



**STAGES OF THE FORMATION OF THE PHARMACEUTICAL ECONOMY AND
ITS ROLE IN THE HEALTHCARE SYSTEM**

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ABSTRACT: This article analyzes the stages of formation of pharmacoeconomics, its emergence as a scientific direction, and its role in the healthcare system. Pharmacoeconomics is defined as a science aimed at the rational use of medical resources, the economic assessment of the effectiveness and safety of medicines, as well as the harmonization of clinical and economic indicators in the choice of treatment methods. The article highlights the main stages of pharmacoeconomics development - the emergence of clinical and economic analysis, the formation of "cost-effectiveness," "cost-benefit," and "cost-benefit" analysis methods, as well as their integration with evidence-based medicine. It also reveals the importance of pharmacoeconomic assessment in the processes of drug policy, medical insurance, regulation of the pharmaceutical market and public procurement in the modern healthcare system. The research results indicate that pharmacoeconomics plays a crucial role in ensuring financial stability within the healthcare system, improving the quality of medical services for the population, and ensuring the fair distribution of resources. The development of this direction serves to scientifically substantiate the medical decision-making process and is an important factor in improving healthcare policy.

Keywords: Pharmaceutical economics, healthcare economics, cost-effectiveness analysis, cost-benefit analysis, cost-benefit analysis.

The history of medicine shows that before the official establishment of pharmacies, medicines and medicinal raw materials were offered to the population through markets and stalls. Especially in the 16th century, such trade was widespread in the Russian state, and various plants, minerals, and ready-made medicines were sold in open markets. However, by the time the first pharmacies were established in Russia, physicians and pharmacists had already formed as separate professions in the state. Their activities are closely interconnected, and the pharmacy occupies a central place in the treatment process. During the reign of Ivan the Terrible, a pharmacy chamber was established, serving as the primary institutional form of the state medical service. Later, during the reign of Boris Godunov, this structure was transformed into the "Pharmacy Order," which served the tsars and boyars. This structure was responsible not only for the production and distribution of medicines but also for coordinating medical services. Although its activities were suspended during a period of turmoil and political instability, it was revived in 1620. In the pharmacy order, physicians and pharmacists served together, taking an active part in treating patients, participating in consultations, and making decisions on complex cases. This case is considered the first example of the relationship between medicine and pharmacy. One source of significant importance from the perspective of the history of bioethics is the work "Medical Ethics." Its author, Thomas Percival, criticized the neglect of the interests of patients by the trustees of medical institutions. In particular, cases of reducing the quality of treatment by purchasing cheap and ineffective medicines have been recorded. This highlights the complex relationship between economic factors and ethical responsibility in medical decision-making. Today, the pharmaceutical industry is developing rapidly, and the interests of drug



manufacturers and suppliers significantly influence the functioning of the healthcare system. Issues regarding the selection, procurement, and use of medicines in the activities of medical and preventive institutions (MPIs) encompass not only clinical but also economic and ethical aspects. It was these processes that laid the foundation for the formation of a new scientific direction—pharmacoeconomics. Pharmacoeconomics emerged in connection with the innovative development of the global economy and studies the economic analysis of technologies for the selection, use, and maintenance of public health. The pharmacoeconomic approach involves comparing the financial resources spent on the use of medicines with their effectiveness, safety, and impact on the quality of life of patients. This approach focuses on analyzing the relationship between costs and results. That is, it is important not just to calculate the amount of money spent, but to evaluate the clinical and social effect obtained. This is inextricably linked to bioethical principles - justice, self-interest, non-harm, and respect for human dignity. Pharmacoeconomics is not limited to the selection of a specific medicinal product. It is aimed at comparing alternative treatment regimens, evaluating preventive measures, analyzing the cost of high-tech medical services, and scientifically substantiating decision-making processes in the healthcare system. It also allows for an analysis of the bioethical justification for cost increases in the implementation of medical and biotechnological innovations.

1. Currently, several main methods of pharmacoeconomic analysis are widely used:

2. Cost of Illness Analysis - studies all direct and indirect costs associated with the treatment and care of a specific disease. This method does not compare efficiency, but assesses the financial burden on the healthcare system.

3. "Cost-Effectiveness Analysis" - compares the costs and clinical outcomes of various interventions in the same units of measurement (e.g., saved life years, reduced number of complications).

4. "Cost-Minimization Analysis" — a comparative assessment of interventions that are equally effective and safe but have different costs.

5. "Cost-Utility Analysis" - evaluates results through "utility" (e.g., quality life years) from a patient's perspective.

6. "Cost-Benefit Analysis" - calculates both costs and results in monetary terms and allows for the economic comparison of various programs.

7. Thus, pharmacoeconomics has emerged as a comprehensive science that combines medical, economic, and bioethical approaches. It is of great theoretical and practical importance for the rational use of resources in the healthcare system, ensuring fair distribution, and protecting public health.

8. Unfortunately, not all methodological innovations currently used in the field of pharmacoeconomics are always analyzed from the perspective of bioethics. This leads to some negative consequences in the healthcare system, as pharmaceutical companies and their economic interests often determine the development of the treatment process, which can reduce the possibilities of effective and safe therapy for patients. Therefore, accounting for the bioethical component is of great importance in pharmacoeconomic analysis.

