectious diseases, in particular those caused by COVID-19, and to carry out high-quality monitoring of dangerous diseases, such as tuberculosis and HIV, among refugees (Kolińska *et al.*, 2023). In addition, there is a risk of the emergence and spread of infectious diseases in the affected areas and areas of hostilities due to factors such as the destruction of water supply and sanitation infrastructure, insufficient vaccination and overpopulation as a result of the movement of people fleeing the conflict. In addition to stresses in healthcare facilities, such as delays in operations, the need to move patients to safer areas further exacerbates the health crisis, underscores the ongoing threat and stress faced by healthcare professionals and patients. In response to these challenges, modern initiatives are being actively developed, such as telemedicine consultations created with the help of the Ukrainian Medical Society of North America. By providing remote care to Ukrainians in temporary shelters and supporting overworked doctors, these efforts are aimed at mitigating some of the difficulties faced by the Ukrainian health system (Rubin, 2022).

For Ukrainian refugees, in turn, it is necessary to ensure equal access to medical care, maintain vaccination coverage, and overcome language barriers. In particular, Czech doctors and Ukrainian refugees faced such barriers. Given the influx of refugees from Ukraine in 2022, the pressure on the Czech healthcare system has increased, especially in matters of communication with newly arrived foreign-language patients. There are four main areas of cross-cultural barriers to doctor-patient communication: language barriers, differences in health systems, differences in attitudes to health and disease, and bias. The difference between the Czech and Ukrainian healthcare systems has proved to be the main source of misunderstandings affecting the patient's role in the healthcare system. Therefore, the importance of cross-cultural competencies in training physicians to avoid possible misunderstandings should be emphasised (Jelínková *et al.*, 2023).

In turn, the full-scale conflict also led to massive displacement of the population, which affected personnel issues in the health sector and deepened regional inequality. In addition, trauma and conflict stress have increased the need for mental healthcare, but psychiatric care remains underdeveloped in Ukraine, particularly for the population from the affected areas (World Health Organisation, 2022a). Increasing social inclusion and mental health assistance for the population evacuated from the temporarily occupied territories (TOT), already de-occupied and frontline territories requires a comprehensive and sustainable approach that considers the specifics of the crisis situation and the needs of the local population. It is important to develop programmes and campaigns aimed at raising awareness about mental health, educating about the signs and symptoms of mental disorders, and reducing the stigma associated with these problems. Support and resources are also needed to develop and coordinate mental health services at the local level. Develop and implement models of mental health services that consider the available resources and needs of the population, specialised programmes and services for vulnerable groups such as children, veterans, the elderly and displaced persons.

Collaboration with international and local humanitarian organisations to provide assistance and support in the implementation of mental health programmes and services

(Quirke *et al.*, 2022). In turn, the project “Traumatic-oriented cognitive behavioural therapy” (TOCBT) plays an important role in providing psychological support to children and adolescents affected by traumatic events in war conditions. This project not only trains Ukrainian specialists to use TOCBT, but also actively implements this therapy to improve the mental well-being of affected individuals and their families. An important component of the project is to promote the resilience and adaptation of children and adolescents, which is an important factor in overcoming the negative consequences of traumatic events. Initiatives such as TOCBT are important steps in maintaining mental health in wartime environments and contribute to restoring health in conflict-affected communities (Pfeiffer *et al.*, 2023). It should also be noted that the course of chronic diseases that were common before the war began has worsened due to disruption of drug supply chains and limited access to health facilities (World Health Organisation, 2022b).

The conflict has had a major impact on the health sector, complicating the existing challenges posed by the ongoing COVID-19 pandemic and the challenges of timely vaccination. The situation is further complicated by the influx of displaced persons fleeing the war to other villages, cities or regions, concentrating in certain locations for humanitarian aid or temporary shelters, or people seeking protection from shelling and rocket attacks in subways or basements where basic quarantine measures such as social distancing and wearing masks are difficult to comply with. In turn, the supply of vaccines and vital medicines is hampered by the armed conflict. The situation with COVID-19 has worsened, which has led to an increase in mortality and an additional aggravation of the situation in the healthcare system of Ukraine. Despite the temporary decline in the number of cases, insufficient vaccination rates in the country leave the population vulnerable to possible further outbreaks, and the destruction of oxygen stations only worsens the medical crisis (Patwary *et al.*, 2022).

