

Fomina Ye. V., Ponomaryova L. I.

Competence-Based Approach and Prospects for Continuous Medical Education in Addressing Current Issues in Healthcare Organisation and Management

V. N. Karazin Kharkiv National University, Kharkiv, Ukraine

Фоміна Є. В., Пономарьова Л. І.

Компетентнісний підхід та перспективи розвитку безперервної медичної освіти у вирішенні актуальних питань організації та управління охороною здоров'я

Харківський національний університет імені В. Н. Каразіна, м. Харків, Україна

e.v.fomina@karazin.ua

Introduction

The system of continuous medical education plays a key role in providing practical healthcare with highly qualified specialists. With a constant increase in the volume of information and the introduction of innovative technologies in diagnosis and treatment, it should be flexible and multifunctional [1].

In the current situation, developing an additional education system requires special attention and the use of various forms and teaching methods. The main purpose of postgraduate education is to enhance the skills of medical personnel, develop their professional knowledge, abilities, and critical thinking, and strengthen the personal qualities necessary for effective professional activity and the delivery of high-quality medical care [2].

In addition to the system of awarding points for participation in scientific and practical conferences, medical professionals are required to continuously improve their professional qualifications through systematic self-education and regular advanced training courses in their speciality. In the current situation, with the possibility of various emergencies, distance learning is becoming particularly relevant and important for the postgraduate training of medical specialists.

Despite the growing body of research on continuous medical education, there is a lack of studies addressing the implementation of competency-based approaches amid the current challenges facing the healthcare system in Ukraine, particularly amid the ongoing military conflict. The study provides pilot data on the effectiveness of combining active learning methods and distance education in postgraduate medical training under current conditions in Ukraine.

The objective of the study is to analyse modern methods of continuous medical education and identify effective strategies to improve the quality of lifelong learning and the professional competence of healthcare specialists in the current context.

Additionally, the study aims to identify effective strategies to improve the quality of lifelong learning in the medical field and enhance the professional competence of healthcare specialists.

Object, materials and methods of research

The object of the research is the system of continuous medical education and professional training of medical workers.

An integrated approach was applied in the study. The study involved 24 medical professionals aged 35 to 55 years (mean age – 44.2 ± 5.6 years), including 16 women and 8 men. The participants had professional experience ranging from 10 to 30 years, with an average length of service of 18.7 ± 6.3 years.

Inclusion criteria were: (1) higher medical education; (2) current employment in a healthcare institution; (3) participation in the specialisation cycle “Organisation and Management of Healthcare”; (4) at least 10 years of professional experience; (5) voluntary informed consent to participate in the study.

Exclusion criteria included: (1) incomplete questionnaire data; (2) less than 10 years of professional experience; (3) refusal to participate at any stage of the study.

Participants were selected using convenience sampling from medical professionals enrolled in the specialisation cycle at the Department of Hygiene and Social Medicine at V. N. Karazin Kharkiv National University. In addition, statistical data on their educational background and professional activities were analysed, along with a review of relevant scientific literature. The study has a pilot character.

The research methodology was based on questionnaires, statistical analysis, interviews with teaching staff, and a comparative analysis of different forms of postgraduate education, including distance learning and traditional face-to-face methods.

Data processing was performed using descriptive statistical methods in Microsoft Excel.

Data processing. The results of the study were processed using descriptive statistics methods. The analysis of relative values (as percentages), the comparative analysis of the obtained data, and their generalisation were carried out. Statistical processing was performed using Microsoft Excel.

Research results

Regardless of whether postgraduate training is conducted within a large educational institution or directly within healthcare institutions, it is necessary to take into account the specifics of adult education. This is because teachers interact with experienced specialists who have already formed professional knowledge and views.

Several specific features characterise adult education. Motivation to learn in adults arises, as a rule, from an urgent need for new knowledge or from the pressure of professional requirements. Experienced professionals expect practical advice and recommendations from the training to solve relevant professional tasks. Adult learners prefer comfortable learning conditions in small groups and require more time to assimilate the material. Many adults fear appearing incompetent or failing in the learning process.

