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# ANTIHISTAMINES: RESEARCH AND ANALYSIS OF THE REGIONAL RETAIL MARKET

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**The aim.** Focused on optimizing the assortment portfolio of pharmacy organizations and improving the process of drug supply to end-consumers, the aim of the study was to analyze the regional pharmaceutical market for antihistamines.
**Materials and methods.** In the study, the following methods were used: a content analysis of regulatory documents; a documentary observation method of the volume of antihistamines sales; a sociological survey method. The objects of the study were accounting registers in 32 pharmacy organizations for 2020, as well as the sociological survey results of 174 respondents – consumers of antihistamines.
**Results.** The classification analysis of 38 international non-proprietary trade names of antihistamines, represented by 187 names of drugs, revealed the prevalence of the first-generation drugs (63%). On the Russian pharmaceutical market, there were also 55% of foreign production drugs. At the regional level, there are 66 types of drugs in circulation, 50% of which are second-generation ones. The cost analysis showed rather a wide rage of the pricing proposal and the economic availability of antihistamines for patients. The sociological survey revealed the fact that 46% of the consumers were ready to pay for the necessary drugs in the price range "over 100 and up to 500 rubles" (over $ 1.38 and up to $ 6.88) for one conventional package. A medical-demographic profile of the antihistamines consumer at the regional level has been made up, and guidelines for pharmaceutical specialists on managing the assortment portfolio of pharmaceutical organizations have been developed.
**Conclusion.** As a result of the study, the following facts have been established: the seasonal peaks in the antihistamines consumption; a gradual renewal of the pharmacies assortment portfolio due to the increased consumption of the second and third generation antihistamines. The medical and demographic profile of the consumer should be taken into consideration when planning a drug provision for the patients with allergic pathologies, and it is connected with the growth in pharmacies profits due to the sale of drugs in the range from 100 to 500 rubles (from $ 1.38 to $ 6.88). The methodical recommendations have been brought to the attention of the management of regional pharmacy organizations.
**Keywords:** antihistamines; pharmaceutical market; pharmacy organizations; assortment portfolio; end-consumers
**Abbreviations:** AHMPs – antihistamine medicinal preparations; MP – medicinal preparation; INN – international non-proprietary name; CMW – Caucasian Mineral Waters; VEM – vital and essential medicines.

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# ИССЛЕДОВАНИЕ И АНАЛИЗ РЕГИОНАЛЬНОГО РОЗНИЧНОГО РЫНКА АНТИГИСТАМИННЫХ ЛЕКАРСТВЕННЫХ ПРЕПАРАТОВ

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**Цель.** Анализ регионального фармацевтического рынка антигистаминных препаратов, направленный на оптимизацию ассортиментного портфеля аптечных организаций и совершенствование процесса лекарственного обеспечения конечных потребителей.

**Материалы и методы.** В исследовании использовались: контент-анализ нормативных документов; метод документального наблюдения за объемами реализации антигистаминных препаратов; метод социологического опроса. Объектом исследования служили регистры бухгалтерского учета в 32-х аптечных организациях за 2020 г., а также результаты социологического опроса 174 респондентов – потребителей антигистаминных лекарственных препаратов.

**Результаты.** Классификационный анализ 38 международных непатентованных наименований антигистаминных лекарственных средств, представленных 187 наименованиями препаратов, выявил превалирование на российском фармацевтическом рынке препаратов первого поколения (63%), зарубежного производства (55%). На региональном уровне в обращении находится 66 наименований лекарственных препаратов, из которых 50% составляют препараты второго поколения. Анализ стоимости показал достаточную широту ценового предложения и экономическую доступность антигистаминных препаратов для пациентов. Социологический опрос выявил, что 46% потребителей готовы платить за необходимые препараты в ценовом диапазоне «свыше 100 и до 500 рублей» (свыше 1,38$ и до 6,88$) за одну условную упаковку. Сформирован медико-демографический портрет потребителя антигистаминных лекарственных препаратов на региональном уровне и разработаны методические рекомендации для фармацевтических работников по управлению ассортиментным портфелем аптечных организаций.

