

## STRUCTURAL ANALYSIS OF PROFESSIONAL PHARMACEUTICAL INTERNET-RESOURCES

The current information field, taking into account the number of streams of information and its sources, necessitates the evaluation and combination of available resources of the pharmaceutical market with the content, the level of reliability, relevance and timeliness of information provision, its completeness, sufficiency, etc.

**Aim.** To systematize and categorize Internet information sources in Ukraine as an applied marketing tool to increase the efficiency of the activities and improve the quality of pharmaceutical care to the population.

**Results.** In the article analyzed and categorized information flows available to specialists for more effective use of information and the formation of a system of loyalty to various sources. Analyzed the main Internet resources of marketing pharmaceutical information that are accessible and popular among pharmacists, proposed their classification. Analyzed the statistics of visits to the main Internet resources of the pharmaceutical field.

**Conclusions.** Divided the main Internet resources into 5 categories, analyzed the content of each of them. Proposed the cycle of analysis of professional information on the Internet and highlighted the main directions of further research.

*Key words:* sources of information, Internet resources, marketing researches, databases

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### СТРУКТУРНИЙ АНАЛІЗ ПРОФЕСІЙНИХ ФАРМАЦЕВТИЧНИХ ІНТЕРНЕТ-РЕСУРСІВ

Сучасне інформаційне поле, враховуючи кількість потоків інформації та її джерел, зумовлює необхідність оцінювання і поєднання фахівцями фармацевтичного ринку наявних ресурсів за змістовим наповненням, рівнем достовірності, актуальності та своєчасності надання інформації, її повноти, достатності тощо.

**Метою роботи** є систематизація і категоризація інформаційних Інтернет-джерел в Україні як прикладного маркетингового інструменту для збільшення ефективності діяльності і підвищення якісної складової фармацевтичної допомоги населенню.

**Результати.** У статті проведено аналіз і категоризацію інформаційних потоків, доступних фахівцям для більш ефективного використання інформації і формування системи лояльності до різних джерел. Проаналізовані основні інтернет-ресурси маркетингової фармацевтичної інформації, які є доступними і популярними серед спеціалістів фармації, запропоновано їх класифікацію. Проаналізована статистика відвідувань основних інтернет-ресурсів фармацевтичного спрямування.

**Висновки.** Основні інтернет-ресурси розподілені на 5 категорій, проаналізований зміст контенту кожної з них. Запропоновано цикл аналізу професійної інформації в Інтернеті та виділені основні напрямки подальших досліджень.

*Ключові слова:* джерела інформації; інтернет-ресурси; маркетингові дослідження; бази даних

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### СТРУКТУРНЫЙ АНАЛИЗ ПРОФЕССИОНАЛЬНЫХ ФАРМАЦЕВТИЧЕСКИХ ИНТЕРНЕТ-РЕСУРСОВ

Современное информационное поле, учитывая количество потоков информации и ее источников, обуславливает необходимость оценки и распределения специалистами фармацевтического рынка имеющихся ресурсов по смысловому наполнению, уровню достоверности, актуальности и своевременности предоставления информации, ее полноте, достаточности и т. д.

**Целью работы** является систематизация и категоризация информационных интернет-источников в Украине как прикладного маркетингового инструмента для увеличения эффективности деятельности и повышения качественной составляющей фармацевтической помощи населению.

**Результаты.** В статье проведен анализ и категоризация информационных потоков, доступных специалистам для более эффективного использования информации и формирования системы лояльности к различным источникам. Проанализированы основные интернет-ресурсы маркетинговой фармацевтической информации, которые доступны и популярны среди специалистов фармации, предложена их классификация. Проанализирована статистика посещений основных интернет-ресурсов фармацевтического направления.

**Выводы.** Основные интернет-ресурсы распределены на 5 категорий, проанализировано содержание контента каждой из них. Предложен цикл анализа профессиональной информации в Интернете и выделены основные направления дальнейших исследований.

