

USE OF SIMULATION TO IMPROVE CARDIOPULMONARY RESUSCITATION PERFORMANCE FOR GRADUATES IN PEDIATRICS

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Cardiopulmonary resuscitation (CPR) practical skills with peculiarities in childhood is a stage of a final practically oriented exam in Pediatrics. The simulation scenario options were absence of breathing and/or circulation in a child under different circumstances. The aim of the CPR training was to recognize need of CPR and master CPR skills in children of two age groups (infants, children) except neonates. The aim of the study was to evaluate the effectiveness of the simulation CPR training using initial and final testing.

CRR algorithms were based on Pediatric Basic and Advanced Life Support (PBALS) guidelines of American Heart Association. The simulation is best performed in a simulation center but could also be performed in emergency room. Two low-fidelity and one mid-fidelity manikins were used to master CPR skills, since 2018 Vital Sign Simulator as a vital sign monitor / defibrillation unit was added. Critical actions included initial survey and intervention, rhythm recognition, CPR and use of defibrillator when needed. These cases have been used with 34 groups of pediatric graduates during 2017-2018.

Training class was incorporated within modules 5/6 for Ukrainian and English speaking 6 year students. The course duration was 1,5 hours. Students participated in simulated clinical scenarios and learning stations of the instructor-led course. We have developed a base of paper tests, total number of tests was 24 short questions with single answer choice out of 4 proposed answers. The results of initial total testing was average 53,9±1,4 of correct answers and finally there was an improvement up to average 66,3±1,6 ($p<0,0001$), there was more significant difference in gaining of correct answers in 2018 versus 2017 – 16,3±7,0 versus 8,0±7,0 correspondingly ($p<0,04$). There was no any difference in performance of Ukrainian and English speaking graduates: initial testing results were 54,8±2,3 versus

53,2±1,9 ($p=0,59$) of correct answers and final results were 67,1±2,3 versus 65,8±2,3 ($p=0,7$) of correct answers correspondingly.

Thus, pediatric simulation CPR training scenario allowed students to master the basics of child CPR. Effectiveness of the CPR training was approved by the significant increase in correct answers of final testing as compared to initial one. Also graduates have reported that participation increased their confidence and comfort with management of cardiorespiratory events and improved their teamwork. Rhythm recognition and CPR performance scores during the simulation scenarios improved, especially after adding of Free Downloadable Vital Signs Simulator & Patient Monitor. Participation in simulation scenario advanced learner knowledge of PBALS algorithms and teamwork communication, as well as identified learner knowledge and management deficits.

THE BASIC PRIORITIES IN FORMATION OF CLINICAL STATION IN OSCE

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Objective Structured Clinical Examination – (OSCE) is a method for assessing the clinical competence of students at a medical university on the basis of an objective assessment of the clinical-practise task.

The method of assessing the clinical competence of students must include three criteria: validity, reliability, feasibility.

The validity of a clinical exam should include the following features:

- the interpretation of information in patient's case history;
- perform a physical examination of the patient;
- determine the patient's problems from the information received and conduct a differential diagnosis;
- determine the appropriate research methods;
- interpret research results;
- recommend and conduct clinical management of the patient

- monitoring and further recommendations to the patient.

The reliability of a clinical exam must be ensured by adhering to an objective assessment approach. A reliable evaluation procedure should be:

- the constancy and sustainability of the evaluation criteria, the constancy of the patient and the examiner.
- The feasibility of a clinical exam includes the following criteria:
 - the number of students to be assessed,
 - the number of teachers, their status and specialty,
 - availability and accessibility of standardized patients,
 - the availability of space or suitable premises for conducting clinical trials,
 - criteria for assessing the results of the structured clinical exam.

Clinical stations can be of the following types: clinical station - contact of students with a real or standardized patient, practical station - includes practical skills (conducting an objective examination, interpreting the results of clinical, laboratory and instrumental data, clinical management, prescriptions), rest station where students for a short time (up to 2 min) will be able to relax, drink water and get acquainted with further tasks.

For ensure wide coverage of educational material, an adequate number of stations should be provided with an appropriate duration. The total number of clinical stations should consist of 10 stations.

Clinical stations should be well lit, have the necessary equipment that will allow an assessment of the student's actions. Examination clinical stations should be clearly marked in a logical sequence, allowing you to easily move from one station to another without interference.

The list of OSCE stations is developed by the departments taking into account the competencies that will be tested (collection of anamnesis/medical history, objective physical examination, performance of manipulations, interpretation of the results of laboratory and instrumental data, communication skills and consultation of patients) and the clinical situations in which these competencies must be performed.

The capacity of competencies assessed by stations can be distributed as

follows:

1. Standardized patient stations - 20%;
2. Practical skill stations - 60%;
3. Station for interpretation of laboratory and instrumental data - 20%.

Preparing for the OSCE requires careful preparation at each station of the clinical assignment, the scheme of the examination stations, the sequence of stations, the time allotted for each station. Clinical stations should be numbered in accordance with the station layout and equipped with the equipment necessary for the exam. Such equipment may include: mannequins, phonendoscopes, sphygmomanometers, a stroboscope for examining radiographic images, ECG examples, photographs of patients, laboratory results, and other equipment.

The addition of "rest stations" allows the examinees and examiners to take a break, and if necessary, you can add one more student to the group. This station must be clearly marked and reported to students about it before the start of the exam (it is even better to provide students with a route of the clinical stations). It is important to remember that the route cannot begin from the rest room or end with it, because in the end a student may miss one or several stations.

IMPACT OF COMMUNICATION TECHNOLOGIES IN EDUCATION ON MEDICAL STUDENT ACHIEVEMENT

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One of the urgent problems in the practical training of future qualified doctor is the lack of possibility of direct contact and communication with real patients. Obtain patient consent for student participation in health care, with the aim of learning and practicing skills, becoming increasingly difficult.

There is widespread belief that communication technologies can and will empower teachers and learners, transforming teaching and learning processes from being highly teacher-dominated to student-centered, and that this transformation will result in increased learning gains for students, creating and allowing for opportunities