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## THE OPINION OF INTERNS IN THE SPECIALTY "GENERAL PRACTICE - FAMILY MEDICINE" REGARDING THE ACQUISITION OF CARDIOPULMONARY RESUSCITATION SKILLS

**Abstract.** This study investigated the opinions, attitudes, and self-assessment of intern doctors in the field of General Practice - Family Medicine regarding their acquisition of cardiopulmonary resuscitation (CPR) skills during their training. This skill is fundamental to training and should be practised to a level of automatism with minimal delays between algorithm steps. The aim was to study the quantitative components of CPR practice during training at internship centres, determine the prevalence of emergency conditions in interns' practice, and assess the quality of CPR practice based on the interns' own opinions in their second year of training. An online survey of interns was conducted using the Google Forms tool, taking into account the ethical aspects of existing declarations and principles in Ukraine. Based on the results, it was found that some interns face challenges in practising CPR at internship centres, which could potentially lead to educational losses, lack of

confidence in their abilities, and fear during emergency care provision. We obtained responses regarding the importance of this skill for the practice of young family doctors, which is one of the key components of the educational process. The prevalence structure of emergency conditions, predominantly comprising consequences of non-infectious diseases, was disclosed, which will help to focus on medical personnel training. Stakeholders' views on the optimal frequency of CPR practice were analysed to create comfortable conditions for continuous professional development and consolidation of achieved results. The article discusses both the challenges facing interns during times of war and medical education reform, and recommendations for improving CPR training as part of the preparation of future family doctors.

**Keywords:** interns, general practice, family medicine, opinion, cardiopulmonary resuscitation, internship centres.

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## **ДУМКА ЛІКАРІВ-ІНТЕРНІВ ЗА ФАХОМ «ЗАГАЛЬНА ПРАКТИКА – СІМЕЙНА МЕДИЦИНА» ЩОДО НАБУТТЯ НАВИЧКИ СЕРЦЕВО-ЛЕГЕНЕВОЇ РЕАНІМАЦІЇ**

**Анотація.** У даному дослідженні вивчалась думка, ставлення, самооцінка лікарів-інтернів за фахом «Загальна практика – сімейна медицина»

щодо набуття ними навички серцево-легеневої реанімації в процесі їх навчання. Дана навичка є базовою в підготовці та повинна бути відпрацьована до рівня автоматизму з мінімальними затримками між кроками алгоритму. Метою стало вивчення кількісних складових відпрацювання серцево-легеневої реанімації під час навчання на базах стажування, визначення поширеності невідкладних станів в практиці лікарів-інтернів, оцінка стану якості відпрацювання СЛР на основі думки власне лікарів-інтернів 2 року навчання. Дослідниками було проведення онлайн-опитування стажерів з використанням інструменту Google Forms, враховуючи етичні аспекти діючих в Україні декларацій та принципів. Спираючись на результати стало відомо, що частина стажерів мають проблеми з відпрацюванням серцево-легеневої реанімації на базах стажування, що в майбутньому може трансформуватися в педагогічні втрати, невпевненість у власних силах та страх під час надання невідкладної допомоги. Нами було отримано відповідь на запитання щодо важливості даної навички для практики молодих сімейних лікарів, тобто їх ставлення, що одним з ключових компонентів педагогічного процесу. Розкрито структуру поширеності невідкладних станів, яка включає переважно наслідки неінфекційних захворювань, що в подальшому допоможе розставити акценти в підготовці медичних кадрів. Проаналізовано погляд стейкхолдерів на оптимальну частоту відпрацювання навички серцево-легеневої реанімації з метою створення комфортних умов для безперервного професійного розвитку та закріплення досягнутого результату. В статті обговорюються як виклики, що стоять перед стажерами в часи воєнного положення та реформування медичної освіти, так і рекомендації щодо вдосконалення навчання серцево-легеневої реанімації в рамках підготовки майбутніх сімейних лікарів.

**Ключові слова:** лікарі-інтерни, загальна практика, сімейна медицина, думка, серцево-легенева реанімація, бази стажування.

