The Internal Medicine Department of Higher Educational Medical Institution Web-Site Organization and Structure Based on Modern Educational Web-Technologies

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ABSTRACT

Article describes modern trends in medical education. The main concept is that medical education is continuous and it is necessary to implement information web-technologies in continuous study process. Based on own experience, an approximate structure and organization of the Internet site of the Department of Internal Medicine of higher educational medical institution was discussed.
Due to own experience all the structural components of the site and its content are characterized. The advantages of using the information space by the departments of internal medicine of higher educational medical institutions, web sites and information technologies in teaching are discussed. Based on the results of own experience in implementation of the information technologies and the department's website developing since 2013, the structural organization of the Internal medicine department site of higher educational medical institution and all its components are presented. The statistics of site visits from the moment of its existence was given.

KEYWORDS

Continuous medical education, educational medical web-site, informational web-site content, web-site organization and structure, modern educational web-technologies

INTRODUCTION

Modern medical education consists of several consecutive and continuous stages:

- Basic medical education (pre-clinic and clinic);
- Postgraduate medical education (residency or specialization);
- Continuous professional development (advanced training of physicians).

The main goal of continuous professional development is expand knowledge and skills. Despite some differences among world educational systems, there is a general trend in the structure, duration of studing, conditions of admission to medical institutions, education and admission to independent professional activities. At the same time, each model in medical education is built based on national characteristics and requirements of the health care system in each country.

The system of continuous postgraduate education in this context now plays the most import ant, but at the same time, complex and contradictory role. Postgraduate education is not a continuation of the existing system of higher education or its complement, designed to compensate for the shortcomings of the undergraduate stage, but it is a special area with special relations of participants in the educational process, with special educational motivation.

Therefore, this educational system is aimed to improve the theoretical and practical skills of graduates of higher medical educational institutions, increase the degree of their readiness for the independent professional activity, deep knowledge of their chosen specialty, share experience among colleagues of the relevant specialty.

Modern medical education should be:

- Based on the global approach and the principles of evidence-based medicine, knowledge of current classifications and guidelines (Scientific Society Guidelines based on Evidence Based Medicine (EBM) - evidence-based medicine, Standards of medical care and guidelines for managing diseases);
- Affordable;
- Continuous;
- Versatile;
- Based on modern information and educational technologies;
- Active (emphasis should be on activity, student autonomy, ability to adapt to changing conditions of professional activity);
- Relevant to health care system's needs.

Adherence to these fundamental principles will ensure the success of mastering the educational material, contribute to the formation of a high level of intellectual and moral development of physicians, and ensure the competitiveness of the specialist and his integration into the world professional process, mastering communication techniques and adherence to the rules of bioethics.

Thus, in the modern society, a specialist needs to study practically all his life to be in demand on the labor market. In addition, the old paradigm: a new one - «Education throughout life», should replace «Education for life". It is especially true for modern medical education, which requires constant improvement of professional knowledge, improvement of skills, and mastering of the latest technologies.

Now the idea of "Education through life" leads to the need to search new methods of obtaining knowledge and technology training. Using Internet technologies and distance learning opens up new opportunities for continuous training of specialists and their retraining, making learning more accessible. Over the past decades, in all education systems significant structural changes have occurred, due to the development of scientific and technological progress and its increasing impact on all aspects of society.

Currently, the process of informatization and internationalization of education takes place in educational content, and in studying methods, and in the forms of study organization. The appearance of web-technologies in the first half of the 1990s became an obvious incentive for the development of information technology in education. In the second half of the 1990s, the formation of distance learning began, including Internet-based learning. The concept of open education has appeared as a system for providing educational services with the tools available in the informational and educational environment, chosen by the user and adapted to his specific needs. The computer is an integral part of modern people life. Nowadays, a computer and the Internet give great opportunities and are use in almost all spheres of life. The information web-technologies an integral part in modern education.

An informational and educational space is the environment in which interaction of all participants of the educational process is organized, in which the storage, exchange of various educational information with the help of modern information computer technologies and communication technologies is carried out.

Modern education should be based on the following technologies:

- Pedagogical;
- Information;
- Telecommunication.

The usage of information computer technologies in education provides all forms and characteristics of learning, and interaction between the student and the institution:

- home-study;
- external student;
- independent study;
- external training, additions to the main course.

