

## IMPROVING THE MANAGEMENT MECHANISMS OF THE HEALTHCARE SYSTEM OF TERRITORIAL COMMUNITIES IN THE COAL REGION

*VITALIY ZVIRYCH, MIKHAIL ZVERYAKOV, OLEKSANDR HALACHENKO,  
VITALII RESHETYLO, VOLODYMYR DEMCHENKO, OLENA KHOLONYUK, STEPAN VASKIV*

\*Corresponding author: [Zvirvit@ukr.net](mailto:Zvirvit@ukr.net)

**Abstract.** With a view to improving the management mechanisms of the healthcare system in local communities in the coal-mining region, emphasis is placed on the importance of taking into account the socio-economic conditions of life in these areas. The current state and prospects for the development of management mechanisms in the healthcare sector are analyzed, and the fundamental problems and critical challenges associated with environmental pollution, occupational risks, and limited medical infrastructure are identified. The directions for modernizing management mechanisms through the integration of environmental strategies, digital solutions, telemedicine, and information and analytical systems that form the basis for rapid response to threats to public health are substantiated. The potential for cross-sectoral interaction among local authorities, medical institutions, industrial enterprises, and the public to form a sustainable healthcare model capable of adapting to the conditions of military transformation and environmental degradation is revealed. Based on national and international experience, strategic planning tools, preventive programs, mechanisms for administrative decentralisation, and innovative forms of cooperation are proposed to improve the accessibility and quality of medical services. The importance of digitising management processes, expanding health monitoring systems, and involving communities in the formulation of health policy is emphasised, thereby strengthening social stability and enabling the effective implementation of a model of just transformation in coal regions. The role of preventive approaches and the development of medical services focused on early detection of environmentally induced and occupational diseases were summarised, as they are critically important for communities in coal-mining areas. It is emphasised that the introduction of innovative management tools and partnership models of interaction creates the preconditions for a sustainable, adaptive healthcare system capable of ensuring long-term, positive social effects. It was emphasised that the effectiveness of further transformations largely depends on local authorities' ability to integrate modern management practices and digital solutions into the strategic planning for the development of the medical sector in local communities.

**Keywords:** Territorial Communities, Coal Region, Management Mechanisms, Healthcare System, Environmental Risks, Telemedicine, Public Policy, Digitalization.

**JEL Classification:** I18, H75, O18

### 1. INTRODUCTION

Coal basins are often characterised by high levels of environmental pollution, which negatively affects the health of the local population. Healthcare issues in such regions include a range of specific

problems, from chronic diseases to occupational pathologies, that require improved medical and management approaches at the local level. These challenges highlight the need to develop tailored governance mechanisms that ensure effective collaboration among medical institutions, local authorities, and the public.

Significant attention is being paid to reforming the healthcare system, with a focus on primary healthcare that should become more accessible and efficient for residents of coal regions. A key aspect is integrating modern technologies and information systems into the medical process, thereby improving the quality of diagnosis and treatment and better managing medical data.

## 2. THEORETICAL BACKGROUND

The theoretical basis of the study is the works of authors devoted to the study of the formation of territorial communities and the peculiarities of health care systems development. For example, the peculiarities of the organizational structure of the development and functioning of territorial communities are studied in the works of Andrusiv et al. (2023) conducted a comprehensive assessment of the efficiency of fuel and energy resource use in Ukraine, modeling scenarios for their consumption, which provides a basis for the formation of a rational energy component of the resource potential of territorial communities and the optimization of their organizational and management structures in the field of energy supply. Demchenko et al. (2023) identified the factors and determinants of human capital development in rural areas, which directly influences the formation of the personnel and intellectual basis of the organizational structures of territorial communities and their ability to implement development strategies. Danylyshyn & Bohdan (2020) developed a system of anti-crisis measures for the Ukrainian economy in the context of the pandemic, outlining macroeconomic stabilization tools that can be adapted at the state level to build sustainable organizational mechanisms for responding to shocks. Pylypiv et al. (2020) justified the use of a balanced scorecard for the implementation of social responsibility of territorial communities, formalizing the approach to building management structures focused on balancing economic, social, and institutional goals. Popadynets et al. (2020) proposed a methodological toolkit for assessing the effectiveness of the use of the natural resource potential of territorial communities in the context of administrative reform, which makes it possible to improve the organizational structure of resource management at the local level. Simkiv et al. (2021) analyzed the dynamics of structural processes in the context of ensuring sustainable development, which creates a theoretical and methodological basis for rethinking the structural organization of the territory's economy and its strategic positioning. Yakymchuk et al. (2022) modeled approaches to managing the country's energy security, which has a direct impact on the formation of multi-level energy management systems in territorial communities and the determination of their role in the national energy architecture. They also explored the economic aspects of final energy consumption in Ukraine and the possibilities for implementing European experience, which creates the basis for adapting organizational models of energy efficiency management. Shmatkovska (2022a; 2022b) investigated the trends and conditions for the formation of agricultural enterprises' profitability using the example of the Lviv region, which allows for the financial and economic parameters of the agricultural sector to be taken into account when designing models for managing the development of rural communities. They also analyzed the mechanisms of managing non-current assets and capital investments of agro-industrial enterprises, demonstrating how organizational and financial business decisions can be integrated into strategies for the spatial and economic development of the territory.

