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## DIRECTIONS FOR IMPROVING THE QUALITY OF POSTGRADUATE EDUCATION OF PHYSICIANS

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### Summary

*The pursuit and implementation of advanced information technologies in diagnostic and therapeutic processes are of paramount importance. It is essential to incorporate both national pedagogical experience and the educational practices of countries within the European educational space. Innovative teaching methods that facilitate a deeper understanding of theoretical concepts and support the acquisition of practical skills are fundamental to the evolving system of continuous professional development for medical practitioners. A key component in maintaining the quality of state-regulated postgraduate medical education, particularly in the context of ongoing healthcare reform in Ukraine, should be ensuring access to the full spectrum of educational formats utilized by international counterparts.*

**The aim** of this study is to highlight the benefits of applying innovative teaching methods during postgraduate internship training, with consideration for the specific characteristics of individual disciplines and interdisciplinary integration, in order to improve the overall quality of postgraduate medical education.

**Materials and methods.** Over a five-year period, faculty members from the departments of Clinical Immunology, Allergology, Endocrinology, and Pharmacology evaluated the effectiveness of teaching the course «Clinical Immunology and Allergology» and assessed the retention of pharmacological knowledge during thematic advanced training cycles and internship programs. The study encompassed various specialties, including General Practice–Family Medicine, Dermatovenereology, Anesthesiology and Intensive Care, and Dentistry.

**Results.** In the initial phase, baseline knowledge regarding the diagnosis and treatment of allergic disorders was assessed through written testing. Correct answers were obtained in 55% of cases, with the lowest scores recorded among dental interns (approximately 50%).

To enhance training outcomes, a survey was conducted among 75 interns who had completed training over the previous two years. A total of 95% positively evaluated the use of interactive teaching methods and confirmed their suitability for postgraduate education. However, 5% of respondents reported challenges related to mastering digital tools and managing time constraints. According to discussions with faculty members, the implementation of these methods led to improved independent preparation, increased engagement in clinical case discussions, heightened motivation to learn, enhanced clinical reasoning skills, and the development of confidence in articulating professional opinions. By the end of the training program, 97% of participants achieved positive outcomes on final assessments.

**Conclusions.** Contemporary higher medical education must cultivate a learning environment capable of preparing competitive and competent healthcare professionals who can function effectively, make rapid decisions under wartime and other challenging conditions, and engage in lifelong professional development.

To improve the quality of postgraduate medical education – especially when in-person instruction is limited or infeasible – the adoption of a comprehensive set of innovative teaching approaches, particularly those based on distance learning, has demonstrated clear pedagogical advantages. This modality enables learners to actively participate in the educational process despite physical separation, through the use of modern digital technologies. A review of scientific and methodological literature confirms that the integration of modern pedagogical innovations into higher medical education significantly supports physicians' professional development and facilitates their effective integration into the unified European professional space.

**Keywords:** Postgraduate Education, Interns, Continuing Professional Development, Independent Work, Distance Learning.

### Introduction

In the context of contemporary medicine, the pursuit and implementation of advanced information technologies in diagnostic and therapeutic processes are of paramount importance. It is essential to incorporate both national pedagogical experience and the educational practices of countries within the European educational space.

Insufficient familiarity with rapidly evolving technologies, alongside objective, technical, and motivational barriers to the effective application of acquired knowledge in clinical practice, often results in suboptimal diagnostic and therapeutic interventions [1, 2]. Furthermore, time constraints in analyzing available data necessitate the optimization of critical thinking skills.

The evolving demands of modern medical education require the adoption of innovative teaching methodologies employed in countries with advanced healthcare systems [10]. Educators recognize the imperative to integrate domestic medical education into the international framework by modernizing training programs. Such programs must align with European treatment protocols and standards, leveraging modern information technologies, facilitating hands-on experience with state-of-the-art medical equipment, and incorporating telemedicine solutions [4]. Thus, medical education is transforming into an innovative ecosystem, enabling trainees to cultivate lifelong learning skills and apply knowledge in practical settings [6-10].

Innovative teaching methods that facilitate a deeper understanding of theoretical concepts and enhance the acquisition of practical skills are fundamental to the continuous professional development of medical practitioners [11].

A key component in maintaining the quality of state-regulated postgraduate medical education, particularly during Ukraine's ongoing healthcare reform, is ensuring access to the full spectrum of educational formats utilized by international counterparts.

**The aim** of this study is to highlight the benefits of innovative teaching methods in postgraduate internship training, with consideration for discipline-specific requirements and interdisciplinary integration, to improve the overall quality of postgraduate medical education.

### Materials and methods

Over a five-year period, faculty members from the Departments of Clinical Immunology, Allergology, Endocrinology, and Pharmacology evaluated the effectiveness of teaching the discipline «*Clinical Immunology and Allergology*» and assessed the retention of pharmacological knowledge during thematic advanced training cycles and internship programs. The study encompassed multiple specialties, including General Practice – Family Medicine, Dermatovenereology, Anesthesiology and Intensive Care, and Dentistry.

