An important indicator of efficiency of the innovative activity of a pharmaceutical company is the sales volume of a new drug and the share of the market segment that the drug has. The sales volume characterizes the reaction of customers and the market on the therapeutic effectiveness, compliance with quality and the drug competitiveness [1, 2, 7, 9].

Together with the level of profitability, but low sales form insignificant financial assets. It significantly prolongs the time of investment return, reduces the potential and attractiveness of the market segment and the success of the drug at the market as a whole [3, 7, 9].

When assessing the cost-effectiveness of introduction of a new drug its prime cost and profitability, expected volumes of production and sales for the next 3-5 years, as well as the amount, structure, source of investment, procedure and terms of their use and return are determined [1, 3, 7].

The situation modelling allows predicting the variants for passing financial flows and receiving sums of financial assets, as well as determining financial return of the project.

The decision making regarding the project is based on the summarised analysis of the marketing situation and passing investments in optimistic, pessimistic and the most probable variants [1, 7, 9].

The search for promising market niches for development and introduction of new drugs into production takes into account a comparative drug efficacy and safety, the volume of the market segment and its dynamics, the number of foreign and domestic analogues, the price range, social significance, economic and commercial reasonability [3, 8, 10-12].

The quality of a drug is determined by the system of indicators characterizing the efficacy, safety, physical and economic accessibility, advantages over analogues, convenience and frequency of use, the rate of onset and duration of action, etc. [7, 10-12].

The aim of the work is to substantiate the socio-medical reasonability of development and cost-effectiveness of the combined tablets “Tiotarin”.

**Materials and Methods**

As the study subject a new combined drug for correction metabolic disorders in diabetes mellitus – “Tiotarin” tablets was used [4, 6].

In this paper the marketing, economic, financial research methods were used for substantiation of the socio-medical reasonability, cost-effectiveness and commercial attractiveness of a new drug “Tiotarin”.

**Results and Discussion**

With the help of the SWOT analysis the in-depth study of the peculiarities of “Tiotarin” tablets when us-
The main indicators of business operations according to the combined drug “Tiotarin” project

| Characteristics                      | 1 year | 2 years | 3 years | 4 years | 5 years | Total, UAH |
|--------------------------------------|--------|---------|---------|---------|---------|------------|
| The target sales, thous. packs, in particular: |        |         |         |         |         |            |
| optimistic                           | 12.0   | 25.0    | 66.0    | 91.0    | 120.0   | 314.0      |
| most probable                        | 6.50   | 18.0    | 34.0    | 52.0    | 83.0    | 193.5      |
| pessimistic                          | 3.0    | 12.0    | 21.0    | 36.0    | 62.0    | 134.0      |
| Production prime cost, UAH/pack      | 45.0   | 45.0    | 45.0    | 45.0    | 45.0    | 225.0      |
| The manufacturer’s price, UAH/pack   | 123.0  | 123.0   | 123.0   | 120.0   | 118.0   | 607.0      |
| Discount, %                          | 30     | 25      | 20      | 15      | 15      |            |
| Profit, UAH, in particular:          |        |         |         |         |         |            |
| optimistic                           | 128 850| 371600  | 573 800 | 740 350 | 946 000 | 2 760 600  |
| most probable                        | 85 900 | 232 250 | 305 550 | 435 500 | 688 000 | 1 747 200  |
| pessimistic                          | 68 720 | 139 350 | 174 600 | 340 485 | 516 000 | 1 203 520  |

To encourage distribution it is recommended to use discounts from the price of the manufacturer in the amount of 30% (the first year of the market entry), 25% (the second year) with subsequent reduction to 15%. Fixed costs for the product are identified in the amount of 95 thou. UAH/year. The optimal annual sales of the drug according to the marketing research are predicted only
The main indicators of investments in the development and introduction of the combined drug “Tiotarin” in the manufacture