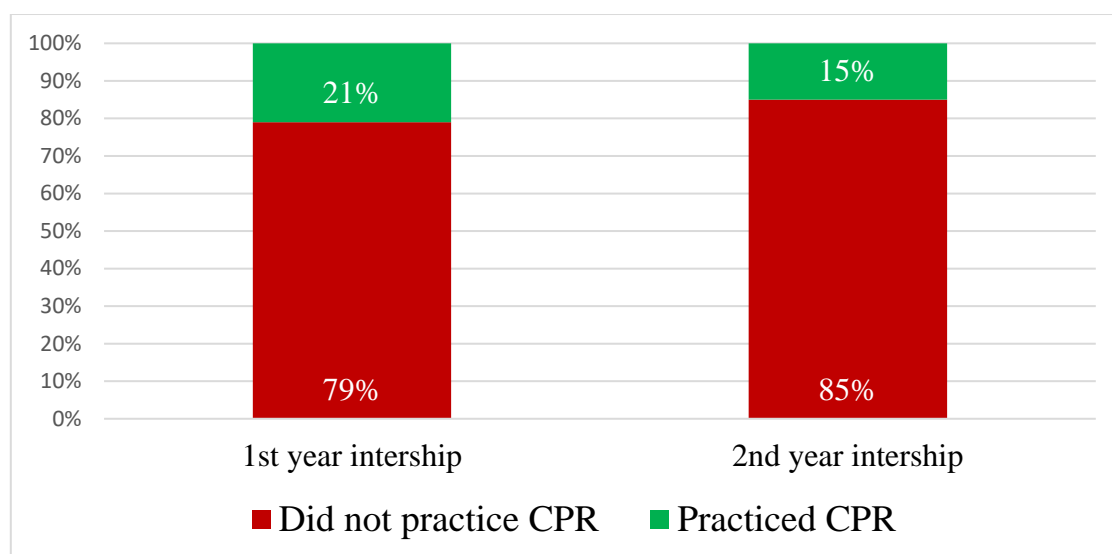
**Introduction.** Based on the situational analysis by WHO, a properly funded primary healthcare system ensures the best cost-effectiveness within the healthcare system [1]. High-quality training of primary healthcare professionals will enable the Ukrainian healthcare system not only to withstand the burdens of war but also to lay a strong foundation for post-war flourishing. A fundamental competency inherent to the profession of "General Practice / Family Medicine" (GP / FM) is cardiopulmonary resuscitation (CPR), which, in addition to its preventive focus, prepares future specialists for any clinical scenario [2]. With the update of the educational programme in 2023, the training period for medical interns at university medical departments was halved in favour of their time spent at training bases [3]. However, the material and technical support of these training bases still does not meet the needs of modern medical training, raising the question of whether the stakeholders are satisfied with these innovations and the current state of their preparation [4,5].

**Aim:** to investigate the quantitative aspect of CPR training during internships at training bases, determine the prevalence of emergency situations in the practice of medical interns, and assess the quality of CPR training based on the opinions of second-year medical interns.

**Materials and Methods.** We conducted an anonymous online survey of 53 medical interns specialising in "GP / FM" after their training at internship bases using the Google Forms tool. Only one intern (~2%) declined to participate (the reason was not investigated), which did not affect the statistical reliability of the results obtained. Respondents were asked to answer eight original questions, mainly concerning their experience of practising cardiopulmonary resuscitation skills during their 18-month internship training. The study was conducted in accordance with the principles of bioethics outlined in the Declaration of Helsinki of the World Medical Association "Ethical Principles for Medical Research Involving Human Subjects" (2013, Fortaleza, Brazil), and the International Ethical Guidelines for Biomedical Research Involving Human Subjects by the Council for International Organizations of Medical Sciences (CIOMS, 2016), with informed consent from the participants. The survey was conducted in April 2024.

Statistical processing of the results was carried out using the STATISTICA v. 6.1 package (StatSoft Inc., USA, serial number AGAR909E415822FA) and the MedCalc Software trial version (MedCalc Statistical Software Ltd, Ostend, Belgium; <https://www.medcalc.org>; 2023). The critical level of statistical significance was set at  $p < 0.05$ .

**Results and Discussion.** To ensure an objective understanding of the material, it should be noted that the medical interns completed their internships at primary healthcare centres without visiting intensive care or resuscitation departments of city and regional hospitals. In the first stage of the study, we asked the medical interns about the number of CPR practices separately during their first and second years of internship, with the results presented in Fig. 1.