The legal basis for the functioning of the healthcare system in Ukraine and the peculiarities of managing organizational changes in the sector are considered in the works of Parkhomenko-Kutsevil (2022) substantiates the theoretical foundations for applying the foresight approach in the public health management system of Ukraine in the context of the pandemic, revealing its role in shaping the legal framework, strategic vision of change, and adaptive management of the sector. Semygin (2014) analyzes

community participation in the healthcare system by comparing global and Ukrainian experiences, showing how the institutionalization of public participation and relevant legal mechanisms affect change management and the accountability of medical institutions. Gilbert et al. (2015) examine the transformation of primary health care from the level of public policy to organizational change, showing how regulatory and legal decisions on health care reforms are translated into specific models of facility management and the redistribution of powers among system actors. Rogachevsky (2020) analyzes the possibilities of using foresight methodology in the strategic development of the national healthcare system, emphasizing its importance for designing long-term organizational changes and improving regulatory mechanisms for managing the sector. Semchuk & Kukel (2020) explore the implementation of new approaches to the management of healthcare institutions in market conditions, justifying changes in the organizational structure, management systems, and economic and legal instruments of medical institutions.

The peculiarities of project and programme-targeted areas in health care management have been studied by Chornyi (2020) analyzes the state policy of transforming the health care system during the COVID-19 pandemic, focusing on the use of program-targeted and project-based approaches as tools for ensuring socio-economic stability and increasing the effectiveness of anti-crisis measures in the industry. Karpiak et al. (2023) study the development of the medical infrastructure of territorial communities in Ukraine in the context of sectoral reforms, justifying the importance of project management and program-targeted planning for the formation, financing, and implementation of comprehensive programs for the modernization of health care facilities at the local level. Kharechko & Pronyuk (2021) examine the formation of modern state policy for socio-economic stabilization in EU countries under the influence of the COVID-19 pandemic, drawing attention to the role of program-targeted approaches in the design and implementation of comprehensive packages of measures, including support and strengthening of healthcare systems. Steshenko & Masalygina (2020) analyze crisis management in the context of the pandemic, emphasizing that an effective response by the healthcare system requires structured project decisions and program-targeted strategies that allow for the coordination of resources, minimization of risks, and continuity of medical services. However, despite the considerable attention of scientists to the problems of healthcare management, the issues of determining the mechanisms of the healthcare system of territorial communities, including communities in the coal region, remain relevant.

The article is aimed at analysing the existing management mechanisms of the healthcare system of territorial communities in the coal region with a view to optimising and improving them in accordance with modern requirements and challenges

### **3. RESEARCH OBJECTIVE, METHODOLOGY AND DATA**

To substantiate the study of the topic, the article draws on the work of both domestic and foreign authors. To systematise the available literature, the author used a search and bibliographic method. The analysis of legal provisions, both general and specialised, was carried out using the comparative legal method. The methods of analysis, synthesis, classification, systematisation, generalisation, and analogy were used to study the evolution of legal regulation regarding the modernisation of primary healthcare. Conclusions, recommendations, and proposals are developed using generalising and prognostic methods.

### **4. RESULTS AND DISCUSSION**

Improving the management of the healthcare system in the territorial communities of coal regions requires applying innovative approaches that take into account the specificities of these territories, their socio-economic situation, and environmental conditions. These approaches are aimed not only at solving existing problems but also at preventing future threats, contributing to the sustainability and

adaptability of the healthcare system.

