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## PREPARATION OF SIXTH-YEAR STUDENTS FOR THE LICENSING TEST EXAM " KROK 2. PAEDIATRIC PROFILE": THE SEARCH AND WAYS TO SOLVE PROBLEMS

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The article is devoted to the preparation of higher education students of PSMU for the standardised test state exam "Krok 2" by subtests of the paediatric profile. The survey was conducted to find out the satisfaction of sixth-year students with the level of preparation at the university's paediatric departments for the upcoming test, their interest in learning test tasks in paediatrics, and to identify possible reasons for the decline in the licensing exam results in the submodule in recent years. In addition, after analysing the data obtained, it was found that students spend insufficient time on independent study of paediatrics tests and need more active participation of teachers in practical classes with a thorough explanation of the correct answers to the tasks. The vast majority of survey participants (52% of respondents) are preparing for the test exam using the booklets of recent years, while 42% are working on tasks from the Krok 2 database in all disciplines. This approach to learning will undoubtedly lead to maximum results. The most problematic tasks for students are paediatric tests in the following subtests: diseases of the circulatory system in children - 67.3%; pathology of the newborn period - 41.6%; paediatric oncohematology - 41.6%. The survey has shown that applicants for higher education, in their independent preparation for the licensing exam, focus on therapeutic issues, explaining the most significant percentage of these tasks in the booklet. According to our estimates, only 23% of respondents do not prefer individual subtests but prepare for the exam equally in all disciplines.

**Key words:** integrated test exam "Krok 2", paediatric profile, preparation, questionnaire, higher education student.

#### Introduction.

An obligatory component of the 2nd stage of the Unified State Qualification Exam for the Master's degree in the field of knowledge 22 «Healthcare» is the integrated test exam «Krok 2» [1]. Its successful completion is based on the achievement by the applicant of the expected learning outcomes defined by the standard of professional higher education and the acquisition of professional competencies in clinical disciplines that are extremely important in the future activities of a specialist doctor. On the one hand, the acquisition and improvement of professional competencies at the stage of the clinical training cycle directly depends on the basic level of theoretical knowledge of the student, their motivation to learn, ability to self-learn, stress resistance and other personal qualities. On the other hand, it is worth noting the importance of qualification characteristics and pedagogical skills of research and teaching staff (RTS) involved in teaching clinical disciplines, as well as the state of material and technical equipment of clinical bases of departments [2]. A key role in the formation of a confident personality of a competent specialist clinician is played by direct work in the clinic with the possibility of honing practical skills at the patient's bedside, performing medical manipulations under the supervision of a teacher, participating in clinical rounds and consultations, maintaining medical records, and teamwork experience. Today, domestic medical education and medicine in general are undergoing constant transformations. The requirements for specialists in the field of knowledge 22 «Healthcare» are increasing, and, accordingly, the bar is being raised for higher education institutions that are responsible for providing our country with highly qualified specialists who can compete in the international labour market [3, 4].

The Department of Paediatrics № 2 is a graduating department. It is included in the list of structural subdivisions of Poltava State Medical University (PSMU), which implements the process of teaching paediatric disciplines. The department conducts the final stage of training of the sixth-year students in the compulsory educational component «Paediatrics with Children's Infectious Diseases» for applicants for specialities 222 «Medicine», and 228 «Paediatrics», and the preparation for the integrated test exam is a part of this process. The curriculum of the discipline provides for the acquisition of knowledge and professional skills in the most common diseases of young children, respiratory, digestive, urinary system, paediatric cardiorheumatology, allergology, children's infectious diseases, and major emergency conditions in children [5, 6]. In addition to the theoretical analysis of the topic according to the curriculum, emphasis is necessarily placed on the practical part of the main stage of each lesson, which plays a key role in the professional development of the future doctor because, at this stage, a system of professional skills and abilities is formed [7]. In this situation, the teacher plays the role of a mediator and mentor who helps the medical student to form a precise sequence of actions to facilitate the understanding, memorisation and improvement of a particular skill [8, 9]. Practical training with repeated repetition of certain actions, manipulations, procedures and measurements and development of practical skills in differential diagnosis of pathological pulmonary and cardiac murmurs, objective examination of a paediatric patient, algorithms for emergency care on stimulation simulators available in the material and technical support of the department is an addition [10].

