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# EXPERIENCE OF ORGANIZING INDUSTRIAL PRACTICE FOR HIGHER EDUCATION STUDENTS IN A BLENDED FORMAT USING DISTANCE TECHNOLOGIES AT DONETSK NATIONAL MEDICAL UNIVERSITY

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# ДОСВІД ПРОВЕДЕННЯ ВИРОБНИЧОЇ ПРАКТИКИ ЗДОБУВАЧІВ ВИЩОЇ ОСВІТИ У ЗМІШАНОМУ ФОРМАТІ ІЗ ЗАСТОСУВАННЯМ ДИСТАНЦІЙНИХ ТЕХНОЛОГІЙ У ДОНЕЦЬКОМУ НАЦІОНАЛЬНОМУ МЕДИЧНОМУ УНІВЕРСИТЕТІ

**Abstract.** Clinical training for 4th- and 5th-year students at Ukrainian medical universities represents a crucial stage in shaping and developing future doctors. Medical education is one of the most demanding and complex areas of professional training, as the lives and health of people depend on the level of knowledge and practical skills of future physicians. However, current global and national challenges necessitate innovative approaches to medical training, particularly during internships.This article examines and analyzes the current experience of implementing internship practices for higher education students through remote technologies at Donetsk National Medical University. The advantages, limitations, and challenges of integrating face-to-face learning with online tools that ensure the continuity of the educational process under modern conditions are discussed. The authors argue that it is advisable to continue adopting hybrid learning formats as an innovative approach to training future medical professionals. Examples of effective methods of practical training using distance learning technologies and digital resources are provided, demonstrating that such approaches can maintain the quality of training even with restricted access to clinical facilities. The paper concludes with an outlook on the prospects for developing blended forms of practical training for future specialists. It has been shown that a blended format of clinical practice is an effective alternative to the classical approach under conditions of war and other constraints. This experience can serve as a foundation for creating new models of practical training in higher medical education in Ukraine.

**Key words:** clinical training; distance learning technologies; higher education students.

**Анотація.** Клінічна підготовка студентів IV–V курсів медичних університетів України є важливим етапом у формуванні та розвитку майбутніх лікарів. Медична освіта є однією з найскладніших і найвідповідальніших сфер професійної підготовки, адже від рівня знань та практичних навичок майбутніх лікарів залежать життя та здоров'я людей. Водночас сучасні глобальні та національні виклики вимагають упровадження інноваційних підходів до підготовки медичних фахівців, зокрема під час проходження виробничої практики. У статті розглядається та аналізується сучасний досвід організації виробничої практики здобувачів вищої освіти з використанням дистанційних технологій у Донецькому національному медичному університеті. Окреслено переваги, обмеження та виклики інтеграції очного навчання з онлайн-інструментами, що забезпечують безперервність освітнього процесу в умовах сучасних викликів. Автори наголошують на доцільності подальшого впровадження змішаного формату навчання як інноваційного підходу до підготовки майбутніх медичних фахівців. Наведено приклади ефективних методів практичної підготовки студентів із використанням дистанційних технологій та цифрових ресурсів, що дають змогу підтримувати високу якість навчання навіть за умов обмеженого доступу до клінічних баз. Зроблено висновки щодо перспектив розвитку змішаних форм практичної підготовки майбутніх спеціалістів. Доведено, що змішаний формат клінічної практики є дієвою альтернативою класичному підходу в умовах війни та інших обмежень. Цей досвід може стати основою для створення нових моделей практичної підготовки у сфері вищої медичної освіти України.

**Ключові слова:** практична підготовка; дистанційні технології; здобувачі вищої освіти.

**Introduction.** At present, higher medical education faces one of its most critical challenges – ensuring the high-quality professional training of future specialists in accordance with the needs of society. These specialists must be capable of delivering effective healthcare services, implementing modern technologies, and responding promptly to emerging challenges (Shynkar, 2023, p. 67; Vorovka & Nepsha, 2025). Contemporary medicine is evolving at an unprecedented pace: novel diagnostic and therapeutic methods are being introduced, artificial intelligence is increasingly integrated into clinical practice, and biotechnology and telemedicine are rapidly advancing. This dynamic progress necessitates the continuous improvement of educational programs and the development of a wide spectrum of professional competencies among students, alongside essential moral qualities such as responsibility, empathy, and readiness to provide assistance under any circumstances (Onishchenko et al., 2022, p. 92).

