

**UEF 7 sem.**

## **Economics of a pharmacy enterprise**

### **Lecture 1.**

*Pharmaceutical economics. Methods of forecasting the main economic indicators of pharmacies. Features of the activity of pharmacies. Features of the basic economic laws. Consumer behavior in the pharmaceutical market.*

#### **Lecture plan**

1. Pharmaceutical economy.
2. Features of pharmacies' activities.
3. Methods and methods of forecasting the main economic indicators of pharmacies.
4. Features of the main economic laws
5. Consumer behavior in the pharmaceutical market.

#### **1. Pharmaceutical economy.**

The word "economy" has an ancient Greek origin. In the IV century BC, the ancient Greek scientist Xenophon wrote a book called "Oikonomy" (from Greek. oikoz — house, farm; nom — rule, law), where he outlined the rules of housekeeping and agriculture.

Firstly, the economy is the economy itself in the broad sense of the word, i.e. the totality of all means, objects, things of the material and spiritual world used by people to meet their needs. In this sense, the economy should be perceived as a system of life support created and used by man, reproduction of people's lives, maintenance and improvement of living conditions.

Secondly, economics is a science, a set of knowledge about the economy and related activities of people, about the use of various, most often limited, resources in order to meet the vital needs of people and society (in this context, economics is called "economic theory" or "economics").

And finally, the economy is a set of relations between people in the sphere of production, distribution, exchange and consumption of goods and services.

The *subject of economics* as a science is the analysis of the efficiency of using limited resources to achieve maximum satisfaction of human material needs.

The pharmaceutical economy is part of the economy. The "pharmaceutical economy" is considered as a set of industries engaged in the production, distribution and exchange of medicines, other pharmacy products and services necessary to maintain public health. The pharmaceutical economy is a set of enterprises and organizations engaged in the production, distribution and exchange of medicines, medical devices, services necessary to maintain individual and public health.

The field of research of pharmaceutical economics is the problems of effective management and use of limited resources of medicines and other pharmacy products in order to achieve maximum satisfaction of the needs of the population and institutional consumers.

*Principles of pharmaceutical economics.* The concept, or system of views on the pharmaceutical economy, includes principles, theoretical foundations and a methodology supporting them.

The principles are the starting points of the pharmaceutical economy, which are divided into two groups: *general and private*. General — confirm the connection of the pharmaceutical economy with economic science and other sciences, private — determine the features of the pharmaceutical economy.

### **General principles.**

- limited resources and boundless needs are the starting point of any economic theory, which determines the subject of economic science and justifies the necessity of its existence;
- social priorities — a correlative assessment of the social role and actions shared by members of a given society on the basis of a certain value system; the objective basis for recognizing significance is a real contribution to meeting a particular need (in this case, the need for health).

### **Private principles:**

- personal interest in health — the basis for the formulation of this principle is based on the principle of personal interest (each person seeks the good (health) and avoids evil (ill health)); this principle is natural and "reasonable", since it ensures the responsibility of each person for their health, which ultimately corresponds to public interests and objectives;

- the desire of people and the state to limit health spending — when striving for health, a particular person can use various ways from a healthy lifestyle to a "prestizhny and expensive treatment; however, if there are alternative opportunities, a person will invest in more pressing needs and needs (for example, food, housing) or in more desirable ones (entertainment); as for the state, this principle applies regardless of the level of civilization, only the reasons differ — either lack of funds and the residual principle of financing, or the rapidly growing level of health care costs associated with an increase in life expectancy, the emergence of new technologies, etc.
- quantitative measurement of various economic manifestations — this principle is based on the views of the "mathematical school" of economics; distribution, production, consumption exist due to exchange, the result of exchange is expressed by the price of certain services delivered by factors of production (labor, capital, land); this principle corresponds to the health economy, which introduced the concept of medical services, and that's it professional actions are measured by the price for the service; in the pharmaceutical economy, there is a real commodity - a medicinal product (drug), there are also pharmaceutical services that can be characterized as providing patients with medicines, it is possible to measure the costs of one treatment and express them in natural, monetary, labor meters.

## 2. Features of pharmacies' activities.

From an economic point of view, the pharmaceutical market can be defined as a set of economic relations that arise between people regarding the purchase and sale and destination-consumption of medicines and other pharmacy products. The main *instruments* of functioning of the pharmaceutical market, as well as any other, are **demand, supply, price**. Pharmacy activity has a dual nature. On the one hand, pharmacies perform an important *social function* in protecting the health of citizens, while pharmacy trading enterprises cannot operate without *profit*. In addition, the activities of pharmacies require licensing, are under state control, regardless of the form of ownership, and employees are allowed to work in the pharmacy if they have special education and work experience. Pharmacy products have a number of features. The range of goods in the pharmacy and the prices of pharmacy products are also regulated by state regulatory documents. These are goods whose production and consumption are largely

- due to the need to preserve and restore health,
- are often vital,

- have specific quality characteristics,

used according to medical recommendations and prescriptions,

These features in the activities of pharmacies lead to a number of features in the processes of production and consumption of pharmacy products.

