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PEDIATRIC INTERNSHIP AS A KEY STAGE IN THE PROFESSIONAL DEVELOPMENT OF A PEDIATRICIAN: UKRAINIAN AND INTERNATIONAL EXPERIENCE

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ІНТЕРНАТУРА З ПЕДІАТРІЇ ЯК КЛЮЧОВИЙ ЕТАП ПРОФЕСІЙНОГО СТАНОВЛЕННЯ ЛІКАРЯ-ПЕДІАТРА: УКРАЇНСЬКИЙ ТА МІЖНАРОДНИЙ ДОСВІД

Abstract. The article analyzes pediatric internship as a key stage of postgraduate medical education and professional development of a pediatrician. It explores the role of internship in shaping clinical thinking, professional competencies, communication skills, and readiness for independent medical practice in real clinical settings. Particular attention is paid to contemporary approaches in Competency-Based Medical Education (CBME) and the concept of Entrustable Professional Activities (EPAs) as effective tools for assessing the progressive development of autonomy among pediatric interns, as well as their contribution to improving the quality of clinical training. Based on a comprehensive review of current scientific literature, the study compares the characteristics of pediatric training in Ukraine and abroad, particularly in the United States and European countries, taking into account the duration of training, curriculum structure, the role of clinical supervision, and approaches to objective assessment of professional progress. The strengths of the Ukrainian pediatric internship model are identified, including early immersion in clinical practice, extensive hands-on experience, and direct interaction with patients of different age groups, which promotes the development of practice-oriented skills. At the same time, several challenges are highlighted, such as the uneven implementation of competency-based approaches, limited use of standardized assessment tools, and insufficient formalization of structured feedback systems between mentors and interns. The article substantiates the need to integrate national experience with best international educational practices, particularly by strengthening mentorship, introducing transparent competency assessment criteria, and fostering a culture of regular constructive feedback. These measures are expected to enhance the quality of pediatric training and improve the safety and effectiveness of pediatric healthcare.

Key words: pediatric internship; postgraduate medical education; competency-based education; entrustable professional activities; clinical thinking; professional competencies; pediatrician training.

Анотація. У статті проаналізовано інтернатуру з педіатрії як ключовий етап післядипломної медичної освіти та професійного становлення лікаря-педіатра. Розглянуто роль інтернатури у формуванні клінічного мислення, професійних компетентностей, комунікативних навичок і готовності до самостійної лікарської діяльності в умовах реальної клінічної практики. Особливу увагу приділено сучасним підходам компетентнісно орієнтованої медичної освіти (Competency-Based Medical Education) та концепції entrustable professional activities (EPAs) як інструментам оцінювання поступового зростання автономії лікаря-інтерна, а також їх значенню для підвищення якості клінічної підготовки. На основі аналізу сучасних наукових джерел здійснено порівняння особливостей підготовки лікарів-педіатрів в Україні та за кордоном, зокрема у США та країнах Європи, з урахуванням тривалості навчання, структури освітніх програм, ролі клінічної супервізії, а також підходів до об'єктивного оцінювання професійного прогресу інтернів. Визначено сильні сторони української моделі інтернатури, серед яких раннє залучення до клінічної практики, значний обсяг практичної роботи та безпосередній контакт із пацієнтами різного віку, що сприяє формуванню практично орієнтованих навичок. Разом із тим окреслено проблемні аспекти, пов'язані з нерівномірністю впровадження компетентнісного підходу, обмеженістю стандартизованих інструментів оцінювання та недостатньою формалізацією системи зворотного зв'язку між наставниками й інтернами. Обґрунтовано доцільність інтеграції національного досвіду з кращими міжнародними освітніми практиками, зокрема посилення ролі наставництва, впровадження прозорих критеріїв оцінювання та розвитку культури регулярного конструктивного фідбеку, що сприятиме підвищенню якості підготовки лікарів-педіатрів і безпеки педіатричної допомоги.

Ключові слова: інтернатура з педіатрії; післядипломна медична освіта; компетентнісно орієнтована освіта; entrustable professional activities; клінічне мислення; професійні компетентності; підготовка лікаря-педіатра.

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Introduction. Pediatrics is a branch of medicine that encompasses the prevention, diagnosis, and treatment of diseases in children from birth to adolescence, as well as monitoring the physical, mental, and social development of the pediatric population, which determines its uniqueness among clinical specialties (Pettoello-Mantovani et al., 2014).

A distinctive feature of pediatrics is that clinical decisions are based not only on the presence of pathology but also on age-related norms of growth and development, which continuously change during the process of child ontogenesis (Pettoello-Mantovani et al., 2014). Scientific research emphasizes that effective pediatric care requires the combination of clinical skills with communicative and psychosocial competencies, particularly in interaction with the child's parents and guardians (Harper et al., 2019).