The Russian invasion of Ukraine also caused significant destruction of civilian infrastructure, including hospitals and clinics, which created serious problems for the Ukrainian health system and hindered the provision of trauma care. International medical organisations have responded to the rapid increase in the number of victims in need of medical care by sending humanitarian aid and volunteers. Destruction of infrastructure and attacks on health facilities have further burdened the health system, making it more difficult to fight infectious diseases and other diseases (Gorodnichenko *et al.*, 2022). Human rights organisations have documented more than 700 cases of attacks on hospitals, medical personnel, and medical infrastructure in Ukraine since the beginning of Russian aggression. The general information report notes that the average number of attacks was two per day between February 24 and December 31, 2022, which

included attacks on medical facilities, staff and ambulances.

Between February 24 and December 31, 2022, there were a total of 624 attacks on the Ukrainian medical system. Among them, 292 attacks targeted infrastructure, leading to the destruction or damage of 218 hospitals and clinics. Additionally, 181 attacks were directed at other medical facilities. Ambulances were attacked 65 times. Medical personnel were also affected, with 86 attacks recorded, resulting in 62 deaths and 52 injuries. In total, 399 medical facilities were affected, and 114 medical professionals were either injured or killed (Mahase, 2023).

Many of the medical workers were taken hostage, came under direct fire, or were forced to work for the occupation forces. Economic losses from the war, including job losses and currency devaluation, have only deepened the issue of access to healthcare for the population. Despite the fact that the war puts a significant burden on the ability to provide effective medical care to citizens, the state continues to exercise effective control over the health system. Addressing corruption and optimising project implementation are now key to efficient use of resources and restoring a sustainable and balanced healthcare system (Gorodnichenko *et al.*, 2022).

The intensity of Russian aggression in Ukraine has serious consequences for public health, especially in terms of increasing morbidity and mortality. To reduce the number of casualties and ensure the safety of medical and rescue teams on the battlefield, it is important to identify best medical practices and response strategies. Simulating battle scenarios using the SIMEDIS simulator can help with this process. By developing and testing various critical response strategies, it is possible to find the most effective methods for controlling bleeding, helping to speed up the selection of medical personnel, and the distribution of victims to medical institutions. It should be emphasised that effective bleeding control reduces mortality among the wounded. In addition, it is important to develop and implement emergency response strategies that consider the needs and constraints associated with conflict. This may include planning and placing medical posts near the front line, ensuring stable access to medical resources, and coordinating efforts between various medical and humanitarian organisations (Benhassine *et al.*, 2023).

The process of healthcare reform in Ukraine is closely intertwined with demographic trends, public health indicators, and financial constraints caused by war-related challenges. Key socio-demographic data demonstrate the shifts in population health, healthcare accessibility, and financial burdens that influence the trajectory of legal and institutional reforms in the medical sector. These indicators provide insight into the necessity for restructuring healthcare governance, funding mechanisms, and legislative adjustments. Table 1 summarises major socio-demographic trends affecting healthcare reform in Ukraine between 2021 and 2023.

Table 1. Socio-Demographic Indicators Related to Healthcare Reform in Ukraine (2021-2023)

Indicator	2021	2022	2023	Change (2021-2023)
Total population (millions)	41.2	39.0	36.7	-11.0%
Internally displaced persons (millions)	1.5	5.4	4.9	+ 226.7%
Life expectancy (years)	72.3	69.1	68.4	-3.9 for the year
Infant mortality rate (per 1,000 live births)	7.2	8.1	8.7	+ 20.8%
Out-of-pocket health expenditure (% of total health spending)	48%	61%	57%	+ 9 pp
Government healthcare spending (% of GDP)	3.8%	4.9%	5.2%	+ 1.4 pp

Table 1, Continued

Indicator	2021	2022	2023	Change (2021-2023)
Mental health consultations (millions)	2.1	3.5	3.8	+ 80.9%
Registered tuberculosis cases (thousands)	18.5	23.1	24.7	+ 33.5%
Number of healthcare professionals (per 10,000 people)	28.5	26.2	25.4	-10.9%
Share of war-related injuries in hospital admissions (%)	2%	18%	16%	+ 14 pp

Source: World Health Organisation (2023), Ministry of Health of Ukraine (2023)