The students are quite interested in the use of elements of simulation training, show great interest in role-playing games (doctor-patient, doctor-doctor),

Table – Dynamics of changes in the results of the standardised test state examination «Krok 2» by subtests «Paediatrics» in PSMU by faculties and academic years (a.y.)

Faculty of PSMU	Academic year	Krok 2 exam results by subtests «Paediatrics», %
Medical №1	2021 (I shift)	80,2
	2021 (II shift)	74,8
	2023	69,5
Medical №2	2021 (II shift)	74,75
	2023	66,5

and analysis of specific clinical cases and situational tasks that reflect real clinical conditions as much as possible. Finally, at each practical lesson, the academic staff of the department devotes some time to analysing and explaining thematic test tasks from the Krok 2 database, the solution of which causes difficulties for students. For the convenience of the student and quick access to the database of paediatric profile tests, the department's page on the PSMU website contains collections of tasks selected by teachers with the correct answers according to the thematic plan of the discipline [11, 12]. Thus, the final assessment of pre-graduates is conducted comprehensively, considering the level of their theoretical knowledge and professional skills that they demonstrate in clinical conditions or close to them.

The priority task of the scientific and pedagogical staff of our department was to improve the National indicator of the Krok 2 licensing exam results by subtests of the paediatric profile, which also affects the rating position of the average result among higher education institutions.

According to the statistical data of the analytical notes of the Testing Centre at the Ministry of Health of Ukraine to the results of the licensing integrated exam "Krok 2. GMT" (domestic students) in 2021, this indicator was 80.4% (I shift) and 74.5% (II shift), and in 2023 – 69.8%, respectively. As can be seen from the **table**, the results of the Krok 2 exam in the subtests "Paediatrics" at PSMU are lower than the average percentage value among higher medical schools of Ukraine in 2022-2023 and with some differences in 2020-2021. In addition, there is a general trend towards a decrease in performance in paediatrics at our university. And although the number of PSMU students who failed the Krok 2 exam in 2023 was 6.7%, which is lower than the national average (8.3%), this negative trend is still a cause for concern [13, 14].

#### The aim of the study.

To conduct a survey of 6th-year students of specialities 222 "Medicine" and 228 "Paediatrics" of PSMU with the subsequent analysis of the results to find the reason for the decline in the Krok 2 licensing exam results by subtests of the paediatric profile.

#### Object and research methods.

The staff of the Department of Paediatrics, №2 of PSMU, developed a Google Forms questionnaire and conducted a survey of 6th-year students in the specialities 222 "Medicine" and 228 "Paediatrics" for the academic year 2023-2024. The questionnaire included 13 closed questions related to the preparation for the Krok 2 licensing exam, as well as three open questions about finding obstacles and ways to solve them to improve the

exam results, to which respondents were able to express their own points of view. A total of 113 participants took part in the survey. Expecting the most detailed and sincere responses, we adhered to the principles of confidentiality and voluntariness.

#### Research results and their discussion.

Distribution of students by speciality and faculty:

- EPP Medicine, Medical Faculty № 1 of PSMU 55.8%;
- EPP Paediatrics, Medical Faculty № 2 of PSMU 14.2%;
- EPP Medicine, Medical Faculty № 2 of PSMU 30.1%.

In general, 41.6% of respondents receive their education at the expense of individuals or legal entities; 58.4% receive it at the expense of the state budget. Sixty-three survey participants entered PSMU after graduating school (lyceum, gymnasium), 48 – after a professional school/college, and two students had previously studied at another institution. Only 8% of the respondents reported having to retake the Krok 1 licensing exam in the past, while 92% passed the exam the first time.