To ensure effective continuous learning under the current military operations in our country, we believe it is necessary to adopt an integrated approach that combines traditional academic methods with distance learning.

Distance learning also has several advantages, especially for adult professionals.:

- Modular structure: The training is organised in modules, which allows students to study the material at a convenient pace.
- Flexibility: the ability to learn anytime, anywhere.
- Work compatibility: Distance learning does not require separation from professional activities.
- Remoteness: the possibility of learning regardless of location.
- Asynchrony: The training takes place according to an individual schedule.
- Mass participation: the number of students is unlimited.
- Cost-effectiveness: Distance learning reduces costs by 10–15 %.

It should be noted that distance learning requires students to be highly motivated, self-organised, hardworking, and to have a certain level of education. The role of the teacher in this learning format is to coordinate the process, adjust the course, consult, and lead projects.

The use of social media in the educational process offers significant opportunities. Students can view video and audio materials of lectures and classes, which contributes to a better understanding and assimilation of the material. The possibility of repeated viewing

helps to consolidate knowledge. Social networks create a convenient space for communication between teachers and students. Forums allow you to discuss complex issues, and chat rooms allow you to have real-time discussions.

The use of information technology in education faces several problems. Firstly, the amount of information on the Internet may exceed the learner's ability to comprehend and assimilate it. Secondly, the effectiveness of the educational process may decrease due to insufficient technical equipment and a low level of computer literacy among both students and teachers.

Students' preferences regarding the effectiveness of various active learning methods are presented in Table 1 and Figure 1.

Table 1

Evaluation of the effectiveness of active teaching methods according to the survey of specialists ($n = 24$)

Teaching Method	High Effectiveness (n)	Medium Effectiveness (n)	Low Effectiveness (n)
Case-study technologies	17	5	2
Simulation training	20	3	1
Brainstorming	13	9	2
Distance learning modules	16	6	2
Business games	11	10	3

The highest level of effectiveness was observed for simulation training (85 %), followed by case-study technologies (72 %) and distance learning modules (68 %). Lower effectiveness was reported for business games (45 %), indicating variability in the perceived usefulness of different active learning methods.

Discussion of research results

Also, in our opinion, the following teaching methods used in postgraduate education yield good results: case technologies, business games, the project method, brainstorming, and simulation training [3].

The choice of technologies is influenced by the peculiarities of the medical speciality itself, in which, of course, both knowledge and practical components are clearly expressed [4]. Among the most common objections to the expediency of using various educational technologies in medical education, it is necessary to highlight the thesis that nowhere is it more evident than at the bedside of a patient that a doctor has the required knowledge, skills, and abilities. However, not always, and not every example can be considered directly "on the patient". At the same time, the existing active technologies and teaching methods make it possible to train specialists just as effectively. Therefore, without detracting from the importance of clinical analysis, we consider the use of other active methods equally important. In postgraduate medical education, the choice of technologies and methods