The data indicate a significant population decline due to migration, war casualties, and worsening health conditions. The number of internally displaced persons (IDPs) surged by over 200%, increasing the demand for medical services while straining regional healthcare capacities. A drop in life expectancy and a rise in infant mortality reflect deteriorating living conditions, heightened stress levels, and disruptions in maternal and child healthcare. Economic pressures also played a crucial role in shaping healthcare reform. The share of out-of-pocket health expenditures increased, peaking at 61% in 2022, making healthcare less accessible, particularly for vulnerable populations. However, government spending on healthcare as a percentage of GDP rose, reflecting policy adjustments aimed at mitigating financial barriers. These trends underscore the importance of strengthening state-funded healthcare provisions and revising legal frameworks to protect the population from catastrophic medical costs. Mental health concerns have become more pronounced, with the number of consultations rising by 80% since 2021. The legal framework for mental healthcare reform remains a priority, with new policies emphasising accessibility and integrating psychological support into primary care services (Bocheliuk *et al.*, 2020). Similarly, the rise in tuberculosis cases signals an urgent need for enhanced disease control measures, which have been incorporated into legislative amendments addressing infectious disease management.

The number of healthcare professionals per capita has declined due to migration and workforce depletion, necessitating reforms in medical education, employment incentives, and international cooperation to address personnel shortages. Additionally, war-related injuries accounted for a growing share of hospital admissions, highlighting the necessity of integrating military and civilian healthcare systems and legally regulating emergency medical response mechanisms. These socio-demographic dynamics form the basis for legal and institutional reforms in the Ukrainian healthcare system. Legislative updates aim to address the financial sustainability of healthcare services, enhance emergency preparedness, and ensure equitable access to medical care, particularly in conflict-affected regions. The following sections will explore the legal principles and trends guiding the evolution of Ukraine's healthcare system amid these challenges.

The Ukrainian healthcare system has demonstrated resilience despite the severe consequences of the war. As of 2023, regions that were heavily affected by active fighting during the initial stages of the invasion have managed to restore access to medical care, and the differences between these regions and those less affected have narrowed. However, residents in areas still under conflict or not fully controlled by the Ukrainian government continue to face limited access to family doctors and medications. Internally displaced persons (IDPs) are particularly vulnerable compared

to local populations, with notable disparities in healthcare access (World Health Organisation, 2023).

Ukraine is preparing for reconstruction with a focus on protecting public health and creating favourable conditions for the return of healthcare workers and the population. The readiness of the healthcare system to respond to emergencies is a crucial factor for effective management of potential threats (Hundertailo, 2024). To ensure this preparedness, the system requires adequate resources, including safe facilities, laboratories, warehouses, qualified personnel, and an advanced information system. Additionally, aligning with international health regulations and maintaining effective communication between governmental levels are paramount (World Health Organisation, 2022a). Given the increasing relevance of medical threats from chemical, biological, radiological, nuclear, and explosive factors, it is essential to reform the Center for Disaster Medicine. This reform should strengthen cooperation between the National Health Service, Regional Centers for Disease Control and Prevention, the State Emergency Service, and military medical units.

From a sociological and demographic perspective, several key indicators reflect the state of healthcare and its challenges. In 2022, the World Health Organisation (WHO) reported that there was a 30% increase in mental health issues, particularly post-traumatic stress disorder (PTSD) and depression, compared to pre-war levels (World Health Organisation, 2022b). A surge in consultations with psychological services was observed, with a 40% increase in demand for mental health professionals in urban areas, which contrasts with rural areas where such access remained limited due to infrastructure damage and staffing shortages. In terms of infectious diseases, the Ministry of Health of Ukraine noted a significant increase in the number of tuberculosis cases, rising by 25% between 2021 and 2022, partially attributed to disruptions in the healthcare delivery system and the breakdown of sanitation and preventive health measures (Ministry of Health of Ukraine, 2022). The health system's performance in disease prevention and response has been further challenged by shortages of medical supplies and equipment. A report by the WHO stated that the supply chain for essential medicines was disrupted by an estimated 60%, leading to increased out-of-pocket expenses for the population (World Health Organisation, 2023). Financially, the war has led to an increase in healthcare costs for both the government and the population. Data from the Ukrainian Ministry of Finance indicated that government spending on health care increased by 50% in 2022 compared to the previous year. Meanwhile, household spending on medicines rose by 37%, with many families unable to afford essential medications due to inflation and economic hardship (Ministry of Finance of Ukraine, 2023). The spending on medicines in 2023 was reported at approximately 10% of total household income, a stark increase compared to pre-war figures.

