

# Evolution of nursing education and continuing professional development: Challenges of the past and demands of the present

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## ABSTRACT

**Aim:** To review the history of nursing education development, its limitations, and the necessity of transitioning to a modern model of continuing professional development (CPD).

**Materials and Methods:** A systematic, focused review of the literature (2010–2025) was conducted using PubMed, Scopus, Web of Science, Google Scholar, and legislative portals, applying MeSH-compliant terms and a subsequent two-stage filtration process. We included original research, high-quality systematic reviews, meta-analyses, as well as binding legislative and regulatory documents (in English or Ukrainian) that provided empirical data or analytical frameworks regarding nursing education reform, CPD models, or professional competence standards.

**Conclusions:** The historical model of nursing education, predominantly focused on technical skills and passive learning, no longer meets the modern requirements of the healthcare system, which demands autonomy and critical thinking from nursing professionals. The evolution of the nurse's role, particularly in primary care and emergency settings, necessitates the immediate integration of contemporary educational standards and continuous skill enhancement. CPD is recognised as a key prerequisite for quality nursing practice in the 21st century. Effective CPD should prioritise digital competencies, evidence-based practice, and specialised simulation training. It serves as a fundamental mechanism for maintaining competence, ensuring patient safety, and promoting the professional mobility of nursing personnel through flexibility and rapid knowledge acquisition.

**KEY WORDS:** continuing education; nurses; professional competence; policy

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## INTRODUCTION

The modern healthcare system in Ukraine and worldwide is undergoing rapid transformation. The growing prevalence of chronic non-communicable diseases (NCDs), the introduction of digital technologies, integration into the European area, and the need for medical workforce mobility are among the most significant vectors of change. In this context, continuing education for nurses is a key prerequisite for ensuring patient safety, improving the quality of healthcare, and maintaining compliance with international standards. The current requirements for continuing professional development (CPD) are enshrined in Ukrainian legislation and Ministry of Health regulations, aligning with European directives and World Health Organization (WHO) recommendations [1–7].

The strain on Ukraine's healthcare system, the burden of chronic NCDs, technological modernisation, workforce mobility, and the country's European integration trajectory make CPD an imperative. Evidence indicates a

strong association between CPD and improved quality of nursing care, enhanced patient safety, and higher staff satisfaction [7–10].

## AIM

To review the history of nursing education development, its limitations, and the necessity of transitioning to a modern model of CPD.

## MATERIALS AND METHODS

The foundation of this review was a systematic, focused search performed across leading international biomedical databases and official resources, specifically PubMed, Scopus, Web of Science, Google Scholar, and key Ukrainian legislative and regulatory portals. The comprehensive review period was established from 2010 to 2025, encompassing the decade and a half of significant global healthcare and educational reforms. The information

retrieval strategy employed targeted MeSH-compliant terms and their Boolean combinations, including: “nursing education evolution” AND “continuing professional development nurses”, “CPD reforms Ukraine”, and “nursing professional competence”. We included original research, high-quality systematic reviews, meta-analyses, as well as binding legislative and regulatory documents (in English or Ukrainian) that provided empirical data or analytical frameworks regarding nursing education reform, CPD models, or professional competence standards. Sources were systematically excluded if they comprised conference abstracts, dissertations, non-peer-reviewed editorials, opinion articles, or publications lacking verifiable primary data or a direct analytical link to the objectives of this review. The initial exhaustive database search generated a “raw” pool of 284 potentially relevant sources. Following a meticulous two-stage filtration process (title/abstract screening and subsequent full-text evaluation based on the established criteria), a final set of 25 sources was selected for integration into this review.

## ETHICS

This review publication is based on the secondary analysis of publicly available scientific materials, which include peer-reviewed articles, clinical protocols, and data from scientific databases. As the work did not utilize identifiable patient data and did not involve new clinical interventions or primary data collection, ethical committee approval was not required. The authors fully adhered to the ethical standards defined by the World Medical Association’s Declaration of Helsinki, as well as the international ICMJE requirements for publishing in the medical field. The complete absence of plagiarism and fabricated data is confirmed; all utilized sources are properly cited and referenced.