**Ключевые слова:** источники информации; интернет-ресурсы; маркетинговые исследования; базы данных

### STATEMENT OF THE PROBLEM

One of the peculiarities of the modern pharmaceutical market in Ukraine is a large and at the same time limited amount of information. On the one hand, we have access to any resource, and on the other hand, there is no set of indicators, especially statistics, regarding the health system, the pharmaceutical market, independent information on the use of medicines, data of the activities of participants in the pharmaceutical market (production, wholesale and pharmacy organizations) and other. At the same time, the factor of successful development of each organization is the use of information and communication technologies, both for interaction with clients and suppliers, as well as the basis of internal management processes. Such a situation has led to the emergence of a number of issues that are necessary to resolve, it is the search for relevant information, its accumulation, sorting, categorization according to certain criteria, storage in conditions of optimization of resources, the formation of a system for rapid processing of requests, etc.

The market for information products and information services is constantly expanding and changing, that is why pharmaceutical companies faced with the problem of choosing the best information resources that can satisfy most of the information needs.

In view of this situation, it is necessary a study on existing information sources and professional opportunities for their use in pharmaceutical organizations.

The basis of the research methodology is the systematic approach to the analysis of the structural characteristics of the information flows of the Ukrainian pharmaceutical market.

The objects of the study were professional information resources used in marketing activities of pharmaceutical companies.

In the process of research used the following methods: system approach, comparative, structural-logical analysis, analytical grouping of data.

### ANALYSIS OF RECENT RESEARCHES AND PUBLICATIONS

In foreign literature today dealt with the beginning of the formation of a majority government programs to create a common information space in the health and social development. In the framework

of implementation of these projects, monitoring of the level of automation of health care organizations carried out, indicators are determined: equipment of the PC, availability of access to the Internet, level of skills of using the PC of medical and pharmaceutical workers, etc. [1].

Analysis of literary sources showed that at various times the researchers considered issues in the field of pharmaceutical information (A. S. Nemchenko, G. V. Shashkova, O. V. Posilkina), informatization of medical care to the population and development of information systems (Z. M. Mnushko, V. M. Tolochko, Yu. P. Medvedeva, L. V. Moshkova), informational activity and information environment of the pharmacy (I. V. Olkhova, I. G. Grinchuk, M. P. Tymoshchuk), marketing and advertising information (N. B. Dremova, O. M. Yevtushenko), informational support of OTC leave (B. P. Gromovik, A. A. Kotvitska, A. V. Soloninina), Peculiarities – of marketing research in pharmacy (I. V. Pestun).