Medical education is among the most demanding and socially significant fields of professional training, as the lives and health of patients directly depend on the knowledge and practical skills of future physicians (Shevchenko et al., 2020). It encompasses not only the assimilation of theoretical knowledge but also the acquisition of practical skills, developed through clinical training and internships in healthcare institutions. Within this process, clinical (industrial) practice serves as a pivotal bridge between theoretical learning and real-life medical activities (Vorovka & Nepsha, 2025). Future doctors must not only master extensive theoretical knowledge but also demonstrate the ability to apply it in clinical contexts, employ modern diagnostic techniques, operate advanced medical technologies, and adhere to international standards of care (Chorna et al., 2024, p. 205).

In the context of globalization and the integration of Ukrainian medical education into the European Higher Education Area, special attention is directed towards preparing professionals capable of working in compliance with international standards and introducing best global practices into the domestic healthcare system (Skrypnyk et al., 2022, p. 61). Clinical education involving direct patient interaction is particularly significant. In addition, students are expected to master physical, laboratory, and instrumental methods of examination, as well as engage in independent patient management. Such training fosters deontological principles and develops clinical reasoning skills by encouraging students to analyze disease manifestations and apply innovative diagnostic and therapeutic approaches in practice (Onishchenko et al., 2023, p. 117; Pshenychna, 2022, p. 50).

Industrial medical practice occupies a central role in the training of future physicians, as its primary objective is to deepen professional knowledge and skills in real hospital settings (Donetskyi National Medical University, 2023; Vorovka & Nepsha, 2025). The organization and implementation of practice are aimed at acquiring and refining practical competencies through the performance of professional duties, while simultaneously consolidating theoretical knowledge and clinical abilities. The assignment of responsibilities during practice corresponds to the qualification profile of the graduate. Moreover, medical training should place emphasis on the development of professional and social competencies such as communication skills, medical ethics, psychological support for patients, and cultural competence (Kravchuk et al., 2023, p. 61). This integrated approach ensures the delivery of high-quality medical care and contributes to the advancement of the healthcare system as a whole.

It is noteworthy that the effectiveness of clinical practice depends not only on the general level of professional preparation and the mastery of individual academic components but also on personal factors such as responsibility, independence, attentiveness, and motivation to acquire new competencies (Rozhnova et al., 2022, p. 52). Clinical practice enables students to gain first-hand experience with patients, become acquainted with the organizational structure of healthcare facilities, and assume responsibility for clinical decision-making. Without doubt, it represents one of the most essential elements in the formation of professional competence, yielding outcomes such as preparation for various professional activities, application of acquired knowledge and skills in clinical settings, and – of particular importance – professional adaptation. The latter encompasses self-determination, entry into the medical profession, adoption of a new social role, and the integration of personal and professional qualities (Skrypnyk et al., 2022, p. 63).

Modern challenges associated with the digitalization of education, the ongoing martial law in Ukraine, and global transformations in healthcare highlight the necessity of adopting innovative approaches to medical training. Clinical practice, as a key component in shaping the professional competence of future physicians, must be organized in a way that integrates traditional forms of practical training with innovative digital tools (Kore & Sherlock, 2023; Onishchenko et al., 2023; Pshenychna, 2022). Over the past few years, higher education has undergone significant transformations, with distance-learning technologies becoming an indispensable part of the educational process. This is particularly relevant to the practical training of medical students, who are increasingly required to adapt their clinical skills to evolving conditions (Kravtsiv et al., 2023).

**Objective.** To identify the specific features and analyze the experience of organizing and conducting industrial (clinical) practice for higher medical education students in a blended format with the use of distance technologies, using the example of Donetsk National Medical University (DNMU), as well as to determine the advantages, challenges, and prospects of this approach.

**Theoretical Part.** Following the full-scale invasion of Ukraine by the russian federation in 2022,

higher education institutions faced the urgent task of ensuring the continuity of the educational process and industrial (clinical) practice despite significant risks and student migration (Shevchenko et al., 2020). Constant threats to the life and health of participants in the educational process forced universities to transition to distance or blended learning formats (Kravtsiv et al., 2023). Under such circumstances, the opportunities for students to physically attend clinical bases for practical training became limited or entirely unavailable. This highlighted the need to seek new approaches, in particular the integration of distance technologies into the organization and implementation of industrial practice (Chorna et al., 2024). Of particular relevance is the experience of Donetsk National Medical University (DNMU), which was forced to relocate twice due to armed conflicts (Kore & Sherlock, 2023). These circumstances created additional challenges in organizing the educational process and students' practical training. A significant proportion of students had to relocate to safer regions of Ukraine or abroad, which greatly complicated the organization of practice in accordance with curricular requirements (Shynkar, 2023, p. 68) Thus, it became necessary to develop a flexible algorithm for practice placement and to identify new training bases, including the use of modern online platforms and digital tools (Onishchenko et al., 2023; Pshenychna, 2022).