**Results and discussion.** In the initial phase, baseline knowledge regarding the diagnosis and treatment of allergic disorders was assessed through written testing. Correct answers were recorded in 55% of cases, with the lowest scores observed among dental interns (approximately 50%).

To enhance training outcomes, a survey was conducted among 75 interns who had completed training within the preceding two years. A total of 95% of respondents positively evaluated the implementation of interactive teaching methods and confirmed their suitability for postgraduate medical education. However, 5% of participants reported challenges related to mastering digital tools and time constraints. According to faculty feedback, the introduced methods improved independent preparation, increased engagement in clinical case discussions, heightened motivation for learning, enhanced clinical reasoning skills, and fostered confidence in articulating professional viewpoints. By the conclusion of the training program, 97% of participants achieved positive results in final assessments.

Global trends in postgraduate education emphasize a shift toward greater emphasis on self-directed learning, reducing reliance on traditional instructor-led teaching [1, 2]. In modern pedagogical practice, independent work is regarded as a critical learning modality, enabling trainees to utilize evidence-based medicine principles, analyze educational materials during and beyond formal sessions, develop analytical competencies, and refine time-management skills.

As mandated by regulatory standards, independent work constitutes an integral component of the educational

process. At the department level, interns conduct self-guided study without direct teacher involvement but under faculty supervision, representing a structured approach to curriculum delivery. This includes diverse activities mirroring real-world clinical practice: reviewing textbooks and specialized literature, designing patient assessment algorithms, completing test-based assessments, and preparing topic-specific presentations.

The ongoing economic, political, and social transformations in Ukraine have necessitated the adoption of innovative educational approaches, particularly distance learning. This modality offers significant advantages, including expanded access to educational services, while simultaneously demanding greater pedagogical expertise. Educators must now not only facilitate the cognitive process but also enhance their creative teaching methodologies and continuously upgrade their qualifications to align with technological advancements. Importantly, distance learning positively impacts trainees by fostering self-organization skills, stimulating intellectual growth, and improving technological literacy through the use of modern digital tools.

Practical experience reveals considerable variability in interns' preparedness for independent learning. While the majority demonstrate high motivation and successfully assimilate training materials, isolated cases of inadequate self-organization skills necessitate individualized teaching approaches. One effective strategy involves assigning independent presentation tasks with subsequent group discussions, which helps develop crucial professional competencies. The fundamental objective of such independent work is to establish a comprehensive knowledge framework that interns can autonomously apply in their clinical practice.

A critical aspect of professional development involves understanding and adhering to medical ethics and deontological principles. This encompasses both interprofessional communication – particularly in competitive environments – and patient interactions, where an individualized psychological approach becomes increasingly important, especially with challenging cases.

From our perspective, one of the most pressing challenges lies in the insufficient time allocated to key disciplines such as pharmacology, clinical immunology, and allergology. This curricular limitation, combined with suboptimal teaching of clinical pharmacology and inadequate knowledge retention at the undergraduate level, results in unsatisfactory long-term knowledge retention. Consequently, many practitioners demonstrate limited ability to apply fundamental skills in these disciplines during clinical practice, as evidenced by poor performance in final assessments.

In this context, distance learning technologies utilizing digital resources – including electronic textbooks, lecture presentations, instructional videos, reference materials, databases, and official documentation from the Ministry of Health of Ukraine – represent the most viable solution.

However, both literature evidence and our practical experience confirm that optimal results in postgraduate education require a balanced integration of traditional

face-to-face instruction with various distance learning modalities. The most effective implementation of modern computer-based training and video technologies occurs when combined with conventional printed materials and supported by skilled educators.

Faculty members consistently enhance the quality of intern training through continuous refinement of practical competencies. This includes developing emergency care proficiency, improving interpretation skills for laboratory and instrumental data, mastering contemporary diagnostic techniques, and extensively incorporating information technologies into the educational process.

A fundamental objective of the curriculum involves equipping interns with the ability to establish diagnostic pathways, perform differential diagnosis, and formulate definitive diagnoses while creating comprehensive treatment and rehabilitation plans. Participants in postgraduate medical education programs must demonstrate clinical reasoning that integrates interdisciplinary knowledge, enabling them to develop appropriate diagnostic strategies, establish working diagnoses to guide therapeutic decisions, select optimal pharmacotherapy, and implement competent approaches to patient rehabilitation and disease prevention.

Contemporary medical education effectively merges conventional practical training with advanced simulation methodologies utilizing modern manikins and simulators at the Simulation Center of Bukovinian State Medical University. These simulation techniques enable instructors to recreate clinical scenarios while providing objective assessment and monitoring of intern performance. Through this approach, postgraduate trainees acquire proficient technical skills and enhance practical competencies essential for clinical practice. The methodology facilitates both individualized instruction and timely incorporation of emerging clinical topics aligned with current treatment standards. Our program specifically offers interns opportunities to refine emergency management skills for allergic conditions on the basis of the Simulation Center.

These developments demonstrate that modern medical education has successfully integrated traditional practical

training with innovative simulation technologies and distance learning modalities.

