



## Pharmacoeconomic Analysis - The Way to Optimization of Using the Health Budget

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### Abstract

Reforming the drug supply system requires the introduction of modern scientific approaches to quality management of pharmacotherapy, the main principle of which is the individual selection of the drug taking into account its effectiveness and safety. Introduction: To analyze the literature on the need and feasibility of using pharmacoeconomic methods to provide medicines. Materials and methods: The basis for research is the methods of pharmacoeconomics. Results: The analysis of the data of literature sources was carried out and the necessity of using pharmacoeconomic methods in the field of health care was determined. Conclusions: As a result of the review, it was determined that pharmacoeconomic analysis is an effective method that facilitates the adoption of optimal decisions in the field of drug supply.

**Keywords:** Arterial hypertension; Health care, Antihypertensive drugs; Form system.

### Introduction

Reduction of funding for health care facilities has necessitated the formalization of costs for medical services [1, 2]. The solution to this problem is carried out through the development and implementation of a formulary system that allows on the basis of existing legislation in the field of standardization and compulsory health insurance to streamline the existing system of drug supply [4, 6, 7, 8]. Ensuring the rationality of decisions made in the preparation of forms, is implemented through a comprehensive study of aspects related to the use of a particular drug [3, 5, 10, 9].

The basis for such research are the methods of pharmacoeconomics - a science that studies the clinical and economic benefits of the use of drugs and drug therapy regimens [11, 12, 10]. Interest in the problems of economic evaluation is due to the existence of a number of economic and social reasons. Problems of economic nature include the low level of funding for health care facilities, inefficient use of available resources, the emergence of alternative expensive treatment technologies and medicines,

increasing the cost of medical services [3, 13]. Social problems include: unfavorable demographic situation (high proportion of elderly people), chronicity of the pathological process, which leads to increased disability, low purchasing power of the majority of the population [14]. In the current conditions, one of the priority areas of knowledge development on the formation of costs should be the use of pharmacoeconomic analysis in health care practice [15].

Awareness of the importance and necessity of studying the methods of pharmacoeconomics and evidence-based medicine has long come around the world, it allows in addition to improving the quality of therapy and, consequently, the quality of life significantly save costs for each patient [16, 17, 6].

In countries such as France, Italy, Germany, the Netherlands, Great Britain, etc., an acceptable ratio of cost and effectiveness of the drug is a necessary condition for its inclusion in state or municipal registers of drugs [18]. Thus, the need for pharmacoeconomic assessment in these

countries is officially established and is the basis for creating a rational system of drug supply. Despite many years of experience and accumulated data, the results of foreign research should not be extrapolated to the practice of domestic health care. The reasons for this are inconsistencies in price and epidemiological indicators, as well as differences in the ratio of the cost of hospitalization and drug supply in Ukraine and abroad [19]. The studied pharmacoeconomic studies show the economic advantages of such treatment regimens, which, along with high clinical efficiency, allow to spend the least amount of resources.

Treatment with an expensive drug that reduces the number of complications and length of stay in the hospital, as a result is cheaper, as it reduces the total cost. The introduction of new medical technologies and drugs, the effectiveness of which is confirmed only by clinical trials of their manufacturers, has negative consequences for the economic stability of the health care system. Therefore, before introducing a new therapeutic method or drug into health care programs, it is necessary to obtain evidence not only of its effectiveness and safety, but also of economic feasibility. In the process of bringing drugs to the patient involved a wide range of specialists: doctors, pharmacists, drug manufacturers. Under these conditions, pharmacoeconomic evaluation becomes an important source of information that helps in decision-making to all participants in the pharmaceutical market [13]. Thus, pharmacoeconomic studies should be closely linked to clinical trials of medicinal products (pre-registration and post-registration levels).

Medicines must be economically acceptable for the patient, who spends the appropriate financial resources on him, for the society that provides certain segments of the population, for insurance companies and treatment and prevention facilities. Pharmacoeconomic studies should be conducted at different stages of medical care (outpatient, inpatient, rehabilitation, etc.) using common methodological approaches [17, 20].

The following types of pharmacoeconomic analysis are considered (in parentheses are given English abbreviations and their

interpretation):

- Analysis of the "cost of illness" (COL - cost of illness);
- Cost-effectiveness analysis (SER cost-effectiveness analysis);
- Cost minimization analysis (SMA cost - minimization analysis);
- Cost-utility analysis (CUA cost-utility analysis);
- Cost-benefit analysis (CBA-cost-benefit analysis).