Using information computer technologies in education provide:

• Improving the organization of teaching, increasing the individualization of teaching;
• Increasing the productivity of students' self-preparation;
• Individualization of the work;
• Accelerating replication and access to educational materials;
• Increasing motivation to study;
• Activation of the learning process, the possibility of involving students in research activities;
• Providing flexibility in the learning process.

1 WEB-SITE OF INTERNAL MEDICINE DEPARTMENT OF HIGHER EDUCATIONAL MEDICAL INSTITUTION

Informational and educational space of the department may be a part of the general information and educational space of the higher educational medical institution. The web-site of the department of internal medicine № 3 and endocrinology (http://vnmed3.kharkiv.ua) since 2013 was developed for creating an informational and educational space, developing and implementing the basic principles of modern medical education and the latest information technologies in the educational process in undergraduate and postgraduate education, which greatly increases the efficiency of the educational process and promotes the formation of professional competences.

The site presents materials for a wide range of specialists in internal diseases - cardiologists, endocrinologists, rheumatologists, pulmonologists, gastroenterologists. For each specialty, clinical guidelines are presented, problematic sections are created according to the classifications, laboratory diagnostics for each section of internal medicine are presented. The web-site study materials are necessary in the daily clinical practice of the physician. The site hosts and constantly updates articles and presentations on internal medicine, there are also presented on the web-site medical online calculators.

The site of the department № 3 of internal medicine and endocrinology of Kharkiv National Medical University is a dynamic linked web pages based on WordPress platform with the pages programmed in the html, css, php languages. The department site has two subdomains with the established two platforms of the e-learning Management System / LMS – Moodle. The web-site includes free platform for webinars, which are installed on the dedicated server equipment.

The site of the department№ 3 of internal medicine of Kharkiv National Medical University provides:

 Interactive communication of participants of the educational process;

 Information for public viewing;

 Information, access to which is possible only after entering the corresponding password or log in.

The site of the clinical department can differ in its autonomy – it can be an independent site or a site as subdomain of the institution's site. The site of the clinical department can have a necessity of dedicated server or rental server (typically, for the installation of webinars equipment, web class or for the installation of a distance learning system (e-learning Management System / LMS)). The site of the clinical department can also have subdomains for installation of the LMS or other educational systems.

The information content, LMS of the clinical department web-site may be available only to registered users or may be available partly to unregistered users.

The clinical department site target audience can include applicants, students, graduates, teachers/trainers, clinical residents, doctors of philosophy, physicians with different specialization in internal medicine, patients, pharmacists. The clinical department site can improve cooperation and communion between all participants of educational process. The web-site forms also improving study cooperation and communion. There can be created the login form to enter the site, full version of education content, the

form of information content search on the site, feedback form, feedback form with the possibility of attaching files (eg ECG, survey data for consultation, etc.), signature form for site updates, site news, form of the interactive on-line survey, questionnaire, registration form for webinars with the choice of the topic of the webinar, registration form for the conference, lectures, etc. Study cooperation and communion also provide based on department blog.

The site of the clinical department can be connecting with other services - department channel on YouTube, department page on Facebook, department journal, which improve cooperation and communion in study process.

The site provides both training at the University and independent work of students, as well as advanced training of physicians with elements of distance education on postgraduate stage of education.

1.1 Web-Site Structure of Clinical Department of Higher Educational Medical Institution

Due to own experience of educational web-site developing and administration of higher educational medical institution based on modern educational web-technologies the structure of the site of the clinical department № 3 of Internal Medicine and endocrinology of Kharkiv National Medical University may combine the following components [1-19]:

- The web-organizer – the schedule, the newsletter, the blog for organizing educational, scientific, medical work;
- The electronic library of publications (books, manuals, articles, theses of scientific and practical conferences);
- The webinar service, the web-class;
- The media Library (presentations, video lectures, flash cards);
- The tools, resources of network testing and knowledge control;
- The Interactive Learning Systems;
- The Catalogue of educational materials for the specific target audience (students, residents, physicians, patients);
- The medical on-line calculators (the scale of automatic risk assessment, the laboratory indicators, etc.);
- The system of access to external medical web resources (links);
- The distance learning/e-learning Management System (LMS);
- The practical training simulators, simulators of clinical cases, web-quests.