The advancement of postgraduate medical education in Ukraine remains critically important, necessitating sustained financial support and systematic professional development opportunities. This includes not only programs offered by postgraduate education faculties but also specialized courses, international internships, online learning platforms, and participation in both domestic and international scientific forums organized by professional associations [6].

## Conclusions

Modern higher medical education must cultivate a learning environment capable of producing competitive and competent healthcare professionals. Such professionals should demonstrate the ability to perform their duties effectively, make critical decisions under challenging circumstances (including wartime conditions), and engage in continuous professional development throughout their careers.

To enhance the quality of postgraduate medical education – particularly when in-person attendance at institutions is restricted or impossible – the implementation of innovative teaching methodologies has demonstrated significant pedagogical advantages. Among these, distance learning has emerged as a particularly valuable approach, enabling remote participation in the educational process through digital technologies while maintaining academic rigor. A comprehensive review of scientific literature and methodological publications confirms that incorporating modern pedagogical innovations in medical education effectively supports physicians' professional growth. These approaches not only facilitate the creative development of clinical competencies but also promote successful integration into the unified European professional healthcare community.

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## НАПРЯМКИ УДОСКОНАЛЕННЯ ЯКОСТІ ПІСЛЯДИПЛОМНОЇ ОСВІТИ ЛІКАРІВ

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### Резюме

Пошук і впровадження новітніх інформаційних технологій в діагностично-лікувальний процес має ключове значення. Важлива орієнтація як на вітчизняний педагогічний досвід, так і на надбання досвіду країн європейського простору освіти. Інноваційні методи, що будуть сприяти оптимальному розумінню теоретичних положень і складових актуальних тем для практикуючих лікарів та максимально можливого якісного оволодінню практичних навичок і вмінь у своїй лікарській спеціальності – це невід’ємна частина нової системи безперервного професійного розвитку медичних працівників. Обов’язковою складовою підтримання якісного рівня державної лікарської післядипломної підготовки на сучасному етапі реформування медицини в Україні слід вважати забезпечення умов для українських лікарів щодо усіх форм навчання, які застосовують наші іноземні колеги.

**Мета** – навести переваги використання інноваційних методів навчання лікарів-інтернів на післядипломному етапі освіти з урахуванням специфіки викладання дисциплін та міжпредметної інтеграції для удосконалення якості післядипломної освіти лікарів.

**Матеріали та методи.** Протягом 5 років на кафедрах клінічної імунології, алергології та ендокринології та фармакології викладачами проаналізовано якість викладання дисципліни «Клінічна імунологія та алергологія» та **виживаність** знань з фармакології на циклах тематичного удосконалення лікарів та інтернатурі, зокрема спеціальностей «Загальна практика-сімейна медицина», «Дерматовенерологія», «Анестезіологія та реанімація», «Стоматологія».

**Результати та обговорення.** На першому етапі була проведена оцінка вихідного рівня знань за даними базисного письмового контролю із діагностики та лікування алергопатології. Позитивні відповіді на тестові завдання вихідного рівня виявили у 55% випадків. Найнижчий бал демонстрували інтерни-стоматологи (до 50%).

З метою поліпшення якості навчання було проведено анкетування 75 лікарів-інтернів, які проходили навчання протягом останніх двох років. Виявлено, що 95% лікарів-інтернів позитивно оцінили використання інтерактивних методів навчання та відзначили доцільність їх використання у післядипломній освіті. Проте 5% лікарів визнали труднощі щодо оволодіння та застосування комп’ютерних технологій та брак часу.

Згідно з результатами обговорення із колегами, запропоновані нами методи навчання підвищили якість самостійної підготовки до занять, активності лікарів-інтернів під час обговорення клінічних кейсів, мотивацію до навчання, сприяли розвитку клінічного мислення, тренували вміння доводити власну позицію в професійній тематиці. Позитивні результати тестування на заключному етапі навчання зафіксували у 97% слухачів.

**Висновки.** Сучасна вища медична освіта спрямована на виконання своїх завдань шляхом формування освітнього середовища, яке дозволить виховати конкурентоспроможних та компетентних на ринку праці спеціалістів системи охорони здоров’я, здатних якісно та ефективно виконувати професійні обов’язки, швидко приймати рішення в умовах воєнного часу, постійно вдосконалюватися протягом професійного життя тощо.

Отже, для поліпшення якості післядипломної освіти лікарів, коли фізична присутність у закладах вищої медичної освіти обмежена або взагалі неможлива, педагогічною перевагою стало запровадження комплексу інноваційних методів навчання, в тому числі, дистанційного навчання – форми організації навчального процесу, учасники якого віддалені один від одного та взаємодіють за допомогою сучасних цифрових технологій. На підставі аналізу наукових досліджень та методичної літератури щодо впровадження інноваційних методів навчання у вищих медичних навчальних закладах показано, що підготовка лікарів із застосуванням сучасних педагогічних технологій дозволяє їм якісно і творчо удосконалювати свою професійну майстерність та ефективно працювати в єдиному професійному європейському просторі.

**Ключові слова:** післядипломна освіта, лікарі-інтерни, безперервний професійний розвиток, самостійна робота, дистанційне навчання.

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