International assistance has been a crucial factor in stabilising the healthcare system. Humanitarian aid has helped provide essential medical supplies and support services. The Risk Communication and Community Engagement (RCCE) strategy, developed by the WHO, has been instrumental in responding to health emergencies by promoting effective crisis management and public engagement (World Health Organisation, 2022c). A technical working group within the Ukraine Health Cluster coordinates efforts and acts as a platform for sharing experience and resources. The initiative has successfully engaged communities in regions such as Ternopil, Lviv, Zaporizhzhia, Kyiv, and Dnipropetrovsk, addressing public health issues and disseminating vital information (World Health Organisation, 2023). Furthermore, training initiatives for medical personnel have been crucial for improving care quality. US-based medical teams have provided essential training in advanced trauma life support (ATLS) and point-of-care ultrasound (POCUS), critical skills for managing trauma cases in conflict situations. The WHO has reported that more than 2,000 Ukrainian healthcare workers participated in such programs by mid-2023, with a focus on improving trauma care and life-saving skills (Baker *et al.*, 2023).

Bordering countries, such as Poland, have also played a significant role in supporting Ukrainian refugees. In addition to providing medical care, Poland facilitated the creation of medical points at border crossings where Ukrainian refugees could receive first aid. Ukrainian refugees were given access to the same medical services as Polish citizens, including medicines, medical supplies, and free psychological assistance (Fatyga *et al.*, 2022). In line with these efforts, Ukraine has made significant legislative amendments to improve its healthcare system. Key reforms include the establishment of the National Health Service of Ukraine, updates to the Electronic Health System, and revisions to the Civil and Economic Codes regarding medical practice. These changes aim to improve healthcare quality, regulate medical institution activities, and ensure a more efficient healthcare delivery system (Government of Ukraine, 2022). While the war has imposed severe challenges on the Ukrainian healthcare system, the concerted efforts of the government, international partners, and medical personnel have enabled a degree of stabilisation. However, much work remains, particularly in addressing the disparities in healthcare access, financial burdens on households, and the need for continued investment in infrastructure and human resources. As the war continues, ongoing reforms, both domestic and international, will be vital in restoring and strengthening Ukraine's healthcare system.

The following laws of Ukraine should be mentioned: the Law of Ukraine No. 2002-VIII "On Amendments to Certain Legislative Acts of Ukraine on Improving Legislation on the Activities of Health Care Institutions" (2017), Law of Ukraine No. 530-IX "On Amendments to Certain Legislative Acts of Ukraine Aimed at Preventing the Occurrence and Spread of Coronavirus Disease (COVID-19)" (2020) and Law of Ukraine No. 2347-IX "On Amendments to Certain Legislative Acts of Ukraine on Improving the Provision of Medical Care" (2022). The 2017 Law was adopted as part of the government's initiative to reform healthcare in Ukraine, in accordance with the subparagraph 2 of paragraph 1 of this Law, the medical legislation was supplemented with the term "service for medical care of the population (medical service)", and also defined the forms of ownership of

educational institutions: "state, municipal, private or based on a mixed form of ownership" (Law of Ukraine No. 2002-VIII, 2017). The 2020 Law was adopted in connection with the pandemic of coronavirus disease caused by SARS-CoV-2 and provided for the following reforms: introduced administrative liability for violation of quarantine restrictions, exempted from taxation (value added tax and import duty) medicines and medical equipment necessary for "preventing the occurrence and spread, localisation and elimination of outbreaks, epidemics and pandemics of coronavirus disease (COVID-19)" (Law of Ukraine No. 530-IX, 2020). The 2022 Law was adopted in connection with a full-scale invasion and contained the following legislative additions: according to subparagraph 2 of paragraph 1 of this Law, the medical legislation was supplemented with the terms "hospital district", "general healthcare institution", "cluster healthcare institution", "super-cluster healthcare institution"; sp. 3 of p.2 establishes the right of citizens "to receive rehabilitation assistance during the provision of medical care" (Law of Ukraine No. 2347-IX, 2022).

Among the orders of the Cabinet of Ministers of Ukraine, attention should be paid to Order of the Cabinet of Ministers of Ukraine No. 1013-p "On Approval of the Concept of Healthcare Financing Reform" (2016) and Order of the Cabinet of Ministers of Ukraine No. 821-p (2017). These orders relate to the period of government initiative and reflect the vector of development of the healthcare system of Ukraine at that time. Accordingly, the first order provided for the approval of the concept, while the 2017 order contained the following plan for its implementation: the creation of a legal framework for a new healthcare financing system, the creation of a single national customer of public health services (medical services), the autonomy of budgetary healthcare institutions, the creation of a unified electronic system for the exchange of medical information, the revision of unified clinical protocols for the list of the most common medical conditions and simplification of requirements for maintaining paper reports in healthcare institutions, the introduction of a new funding model for PHC, introduction of a new model of financing medical care for secondary (specialised) and tertiary (highly specialised) medical care, creation of hospital districts, introduction of a national system of reimbursement of medicines for a certain list of medical conditions, monitoring the implementation of the reform of financing the healthcare system.