1.2 Web-Organizer - Schedule, Newsline, Blog for Organizing Educational, Scientific, Medical Work

Web-interactive schedule contains all calendar events, important time points, deadlines, lectures and practical classes dates, conferences information with opportunity to detaile events. Newsletter, department blog contain the information on upcoming conferences and events, updates about the main problems of internal medicine in the specialized sections are presented. The Department blog can be structured according to the thematic headings for a specific target audience, as well as the ability to sort the information by the publication date. In addition, the department web-organizer may have a service for the automatic distribution of the messages, reminders, surveys, etc. to registered users.

1.3 Electronic Library of Publications

The electronic library of publications of the department is present annually updating materials that are available for the education process: educational and methodical aids, books, manuals, guidelines, articles on specialized sections (cardiology, endocrinology, rheumatology, pulmonology, gastroenterology, etc.), abstracts for students, residents, and physicians. Catalogue of educational materials can be structured for a specific target audience (students, residents, physicians, patients) and structured in specific fields of internal medicine - educational

materials in cardiology, endocrinology, gastroenterology, pulmonology, connective tissue disoders.

1.4 Service for Webinars

The website of the department has a service for hosting webinars. To enter a virtual training room a student needs to fill out a special form on the web-site. Webinars are widely used for raising the level of knowledge and they are very important for the postgraduate medical education, as a physician is able to improve his qualifications without interrupting medical activity. Currently it can be an opportunity to participate in a web conference with phones based on IOS, Android or different devices. The equipment for webinars can be integrated with site platform and placed on special server, and in this case the form to enter the web-class is on the department site web-page or it can be external equipment for webinars using the different internet resources, in such way the form to enter web-class is on the external web-resources.

1.5 Media Library (Video Lectures, Presentations)

Nowadays, the multimedia is the main component of information and education technologies, which significantly affect the efficiency of the educational process. Video lectures, presentations allow a huge number of students to listen lectures in their own pace of mastering the study material. The department's website presents video collections, presentations on the main problems of internal medicine, which are broadcasted both from the site of the department and from the channels hosted on Youtube.

Especially effective is the association of one web-page of site department a problematic detailed article with a presentation/video lecture that clearly visualizes the material presented in the article. It makes the possibility to choose a convenient form of familiarisation with study materials for advanced training - a review of the presentation and if necessary, a more detailed and in-depth article's reading, which, of course, saves both time and increases the quality of learning of the material.

To study the "Internal Medicine" it is possible to create the following flash cards:

- text (both sides of the interactive flash card are text information, for example, the disease and drugs for its treatment, the drug and its side effects, the drug and indications for its usage);
- combined:

✓ image / text (for example, an electrocardiogram and its decoding, data on endoscopy, biopsy, radiography and possible diagnosis or description of visualization);

✓ audio / text (for example, auscultation data of the lung, heart and possible diagnosis or description);

✓ video / text (for example, dynamic visualization - coronary angiography and text visualization)

Flash cards can be located on the file site space created by site platform special plugins (such as Qwizcards (online quizzes and flashcards), Flashcard (Plugin for WordPress), Flashcard Slider, Easy Flashcards), or created based on others tools (AnkiApp, StudyBlue**,** Flashcards+ by Chegg**,** Quizlet**,** StudyShack**,** Brainscape**,** Studies**,** iStudious**,** Flashcard Machine**,** Cram). Flash cards can be accessible with or without the opportunity to control individual progress after creating own profile.

1.6 Network Testing and Knowledge Control

The main opportunity of controlling learning outcomes are tests. The department's website presents tests on some sections of internal medicine. Before passing on-line testing, it is suggested to fill out a form for results refistration of testing and to send the test results to students e-mail. Test tasks are presented both for controlling knowledge of students in training and exam mode, and for postgraduate medical education to improve knowledge and practical skills.

Several types of tasks are used in tests:

- Multiple choice (the students choose the answer to the questions from several options offered to them, and the questions may include one or several correct answers
- Single choice (the students choose the answer to the questions from several options offered to them, but only one is correct);
- True / false (the answer to the question, the student chooses between the two variants "True" and "False");
- Matching (for each element of the responses of the first group it is necessary to match the element of responses from the second group);
- Short answers (the answer to the question is a word or a short phrase; several correct answers are allowed with different estimates);
- Numeric (the same as the short answer, only for performing computational operations, the numeric response may have a given interval of the maximum permissible deviation error from the correct value);
- Computational (such a question suggests calculating the value of the formula: the formula is a template in which random values are added from each of the specified ranges for each test);
- Submitted answers, embedded answers (there is a text directly inserted into short answers, numerical answers or multiple choice, as in the "workbook");
- Essay (the student briefly describes his view to solve a problem). It can be used to solve situational tasks in internal medicine.