**Заключение.** В результате исследования установлены сезонные пики потребления антигистаминных препаратов; постепенное обновление ассортиментного портфеля аптек за счет роста потребления антигистаминных препаратов второго и третьего поколений; рост прибыли аптек идет за счет продаж препаратов в диапазоне от 100 и до 500 рублей (от 1,38$ и до 6,88$); медико-демографический портрет потребителя следует использовать при планировании лекарственного обеспечения пациентов с аллергическими патологиями. Методические рекомендации доведены до руководства региональных аптечных организаций.

**Ключевые слова:** антигистаминные лекарственные препараты; фармацевтический рынок; аптечные организации; ассортиментный портфель; конечные потребители

**Список сокращений:** АГЛП – антигистаминные лекарственные препараты; ЛП – лекарственный препарат; МНН – международное непатентованное наименование; ЖНВЛП – жизненно необходимые и важнейшие лекарственные препараты; КМВ – Кавказские Минеральные Воды.

## INTRODUCTION

Currently, pathologies of an allergic nature represent a serious medical and social problem due to the constantly growing list of allergens, impending environmental problems, global climatic changes, migration flows of large masses of people, the emergence of new features in the nature and course of allergic reactions, and others [1]. According to the White Book on Allergy of the World Allergy Organization (WAO)[1], among the entire population of the planet, up to 40% of people are susceptible to at least one sensitizing agent, and 10 to 30% of them from suffer from allergic irritation of the upper respiratory tract (including rhinitis), up to 10% – from allergic reactions to drugs. Urticaria, in the form of the eruption (rashes on the body), significantly reduces

[1] WAO White Book on Allergy 2013. Available from: https://www.worldallergy.org/UserFiles/file/WhiteBook2-2013-v8.pdf

the quality of life, and occurs at least once during a lifetime in 20% of people [2–4].

According to "The All-Russian Public Opinion Research"[2], about 26% of Russians suffer from allergic diseases, the etiology of which is a contact with natural plant allergens (pollen or plant fluff). Almost all of them use special drugs, and one in five is monitored by a doctor. A great number of factors affecting the prevalence of various types of allergic diseases in adults and children are known to Russian medical science and practices. The combination of these factors leads to a permanent increase in morbidity, increased disability and mortality, as well as significant economic costs for the treatment and prevention of allergies [5].

The main group of pharmacotherapeutic agents used for the prevention and treatment of allergic diseases is AHMPs, the range of which is represented on the Russian pharmaceutical market by a wide range of trade names. In such a situation, medical specialists do not always correctly prescribe necessary AHMPs, thereby causing unreasonable polypragmasy, which contributes to the deterioration of the patients' healths [6]. Allergic pathologies prevent patients from leading an active social mode of life, as well as negatively affect their working capacity and life in general, leading to constant ailments of a chronic or seasonal nature [7, 8]. On the other hand, the current situation on the pharmaceutical market also complicates the work of pharmaceutical specialists in the formation of an optimal pharmacy assortment, which should positively affect the amount of income of a pharmacy organization. The optimal range of drugs in pharmaceutical retail facilities is one of the main components of the drug supply system for the population and, which is important, it plays a decisive role in ensuring the competitiveness of pharmacy organizations under the market conditions [9–11]. At the same time, this assortment is not frozen or constant; it must be continuously changed and improved to maintain the socially necessary level of drug consumption by the population [12, 13]. Improving the mechanisms for organizing a drug provision should be considered as elements of the pharmaceutical safety system in our country and the safety of pharmaceutical services provided by pharmacy organizations to the population [14, 15].

Focused on optimizing the assortment portfolio of pharmacy organizations and improving the process of drug supply to end-consumers, **the aim** of the study was to analyze the regional pharmaceutical market for antihistamines.

Research objectives:

1. Explore the basic AHMPs assortment in the circulation on the Russian pharmaceutical market.

2. Analyze the actual assortment to carry out research on the AHMPs consumer market at the level of regional pharmacy organizations.