Most often, when preparing for the Krok 2 licensing Exam, students use sample questions from licensing exams of previous years (48.7%) and test collections (39.8%), and less often, they use online resources (11.5%). Of course, working through the tasks from the Krok 2 database in all disciplines will give the maximum result of successful exam passing, and this tactic is chosen by 42% of the survey participants (figure 1). At the same time, more than half of the respondents (52%) study test tasks from the booklets of recent years. Although a small percentage of questions in the booklets are repeated from year to year, this principle of preparation increases the risk of a low average exam score.

More than half of the survey participants (62%) expressed their satisfaction with the level of preparation for the Krok 2 licensing exam at the PSMU departments that provide teaching of paediatric disciplines. Twentyfive applicants have minor complaints to individual departments or teachers in this regard, and nine have not decided on the answer to this question. However, in 8% of cases, respondents are not satisfied with how the exam preparation takes place at the university's paediatric departments. Students justify their choice by the fact that there is an unequal attitude of different teachers in the distribution of time for working on test tasks in practical classes and the lack of justification for the correct answer. The results of the study show that almost half of the survey participants (46%) received timely explanations from teachers of all departments on issues that arise in preparing for the Krok 2 exam. At the same time, in 49% of cases, students did not receive explanations for all the tasks they did not understand in certain disciplines (figure 2).

The survey has shown that in the 6th year of study, more time is devoted to practical classes to prepare for the licensing Exam and teachers' attention to solving complex or incomprehensible test tasks (74.3% of responses). In our opinion, this is due to the level of responsibility assigned to the graduating departments and, on the other hand, the students' interest in the upcoming exam.

Analysing the survey data, we found that the most problematic for applicants are paediatric tests in the

following subtests (from the maximum to the minimum share of the total number of respondents):

- diseases of the circulatory system in children 67.3%;
- pathology of the newborn period 41.6%;
  - paediatric onco-haematology 41.6%;
  - children's polyclinic, vaccination 25.7%;
  - respiratory diseases in children 20.4%;
  - children's surgery, traumatology 19.5%;
- diseases of the kidneys and urinary system in children 18.6%;
  - paediatric endocrinology 18.6%;
  - infectious diseases 14.2%;
  - paediatric allergology 14.2%;
- diseases of the gastrointestinal tract in children -8%.

The reasons for the difficulties in solving the paediatric tasks are insufficient time spent on

studying these tasks (38.1%) and low theoretical training in paediatrics in general (10.6%). For 15 students, these tests are not clear or correct. Almost a third of the respondents (28.3%) have no difficulties and consider paediatric tasks easy to solve. The fact that 11 students involved in the survey showed a low motivation to study in general is disturbing.

As can be seen from figures 3 and 4, most of the study participants (65 respondents) claim that they prepare for the successful completion of Krok 2 for at least half an hour every day, while only 22 students spend the same amount of time on paediatric tasks. One-third of the respondents (33%) spend up to 1 hour per week studying the Krok 2 database test tasks, and almost half of the applicants (46%) study paediatrics tests. Only 5% of all respondents spend 1 hour per month preparing for the exam, and 15% study subtests of the abovementioned profile. Approximately the same indicators were obtained among students who do not spend time preparing for Krok 2 in general and paediatrics in particular (4% and 15% of respondents, respectively). Such study results can be regarded as a lack of independent work by the student, and the indicated time intervals (for example, half an hour daily) are the minimum time allocated in the academic group for working on test tasks in practical classes. Based on this, we can conclude that motivating these students to study and encourage them to prepare for the exam is necessary.