One key aspect is integrated health and environmental planning, i.e., integrating health and environmental strategies into overall community development plans. This approach involves assessing the impact of industry on public health and incorporating health-saving measures into environmental rehabilitation projects. These plans take into account the specifics of coal regions, including the risks associated with coal mining. These problems can be addressed by minimising these risks by strengthening environmental infrastructure.

It is worth noting that the specifics of work in the coal industry require special attention to the prevention and treatment of occupational diseases. Implementing specialised medical programmes, including regular medical check-ups, early diagnosis, treatment, and rehabilitation, is essential to improving employees' quality of life. It is also helpful to create databases for monitoring employee health, enabling tracking of health dynamics at the community level. Therefore, in such circumstances, the introduction of telemedicine is becoming increasingly important, as it significantly improves access to quality healthcare services in remote and hard-to-reach communities in coal regions. Digital technologies, such as electronic medical records, mobile health monitoring applications, and intelligent diagnostic systems, can help quickly identify and intervene in the event of health threats. This will primarily facilitate better coordination between different levels of healthcare.

As communities in coal regions are specific, it is essential to develop a management strategy that includes reducing the environmental impact of the coal industry, landscape restoration programmes, measures to reduce air and water pollution, and the introduction of waste-treatment technologies. Today, raising environmental awareness among the community population and implementing educational programmes has a significant positive impact on community health as never before.

Community involvement in health system governance is critical for the successful implementation of health-saving innovations. Creating platforms for dialogue among the public, healthcare professionals, government, and industry can help develop and implement policies that address communities' real needs and concerns.

These innovative approaches play a key role in ensuring the sustainability and adaptability of the healthcare system in the coal region's territorial communities, contributing to improved quality of life and health for the population.

One example of a community in a coal-mining region is the Sheptytska community and Sheptytskyi rayon in Lviv Oblast, where the equitable transformation of the area is currently underway. This process of equitable transformation includes initiatives to renew healthcare governance. The main directions of this transformation are to increase the efficiency of medical institutions through the implementation of modern management practices, the introduction of the latest technologies in diagnosis and treatment, and to ensure greater accessibility of medical services for all segments of the population (Fig. 1) (Sheptytska City Council, 2025).

These measures include attracting additional government funding and international support programmes to modernise medical infrastructure and improve the skills of medical professionals.

An essential element of the renewal is the reform of the healthcare management system, which involves decentralising responsibilities and introducing transparent reporting and control mechanisms to ensure that resources are used to the maximum benefit of the community. There is also a growing focus on preventive medicine and wellness programmes to help reduce the district's population's overall morbidity.