Study tests and topics materials for exam preparation on clinical department site may be classificated by exam name (for example USMLE Step 1, USMLE Step 2, USMLE Step 3) and other principles.

There are several different approaches to the organization of the test knowledge control at the clinical department of higher medical institution. The organization of the test can be based on the LMS platform, or using integrated site plugins in the platform of the site (TESTME WordPress, etc.). You also can create tests using special platforms with subsequent placement on the site file space (for example iSpring Quizmarker's), or testing organization by external services (SoGo Survey, Classmarker, EasyTestMaker or others). Tests can be public or closed to public viewing.

1.7 Interactive Learning Training Systems

Interactive training systems on the department's website are provided by distance courses for students and physicians with the ability to consistently study topics within the course with knowledge management by conducting in-house testing after each topic. Multimedia tutorials can be presented on a CD-ROM or other memory drives for an autonomous use on personal computer or accessible via the Internet, in particular, on the department's website.

The main stages of the developing multimedia educational resources can be represented as follows:

1. Pedagogical design:
   - development of the resource structure;
   - selection and structuring of educational material;
   - selection of illustrative and demonstration material;
   - development of a system of laboratory and independent works;
   - development of control tests.
2. Technical preparation of texts, images, audio and video information.
3. Combining the prepared information into a single project, creating a menu system, navigation, etc.
4. Testing and expert evaluation.

1.8 Catalogue of the Educational Materials for a Specific Target Audience (Students, Residents, Physicians)

The site contains clinical guidelines, video lectures and presentations, articles on the main sections of internal medicine, database of clinical cases with the possibility of commenting. An archive of electrocardiograms (ECGs) was created with the possibility of their discussion by experts, and opportunity to place various ECGs on the

department site. The department's blog also presents educational materials on the main nosologies of internal medicine with a convince structural navigation.

1.9 Medical Online Calculators and Risk Scales (Focus On Cardiology)

The site presents medical online calculators for evaluation of cardiovascular risk, assessment of glomerular filtration rate (the rate of glomerular filtration by the Cockroft-Golta formulas, MDRD), body mass index, risk of bleeding and thromboembolic complications (HAS-BLED and CHA2DS2-VASc), TIMI, QTc calculating, assessment of the risk factors for venous thromboembolism in hospitalized therapeutic patients (Padua scale in Kucher modification) and in surgical patients (according Caprini), diagnostic criteria for the Dutch Lipid Clinics Network Criteria, Simon Broom Criteria, MEDPED Criteria, SYNTAX score, GRACE score, PRECISE-DAPT, DAPT, calculator for assessment the index of left ventricular myocardial mass, calculators of conversion of units of measurement of laboratory analyzes and many others for physicians everyday professional activity.

1.10 The System of Access to the External Medical Web Resources

For the convenience of interaction with the official site of the medical institution, the repository, various libraries, World Health Organization, Food and Drug Administration (FDA), International Classification of Diseases -10, the Cochrane library, PubMed, thematic associations in different medical spheres, the testing centers on the site there are a large number of links for the transition to external information and educational resources.

1.11 Distance Learning System/ E-Learning Management System (LMS)

The system "Moodle" was chose and installed on the subdomain of the site of the department, which most fully corresponds to the modern educational process and allows to ensure its continuity, that also provides an opportunity for the placement of educational materials.

Using the Moodle training management system allows:

- multivariance of information representation;
- interactive learning;
- content structuring and its modularity;
- creation of constantly active help system;
- self-control of training activities;
- building of the individual educational trajectories;
- confidentiality of training;
- compliance with the principles of successful learning.

1.11 Case Based Education

On the department site are presented presentations of clinical cases, practical training simulators, the simulators of clinical cases and medical educational web-quests.

Presentations of clinical cases - detailed presentation of a clinical case with visualization of the results of the examination, review of clinical guidelines important for presented in case pathology, discussing the peculiarities of the clinical case, treatment outcomes, discussion, outstanding issues, prospects of research, etc.

Practical training simulators are a combination of theoretical material on a specific topic with a large number of clinical situational tasks for it’s mastering.

The simulators of clinical cases are the combination of a specific clinical case with logically related test tasks on the topic of the concrete clinical situation.