3. Substantiate the medico-pharmaceutical profile of the regional AHMPs consumer.

4. Formulate scientifically grounded proposals for optimizing the assortment portfolio of pharmacy organizations according to the AHMPs nomenclature at the regional level.

## MATERIALS AND METHODS

### Research objects

The object of the study was the data on the presence and movement of AHMPs in pharmaceutical retail entities for 2020, as well as the results of a sociological study of AHMPs consumers, carried out in pharmacy organizations.

The experimental part of the work was carried out on the basis of 32 pharmacies serving about 140 thousand people living in the cities of Pyatigorsk, Yessentuki and Kislovodsk in the CMW region, located on the territory of the Stavropol Territory – a subject of the Russian Federation.

### Research methods

During the study, the following methods have been used: the content analysis of the research papers on the AHMPs pharmaceutical, as well as regulatory legal documents governing the civil circulation of AHMPs in the Russian Federation. Various electronic sources of information were used as an empirical base, including Russian scientific electronic libraries: eLIBRARY.RU; CyberLeninka; National Electronic Library (NEB); State Public Scientific and Technical Library (SPSL); Russian State Library (RSL). Besides, archives of scientific works of the Higher Attestation Commission of the Ministry of Science and Higher Education of the Russian Federation; international scientometric databases SCOPUS, Web of Science, Chemical abstract, Pubmed and others, have also have been used. The search was carried out by screening the texts by selected keywords (antihistamines, allergic diseases, pharmacy organizations, assortment portfolio, end-consumers), followed by studying the content of the selected works for compliance with the research topic.

The content analysis of regulatory legal documents was carried out using the "Consultant Plus" legal reference system, which provides the relevant texts of the required documents. Regarding the studied AHMPs nomenclature, the juridical documents regulating the circulation of medicines in the Russian Federation, i.e. "The vital and essential medicines" (VEM) and "The minimum range of drugs necessary for the provision of medical care" (further, minimum range of drugs), approved by the Order of the Russian Federation Government dated October 12, 2019 No. 2406-r for 2021, were analyzed[3]. In addition, the State Register of Medicines, posted on

[2] TASS. Available from: https://tass.ru/obschestvo/6448616

[3] On the approval of the list of vital and essential medicines for 2020, as well as the lists of medicines for medical use and the minimum range of medicines required for the provision of medical care: Order of the Government of the Russian Federation of 12.10.2019, No. 2406-r (as amended. and additional, entered into force on 01.01.2021). Available from: http://www.consultant.ru/cons/cgi/online.cgi. Russian

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the official website of the Ministry of Health of the Russian Federation, was used to analyze the Russian pharmaceutical market[4].

The method of documentary observation was used to study the volumes of AHMPs retail sales to end-consumers. In value terms, the required data were selected from the accounting registers of pharmaceutical organizations, which had been used as an experimental data base for the study.

The classification analysis of medicinal preparations used in the pharmacotherapy of allergic pathologies was used according to the standard technique; the attitude of the studied drugs to different generations, the countries in which their industrial production and medicinal preparations are localized, were identified as the main classification signs of AHMPs.

A sociological survey of visitors to pharmacy organizations was used to study the regional AHMPs consumer market. For this, a special questionnaire had been developed (Table 1), which contained the questions related to socio-demographic and medico-pharmaceutical data.

A sociological study was carried out during May-September 2020 on the basis of pharmacy organizations selected as an experimental base. The selection of respondents was conducted by a continuous sampling method, when the specialists of the "first department" suggested that all end-users who purchased AHMPs should go through a voluntary anonymous questionnaire, the results of which formed the basis of the experimental part of the study. The survey involved 174 respondents.

## RESULTS AND DISCUSSION

The carried out content analysis of the scientific publications made it possible to establish that the features of the AHMPs pharmaceutical market had been studied in detached regions of Russia [16-18]. A fairly large body of research on the characteristics of the drug therapy for allergic diseases is regularly carried out in the Russian Federation [19-21] and abroad [22-24]. Over the past period, the range of AHMPs has been significantly updated and expanded.