### IDENTIFICATION OF ASPECTS OF THE PROBLEM UNSOLVED PREVIOUSLY

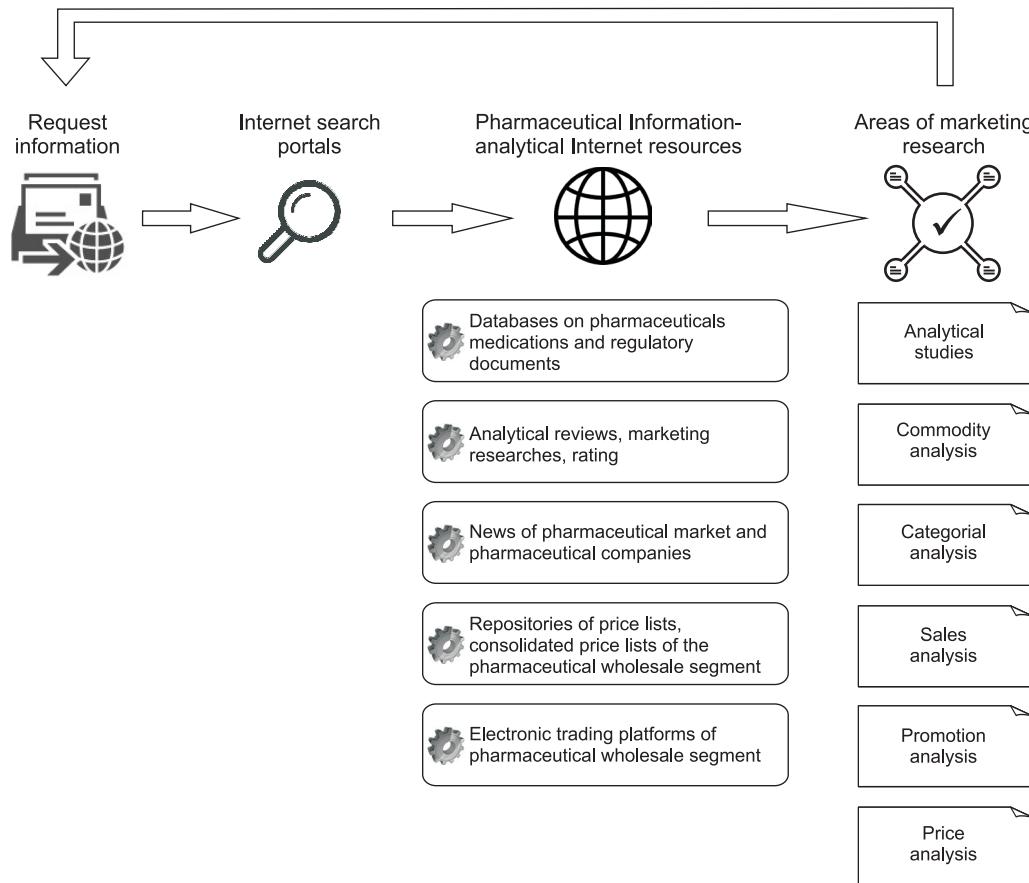
Over the last decade, the information sphere has changed globally, transformed its capabilities, boundaries and technologies. However, systematic approaches to assessing its potential and its use in the management process require constant improvement taking into account time requirements. Works on improvement the effective information of pharmaceutical companies activities, its scope and value optimization are not sufficiently represented. At the same time the continuous development of information and communication technologies on the background of rapid aging of existing developments.

### OBJECTIVE STATEMENT OF THE ARTICLE

The purpose of this study is to systematize and categorize Internet information sources in Ukraine as an applied marketing tool to increase the efficiency of activities and improve the quality of pharmaceutical assistance to the population.

### PRESENTATION OF THE MAIN MATERIAL FOR THE RESEARCH

Among the available today's automated informational products that are used in pharmacy it can be



**Fig. 1. The cycle of analysis of information on the Internet**

distinguish at 6 types: electronic sources of pharmaceutical information; databases; automated information systems (expert systems, automated databases, knowledge bases); Internet sites; hardware and software complexes (automated workplace, automated enterprise management system); other software as applications or application packages for solving various practical tasks [2].

The rapid increase in the number of users and the need for information stimulates the development of the pharmaceutical Internet space [3-5]. Internet sites contain websites of pharmaceutical manufacturers, distributors, pharmacies, as well as websites of government agencies and large information portals. They differ in goals and objectives and, accordingly, in the target audience and information [6, 7].

In spite of the positive features of using the Internet as a source of medical and pharmaceutical information, a significant disadvantage is the lack of effective standards for the quality and reliability of information provided on sites [8]. According to recent research (May 2017) in Ukraine undisputed leader in search remains Google (75.7 %), second place is Yandex (18.33 %), other search engines amounting to occupy only 6 % of the market [9]. Analysis cycle of information consists of a direct request up to a final marketing research and the

information and analytical sites are the main links studied by the researcher after the general request, and find relevant information with built-in internal search engines (Fig. 1) [10].

All sources of information used by specialists in pharmaceutical market we divided into categories based on professional Internet resources for the information provided in them (databases, a large amount of scientific, market, analytical, marketing information, etc.). Thus, 5 categories were formed: A – databases on regulatory documentation and medicines; B – sites with marketing research, analytical reviews, ratings; C – news of the pharmaceutical sector; D – price lists, consolidated price lists of the wholesale segment of the pharmaceutical market; E – electronic trading platforms of a wholesale segment of the pharmaceutical market.

