

SIMULATORY EDUCATION IN PEDIATRY: FEATURES OF THE COURSE IN MEDICAL EDUCATION

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ABSTRACT

In this article, a model of professional activity is used to provide each student with the opportunity to carry out professional activity or its element in accordance with professional standards and procedures for providing medical care, which is a mandatory component of professional training in simulation education.

Keywords: *Simulation education, continuous professional education, professional development, professional retraining.*

АННОТАЦИЯ

В данной статье модель профессиональной деятельности используется для предоставления каждому обучающемуся возможности осуществлять профессиональную деятельность или ее элемент в соответствии с профессиональными стандартами и процедурами оказания медицинской помощи, что является обязательным компонентом профессиональной подготовки в симуляционном образовании.

Ключевые слова: *Симуляционное образование, непрерывное профессиональное образование, профессиональное развитие, профессиональная переподготовка.*

INTRODUCTION

In recent years, significant changes have occurred in postgraduate education. The system of authorization for the professional activity of medical workers is changing. Instead of the procedure for certification of a specialist, their accreditation is being gradually introduced. Additional professional education is currently being implemented within the continuous medical education (CHE) system. In the system of continuous medical education, greater attention is paid to the issue of high-quality and effective training of personnel. Modern distance, electronic, and simulation forms of training are being introduced into professional development and retraining programs. Special attention is paid to the latter, since the latest medical technologies require the highest qualifications from doctors, which, for a number of reasons, cannot be mastered only in clinical practice. In modern conditions, it is necessary to

improve the training of specialists using simulation training to correspond to the corresponding level of professional competence.

«Simulation in medical education is a modern technology for teaching and assessing practical skills, abilities, and knowledge based on real modeling, simulating a clinical situation or an individual physiological system, for which biological, mechanical, electronic, and virtual (computer) models can be used» [1].

In medical universities, we must create conditions in which the student's need for constant self-improvement and learning should develop. Because medical education does not end after graduation from university, but continues «for life.» High-quality education, including medical education, is:

- compliance of educational programs with the requirements of clients and educational standards;

- high level of satisfaction of stakeholders with the quality of education;

- satisfaction of teachers and employees of the educational institution with their work;

- positive impact on society, increasing the general culture and level of knowledge of society members. However, when it comes to improving the quality of education, it is impossible not to talk about the internal education quality control system, which implies the following.

These are:

- the level of staffing of the educational process;

- educational and methodological support;

- material and technical support;

- quality of training sessions;

- level of students' knowledge;

- ensuring student mobility;

- availability of information systems for effective management of the educational process;

- monitoring and periodic review of educational programs;

- ensuring the transparency of information on educational programs, levels of higher education and qualifications. It must be admitted that today the material and technical base of medical universities in our country does not meet international standards. Our academic buildings, classrooms, and laboratories do not meet the requirements of the time. At the same time, we are constantly looking for ways to solve these problems. To achieve the desired result, we must take into account the best practices of developed countries and incorporate all the positive aspects into the medical education system.

Practical training in the simulation center should play an important role in promoting medical skills and qualifications in an acceptable way without creating risks and inconvenience for patients. Improvement of teaching technologies made it possible to transition to a different level of education.

- «This is multidisciplinary, phased, modular, and positively-oriented preparation» [2].

The use of simulation technologies significantly improves the quality of training - clinical situations are created that are as close as possible to the real situation. The focus is on the student who has acquired professional skills in a calm environment, without stress for themselves and without risk to the patient. The learner has the opportunity to repeat the manipulation many times and receive an objective assessment of its execution. Simulation training is especially important in modeling rare pathologies, developing and teaching skills in unusual interventions. The use of simulation technologies significantly improves the quality of training - clinical situations are created that are as close as possible to the real situation. The focus is on the student who has acquired professional skills in a calm environment, without stress for themselves and without risk to the patient. The learner has the opportunity to repeat the manipulation many times and receive an objective assessment of its execution. Simulation training is especially important in modeling rare pathologies, developing and teaching skills in unusual interventions.

It should be noted that simulation training does not replace clinical training, but complements it. By studying «In the Patient's Bed» [3], the cadet will gain experience in communicating with various patients, develop clinical thinking, and have the opportunity to observe the actions of specialists.

The simulation training center can be used by students of medical universities (for example, in the study of anatomy, physiological functions, in familiarization with methods of medical examination), residents «(for example, to master and improve the skills of performing manipulations and techniques)» [4], in the process of preparing for practical exams, in advanced training courses, certification exams, etc., in the continuous training of doctors or nurses (for example, in the acquisition of practical skills, improvement of teamwork) or in testing the qualifications of an employee before hiring. «Today, due to a sharp increase in the number of students in medical universities, there are 8-10 students per patient» [5]. From the point of view of ethical principles, this is incorrect, since serious patients require special attention and adherence to their daily routine. Even a harmless procedure, such as questioning, can tire the patient.