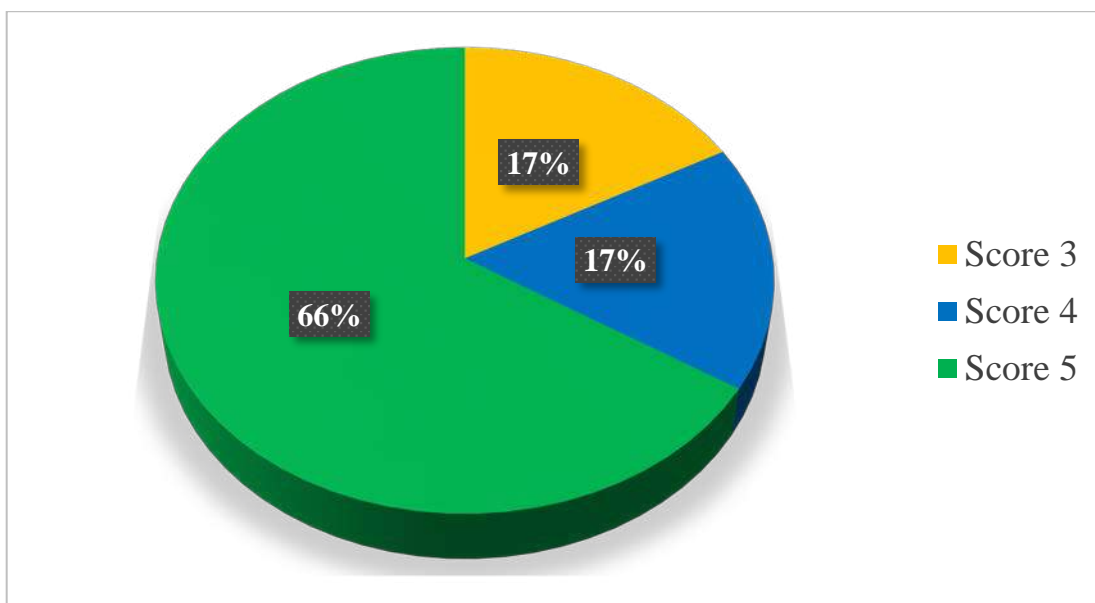


*Fig. 1. Quantitative distribution of medical interns practising CPR skills during the 1st and 2nd year of internship*

In our opinion, the data in Fig. 1 clearly highlights the issue of practising CPR during internships. The average number of CPR practices in the first year of internship was 0.9 (SD 1.33) times, and in the second year, it was 0.8 (SD 1.23) times. The maximum number of CPR practices was 4 times in the first year and 3 times in the second year (over 9 months of internship). These figures are quite objective, considering the lack of training centres and material resources for CPR practice at the internship bases. Medical interns had limited opportunities as practising CPR on patients in a state of clinical death is impossible within the practice of GP-FM outpatient clinics. An alternative solution could be mastering the skill through training sessions conducted occasionally by external organisations.

A potential solution to this challenge could be the periodic referral of medical interns to training centres at higher education medical institutions that are adequately equipped; undertaking internships at university clinics; or creating an extensive network of training centres within primary healthcare centres (PHCs), which would require significant additional funding not covered by the National Health Service of Ukraine (NHSU) and interest from managers in the quality of future specialists' training. The postgraduate training departments must compensate for these educational gaps through short-term cycles (7 days) and according to the internship programme, should devote more time to theoretical components.

The subsequent question in the survey asked the interns to self-assess the importance of CPR skills on a scale from 0 (not important at all) to 5 (very important). The average score for the importance of the skill was 4.2 (SD 1.02). A positive aspect, in the authors' opinion, is that the minimum score recorded was not below 3 (reflecting an informed assessment), with the detailed structure presented in Fig. 2.



*Fig. 2. Distribution of self-assessment scores on the importance of CPR skills by medical interns for their practical training*

Given the specificity of the "GP / FM" profession and the low prevalence of clinical death situations in the practice of medical interns, the high priority of this skill (66%,  $n = 35$  respondents indicated the maximum score) is noteworthy, formed during the second year of training.

Regarding their own abilities in performing CPR (on a scale from 0 to 5), we obtained the following data: the average score was 3.8 (SD 0.6). Only 10% ( $n = 5$ ) of the medical interns rated their abilities at the maximum score, the majority (58%,  $n = 31$ ) chose a score of 4, and one-third (32%,  $n = 17$ ) chose a score of 3, which was the minimum score among the responses.