Typically, specialized pharmaceutical or medical sites are narrow-minded, but most modern Ukrainian sites seek to provide their client with all the necessary information by engaging partners in their information portal.

In the study we have identified practical value of information-analytical sites and given their membership of a particular category, and analyzed the popularity of resources by the number of visits, presented the trend line (Table).

Table

## INTERNET RESOURCES OF THE PHARMACEUTICAL MARKET OF UKRAINE FOR THE SEARCH OF PROFESSIONAL MARKETING INFORMATION

Project name	Useful information for a marketer	Average number of visits and polynomial approximation for resources, where the number of visits exceeds 5000	Category and number of visits *														
1	2	3	4														
“Shchotyzhnevýk “Apteka” (apteka.ua)	<ul style="list-style-type: none"> <li>• News of the pharmaceutical market</li> <li>• Analytical reviews, problem articles</li> <li>• Articles on marketing and management in pharmacy</li> <li>• International reviews</li> <li>• Ratings</li> <li>• Electronic archive of numbers, including the headings</li> </ul>	<table border="1"> <caption>Average number of visits for 6 months - 539 430</caption> <thead> <tr> <th>Month</th> <th>Visits (approx.)</th> </tr> </thead> <tbody> <tr><td>January 2017</td><td>100 000</td></tr> <tr><td>February 2017</td><td>120 000</td></tr> <tr><td>March 2017</td><td>140 000</td></tr> <tr><td>April 2017</td><td>160 000</td></tr> <tr><td>May 2017</td><td>180 000</td></tr> <tr><td>June 2017</td><td>200 000</td></tr> </tbody> </table>	Month	Visits (approx.)	January 2017	100 000	February 2017	120 000	March 2017	140 000	April 2017	160 000	May 2017	180 000	June 2017	200 000	B, C
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Ukrainian Medical Journal (umj.com.ua)	<ul style="list-style-type: none"> <li>• News of the pharmaceutical market</li> <li>• Analytical reviews</li> <li>• The data of the pharmaceutical companies of the segment b-2-b</li> </ul>	<table border="1"> <caption>Average number of visits for 6 months - 121 470</caption> <thead> <tr> <th>Month</th> <th>Visits (approx.)</th> </tr> </thead> <tbody> <tr><td>January 2017</td><td>20 000</td></tr> <tr><td>February 2017</td><td>30 000</td></tr> <tr><td>March 2017</td><td>40 000</td></tr> <tr><td>April 2017</td><td>50 000</td></tr> <tr><td>May 2017</td><td>60 000</td></tr> <tr><td>June 2017</td><td>70 000</td></tr> </tbody> </table>	Month	Visits (approx.)	January 2017	20 000	February 2017	30 000	March 2017	40 000	April 2017	50 000	May 2017	60 000	June 2017	70 000	B
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March 2017	40 000																
April 2017	50 000																
May 2017	60 000																
June 2017	70 000																
Infomedia portal “Health of Ukraine” (health-ua.com)	<ul style="list-style-type: none"> <li>• Analytical reviews</li> <li>• Marketing researches</li> <li>• Ratings</li> </ul>	<table border="1"> <caption>Average number of visits for 6 months - 59 890</caption> <thead> <tr> <th>Month</th> <th>Visits (approx.)</th> </tr> </thead> <tbody> <tr><td>January 2017</td><td>12 000</td></tr> <tr><td>February 2017</td><td>14 000</td></tr> <tr><td>March 2017</td><td>16 000</td></tr> <tr><td>April 2017</td><td>18 000</td></tr> <tr><td>May 2017</td><td>20 000</td></tr> <tr><td>June 2017</td><td>22 000</td></tr> </tbody> </table>	Month	Visits (approx.)	January 2017	12 000	February 2017	14 000	March 2017	16 000	April 2017	18 000	May 2017	20 000	June 2017	22 000	B
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Portal of analysis of the pharmaceutical market of Ukraine (digitalpharma.com.ua)	Analytical reviews • Marketing researches	Average number of visits for 6 months less than 5 000	B														