The training of qualified pediatricians is considered one of the key factors in improving child health indicators and reducing morbidity and mortality among children on a global scale (Harper et al., 2019).

Postgraduate medical education is defined as a critical stage of a physician's professional development, during which the transition from theoretical training to independent clinical thinking and practical activity occurs (Behrman, 2001).

Scientific publications indicate that it is precisely during the process of postgraduate training that a physician's ability to make clinical decisions under conditions of uncertainty and responsibility for the patient is formed. Internship and residency in pediatrics provide structured training in real clinical settings under the supervision of experienced mentors, which is a necessary condition for the formation of clinical competencies (Mills-Rudy et al., 2024). Research in medical education demonstrates that internship promotes the development of professional autonomy, clinical thinking, and readiness for independent medical practice in future pediatricians (Mills-Rudy et al., 2024). Thus, the pediatric internship occupies a central place in the system of physician training, ensuring the consistent professional development of a pediatrician and improving the quality of medical care for the pediatric population (Behrman, 2001).

The aim of the article is to analyze the significance of a pediatric internship as an important stage in the professional development of a pediatrician, to characterize its role in the formation of clinical skills and professional competencies, and to compare the features of pediatric training in Ukraine and abroad.

Theoretical framework. *Pediatric internship as a stage of professional development.* Internship (or residency in international terminology) is a key component of postgraduate training that ensures the transition from predominantly theoretical education to responsible clinical practice under supervision (Behrman, 2001). During this period, a young physician integrates knowledge from basic disciplines into real clinical scenarios where decisions are made considering risks, resources, and time, rather than only the "ideal" conditions of educational cases (Ten Cate, 2013; El-Haddad et al., 2016). Competency-based medical education (CBME) approaches emphasize that the workplace (clinical environment) is the main space for the development of professional readiness, and assessment should reflect the real tasks of a physician (Ten Cate, 2013; Hennus et al., 2022).

Formation of clinical thinking. Clinical thinking in pediatrics includes the ability to synthesize complaints, medical history, objective status, and examination results into a differential diagnostic hypothesis, as well as to choose a safe management strategy considering the child's age and family context (Behrman, 2001). Within competency-based approaches, the concept of entrustable professional activities (EPAs) describes clinical tasks that can be "entrusted" to an intern/resident after achieving a sufficient level of competence for more independent work, which is directly related to the development of clinical thinking (Ten Cate, 2013; El-Haddad et al., 2016). When training is structured around tasks and responsibilities rather than only topics, it facilitates the transfer of theory into practice and forms a "habit" of clinical thinking in real conditions (Hennus et al., 2022).

Work with children of different ages. Pediatric practice encompasses patients of various age groups, where the norms of vital signs, manifestations of diseases, and therapeutic approaches differ significantly; therefore, training must ensure consistent experience in managing newborns, infants, preschool and school-age children, and adolescents (Behrman, 2001). In pediatric residency accreditation systems, the need for balanced experience in inpatient and outpatient settings, as well as readiness to manage emergency conditions, is emphasized, reflecting the diversity of pediatric contexts (ACGME, 2020).

Communication with parents. Pediatric care is unique because the key partner of the physician is often the parents or guardians, and the model of family-centered care emphasizes the importance of respect, partnership, and effective communication with the family (Seniwati et al., 2023). Studies indicate that parents' perception of the quality of communication and family involvement in decision-making is an important component of satisfaction with care and trust in the medical team (Terp et al., 2021).

Psycho-emotional burden and responsibility. The period of internship/residency is associated with a high workload, which may be accompanied by emotional exhaustion and symptoms of burnout among a significant proportion of trainee physicians (Dyrbye et al., 2014; Rotenstein et al., 2018). In a national study of pediatric residents in the United States, it

was reported that the majority of residents met the criteria for burnout, and associated factors included stress, sleepiness, medical errors, and reduced empathy, which is particularly critical in pediatrics (Kemper et al., 2020).

Formation of professional competencies. Clinical skills. The competency-based model of physician training emphasizes the ability to perform key clinical tasks safely and effectively, rather than only "knowing" the theory; therefore, practical skills are a central outcome of internship (Ten Cate, 2013). The concept of EPAs allows competencies to be linked with specific actions (examination, patient management, emergency care, discharge, handover), and also ensures a gradual increase in independence under supervision (El-Haddad et al., 2016).

Decision-making. Clinical decisions in pediatrics are often made under conditions of incomplete information, limited time, and the need to consider the views of parents, which makes critical thinking and prioritization key skills (Behrman, 2001). Assessment based on the principle of "trust/do not trust" (entrustment) within EPAs is directly related to evaluating the quality of decisions and the safety of task performance in real practice (Hennus et al., 2022).