An analysis of the prevalence of emergency conditions encountered by medical interns over the two years of their internship showed that the top three were cardiovascular events, consequences of non-communicable diseases, which continue to dominate the mortality structure in Ukraine, as shown in Tab. 1.

*Table 1*

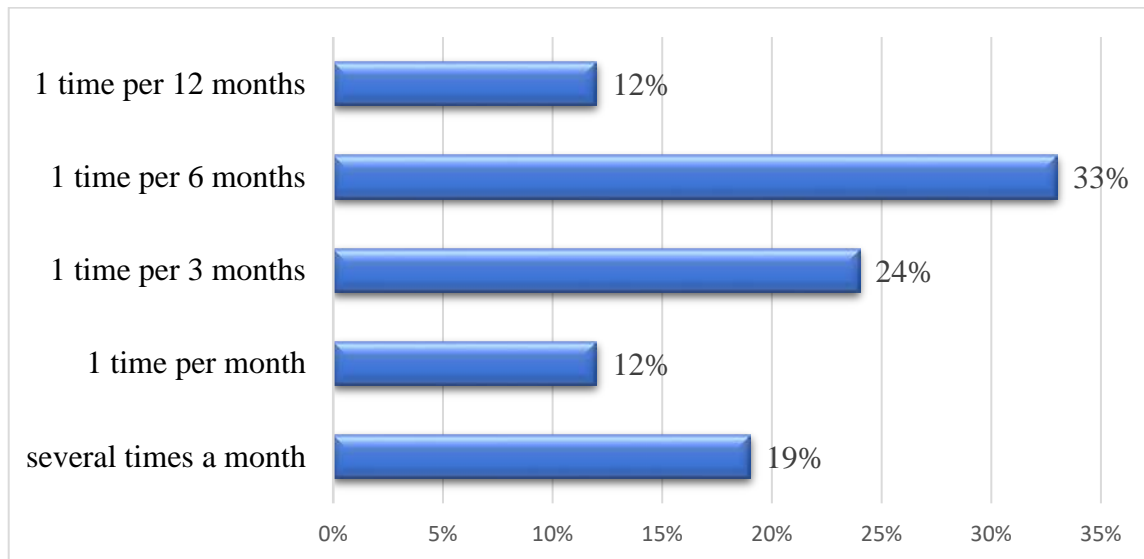
**Structure of the prevalence of emergency conditions according to the survey results of medical interns (multiple responses were possible)**

<b>№</b>	<b>The name of the emergency</b>	<b>Number of interns</b>
1.	Hypertensive crisis	45
2.	Acute coronary syndrome	17
3.	Transient ischemic attack / Stroke	13
4.	Anaphylaxis, unspecified syncope, pulmonary edema	5 each
5.	Hypoglycemic state	4
6.	Gastrointestinal bleeding, Quincke's edema	3 each
7.	Bronchospasm, renal colic, acute appendicitis, hyperthermic syndrome	2 each
8.	Episynndrome, acute psychosis, spontaneous pneumothorax, severe cardiac arrhythmia, uterine bleeding, acute trauma, acute poisoning	1 each

Approximately 15% ( $n = 8$ ) reported not encountering any emergency conditions during their 18 months of internship. The high prevalence of hypertensive crises may be linked to the current situation in the country (war, humanitarian crisis, the exodus of medical workers) and the refusal of emergency (ambulance) crews to respond as per the Ministry of Health of Ukraine's order No. 583 dated 26.03.2021 "On Approval of the Rules for Calling Emergency (Ambulance) Crews and the Procedure for Transporting Patients (Casualties) by Emergency (Ambulance) Crews to Healthcare Institutions," and the advice to consult a family doctor.

Therefore, emergency conditions that may potentially require CPR are widely represented in the responses of medical interns, underscoring the importance of this skill in the routine practice of a family doctor.

There is still no international consensus on the optimal frequency of CPR practice to maintain the quality of this skill at an appropriate level. Consequently, the researchers posed this question to the direct stakeholders – the medical interns. The results are presented in Fig. 3.



*Fig.3. Optimal frequency of CPR practice as suggested by medical interns for maintaining skill proficiency*

According to Fig. 3, every third intern doctor in the specialty "GP / FM" expressed the opinion that the optimal frequency for practising CPR skills is once every six months. It seems that practising this skill once per quarter could satisfy the majority (57%) of stakeholders, especially on a regular basis within the framework of continuing postgraduate education.

