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ENSURING THE SUSTAINABILITY OF LOGISTICS OF PHARMACY CHAINS UNDER CRISIS CONDITIONS

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Abstract. This study examines the theoretical and practical aspects of ensuring the sustainability of logistics in pharmacy chains under modern crisis conditions, particularly during martial law. The essence and role of logistics as a critical component of a pharmaceutical organization are defined, and the necessity of adhering to the "zero error" principle and Good Distribution Practice (GDP) standards is substantiated. Based on a case study of the pharmacy chain "SLAVUTYCH," an analysis of its organizational and economic characteristics was conducted. The results of a survey of 80 employees aimed at identifying key threats to logistics processes are presented. The findings indicate that the most critical factors causing supply disruptions are the shortage of logistics personnel and the destruction of transport infrastructure. It was established that anti-crisis management should be based on the principles of early diagnosis, flexibility, and proactive risk mitigation in order to ensure the social mission of providing the population with essential medicines.

Keywords: pharmacy chains, logistics, crisis management, pharmaceutical market, sustainability, supply chain.

Анотація. У цьому дослідженні розглянуто теоретичні та практичні аспекти забезпечення стійкості логістики в аптечних мережах за сучасних кризових умов, зокрема під час воєнного стану. Визначено сутність та роль логістики як критичного компонента фармацевтичної організації, а також обґрунтовано необхідність дотримання принципу «нульової помилки» та стандартів належної дистрибуційної практики (GDP). На основі дослідження аптечної мережі «СЛАВУТИЧ» проведено аналіз її організаційно-економічних характеристик. Представлено результати опитування 80 співробітників, спрямованого на виявлення ключових загроз логістичним процесам. Отримані результати свідчать про те, що найкритичнішими факторами, що спричиняють перебої з постачанням, є дефіцит логістичного персоналу та руйнування транспортної інфраструктури. Встановлено, що антикризове управління має базуватися на принципах ранньої діагностики, гнучкості та проактивного

зниження ризиків з метою реалізації соціальної місії забезпечення населення необхідними лікарськими засобами.

Ключові слова: аптечні мережі, логістика, кризове управління, фармацевтичний ринок, сталий розвиток, ланцюг поставок.

Introduction. The contemporary pharmaceutical market in Ukraine operates under conditions of unprecedented turbulence driven by intense competition, strict state price regulation, and the severe challenges of martial law. Under such conditions, logistics ceases to be merely a technical function of goods movement and transforms into a strategic foundation for the viability of pharmacy chains.

The relevance of this study is determined by the need to develop effective anti-crisis management models that ensure uninterrupted access to essential medicines despite infrastructure damage and resource constraints. In this context, logistics acts as a stabilizing mechanism that prevents disruptions in supply and supports the reliability of pharmaceutical services.

The aim of this study is to substantiate and analyze mechanisms for ensuring the sustainability of logistics in pharmacy chains under crisis conditions.

Methods and materials. To achieve this aim, methods of system analysis, SWOT analysis, and a questionnaire survey of 80 specialists from the "SLAVUTYCH" network were employed. The information base of the study included scientific works on logistics and anti-crisis management, as well as internal reporting and data from the studied enterprise.

Results and discussion. Theoretical analysis indicates that the essence of logistics in the system of functioning pharmacy chains extends far beyond the physical movement of goods. It represents a complex, integrated system for managing information, financial, and material flows. In the systemic functioning of pharmacy chains, logistics can be compared to a circulatory system, where any disruption in flow can lead to immediate social and economic consequences. Unlike general retail, pharmaceutical logistics is governed by the principle of "zero error," as the quality of logistical execution directly correlates with the therapeutic efficacy of the drugs and, ultimately, the health of the population.

