

## The System to Ensure the Availability of Medicines in Ukraine

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**Abstract.** This article aims at determining availability of medicines and finding the factors that affect it. Availability of medicines is considered as a system having an internal structure, and the hierarchy of individual elements. The systematic approach is in the basis for the study of marketing availability of medicines. According to the WHO the concept of "drug availability" is considered in two aspects: physical availability and economic availability. We have proposed to extend this structure and introduced such new variables as marketing, technological and intellectual availability. Analysis of the marketing components requires some research and gathering relevant information of the drug availability model that can be used in the forecast. However, to obtain a reliable forecast the factors that affect the forecast object must be taken into account, and therefore, only the necessary marketing information should be used. The policy and practice of pharmaceutical products patenting vary considerably in different countries. In Ukraine legal protection is provided for products related to medicines, decisions of application of medical products concerning a new indication, as well as methods of treatment, including the use of medicines. However, there is a high probability of forming pricing monopoly by a producer of a patented medicine. The patent monopoly can hinder further innovation, such as development of the combined fixed-dose or other dosage forms of the medicine. The rational use and availability of medicines are the most important factors that determine the effectiveness of the healthcare system. The legal regulation in the field of drug provision both at the international and the national levels has a significant impact on availability of medicines. In general, the problem of availability of medicines should be based on effective elaboration of relevant regulations.

### 1. Introduction

The pharmaceutical market is a multifaceted phenomenon with a complex structure that obeys the law of supply and demand, but despite the fact that the market is already saturated with medicines, disability in the treatment of outpatients and inpatients associated with the low-income of the majority and inadequate budget funding of hospitals are constantly discussed. The problem is complicated by the fact that the pharmaceutical sector operates in market conditions, and the public health system functions as a guarantor of "free" medical care. The influence of these factors leads to the fact that medicines for most people become inaccessible. Development of the national pharmaceutical industry needs to be adjusted according to the reduction in funding, inefficient use of medicines, growth of infectious diseases and diseases of the circulatory system, increase of resistance to antibiotics as a result of irrational treatment, "diseases of poverty" and so on. Low solvency of the

majority of citizens of Ukraine leads to the fact that drugs, especially those that are expensive, become unavailable. Thus, the focus of the public is to harmonize social and economic interests of the population, subjects of pharmacy and healthcare in general.

Pharmacy and medicine are the sectors of integration of social relations, by which degree one can judge how healthy is the society as a whole. The situation in the sectors is known and largely bleak. The problem of availability of medical care, including medicines, for most people in fact is currently important.

The majority of the population, as well as some professionals understand under the term "availability" of medicines only the possibility of buying medicines at a low (or reasonable) price, while the concept of availability is much broader. The national drug policy determines the access to basic medicines as a system consisting of four components (Fig. 1).

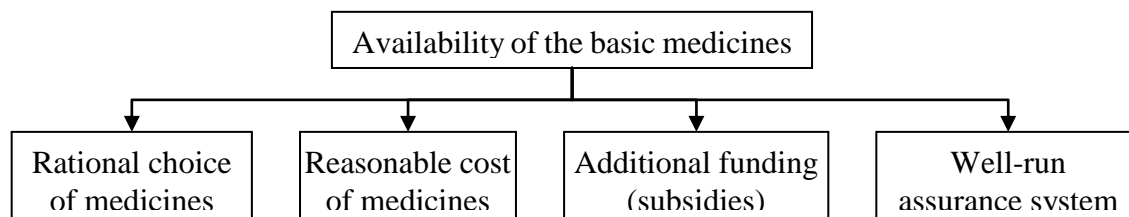


Fig. 1. The structure of availability of the basic medicines

Each of the four components are essential, but by itself it can not provide the appropriate level of availability of medicines. According to the national drug policy of Ukraine the stage of basic medicines selection is a crucial step to provide drug availability because neither the public sector, nor the health insurance system can reimburse the cost of purchase or subsidize the procurement of all medicines presented at the pharmaceutical market.

Availability of medicines should be considered as a system that has an internal structure with a certain hierarchies of its individual elements. Therefore, the systematic approach should be in the basis for studying availability.

According to the WHO interpretation the concept of "drug availability" is considered in two aspects: physical availability (offering to consumers high-quality, effective and safe medicines) is the actual production, import and the sales system, primarily through pharmacies; and economic availability, on the one hand, contains the system of public funding for a patient, on the other hand, the system of creating demand on medicines. We extended this structure and introduced three new variables: marketing availability, technological availability and intellectual availability (Fig. 2).