Medical educational web-quests are the combinations of several topics in the medical discipline due to one problem task with the elements of the detective-style information game, with the construction of a branching scenario and a combination of theoretical material on several topics, with the

improvement of practical skills and test simulators.

Also clinical department **s**ite may have several supplements, for example site map, contact details, photo gallery and cooperation, history, collective or others.

2 THE WEB-SITE VISITORS OF THE INTERNAL MEDICINE DEPARTMENT OF HIGHER EDUCATIONAL MEDICAL INSTITUTION

The site of internal medicine department and endocrinology №3 of Kharkiv National Medical University was created in 2013. According to the Google Analytics since that time site was visited by more than 126 943 unique users, which provide 235 099 connection sessions and observed 815 309 web-pages.

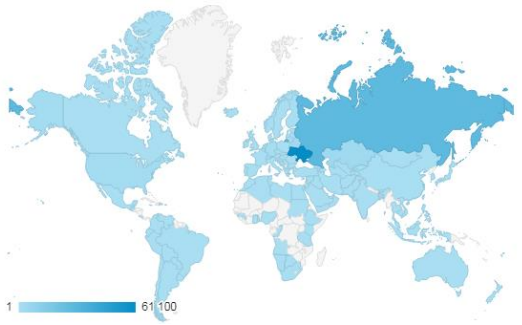

Figure 1. The location of the visitors of the web-site of internal medicine department and endocrinology №3 of Kharkiv National Medical University

Top-10 site visitors are from Ukraine, Russia, Kazakhstan, Belarus, United States, Germany, Kyrgyzstan, Netherlands and Uzbekistan (Figure 1).

CONCLUSIONS

Implementation the web-site of internal medicine departments of higher medical educational institutions based modern information and educational web technologies in the educational process in addition to traditional forms allows to improve the quality of education and gives a number of advantages for continuous professional development and professional development of physicians.

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REFERENCES

[1] Zhuravl'ova LV, Lopina NA. Organizatsiya navchal'noho protsesu studentiv z riznymy kvalifikatsiynymy rivnyamy pidhotovky v KhNMU. Materialy XLVII navchal'no-metodychnoi konferentsii. In Zaprovadzhennya novitnikh metodiv navchannya na rivni pislyadyplomnoyi osvity; 2013; Kharkiv. p. 225.

[2] Zhuravleva LV, Lopina NA Problemy ta perspektyvy rozvytku nauky na pochatku tretoho tysiacholittia u krainakh Yevropy ta Azii. Materialy XII Mizhnarodnoi naukovo-praktychnoi internet-konferentsii. Vnedrenie elementov distantsionnogo obucheniia s primeneniem innovatsionnykh veb-tekhnologii v nepreryvnoe meditsinskoe obrazovanie; 2015; Pereiaslav-Khmelnytskyi. p. 225-227.

[3] Zhuravl'ova LV, Zhuravl'ova Anna, Lopina NA Aktualni pytannia yakosti medychnoi osvity (z dystantsiinym pid'iednanniam VM(F)NZ Ukrainy za dopomohoiu videokonferents-zv'iazku). Materialy XIII Vseukrainskoi naukovo-praktychnoi konferentsii z mizhnarodnoiu uchastiu. Ykorystannia innovatsiinykh veb-tekhnolohii u bezperervnii pisliadyplomnii pidhotovtsi likariv. [Using innovative web technologies in continuous postgraduate education of doctors]; 2016; Ternopil: I. Horbachevsky Ternopil State Medical University, TDMU«Ukrmedknyha». p. 248–249.

[4] Zhuravleva LV, Lopina NA Aktual'nye voprosy sovershenstvovaniia meditsinskoi pomoshchi i professional'nogo meditsinskogo obrazovaniia. Sbornik tezisov meditsinskogo foruma. Realizatsiia nepreryvnogo professional'nogo razvitiia vracha s pomoshch'iu informatsionno-obrazovatel'nogo saita klinicheskoi kafedry vysshego meditsinskogo uchebnogo zavedeniia; 2016; Belgorod: «Belgorod» NIU «BelGU». p. 59-61.

[5] Zhuravleva LV, Lopina NA. Informatsionno-obrazovatel'noe prostranstvo v rabote klinicheskoi kafedry v kontekste realizatsii nepreryvnogo meditsinskogo obrazovaniia. metodicheskie

rekomendatsii. Kharkov: KhNMU, Internal medicine №3; 2015.

