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Optimization of Complex Training for Medical Interns to Sit an Integrated Exam “Krok -3” Through Introducing the Elements of Distance Learning

In the modern Ukrainian and worldwide pedagogical practice is widely used standardized tests for knowledge measurement. They enable to charge the credits according to the level of assimilation of the material and provide overall conformity assessment of a specialist's training specified standard.

The basic requirement for some sets of tests is their validity, i.e. the ability to selectively evaluate exactly the knowledge on which they focus. The creating of a guaranteed valid test is difficult. Usually the compliance of the test unit is checked in practice and improved by selection and correction of problematic units on the basis of statistical analysis of test results.

Therefore for the objective evaluation of knowledge (certification) of physicians standardized test blocks, approved by the relevant licensing authorities should be used. In the Medical Education the test blocks "Krok" have been developed in conformity with Ukrainian standards of education.

The structure of the tests, which are a part of these test blocks, conforms with the generally accepted international standards: a short question is followed by the five answers, of which only one is correct. This construction primarily ensures a focus on checking a specific piece of knowledge, not logic or creativity.

Thus, we achieve the main goal of "Krok", which is an accurate measurement of the mastering level of a specific program material through college or internship training. This makes possible the effective way of training especially for this exam. It seems important to take into account the specified feature "Krok" and use the most appropriate pedagogical techniques to pursue the aim.

At the stage of internship medical education all interns are given an intensive training for the last phase of the professional licensing exam - "Krok-3". The respective banks of test items are developed by leading experts of Ukrainian Medical Schools. These banks are based on the theoretical and clinical knowledge necessary for future physicians and acquired over studying at the Undergraduate University and Internship.

The block "General medical training" is adapted for medical interns' surgical, obstetric-gynecologic and therapeutic profiles and contains questions from all these disciplines, since during the internship the doctor gets a chosen specialization in a particular specialty. The block "Dentistry" includes surgical, therapeutic, orthopedic and orthodontic profiles, as well as the diagnosis and treatment of emergency conditions in dental practice. In our opinion this issue requires the special training for the exam "Krok-3" along with internship according to specialty.

In the analysis of the proposed exam "Krok-3" the most items are dedicated to the first aid methods and doctor's tactics in the emergencies cases. Other tests are dedicated to the diagnosis and treatment of diseases that are most common in the region and in which the doctor error can be fatal for the patient. There is only a small number of issues associated with exotic pathology which rarely occurs in practice or with complex or controversial issues of theoretical medicine.

In our opinion here lays the main difference of Ukrainian exam "Krok-3" from its American counterpart "Step-2", which requires a lot of

small details of casuistry and do not reflect the general level in average learning, but rather the level of student's mastery of specific textbooks.

Each question of exam "Krok-3" has the same assessment in points (one point). That's why, given the specified time limit (on average 1 minute for a question), the intern should be clearly oriented in time and be able to decide on the feasibility of understanding a hard question, perhaps preferring the easier one for him. It is important to follow the optimal algorithm of the examination as a whole so as to achieve the main goal - the highest possible amount of points. Also the important role plays a booklet format and the general environment of the exam, so it makes sense to provide training like a pilot exam that fully simulate the real one.

The databank of the exam questions is only half updated each year. Other issues remain unchanged but the order of answers changes continuously. That's why they look like as a rational approach to improve results of training using the questions that were proposed in previous years exams.

Given present specificity of the exam "Krok-3" we have proposed an effective complex training system for quick and quality achievement of the acceptable results. Training is supposed to go from the beginning of the internship continuously with the mastery of professional specialty at the same time. For the best results the different forms of training are simultaneously used.

First, a regular self-study internship with "Krok-3" bank questions from the last year. To ensure the effectiveness of this type of training the set of questions is produced in both paper and electronic formats. In the above issues a correct answer does not always go the first place, which encourages interns to remember the essence of the answer, but not its place.

The other type of training is the use of educational local software and online portal purposefully developed to use the issues of the last year bank "Krok-3". While working with the program an intern can choose either a group on a specific topic or profile or all the questions. Application provides a random selection of a given number of items and, if necessary, work out a time limit (1 minute per question), displays the time and the number of remaining questions, informs a total number of correct answers or indicate the correct answer to each question. At the end of testing the program calculates the percentage of correct answers and stores the result in the cloud to analyze the dynamics of each intern training and the academic group as a whole.

