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ANALYSIS OF SUCCESS IN PASSING THE KROK-2 EXAM AS A TOOL FOR INCREASING THE EFFECTIVENESS OF FOREIGN STUDENTS' TRAINING

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"KROK-2" is an exam focused on professionally oriented disciplines that align with the educational and professional training program for specialists. It forms a part of the state certification process for candidates and is administered during their final year of study.

The aim of the study was to analyze success in passing the KROK-2 exam by foreign students as a tool for increasing the effectiveness of university training.

Results and discussion. As a result of the data analysis, a statistically significant difference between the results in 2023 and 2024 was established regarding the success of the KROK-2 exam of foreign students of the 6th year of the specialty "Medicine" (comparison of central tendencies for two independent samples Wilcoxon's W-test = 18800; $p < 0,001$ ($64,0 \pm 1,3$ in 2023 vs $74,0 \pm 1,0$ in 2024)).

Unlike 2024, 2023 had the following results: the discipline "Hygiene & health care organization" takes the first place in terms of success rate with an average value of 72.2% (minimum 33.3%; maximum 94.4%). A maximum of 94.9% was recruited in Therapy. And although the minimum indicator in this case is 25.4%, taking into account the width of the range of all indicators, this subject took the 2nd place in terms of the success of its completion by students.

There may be few reasons for this situation: level of students' interest in the thorough study of the so-called "non-professional" disciplines has always been low, department has not received updated test bases for discussing and studying them with students in classes.

Conclusion. So, according to the results of passing the KROK-2 licensed exam by foreign students, the subject with the highest success rate was "Obstetrics and Gynecology", and "Hygiene and Ecology" was in 5th place.

Key words: academic performance, foreign students, KROK, education.

Антоненко Анна, Борисенко Андрій, Кондратюк Микола, Увасв Богдан, Алексійчук Василь, Сліпець Аліна. Аналіз успішності складання іспиту КРОК-2 як інструмент підвищення ефективності підготовки іноземних студентів

«КРОК-2» – це іспит, орієнтований на професійно спрямовані дисципліни, зміст яких відповідає освітньо-професійній програмі підготовки фахівців. Він є частиною процесу державної атестації здобувачів і проводиться на останньому курсі навчання.

Мета. Проаналізувати успішність складання іспиту КРОК-2 іноземними студентами як інструмент підвищення ефективності університетської підготовки.

Результати та обговорення. В результаті аналізу даних було встановлено статистично значущу різницю між результатами 2023 та 2024 років щодо успішності складання іспиту КРОК-2 іноземними студентами 6-го курсу спеціальності «Медицина» (порівняння центральних тенденцій для двох незалежних вибірок: критерій W-Вілкоксона = 18800; $p < 0,001$ ($64,0 \pm 1,3$ у 2023 році порівняно з $74,0 \pm 1,0$ у 2024 році).

На відміну від 2024 року, у 2023 році були такі результати: дисципліна «Гігієна та організація охорони здоров'я» зайняла перше місце за рівнем успішності із середнім значенням 72,2% (мінімум 33,3%; максимум 94,4%). Максимум у 94,9% було досягнуто у дисципліні «Терапія». І хоча мінімальний показник у цьому випадку становив 25,4%, враховуючи ширину діапазону всіх показників, ця дисципліна зайняла 2-е місце за успішністю її завершення студентами.

Причинами цієї ситуації можуть бути: низький рівень зацікавленості студентів у ретельному вивченні так званих «непрофесійних» дисциплін, а також відсутність оновлених тестових баз, які необхідні для обговорення та вивчення їх зі студентами на заняттях.

Висновки. Таким чином, за результатами складання ліцензійного іспиту КРОК-2 іноземними студентами, дисципліна з найвищим рівнем успішності – «Акушерство та гінекологія», а «Гігієна та екологія» посіла 5-е місце.

Ключові слова: успішність, іноземні студенти, КРОК, підготовка.