The first independent pharmaceutical business portal (pharma.net.ua)	<ul style="list-style-type: none"> <li>• Data on medical legislation and regulations</li> <li>• Information on temporary and permanent prohibitions on the sale of drugs, counterfeit medicines, dangerous medical products</li> <li>• Information on the declaration of wholesale and retail prices</li> <li>• Information on suppliers of goods and services in the pharmaceutical market</li> <li>• Information on pharmaceutical activities</li> <li>• Reviews of the specialized press</li> <li>• Content filters</li> </ul>	<table border="1"> <caption>Data for Portal of analysis of the pharmaceutical market of Ukraine (digitalpharma.com.ua)</caption> <thead> <tr> <th>Month</th> <th>Visits (approx.)</th> </tr> </thead> <tbody> <tr><td>January 2017</td><td>35,000</td></tr> <tr><td>February 2017</td><td>38,000</td></tr> <tr><td>March 2017</td><td>40,000</td></tr> <tr><td>April 2017</td><td>42,000</td></tr> <tr><td>May 2017</td><td>44,000</td></tr> <tr><td>June 2017</td><td>46,000</td></tr> </tbody> </table>	Month	Visits (approx.)	January 2017	35,000	February 2017	38,000	March 2017	40,000	April 2017	42,000	May 2017	44,000	June 2017	46,000	A
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Ministry of Health of Ukraine, Department of Pharmaceutical Activities, State Expert Center of the Ministry of Health of Ukraine, "State Register of Drugs of Ukraine", Information Fund (driz.com.ua)	<ul style="list-style-type: none"> <li>• Information about drugs registered in Ukraine</li> </ul>	<table border="1"> <caption>Data for Ministry of Health of Ukraine, Department of Pharmaceutical Activities</caption> <thead> <tr> <th>Month</th> <th>Visits (approx.)</th> </tr> </thead> <tbody> <tr><td>January 2017</td><td>15,000</td></tr> <tr><td>February 2017</td><td>16,000</td></tr> <tr><td>March 2017</td><td>17,000</td></tr> <tr><td>April 2017</td><td>18,000</td></tr> <tr><td>May 2017</td><td>19,000</td></tr> <tr><td>June 2017</td><td>20,000</td></tr> </tbody> </table>	Month	Visits (approx.)	January 2017	15,000	February 2017	16,000	March 2017	17,000	April 2017	18,000	May 2017	19,000	June 2017	20,000	A
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Compendium OnLine compendium.com.ua	<ul style="list-style-type: none"> <li>• Directory of Medicines</li> <li>• Encyclopedia of medicine</li> </ul>	<table border="1"> <caption>Data for Compendium OnLine compendium.com.ua</caption> <thead> <tr> <th>Month</th> <th>Visits (approx.)</th> </tr> </thead> <tbody> <tr><td>January 2017</td><td>1,000,000</td></tr> <tr><td>February 2017</td><td>1,100,000</td></tr> <tr><td>March 2017</td><td>1,200,000</td></tr> <tr><td>April 2017</td><td>1,300,000</td></tr> <tr><td>May 2017</td><td>1,400,000</td></tr> <tr><td>June 2017</td><td>1,500,000</td></tr> </tbody> </table>	Month	Visits (approx.)	January 2017	1,000,000	February 2017	1,100,000	March 2017	1,200,000	April 2017	1,300,000	May 2017	1,400,000	June 2017	1,500,000	B
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Part of pharmaceutical network “Pharmset” (pharm-system.com)	• A consolidated price list of the wholesale sector of the pharmaceutical market	Average number of visits for 6 months less than 5 000	D
Drugs in Ukraine all about drugs and their quality (niku.ykp)	• Database on medical legislation and regulations • State Register of Medicinal Products • Database on withdrawn drugs (including counterfeits)	Average number of visits for 6 months less than 5 000	A
Official site of the State Enterprise “PROZORRO” (prozorro.gov.ua)	• Electronic trading platform • Price list of competitors	Average number of visits for 6 months – 681 830	E
SMD (Support in Market Development) (smd.net.ua)	• Analytical reviews • Marketing researches • Business analysis, forecasting	Average number of visits for 6 months less than 5 000	B
Scientific journals (inc. international) sphhcj.nuph.edu.ua uekj.nuph.edu.ua uacm.kharkov.ua nphj.nuph.edu.ua sr.org.ua and others.	• Scientific research on economics, organization, marketing, logistics and social pharmacy • Pharmacy Market News • Electronic archive of numbers	Average number of visits for 6 months less than 5 000	C

