Social questions, including that of further increasing the efficiency of the national public health system, occupy a prominent place in the tenth five-year plan for the economic and social development of the USSR. A comprehensive program of socioeconomic measures in this field has been decided upon by the Central Committee of the Communist Party of the Soviet Union and the USSR Council of Ministers in a resolution entitled "Measures for Further Improvement of the National Health System."*

The creation of new medicaments, vaccines, and biological preparations, the improvement of the functional properties of drugs already in use, and the broadening and renovation of their nomenclature are the most important problems confronting scientific and industrial workers. During the period of the tenth five-year plan, the issue of more than 200 names of new drugs has to be organized simultaneously with the removal of more than 1500 obsolete names.

Any estimates of the efficiency of expenditure on the development and industrial adoption of new drug production must be based on common methodological principles, as formulated in the new publication "Methods (Basic Principles) for Determining the Economic Effectiveness of the National Utilization of New Techniques, Inventions, and Innovations" [1].

This new publication sets out the methods to be used for estimating economic effectiveness at all stages in the creation and introduction of new techniques and for analyzing their effect on increasing the efficiency of public production. The guiding principle consists in calculating the relative economic effectiveness of expenditure on the creation and introduction of technical innovations, e.g., new production techniques, new objects and products of labor, equipment, materials, etc.

Calculations of the overall economic effect of a new technique with respect to its production and use are based on comparison of corrected expenditures, as determined by a well-known formula using a single norm of relative effectiveness (the limiting equivalent of replacement of running expenditure by capital). The difference between the corrected expenditures on items being compared over one year is regarded as an overall economic saving of production resources (labor, material, and capital input), which is ultimately reflected in an increase in national profit.

However, the realization of these principles as applied to estimating the effectiveness of drugs has a number of special features, an important one being the determination of the components of the economic effect of drug production with respect to their use, i.e., the medical care of the population. This is predetermined by the specific features of the public health sphere itself as a unit of drug utilization, and also by the unique features of drugs as the objects of analysis [2-4].

The consumption of medicaments is generally governed by the sickness rate of the people and by the need to take prophylactic and counterepidemic measures. The main criteria for the socioeconomic effectiveness of drugs consist in the curing of the sick, the eradication and prevention of sickness, the restoration of lost working capacity in the shortest time, and prolonging the active life of the people.

Consequently, the most important preliminary problem in estimating the utilization effectiveness of new, improved drugs which accelerate recovery and prevent sickness is to

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determine the essence and basic components of the economic effect derived from their use. In connection with this, it is first necessary to elucidate the composition of the economic losses and direct expenditure associated with sickness. Preventing and reducing these losses and expenditures is equivalent to increasing the efficiency of utilization of public resources. In addition, we need to validate a system of indices which can be used for quantitative measurement of the components of the economic effect derived from the use of drugs, and to establish sources of initial information for these purposes.

A structural model for the economic effect derived from the use of drugs in medical practice involves: 1) the functional (therapeutic-prophylactic) effect; 2) the social effect; and 3) the economic effect.

**Functional (Therapeutic—Prophylactic) Effect.** This is expressed in terms of the increased efficiency of a drug or combination of drugs compared with their analogs. This type of effect is established preliminarily by clinical trials of the new drug and is subsequently refined during widespread use of the drug in medical practice.

The main criteria for increased therapeutic-prophylactic effect comprise higher functional prescription parameters for the drugs, i.e., biological activity, improved physico-chemical properties, absence (or reduction in) negative side effects, broader activity spectrum, etc. The functional effect derived from the use of a drug for therapeutic or prophylactic purposes serves as an initial basic estimate of its economic and social effect.

**Social Effect.** This is a special combination of humanitarian goals achievable by the use of effective drugs in medical practice. It comprises the prevention and eradication of sickness, the curing of the sick in the shortest possible time, the maintenance and improvement of their level of health, the restoration of their lost capacity for work and returning them to useful work, the prolonging of life, etc.

An increase in the therapeutic-prophylactic effect derived from the action of a new (improved) drug on a person is manifested directly in the prevention of sickness or in a reduction in the number of sicknesses (due to the use of prophylactic drugs) or in a reduction in the time for which the sick are off work (when the more effective drugs are used for curative purposes).

**Economic Effect.** This, when subjected to calculation in the analysis of new and improved drugs, comprises a complex component of their overall effect on the national economy, including: 1) a self-supporting (independent of state financing) economic effect on the sphere of drug manufacture; 2) an economic effect derived from the use of the drug in the public health sector, in the form of a relative saving in the expenditure of society on free treatment, feeding and medical care of patients in medical establishments owing to more rapid recovery; and 3) an effect in the sphere of public industry derived from the elimination (or reduction) of economic losses and supplementary payments due to sickness.

The practical importance of separating the calculations of the effect at the manufacturing end and the consumer end and then adding the components together is that this avoids counting them more than once in determining the overall effect on the national economy, which is defined only on the basis of the use of the objects being analyzed.

The method used to calculate each of the components of the overall economic effect have their own specific features.

**Self-supporting Effect.** The self-supporting effect of the manufacture of a new (improved) drug has to be calculated in accordance with the general principles outlined in the new publication [Section III, Formulas 8 and 15].

The magnitude of the yearly self-supporting effect derived from the issue of a new drug as the object of a new technique (Esp) is calculated from the difference between the increase in profit derived from the manufacture of the new preparation (or dosage form) in the t-th year (ΔP_t) and the proportion of capital input giving rise to it (E_nΔK), which is calculated with the aid of a common normalizing efficiency coefficient (E_n = 0.15):

\[ E_{sp} = \Delta P_t - E_n \Delta K \] (rubles/year). (1)

The increase in profit derived from the manufacture of the new product (drug) is determined by the formula...