In turn, the Resolutions of the Cabinet of Ministers of Ukraine should be immediately divided into periods: Resolution of the Cabinet of Ministers of Ukraine No. 1138 "On Approval of the List of Paid Services Provided in State and Municipal Healthcare Institutions and Higher Medical Education Institutions" (1996), Resolution of the Cabinet of Ministers of Ukraine No. 285 (2016), Resolution of the Cabinet of Ministers of Ukraine No. 1101 (2017), Resolution of the Cabinet of Ministers of Ukraine No. 411 (2018) – period of government initiative; Resolution of the Cabinet of Ministers of Ukraine No. 392 (2020), Resolution of the Cabinet of Ministers of Ukraine No. 211 (2020), Resolution of the Cabinet of Ministers of Ukraine No. 641 (2020), Resolution of the Cabinet of Ministers of Ukraine No. 1236 (2020) and about Resolution of the Cabinet of Ministers of Ukraine No. 677 (2021) – a period of reform due to the coronavirus pandemic caused by SARS-CoV-2. The resolutions of the government initiative period were aimed at developing and

reforming the healthcare system in accordance with the state concept. The resolutions of the pandemic period established quarantine restrictions, regulated anti-epidemic measures and normalised vaccination issues.

The Order of the Ministry of Health of Ukraine No. 504 (2018) should be considered separately. Adopted as part of a government initiative, the 2018 Order approved the procedure for granting permanent residence, and also declared invalid two other orders of the Ministry of Health of Ukraine. In turn, the approved procedure fixed new terms, such as: “PHC provider”, “PHC doctor”, “PHC team”, “PHC practice”, “PHC practice volume”, “optimal PHC practice volume”, “PHC group practice”; and settled the issue of PHC provision. In turn, the organisational and legal basis and area of development of the healthcare system of Ukraine until 2030 are consolidated in the Project of the Healthcare System Development Strategy until 2030 (2022). The draft was finalised and agreed by the members of the Intersectoral Working Group on the development of this Strategy, but its future remains unresolved as it is still under review by the Ministry of Health. The strategy should be implemented in three stages: the first stage (2022-2024), the second stage (2025-2027), and the third stage (2028-2030). At each of these stages, it is planned to develop and implement an action plan that will cover the corresponding period. Within the framework of these plans, the key tasks associated with each strategic goal of the strategy will be specified. In particular, the strategy itself sets out the relevant strategic areas and priorities. The review of the healthcare system development strategy reveals five areas of activity, each with its own strategic priorities.

All these areas and strategic priorities are designed to ensure the sustainable development of the healthcare system and improve the quality of medical services for all citizens. However, there are also trends that are not directly related to government programmes. These include an increase in the quantitative and qualitative indicators of innovative approaches and practices in the process of international cooperation, the receipt of high-quality foreign medical equipment from international partners as part of humanitarian and healthcare support programmes in Ukraine, and the exchange of experience between Ukrainian and European or American doctors.

Discussion

Analysing the results of the study, attention should be paid to such aspects as: the consequences of the war in Ukraine for other states and their health systems, the need to analyse the experience of Ukraine to improve the health systems of other states, issues of ensuring access to medical care for refugees. The war in Ukraine, as noted in the study, created significant challenges for the Ukrainian health system, but it also provoked a significant flow of refugees to European countries whose health systems were not ready for such a large number of refugees. On the other hand, most European countries have not only been able to adapt quickly to such challenges, but are also actively studying the experience of Ukraine in order to improve their health systems, increase their resilience to emergencies and develop approaches to managing situations with a massive influx of refugees (Ponomarenko & Pysarchuk, 2024).

An important issue is the assessment of the safety culture among medical personnel in hospitals in Europe, which

is very important for understanding the level of safety and quality of medical care in different countries. Results of the study by N. Granel-Giménez *et al.* (2022) show significant differences in perceptions and practices of security culture between countries, and the need to further improve these aspects. For example, teamwork proved to be a positive aspect in all countries, but some issues, such as support, respect and cooperation, were less pronounced in Croatia and Hungary, which may indicate the presence of different cultural and organisational features that affect relationships and cooperation between medical personnel.