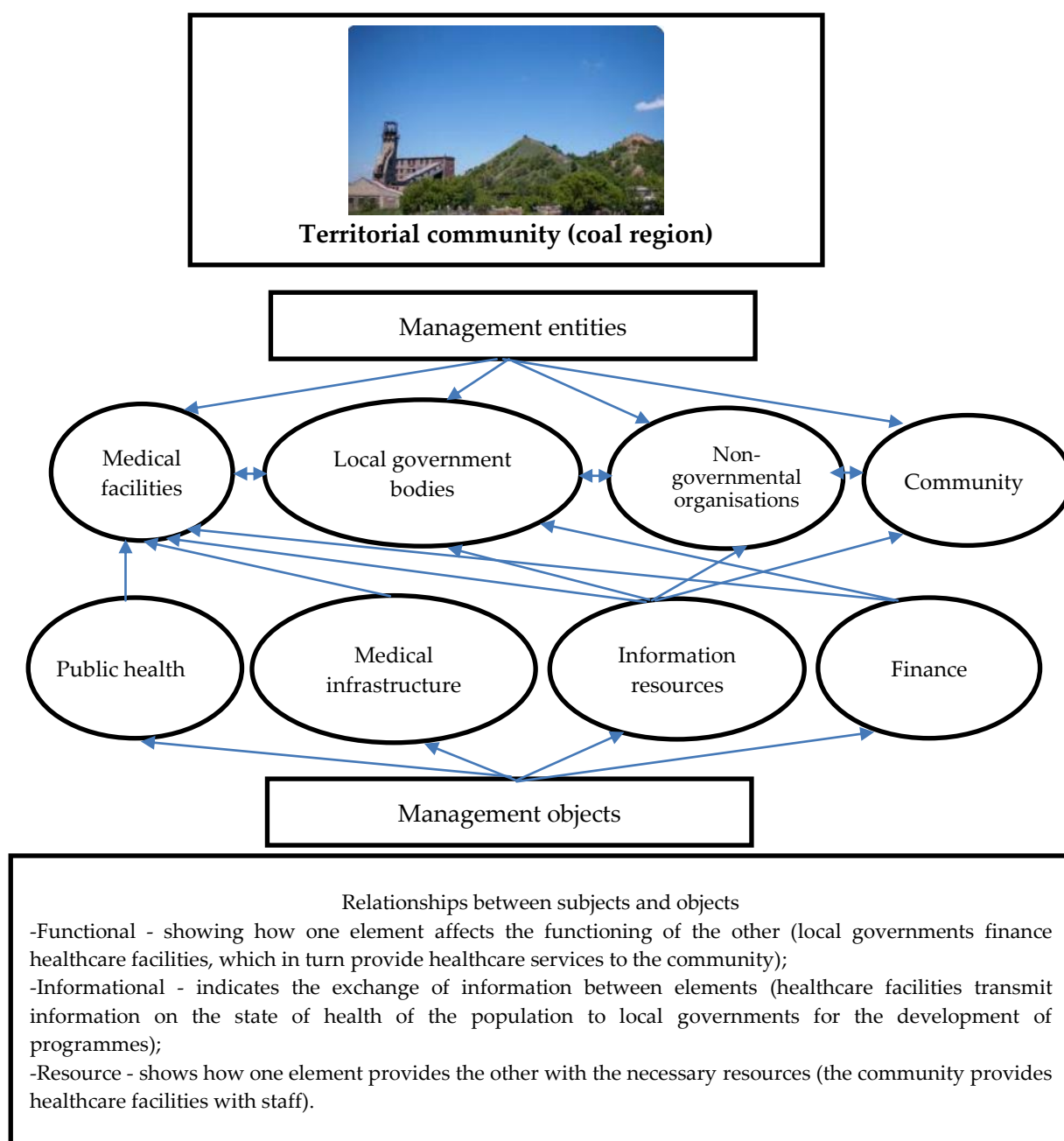


Fig. 1. Diagram of the management mechanisms of the healthcare system of territorial communities in the coal region (Sheptytskyi district, Lviv oblast)

Source: author's development

These changes are intended not only to improve the quality of healthcare services but also to promote social justice by ensuring equal access to healthcare for all citizens, regardless of their social or economic status.

It is important to note that specific links between local governments, healthcare facilities and the community are key to ensuring the effective operation of the healthcare system. Local governments finance healthcare facilities by allocating funds for maintenance, equipment procurement, and healthcare worker remuneration, and by developing programmes for disease prevention and improving healthcare quality, ensuring control over the facilities' activities and compliance with quality standards. Medical institutions provide primary and secondary healthcare to the population, carry out preventive measures, including vaccination, and inform the population about a healthy lifestyle. The community actively interacts with local self-government, identifying its needs for healthcare services, participates in decision-making through public hearings, and monitors the activities of local authorities in the

healthcare sector (Karpiak et al., 2023).

It is equally important to consider international experience in managing healthcare in industrialised regions, including studying successful practices and adapting the best of them to Ukrainian realities. In particular, foreign experience shows the effectiveness of integrated approaches, in which joint efforts by government agencies, the private sector, and the public aim to solve environmental, health, and safety problems.

Thus, international experience in managing healthcare systems in territorial communities focuses on innovation. In particular, these are strategies that integrate cross-sectoral cooperation, ensure adequate funding, and introduce the latest technologies to improve the efficiency of healthcare services.

Countries such as Switzerland and Denmark demonstrate the effective use of decentralised governance models, in which local health authorities play a significant role in responding to the specific needs of their populations. These countries have successfully implemented e-health systems that significantly improve the coordination of patient care and provide continuous access to real-time medical data (Chornyi, 2020).

In Canada and Australia, healthcare management at the territorial level includes active participation of the public and local non-profit organisations, which allows healthcare services to be adapted to local cultural and social characteristics (Rogachevsky, 2020). This helps to increase public trust and improve disease prevention.

The Netherlands is known for its health insurance system, which ensures high access to healthcare services for all segments of the population. The integration of the private and public sectors in the healthcare system enables competition among service providers, thereby stimulating improvements in the quality of treatment and patient care (Rogachevsky, 2020).