### **3. Methods and methods of forecasting the main economic indicators of pharmacies**

The main goal of a pharmacy organization is to meet the demand for pharmacy products and make a profit. Success in achieving this goal largely depends on the quality of forecasting (planning) of economic activity.

Forecasting (planning) is the process of forming the main goals and possible means, as well as ways to fulfill them.

The planning process provides for the establishment of such economic indicators that, with the full use of limited resources, can lead to the achievement of the expected economic results.

In the course of forecasting the economic activity of an enterprise, various values and indicators can be analyzed.

Absolute values express the dimensions, volumes of phenomena and processes. These are always named numbers that have a certain dimension, unit of measurement (n-r, the absolute value of the pharmacy's inventory).

Relative values characterize the relationship between two values, they are obtained as a quotient of dividing one of them (the indicator being compared) by the other (the comparison base). They can be expressed as a coefficient or percentage (if the quotient is multiplied by 100%).

Dynamics indicators characterize the change of the phenomenon over time, measure the intensity of development, n-r growth rates or gains. There are basic (constant base of comparison) and chain (base of comparison – the value of the previous indicator) *indicators of dynamics*.

The structure indicator characterizes the composition of the studied object, the totality and is expressed as follows:

**Indicator of the structure = the value of a part of the population / the value of the whole population x 100%**

Key economic indicators

***The economic indicators of the pharmaceutical trade organization include:***

- *turnover* (sales volume);
- *gross income* (trade overlay);
- *costs and expenses* (costs);
- *inventories and other working capital*;
- *gross profit from trading activities (main), as well as operating and non-operating income*;
- *net profit*.

All economic indicators are interrelated and interdependent, but the information containing data on each indicator is specific both in terms of volume and methods of obtaining and processing it.

Planning methods are specific methods and techniques of economic calculations used in the development of individual sections and indicators of the plan, their coordination and linking.

When choosing specific planning methods, the following factors are taken into account:

- duration of the planning period;
- features of the calculation of the planned indicator;
- availability of source information and the possibility of its use;
- availability of an appropriate technical base for information processing and calculations;
- the level of qualification of employees.

To obtain forecast values for individual indicators of the economic activity of a pharmaceutical trade organization, the following methods and methodological techniques can be used:

- balance method;
- regulatory methods;

– computational and analytical (experimental and statistical) method;

– economic and mathematical methods;

– methods of economic efficiency (optimization of planned solutions).

### **Methods of economic analysis**

The balance method provides for the use of balance sheets in planning, the purpose of which is to link the material and labor resources available to the enterprise with the actual need for them. Balance calculations are used when planning the receipt of goods to the enterprise, based on the projected turnover and the size of the initial and final inventory.

For example: Calculate the receipt plan in value terms for a pharmaceutical organization engaged in wholesale trade at the period plan.

Regulatory methods (or methods of technical and economic calculations) are based on the application of norms and technical and economic standards for the consumption of material resources of the organization.

The standards used are of 3 types: uniform; industry-specific; special - applicable to a separate enterprise;

Uniform standards are applied in all industries and spheres of activity, for example, payment of utilities (heating, electric energy, etc.), the rates of most taxes.

Industry standards include standards of losses within the limits of natural loss; - standards of alcohol consumption; narcotic drugs.

- the size of trade allowances for vital and essential medicines.

An indispensable condition for the successful use of norms and standards in planning is their periodic revision in connection with changing working conditions and the growth of its technical equipment;

Normative methods are used in determining the need for strictly standardized and specific leks.drugs, when calculating the staffing.

The computational and analytical (experimental and statistical) planning method is used in the case when there are no technical and economic standards, and the relationship between individual indicators or economic phenomena can be established only indirectly on the basis of analysis and comparison of reporting data. Calculations of planned indicators are made on the basis of the achieved level

of their development, taken as a baseline, and indices of their changes in the planned period.

An example of a computational and analytical method can be the method of dynamic indicators or formal extrapolation based on taking into account past trends.

Planning based on the method of dynamic indicators includes a number of sequential actions:

- collecting actual data on the analyzed indicator for previous periods, as a rule, if planning is carried out for a year, then the previous analytical period is not  $< 3 - 5$  years, determining the expected data of the current period;
- construction and analysis of dynamic or moment series of the indicator, graphs, diagrams.