\* The number of visits was calculated using the site [www.similarweb.com](http://www.similarweb.com)

**Category A** (databases on regulatory documentation and medicines) includes information sources that pay more attention to regulatory documents:

- The first independent pharmaceutical business portal *pharma.net.ua*. A convenient site for finding information on legislation and regulations, a database of withdrawn drugs (including counterfeits), information on wholesale and retail prices, general information about suppliers of pharmaceutical products and services, press reviews, etc. As well as relevant information about the activities of the pharmaceutical profile are exhibitions, seminars, conferences, congresses, etc. The site has content filters that are capable of filtering the necessary information in all sections (news, articles, events, etc.) only the profile materials remain visible.
- Information retrieval system of the "State Register of Drugs of Ukraine" *drlz.com.ua*, which was formed by the State Enterprise "State Expert Center of the Ministry of Health of Ukraine". The system provides information on registered medicinal products and instructions for medical use in Ukraine.
- Information portal created by the public association "All-Ukrainian Association for the Protection of the Rights of Consumers of Medicinal Products and Medical Products" – *medicine.ukr*. Provides business entities licensed for the production of medicinal products, wholesale and retail trade in pharmaceuticals, comprehensive information on medicines, medical products, special food products, documents and information on their circulation and quality control.

In addition to normative databases, there is a constant need for information on current trends in the pharmaceutical market, which uses analytical reviews, marketing research, and ratings.

**Category B** (sites with marketing research, analytical reviews, ratings) contains:

- Infomedia portal "Health of Ukraine" – *health-ua.com*. The Internet portal contains relevant information; reviews of thematic conferences, symposiums, congresses, congresses; covered the actual aspects of practically all spheres of medicine and pharmacy. This portal is sought-after platform for 15 years to exchange ideas and links between science and practice.
- Ukrainian Medical Journal – *umj.com.ua*. The site contains relevant information, which is gathered in 21 sections among which is the heading "management and marketing in the health system". The site also provides users with information on medical and pharmaceutical organizations operating both in Ukraine and abroad. *Digitalpharma.com.ua* – Digital Pharma team provides analytical reports of the situation on the pharmaceutical market of Ukraine as a whole and for the main categories of drugs.
- Professional information portal Support in Market Development – *smd.net.ua*. Key areas of acti-

vity of this organization are marketing researches of pharmaceutical markets of Ukraine, Azerbaijan, Armenia, Georgia, Belarus, Kazakhstan, Kyrgyzstan, Moldova, Russia, Tajikistan and Uzbekistan.

- Compendium – *compendium.com.ua* – a popular online directory of medicines. It is possible to find not only information about the composition and effect of drugs, but also prices for drugs, manufacturers, MOH instructions, classification of dietary supplements for food and cosmetics, etc.

**Category C** (news pharmaceutical sector) also contains information about the pharmaceutical market, which is more scientific in nature:

- Official site of the newspaper "Shchotyzhnevky Apteka" – *apteka.ua*. This is one of the most popular media on the pharmaceutical market. In addition to regularly updated news and bases of normative documents, the site has free access to the archive of all previous issues of the newspaper and current prices for medicines and medical products.
- Scientific journals (*sphhcj.nuph.edu.ua*, *uekj.nuph.edu.ua*, *uacm.kharkov.ua*, *nphj.nuph.edu.ua*, *sr.org.ua*, etc.). The sites present modern scientific research, which carried out in various educational institutions of the country, as well as analytical and comparative articles.