| Name                                                                 | 1 stage | 2 stage | 1 year | 2 years | 3 years | 4 years | 5 years | Total  |
|---------------------------------------------------------------------|---------|---------|--------|---------|---------|---------|---------|--------|
| 1. Development of the drug and registration dossier, state examination and registration, in particular: | 8.90    | 104.90  |        |         |         |         |         | 113.80 |
| 1.1. Preparatory work                                               | 8.90    |         |        |         |         |         |         | 8.90   |
| 1.2. Research work                                                  | 5.50    |         |        |         |         |         |         | 5.50   |
| 1.3. Evaluation and registration                                    | 99.00   |         |        |         |         |         |         | 99.40  |
| 2. Direct investment in production and promotion, in particular:    | 50.00   | 380.00  | 270.00 | 150.00  |         |         |         | 850.00 |
| 2.1. In fixed assets                                                | -       | -       |        |         |         |         |         |        |
| 2.2. In marketing communications                                    | 50.00   | 250.00  | 150.00 | 60.00   |         |         |         | 510.00 |
| 2.3. In manufacturing inventory                                     | -       | 130.00  | 120.00 | 90.00   |         |         |         | 340.00 |
| 3. Receivables                                                      | 110.00  | 80.00   | 75.00  |         |         |         |         | 265.00 |

from 6.5 (the first year) to the possible 83.0 (the fifth year) thous. packs (Table 1).

The assessment of the financial results of commercial introduction of “Tiotarin” tablets was carried out by modelling the monetary investment financial flows of the project. The calculation of the cash flows was made taking into account changes in the value of money in time as a discount, tendencies of changes in the cost of production, the peculiarities of substitution of the fixed costs, the value added tax, profit tax, etc. To stimulate the promotion and sales of the new drug the special discounts were determined [1, 7, 9].

The first and second stage of development is associated with the development costs, the state examination with clinical trials and registration of the drug “Tiotarin”. The results of modelling (Fig. 1) show that return of the investments for the combined drug “Tiotarin” is predicted beginning from 1 year and 5 months (the optimistic version) and up to 2 year and 6 months (the pessimistic version) from the start of the commercial production and commercial use.

The most likely variant is the return of funds within 2 years and 1 month from the beginning of its commercial sales. In such a case, the period of the mandatory development, the state examination and registration of the drug (prior the commercial time) should be taken into consideration, and it will increase the period of investment over 4 years.

Thus, the comprehensive economic, marketing and financial analyses conducted show an insufficiently attractive investment situation as for the new drug, first of all, concerning the speed of payback of the capital invested in the project at the expense of the low market sale of the drug “Tiotarin” within the first three years.

At the same time high demands of the quality for conducting development and normative documents, significant research intensity under special control of the state branch authorities not only considerably increase the need of the amount of investment, but also prolong their return. In the market conditions the amount of income and profit from the commercial use of the new drug will depend on the volume of its sales. Moreover, it is necessary to achieve the presence of the drug in most pharmacies with its first production batches simultaneously with the active information support of target audiences – physicians, consumers and pharmacists.

The work of the external service of the manufacturer – medical (pharmaceutical) representatives will be important in activating components of marketing communications. The organization or intensification of services in most regions of Ukraine will become a powerful factor in the active implementation of the innovative policy of the enterprise – the manufacturer of a new drug.

For the active capture of the segment of the market and substantial increase in the volume of sales of the new drug “Tiotarin” the Marketing Department of drug manufacturers recommends to increase the amount of investment in marketing communications within the first and second year of its production and create a marketing programme of the complex introduction of the drug.
to the market, as well as management of marketing strategies at the stages of the product life cycle with the programme of the loyalty support of target audiences.

It is possible to save the necessary investments due to additional research and development of projects of documents for the registration dossier by the specialists of the manufacturer based on control of the critical way and deadlines.

According to the conclusions and recommendations of specialists in marketing of drug manufacturers we conducted modelling of variants of additional increase in the amount of investments and their impact on drug sales, the amount of financial flows, profit and the payback period.

The main indicators of investments concerning the drug proposed according to the variant of increase in the amount of investments in marketing communications are given in Table 2.

Therefore, active implementation of marketing communications and work with target audiences will also lead to changes in sales volumes.

The predictive target sales in the new conditions of the marketing strategy are given in Table 3.