In communities in the coal region, an important aspect is the use of digital data collection and analytics tools in the US to analyse treatment effectiveness and optimise healthcare costs. This ensures maximum transparency in resource management and in implementing improvements based on objective data.

International experience in the development and implementation of healthcare systems is actively integrated into the development of national healthcare strategies, including analyses based on World Health Organisation data. Analytical indicators such as the integrated index of life expectancy and quality of life, the percentage of GDP spent on healthcare, and their annual changes are the basis for development. International models of healthcare systems are distinguished by their consumer orientation, commercialisation of medical services, the ratio between public and private healthcare facilities, extra-budgetary financing, financial autonomy, and the introduction of corporate and public insurance. It also includes the development of integrated quality standards, the formation of state-guaranteed medical services, pricing regulation, decentralisation of management and computerisation of management processes. In 2023, Ukraine's healthcare policy is undergoing significant transformations during the war, including reforms and restructuring to improve residents' quality of life, which challenges managers to develop innovative management mechanisms.

Thus, international experience demonstrates key aspects that can be applied to improve management mechanisms in the healthcare systems of territorial communities in the coal region, taking into account their specificities and current challenges.

In today's environment, as Ukraine is undergoing military operations, the healthcare systems of territorial communities, including coal regions, are undergoing significant transformations. The renewal of the economic model and the establishment of market relations in the healthcare sector, together with the implementation of relevant legislation, have created a new type of economic relations. These changes support the development of a competitive environment among healthcare providers, which requires optimisation of the structure and balance of the healthcare system. The focus on analysing key indicators helps improve the sector's management efficiency. The intensive development of crisis management in healthcare facilities during crisis events is becoming a priority, as it ensures the availability of medical

services for every citizen, regardless of martial law. The temporary displacement of people and refugees forced to leave their homes due to the conflict increases the burden on the healthcare system, causing uncertainty in its organisational foundations. There is also a restructuring of medical guarantees and optimisation of funding, which requires a comprehensive systemic analysis to determine the optimal management mechanisms in the healthcare sector.

The implementation of regional healthcare policy should be based on organisational, legal, economic, and social methods. The managerial and legal approach focuses on creating and improving regulatory documents that define the sector's organisational structure and legal basis for operation. Economic methods require in-depth analytical research, with the results integrated into strategic decision-making processes. This allows us to determine the direction of the industry's development, identify problems and respond quickly to them, and formulate appropriate goals and objectives for growth. Social methods include collecting and analysing information on the needs and requirements of residents of the coal region's communities, which serves as the basis for assessing the effectiveness of healthcare policy implementation.

Strategic aspects of public policy for the development of the healthcare sector in the territorial communities of the coal region require constant updating and adaptation to current conditions, particularly through the participation of government agencies and the public in addressing society's urgent needs. Strategic planning determines the main directions of healthcare development, stimulating the transition to a higher level of community life quality (Parkhomenko-Kutsevil, 2022). At this stage of policy development, proven experience and national and international practices that influence the evolution of the healthcare system are taken into account. The development of the healthcare sector involves active integration with other sectors of the economy and the adoption of complementary solutions to improve residents' health and well-being. In particular, public-private partnerships are becoming increasingly common, helping reduce costs, increase funding, and promote technological development and innovation in local communities. This strengthens the resource base and creates favourable conditions for attracting investment, thereby driving rapid industry growth. In the context of public policy, it is necessary to review existing approaches to ensure harmonisation of current tasks with strategic goals, reform of resource provision, and a holistic definition of the industry's functions that reflects the best modern practices and trends.

It is also worth emphasising that public policy in the field of health care for territorial communities should be recognised as a system of values and goals that combines socio-economic, legal, organisational, and methodological measures initiated by authorities and other stakeholders representing the interests of community residents (Semchuk et al., 2020). These measures are aimed at systematic and holistic improvement of healthcare, taking into account the strategic features of each community and region. The implementation of public health policy mechanisms and their subsystems includes management (coordination of sector development, optimisation of the network of healthcare facilities, and formation of human resources in conflict), integration (support for the sustainable development of the community healthcare system), and mobilisation (strategic planning to maximise resource potential) functions. In addition, the theoretical and ideological aspects involve the rapid adaptation of the system to emergency conditions and the creation of a basis for developing healthcare concepts. The core values embedded in public policy should reflect and complement the territorial community's value corpus, and, in times of crisis or conflict, evolve to meet current needs and trends.