The construction of the dynamics series is achieved by arranging the values of the indicator for the analyzed period in chronological order. This contributes to the systematization of the material, creates conditions for better visibility and comparability.

In the theory of statistics, there are several types of dynamics. Indicators that characterize the value at a certain point in time (beginning, end years), called *instantaneous*. It is characteristic of the *moment* series that each subsequent indicator fully or partially includes the previous indicator fully or partially includes the previous one, therefore it is impossible to summarize the indicators of the moment series. However, the difference in indicators or the average of the moment series has a certain economic significance. Indicators that characterize the value for a certain period of time (year, month, is called *periodic*). And a number of dynamics are periodic. The indicators of the periodic series can be summarized and a new series of dynamics can be obtained, each indicator of which characterizes the value over a longer period of time.

- calculation of relative growth indices or growth rates;
- identification of trends in the relative indicator or calculation of the average annual growth index or rate;
- determination of the planned indicator based on the data of the current period, taking into account the revealed trend of the relative indicator or the average annual *growth index* (or growth rate).

### The method of dynamic indicators

To predict the main economic parameters, the method of dynamic indicators is most often used, on the basis of which planning is carried out.

When drawing up plans, the following types of data are used: actual (reporting) data for the past period, which are taken from accounting documents expected (basic) data of the year that precedes the planned one.

These data are called expected, because the development of planned tasks begins at the end of the third or beginning of the fourth quarter, when the pharmacy does not yet have reporting data for the year and therefore one can only assume (expect) what this or that indicator will be. The expected data consists of the actual data for 9 months and the planned data for the IV quarter of the current year. Stages of forecasting based on the method of dynamic indicators:

I Data collection;

II Systematization of data. Construction of dynamic series, indicators, graphs, diagrams;

III Calculation of real values of indicators;

IV Calculation of absolute and relative indicators, growth rates (increment). Identification of trends in relative indicators or calculation of the average annual growth rate (increment);

V Determination of the target indicator (absolute or relative).

#### **4. Features of the main economic laws**

The theoretical basis of the pharmaceutical economy consists of objective economic laws. Even the economists of the "classical school" talked about the existence of natural economic laws that are not normative or "finalist" in nature. These laws express the essence of the relations that are spontaneously established between free beings. They are interdependent and depend on "obstacles put forward by the environment". These laws are universal and permanent, because the basic human needs are the same in all countries and at all times. General economic laws investigate only what is most common, most characteristic of all people.

Some general economic laws are listed below.

The basic laws are the **laws of demand, supply, and value.**



The law of supply and demand determines the value of each product and productive services of labor and capital. It is formulated as follows: the price changes in direct relation to supply and in reverse to demand (all other things being equal). Further, the price is fixed at this level when the quantities offered and requested become the same, and price changes tend to such a coincidence (A. Marshall, S. Mill).

The demand in the pharmaceutical market can be considered as the quantity of medicines, other pharmacy products, pharmaceutical services that consumers are willing and able to purchase for a certain period of time at a certain price.

**The law of demand states that, all other things being equal, there is an inverse relationship between the price of a commodity and the amount of demand.**

Another important tool of a market economy is supply.

The offer on the pharmaceutical market is defined as the number of medicines, other pharmacy products, pharmaceutical services that can be offered to consumers for a certain period of time at a certain price.

**The law of Supply states that, all other things being equal, there is a direct relationship between the price of a product and the value of the supply.**

A situation in which the interests of buyers and producers coincide, and no one has a desire to disrupt the existing situation, is called *market equilibrium*.

The *law of value* is the basis for measuring the very value of goods and services. Such value is the cost of production.

The *law of free competition* in the classical sense provides the consumer with cheapness of goods and services, as well as competition between producers stimulates progress that ensures justice and the pursuit of equality, encouraging the "pursuit" of profit and constantly reducing all value to the level of the cost of production.

The *law of population* in the time of classical economists, population growth was widely regarded as a negative economic factor (R. Malthus). Currently, there are countries in which the operation and understanding of this law correspond to the classical doctrine and in the modern interpretation is expressed in family planning. And in developed capitalist countries, there is a reverse trend associated with a reduction in population growth rates and disappointing forecasts of futurologists about a significant reduction in the population of these countries in the future, if

states do not take special measures to change public opinion in terms of increasing the birth rate and preserving public and individual health.

The *law of wages* is also a classical law according to which wages are subject to a double action (A. Cobden, F. Lasalle). On the one hand, there is a market wage that reflects the supply and demand in the labor market. On the other hand, there is a natural or necessary wage, which is determined by the cost of living labor.