Simulation technologies are necessary to solve these problems of medical education: performing all algorithms and practical skills without harming the patient's health, teaching students and doctors how to act in emergency situations. Simulation training is also important for learning the application of minimally invasive treatment methods and the effective use of medical equipment, which are currently developing. The student should approach the patient only after achieving the level of automaticity in performing practical skills. This allows the student to feel more confident in the presence of the patient. During the simulation sessions, it is possible to get acquainted with all diseases provided for in the curriculum, regardless of whether there is a patient with clear symptoms in the clinic or not. Most importantly, there is an opportunity to conduct individual planned internships for each student in the learning process using simulation technologies. The simulation learning process includes activities aimed at developing practical skills, algorithms, and communication skills.

This allows for the implementation of various additional professional programs for advanced training and professional retraining, in particular, training simulation courses (TSC) in neonatology and pediatrics. Within the framework of continuous medical education (CMI), the development of additional professional development programs on topical issues of pediatrics and neonatology using simulation training is being carried out. Additional professional programs for advanced training are reviewed by experts and, after approval, are included in the curriculum.

All additional professional programs must be posted on the continuing medical education portal. For each practical lesson of the DEC, a teaching methodology has been developed aimed at the effective development of practical skills and abilities, bringing them to the level of automatism, and forming clinical thinking and professional competencies in students. In the implementation of OSC programs, not only simulation, but also distance and e-learning forms are successfully used. Test control of students' mandatory initial knowledge at the beginning of classes. The theoretical materials (program, lesson schedule, methodological recommendations, video materials) are placed in the Moodle e-learning system. At the end of the program, final tests will be held.

«According to the program, each cycle consists of separate modules. Module structure:

1. entrance test control,
2. introductory instruction,
3. Working with simulators and mannequins (simple training - development of a certain skill),
4. Solving various situational problems using a remote computer model,

5. Debriefing,
6. Final testing,
7. Drawing conclusions» [6].

Assessment of student knowledge is carried out according to the principle of «I passed/did not pass» [7].

Algorithms for providing emergency assistance in a time-limited environment are developed in strict accordance with current federal and regional protocols.

When working with a clinical scenario, an environment is created that is as close to reality as possible: an equipped training maternity ward, a limited number of students participating in the provision of assistance, special medical clothing, protective materials, the use of disposable instruments, working in aseptic conditions. In 2019, a new Pediatric HAL S2225 robot was purchased, which was an almost complete replica of a five-year-old living child. Its task is to train doctors and help them try new methods and approaches to treating children.

In addition, the robot-child realistically mimics symptoms of various illnesses, including seizures, convulsions, dilated or constricted pupils, and loss of consciousness.

Blood is flowing in the robot child's body, so the robot child's injuries and medical treatments remain highly realistic. When working with a robot-child, it is possible to learn to communicate correctly with small patients, since the robot fully imitates the psyche and emotions of living children. Currently, the scenarios are being formalized, and «in 2020, the Pediatric HAL S2225 robot will be used in the training of pediatricians and neonatologists, as well as in conducting training for residents» [8]. The simulation training center can be used for students of medical universities (for example, in the study of anatomy, physiological functions, familiarization with methods of medical examination), residents (for example, for the acquisition and improvement of skills in performing manipulations and techniques), in the process of preparing for practical exams, in advanced training courses, certification exams, etc., for continuous training of doctors or nurses (for example, in the acquisition of practical skills, improvement of teamwork) or for testing the qualifications of an employee before hiring.

«Today, due to a sharp increase in the number of students in medical universities, there are 8-10 students per patient» [9]. From the point of view of ethical principles, this is incorrect, since serious patients require special attention and adherence to their daily routine. Even a harmless procedure, such as questioning, can tire the patient. «Simulation technologies are necessary to solve these problems of medical education:

to perform all algorithms and practical skills without harming the patient's health, to teach students and doctors how to act in emergency situations»[10].

Simulation training is also important for learning the application of minimally invasive treatment methods and the effective use of medical equipment, which are currently developing.

Today, there is a sharp shortage of highly qualified specialists in the field of medicine.

Therefore, it is natural that one of the main directions in the field of higher medical education is the need to significantly strengthen the practical orientation of training highly qualified specialists while maintaining the appropriate level of theoretical knowledge.

The introduction of innovative educational technologies into the educational process determines the demand for highly qualified specialists capable of increasing the competitiveness of healthcare in the Republic of Uzbekistan. It is necessary to instill integrated theoretical and clinical knowledge and skills in graduates of medical universities, help them master high medical technologies, and form the ability for social adaptation in future doctors, teach them to apply theoretical knowledge in practice. By implementing these tasks, it will be possible to develop in students strong motivational attitudes, deep specialization, the realization of intellectual and personal potential, and the training of a mature medical worker. The task of a medical university teacher is the clear organization and effective management of students' independent activities, i.e., setting tasks, correcting ways to solve them, recording and evaluating the results of students' efforts. If a student does not learn to learn independently, then he will not become a good doctor who can correctly analyze his activity and be able to think critically.

