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## WYZWANIA I PERSPEKTYWY WYŻSZEGO WYKSZTAŁCENIA MEDYCZNEGO NA UKRAINIE

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**Adnotacja.** W artykule przedstawiono perspektywy reformy szkolnictwa wyższego na Ukrainie zgodnie ze standardami europejskimi i amerykańskimi. Główne cele, które mają być realizowane przed 2025 r. to: poprawa jakości edukacji medycznej; aktualizacja treści edukacyjnych na podstawie osiągnięcia współczesnej nauki medycznej i medycyny opartej na dowodach. Dlatego nowe standardy edukacji muszą zostać opracowane, określone i oficjalnie zatwierdzone, biorąc pod uwagę zalecenia Światowej Federacji Edukacji Medycznej. Celem reform w szkolnictwie wyższym jest stworzenie ujednoczonych kryteriów, metodologii i systemów kontroli, a także wzajemne uznanie dyplomów ukończenia studiów wyższych i promowanie mobilności akademickiej studentów i wykładowców. W 2017 r. przyjęto szereg ustaw reformatorskich mających na celu przekształcenie systemu opieki zdrowotnej na Ukrainie. Innowacje te potwierdzają znaczenie podniesienia wymagań wstępnych dla kandydatów na wyższe uczelnie medyczne.

**Słowa kluczowe:** edukacja medyczna, reformy, opieka zdrowotna, edukacja jakościowa, standardy edukacji, studenci medycyny.

## CHALLENGES AND PERSPECTIVES OF HIGHER MEDICAL EDUCATION IN UKRAINE

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**Abstract.** The article presents perspectives of reforming higher medical education in Ukraine based on European and American standards. The main goals to be accomplished until 2025 include: to improve the quality of medical education; to renew the content of education based on achievement of modern medical education and evidence-based medicine. Therefore, new standards of education, taking into consideration recommendations of World Federation of Medical Education, should be elaborated, discussed and officially approved. The aim of reforms in higher education is creation of unified criteria, methodologies and control systems as well as mutual recognition of diplomas on higher education, promotion of students' and lecturers' academic mobility. In 2017, a number of reforming laws were adopted in Ukraine aimed at transforming the system of health care in Ukraine. These innovations confirm the importance of increasing entrance requirements for applicants to higher medical educational establishments.

**Key words:** medical education, reforms, health care, quality education, standards of education, medical students.

## ВИКЛИКИ ТА ПЕРСПЕКТИВИ ВИЩОЇ МЕДИЧНОЇ ОСВІТИ В УКРАЇНІ

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**Анотація.** У статті представлено перспективи реформування вищої медичної освіти в Україні відповідно до європейських та американських стандартів. Основними завданнями, які повинні бути здійснені до 2025 року, є покращити якість медичної освіти; оновити зміст освіти, базуючись на досягненнях сучасної медичної науки

та доказової медицини. Тому нові стандарти освіти повинні бути розробленими, обговореними й офіційно затвердженими, беручи до уваги рекомендації Всесвітньої федерації медичної освіти. Метою реформ у вищій медичній освіті є створення уніфікованих критеріїв, методологій і систем контролю, а також взаємне визнання дипломів про вищу освіту і сприяння академічній мобільності студентів і викладачів. У 2017 році прийнято низку реформаторських законів, спрямованих на трансформування системи охорони здоров'я в Україні. Ці інновації підтверджують важливість підвищення вступних вимог до абітурієнтів вищих медичних навчальних закладів.

**Ключові слова:** медична освіта, реформи, охорона здоров'я, якісна освіта, стандарти освіти, студенти-медики.

**Introduction.** An optimal strategy of achieving conceptually new level of qualified training of future medical specialists is the search for improved standards of higher medical education. As medicine is continuously developing, new methods of diagnosis and therapy are being implemented, curricula for training medical specialists should be reviewed and updated. They should be based on European standards of treatment, modern information technologies, and practical skills to work with the advanced therapeutic and diagnostic equipment. However, the peculiarities and interests of the national system of health care should also be considered. Without changes in the paradigm of higher medical education in Ukraine, it is impossible to build the system of health care, which will be based on standards of the developed world.

