New solutions in the direction of medical and pharmaceutical information in Ukraine

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Abstract: Today in Ukraine can be noticed the rash development of medicine and pharmacy, which demands new ways of transformation in systems of medical and pharmaceutical information in this country. The work was based on the study of the project Doctor.UA. In 2003 was opened four-years test project, which was named Pre-Doctor.UA and it in simplified form modelled Doctor.UA. In this work the results of activity of Pre-Doctor.UA were drew up on the base of following methods: statistical analyses, usability-testing, interviewing the visitors. Using the Internet in building new sustainable systems of medical and pharmaceutical information in Ukraine proved its practicability.

1 Introduction

Nowadays appears the necessity of modernizations in systems of medical and pharmaceutical information of Ukraine because of the wide range of diseases, methodic of treatment and quantity of available drugs on the markets. Existing systems in modern circumstances, in conditions of limited labor and financial resources, and large implantation of evidence-base medicine, often can't effectively satisfy the requirements of population and health professionals in medical and pharmaceutical information [1]. The objective of this work was to determine the efficiency, performance requirements and financial practicability of using new for Ukraine systems of medical and pharmaceutical information, which are based on the data communications via Internet.

2 Materials and methods

The work was based on the study of Ukrainian project Doctor.UA (project which provides health professionals and citizens by quality medical and pharmaceutical information through the Internet, project is launching by JSC "Apteka Doctor"). For deciding given tasks were applied following methods: statistical analyses, usability-testing, interviewing the visitors.

3 Results

Introducing of Doctor.UA is scheduled in several stages. First of all in January, 2003 was opened four-years test project, which was the part of corporative site of the company (http://apteka-doctor.com). It was named Pre-Doctor.UA and it in simplified form modeled Doctor.UA.

Pre-Doctor.UA has realized following functional units (some units – partially):
- reference information for visitors in different directions of medicine;
- information about drugs which are available on the market (incl. instructions for using);
- teleconsultations;
- information about healthy lifestyle and role of preventive maintenance;
- news of medicine and pharmacy;

During first decade of January, 2007 the results of activity of Pre-Doctor.UA were drew up. Statistical data of attendances of the whole project and separate it services was explored. The results from three different statistics servers were studied and the index of average attendance of the project was determined: it forms 406 persons daily, the growth was rather essential from at average 27 visitors/daily in 2003, then 244 – in 2004 and 650 – in 2005, to 704 visitors/daily – in 2006. During that time system has processed 33584 inquiries for granting the instructions for using determined drug.

Qualified specialists have given 1038 consultations in 12 fields of medicine and pharmacy. Technically the service has been functioning with the usage of personal software "Pre-Doctor.UA – Consult". This software solution allows organizing asynchronous text consultations in the mode "patient's question-doctor's answer" [2]. Asking a question the user gets a unique password of it, which allows updating the question, if necessary. It provides the possibility to have a dialogue between a doctor and a patient, at the same time such important conditions are observed as user authorization (the doctor is confident, that he communicates with the patient who has originally asked the question (under condition of personal password preservation by the user)) and nonparticipation in the dialogue of other nonprofessionals in the sphere of public health services, except for the inquirer. As for doctors` answers there is a system of step licensing of medical consultants. Each question is directed to a certain theme (which subsequently can be changed by the administration or a doctor). And only doctors, who have the right (license) for answering in the given subject, see this question on their consultant administration interface and can answer it. Besides, each doctor is given a certain qualification (category). According to it the answer can be updated by the doctor who has given it or by the doctor of higher qualification. If the answer is updated by the doctor of the same or low category, this answer passes the stage of an expert judgment. If the expert finds the answer being correct, then it will be added.

Software capabilities also allow carrying out the following operations:
- using of emergency modes of communication with a medical consultant (triggering of automatic question-notification function on a doctor's mobile phone);
- gathering of answers statistics (including average answering time per year/month; average time necessary for the doctor to answer and absolute answers quantity);

- drawing up of doctors ratings on the basis of statistics;
- filing of consultations, ample opportunities of search in archives (by number of the question, keyword);
- highly probable prevention of spam occurrence in questions from users, including automatic verification of all forms that should be completed, automatic check of obscene expressions in questions, restriction on quantity of questions that can be asked from one IP in a unit of time.

For the project Doctor.UA a new software version – "Doctor.UA – Consult", which will expand existing capabilities of the version "Pre-Doctor.UA – Consult" (first of all, in the direction of statistics), is being already prepared. Besides, new functionality will be implemented in the new system, namely the following:

- transmission of photo materials;
- opportunity of internal discussion of the published answer by the doctors (consultation) at the stage of publication preparations;
- Consultation system between the doctors concerning practice cases (internal consultations).

The "thematic portfolio" of given consultations is shown in table 1.

Theme	Number of consultations, quantity	Theme in percentage, %
All about medicines:	136	13.1
Gynaecology:	314	30.3
Dermatology:	81	7.8
Cosmetology:	21	2.0
Andrology:	68	6.6
Narcology:	38	3.7
Neurology:	25	2.4
Paediatrics:	48	4.6
Traumatology-orthopaedics:	17	1.6
Endocrinology:	18	1.7
Others:	272	26.2
In total:	1038	100%

Table 1: the analysis of given teleconsultations by a thematic principle.