Technological availability provides dispensing of prescription drugs, OTC drugs, on request of medical preventive institutions and other directions of drug distribution. Technology of distribution significantly affects availability of medicines. Availability of prescription drugs is limited because the consumer is not able to purchase them. Thus, he has to see a doctor, even in cases when he uses the medicine for many years to treat chronic diseases.

Economic availability involves the system of creating demand; we propose to consider it as the existing and forecasted demand. The existing demand reflects the state of pharmaceutical care at the current moment, indicating a level of physical and economical availability. Having the information about the future demand the level of availability can be regulated by using different methods.

One more component has been introduced to the model of availability of medicines. It is marketing availability, which combines the system of forming demand and the information database. The information coming to the information database accumulates while conducting research in three main areas (components): analysis of the drug assortment, analysis and forecast of the market size and analysis of consumers.

Analysis of the assortment structure involves determining the width, depth and saturation of the assortment, sales volume, analysis of prices, the assortment planning and determination of the market share of a certain group of medicines.

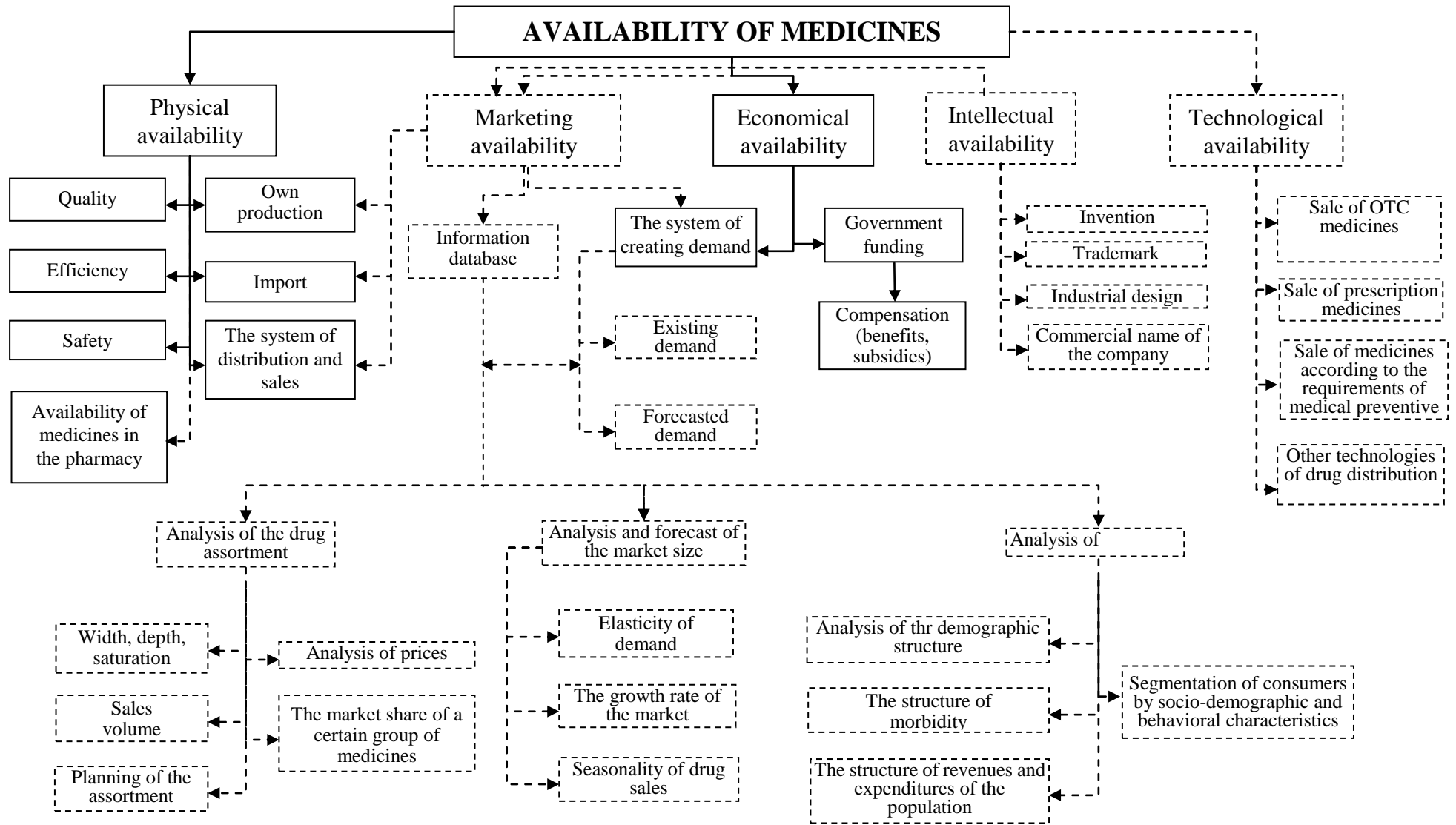


Fig. 2. The model of availability of medicines

The next direction of forming the information database is the study of consumers, and it provides the analysis of the demographic structure, the structure of morbidity, income and expenses and the segmentation of consumers by socio-demographic and behavioral characteristics.

Analysis of the demographic structure allows to determine such factors as the population size, fertility and mortality rates and so on. Further these indices allow identifying and predicting the population size, life expectancy and the age-sex structure of the population and affecting the size and structure of the drug demand.

The structure of morbidity has a direct impact on availability of drugs. To determine the level of morbidity both statistical data and analysis of case histories can be used. However, in some cases, conducting of research is hampered by the lack of relevant government statistics, and analysis of case histories is complicated by revealing the nosology studied as a concomitant disease leading to difficulty of collecting information about its treatment.

Analysis of the structure of revenues and expenditures of the population involves the calculation of the proportion of funds spent by households on medical and pharmaceutical care. Generalization of these indices in the future provides the possibility of segmentation of drug consumers by socio-demographic and behavioral characteristics.

Within the framework of the next component – “analysis and forecast of the market size” such indices as elasticity of demand, the growth rate of the market and seasonality of sales of medicines are proposed to determine. The important direction of forming marketing availability is the study of elasticity of demand. In general, elasticity of demand is dependence of its change on any market factor, and it shows the relative change in demand by changing the factor by 1% and allows to predict which medicines will be in demand, as well as decrease of demand.