The role of logistics is multifaceted, beginning with the strategic management of supplies. For a pharmacy chain operating on a large scale, the logistical system must balance the paradox of maintaining high stock availability while minimizing frozen capital in overstocked warehouses. By employing advanced forecasting techniques and inventory control models, logistics transforms from a cost-oriented department into a value-generating asset. Furthermore, the integration of information flows is vital. The digital essence of modern logistics allows for automated replenishment, where the

system triggers a purchase order as soon as stock levels hit a predefined threshold, reducing the human factor and minimizing ordering errors.

In modern business conditions characterized by high levels of uncertainty, anti-crisis management becomes particularly relevant. Anti-crisis management is a system of special measures aimed at preventing, localizing, overcoming, or minimizing the consequences of crisis phenomena. Its main goal is to ensure the viability of the enterprise in the face of internal or external threats. Scientific approaches to defining anti-crisis management include functional, relational, strategic, and systemic aspects. The mechanism encompasses organizational, economic, financial, and information-analytical components. Key principles include early diagnosis, flexibility, adaptability, and promptness in decision-making, as time is a critical resource during a crisis.

Practical analysis was conducted using the example of the pharmacy chain "SLAVUTYCH." The organizational structure is built upon a centralized management model that balances corporate oversight with operational flexibility at the local level. From an economic perspective, "SLAVUTYCH" operates as a high-turnover retail entity where profitability is tied to supply chain efficiency and assortment breadth. The chain's stability is grounded in a diversified product portfolio, including essential medicines and parapharmaceuticals, which helps mitigate risks associated with state-imposed price caps.

A SWOT analysis of "SLAVUTYCH" revealed that the chain's strengths include a robust automated distribution model, full adherence to Good Distribution Practice (GDP) standards, and high consumer trust. However, weaknesses were identified, such as the potential for supply chain paralysis if the main regional hub is disrupted and the high capital intensity of maintaining specialized climate-controlled transport. Threats include currency fluctuations affecting imported medication costs, changes in state price-capping policies, and geopolitical instability affecting international supplies.

To identify key threats to logistical processes, we conducted a survey of 80 employees of the "SLAVUTYCH" chain. The structure of respondents included pharmacists (47%), heads of pharmacies (32%), and marketers (21%). It was found that 64% of the surveyed employees have more than 10 years of experience, ensuring the reliability of the assessments. The level of awareness regarding anti-crisis procedures was mostly satisfactory (78% rated it as satisfactory to very good), yet 22% of staff acknowledged gaps in knowledge, indicating a need for strengthened training.

When analyzing the factors influencing supply disruptions during martial law, critical problems were identified. The most significant factor (40%) was the shortage of drivers, highlighting an acute shortage of logistics personnel. The second most significant factor (35%) was the destruction of transport infrastructure, which complicates routes and extends delivery times. The loss of specific suppliers affected

13% of operations. These results confirm that human resource management and infrastructure resilience are the primary pillars of sustainability in the current environment.

Conclusions

1. The study substantiates that logistics is a key systemic component of pharmacy chain operations, integrating material, information, and financial flows, and performing a critical stabilizing function under crisis conditions. In the pharmaceutical sector, the effectiveness of logistics directly affects not only economic performance but also the continuity of access to essential medicines, which determines its social significance.

2. It has been established that under martial law, the main threats to the sustainability of logistics are personnel shortages and the destruction of transport infrastructure. The results of the empirical study confirm that these factors have the greatest impact on supply disruptions and require priority management attention.

3. The research proves the necessity of transitioning to a proactive anti-crisis management model, based on early diagnosis of risks, flexibility in decision-making, and preventive mitigation measures. Ensuring logistics sustainability requires diversification of supply channels and distribution hubs, strengthening staff competencies in crisis response, and strict adherence to Good Distribution Practice (GDP) standards.

4. The practical significance of the study lies in the identification of priority areas for strengthening the resilience of pharmacy chains, including the development of adaptive logistics systems, optimization of resource allocation, and enhancement of organizational readiness for crisis challenges.

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