Introduction. "KROK-2" is an exam in professionally oriented disciplines, which in terms of content correspond to the educational and professional program of training specialists. "KROK-2" is part of the state certification of applicants and is completed during the graduation course [1, 2].

The purpose of the test exam is to establish the compliance of the graduate's professional competence level (intern) with the minimum required level in accordance with the requirements of the State Standards of Higher Education. Professional competence is the ability to apply knowledge and understanding of fundamental biomedical sciences and basic medical disciplines, which are most important for providing patient care under the supervision of a more experienced physician. The main attention is paid to health maintenance, disease prevention and organization of medical care [1, 2].

The main characteristics of "KROK-2" exam are: it takes place on the territory of Ukraine (and outside its borders during wartime) in the form of testing; organized by the Testing Center at the Ministry of Health of Ukraine; specialties in the field of knowledge 22 "Health care"; 29 test exams per year; mandatory for all applicants of educational institutions in the system of the Ministry of Health, Ministry of Education and Culture and private universities in the field of health care (more than 140 higher education institutions); the volume is more than 55,000 applicants/interns per year; about 10% of people dropped out [1, 3].

The aim of the study was to analyze success in passing the KROK-2 exam by foreign students as a tool for increasing the effectiveness of university training.

Materials and methods. The results of testing of foreign students of the 6th year of the specialty "Medicine" from June 6, 2023 and May 21, 2024 were used for the analysis. Statistical analysis of the results was carried out using the licensed statistical software packages MedStat v.5.2 (Copyright © 2003-2019) and Microsoft® Excel® for Microsoft 365 MSO (Version 2305 Build 12.0.6425.1000, 2007) (License Identifier: CWW_0071e48a-250c-4bdb-9013-b8daf357b5e9_b5685e92-c95d-4399-9b83-449d76a26fb6_79f3b2da2f9adcda29). The normality of the samples was assessed using the D'Agostino-Pearson test, and it was determined that all subtest results followed a non-normal distribution (X^2 = ranging from 6.6 to 73.6 and only for subtest results (2023) from Pediatrics, Obstetrics and gynecology, Hygiene & health care organization X^2 = ranging from 4.1 to 5.2). Based on this, the Wilcoxon's T-criterion was selected for comparison. During the study, the samples underwent the following statistical analysis: determination of the median, standard deviation of the median, 95% confidence interval, calculation of the proportion. The level of statistical significance was set at 80% at a significance level of 0.05.

Results and discussion. As a result of the data analysis, a statistically significant difference between

the results in 2023 and 2024 was established regarding the success of the KROK-2 exam of foreign students of the 6th year of the specialty "Medicine" (comparison of central tendencies for two independent samples Wilcoxon's W-test = 18800; $p < 0,001(64,0 \pm 1,3$ in 2023 vs $74,0 \pm 1,0$ in 2024) (table 1, figure 1).

As can be seen from the obtained data (in 2024), the discipline "Obstetrics and Gynecology" takes the first place in terms of success rate with an average value of 84.2% (minimum 5.3%; maximum 100%).

A maximum of 100% was also recruited in pediatrics. And although the minimum indicator in this case is almost 2 times higher (13%), taking into account the width of the range of all indicators, this subject took the 2nd place in terms of the success of its completion by students.

Therapy (73.3%) and Surgery (70.0%) ranked 3rd and 4th, respectively, with a minimum of 13.3 and 3.3 and a maximum of 96.7% for both disciplines. The last, 5th place was taken by the subject of Hygiene

Table 1
Statistical analysis of KROK-2 exam of foreign students of the 6th year of the specialty "Medicine" (2023-2024)