Addressing the issues of safety culture in hospitals to ensure patient safety and improve the quality of medical care requires considering such features in perceptions and practices between countries, which can help develop universal or special approaches to improving the safety culture (Kantor & Kubiczek, 2021; Spytska, 2023). Such conclusions are confirmed in the study by R. Rubin (2022), however, it focused more on the importance of providing professional medical care to victims as the main task of medical professionals, thus referring issues of cooperation between doctors to non-negotiable aspects of their activities that should not be placed above direct responsibilities. In particular, this is due to the fact that there is a difference in the perception of the duties of a doctor in the territory of armed conflict and other states that do not directly suffer from it.

It should be noted that in connection with the events in Ukraine, in Europe, in particular in Germany, there was a revision of its own preparation for such scenarios, which provides for balancing medical capacities and needs exceeding the usual standards. According to A. Franke *et al.* (2024), the sustainability of the health system is to respond effectively to such exceptional circumstances, especially in the face of disasters and mass injuries, while maintaining medical standards and providing high-quality surgical treatment. In situations of mass injuries or disasters, trauma and surgical patients prevail, and the state directs efforts to maintain or restore the stable operation of medical institutions. Efforts and training should be aimed at strengthening the provision of hospitals with the necessary equipment and personnel, and additional training of medical professionals to effectively deal with the consequences of disaster situations and medical disasters, maintaining continuous monitoring of the situation, including hospital statistics. It is also important to effectively eliminate the consequences or resist emergencies by establishing a consensus on the terminology, methods of traumatology, and principles of surgical treatment.

Efforts have also focused on developing and verifying a model for assessing the sustainability of critical infrastructure in German hospitals, which is an important step in ensuring the safety and effectiveness of medical facilities in emergency situations. According to R.U. Hübner *et al.* (2023), this allows understanding which aspects require the most attention and resources in the event of a crisis. In particular, backup power supply and additional medical personnel were identified as the most critical elements that require immediate improvement. An important aspect was also the introduction of the Sustainability Index, which allows hospitals to assess their overall sustainability based on the parameters of individual elements of critical infrastructure. This index can serve as a basis for planning actions in crisis situations, and for developing risk management strategies and improving crisis preparedness. It is important to

emphasise that only continuous improvement and optimisation can ensure the safety and efficiency of hospitals and the healthcare system as a whole. The study also noted the importance of developing strategies for responding to various types of threats, in particular, this need was confirmed by M. Benhassine *et al.* (2023), but based on Ukrainian realities and the most urgent needs.

In general, according to P.B. Spiegel (2022a), there is a dialogue in Europe on the need to establish a strong, timely and comprehensive health information system that provides early warning and response to mass injuries, and provides communication between community organisations, the health system, and insurers. The refugee crisis from Ukraine, as well as the COVID-19 pandemic, has highlighted the need to improve health systems in EU countries. It should be agreed that health challenges always give rise to some momentum to improve the health system, as confirmed by Y. Gorodnichenko *et al.* (2022), which were described as crisis or unfavourable situations in Ukraine gave an impetus to the reform of the Ukrainian healthcare system.

The comparison between Poland and Ukraine in the field of immunisation programmes and public health measures does reflect differences in approaches and responses to infectious threats. According to K. Lewtak *et al.* (2022), differences in the prevalence of infectious diseases and approaches to immunisation indicate different vectors of development of health systems in countries. In Poland, the focus is on analysing the growing demand for medical resources, which is important for planning future healthcare needs and ensuring their effective provision. This approach allows preparing for changes in the demographic situation and the burden on the health system. Common strategies to reduce epidemic threats, including preventive measures and immunisation campaigns, are important elements in the fight against infectious diseases. Strengthening health capacity helps countries better manage public health crises and protect their citizens (Kotsur & Tovkun, 2024).

The importance of identifying best practices and developing optimal strategies for combating infectious diseases and ensuring access to quality healthcare for the population should be emphasised. However, according to A.C. Lee *et al.* (2023), a new challenge for Poland's health system was the massive flow of refugees from Ukraine, which quickly overwhelmed local services, leading to a difficult humanitarian situation. During the first two months of the war, more than 3 million refugees fled to Poland, and the priority was to address their basic human needs, such as shelter, medical care, and protection from infectious diseases. The response to the refugee crisis required a comprehensive approach involving several institutions and NGOs. At this stage, it was important to carefully assess needs, develop systems for monitoring and monitoring diseases. In addition, efforts to integrate refugees into society can help reduce some of the negative effects of migration associated with social conflicts (Pochwatko & Naydonova, 2023).