## FRAMEWORK

The study was conducted as a fragment of the scientific project of the Department of Public Health of the Educational and Scientific Institute of Public Health and Preventive Medicine, Bogomolets National Medical University. The research aligns with the thematic plan “Scientific Justification for the Improvement of Organizational Principles of the Healthcare System in the Context of Modern Transformation Changes.” (state registration number 0123U101432; term: 2023-2025).

## REVIEW AND DISCUSSION

Continuing professional development (CPD) for nurses is now recognized as a key element in improving the

quality and safety of healthcare. However, such a system has not always existed. Traditional nurse training pursued different objectives that did not fully align with the needs of modern healthcare and failed to take into account variable factors such as technological progress, epidemiological trends, and international standards.

Until the late 20th century, nurse education in most countries, including Ukraine, was based on a technical model—short-term programs at hospitals or colleges lasting two to three years. The main emphasis was placed on following physicians’ orders rather than on clinical reasoning or evidence-based practice [11]. During the Soviet period, nursing education was classified as secondary-specialized, lacking a scientific component and skills in clinical data analysis. Until the 1990s, most nurses undertook refresher training only once every five years. These courses were largely formal, limited to lecture-based instruction, and did not assess acquired competencies [12]. Consequently, the quality of patient care remained confined to basic procedural tasks, while the level of professional autonomy was low or, in some cases, entirely absent.

Furthermore, the previous nurse education system had several significant drawbacks:

- Limited Content: Focus on technical skills without developing clinical reasoning [13];
- Lack of Evidence Base: Educational programs did not include the principles of evidence-based medicine (EBM);
- Static Nature: After graduation, most nurses lacked incentives or opportunities for further professional development;
- Non-recognition Abroad: Nursing training programs did not meet the requirements of the European Union (EU) [14].

With the development of society and the medical field, new challenges have emerged in Ukraine, necessitating a change in the approach to nurse preparation.

The modern healthcare system presents fundamentally new demands on the professional role of the nurse:

1. Changing Role: The nurse has become a key member of the multidisciplinary team, participates in clinical decisions, and coordinates patient care [15]. In uncomplicated situations, a nurse should independently perform physician functions, such as an obstetrician performing physiological labor delivery.
2. Technological Competencies: Digitization and other digital tools, telemedicine, data analytics, and statistics require new skills [16].
3. Evidence-Based Medicine: Knowledge updating is mandatory to maintain the quality of care and patient safety [17].
4. International Mobility: Directive 2013/55/EU obligates healthcare professionals to participate in CPD to maintain the right to practice [18].

With the onset of the war, new challenges emerged in educational and scientific processes: the disruption of research teams, the inability to plan scientific activities, risks to infrastructure access, and difficulties in maintaining research groups, all of which require flexibility in decision-making. Additional problems arose at the institutional level. State policy in education demands a clear understanding of management culture, scientific expertise, and effective coordination. The quality management system for delivering educational services in accordance with international standards requires continuous feedback between students and lecturers.

In modern healthcare systems, continuing professional development (CPD) is integrated into human resources policy, and the outcomes of this policy correlate with clinical results, including reduced mortality and complication rates. For this reason, the need for CPD in Ukraine's healthcare system is supported by the national regulatory framework. The Regulation on the CPD System (Cabinet of Ministers Resolution No. 725 of 14 July 2021) extends to all healthcare workers. In 2025, Law of Ukraine No. 4246-IX was adopted, which systematically updates specialist training, CPD, and certification. Ministry of Health Order No. 650 (16 April 2025) introduced a new certification procedure and a credit-point system for all healthcare professionals. From 2025, nurses are required to obtain 30 CPD points per year and maintain an individual educational portfolio [1–5].