[6] Zhuravlova LV, Lopina NA Formuvannia suchasnoi kontseptsii vykladannia pryrodnychykh dystsyplin u medychnykh osvitnikh zakladakh. Materialy VIII Naukovo-praktychnoi konferentsii, prysviachenoi 210-i richnytsi KhNMU ta 60-i richnytsi kafedry medychnoi ta bioorhanichnoi khimii. Suchasni informatsiino-osvitni veb-tekhnolohii v roboti klinichnoi kafedry; Kharkiv: KhNMU. p. 87-90.

[7] Zhuravlova LV, Lopina NA [Modern information and educational web technologies in the graduation and postgraduate training of doctors according the higher education act]. Realizacija zakonu Ukrai'ny "Pro vyshhu osvitu" u vyshhij medychnij ta farmacevtychnij osviti Ukrai'ny (z distancijnym pid'jednannjam VM(F)NZ Ukrai'ny za dopomogoju videokonferenczv'jazku). Materialy Vseukrai'ns'koi' navchal'no-naukovoi' konferencii' z mi. Vykorystannja suchasnyh informacijno-osvitnih VEB-tehnologij v dodyplomnij ta pisljadyplomnij pidgotovci likariv u konteksti zakonu "Pro vyshhu osvitu"; 2015; Ternopil, Ukraine: Horbachevsky Ternopil State Medical University. p. 531–533.

[8] Zhuravlova LV, Lopina NA, Lakhno OV., Tsivenko OI Suchasnyi stan ta perspektyvy pidhotovky likariv-interniv u Kharkivskomu natsionalnomu medychnomu universyteti. Materialy 43-i naukovo-metodychnoi konferentsii, prysviachenoi 50-richchiu zapochatkuvannia internatury v Kharkivskomu natsionalnomu medychnomu. Vykorystannia innovatsiinykh VEB-tekhnolohii na kafedri vnutrishnoi medytsyny №3 v bezperervnii pidhotovtsi likariv-interniv. Markovskyi VD, V'iun VV, Fomina LV, editors; 2017; Kharkiv, Ukraine: KhNMU. p. 40-42.

[9] Zhuravleva LV, Lopina NA Elektronnoe obuchenie v nepreryvnom obrazovanii. Materialy II Mezhdunarodnoi nauchno-prakticheskoi konferentsii. Distantsionnoe obuchenie s ispol'zovaniem VEB-tekhnologii v realizatsii nepreryvnogo meditsinskogo obrazovaniia; 2015; Ul'ianovsk, Russia: UlGTU. p. 257–267.

[10] Zhuravleva LV, Lopina NA [The application of modern information and educational web-technologies in the work of clinical departments of the higher medical school]. Web-tekhnologii v obrazovatel'nom prostranstve: problemy, podkhody, perspektivy. Sbornik statei uchastnikov Mezhdunarodnoi nauchno-prakticheskoi konferentsii. Ariutkina SV, Napalkov SV, editors. Primenenie sovremennykh informatsionno-obrazovatel'nykh veb-tekhnologii v rabote klinicheskoi kafedry vysshego meditsinskogo uchebnogo zavedeniia; 2015; Arzamas, Russia; N.Novgorod: Rastr-NN: Arzamasskii filial NNGU. p. 36-40.

[11] Zhuravleva LV, Lopina NA Problemy ta perspektyvy rozvytku nauky na pochatku tretoho tysiacholittia u krainakh Yevropy ta Azii. Materialy XXIII Mizhnarodnoi naukovo-praktychnoi internet-konferentsii. Otkrytye onlain kursy v rabote klinicheskoi kafedry vysshego meditsinskogo obrazovatel'nogo uchrezhdeniia; 2016; Pereiaslav-Khmelnytskyi, Ukraine; Pereiaslav-Khmelnytskyi. p. 148-150.

[12] Zhuravleva LV, Lopina NA Sovremennye obrazovatel'nye WEB-tekhnologii v sisteme shkol'noi i professional'noi podgotovki. Sbornik statei mezhdunarodnoi nauchno-prakticheskoi konferentsii. Prakticheski-orientirovannyi podkhod v dodiplomnoi i poslediplomnoi podgotovke vracha obshchei praktiki po distsipline vnutrennie bolezni s pomoshch'iu interaktivnykh trenazherov. [Three component practical-oriented approach in undergraduate and postgradu; 2017; Arzamas, Russia. p. 517-520.