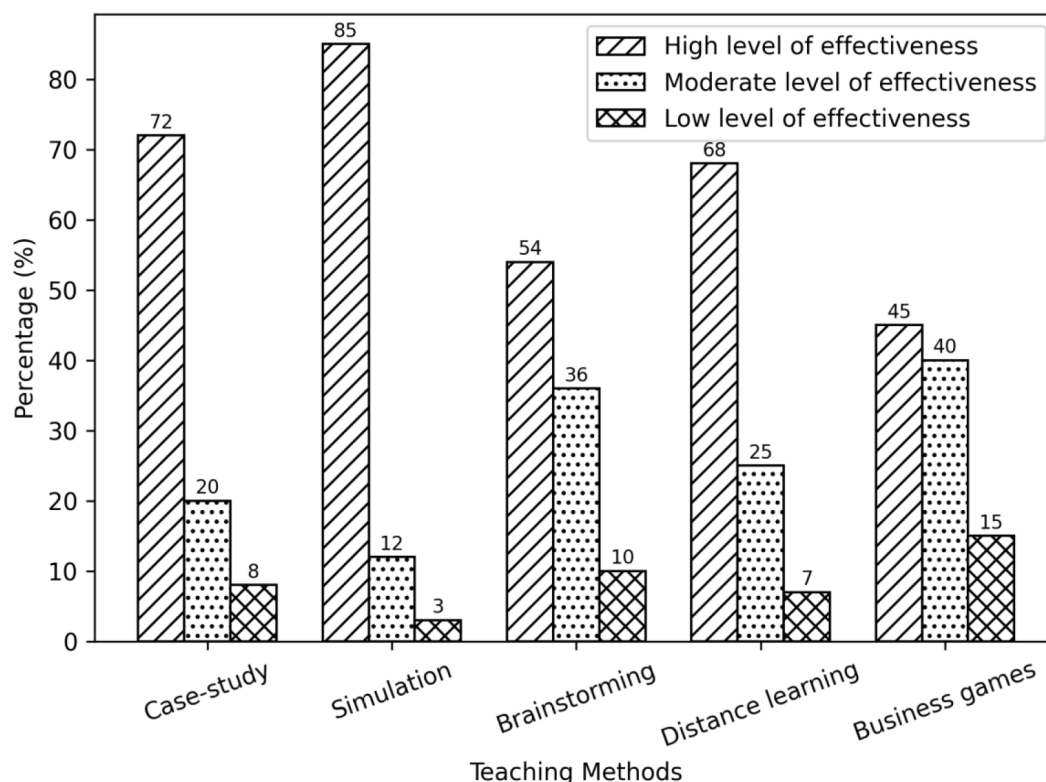


Fig. 1. Distribution of responses regarding the effectiveness of active teaching methods, %

is influenced primarily by the specifics of the student body, since it is always an adult audience of specialists who have received higher education [5]. In this regard, teachers need to take into account the patterns and principles of andragogy.

The main methods and technologies of active learning are business games, the project method, brainstorming, and case studies, which are most acceptable in adult education. Active learning technologies rely not only on the processes of perception, memory and attention, but, above all, on creative, productive thinking, behaviour, and communication.

One of the active learning technologies is case technology, or rather, a group of case technologies, since today there are many ways to use this method to activate students in the learning process [6]. For teaching doctors, case technologies are of particular interest, since the range of adult education methods remains limited and, given the medical specifics, is even more limited. Cases, as an improved version of situational tasks, have always been used in medical didactics. We consider the case as not just a true description of events, but a single information package that allows us to understand the situation. A well-crafted case provokes discussion, links students to real facts, and allows them to model a real problem they may face in practice.

One option for using case technologies is simulation training, which allows you to play out various scenarios using specialised equipment.

As practice shows, the greatest effect is achieved with a combination of methods. This is especially true for such a productive technology as gaming. Ideas about

the essence and specifics of the business game are not always unambiguous [5]. I want to note that the adult audience of listeners is very willing to engage in gaming processes; doctors are happy to try themselves in different roles and note the effectiveness of such training compared to a traditional lecture.

Business games based on a case are often used; that is, they combine methods that yield a good learning effect.

A well-known method like “brainstorming” can also be actively mastered and used in practical classes. This technique suggests a collective way to quickly generate the necessary variety of ideas that can serve as a basis for finding a solution to a problem. You can generate not only ideas and identities but also information (that is, find out the sources of information) and formulate questions and problems.

Another method that has long been used in practical pedagogy is the project method, that is, training in which students acquire knowledge and skills through the process of planning and completing progressively more complex practical tasks-projects [7]. Experience shows that this method can also be included in the arsenal of teaching doctors, most often in teaching therapeutic specialties. The main difficulty associated with using the project method is the search for problems and forecasting educational products, based on which students will master the material of the cycle. For example, information projects offered to students relate to the characteristics of a disease or group of diseases and to treatment methods. The products can be: a multimedia presentation, a guidebook, a reference book, etc. Practice-oriented projects may lead to creative developments: a scenario for a business game, a lecture

hall for parents, a case, methodological recommendations, and test questions. Research projects have, for example, the following focus: "Features of diseases and their prevention"; "Analysis of morbidity in the region and ways to reduce it"; "Analysis of a sociological survey on the methods of prevention used", "Combining the efforts of various specialists and services in solving epidemiological problems", etc.