Herewith, new methodological approaches to the formation of the assortment portfolio of pharmacy organizations were not developed. In addition, each region of Russia has its own distinctive features in terms of the diseases spread, the effective demand of the population and the quality of pharmaceutical consulting. On the regional pharmaceutical market of resort cities of the CMW region of the Stavropol Territory, no full-fledged studies devoted to improving the management of the assortment policy at the level of pharmacy organizations, using the example of AHMPs, have been carried out. That determines the scientific relevance and practical significance of the present work.

[4] State Register of Medicines / Official website of the Ministry of Health of Russia 2021. Available from: https://grls.rosminzdrav.ru/Default.aspx. Russian

The content analysis of the State Register of Medicines revealed 38 INNs of medicines registered in the Russian Federation and used in the prevention and treatment of allergic diseases. They are represented by 187 trade names of medicinal preparations from various manufacturing organizations, dosages and dosage forms. The list of antihistamines registered in the Russian Federation is presented by three generations (Table 2).

Among the 38 registered INNs, the share of antihistamine drugs belonging to the first generation is 63%; to the second – 32%; to the third – 5% of the total number of the trade names.

In the course of the classification analysis on the basis of the localization of the organization-manufacturer of medicines, it was established that foreign-made drugs prevail among AHMPs (55%), the drugs produced at Russian pharmaceutical enterprises accounted for 45% of the total number of INNs. The main volumes of AHMPs supplies to the pharmaceutical market are accounted for 47 Russian drug manufacturers. The number of importers of AHMPs to the Russian Federation tends to decrease; at the time of the study, the supply of AHMPs to the Russian pharmaceutical market was carried out by drug manufacturing organizations from 19 countries. India has been holding the leading position for many years, while its share is about 22% of the total import AHMPs supplies. The leading Western European drug manufacturers come next: Switzerland – 11%, Hungary – 10% and Germany – 5%. In addition to these countries, the supply of AHMPs to Russia is carried out by Slovenia, Bulgaria, Israel and other countries.

On the basis of the dosage form release, it was determined that the most demanded AHMPs are in the form of a variety of tableted dosage forms. Their share is about 48% of the total number of dosage forms. As before, dosage forms in the form of solutions for injections are still relevant for use in the clinic of emergency and urgent medical care, their share is about 18%. Recently, AHMPs have been gaining popularity in the form of such liquid dosage forms as suspensions, solutions and syrups for internal use (16%), and dosed aerosols (11%). In addition, the popularity of antiallergic drugs produced in the form of nasal and eye drops, sprays and ointments does not decrease, their share is 7%.

Further on, according to the studied AHMPs nomenclature, the judicial documents regulating the circulation of medicines in the Russian Federation were analyzed, i.e.: VEM and minimum range of drugs, established for 2021 (Table 3).

As evidenced by the data in Table 3, VEM and minimum range of drugs include only 4 and 2 INNs, respectively, of the entire range of the antihistamines, in various dosage forms. They are represented by 22 medicinal preparations, 2 of which are the third generation medicinal preparations, 18 are the second generation and 2 are the first generation.