[13] Zhuravl'ova LV, Lopina NA Suchasni pidkhody do vyshchoi medychnoi osvity v Ukraini (z dystantsiinym pid'iednanniam VM(F)NZ Ukrainy za dopomohoiu videokonferents-zv'iazku). Materialy XIV Vseukrainskoi naukovo-praktychnoi konferentsii z mizhnarodnoiu uchastiu, prysviachenoi 60-richc. Trykomponentnyi praktychno-oriientovanyi pidkhid u dodyplomnii ta pisliadyplomnii pidhotovtsi likariv z dystsypliny «vnutrishni khvoroby» za dopomohoiu interaktyvnykh trenazheriv; 2017; Ternopil, Ukraine: I. Horbachevsky Ternopil State Medical University. p. 335–336.

14] Zhuravl'ova LV, Lopina NA [Meaning of educational web-quest as an important part of practically-oriented continuous postgraduate training of doctors]. Aktualni pytannia yakosti medychnoi osvity (z dystantsiinym pid'iednanniam VM(F)NZ Ukrainy za dopomohoiu videokonferents-zv'iazku). Materialy XIII Vseukrainskoi naukovo-praktychnoi konferentsii z mizhnarodnoiu uchastiu. Znachennia osvitnoho veb-kvestu yak vazhlyvoi skladovoi praktychno-oriientovanoi bezperervnoi pisliadyplomnoi pidhotovky likariv.; Ternopil, Ukraine; 2016: I. Horbachevsky Ternopil State Medical University. p. 268-269.

[15] Zhuravleva LV, Lopina NA [Informational content of medical education web-quest]. Sovremennye Web-tekhnologii obrazovatel'nogo naznacheniia: perspektivy i napravleniia razvitiia. Sbornik statei uchastnikov Mezhdunarodnoi nauchno-prakticheskoi konferentsii. Mironova SV, Napalkov SV, editors. Informatsionnyi kontent meditsinskogo obrazovatel'nogo veb-kvesta .; 2016; Arzamas, Russia: Arzamasskii filial NNGU. p. 160-164.

[16] Zhuravleva LV, Lopina NA [Meaning of educational web-quest as an important part of practically-oriented continuous training of doctors].Elektronnoe obuchenie v nepreryvnom obrazovanii. Materialy III Mezhdunarodnoi nauchno-prakticheskoi konferentsii. In Zhuravleva LV, Lopina NA. Znachenie obrazovatel'nogo WEB-kvesta kak vazhnoi sostavliaiushchei prakticheski orientirovannoi nepreryvnoi professional'noi podgotovki vrachei .;2016; Ul'ianovsk, Russia. p. 720–730.

[17] Zhuravlova LV, Lopina NA Symuliatsiine navchannia v systemi pidhotovky medychnykh kadriv. Materialy L navch.-metod. konf., prysviachenoi 212-i richnytsi vid dnia zasnuvannia KhNMU. In Trenazher vyznachennia kardiovaskuliarnoho ryzyku v dodyplomnii ta pisliadyplomnii pidhotovtsi likariv zahalnoi praktyky yak nova forma ovolodinnia praktychnymy navychkamy; 2016; Kharkiv, Ukraine: KhNMU. p. 49-51.

[18] Zhuravlova LV, Lopina NA Orhanizatsiia navchalnoho protsesu studentiv z riznymy kvalifikatsiinymy rivniamy

pidhotovky v KhNMU. Materialy XLVII navchalno-metodychnoi konferentsii. In Zaprovadzhennia novitnikh metodiv navchannia na rivni pisliadyplomnoi osvity; 2013; Kharkiv, Ukraine: KhNMU. p. 225.

[19] Zhuravlova LV, Tsivenko OI, Lakhno OV, Lopina NA Aktualni pytannia linhvistyky, profesiinoi linhvodydaktyky, psykholohii i pedahohiky vyshchoi shkoly. Zbirnyk statei I Vseukrainskoi naukovo-praktychnoi konferentsii z mizhnarodnoiu uchastiu. In Novatsii u vykladanni vnutrishnikh khvorob pry pidhotovtsi likariv na kafedri vnutrishnoi medytsyny №3 Kharkivskoho natsionalnoho medychnoho universytetu. [Innovation in teaching of internal medicine in preparation of doctors at the department of internal medicine №3 in Kharkiv national medical university]; 2016; Poltava, Ukraine. p. 66-70.