The forecast of the drug market size is impossible without determination and analysis of its capacity; it is determined in monetary or physical terms for a certain period and allows tracing trends of its development, growth or reduction rate, seasonal sales. The presence of seasonal variations in the group of antifungal drugs affect their availability, and it determines the need to monitor the information to develop methods of forecasting availability.

Intellectual availability is another variable introduced by us during the study. This variable combines the protection of basic objects of the intellectual property existing at the pharmaceutical market: invention, trademark, industrial design and commercial name of a pharmaceutical producer or a distributor.

Inventions in the pharmaceutical industry can be an active substance or a composition of such substances in the product; a method for obtaining an active substance or a composition, in some cases the route of administration of medicines. If the enterprise has a patent, it protects the medicine for 10-20 years, i.e. during this period medicines-analogues cannot appear at the market. However, it affects economical availability very much – in most cases original medicines have an excessive price, their cost decreases only from the expiration of the patent and emergence of analogues at the market.

Industrial design is something that differs the product of one producer from the identical product of another producer. The product appearance, its art and design decisions (e.g. packaging of a medicine with pictorial elements and inscriptions plotted on it) belong to industrial design, but it does not include features of its device.

As for a trademark it distinguishes producers of the same or similar goods and services from each other. A trademark can be verbal (e.g. the name of a company or a product), represent a pictorial element (e.g. a company's logo), and three-dimensional elements (especially the original form of packaging or a form of capsules or tablets). Trademark is something that stands for quality of a product or service, it is a symbol of the manufacturer's warranty. One company may have a number of trademarks registered for medicines or dietary supplements, medical equipment, and health care items, etc.

Availability of a registered trademark at the company or a distributor, who represents its products at the pharmaceutical market, allows the company to avoid a fierce competition, and helps the consumers of this trademark to protect and warn themselves from fraud.

The commercial (firm) name is an identifier of the company-producer (distributor) itself rather than specific goods or services (as opposed to trademark). It may be different from the legal name registered in the appropriate state agency, and is legally regulated separately.

## Summary

If the studies of the economical, physical and technological availability are very limited, but they are carried out, then the marketing indicator of availability and the intellectual property component offered by us are not taken into account. Analysis of the marketing and intellectual components requires some research and gathering relevant information of the drug availability model that can be used in the forecast.

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