The process of creating a public health policy in the territorial communities of a coal mining region consists of several stages, including policy initiation, assessment of existing approaches, organisation and implementation of monitoring procedures, and implementation and reassessment of policy strategies. An essential element is also the development of an effective monitoring and evaluation system that facilitates the adjustment and adaptation of strategies to meet current needs. In response to the defined goals, specific mechanisms and strategic directions are being developed to determine the optimal way the healthcare system should function, including restructuring medical institutions'

budgets, creating multidisciplinary medical centres, optimising financial and operational aspects, and improving skills and expanding human resources. The proposed measures are strategic in nature and require a flexible approach in dynamic conditions, such as migration processes, military operations, or the temporary occupation of territories, which require the authorities to respond quickly to changes in the healthcare system's functioning.

It is important to emphasise that global events and trends, such as wars, natural disasters, states of emergency, biological threats and economic crises, have a significant impact on all elements of public health policy development. These global factors not only create new challenges but also encourage the creation of innovative approaches and mechanisms to address them at the transnational level. In general, external influences have a significant impact on the development of the healthcare sector in the private and public sectors, affecting local, national and regional levels (Rogachevsky, 2020).

In particular, demographic changes, a decline in general quality of life indicators that affect economic growth and social achievements, environmental degradation, the need to optimise technology and innovation, as well as external conflicts and armed threats arising against the backdrop of international tensions, directly affect the well-being of citizens (Kharechko et al., 2021). These conditions complicate the development of effective public health policy, especially when the health system is under additional strain due to the current crisis.

The digital transformation of management processes and the use of healthcare information systems that aggregate data from residents of territorial communities in coal regions help to improve reporting and integrated management of healthcare facilities, for example, through the DocDream system. The introduction of telemedicine and the widespread use of innovative technologies should ensure the effectiveness of public health policy for community residents in the current environment. However, despite the availability of various developments, Ukraine currently lacks a universal, integrated system for monitoring public health indicators. The Electronic Health Information System (EHIS) operates with only a limited number of integrated health information systems.

## 5. CONCLUSIONS

In summary, integrated management of territorial community resources is critical. The use of innovative and anti-crisis management methods, as well as the modernisation and mobilisation of available resources, are essential to achieving strategic goals. Leading international organisations recognise the importance of establishing comprehensive interactions between territorial communities and international funds and organisations, particularly through grant funding for regional development. These steps are seen as key strategies for successful social mobilisation. These processes are essential for implementing public health policy, which contributes to the nation's health. Today, it is worth considering the involvement of territorial communities in coal regions and the public as a basis for initiating reforms in the healthcare system, with an emphasis on the need to take into account public participation in the context of changes in civil society, which is what is happening in Sheptytskyi district of Lviv region when formulating a strategy for the equitable transformation of coal regions.

### **Author Contributions:**

Conceptualization: Vitaliy Zvirych.

Data curation: Olena Kholonyuk.

Formal analysis: Stepan Vaskiv.

Investigation: Volodymyr Demchenko.

Methodology: Mikhail Zveryakov.

Validation: Vitalii Reshetylo.

Visualization: Oleksandr Halachenko.

Writing – original draft: Stepan Vaskiv.

Writing – review & editing: Vitaliy Zvirych.



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**Vitaliy Zvirych**, Doctoral student, Vasyl Stefanyk Carpathian National University, Ivano-Frankivsk, Ukraine;  
**ORCID ID:** 0000-0002-3502-1886

**Address:** Vasyl Stefanyk Carpathian National University, 57, Shevchenko Str., 76000, Ivano-Frankivsk, Ukraine.  
**E-mail:** Zvirvit@ukr.net

**Mikhail Zveryakov**, Doctor of Sciences in Economics, Professor, Corresponding Member of the NAS of Ukraine, Head of the Department of General Economic Theory and Economic Policy, Odesa National Economic University, Odesa, Ukraine;

**ORCID ID:** 0000-0003-0039-5068

**Address:** Odessa National Economic University, 8 Preobrazhenskaya Str., 65082, Odesa, Ukraine.

**E-mail:** michailzverjakov@ukr.net

**Oleksandr Halachenko**, Doctor of Sciences in Economics, Professor, Professor of the Department of Management and Marketing of Vinnytsia National Medical University named after M.I. Pyrohova; Director of the Clinical Sanatorium "Khmilnyk", Vinnytsia, Ukraine;