**Table 1 – Questionnaire of patient with allergic pathology**

| Question formulation | Respondents' answer options |
|---|---|
| 1. Sociodemographic data | |
| 1.1. Specify your gender | – male<br>– female |
| 1.2. Specify your age (number of full years) | – up to 20 years old inclusive<br>– from 21 to 30<br>– from 31 to 40<br>– from 41 to 50<br>– from 51 and older |
| 1.3. Where do you live? | – up in town<br>– in rural areas |
| 1.4. What is your education? | – secondary general<br>– vocational secondary<br>– higher |
| 2. Medical-pharmaceutical data | |
| 2.1. How long have you been suffering from an allergic disease? | – less than 2 years<br>– from 2 to 5 years<br>– more than 5 years |
| 2.2. How often do you seek medical help for an allergic disease? | – "I never apply"<br>– "I apply only in urgent cases"<br>– "I always apply" |
| 2.3. What clinical manifestations of allergies do you encounter? | – rhinorrhea<br>– lacrimation<br>– skin rashes<br>– skin itching<br>– other |
| 2.4. 2.4. What sources of information about antihistamines do you use? | – medical and pharmaceutical specialists<br>– relatives and acquaintances<br>– internet<br>– medical literature<br>– mass media |
| 2.5. What influences your choice when buying the drug you need? | – recommendations of medical and pharmaceutical specialists<br>– recommendations of friends<br>– personal experience<br>– the price of the drug |
| 2.6. Which of the characteristics of the drug has a prevailing influence on you when choosing it? | – manufacturing organization<br>– efficiency<br>– mode of application<br>– no side effects<br>– the price of the medicinal preparation |
| 2.7. What price for the required antihistamine are you willing to pay for one conventional package? | – up to 100 rubles (up to $ 1.38)[5]<br>– over 100 to 500 rubles (over $ 1.38 to $ 6.88)<br>– over 500 rubles (over $ 6.88) |

**Table 2 – Antihistamines on the Russian pharmaceutical market**

| Antihistamines accordingt o INNs | | |
|---|---|---|
| First generation | Second generation | Third generation |
| 1. Alimemazine | 1. Azelastine | 1. Fexofenadine |
| 2. Antazoline | 2. Akrivastin | 2. Cetirizine |
| 3. Bromodiphenhydramine | 3. Астемизол | |
| 4. Brompheniramine | 4. Бамипин Bamipin | |
| 5. Hydroxyzine | 5. Dimetindene | |
| 6. Dexchlorpheniramine | 6. Desloratadine | |
| 7. Dimenhydrinate | 7. Cromoglycic acid | |
| 8. Diphenhydramine | 8. Mizolastine | |

[5] At the rate of the Central Bank of Russia as of 01.07.2021 – 72.72 rubles. for 1 US dollar.

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| Antihistamines accordingt o INNs | | |
|---|---|---|
| First generation | Second generation | Third generation |
| 9. Doxylamine | 9. Oxatomide | |
| 10. Quifenadine | 10. Terfenadine | |
| 11. Xylomethazolin hydrochloride | 11. Ebastin | |
| 12. Mebhydrolin | 12. Epinastine | |
| 13. Meclizine | | |
| 14. Mepiramine | | |
| 15. Oxomemazine | | |
| 16. Pyrilamine | | |
| 17. Promethazine | | |
| 18. Sevifenadine | | |
| 19. Trimeprazine | | |
| 20. Pheniramine | | |
| 21. Chloropyramine | | |
| 22. Chloropheniramine | | |
| 23. Cyclizine | | |
| 24. Cyproheptadine | | |

**Table 3 – Antihistamines in VEM and minimum range of drugs**

| ATC-code | Group name according to ATC classification | INN | Dosage form |
|---|---|---|---|
| 1. Vital and Essential Medicines | | | |
| R06AA | alkylamine esters | diphenhydramine | solution for intravenous and intramuscular administration; pills |
| R06AC | substituted ethylenediamines | chloropyramine | solution for intravenous and intramuscular administration; pills |
| R06AE | piperazine derivatives | cetirizine | drops for oral administration; syrup; film-coated tablets |
| R06AX | other antihistamines of systemic action | loratadine | syrup; oral suspension; pills |
| 2. Minimum range of medicines necessary for provision of medical care | | | |
| R06AC | substituted ethylenediamines | chloropyramine | solution for intravenous and intramuscular administration; pills |
| R06AX | other antihistamines of systemic action | loratadine | syrup; oral suspension; pills |