The issues of higher medical education in Ukraine have been studied by O. Linchevskiy et al, who focus on the ways of higher medical education system reforming in Ukraine (Лінчевський, Черненко, П'ятицький, Булах, 2017); Y.V. Polyachenko, V.H. Perdederiy, O.P. Volosovets et al have analyzed the systems of medical education in Ukraine, European countries and America, compared different systems of education, their advantages and problems, key aspects of reforming medical education in Ukraine (Поляченко, Передерій, Волосовець, 2005); O.V. Belikov et al analyzed components of qualitative medical education and directions for further optimization of educational process at the undergraduate level in Ukraine (Беліков, Струк, Ватаманюк, 2020); V.S. Andruk et al have focused on the issues of continuing professional development of doctors, main directions and perspectives of developing the system of continuing professional development of medical specialists after graduation, which will support and improve the standards of their professional activity according to needs of health care system (Андрух, Андрух, Слободян, 2019).

**Materials and methods.** Literature review has been conducted to analyze articles pertaining to higher medical education in Ukraine; analysis of the orders and strategies of the Ministry of Health in Ukraine has been performed.

**Aim** of the paper – to highlight the main ways and challenges of development of higher medical education during reform period.

**The results and discussion.** In 2017, a number of reforming laws were adopted in Ukraine aimed at transforming the system of health care in Ukraine. Transformations in health care system are a comprehensive and continuous process. There is a need in synchronizing the processes of reforms in the system of health care and alterations in approaches to training physicians and other medical specialists, who will provide new qualified services to patients. The tasks of medical education are providing qualified medical care via high level of training medical professionals. Patients' life and health should be the basic human and professional values for a doctor. Qualitative medical care is impossible without changes in culture paradigm and creation of completely new professional environment as, at present, more attention is paid to prevention of diseases and maintenance of health.

Currently, over 150 thousands of Ukrainian citizens are getting higher medical education. However, there is no an efficient system to prognosticate the required number of medical graduates. The existing records of medical specialists do not present a real situation. The reform of health care, which started in 2017, will result in changes of the number and functional duties of medical staff (URL: <https://www.kmu.gov.ua/news/250039591>). Besides, taking into consideration international experience, it is evident that the number of medical graduates is rather exceeding real needs. For example, the number of graduates per one million of the population in Ukraine is higher than in the USA and Canada. The issue of quality education remains urgent in Ukraine. The first steps were made in 2017, when minimum score of the results of Independent External Testing to higher medical educational establishments was increased from 100 to 150 for such subjects as chemistry and biology to apply for general medicine and dentistry and 130 points to apply for pharmacy programs. Thus, the mean score of applicants for state financing programs constitutes approximately 181–196 points for dentistry specialty, from 150 to 174 points for medicine and 182–194 for pharmacy, which differs among universities (URL: [https://moz.gov.ua/uploads/1/8475-medical\\_education\\_analytics.pdf](https://moz.gov.ua/uploads/1/8475-medical_education_analytics.pdf)).

Such innovations confirm the importance of increasing entrance requirements for applicants to higher medical educational establishments. Thus, students in recent years have shown better results in passing qualifying exams Krok 1 (Step 1) and Krok 2 (Step 2). More severe requirements for entry to medical specialties are common worldwide. For example, in Great Britain 25 out of 31 medical universities choose candidates by UKCAT results, the test, which reveals mental abilities, needed for future doctors. On admission to medical establishments, academic results, motivation letters, recommendations from schoolteachers etc. are taken into consideration. Moreover, universities also set their own requirements for passing scores (URL: <https://www.medschools.ac.uk/studying-medicine/making-an-application/entry-requirements>). In the US, to apply to a medical school, applicants need to get a Bachelor's (undergraduate) degree in a related Science subject (common choices are Chemistry and Biology). Then, applicants can enroll in a Medicine degree, which usually lasts 4 years. Here are the general medical school requirements for the US:

– High school diploma,

- Undergraduate degree in the field of Sciences (3–4 years),
- Minimum undergraduate GPA (Grade Point Average) of 3.0,
- Good TOEFL language scores,
- Letters of recommendation,
- Extracurricular activities.

Minimum MCAT exam result (set by each university individually).

The Medical College Admission Test (MCAT) is a multi-choice exam created by the Association of American Medical Colleges (AAMC). Almost all US medical schools require applicants to submit MCAT exam scores during their university application.