The survey showed what accents students place on independent preparation for the licensing exam. They prioritise the therapeutic profile questions, which they explain by the most significant percentage of test tasks in the booklet. In second place in future graduates' priority are surgery, obstetrics and gynaecology tasks, which they call "more difficult than other subjects". Some participants explained the special attention to this or that profile of tasks by the commitment caused by the subsequent choice of a future speciality. According to our estimates, only 23% of respondents do not prefer separate subtests but prepare for the exam equally in all disciplines. Since a particular category of respondents does not

work on paediatric tasks on their own, the only

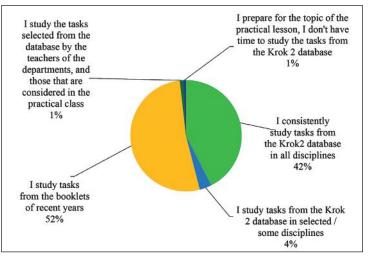


Figure 1 – Distribution of answers to the question: "What principle of preparation for the Krok 2 licensing test exam do you choose for yourself?

chance to prepare them for the subtest is to work hard in a practical class, do continuous testing, spend more time analysing test tasks in a group with a teacher, with the justification of the correct answer for better learning and memorisation.

We tried to explain the insufficient time students spend preparing for the Paediatrics subtest by analysing the open-ended answers to this open-ended question. Most respondents report that the quality of education is affected by excessive study load and poor time management skills. In addition, many sixth-year students combine their studies with work, which takes up much of their free time and resources, and their independent work consists only of theoretical preparation for classroom classes.

There are typical suggestions from students to improve their results in the "Krok 2. Paediatric profile":

- to spend more time on test analysis during practical classes with teachers of all departments that provide teaching of paediatric disciplines;
- daily computer test control, monitoring of preparation for trial tests;
- during practical classes, detailed explanation by teachers of the Krok 2 tests and clear justification of the correct answer;
- to adjust the database of paediatrics tests in general, as students note the presence of tasks in which diagnoses and treatment protocols do not meet modern national standards;

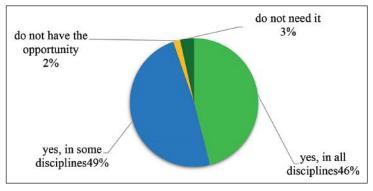


Figure 2 – Distribution of answers to the question: "Do you have the opportunity to receive timely explanations from teachers on issues that arise in the process of preparing for the Krok 2 exam?"

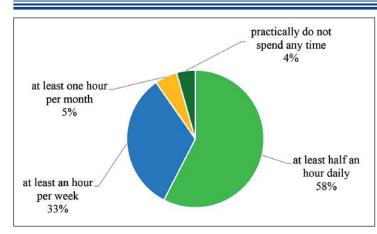


Figure 3 – Distribution of answers to the question: "How much time do you spend on average preparing for the Krok-2 licensing exam?"

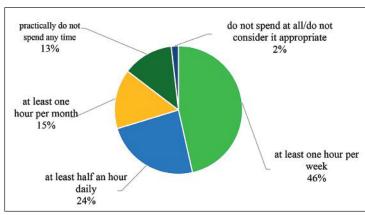


Figure 4 – Distribution of answers to the question: "How much time do you spend on average working on paediatric test tasks?"

- reduce the number of tests focused on knowledge of the exact values of certain indicators; increase the number of tests focused on clinical thinking;
- when updating the working curricula of disciplines, allocate more academic hours to topics with a large percentage of tasks from the Krok 2 database.

Considering the comments and suggestions of the sixth-year students to improve the level of preparation for the subtest in paediatrics, the staff of the Department of Paediatrics № 2 revised, updated and supplemented the collections of paediatric test tasks for the content modules according to the curriculum of the educational component "Paediatrics with Children's Infectious Diseases", which are freely available on the department's page on the PSMU website. In addition, given the problems that students have with solving issues in neonatology, paediatric oncohematology and endocrinology, as demonstrated by the survey results, we included mandatory test control of these subtests despite the lack of hours allocated in the curriculum. During the 6th year of study, the number of academic

hours devoted to analysing test tasks in practical classes with the participation of the Department's teachers was increased. In addition to daily test control followed by self-testing, a mandatory test control was introduced for all selected questions from the subtest "Paediatrics" database, which relates to compulsory and elective paediatric disciplines and is mastered in the 4th and 5th years of study.