A great incentive for teachers to master non-traditional teaching technologies is conducting open classes, joint lectures, seminars, and workshops using modern methods, which offer opportunities to learn from colleagues' experience and to present their pedagogical findings. Of course, using active technologies and teaching methods requires time and additional efforts from teachers. But it brings its results. Students taught with active technologies and teaching methods report greater effectiveness than those taught with traditional methods in mastering the material and considering the multilateral aspects of a particular problem. And most importantly, the use of non-traditional learning technologies improves the quality of specialist training, as evidenced by students' successful completion of final control.

The educational process in medical universities should also aim to develop communication skills and foster clinical thinking [8]. In the medical profession, virtual interaction cannot replace personal contact between a doctor and a patient. Therefore, to create a flexible and multifunctional postgraduate education system, it is necessary to introduce a combined full-time and distance-learning model, which will certainly increase the effectiveness of professional training for medical specialists [9].

It should also be noted that, worldwide, improving the quality of training programs for medical specialists is a priority task for higher medical schools [10].

The quality of the curriculum is difficult to establish, since it encompasses several hard-to-assess processes and conditions: the structuring of the information transmitted, students' perception and assimilation, the characteristics of the pedagogical environment, and many others.

In addition, there are widespread discrepancies in the understanding of the quality of education between the academic community and representatives of practical healthcare, which leads to conceptual conflicts both in determining the priority direction of development and in the pace of innovation in the educational process [11].

One of the main directions of improving the quality of education is a competence-based approach. Back in the early 1950s, Ralph Tyler from Ohio University (USA) drew attention to the fact that the content of the theoretical block of disciplines is absorbed by students much better, and the transition to practical work becomes less painful if it is directly linked to clinical disciplines and the patient's treatment process [12]. In 1978, for the first time, training programs were created for university medical faculties, focused not on gaining knowledge in individual academic disciplines, but on developing competencies for practical

work in the clinic. The idea of the competence approach was based on three postulates: (1) the educational process is organised around the functions required of a specialist in his workplace; (2) all trainees can achieve the required minimum level of mastery of these functions; (3) the level of their mastery can be empirically tested [13].

Even though the idea of a competence-based approach in medical education has been discussed for more than half a century, there are still contradictions both in the interpretation of terms and in organisational and methodological decisions related to this topic. Often, the new approach is declarative when competencies are understood as knowledge and practical skills; in fact, we are talking about the previous subject-centred specialist training system. Competence should be understood as the reasonable, practical use of a complete set of their abilities, brought to automatism. This complex includes: effective communication, knowledge, practical skills, clinical thinking, emotional reactions to the workflow and to oneself as a participant in it, a specialist's value system, and the ability to analyse mistakes in daily practice, both for personal growth and to improve the healthcare system. If the profession of a doctor can be broken down into a list of individual tasks, then the ability to solve each of these tasks should be defined as a competence, and the educational process should be structured methodically and organizationally so that this competence is formed by the trainee as quickly as possible. At the same time, the formation of competence is loosely related to the duration of study: students with different abilities require different periods of study to develop the same competence, which opens the possibility of creating individual learning trajectories for students.

To ensure the introduction of a competence-based approach in the academic environment, it is necessary first to determine exactly how much knowledge in each academic discipline, especially in theoretical courses, is required to develop the competencies of a doctor working in healthcare institutions at different levels.

Students study the entire body of knowledge within this discipline, which results in an uncontrolled increase in the amount of information studied and a decrease in the quality of training.

The learning outcome cannot be assessed at a specific point in time, i.e., on an exam, even if there are several such exams. The assessment should be integrative and time-consuming. On the other hand, the functions of training and quality assessment should be separated, and specialised, independent structures should carry out quality assessment. And finally, the scale of grades completely loses its meaning; gradation matters: the exam is passed or not passed, which means that this graduate can be admitted to independent activities (or enter the next stage of preparation) or cannot be.

The assessment of competencies must comply with 6 basic principles.