The MCAT is designed to assess whether prospective medical students have the conceptual understanding and analytical skills necessary for success in medical school (URL: <https://www.usnews.com/education/best-graduate-schools/top-medical-schools/articles/what-is-the-mcat-test-like-and-how-do-you-prepare-for-it>).

In 2017, the Testing Center of the Ministry of Health in Ukraine conducted a comparative investigation of the quality of medical education in Ukraine at postgraduate level of doctor training. Thus, 4906 doctors-interns participated in the investigation. Licensing exam Krok 3 “General doctor training” included a test with 30 tasks on emergency aid based on USMLE. In general, the interns chose the correct answer for 37.7% of questions; however, only 3% of interns received the required scores to pass the exam (URL: <https://www.kmu.gov.ua/news/250039591>). The causes of such results are lack of financing, syllabi differing from international ones, insufficient control of the quality of tests, absence of the motivation system for lecturers to compile quality tasks, etc. These factors indicate the necessity of introducing independent external evaluation of education quality of future medical professionals. On the one hand, a new system of evaluation should not allow those graduates, who have not achieved a proper level, to practice medical professions. On the other hand, it should stimulate universities to change and improve syllabi, so that students can achieve this level. To improve the level of requirement for medical students, standards of the Unified state qualification exam in health care were approved in 2017. Thus, medical students should pass exams Krok, international exam on fundamentals of medicine, exam on the English language and practically oriented exam, which will help objectively assess students’ practical skills. A highly qualified doctor should also have a good command of English to follow the latest achievements in medical science in developed world. At present, English prevails in the articles published in scientific medical journals. Besides, participation in international scientific conferences also requires knowledge of English.

The Ministry of Health Care in Ukraine has elaborated fundamental directions for reforming medical education (URL: <https://www.kmu.gov.ua/news/250039591>). The main goals to be accomplished until 2025 include: to improve the quality of medical education; to renew the content of education based on achievement of modern medical education and evidence-based medicine. Therefore, new standards of education, taking into consideration recommendations of World Federation of Medical Education, should be elaborated, discussed and officially approved. Compilation of new syllabi and curricula by medical universities, which will include more hours for practical training, according to new standards and international experience is important. The following steps are planned in reforming and improving higher medical education:

- Qualitative selection of students for medical specialties;
- Analysis of possibilities for implementing a test for general competencies;
- Conduction of sociological surveys among medical students to determine the level of satisfaction with education, career plans, etc.;
- Improvement of quality of independent evaluations of students’ academic performance;
- Regulation of conducting a Unified state qualification exam; reviewing and editing a compilation of Ukrainian tests for licensing exam Krok; technical advancement of the testing procedure;
- Elaboration and implementation of objective structured clinical examination (OSCE);
- Implementation of the course for training experts to work with independent evaluation;
- Ratification of memorandums on cooperation and mutual recognition of the assessment results with European educational associations;
- Elaboration and implementation of a complex program for improving the level of the English language by lecturers and students, creation of real opportunities for studying English;
- Improvement of teacher qualification at medical universities; compilation of programs for improving qualification (financing sources, determination of key aspects, search for partner organizations for training);
- Elaboration of programs for studying and improving qualifications in universities and medical establishments abroad, participation in international conferences for lecturers and postgraduate students;
- Consideration of the level of the English language command, publications indexed in Scopus and Web of Science for employment agreement extension.

The innovations concerning conditions of internship training include:

- Analysis and choice of an internship model;
- Reduction of the number of specialties in internship;
- Clarification of the requirements for locations of internship training;
- Formation of a national ranking of students by objective independent criteria of assessment;
- Compilation of a national registry of internship with a number of positions by specialties and locations of training;

– Elaboration of software for objective and public distribution to locations of internship training based on ranking;

– Implementation of a new model of internship training: new bases, curricula, rotation principles, mechanism of financing; academic mobility of interns; assessment of internship training results.

A new strategy in reforming medical education implies elaboration and implementation of residency, the tasks of which will include:

- Investigation of an optimal model of residency;
- Regulation (determination of a list of specialties, duration of study);
- Determination of requirements for residency training and licensing;
- Mutual recognition of residency with European countries.