Medical Licensing Exam KROK-2	Total, %	Therapy	Surgery	Pediatrics	Obstetrics and gynecology	Hygiene & health care organization
2024						
Number of students: n=279						
Median ± standard error of the median						
185.0±1.9	74±1.0	73.3±1.1	70±1.2	78.3±1.1	84.2±1.2	61.1±1.1
95% confidence interval						
182.0-188.0	72.7-75.3	71.7-76.7	66.7-73.3	73.9-82.6	78.9-89.5	55.6-66.7
Rank according to grades						
-	-	3	4	2	1	5
2023						
Number of students: n=134						
Median ± standard error of the median						
177.0±2.4	64.0±1.3	64.4±1.5	60.0±1.4	58.3±1.6	57.9±1.4	72.2±1.4
95% confidence interval						
168.0-179.0	59.3-65.3	62.7-66.1	56.7-63.3	54.2-62.5	52.6-63.2	66.7-77.8
Rank according to grades						
-	-	2	3	4	5	1

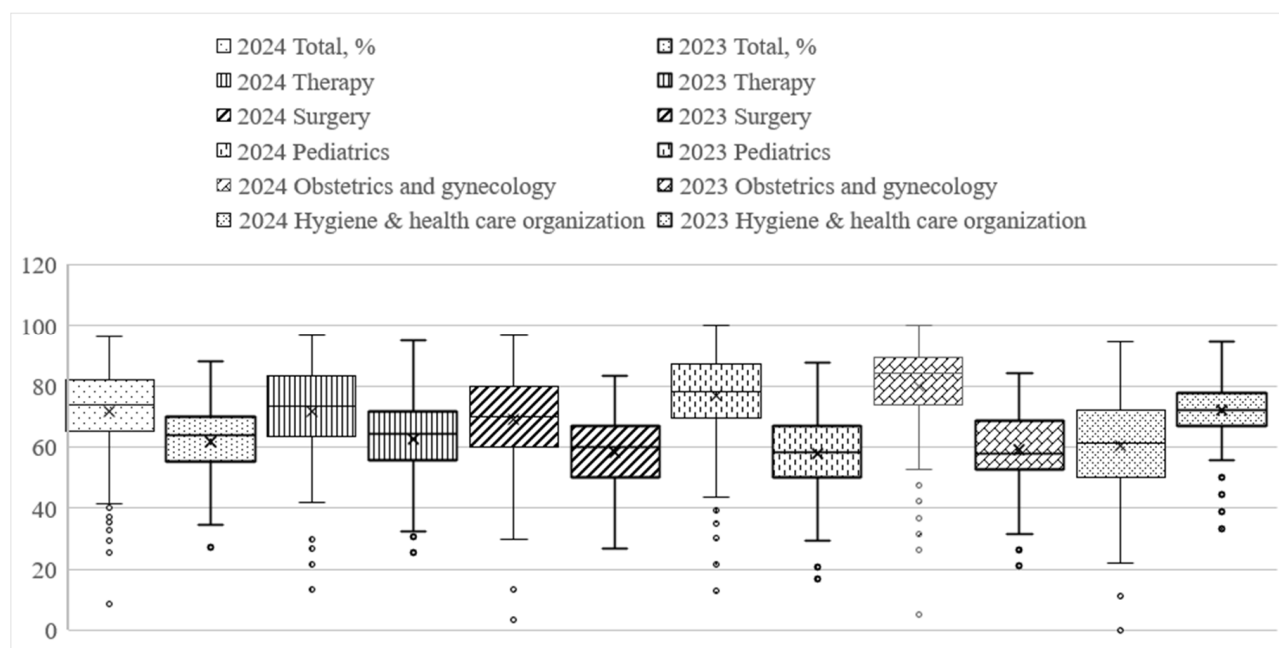


Fig. 1. Results of Unified state qualification exam KROK-2 for the specialty "Medicine"

& health care organization with an average value of 61.1% (minimum – 0, maximum – 94.4%).