First, the current assessment should be conducted as often as possible, ideally constantly, in fact, online, so

that at any moment of observation, you can see the progress or regression of the trainee. Secondly, the assessment should be based on generally accepted criteria of the analysed competence. Competence cannot be considered achieved solely because a student achieves better results than other students. Thirdly, the real work for which the trainee is being prepared should be evaluated; evaluation using simulation techniques is possible only at the early stages and for a limited number. Fourth, evaluation tools should not be unnecessarily expensive and should inspire confidence in the results. Fifth, a qualitative approach should be used primarily, rather than a quantitative one: expert opinions are more important than percentages, scores, and ratings.

Finally, the sixth, the opinion of the evaluator himself, should be included in the overall assessment of competencies. As a result, the competence assessment process is lengthy and costly, requires the participation of many experts, and can take several months. But it should be understood that the complexity of the assessment tools should correspond to the complexity of the phenomenon being evaluated. Otherwise, the assessment of competencies will be reduced to the traditional model of assessing knowledge, skills, and abilities [14; 15].

Our findings align with the global trend toward transitioning from traditional lectures to interactive, competency-based models. As noted by Filipe et al. (2017) [16], continuous professional development is no longer just about acquiring information, but about systemic improvement of clinical outcomes. The high interest of our students in simulation and case technologies (Table 1) confirms that for adult learners in Ukraine, the practical utility and flexibility of the educational process remain the key motivators, especially in the context of current security challenges.

Prospects for further research

To promote the integration into the process of continuous medical education of an objective and certified

national system for assessing the competencies of medical professionals, based on a rigorous and evidence-based scientific basis.

Development of integrated programs that combine optimal amounts of information technology, progressive teaching methods, and distance education.

Conclusions

Modern teaching methods in continuous medical education, including distance learning and the use of information technology, as well as such progressive teaching methods that are now also used in medical education, such as case technology, business games, project method, brainstorming, simulation training, significantly improve the quality of specialist training due to flexibility and the ability to combine them with professional activity of potential participants in the learning process. But here it is important to determine the optimal use of information technologies, progressive teaching methods, and distance education. However, it is important not to forget that, despite the advantages, distance learning cannot completely replace traditional methods, especially in medicine, where personal contact between doctor and patient is important.

The optimal combination is full-time and distance learning, which ensures effective professional training of medical professionals. Unfortunately, at this point, given the ongoing active hostilities in our country, it is quite difficult to implement.

It should also be noted that the transition from the classical assessment of specialist training results to the assessment of competencies, which we analysed above, is a progressive trend in the development of medical education. At the same time, competence assessment is a much more difficult task than knowledge assessment. An objective, certified national system for assessing the competencies of medical professionals is needed, grounded in rigorous, evidence-based science.

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Purpose: to study the competence-based approach and the quality of medical education at the postgraduate stage of specialist training, to highlight the use of modern active technologies and methods in the training of medical personnel, and to analyse organisational and methodological issues related to the implementation of this experience, as well as the prospects for the development of continuing medical education.

Materials and methods. In the course of the study, an integrated approach was applied, including a survey of medical professionals who were students of the specialisation cycle “Organisation and Management of health protection” of the Department of Hygiene and Social Medicine of V. N. Karazin Kharkiv National University.

Results. In the study, the authors paid special attention to methods such as case technology, business games, the project method, brainstorming, and simulation training. But the greatest effect is achieved with a combination of methods. Learning with the help of active technologies in improvement cycles is of greater interest to adult specialists compared to traditional methods. In addition, modern learning technologies improve the quality of education, as evidenced by the final control results.

Conclusions. Modern teaching methods in continuous medical education significantly improve the quality of specialist training due to their flexibility and their ability to integrate with participants’ professional activities during the learning process. Today, the transition we have analysed, from the classical assessment of training medical specialists’ results to the assessment of their competencies, is quite progressive.

Key words: medical workforce development, lifelong professional training, competency assessment, healthcare management education, simulation-based learning, digital learning environments.

Мета: дослідити компетентнісний підхід і якість медичної освіти на післядипломному етапі підготовки фахівців, висвітлити використання сучасних активних технологій і методів у підготовці медичних кадрів, а також проаналізувати організаційні та методичні питання впровадження цього досвіду і перспективи розвитку безперервної медичної освіти.