At the students' request, the department teachers created a presentation with the most difficult paediatric tests, in their opinion, demonstrated them in practical classes, and discussed the key points of each test to facilitate the learning of the material. Our next step in achieving this goal was to develop and prepare for the publication of a teaching manual, "Paediatric Test Tasks with Explanations", in co-authorship with the teachers of the Departments of Paediatrics № 1 and Endocrinology with Paediatric Infectious Diseases of PSMU. The manual includes tasks on subtests of paediatric profiles, which are the most problematic for students to solve. Each chapter's task is accompanied by in-depth explanations of the correct answer based on current unified protocols, adapted clinical guidelines and treatment standards defined by the orders of the Ministry of Health of Ukraine on the provision of medical care to paediatric patients. The team of authors believes that the study of such educational publications develops the skills of self-checking and self-control with an in-depth understanding of their own mistakes with the

help of explanations. As a result, it stimulates them to study more actively and motivated.

### Conclusions.

Considering the survey results of students of higher medical education at PSMU, it can be concluded that they are not interested in working independently on the paediatric profile "Krok 2" test tasks. It was found that subtests on diseases of the circulatory system in children (67.3%), pathology of the newborn period (41.6%) and paediatric oncohematology (41.6%) are more difficult for sixth-year students to solve. Some of them expressed their dissatisfaction with individual teachers of the university departments, requiring their more active participation in thorough explanations of complex test tasks in practical classes. The survey results were processed, communicated to the teaching staff who provide teaching of paediatric disciplines and considered in further work with students to improve the quality of preparation for the standardised test state examination "Krok 2" in the subtests "Paediatrics".

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#### ПІДГОТОВКА ШЕСТИКУРСНИКІВ ДО СКЛАДАННЯ ЛІЦЕНЗІЙНОГО ТЕСТОВОГО ІСПИТУ «КРОК 2. ПЕДІА-ТРИЧНИЙ ПРОФІЛЬ»: ПОШУК ТА ШЛЯХИ ВИРІШЕННЯ ПРОБЛЕМ

Крючко Т. О., Кузьменко Н. В., Пода О. А., Рубан Ю. В., Олійніченко М. О.

Резюме. На превеликий жаль, в ПДМУ спостерігається тенденція до зниження показника результатів складання іспиту «Крок 2» за субтестами педіатричного профілю за 2020-2021 та 2022-2023 навчальні роки у порівнянні з середнім відсотковим значенням серед вищих медичних навчальних закладів України. У пошуках пояснень цього явища та подальших шляхів вирішення проблеми колективом кафедри педіатрії №2 було проведено опитування здобувачів вищої освіти 6 року навчання зі спеціальностей 222 «Медицина» і 228 «Педіатрія».

Аналіз результатів анкетування продемонстрував, що більша половина респондентів (52%) вивчають тестові завдання із буклетів останніх років, а лише 42% опитаних опрацьовують задачі з бази «Крок 2» по всіх дисциплінах, що, в дійсності, є запорукою максимального результату успішного складання екзамену. Здобувачі обирають такий принцип розподілу часу на самостійне навчання: 65 учасників дослідження повідомили, що витрачають не менше ніж півгодини щодня на вивчення завдань з бази «Крок 2», тоді як 22 з них приділяють стільки ж часу на задачі з педіатрії. Більшість студентів (62% анкетованих) задовольняє те, як їх готують до тестування на педіатричних кафедрах університету, деякі з них (21%) мають претензії до окремих викладачів чи структурних підрозділів, а дев'яти шестикурсникам не вистачає часу на практичних заняттях, який присвячено розбору тестових завдань та обґрунтуванню правильної відповіді педагогічним працівником.