Unlike 2024, 2023 had the following results: the discipline “Hygiene & health care organization” takes the first place in terms of success rate with an average value of 72.2% (minimum 33.3%; maximum 94.4%). A maximum of 94.9% was recruited in Therapy. And although the minimum indicator in this case is 25.4%, taking into account the width of the range of all indicators, this subject took the 2nd place in terms of the success of its completion by students.

Surgery (60.0%) and Pediatrics (58.3%) ranked 3rd and 4th, respectively, with a minimum of 26.7 & 16.7% and with a maximum of 83.3% & 87.5%. The last, 5th place was taken by the subject of Obstetrics and Gynecology with an average value of 57.9% (minimum – 21.1, maximum – 84.2%).

Compared to the results of previous years, the success rate of passing the “KROK-2” licensing exam in the discipline “Hygiene and health care” has decreased to zero. The number of results with a failing grade has increased.

There may be few reasons for this situation. First, the level of students’ interest in the thorough study of the so-called “non-professional” disciplines has always been low. However, with the classic face-to-face type of education, we had many tools to motivate students: practical work, classes at objects according to the topic, scientific work, etc. Today, with a mixed type of training and additional complications caused by martial law, frequent air raids and blackouts, all

these measures have become much more difficult to implement.

Secondly, in the last few years, the department has not received updated test bases for discussing and studying them with students in classes. In addition, the hours of pre-examination consultation lectures before taking KROR-2, which were previously spent at least 8-10 hours a day, were reduced.

Not so important, but still a factor of low percentages for the specified subject, may be the fact that there are disproportionately few questions on hygiene and health care in the examination booklet. The student actually has no right to make a mistake. One wrong answer – and we already have a very low percentage.

All this had a negative impact on the results of the KROK-2 exam in general and part of the questions from the discipline “Hygiene and health care in particular”.

Conclusion. So, according to the results of passing the KROK-2 licensed exam by foreign students, the subject with the highest success rate was “Obstetrics and Gynecology”, and “Hygiene and Ecology” was in 5th place.

In order to increase the success rate of individual components and the entire test exam in general, it is recommended to regularly update the database of test questions with access to students and teachers, to return to the practice of pre-examination additional classes in the form of lectures and consultations, to implement all possible measures to motivate students to study all disciplines thoroughly.

Bibliography:

1. ДНП «Центр тестування». URL: <https://www.testcentr.org.ua/uk/ispyty/potochna-informatsiia/pro-medychni-litsenziini-ispyty> (дата звернення: 25.09.2024).
2. Кир’ян Т. І. До питання впровадження ліцензійного інтегрованого іспиту з медицини у закладах вищої освіти України. *Вісник Черкаського національного університету імені Богдана Хмельницького. Серія: “Педагогічні науки”*. 2020. 2. URL: <https://ped-ejournal.cdu.edu.ua/article/view/3827/> (дата звернення: 25.09.2024).
3. Офіційний сайт Національного медичного університету імені О. О. Богомольця. URL: <https://nmuofficial.com/> (дата звернення: 25.09.2024).

References:

1. DNP “Tsentr testuvannia” [DNP “Testing Center”]. Retrieved from: <https://www.testcentr.org.ua/uk/ispyty/potochna-informatsiia/pro-medychni-litsenziini-ispyty>.
2. Kyrian, T. I. (2020). Do pytannia vprovadzhennia litsenziinoho intehrovanoho ispytu z medytsyny u zakladakh vyshchoi osvity Ukrainy [On the issue of the implementation of the licensing integrated exam in medicine in higher education institutions of Ukraine]. *Visnyk Cherkaskoho natsionalnoho universytetu imeni Bohdana Khmelnytskoho Serii: “Pedahohichni nauky”*, № 2. Retrieved from: <https://ped-ejournal.cdu.edu.ua/article/view/3827/>.
3. Ofitsiinyi sait Natsionalnoho medychnoho universytetu imeni O. O. Bohomoltsia [Official website of the Bogomolets National Medical University]. Retrieved from: <https://nmuofficial.com/>