**Table 4 – Antihistamine sales volumes in 2020**

| Month | Sales volume per month | | Share of total annual sales volume, % | Sales quarter volume | | Share of total annual sales volume, % |
|---|---|---|---|---|---|---|
| | rub. | $ | | rub. | $ | |
| January | 827 228,59 | 11 375,53 | 7,8 | 2 357 875,38 | 32 424,03 | 22.33 |
| February | 721 475,12 | 9 921,28 | 6,8 | | | |
| March | 809 171,67 | 11 127,22 | 7,7 | | | |
| April | 910 097,56 | 12 515,09 | 8,6 | 2 994 956,98 | 41 184,78 | 28.36 |
| May | 1 042 776,36 | 14 339,61 | 9,9 | | | |
| June | 1 042 083,06 | 14 330,08 | 9,9 | | | |
| July | 874 039,77 | 12 019,25 | 8,3 | 2 949 921,83 | 40 565,48 | 27.94 |
| August | 1 166 084,11 | 16 035,26 | 11,1 | | | |
| September | 909 797,95 | 12 510,97 | 8,6 | | | |
| October | 774 654,34 | 10 652,56 | 7,3 | 2 256 337,87 | 31 027,75 | 21.37 |
| November | 725 095,54 | 9 971,06 | 6,8 | | | |
| December | 756 587,99 | 10 404,13 | 7,2 | | | |
| Total | 10 559 092,06 | 145 202,04 | 100,0 | 10 559092,06 | 145 202,04 | 100.0 |

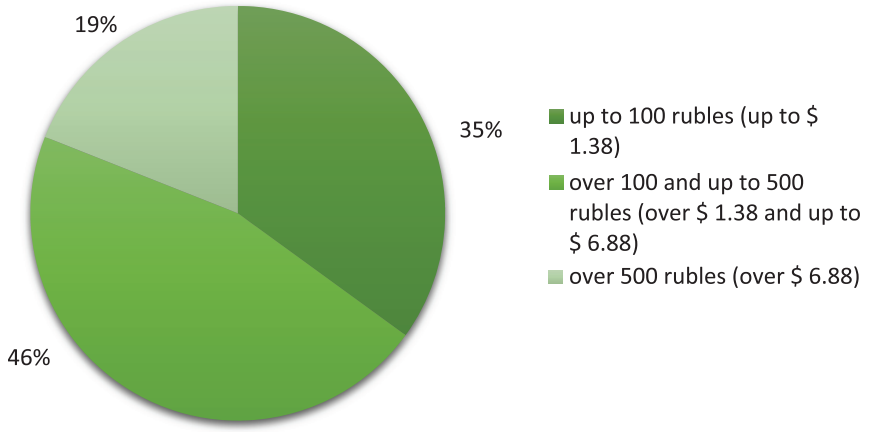


**Figure 1 – Distribution of respondents' survey results about price preferences, %**

Thus, it is possible to say that there is a necessary and sufficient range of AHMPs in circulation on the Russian pharmaceutical market, which ensures the provision of a full-fledged pharmacotherapeutic assistance to the patients suffering from allergic pathologies.

Further on, on the basis of 32 pharmacy organizations, the actual assortment of AHMPs was investigated. It includes 66 names of drugs in various dosages and dosage forms that are in circulation on the regional pharmaceutical market. It was established that pharmaceutical organizations have the AHMPs included in the VEM, which ensures the state regulation of the maximum selling prices for these drugs. In addition, the institutional requirements for the availability of AHMPs in the distribution network included in the minimum range of drugs, are fully met. As a result of the analysis, it was notified that the stocks of regional pharmaceutical retail organizations fully ensure the economic and physical accessibility of drugs for the prevention and treatment of allergic diseases to the general population.

The classification analysis of the regional pharmaceutical market of AHMPs in terms of their creation time, state registration and being in civil circulation, determined their belonging to three generations of anti-allergic drugs.

18 drugs of the 66 studied, belong to the first generation (27.5% of the total), 33 (50%) to the second and 15 (27.5%) to the third one. The overwhelming presence of second-generation AHMPs in pharmaceutical retail subjects indicates a clear reorientation of end-users to relatively new drugs that have undeniable pharmacotherapeutic advantages of new ones in comparison with the first-generation drugs.

Using the method of documentary observation of the availability and movement of material and monetary funds in the accounting registers, the sales volumes of AHMPs in 32 surveyed pharmacy organizations for 2020 by months and quarters have been determined (Table 4).