Враховуючи результати опитування та пропозиції здобувачів освіти, науково-педагогічними працівниками кафедри педіатрії №2 у співпраці з колективами інших структурних підрозділів університету, які реалізують викладання педіатричних дисциплін, було прийнято наступні дії:

- змінено процедуру тестування студентів під час проходження циклу педіатрії на 6 році навчання, додано розділи завдань з бази «Крок 2» щодо тем, які вивчаються на 4 та 5 курсах (усі збірки тестових задач із відміченими правильними відповідями розміщені у вільному доступі на сторінці кафедри);
- збільшено кількість академічних годин, присвячених розбору тестових завдань на практичних заняттях за участі викладачів кафедри;
- розроблено та підготовлено до друку навчально-методичний посібник «Педіатричні тестові завдання з поясненнями», який включає найбільш проблемні у вирішенні задачі педіатричного профілю.

**Ключові слова:** інтегрований тестовий іспит «Крок 2», педіатричний профіль, підготовка, анкетування, здобувач вищої освіти.

## PREPARATION OF SIXTH-YEAR STUDENTS FOR THE LICENSING TEST EXAM « KROK 2. PAEDIATRIC PROFILE»: THE SEARCH AND WAYS TO SOLVE PROBLEMS

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**Abstract.** Unfortunately, at PSMU, there is a tendency to decrease the Krok 2 exam results in the subtests of the paediatric profile for the 2020-2021 and 2022-2023 academic years compared to the average percentage value among higher medical education institutions of Ukraine. In search of explanations for this phenomenon and ways

to solve the problem further, the Department of Paediatrics No. 2 staff surveyed 6th-year students in the specialties 222 "Medicine" and 228 "Paediatrics".

The analysis of the survey results showed that more than half of the respondents (52%) study test tasks from the booklets of recent years, and only 42% of respondents work on tasks from the Krok 2 database in all disciplines, which is, in fact, the key to the maximum result of successful exam. Students chose this principle of allocating time for independent study: 65 survey participants reported spending at least half an hour a day studying tasks from the Krok 2 database, while 22 of them devoted the same amount of time to paediatrics tasks. The majority of students (62% of respondents) are satisfied with the way they are prepared for testing at the university's paediatric departments, some of them (21%) have complaints about individual teachers or structural units, and nine sixth-year students lack time in practical classes to analyse test tasks and justify the correct answer by a teacher.

Considering the results of the survey and suggestions of students, the scientific and pedagogical staff of the Department of Paediatrics No. 2, in cooperation with the staff of other structural subdivisions of the University, which teach paediatric disciplines, took the following actions:

- the procedure for testing students during the cycle of paediatrics in the 6th year of study was changed, and sections of tasks from the "Krok 2" database were added to topics studied in the 4th and 5th years (all collections of test tasks with marked correct answers are freely available on the Department's website);
- the number of academic hours devoted to the analysis of test tasks in practical classes with the participation of the Department's teachers was increased;
- a study guide, "Paediatric Test Tasks with Explanations", was developed and prepared for publication, which includes the most problematic paediatric tasks.

Key words: integrated test exam «Krok 2», paediatric profile, preparation, questionnaire, higher education student.

#### **ORCID** and contributionship:

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# ANALYSIS OF THE VARIOUS TEACHING METHODS USING EFFECTIVENESS IN THE FUTURE DOCTORS TRAINING

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Under martial law, the introduction of a variety of modern educational opportunities is of particular importance. This requires not only the availability of high-tech equipment but also the effective use of traditional and modern interactive learning technologies.

The article analyses students' attitudes to the introduction of certain interactive and traditional teaching methods and evaluates the effectiveness of their use in the training of future doctors.

Based on the analysis of the student survey results, a fairly high assessment of the introduction of new technologies in the teaching process in the internal medicine clinic, in particular, the case-study method, was revealed.

The simulation method was also recognised as optimal for learning the educational material, which has proved itself in recent years due to certain changes in the patient selection process at clinical sites.

Key words: interactive learning technologies, traditional teaching methods, simulation method, case-study.