The program operates on the basis of interdepartmental computer class at the Faculty of Postgraduate Education and at remote clinical bases. Also the software is freely available on electronic media to interns who want to train at home in extracurricular time.

For more effective training the online portal is developed and implemented in mandatory training for exams "Krok-3": "General medical training" and "Dentistry". It allows for medical interns to train by a convenient for them extracurricular way both during academic and clinical parts of the internship. The portal is available at <http://medtest.dentaero.com/> and <http://test.dentaero.com/>.

The usage of this portal is possible with any fixed or mobile device (desktop computers, laptops, tablets and mobile phones) wired or wirelessly by connections to the Internet. Portal provides individual users secure access using pre-registration and a personal password. Single block includes 200 tests, randomly selected from a database of over 2000 units of examinations previous years. During the generation of a test block the priority have units for which a specific user gave a wrong answer during previous testing. This ensures individualization of training by repetition of more complex custom themes. Also an intern can pause or abort the test at any time and get an intermediate result.

Common test results separately for each user, the time it stays active on the portal, the number of processed tests are available for the analysis of the portal administrator (Dean of the Faculty of Continuing Education) and can be represented as a rating level of training users and the degree of assimilation thematic sections studied at relevant departments (courses). Thus, the mechanism implemented effectively identify potentially poorly performing interns requiring individual classes and determine section, which are more difficult to grasp with the following redistribution of study time and improve their methodologies.

The pilot implementation of the mandatory training using an Internet portal was provided in 2013 for the medical interns who before the exam had begun to study immediately on the clinical bases. These interns traditionally devote most of their time to the clinical training and pay less attention to the theoretical basis required for a license exam.

Proposed complex training has shown a high efficiency based on higher exam points and provides the suitable instruments for individual work with poorly performing interns. There was a significant correlation between the total number of questions processed by the intern at the portal and his exam results.

Another effective type of training is to simulate pilot tests using the real booklets after the last exam. The groups of interns simultaneously perform the full pilot test (200 questions during 200 minutes). The test is conducted in a similar audience for the psychological adaptation of interns to the real conditions of the future examination.

The results were recorded in a special form similar to a real one. Testing is conducted using templates answers after scanning the completed forms and converting answers to E-format. As a result this training has formed the skills to optimize an approach to the examination by focusing on achieving the best general result for a limited time.

For a better orientation in exams content by topics a current interim testing has showed as very useful. So, during and at the end of each course according to thematic curriculum internship a compulsory testing using exam questions "Step 3", which are pre-selected according to course topics is carried out. After testing interns together with the teacher analyze their answers, discuss controversial issues and collectively cooperate in the group. This type of training is focused on the essence of tests rather than on rote memorization of template answers.

Thus, the proposed method of training interns for "Step 3" licensing exam is based on the features of the exam structure:

- primarily estimates the level of overall knowledge rather than exotic cases;
- questions appropriate for all profiles and specialization of medical interns;
- the focus on dedicated emergency cases, doctor tactics in extreme situations, and the diagnosis and treatment of disease the most widespread in the region;
- each question has the same "assessment" and the same time limit;

Effective training is possible by using the following methods:

- self-study a common database of questions exams recent years;
- using the educational software at the academic and extracurricular time;
- pilot tests using sets of questions exams recent years;
- analysis and discussion of the selected questions with specified thematic during the relevant courses in accordance with the curriculum of the internship.

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Abstracts

ІГОР СКРИПНИК, ПЕТРО СКРИПНИКОВ, ОЛЕКСАНДР ГОПКО, СЕРГІЙ ГАЄВСЬКИЙ, ВІТАЛІЙ ДУБІНА. **Оптимізація комплексного навчання для лікарів-інтернів та стаціонарного інтегрованого іспиту «Крок-3» шляхом впровадження елементів дистанційного навчання.** Проведений аналіз особливостей будови та методики проведення українського іспиту Крок-3 на отримання ліцензії лікаря спеціаліста. З урахуванням виявлених особливостей розроблена ефективна методика комплексної підготовки до іспиту, що включає різні форми як аудиторних, так і позааудиторних тренінгів. Рекомендовано тренінги з використанням питань минулих років та пілотні тестування в умовах схожих на умови реального іспиту з метою психологічної адаптації інтернів. Розроблене програмне забезпечення для локального та дистанційного тренінгу та подальшого аналізу його результатів з метою виявлення відстаючих інтернів та навчальних дисциплін, які потребують

покращення методичного забезпечення. Впроваджене обов'язкове дистанційне тестування інтернів, які стажувалися на клінічних базах в період безпосередньо перед іспитом. Отримані результати свідчать про високу ефективність рекомендованої комплексної підготовки та тісну кореляцію між інтенсивністю використання запропонованої схеми та результатами іспиту в балах.