Матеріали та методи. У ході дослідження було застосовано комплексний підхід, що включав поєднання різних методів аналізу та збору інформації. Зокрема, було проведено анкетування медичних працівників, які були слухачами циклу спеціалізації «Організація і управління охороною здоров'я» кафедри гігієни та соціальної медицини Харківського національного університету імені В. Н. Каразіна. Дослідження охоплювало 24 респонденти, що дало змогу отримати узагальнене уявлення про їхні професійний досвід, рівень підготовки та ставлення до різних освітніх технологій. Окрім цього, було здійснено аналіз наукової літератури з питань безперервної медичної освіти, а також проведено порівняльний аналіз різних форм післядипломного навчання, зокрема традиційних очних і дистанційних методів. Обробка отриманих даних здійснювалася із застосуванням методів описової статистики, що дало змогу узагальнити результати та сформулювати обґрунтовані висновки.

Результати. У дослідженні особливу увагу було приділено таким методам навчання, як кейс-технології, ділові ігри, проєктний метод, мозковий штурм і симуляційне навчання. Установлено, що кожен із зазначених методів має свої переваги, проте найбільший ефект досягається саме при їх комбінованому використанні в освітньому процесі. Навчання із застосуванням активних технологій у циклах підвищення кваліфікації викликає значно більший інтерес у дорослих фахівців порівняно з традиційними методами викладання, що пояснюється їх практичною спрямованістю та можливістю безпосереднього застосування отриманих знань у професійній діяльності. Окрім того, сучасні освітні технології сприяють підвищенню якості освіти, що підтверджується результатами підсумкового контролю та вищим рівнем засвоєння навчального матеріалу. Також було встановлено, що впровадження інноваційних підходів до навчання сприяє розвитку критичного мислення, підвищенню рівня професійної підготовки та формуванню необхідних компетентностей у медичних працівників. Водночас важливо зазначити, що ефективність таких підходів залежить від рівня підготовленості слухачів, їхньої мотивації та готовності до активної участі в освітньому процесі.

Висновки. Сучасні методи навчання у системі безперервної медичної освіти суттєво підвищують якість підготовки фахівців завдяки своїй гнучкості, адаптивності та здатності інтегруватися з професійною діяльністю учасників освітнього процесу. Проведений аналіз свідчить про те, що перехід від класичної моделі оцінювання результатів навчання медичних фахівців до оцінювання рівня сформованості їхніх компетентностей є прогресивним і обґрунтованим кроком у розвитку медичної освіти. Такий підхід дає змогу більш об'єктивно оцінювати готовність фахівців до професійної діяльності та забезпечує вищий рівень підготовки кадрів. Перспективи подальшого розвитку безперервної медичної освіти пов'язані з активним

упровадженням інноваційних освітніх технологій, удосконаленням методів навчання та створенням ефективної системи оцінювання компетентностей, що відповідає сучасним вимогам системи охорони здоров'я.

Ключові слова: розвиток кадрового потенціалу охорони здоров'я, безперервна професійна підготовка, оцінювання компетентностей, освіта з управління в охороні здоров'я, симуляційне навчання, цифрове освітнє середовище.

Конфлікт інтересів: відсутній.

Conflict of interest: absent.

Information about the authors

Fomina Yelizaveta Vasylivna – Candidate of Economic Sciences, Associate Professor at the Department of Hygiene and Social Medicine, V. N. Karazin Kharkiv National University; Svobody Square, 6, Kharkiv, Ukraine, 61022.

e.v.fomina@karazin.ua, ORCID ID: 0000-0003-4431-1460 ^{A, B, C, D, E, F}

Ponomarova Liliia Ivanivna – Candidate of Medical Sciences, Senior Researcher, Associate Professor at the Department of Hygiene and Social Medicine, V.N. Karazin Kharkiv National University; Svobody Square, 6, Kharkiv, Ukraine, 61022.

liponmaryova@karazin.ua, ORCID ID: 0000-0002-2300-0922 ^{B, C, D, F}

Дата першого надходження статті до видання: 21.04.2026

Дата прийняття статті до друку після рецензування: 15.06.2026

Дата публікації (оприлюднення) статті: 14.07.2026.