One of the issues is the shortage of medical personnel and compliance with existing legal and ethical standards. According to K. Kolińska *et al.* (2023), through a comprehensive approach to these issues, healthcare systems in different countries can better support the health and well-being of refugees in the long term. This should be accepted, as the shortage of medical personnel and compliance with legal and ethical standards are serious problems in many

countries hosting refugees. In particular, as already noted, a similar situation has developed in the Czech Republic. It should be noted that an integrated approach to these issues can help improve the quality of medical care for refugees and provide them with the necessary medical and psychosocial services in the long term, but the question of knowledge of the language of the country where refugees arrive remains a significant barrier.

In particular, as noted by P.B. Spiegel (2022b), with the aim of improving the medical care of refugees in Poland, Refugee Health Extension was created, which is an important step in providing medical care and support for refugees from Ukraine. The centre plays an important role in coordinating and organising the response to the health of refugees, providing access to essential health services and resources. This is one of the areas of implementation of Poland's policy to fully ensure the long-term stay of Ukrainian refugees on its territory, which has already been noted in the results of the study.

It should also be noted that due to the arrival in France of many people fleeing the conflict in Ukraine, the French High Council for Public Health (HCSP) has formulated several recommendations. As stated by N. Vignier *et al.* (2022), experts considered the increased vulnerability of refugees, which is caused by such factors as: increased population density, psychological trauma, chronic and infectious diseases, insufficient level of vaccinations. In view of these circumstances, the experts recommend that priority be given to the following actions: immediate adoption for emergency medical care and assessment of urgent needs, including psychological support, ensuring continuity of medication intake and managing the risk of infections; implementation of additional priority measures as soon as possible, in particular, with regard to vaccination with auxiliary vaccines, especially against SARS-CoV-2, and mandatory vaccination for school admission, screening for post-traumatic stress disorder and tuberculosis; to carry out continuous monitoring of social rights and ensuring continuity of care outside the first aid period. They recommend organising "health meetings" within four months of a migrant's arrival in the country to consider any changes in medical care needs.

Despite the consequences that Russian aggression entails for the Ukrainian healthcare system, some researchers, in particular D.A. Leon *et al.* (2022), note that such a large number of losses and injuries among Russian servicemen puts their own healthcare system, which is less developed than the Ukrainian one, in a critical situation in territories close to the conflict. This opinion should be accepted, as a military conflict can indeed have a complex impact on healthcare systems not only in the countries affected by the attack, but also in the aggressor country. This, in particular, reflects the problems of developing the healthcare system of the aggressor country. Slovakia has also faced a serious challenge posed to its healthcare system by Ukrainian refugees. According to E. Holt (2022), the constant influx of refugees who are mentally traumatised, but sometimes physically with the need for urgent treatment, puts a significant strain on medical resources, which can lead to an overload of the healthcare system. The need to adapt European health systems to the admission of patients from Ukraine has already been emphasised in the study, in particular, the need for special transportation and the involvement of medical translators was noted.

Thus, both the results of the study and the opinion of other researchers confirm that the healthcare system of Ukraine has experienced a serious impact due to Russian aggression. This crisis has affected all aspects of medical care, from providing medical care to providing the necessary medicines and medical equipment. It is important to emphasise that the security situation in Ukraine has caused a significant flow of migrants, which has overloaded the health systems of neighbouring countries. This has forced the whole of Europe to reconsider its strategies for providing medical care to refugees and improving its own health systems. There is a need to adapt and improve medical support systems so that they can effectively cope with emergencies and provide adequate care to all those who need it. However, there were some unexpected thoughts among the studies reviewed, such as overloading the health system of front-line regions by the enemy. This highlights the need for further analysis and study of the various aspects of the impact of military conflicts on the health system, and the development of effective strategies to address the challenges that arise in this regard.

Conclusions

In the course of this study, an analysis of legislative and scientific materials was conducted to determine current trends in the reform of Ukraine's healthcare system. Special attention was given to the examination of key legislative acts and scientific research related to the evolution of healthcare policies. The historical analysis of reforms since 2014 identified three distinct periods, each shaped by specific socio-political and economic challenges. The first period, 2014-2019, marked the introduction of a broad reform program aimed at improving healthcare quality and accessibility. Key changes included the decentralisation of medical services, the establishment of the National Health Service of Ukraine (NHSU), and a shift toward state-guaranteed healthcare financing. While these measures laid the groundwork for systemic change, their impact on socio-demographic indicators was mixed. Life expectancy remained stagnant, with a slight decline from 72.3 years in 2014 to 71.6 years in 2019, reflecting persistent challenges in preventive healthcare and medical accessibility. Birth rates also continued to decline, indicating that broader socio-economic instability limited the effectiveness of these reforms in improving overall health outcomes.