At DNMU, a blended model of industrial practice using distance technologies was designed and successfully implemented, which made it possible to preserve the quality of training for future professionals despite restricted access to clinical facilities. According to the official «Regulations on Practical Training of Students» at DNMU (Donetskyi National Medical University, 2023), the university applies a comprehensive system of practice organization, which includes both in-person sessions at clinical bases and distance components delivered through the Google G Suite for Education platform.

To optimize the organization of practice for 4th- and 5th-year students, heads of clinical departments in advance proposed medical institutions where students could undertake their practical training at their actual place of residence, provided that the base met the standards of the educational program (Donetskyi National Medical University, 2023). Since the main clinical bases of the university are located within the Kropyvnytskyi City Territorial Community, additional agreements were signed with local healthcare institutions. Two months before the start of the practice, students were allowed to conclude a tripartite agreement enabling them to undergo practice at their place of residence. According to the rector's order, in the absence of one or more required departments at a selected clinical base, students were permitted to complete practice in the relevant specialty remotely in accordance with the schedule, using distance technologies (Shynkar, 2023, p. 68).

To maximize the practical component of distance-based practice, the Educational and Methodological Department together with the Department of Quality Assurance and Information Technology developed guidelines recommending simulation of standardized patient curation in the form of a role-playing exercise. This was based on 3–5 pre-prepared clinical cases covering various nosologies in accordance with the syllabus of industrial practice for each course. These cases were presented to students on the first day of practice as an example (Onishchenko et al., 2023). During the simulation, the instructor acted as a standardized patient, presented specific complaints, and answered students' questions. The future professionals, acting as doctors, elicited complaints, collected medical history, established preliminary diagnoses, prescribed laboratory and instrumental examinations, interpreted their results, conducted differential diagnoses, announced final diagnoses, and proposed treatment and preventive measures (Skrypnyk et al., 2022). In subsequent sessions, students individually or in small groups of 2–3 developed their own clinical cases and presented them to peers, role-playing as patients, while the instructor supervised the process. Each clinical department developed a database of laboratory and instrumental investigations (X-ray, ECG, echocardiography, FGDS, etc.) for further demonstration and interpretation by students (Rozhnova et al., 2022). In addition, a video library of educational films on practical skills (percussion, palpation, auscultation) and other medical procedures was compiled in the form of internet resources. Viewing these materials reinforced students' knowledge by encouraging repetition of procedural algorithms (Onishchenko et al., 2022).

Students maintained electronic practice diaries, completed test assignments, prepared final reports in digital format, and defended them during online meetings of departmental committees. A distinctive feature of organizing and conducting practice with distance learning was the use of information and telecommunication technologies on the Google Workspace platform (Google Meet application), supported by institutional corporate accounts (Kravtsiv et al., 2023).

Among the advantages of conducting practical training with distance technologies, the following should be highlighted: the learning process becomes accessible from any location with internet access, which is particularly important for students displaced to other regions or abroad. Effective communication through online platforms and regular feedback from instructors during practice supports the individualization of learning (Rozhnova et al., 2022). Students can plan their own schedules, decide how much time to devote to specific topics, and review material repeatedly, thus setting their own pace of learning. All necessary materials are available electronically on the university-wide and departmental websites, which eliminates the problem of limited access to textbooks or manuals. Interim and final assessments conducted as online tests reduce anxiety and minimize subjectivity in evaluation.

At the same time, conducting practice with distance technologies is not without limitations. Since students learn most of the material independently, persistence, responsibility, and self-regulation are required; maintaining motivation without external control is challenging for some (Shynkar, 2023). Distance practice cannot fully substitute for in-person training, as mastering a wide range of practical skills is impossible in this format (Onishchenko et al., 2023; Pshenychna, 2022). Limited direct contact with instructors and peers also hinders the development of teamwork, communication skills, and confidence (Skrypnyk et al., 2022).

Nevertheless, these challenges have been largely overcome, and the experience gained can be regarded as positive given the extraordinary circumstances.

**Conclusions and prospects for further research.** The experience of DNMU demonstrates that the blended format of industrial (clinical) practice is an effective alternative to the traditional approach under the conditions of war and restrictions. Naturally, within the scope of a single article, it is not possible to fully present the methodology of conducting industrial practice for students with the use of distance technologies across different clinical departments. This issue requires further study and refinement. Nevertheless, it can be asserted that the implementation of distance technologies in the course of industrial practice under current circumstances has enabled the university to maintain a high level of training for future physicians while ensuring the safety of both students and faculty. Such experience may serve as a foundation for developing new models of practical training for students in institutions of higher medical education in Ukraine.

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