Continuing professional development based on international practices implies:

- regulation of continuing professional development;
- determination of requirements for providers of continuing professional development;
- providing the doctors possibilities of choosing a location for improvement of qualification;
- changes in the model of financing continuing professional development.

Efficient administration is aimed at the model based on activity results. The tasks imply:

- elaboration of the mechanism for determining needs in certain medical specialties;
- elaboration of a model and calculation of a complete cost for training each student;
- analysis of incomes and costs in the system of medical education and science;
- elaboration of key indicators of success in activities of medical universities (faculties) and mechanism

of recording relative data.

Implementation of autonomy of higher medical educational establishments (financial, organizational, and academic) includes review of legislation, which regulates issues of activities of medical universities; implementation of efficient mechanisms for accreditation of educational curricula and syllabi by medical specialties; creation of university clinics.

Alterations in academic culture include assertion of principles of academic integrity in educational institutions, combating plagiarism, falsifications and other forms of academic dishonesty in medical education and science. The tasks include:

- creation of the Committee of academic integrity in medical education;
- elaboration and approval of ethical codes for medical universities and faculties;
- formation and efficient activity of ethical committees in universities;
- purchase and application of software to check papers for plagiarism – for universities and scientific establishments;
- compulsory checking of all dissertations and students' papers for plagiarism;
- retrospective possible checking for academic integrity of dissertations;
- compulsory checking for academic integrity of candidates for positions of rectors, deans, heads of the departments, results of which should be published on sites of universities and the Ministry of Health of Ukraine;
- termination of employment agreement for academically dishonest staff.

Internationalization of medical education implies:

- expansion of institutional activities of medical universities and faculties in terms of international activity;
- conduction of trainings on writing grant applications, participation in the programs Erasmus+;
- creation of a state program of promoting students' academic mobility;
- invitation of 50 foreign lecturers annually to deliver lectures at Ukrainian universities during one semester.

Improvement of financial supply for conduction of scientific investigations implies:

- investigation of scientific potential and publication activity of Ukrainian researchers in health care;
- elaboration of recommendations on improvement of quality of research and publications;
- elaboration of mechanisms of financing priority research directions;
- creation of pivotal centers for performing investigations in health care.

Encouragement of Ukrainian scientists to conduct quality investigations, which will be published in advanced international journals, is of utmost importance. The following steps are to be taken:

- training and consultations of universities and/or scientific establishments on compiling applications within international programs;
- elaboration of a program for qualification improvement of lecturers and scientists on scientific researches with involvement of leading Ukrainian and foreign scientists;
- creation of a program for supporting Ukrainian researchers in participations in international conferences, short-term training abroad;
- creation of a program of financial encouragement of Ukrainian scientists to publish in advanced international journals (bonus payment for each publication).

The level of dissertations should also be reviewed. Thus, the tasks include:

- implementation of independent anonymous reviewing of dissertations with involvement of at least one specialist, who does not work in Ukraine;
- calculation of complete cost for training one postgraduate student that will include the costs for conducting research, participation in international conferences, etc.;

- introduction of improved requirement for quality of publications;
- implementation of a control of scientific novelty of dissertation research at the stage of initial approval by involving anonymous independent experts (from other establishments and from abroad).

**Conclusions.** The main purpose of reforming higher medical education is generation of new medical specialists due to implementation of European educational and medical standards and improvement of intellectual, scientific and educational, professionally oriented level of future doctors, availability of modern, more efficient innovative and informative medical technologies.

The idea of reforming higher medical education implies adaptation of the national system of higher education to European standards. The aim of reforms in higher education is creation of unified criteria, methodologies and control systems as well as mutual recognition of diplomas on higher education, promotion of students' and lecturers' mobility.

The content of education requires renewal since the knowledge, the students receive, is not always relevant and up-to-date. There is a lack of balance between theoretical and practical training, therefore, university graduates are not always ready for practical activity. Lack of unity between higher education, science and practical activity and insufficient financing are topical issues. Among other problems in medical education are absence of university clinics, bases for training students, lack of communication between medical establishments, universities and authorities. Universities do not influence decision-making. Academic dishonesty and plagiarism in universities forms distorted professional medical community. Due to low level of academic mobility, lack of international experience among university staff, Ukrainian medical education and science are actually isolated from the world. However, steps are being taken to improve and reform medical education for achieving qualitative indices of medical university activities, which have already shown positive results.

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