The second phase, 2019-2022, was driven by the SARS-CoV-2 pandemic, prompting the rapid implementation of emergency healthcare measures. These included the expansion of telemedicine, increased funding for infectious disease control, and stricter quarantine regulations. However, despite these interventions, the pandemic had severe demographic consequences, with mortality rates rising sharply, particularly among the elderly. The share of out-of-pocket healthcare expenses peaked at 61% in 2022, demonstrating that financial barriers remained a significant issue despite increased state funding. Additionally, non-COVID-related medical care suffered as resources were redirected, further exacerbating healthcare access disparities. The most recent period, 2022-2024, has been dominated by the consequences of the full-scale invasion, which inflicted massive damage on healthcare infrastructure, increased war-related injuries, and escalated the psychological toll on the population. The number of healthcare professionals per 10,000 people dropped by 10.9% due to migration and staff shortages, further straining medical services. PTSD and other mental health conditions surged, with demand for psychological support increasing by 80%. The burden on hospitals grew significantly, with war-related injuries accounting for 16% of total hospital admissions in 2023. Despite ongoing reforms, their immediate impact on social and demographic indicators remains limited. Life expectancy dropped further to 68.4 years in 2023, and tuberculosis cases increased by 33.5%, reflecting the fragility of public health infrastructure. Government healthcare expenditure rose to 5.2% of GDP, but resource allocation inefficiencies persist.

The study identified key trends in healthcare reform: universal medical coverage, workforce development, technological advancements, and international cooperation. While these trends are aimed at improving system efficiency, their success will depend on their ability to generate measurable improvements in public health. Future research should focus on evaluating the long-term demographic effects of healthcare reforms, addressing workforce shortages, and enhancing international medical collaboration.

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Conflict of interest

None.

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Правові основи та нові тенденції реформування системи охорони здоров'я України

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Анотація. Актуальність дослідження полягає в необхідності з'ясування організаційно-правових засад та сучасних тенденцій реформування системи охорони здоров'я України в умовах війни, оскільки ефективне функціонування цієї системи безпосередньо пов'язане із забезпеченням національної безпеки держави. Метою дослідження було виявлення сучасних тенденцій реформування системи охорони здоров'я України. В основу дослідження було покладено використання історичного підходу та аналізу проблеми, під час якого використано такі методи, як: формально-правовий, історико-правовий та порівняльно-правовий. У дослідженні розглянуто процес реформування української системи охорони здоров'я з 2015 року та звернуто увагу на події, які мали на нього найсуттєвіший вплив. Основними результатами дослідження стала конкретизація сучасних тенденцій реформування системи охорони здоров'я в Україні. Серед результатів реформ можна вказати універсальне охоплення населення медичними послугами шляхом запровадження ефективної інтегрованої моделі надання послуг, підвищення кадрового потенціалу з урахуванням нагальних потреб системи охорони здоров'я України та забезпечення професійного благополуччя працівників. Впровадження інновацій, активізація міжнародного співробітництва в галузі медицини сприяли інтеграції української освіти і науки в міжнародний контекст, обміну досвідом з американськими та європейськими фахівцями, а також отримання доступу від партнерів до передових технологій у медичній сфері. Ці тенденції, спрямовані на підвищення якості та доступності медичної допомоги для всіх громадян України, можуть проявитися у суттєвому покращенні стану української системи охорони здоров'я. У дослідженні також проаналізовано проект стратегії розвитку системи охорони здоров'я до 2030 року та інші нормативно-правові акти щодо уточнення державної політики у цій сфері. Новизна дослідження полягала у комплексному аналізі організаційно-правових засад і сучасних тенденцій реформування системи охорони здоров'я України в умовах збройного конфлікту, систематизації змін, що відбулися з 2015 року, виявленні конкретних викликів і механізмів адаптації. Результати дослідження можуть бути використані для порівняння української системи охорони здоров'я з такими системами в інших країнах

Ключові слова: кадровий потенціал; державна служба; воєнний стан; фізичні та психологічні травми; вектор розвитку медичної допомоги