

# Simulation Methods in the Development of Students' Professional Competence at Higher Medical Educational Institutions

Rostyslav Sabadosh\*

## Abstract

The development of practical skills and abilities is one of the most important tasks of students and teachers of higher medical educational institutions. The ensuring of providing an effective and adequate assistance to the patient in an urgent situation is of particular importance. Various simulation methods exist in educational and medical training centers of higher medical educational institutions to practice the methods of providing medical care in emergency situations. The scientific and practical centers are equipped with training phantoms (for suturing deep wound, reducing dislocations) and allow polishing professional skills during practical classes or after them. Simulation methods give an opportunity to objectively assess the correctness of the actions performed by the student, to teach the technique of cardiac massage and artificial respiration, to correct the position of the mannequin head thereby protecting the person who performs resuscitation procedure from infectious agents. The possibility of simulation training and multiple repetitive resuscitation actions practices the students' ability to work during an emergency until it becomes automatic. The use of simulation training of medical students allowed bringing the level of national science closer to the world standards.

## Keywords

teaching methods; medicine; subjects

*Ivano-Frankivsk National Medical University, Ivano-Frankivsk, Ukraine*

\*Corresponding author: r.sabadosh@gmail.com

One of the most important tasks of students and teachers of higher medical schools is the development of practical skills and abilities for the diagnosis of emergency conditions and the ensuring of providing an effective and adequate assistance to the patient, as well as communication and teamwork skills in an urgent situation. In such a critical situation, the patient's life and future functional capacity depends on a physician. He must act decisively and competently, rationally distinguish the main thing from the secondary one, distribute duties between the personnel and attendants, follow the corresponding existing algorithm for the diagnosis and treatment of such patients during urgent conditions.

Since the pathogenesis of a critical condition may include several symptom complexes (intoxication, acute heart failure, acute vascular or cardiovascular insufficiency, hypoxia, etc.), the specialist should choose the main one for prescribing medication or non-drug treatment.

The technique of acquiring and improving practical skills in general and for providing immediate care consists of an understanding of the goal and tasks that the student must learn, acquaintance with the method of their implementation, consolidation and improvement in the process of multiple repetitive actions. In addition to the desire to master these skills, the number of students in the group is important: the more students who want to gain such skills, the less possibility

to achieve such a desire. For example, during training, the process of bandaging will be practiced by students a few times only. The limb will be immobilized with gypsum longate by only one student per group. Moreover, there are many manipulations which students will observe only in the performance of the doctor or they will not see them at all [3].

Various simulation methods exist in educational and medical training centers of higher medical educational institutions to practice the methods of providing medical care in emergency situations. By imitating the real actions over a certain period of time while mastering medical manipulations by students, we carry out simulation training. Medical skills, their assimilation and improvement of techniques require psychomotor skills, communication skills, constant practice and simulation of providing emergency care until it becomes automatic. This can not be provided by patient-oriented teaching methods, since simulating training makes it impossible to make mistakes and create risks for patients.

The opening of simulation centers contributes to better training of medical professionals. They are equipped with training phantoms (for suturing deep wound, reducing dislocations) and allow polishing professional skills during practical classes or after them.

The most important for teachers is to teach students how to perform resuscitation measures when the patient is clini-

cally dead. Mannequins simulators have become the "gold standard" of medical education in all countries of the world [2]. They give an opportunity to objectively assess the correctness of the actions performed by the student, to teach the technique of cardiac massage and artificial respiration, to correct the position of the mannequin head thereby protecting the person who performs resuscitation procedure from infectious agents. The possibility of simulation training and multiple repetitive resuscitation actions practices the students' ability to work during an emergency until it becomes automatic. Before starting to work with patients in a hospital or polyclinic, students practice their skills in simulation training centers using mannequins and phantoms during their practical classes and independent extracurricular work hundreds of times. The presence of mannequins with different types of bleeding (arterial, venous, capillary), fractures of the extremities allows teaching the tactics of stopping bleeding and transporting such patients, which is extremely relevant under current conditions of war.

An important form of consolidation of practical skills is an independent performance of surgical interventions on animals in the vivarium. Certainly, they should be performed under the assistance of the teacher, when the student plays a major role.

The main organizer of the educational process in the training center is the teacher, as he plans and defines the main goals of the training, creates a friendly atmosphere, motivates the group to study, checks and controls the acquired knowledge and skills. There may be formed small student working groups with the constant rotation of their head and assistants, modeling of simple and complex simulation scenarios. The teacher has the opportunity to contribute to the development of students' cognitive, moral and ethical, professional and socio-personal qualities, and the formation of non-technical skills (situational awareness, decision-making, leadership, team leadership, stress resistance, etc.). During simulation training, an ideal teacher analyzes students' actions, positively motivates, criticizes or evaluates them, therefore he is not only knowledgeable and competent, but also calm, open, creative [1].

The use of simulation training of medical students allowed bringing the level of national science closer to the world standards.

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