Ключові слова: дистанційне навчання, навчання лікарів – інтернів, ліцензійний іспит “Крок-3”.

IGOR SKRYPNYK, PETRO SKRYPNYKOW, OLEKSANDR HOPKO, SERHIJ GAJEWSKI, WITALIJ DUBINA. **Optymizacja kompleksowego kształcenia lekarzy odbywających specjalizację oraz stacjonarnego egzaminu zintegrowanego „Krok-3” poprzez wprowadzenie elementów edukacji zdalnej.** W artykule przedstawiono analizę struktury i metodyki przeprowadzenia egzaminu „krok 3” na zdobycia licencji lekarza specjalisty. W wyniku analizy opracowano efektywną metodykę kompleksowego przygotowania do egzaminu zawierającą różne formy treningów. Opracowano także program komputerowy w celu realizacji treningu lokalnego, jak i zdalnego z po dalszą analizą jego wyników. Otrzymane rezultaty wskazują na dużą skuteczność proponowanego kompleksowego przygotowania, a także na korelację pomiędzy intensywnością stosowania proponowanego schematu a wynikami egzaminu.

Słowa kluczowe: kształcenia na odległość, szkolenia dla lekarzy stażystów, egzaminu z języka ukraińskiego „krok 3”

ИГОРЬ СКРИПНИК, ПЕТР СКРИПНИКОВ, АЛЕКСАНДР ГОПКО, СЕРГЕЙ ГАЕВСКИЙ, ВИТАЛИЙ ДУБИНА. **Оптимизация комплексного обучения для врачей-интернов и стационарного интегрированного экзамена «Крок-3» путем внедрения элементов дистанционного обучения.** Выполнен анализ особенностей структуры и методики проведения украинского экзамена «Крок-3» на получение лицензии врача-специалиста. С учетом выявленных особенностей разработана эффективная методика комплексной подготовки к экзамену, включающий различные формы как аудиторных, так и внеаудиторных тренингов. Рекомендованы тренинги с использованием вопросов прошлых лет и пилотные тестирования в условиях, соответствующих условиям реального экзамена с целью психологической адаптации интернов. Разработано программное обеспечение для локального и дистанционного тренинга и дальнейшего анализа его результатов с целью выявления отстающих интернов и учебных дисциплин, которые нуждаются в улучшении методического обеспечения. Введено обязательное дистанционное

тестирование интернов, которые стажировались на клинических базах в период непосредственно перед экзаменом. Полученные результаты свидетельствуют о высокой эффективности рекомендуемой комплексной подготовки и тесной корреляции между интенсивностью использования предложенной схемы и результатами экзамена в баллах.

Ключевые слова: дистанционное обучение, обучение врачей - интернов, лицензионный экзамен «Крок-3».

IGOR SKRYPNYK , PETRO SKRYPNYKOV, OLEKSANDR GOPKO, SERGEI GAEVSKIY, VITALY DUBINA. **Optimization of complex training for medical interns to sit an integrated exam "Krok -3" through introducing the elements of distance learning.** *The analysis of the structure and methodology of Ukrainian Step 3 exam for applicants of medical license has been carried out. Given the revealed features was developed an effective method of complex training for the exam, which includes various forms both classroom and extracurricular training. The proposed methodology of the training uses the questions of recent exams. Proposed the pilot testing is carried out under conditions similar to the real exam for the purposes of the psychological adaptation of interns. Developed software for local and remote training and further analysis of the results to identify poorly performing interns and disciplines that are in the need to improve the methodologies. Implemented mandatory remote training for interns was conducted as an internship in clinical training base in a period just before the test. The results show the high efficiency of the recommended integrated training and close correlation between the intensity of use of the proposed scheme and examination results in points.*

Key words: distance learning, training for doctors - interns, License exam «Krok-3».