Each of these methods necessarily includes several main stages:

- Formulation of the researched problem, definition of "point of view" of the researcher (whose interests will be taken into account);
- Choice of alternative technology for comparison;
- Choice of criterion (parameter) for evaluating efficiency;
- Analysis of the effectiveness and safety of the studied interventions;
- Calculation of costs associated with the use of the studied interventions;
- Calculation and analysis of the actual clinical and economic indicators (the ratio of "cost - efficiency", "cost - usefulness" or "cost - benefit").

In assessing the cost of different treatment technologies take into account input (spent) and output (treatment results) resources.

The source resources include:

- Direct medical expenses (cost of hospitalization and medical treatment, adjustment of side effects of drugs and their interactions with other drugs, payment of working hours of medical staff, surgical interventions, performance of necessary medical interventions, etc.). This cost is usually paid through the health insurance system or by the patient himself;
- Direct non-medical costs (overhead costs) (the cost of transporting the patient to the hospital, the "pocket costs" of the patient,

the payment of a special diet, etc.).

- Indirect costs (loss of working days by the company due to incapacity for work or disability of the employee, loss of employee earnings, costs and losses associated with the death of the patient, payment of sick leave, including child care, etc.).
- Intangible costs - costs that are subjectively perceived by the patient by treatment, affecting his quality of life.

Intangible costs include:

- Bodily (pain, injury, etc.);
- Mental (speed of reaction, concentration, memory);
- Mental (fear, depression, anxiety, apathy);
- Social (isolation, conflict, violation of habitual leisure).

Analysis of the "cost of the disease". The essence of this type of analysis is to calculate the costs associated with a disease without taking into account the results of medical care. In terms of health care, the true cost of treatment, prevention, rehabilitation, the amount of economic damage due to morbidity and mortality is still unknown, so this type of analysis is of significant methodological interest.

Cost-effectiveness analysis. This type of analysis, which compares drugs and programs (treatment protocols) on identical criteria of effectiveness. Outcomes are measured as the added value between alternative therapies, or, as well as differences in health, acquired after the application of each treatment. Thus, it is possible to establish how much money you need to pay to obtain certain health benefits achieved through the evaluated method of treatment [20]. When comparing the obtained treatment results, "natural" units of measurement are used (for example, increase in life expectancy, decrease in blood pressure, etc.), and not money.

Cost-effectiveness analysis is a widely used method because it allows you to directly compare different therapies. The contribution of investment in treatment in monetary units, and its results - in "natural", makes this type of analysis useful, both for consumers of medical services (patients) and

for their providers (pharmacists and doctors). The disadvantage is the inability to compare the effectiveness of therapy in cases where the results are expressed in different units. This analysis is unacceptable in cases where there is a need to use more than one criterion for the effectiveness of treatment outcomes, such as increasing life expectancy and at the same time improving its quality, which is assessed by reducing the symptom (symptoms) of the disease.

Cost minimization analysis. This type of analysis allows you to determine the real minimum cost of treatment with previously proven equal effectiveness of different drugs. The advantage of the cost minimization method is the ability to compare alternative medical technologies, but only in real practice. Carried out with the involvement of:

- Experts, scientists and specialists who need objective economic evidence when comparing equal in effectiveness and safety of medicines, to include them in the relevant lists, lists, forms of medicines;
- Heads and specialists of health departments, who should determine the optimal budget allocations for the implementation of territorial health programs using pharmacoeconomic data.
- Branches of insurance companies, in turn, include medicines in the programs of compulsory health insurance, taking into account indicators of their cost-effectiveness;
- Specialists of pharmaceutical and distribution companies, which aim to conduct an optimal pricing policy for the introduction of drugs in the pharmaceutical market.

Thus, pharmacoeconomic analysis is an effective method that promotes optimal decisions in the field of drug supply. Due to the constant expansion of the range of drugs offered by domestic and foreign manufacturers for use in Ukraine, the number of people interested in using the results of pharmacoeconomic research is growing: employees of pharmacies, practitioners and patients. The results of the analysis of literature data showed that the situation in the health care system of Ukraine as a result of economic

transformations necessitated the introduction of resource-saving technologies in practice, namely - the formulary system [18, 21].

## Conclusions

An important role in the development and implementation of the form is played by pharmacoeconomic studies, the results of which are a supplement to the pharmacotherapeutic characteristics of a drug. Pharmacoeconomics allows us to identify from the existing range of drugs the most effective and, at the same time, the least expensive.

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