The data of Table 4 clearly demonstrate the growth in the sales of AHMPs depending on the seasons and periods of "pollen" plants blossom-time characteristic of the CMW region [25, 26]. In connection with the beginning of blossom- and pollination time of plants, the "peak" of AHMPs sales was registered in the spring-summer period (from April to September).

When analyzing the cost range of the AHMPs presented on the regional pharmaceutical market, it was found out that it was in the range of 30.92 rubles. ($ 0.43)[6] for one package (mebhydrolin 50 mg per pill, No. 10 per package) up to 787.67 rubles. ($ 10.83) per package (desloratadine 5 mg per tablet, No. 30 per package). The data obtained made it possible to distribute all AHMPs into three price subgroups: I – costing up to 100 rubles (up to $ 1.38); II – over 100 and up to 500 rubles (over $ 1.38 and up to $ 6.88); III – over 500 rubles (over $ 6.88) for one conventional package.

The first price subgroup (I) included 23 trade names of drugs, which accounted for 34.8% of the sold range of drugs in this group. The drug mebhydrolin presented in 14 dosages and dosage forms, prevails here. The price of mebhydrolin varies from 35.23 rubles ($ 0.48) up to 71 rubles ($ 0.98) per package, depending on the manufacturing organization and dosage. Patients' adherence to the purchase of mebhydrolin 100 mg in pills, No. 10 per package, should be notified; more than 2900 packages of mebhydrolin were sold during the study period.

In addition to Mebhydrolin, this subgroup includes such frequently sold drugs as xylometazoline in the form of a 0.1% nasal spray, 10 ml in a vial; cromoglycic acid in the form of 2% eye drops, 10 ml in a vial. For a complete satisfaction of patients' preferences, it is necessary to constantly have these drugs in the assortment of pharmacy organizations. As a rule, the affordable price of AHMPs for a patient is the propulsion source of a spontaneous and quick purchase, which has a positive effect on the pharmacy organization's revenue.

The second price subgroup (II) included 37 names of drugs (56.06% of the total number of trade names). The most popular drugs were: chloropyramine tablets, No. 20 per pack; dimetindene, 30 (50) g per tube; cro-

[6] At the rate of the Central Bank of Russia as of 01.07.2021 – 72.72 rubles. for 1 US dollar.

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moglycic acid 2%, 15 ml, aerosol. In this price subgroup, AHMPs are presented in a wide variety of dosage forms: sprays, eye drops, tablets, gels, emulsion creams, which creates preferable conditions for the consumer when choosing the most convenient dosage form at an acceptable cost.

The third price subgroup (III) included 6 drugs (9.09% of the total number of trade names). This group includes the third generation AHMPs (fexofenadine and cetirizine), an important difference of which is the absence of such a side effect as sedation.

The conducted cost analysis of the regional AHMPs pharmaceutical market showed a sufficient range of the price offer, which, against the background of the current economic availability, fully meets the needs of the patients suffering from allergic pathologies.

The data obtained after generalizing and analyzing the questionnaires of the respondents indicate that women prevail among the users of AHMPs (62%). Most of all, AHMPs are purchased by the consumers from the third age category (from 31 to 40 years old) – 56%, followed by the representatives of the second age category (from 21 to 30 years old) – 25%, 15% is accounted for the fourth age category (from 41 to 50 years old). Among the surveyed respondents, the smallest number of consumers entered the first (under 20 years old) and fifth (over 51 years old) age categories, their shares amounted to 1% and 3%, respectively.

Urban residents make up 58% of the number of respondents. Among the respondents, persons with higher education accounted for 33%, vocational secondary – 41%, secondary general – 26%.

The results of the respondents' survey concerning medical-pharmaceutical issues showed that most often, the allergic disease is chronic – it lasts more than 5 years (69%), 22% of respondents suffer from allergies from 2 to 5 years, and only 9% of the respondents notify their allergic manifestations for less than 2 years.

In terms of the frequency of applying for medical care, the respondents' answers were distributed as follows: "I never apply" – 84%; "I apply only in urgent cases" – 10%; "I always apply" – 6%.