The results of modelling of the indicators (Fig. 2) show the greater capture of the segment of the market when introducing a new drug to the market and a rapid further increase of the sales volume and revenue; it significantly enhances both the commercial and the innovative potential of the drug as a commodity.

Already during the first three years the potential sale of the drug “Tiotarin” even according to the pessimistic prediction will be about 130 thous. packs.

Therefore, innovative attractiveness and commercial efficiency of a new combined domestic drug “Tiotarin” in the form of tablets, identification of the components aimed at enhancing the marketing communications, including also the involvement of the external service of the company, on the target audience are confirmed by the refinement conducted by us in the marketing strategy of the manufacturer concerning the new combined drug.

**CONCLUSIONS**

1. Based on scientific and practical approach proposed the socio-medical reasonability, cost-effectiveness and commercial attractiveness of a new drug “Tiotarin” have been substantiated using variants of modern marketing strategies.

2. Based on the revised indicators of investments and predictive sales the models of financial flows for commercial use of a new drug have been evaluated, and its active introduction with the rapid capture of the market, significant sales volumes and revenue has been confirmed. Creation of the through comprehensive marketing programme for introducing the innovative project as an instrument of the project implementation has been recommended.
ОБГРУНТУВАННЯ СОЦІАЛЬНО-МЕДИЦИНСЬКОЇ ДОЦІЛЬНОСТІ РОЗРОБКИ ТА ЕКОНОМІЧНОЇ ЕФЕКТИВНОСТІ ТАБЛЕТКОК «ТІОТАРИН»
Св.М.Коваленко

Ключові слова: інвестиції; економічна ефективність; комерційна привабливість; таблетки «Тіотарін»; соціально-медична доцільність

Вперше з використання системного підходу запропонована комплексна модель для визначення соціально-медичної доцільності, економічної ефективності та комерційної привабливості розробки нового лікарського препарату. Для оцінки фінансових результатів від упровадження у промислове виробництво препарату «Тіотарін» згідно з економічним розрахунком та ринковою кон’юнктурою використані результати прогнозних планових обсягів продажів при оптимістичному, найбільш достовірному та пессимістичному варіантах експертів відділу маркетингу вітчизняних виробників ліків. Запропоновані науково-практичні підходи, які включають маркетингові, економічні, фінансові методи досліджень і метод математичного моделювання, дають можливість обґрунтувати соціально-медичну доцільність, економічну ефективність та комерційну привабливість нового лікарського препарату на основі використання варіантів сучасних маркетингових стратегій. Рекомендовано створення наскрізної маркетингової програми як інструмента його активної реалізації.

ОБОСНОВАНИЕ СОЦИАЛЬНО-МЕДИЦИНСКОЙ ЦЕЛЕСООБРАЗНОСТИ РАЗРАБОТКИ И ЭКОНОМИЧЕСКОЙ ЭФФЕКТИВНОСТИ ТАБЛЕТКИ «ТИОТАРИН»
Св.Н.Коваленко

Ключевые слова: инвестиции; экономическая эффективность; коммерческая привлекательность; таблетки «Тиотарин»; социально-медицинская целесообразность

Впервые с использованием системного подхода предложена комплексная модель для определения социально-медицинской целесообразности, экономической эффективности и коммерческой привлекательности разработки нового лекарственного препарата «Тиотарин». Для оценки финансовых результатов от внедрения в промышленное производство препарата «Тиотарин» согласно экономического расчета и рыночной конъюнктуры использованы результаты прогнозных плановых объемов продаж при оптимистичном, наиболее достоверном и пессимистичных вариантах экспертов отдела маркетинга отечественных производителей лекарств. Предложены научно-практические подходы, которые включают маркетинговые, экономические, финансовые методы исследования и метод математического моделирования, которые дают возможность обосновать социально-медицинскую целесообразность, экономическую эффективность и коммерческую привлекательность нового лекарственного препарата «Тиотарин» на основе использования вариантов современных маркетинговых стратегий. Рекомендовано создание сквозной маркетинговой программы по осуществлению инновационного проекта как инструмента его активной реализации.