From a bioethical perspective, pharmacoeconomic analysis can include the following main stages:

Clear and complete formulation of the problem - defining the main issues in the field of research in an understandable and clear form;

Determining the researcher's bioethical point of view - determining whose interests are taken into account and which subjective and social factors the study should take into account;



Selection of alternative technologies - identification of comparable treatment methods and medical technologies for analysis;

Analysis of the effectiveness and safety of interventions - analysis of the clinical and economic efficiency of each variant;

Selection of performance evaluation criteria - assessing the objective and bioethical value of results through these criteria;

Calculation of costs associated with the application of interventions - assessment of the effectiveness of the use of material and financial resources;

Calculation and analysis of key pharmacoeconomic indicators - comparing costs and efficiency, combining economic and bioethical aspects.

Furthermore, the aforementioned stages of pharmacoeconomic analysis must take into account the following bioethical principles and rules:

- The principle of respecting human dignity - the life and health of every individual should be considered the highest priority value;
- The principle of "Do good, do not do evil" - the goal in the treatment process is only to avoid causing harm and to bring benefit;
- The principle of recognizing personal autonomy - respecting the patient's personal rights and right to make decisions;
- The principle of justice - equal distribution of resources and treatment opportunities;
- Principle of fairness - ensuring fairness and transparency in patient services;
- Privacy and confidentiality policies - protecting personal data and medical information;
- The voluntary informed consent rule - every medical intervention must take into account the patient's consent and the right to make informed decisions.

These principles are directly related not only to the innovative development of the global economy but also to the modernization of the local healthcare system and increasing its efficiency. From this perspective, another important direction of pharmacoeconomics is related to the medical and psychological support of emergency and rescue operations. This is important for providing emergency medical care to victims of natural and man-made emergencies, catastrophes, and other physical and psychological injuries, as well as for organizing staff rehabilitation.

On the example of activities in epicenters of the Ministry of Emergency Situations (MES) of Russia, pharmacoeconomic analysis can include the following areas:

1. Identify healthcare system needs following natural disasters and earthquakes - for example, assessing the demand for medicines and resources for city-level medical care during the earthquakes in Spitak and Tashkent;
2. Monitoring price dynamics in the market for pharmaceuticals and medical technologies used in emergency medical care;
3. Assessment of the quality of life of the population from the point of view of mental health, taking into account psychological support measures based on WHO recommendations;
4. Application of cost-effectiveness analysis in providing emergency psychological assistance and staff rehabilitation in emergency situations;
5. Assessment of the effectiveness and safety of various pharmacological and medical technologies;
6. Compilation of a formulaic list of medicines and assessment of their urgent need;
7. Calculation of the total cost of emergency medical care, including direct and indirect costs;
8. Analyze the possibilities of minimizing the costs of medical support for rescue operations;



9. Calculation and management of costs during the medical and psychological rehabilitation of emergency personnel.

These studies will help solve a number of tasks:

- Developing pharmaco-economic knowledge and skills among specialists;
- Formation of concepts regarding pharmacological and economic analysis methods;
- Encourage emergency medical professionals to independently search for international information;
- Presentation of scientific research results to state and private organizations and their application in decision-making based on them.

According to the research of T.P. Sabgayd and V.I. Orlov, when assessing economic losses in emergency situations and taking into account premature deaths, the largest economic losses can occur among men with secondary specialized education aged 40-44 and women with higher education aged 45-49. This allows for the targeted implementation of various preventive programs. As A.I. Bliznyuk noted, measures for the medical and psychological rehabilitation of regional Ministry of Emergency Situations employees must be implemented comprehensively to ensure full recovery. According to L.A. Pirogova and V.S. Ulashchik, medical-psychological rehabilitation restores the patient's positive attitude toward life and society while simultaneously reducing psychosomatic pathology. From a pharmaco-economic perspective, medical and psychological rehabilitation should include the following methods: individual and group psychotherapy, communication training, game therapy, and methods of creative activity (building, drawing, sewing, etc.). In particular, individuals over the age of 50 and executives are more resistant to psychological correction, which is due to their inability to recognize their own psychological problems.

The use of comparative data in pharmaco-economic analysis and the assessment of expected benefits in medical and psychological rehabilitation is important, which in turn requires specialists to possess qualified and interdisciplinary knowledge. The International Society for Pharmaco-economic Research (ISPOR) assists states in the fair, rational, and efficient allocation of resources necessary to ensure the health of their citizens. This organization establishes research standards, monitors their implementation, and ensures the effective use of pharmaco-economic data. On the example of our country, the organization of hospices for patients with terminal stages of oncological diseases will significantly save significant costs for oncology centers. At the same time, in a hospice equipped with modern diagnostic and treatment tools, it is possible to maximize patient life support by adhering to bioethical rules.

Thus, methodologies in the field of pharmaco-economic analysis and medical-psychological rehabilitation ensure not only economic efficiency but also compliance with bioethical standards and guarantee the effective and fair functioning of the healthcare system.

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