Among the respondents, the following clinical manifestations of allergy prevailed: rhinorrhea – 28%; lacrimation – 31%; skin rashes – 16%; skin itching – 14%; other – 11%.

The information sources about AHMPs, used by their consumers, were distributed in the following sequence: relatives and friends – 30%; medical and pharmaceutical workers – 27%; internet – 15%; mass media – 18%; medical literature – 10%.

On buying the necessary medicinal preparation, the influence on its choice is exerted by: recommendations of medical and pharmaceutical specialists – 22%; recommendations of friends – 12%; personal experience – 35%; the price of the drug – 31%.

The results of the survey showed that for consumers, the most significant characteristics of AHMPs that affect their choice are: the price – 37%, the efficiency – 34%, the absence of side effects – 22% and a manufacturing organization – 7%.

The willingness of consumers to pay for the appropriate AHMPs showed that they give a price preference to the drugs in the price range "over 100 and up to 500 rubles" (over $ 1.38 and up to $ 6.88) for one conventional package (Fig. 1).

The generalized data of the sociological survey made it possible to form a medical and demographic profile of the AHMPs end-consumer at the regional level. Therefore, the average AHMPs end-consumer is a person predominantly of a female sex (62%), belonging to the age group from 31 to 40 years old (56%), living up in town (58%), and having a vocational secondary education (41%). Such people suffer from an allergic disease for more than 5 years (69%); practically do not apply for medical help (84%), with the most common clinical manifestation of allergy in the form of lacrimation (31%). They usually take information about AHMPs from communication with relatives and friends (30%), relying on the choice AHMPs, mainly based on personal experience (35%), take into account the price (37%) when choosing a drug. In addition, they are ready to pay for the necessary drug in the price range "over 100 and up to 500 rubles" (over $ 1.38 and up to 6, $ 88) for one conventional package (46%).

## CONCLUSION

Based on the research conducted, methodological recommendations in the form of an information letter for pharmaceutical workers involved in the formation of an assortment portfolio of pharmacy organizations, have been prepared. They can be presented in the form of basic theses:

– pronounced seasonal peaks in the AHMPs consumption associated with the periods of "pollen" plants blossom-time in the CMW region, have been established, and these require the creation of a current stock of drugs to meet the increasing volumes of their consumption;

– the analysis of the federal and regional market supply for the nomenclature of the drugs aimed at the prevention and treatment of allergic diseases, indicates the dynamics of the first AHMPs generation displacement from the assortment portfolio of pharmaceutical organizations, and that makes it possible to focus purchases on the second and third drugs generations with their active promotion on the pharmaceutical market using various marketing technologies (merchandising, advertising on the Internet and in the media, etc.);

– a study of the AHMPs sales volumes revealed that the bulk of the pharmacy organizations profits comes from the drugs sale of the second price subgroup – "over 100 and up to 500 rubles" (over $ 1.38 and up to $ 6.88) for one conventional package. The medicines of this par-

ticular price subgroup are ready to be purchased by a potential end-user. This situation can serve as an economic benchmark for pharmaceutical specialists who manage the assortment portfolio of a pharmacy organization;

– the formed medical and demographic profile of the average consumer makes possible predicting the AHMPs consumption at the regional level and planning the distribution of funds for their purchases in order to maintain the socially necessary level of the drug consumption at the regional level.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

## AUTHORS' CONTRIBUTION

Viktoria V. Prokopenko – data collecting, conducting an experiment, analyzing and interpreting the data obtained, preparing a manuscript draft, literature analysis; Taisiya I. Kabakova – study planning, participation in the concept development and study design; Maxim V. Chernikov – final approval of the manuscript publication, processing of the results obtained, verification of critical intellectual content; Andrey B. Goryachev – literature search and analysis, writing and execution of the final manuscript version, tracking the article publication; Svetlana A. Mikhailova – description and analysis of the results obtained, manuscript writing and its final publication approval; Olga I. Knysh – manuscript writing, a critical research analysis.

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