Teamwork. Modern pediatrics is team-based: quality patient management requires cooperation between physicians, nurses, psychologists, social workers, and other specialists, especially in cases of chronic or complex conditions (Baird et al., 2019). Data from studies of interprofessional educational models show that structured team rotations can improve understanding of roles, information transfer, and interaction between professions (Straub et al., 2023).

Ethical and deontological aspects. Pediatric ethics includes balancing the interests of the child, the rights of parents/guardians, the principle of the patient's best interests, and resource limitations, and training must prepare interns for such dilemmas in everyday practice (Behrman, 2001). Increasing responsibility as competence grows (through supervision and gradual "delegation" of tasks) is an important mechanism of ethical safety in physician training (El-Haddad et al., 2016).

Pediatric internship in Ukraine. Structure of training and the role of the mentor. Regulatory approaches to internship emphasize the combination of theoretical training and practice at training bases, as well as the need for supporting the intern in the educational process (Ministry of Health of Ukraine, 2021). Conceptually, this corresponds with international approaches, where supervision and gradual autonomization are the basis of safe professional development (Behrman, 2001; El-Haddad et al., 2016).

A strong aspect of the Ukrainian model is early immersion in real clinical conditions, which potentially accelerates the development of practical skills and professional responsibility (Ministry of Health of Ukraine, 2021). The presence of normatively defined rules for completing internship creates formal grounds for standardization, particularly regarding the organization of training and the responsibilities of the parties (Ministry of Health of Ukraine, 2021).

At the same time, international studies demonstrate that the intensity of workload during the period of postgraduate training without sufficient support and a culture of feedback may be associated with burnout and deterioration in the quality of education (Kemper et al., 2020; Dyrbye et al., 2014). Therefore, in the Ukrainian context, the quality of supervision, the availability of structured feedback, and tools for assessing progress that correspond to the competency-based approach are critically important (Hennus et al., 2022).

Pediatric training abroad. In the United States, accreditation requirements for pediatric residency provide that the educational program in pediatrics must last 36 months (ACGME, 2020). These requirements also emphasize the necessity of a sufficient number of clinical bases (inpatient, outpatient, emergency care) so that residents can achieve defined educational outcomes (ACGME, 2020).

In the United Kingdom, the standard pathway for pediatric training within specialized training is a "run-through programme" and nominally lasts seven years within the structure of core and specialty training (RCPCH, n.d.). Assessment of progress occurs annually through the Annual Review of Competency Progression (ARCP) procedure, reflecting a systematic approach to monitoring the formation of competencies (RCPCH, n.d.).

European models in many cases are moving toward competency-based education with an emphasis on workplace-based assessment and clearly defined learning outcomes, which corresponds with the international logic of EPAs/CBME (Ten Cate, 2013; Hennus et al., 2022). Additionally, experience from interprofessional educational environments in pediatrics demonstrates the benefits of simulations, team training, and joint rotations for improving interaction and patient safety (Straub et al., 2023).

Comparative analysis: Ukraine vs abroad. Systems of pediatrician training in Ukraine and abroad have a common goal – the formation of a competent specialist capable of providing high-quality and safe medical care to the pediatric population – however, they differ in the duration of training, the structure of programs, approaches to assessment, and the role of supervision (Behrman, 2001; ACGME, 2020).

In Ukraine, a pediatric internship is a form of primary specialization after completion of basic medical education and is regulated by normative documents of the Ministry of Health that determine its duration, procedure, and general requirements for

the training of intern physicians (Ministry of Health of Ukraine, 2021). The main emphasis in training is placed on combining practical activity at clinical bases with theoretical learning, which allows interns to be involved early in real medical practice and the performance of professional duties under the supervision of senior colleagues (Ministry of Health of Ukraine, 2021).

In contrast, in countries with developed systems of postgraduate medical education, particularly in the United States, pediatric training is carried out in the form of residency, which has a clearly defined duration of three years and is regulated by the requirements of accreditation bodies such as the Accreditation Council for Graduate Medical Education (ACGME, 2020). The American model is characterized by clearly structured educational programs, mandatory completion of various clinical rotations (inpatient, outpatient, emergency department), and systematic assessment of the achievement of educational outcomes (ACGME, 2020).

In countries of the European Union, particularly in the United Kingdom, pediatric training has an even longer duration and is carried out within the framework of so-called "run-through" programs, which may last up to seven years and include several stages of gradual increase in the physician's level of responsibility (RCPCH, n.d.). An important feature is the annual formalized assessment of professional progress (Annual Review of Competency Progression), which allows systematic monitoring of competency development and adjustment of the physician's individual educational trajectory (RCPCH, n.d.).