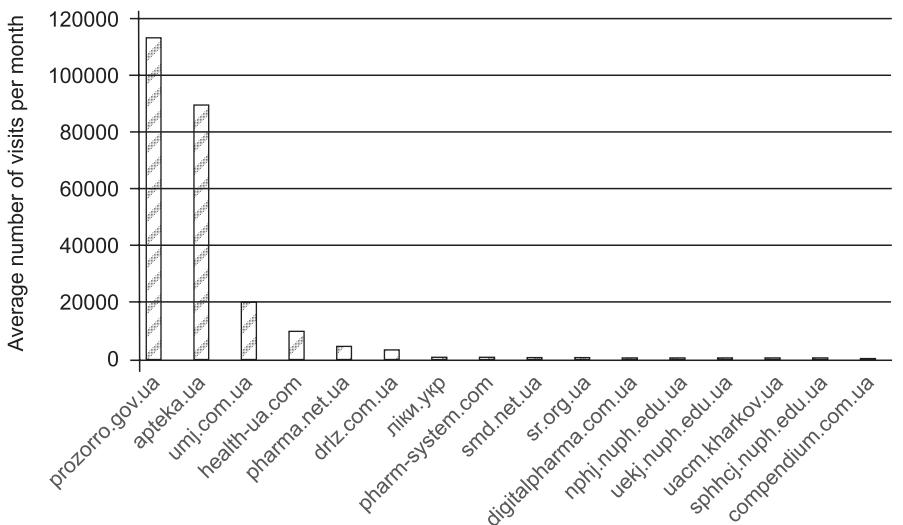
One of the types of work of specialists in pharmaceutical companies is the price list analysis. For this purpose, can be used online resources that were in **category D** (price lists, consolidated price lists of the wholesale segment of the pharmaceutical market).

This category also includes the informational site *pharm-system.com*, which is in the promotion stage, so the list of prices is limited at this time. The site proposed to establish a special soft shell that will receive daily updates subscription wider range of price lists over the Internet.

The last category is the **category E**, which contains electronic trading platforms of the wholesale segment of the pharmaceutical market. Currently, the most popular electronic trading platform is *prozorro.gov.ua*. Pharmaceutical companies are beginning to take part in public procurement, it is convenient and affordable, since all relevant procurement, information is on-line and in addition, it is possible to set up a receipt for news on current tenders.

Our analysis of visits statistics showed that the first place among the professional pharmaceutical Internet sources is "Shchotyzhnevky Apteka", on average, in the 1 month it visited by about 90 thousand visitors. But such an indicator, as well as the rest of the data, can indicate that some resources are attracting not only professional users but also ordinary consumers to their pages. By contrast, only a limited number of professionals visit the resources of scientific journals (Figure 2).

Conducted analysis allows objectively assess the content of the main Internet resources used by

**Fig. 2. Statistics of monthly visits on investigated Internet resources**

specialists in the pharmaceutical market. Demand and attention from the experts demonstrates the analysis of visits to individual resources. It is necessary depth analysis of the information needs of the pharmaceutical and needed the directing of information flows to cover the most pressing issues. At the same time, an analysis of the existing information space in Ukraine and abroad may be conducted in order to identify new opportunities for providing and obtaining information.

#### CONCLUSIONS AND PROSPECTS FOR FURTHER RESEARCH

1. The categorization of the most common professional internet resources used by pharmaceutical market specialists in the sphere of

marketing activity was conducted. Available Internet resources are divided into 5 categories by content.

2. Provided a characteristic of content of Internet resources and analyzed the visits of each of them.

In further research, it planned to conduct a comparative analysis of existing Internet resources in Ukraine with similar ones used by pharmacists in Europe to develop a methodical approach to creating a unified Internet resource for pharmacists.

**Conflict of Interests:** authors have no conflict of interests to declare.

#### ABBREVIATIONS

OTC, over the counter; MOH, Ministry of Health

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