At the European Union level, CPD and lifelong learning (LLL) are priorities defined in Directive 2013/55/EU and in EFN policy documents, which support the automatic recognition and mobility of nurses provided their professional competence is maintained [6]. International frameworks such as the WHO SDNM 2021–2025 and professional regulatory bodies (e.g., NMC, ANCC) also require structured CPD as a prerequisite for maintaining registration and certification [19, 20].

What is the practical CPD model for a nurse in Ukraine in 2025? The minimum is one annual cycle aiming for  $\geq 30$  points and an annual portfolio. Or several CPD activities with the final goal of  $\geq 30$  points and an annual portfolio. The portfolio structure should reflect: competence goals  $\rightarrow$  activities  $\rightarrow$  evidence  $\rightarrow$  reflection  $\rightarrow$  impact on practice. The balance of activities can include: courses, simulations, journal clubs, conference participation, mentorship, QI projects, e-courses. CPD content priorities are patient safety, infection control, digital skills, evidence-based practice, ethics, and care for vulnerable groups. Evaluation of the CPD effect occurs through the assessment of departmental Key Performance Indicators (KPIs). KPIs are used to measure and evaluate the success of achieving

strategic goals, tasks, and processes both within an individual department and the medical institution as a whole. Performance indicators assess how effectively the medical department operates and achieves set goals, such as improving the quality of medical care or optimizing resources. Based on this, management decisions are made to adjust work directions and set priorities, and in the current market conditions, this may affect final compensation. Recognition of professional qualifications in the EU is ensured by meeting the requirements of Directive 2013/55/EU and the EFN, which set rules for the recognition of professional qualifications in EU member states [6]. Although Ukraine is not currently an EU member, and this directive is not mandatory for execution in Ukraine, it is obligated under the Association Agreement with the EU, which provides for the harmonization of Ukrainian legislation with European standards in the field of professional qualifications.

The activities of university departments are aimed at establishing a solid foundation of knowledge for the training of highly qualified medical personnel among both domestic and international students, in accordance with the requirements of the European Credit Transfer and Accumulation System (ECTS). Lecturers at Bohomolets National Medical University have developed curricula, case studies, and methodological recommendations – including “Fundamentals of Cardiopulmonary Resuscitation,” “The Role of the Nurse in Providing Emergency and Urgent Medical Care” (particularly relevant during wartime), and “Infection Control” – as well as step-by-step guidelines for preparing the injured for transportation and preventing complications.

In recent years, the situation has been complicated by the widespread introduction of market relations in clinical practice and changes in the legislative framework. In this context, the development of opportunities for phantom and simulation training for students represents a necessary and promising direction in the educational process [21, 22].

With the onset of the Russian invasion, most scientific and educational events had to transition to an online format. Despite these challenges, over the past two years alone, more than thirty certified scientific events have been organised and moderated, with CPD points awarded and added to participants' personal educational portfolios based on the completion of CPD activities.

Currently, CPD training occurs in three forms: in-person learning, online learning, and blended learning. Which form of learning ensures better effectiveness? In-person learning provides intensive interaction, discussions, and team simulations. According to the Cochrane Re-

**Table 1.** A Comparison of CPD Formats

Nº	CPD Format	Strengths	Limitations	Correlation with Quality
1	In-person (face-to-face)	Intensive interaction, simulations, development of team skills	High cost, limited time availability	Improvement of care processes, reduction of complications
2	Online (e-learning)	Flexibility, scalability, possibility of repetition	Less social interaction, weaker formation of soft skills	Improvement of knowledge, protocol adherence
3	Blended	Combination of the advantages of both approaches	Requires resources for organization	Strongest impact on knowledge and practical skills

*Source: compiled by the authors of this study*

view, in-person workshops have a small to moderate positive impact on practice and clinical outcomes [23]. Online learning has shown equivalent effectiveness in improving knowledge and skills, sometimes exceeding in-person due to the flexibility of access and material repetition [24]. Regarding quality, in-person CPD is more closely associated with the development of team skills, communication, and clinical simulations, which directly impact patient safety [23]. Online learning scales more effectively and positively influences the implementation of clinical protocols [9], although it is less effective in forming practical skills (soft skills). A correlation established when studying learning outcomes through patient surveys (questionnaires) shows that in-person CPD is more strongly associated with a reduction in medication errors, pressure ulcers, and falls, while online learning promotes increased knowledge and protocol adherence, but data on the direct impact on mortality are limited [24]. When studying the effectiveness and quality of acquired knowledge and skills in blended learning, it is established that combining online courses for theory and in-person simulations for practice is the optimal model. The EFN and WHO recommend blended CPD as the most effective format (Table 1) [25].