**ORCID ID:** 0000-0003-2776-1777

**Address:** Clinical Sanatorium "Khmilnyk" 2, Kurortna Str., Khmilnyk, 22003, Vinnytsia Region, Vinnytsia, Ukraine.

**E-mail:** o.galachenko@gmail.com

**Vitalii Reshetylo**, Assistant (pHD) of the Faculty of Dentistry Surgery Department of SHEI "Ivano-Frankivsk National Medical University", Ivano-Frankivsk, Ukraine;

**ORCID ID:** 0000-0001-6216-3524

**Address:** Ivano-Frankivsk National Medical University, 2, Halytska Str., 76000, Ivano-Frankivsk, Ukraine.

**E-mail:** reshetylo@ifnmu.edu.ua

**Volodymyr Demchenko**, Candidate of Physical and Mathematical Sciences, Senior Researcher, Scientific Secretary of the Dolishniy Institute of Regional Research of NAS of Ukraine, Lviv, Ukraine;

**ORCID ID:** 0000-0002-2557-9253

**Address:** Dolishniy Institute of Regional Research of NAS of Ukraine, 4, Kozelnytska Str., 79026, Lviv, Ukraine.

**E-mail:** V.Demchenko@nas.gov.ua

**Olena Kholonyuk**, Candidate of Sciences in Economics, CEO, Medical Center for Progressive Orthopaedics, Traumatology and Rehabilitation "M-Ortotravma", Lviv, Ukraine;

**ORCID ID:** 0009-0002-3445-146X

**Address:** Medical Center for Progressive Orthopaedics, Traumatology and Rehabilitation "M-Ortotravma", 7v, Stavova Str., 79019, Lviv, Ukraine.

**E-mail:** olena.khol@gmail.com

**Stepan Vaskiv**, Candidate of Economic Sciences, Associate Professor of the Department Statistics of the Ivan Franko National University of Lviv, Lviv, Ukraine

**ORCID ID:** 0000-0003-3781-2822

**Address:** Ivan Franko National University of Lviv, 1, Universytetska Str., 79000, Lviv, Ukraine.

**E-mail:** stepan.vaskiv@lnu.edu.ua

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З метою удосконалення управлінських механізмів системи охорони здоров'я територіальних громад вугільного регіону акцентується на важливості врахування соціально-економічних умов життя населення цих територій. Проаналізовано сучасний стан та перспективи розвитку управлінських механізмів у сфері охорони здоров'я, виокремлено базові проблеми та критичні виклики, пов'язані з екологічним навантаженням, професійними ризиками та обмеженістю медичної інфраструктури. Обґрунтовано напрями модернізації механізмів управління через інтеграцію екологічних стратегій, цифрових рішень, телемедицини та інформаційно-аналітичних систем, що формують підґрунтя для оперативного реагування на загрози здоров'ю населення. Розкрито потенціал міжсекторальної взаємодії органів місцевого самоврядування, медичних установ, промислових підприємств і громадськості у формуванні стійкої моделі охорони здоров'я, здатної адаптуватися до умов воєнних трансформацій та екологічної деградації. На основі національного та міжнародного досвіду запропоновано інструменти стратегічного планування, профілактичні програми, механізми управлінської децентралізації та інноваційні форми співпраці, спрямовані на підвищення доступності та якості медичних послуг. Наголошено на значущості цифровізації управлінських процесів, розширенні систем моніторингу здоров'я та залученні громад до формування політики охорони здоров'я, що сприяє зміцненню соціальної стійкості та ефективній реалізації моделі справедливої трансформації у вугільних регіонах. Узагальнено роль превентивних підходів та розвитку медичних сервісів, орієнтованих на раннє виявлення екологічно зумовлених і професійних захворювань, що є критично важливим для громад вугільних територій. Підкреслено, що запровадження інноваційних інструментів управління та партнерських моделей взаємодії створює передумови для формування стійкої та адаптивної системи охорони здоров'я, здатної забезпечити довгострокові позитивні соціальні ефекти. Акцентовано, що ефективність подальших трансформацій значною мірою залежить від здатності місцевої влади інтегрувати сучасні управлінські практики та цифрові рішення у стратегічне планування розвитку медичної сфери територіальних громад.

**Ключові слова:** територіальні громади, вугільний регіон, управлінські механізми, система охорони здоров'я, екологічні ризики, телемедицина, публічна політика, цифровізація.