A significant difference between the Ukrainian and foreign models is the level of implementation of competency-oriented approaches to training and assessment. In international practice, the concept of Competency-Based Medical Education and tools such as entrustable professional activities (EPAs) are widely used, allowing evaluation of a physician's readiness to perform specific professional tasks in real clinical conditions (Ten Cate, 2013; El-Haddad et al., 2016). In Ukraine, these approaches are only gradually being integrated into the system of postgraduate education, which creates potential for its further development and improvement (Hennus et al., 2022).

Another important difference is the level of structured supervision and regular feedback. In foreign programs, mentorship is considered a mandatory element of the educational process, and supervisors bear formal responsibility for evaluating residents' progress, which contributes to patient safety and the professional growth of young physicians (ACGME, 2020; RCPCH, n.d.). In the Ukrainian system, the role of the mentor is also defined normatively; however, the practical implementation of this function may be uneven and depend on the specific clinical base (Ministry of Health of Ukraine, 2021).

At the same time, the Ukrainian internship model has a number of strengths, including early involvement in practical work, broader contact with patients at the initial stages of the professional path, and the possibility of faster adaptation to the real conditions of healthcare institutions. Provided that structured assessment is strengthened, supervision is developed, and competency-based approaches are integrated, these advantages can become the basis for further improvement in the quality of pediatric training (Ministry of Health of Ukraine, 2021; Hennus et al., 2022).

Thus, the comparative analysis demonstrates that although the systems of pediatric training in Ukraine and abroad differ in organizational structure and duration, their convergence is possible through the adoption of elements of competency-based education, transparent mechanisms of assessment, and strengthening the role of mentorship, which corresponds to modern international trends in the development of postgraduate medical education (Behrman, 2001; ten Cate, 2013; ACGME, 2020).

The use of more transparent competency frameworks (CBME) and the description of key professional tasks through EPAs can make the progress of an intern more measurable and understandable for both the mentor and the intern (Ten Cate, 2013; El-Haddad et al., 2016). Systematic regular assessment of competencies (similar to ARCP or structured progress reviews) can strengthen the culture of feedback and improve the quality of supervision (RCPCH, n.d.). The introduction of interprofessional team training and simulations, shown in studies to be beneficial for teamwork, can positively influence safety and communication in pediatric departments (Straub et al., 2023).

Since burnout among residents/interns is a widespread phenomenon and is associated with factors such as workload, sleep, stress, and even medical errors, an important perspective is the development of support systems and burnout prevention during the internship period (Kemper et al., 2020; Rotenstein et al., 2018).

Strengthening family-centered approaches and training in effective communication with parents should be an integrated component of internship, as the quality of partnership and interaction with the family determines a significant part of the success of pediatric care (Seniwati et al., 2023; Terp et al., 2021).

Conclusions. A pediatric internship is a defining stage of postgraduate medical education, during which the transition from theoretical training to independent clinical activity occurs and the professional identity of a pediatrician is formed. It is during the internship period that the foundations of clinical thinking, professional responsibility, and the ability to make well-grounded decisions in real conditions

of providing medical care to the pediatric population are established.

The conducted analysis of scientific sources indicates that the effectiveness of a pediatric internship largely depends on the combination of practical activity with the purposeful formation of professional competencies, including clinical skills, communication skills with children of different ages and their parents, the ability to work in an interdisciplinary team, as well as adherence to ethical and deontological principles of medical practice. The high level of psycho-emotional burden and responsibility characteristic of pediatric practice further emphasizes the importance of proper supervision and support for intern physicians in the process of professional development.

A comparative analysis of pediatric training systems in Ukraine and abroad shows that foreign models of postgraduate education are characterized by longer and more structured training, wide use of competency-oriented approaches, and regular assessment of professional progress. At the same time, the Ukrainian internship model has its strengths, in particular early involvement in clinical practice and direct contact with patients, which creates conditions for faster adaptation of young physicians to the real working conditions of healthcare institutions.

Therefore, the further development of pediatric internship in Ukraine should be directed toward combining the existing advantages of the national system with elements of international experience, in particular strengthening the role of mentorship, implementing transparent mechanisms for assessing competency development, and developing a culture of feedback. Such an approach will contribute to improving the quality of pediatrician training and, accordingly, the level of medical care provided to the pediatric population.

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Information on the use of artificial intelligence. The authors certify that, in the course of conducting the research and preparing this manuscript, they did not use any generative artificial intelligence tools or services to perform any of the tasks listed in the Generative Artificial Intelligence Delegation Taxonomy (GAIDeT, 2025). All stages of the work – from conceptualization to final editing – were carried out exclusively by the authors, without the use of generative artificial intelligence.

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