Nurses constitute the largest proportion of healthcare professionals in the healthcare system—over 50% of the total staff, typically 75–80% of medical staff in hospitals. According to the WHO, nurses are responsible for up to 60–70% of all clinical procedures and care interventions, including patient status monitoring, medication administration, infection control, and communication with patients' relatives.

In EU countries, one nurse serves an average of 8–12 patients in a hospital, whereas in Ukraine this figure may reach 15–20, indicating a high workload. Nurses ensure the continuity of the treatment process, as they remain with patients around the clock, unlike physicians, whose involvement is often episodic. The importance of nursing work lies in its direct impact on the quality and safety of healthcare.

From the perspective of evidence-based healthcare, systematic reviews and meta-analyses demonstrate that continuing professional development (CPD) enhances

standards of care, patient safety, and interprofessional collaboration, while e-learning has proven to be an effective CPD format [7–10]. A positive organisational effect is also achieved, as the effective organisation of CPD correlates with staff retention and career progression, provided there is a supportive workplace culture and sufficient time allocation during working hours [6–9].

The necessity of substantially strengthening the practical component of nursing education, while maintaining the required level of theoretical knowledge, represents a key factor for national recovery in the post-war period. Innovations in pedagogy, including massive open online courses (MOOCs), are expected to have a significant global impact on education in the coming years [21, 22].

## PROSPECTS FOR FURTHER RESEARCH

The obtained review data clearly outline the necessity of enhancing the quality and sustainability of nursing care through the profound modernization of CPD. Future scientific endeavors should focus on overcoming identified systemic limitations and unresolved issues. Prospective research directions include:

1. Systemic multi-level analysis of the effectiveness of hybrid (blended learning) and online simulation CPD models within the Ukrainian healthcare system. This analysis must incorporate machine learning and Big Data tools for the objective evaluation of the correlation between the training format and the increased professional competence of nurses, as well as their impact on clinical indicators.
2. Development and validation of universal standardized tools for skills assessment (e.g., Objective Structured Clinical Examination – OSCE), necessary to ensure the objective inclusiveness of CPD results across various demographic (age, socioeconomic) groups.
3. Investigation of the ethical and legal aspects of integrating telemedicine solutions and novel digital devices (particularly wearables) into daily nursing practice. The emphasis should be placed on regula-

tory provisions that guarantee the accessibility and safety of utilizing such innovations. Thus, further research holds the potential to create a reliable evidence base, which is critically necessary for making well-grounded management decisions and formulating state policy aimed at the complete transition to a modern, flexible, and high-quality CPD system.







## CONCLUSIONS




1. The historical model of nursing preparation does not meet the modern requirements of the healthcare system. Today, the professional role of the nurse has significantly expanded: from a technical executor to an autonomous specialist who implements evidence-based practice, coordinates the team,

and applies digital technologies. That is why CPD is recognized as a key condition for quality nursing practice in the 21<sup>st</sup> century.

2. CPD for nurses is not a formality, but a basic mechanism for maintaining competence, safety, and mobility. Ukrainian requirements for 2025 synchronize practice with the EU; moving forward, stable funding, a digital portfolio platform, and linking CPD to quality indicators are needed.
3. In-person learning develops practical and team skills, while online learning offers flexibility and rapid knowledge acquisition. The strongest correlations between CPD and the quality of nursing work are found when using the blended format. Blended CPD is recommended to be established as the standard for Ukrainian practice.

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## CONFLICT OF INTEREST

The Authors declare no conflict of interest

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