On the basis of Pre-Doctor.UA activity and the analysis of the Ukrainian part of the Internet, it is possible to formulate the basic problems of medical-pharmaceutical Internet-systems in post-Soviet countries in comparison with alternative information systems, and also the ways to solve these problems (typical for all projects or by the example of Pre-Doctor.UA and Doctor.UA):

1. Number of Internet-users. The global network does not cover the majority of the Ukrainian and Russian population. In Ukraine the quantity of Internet-users in 2003 was 3,8mln people [3]. It constitutes approximately 8% of all population of Ukraine. Regrettably there wasn't published other official information about the quantity of

Internet-users in Ukraine after 2003, but prevalence of the Internet in post-Soviet countries tends to powerful growth, and today the Internet-audience is more significant part of the population of Ukraine. In Russia the quantity of Internet-users in 2005 was 22mln people (the official data published by the Federal agency on print and mass communication of Russia). It constitutes approximately 15% of all population of Russia. Growth of an audience in comparison with 2004 has reached 19% per year [4]. Moreover, it is important, that the majority of the audiences, which are characterized by such parameters as active living position, solvency, striving for extracting information, are already Internet-users [5].

2. Confidence in medical-pharmaceutical Internet. Unfortunately, no significant studies of this problem were arranged in post-Soviet countries, but it is necessary to present the analysis data of the company "Datamonitor". In 2002 this organization carried out a large-scale research in concern with trust to medical information sources [6]. The company experts have interrogated over 4.5 thousand people in France, Germany, Italy, Spain, Great Britain and the USA and have found out, that 57% of those who was in search for medical information for last 12 months used the Internet. For comparison, 76 % of the interrogated confided in personal doctor, in books, magazines and TV – 73% of them, and in friends and family – only 53%. Undoubtedly, a similar Ukrainian research should be carried out, but it is possible to draw preliminary conclusions that the level of trust is sufficiently high.

3. Financing of projects. At the stage of large-scale implementation, such projects require rather massive financing. For the projects Pre-Doctor.UA and Doctor.UA this problem was solved owing to the fact that at the given stage financing of projects is carried out exclusively out of funds provided by the owner company. Though the project Doctor.UA has good independent financial prospects, and in the future it is planned to involve funds of grants, advertisers and probably investments of other companies with preservation of a controlling interest so as to achieve self-repayment as soon as possible, and in long-term prospect – to come to the level of profitability.

In 2006, 97% of the interrogated visitors (n=300) have positively appreciated the idea of Doctor.UA launch, functioning concept of which certainly helps to preserve observance of the following basic principles:

- adequacy and relevance of the placed data (at reprinting – with references to source materials);
- definite division of access to the information for the population and professionals in the sphere of public health services;
- observance of all normative-ethic rules as well as international standard principles of providing medical-pharmaceutical information via the Internet (for example, Health On the Net foundation – HONcode) [7]. Here it is important to mention, that in spite of the fact that at present the project by 100% belongs to one commercial company, even by the time of its launch Pre-Doctor.UA was clearly declared, and the independence principle (including all promotional materials that were precisely separated from the main part of the site) was implemented;

The information structure Doctor.UA has been designed in view of the analysis of Pre-Doctor.UA activity as well as the analysis of market needs in the sphere of medical and

pharmaceutical information. This project should be characterized by the following structure functional units:

1. Legislation databases and databases of legal regulation of public health services, including those containing the standards of medical aid delivery;
2. Information for a patient concerning fields of medicine and concrete diseases;
3. The global list of medical products;
4. The list of domestic manufacturing firms and representatives of foreign manufacturers;
5. Information about medical products available in the market (medicine register, patient information leaflet);
6. Information about interaction of various medical products;
7. Monographs; grants; reference books;
8. Internet versions of publications in one-field scientific and popular scientific medical and pharmaceutical paper periodicals;
9. Integrated working results of the central authorities for medicines quality control;
10. The results of medicine series analysis obtained by the State Organization for medicines quality control;
11. Clinical integrated data on revealing of un-documented side effects of medical products;
12. Teleconsultations for visitors and thematic groups for discussion;
13. Overall information about the healthy way of life and the role of preventive measures;
14. Help information concerning medical-pharmaceutical establishments of Ukraine;
15. Statistics;
16. Information about medical and pharmaceutical news, both in Ukraine and world-wide.

4 Conclusions

1. As a result of the carried out analysis of Pre-Doctor.UA activity, it has been established that there is a necessity of large-scale implementation of Doctor.UA, what is planned to be done during the years 2007-2009 (in three stages).
2. The medical-pharmaceutical Internet systems have proved their practicability of using in post-USSR countries. Such systems effectively solve primary problems, satisfy visitors` needs and have significant popularity. Today realization of such projects requires investment; nevertheless they have good independent financial prospects in the future.

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