The *law of rent*, deduced by D. Ricardo, determines that when several products with different values are put on the market, the price will be set at the highest cost. And this means that other homogeneous products will account for a certain surplus, since their production is cheaper (D. Ricardo, S. Mill).

The *Law of International Trade* asserts freedom of trade and mutual benefit in the trade of both parties.

Since these laws are universal, their effect must be taken into account when considering economic objects in the pharmaceutical market.

### **5. Consumer behavior in the pharmaceutical market.**

The processes of consumption of goods are determined by both the characteristics of the goods and the characteristics of consumers (needs, desires and opportunities). Consumer behavior is an individual's activity aimed at obtaining, consuming and disposing of products and services, including decision-making processes that precede and follow these actions. In the most general sense, consumer behavior and typical consumer activity are associated with the purchase of a product in order to use it and extract some characteristics from it. Consumer behavior in the pharmaceutical market is the process of an individual's interaction with the environment about meeting their needs for pharmaceutical care, the ability to perceive, store and transform information about the pharmaceutical market. Consumer choice is a causal activity of the consumer, the result of which is the purchase or appointment of a specific product of the pharmacy assortment. A huge number of factors are involved in the formation of preferences.

The impact of some is obvious, others are less noticeable, but all factors are significant for consumption.

Classification of factors determining consumption:

Socio-demographic (gender, age, social status).

- Medical (the presence of a certain disease, condition, severity of the disease, duration of the disease, concomitant diseases; the stage of medical care – inpatient, outpatient).
- Economic (income – opportunities and conditions of consumption).
- Individual qualities (preferences, incentives, product image),
- Type of consumer – institutional, intermediate, final.
- Traditions of consumption.

Consumer choice can be realized either as a result of formed preferences, or under the influence of the minute, i.e. irrationally. However, it will always have limitations – budgetary, psychological, informational, material, moral and ethical, financial, related to the availability of necessary drugs on the market, etc.

To study consumer behavior, you can use indirect methods, i.e. study various documents characterizing consumer behavior – prescriptions, data on the consumption of medicines for a certain period, etc. Or you can use direct methods – to study the consumer himself.

Most researchers who study consumer behavior in various fields use 2 methodological approaches for this purpose:

1. *Economic method*. The economic method consists in analyzing the system of individuals as a whole, predicting its properties using unified ideas about a person and relying on existing economic laws describing consumer behavior. Currently, the economic approach to the study of consumer behavior is based on the modern version of the classical concepts of the category of utility, where the main economic laws describing consumer behavior are the theory of marginal utility and the theory of income and substitution effects.

2. *Marketing method*. The marketing method is associated with the study and modeling of the behavior of the masses, based on the types of behavior of individual individuals who make up this system.

Today, the pharmaceutical market belongs to one of the most intensively developing segments of the domestic business. At the moment, consumers have the opportunity to choose the pharmacy that will satisfy their needs to a greater extent. Significant part of the population makes a choice of medicines based on personal experience, advertising, advice from friends, so the study of visitors is an important aspect of the activities of pharmacies. Today, the consumer should become the

main priority and the most important link in the activities of pharmaceutical market entities at all levels. Only with his direct participation, it is possible to consider the quality of pharmaceutical care not only as a set of objective characteristics, but also as a set of subjectively perceived assessments.

The study of the factors shaping consumer behavior in the drug market, influencing the choice and use of pharmaceutical products, underlying the actions of a person who applied to a pharmacy, will raise the quality of pharmaceutical care to a new level.

To describe the average consumer, it is necessary to analyze pharmacy visitors and their preferences.

1. To study consumer behavior in the pharmaceutical market;
2. To determine the significance of factors influencing consumer behavior in the pharmaceutical market.

The analysis always shows one pattern: the main visitors to pharmacies are women, that is, women are more likely than men to shop in pharmacies. The main sources of information of our respondents are: most often a doctor's recommendation (60%); knowledge of the drug (5%); advertising of the drug in the media (10%); on the advice of relatives and acquaintances (10%); from the advice of a pharmacist in a pharmacy (15%).

The study revealed the most significant factors that influence the choice of pharmacy.

Most of the respondents put affordable *prices in the first place, a wide range and convenient location in the second place*. Also no less important are factors such as "simultaneous servicing of several customers", namely, according to the study, pharmacies with two or three departments serve the largest number of visitors. Other factors have significantly less influence on the choice of pharmacy.

According to the results of the study, "affordable prices" is the most significant factor for the population. Convenient location and a wide range of products are equally important characteristics.

Thus, the data from the study of consumer preferences of pharmacy visitors revealed that for all visitors, the *main elements* are:

- price level for goods and services,

- assortment of medicines and parapharmaceutical products,
- convenient location.