The student should approach the patient only after achieving the level of automaticity in performing practical skills. This allows the student to feel more confident in the presence of the patient. During the simulation sessions, it is possible to get acquainted with all diseases provided for in the curriculum, regardless of whether there is a patient with clear symptoms in the clinic or not. Most importantly, there is an opportunity to conduct individual planned internships for each student in the learning process using simulation technologies. The simulation learning process includes activities aimed at developing practical skills, algorithms, and communication skills. A simulation training center equipped with 3D has been created. At the Tashkent Medical Academy, students study from the 1st year in a simulation center, where there are separate rooms for mastering patient care skills. In accordance with the curriculum, separate rooms are organized for senior students and

master's students on medical manipulations (intravenous administration of drugs, intramuscular injections, gastric lavage, etc.), basics of cardiopulmonary resuscitation, primary medical care, obstetric skills, childcare skills, urology, oncology, otorhinolaryngology, ophthalmology, endosurgery (laparoscopy, hysteroscopy). Today, the most important and urgent task is to carry out active and useful work to protect human health, to raise the medical culture of our people.

In conclusion, the introduction of simulation training into the educational process for the training of pediatricians and neonatologists:

1. Helps improve the quality of medical care;
2. Undoubtedly, this leads to a decrease in the number of doctor's errors when performing manipulations, a decrease in the number of complications;
3. Ensures a higher level of continuous professional training of medical personnel in accordance with modern standards.

By strengthening both material and spiritual attention to medical science, implementing the results of fundamental and scientific-innovative research into life, an increase in medical culture in society will be achieved. As a result, this will have a positive impact on the development of modern national medicine. As is known, medical culture is a solid foundation for the future of society. In this regard, first of all, it is necessary for young people to understand the need for medical culture and approach it with determination, self-confidence, and responsibility, to pay serious attention to the acquisition of medical knowledge, to become more deeply acquainted with the theory and practice of medical activity, and to be able to connect knowledge with life and practice. The difference between medical education and other types of education is that students absorb not only theoretical knowledge, but also doctor's experience and practical skills.

The future of Uzbekistan's medicine depends on the quality of our graduates. In order to improve the quality of education and medical care, we consider it necessary:

1. Creation of simulation centers and creating conditions there for students to practice practical skills in providing medical care in accordance with the curriculum, for example, providing first aid to a patient in an ambulance, mastering skills in complex surgical operations, obstetrics, dentistry, ultrasound diagnostics, etc. Simulators can cover practically all areas of the educational process.

2. Organization of master classes for a wide range of students and doctors with the involvement of leading world-class professors and teachers. Predicting possible intraoperative complications in a real patient and conducting preoperative training for each doctor in the surgical group, from anesthesiologist to surgical nurse.

3. It is possible to conclude cooperation agreements between simulation training centers and leading manufacturers of medical equipment, conduct training courses on their equipment, and thereby significantly increase the coverage of doctors and young specialists and reduce the need to visit foreign clinics and training centers. At the heart of all our ongoing and planned work today is the goal of improving the quality of education in medical universities.

REFERENCES:

1. Heyneman CA, Lawless Liday C, Wall GC. Oral versus topical NSAIDs in rheumatic diseases: a comparison. Germany. "Drugs" 2000. P. 555.
2. Moore RA, Tramer MR, Carroll Det al. Quantitative systematic review of topically applied non steroidal anti inflammatory drugs. Germany "Br J Med" 1998. P. 333.
3. Рис М., Хоуп С., Охлер М. К. и др. Диагностика и лечение в гинекологии. Проблемный подход / пер. с англ. под ред. В. Н. Прилепской. – М.: "ГЭОТАР-Медиа". 2010. – 320 с.
4. Сильвия К. Роузвиза Гинекология / под ред. акад. РАМН Э. К. Айламазяна, пер. с англ. – М.: "МЕД пресс информ", 2004. – 520 с.
5. Hay A.D., Heron J., Ness A., ALSPAC study team. The prevalence of symptoms and consultations in pre-school children in the Avon Longitudinal Study of Parents and Children (ALSPAC): a prospective cohort study. USA. Pub. "Fam Pract", 2023 P. 367.
6. Fendrick A.M., Monto A.S., Nightengale B., Sarnes M. The economic burden of non-influenza- related viral respiratory tract infection in the United States. USA. "Arch Intern Med". 2023 P. 487.
7. Дианов М.А., Никитина С.Ю. (ред). Здравоохранение в России. 2015. М.: Федеральная служба государственной статистики; 2015. 174 с. (eds.) Health Care in Russia. 2022. Moscow: "Federal State Statistics Service", 2015. 174 p.
8. Irwin R.S., Baumann M.H., Bolser D.C., Boulet L.-P., Braman S.S., Brightling C.E. et al. Diagnosis and management of cough executive summary: ACCP evidence- based clinical practice guidelines. Berlin. "Chest". 2024. P.23
9. Rudolph C.D., Mazur L.J., Liptak G.S., Baker R.D., Boyle J.T., Colletti R.B. et al. Guidelines for evaluation and treatment of gastroesophageal reflux in infants and children: recommendations of the North American Society for Pediatric Gastroenterology and Nutrition. France. "J Pediatr Gastroenterol Nutr". 2021. P.31.
10. Canning B.J. Anatomy and neurophysiology of the cough reflex: ACCP evidence- based clinical practice guidelines. Berlin. Pub. Chest. 2006. P. 47.