### **Conclusions.**

1. A high percentage of intern doctors in the specialty "General Practice - Family Medicine" do not have the opportunity to practise CPR skills in the first (79%) and second (85%) years of their training at the centres. These educational deficiencies must be compensated for by the departments of medical educational institutions within a relatively short period (only six months according to the updated programme).

2. The majority of medical interns (66%) rate CPR skills as a very important component of their training.

3. On average, their own abilities were rated at 3.8 (0.6) points on a five-point scale (between satisfactory and good level).

4. The optimal frequency for practising CPR skills could be once every three months, which can be ensured by organising training centres within the GP / FM centres on a regular basis.

**References:**

1. Primary health care financing in Ukraine: a situation analysis and policy considerations. Copenhagen: WHO Regional Office for Europe; 2023. Licence: CC BY-NC-SA 3.0 IGO. URL: <https://iris.who.int/bitstream/handle/10665/373329/WHO-EURO-2023-8138-47906-70792-eng.pdf?sequence=2> (date of access: 12.06.2024).
2. Vysochyna, I., Kramarchuk, V., & Yashkina, T. Challenges in internship practical training. Perspectives and innovations of science. 2023. No. 12(30). URL: [https://doi.org/10.52058/2786-4952-2023-12\(30\)-63-74](https://doi.org/10.52058/2786-4952-2023-12(30)-63-74) (date of access: 12.06.2024).
3. Bashkirova N., Kramarchuk V., Rosytska O. Self-evaluation of professional competencies among medical interns. Věda a perspektivy. 2023. No. 2(21). URL: [https://doi.org/10.52058/2695-1592-2023-2\(21\)-316-320](https://doi.org/10.52058/2695-1592-2023-2(21)-316-320) (date of access: 12.06.2024).
4. Perfectionism in the anesthesiological environment / O. V. Kravets et al. Discover Psychology. 2023. Vol. 3, no. 1. URL: <https://doi.org/10.1007/s44202-023-00096-0> (date of access: 12.06.2024).
5. Sichkoriz O. Y., Zimenkovsky A. B., Gutor T. G. Analysis of expectations and satisfaction of physicians (provisors)-interns in Ukraine at the stage of primary specialization – internship training. Medicni perspektivi. 2022. Vol. 27, no. 1. P. 16–23. URL: <https://doi.org/10.26641/2307-0404.2022.1.254317> (date of access: 12.06.2024).

**Література:**

1. Primary health care financing in Ukraine: a situation analysis and policy considerations. Copenhagen: WHO Regional Office for Europe; 2023. Licence: CC BY-NC-SA 3.0 IGO. URL: <https://iris.who.int/bitstream/handle/10665/373329/WHO-EURO-2023-8138-47906-70792-eng.pdf?sequence=2> (date of access: 12.06.2024).
2. Vysochyna, I., Kramarchuk, V., & Yashkina, T. Challenges in internship practical training. Perspectives and innovations of science. 2023. No. 12(30). URL: [https://doi.org/10.52058/2786-4952-2023-12\(30\)-63-74](https://doi.org/10.52058/2786-4952-2023-12(30)-63-74) (date of access: 12.06.2024).
3. Bashkirova N., Kramarchuk V., Rosytska O. Self-evaluation of professional competencies among medical interns. Věda a perspektivy. 2023. No. 2(21). URL: [https://doi.org/10.52058/2695-1592-2023-2\(21\)-316-320](https://doi.org/10.52058/2695-1592-2023-2(21)-316-320) (date of access: 12.06.2024).
4. Perfectionism in the anesthesiological environment / O. V. Kravets et al. Discover Psychology. 2023. Vol. 3, no. 1. URL: <https://doi.org/10.1007/s44202-023-00096-0> (date of access: 12.06.2024).
5. Sichkoriz O. Y., Zimenkovsky A. B., Gutor T. G. Analysis of expectations and satisfaction of physicians (provisors)-interns in Ukraine at the stage of primary specialization – internship training. Medicni perspektivi. 2022. Vol. 27, no. 1. P. 16–23. URL: <https://doi.org/10.26641/2307-0404.2022.1.254317> (date of access: 12.06.2024).