

HOW TNMU TRAINS PARAMEDICS

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The aim of the work is to highlight the basic principles of the educational and professional program and technology of paramedic training in I. Horbachevsky Ternopil National Medical University (TNMU).

The main part. The article presents the main elements of the educational and professional program of paramedic training in TNMU.

The key technologies of paramedic training are presented, which contribute to the qualitative mastering of theoretical knowledge and practical skills in providing emergency medical care to patients and victims in an emergency condition at the accident scene and at the early hospital stage.

Keywords: educational and professional program, paramedic specialist, technologies of educational activity.

Introduction. The reform of emergency medical care (EMC) has become an important element of improving the healthcare system in Ukraine. Despite the Law of Ukraine “On Emergency Medical Care” adopted in 2012, the quality of emergency medical care provided to patients in an urgent condition at the accident scene by both medical and paramedic teams was insufficient. In particular, as of 2016, the proportion of patients who died outside hospitals from the influence of external causes increased from 76,0 % at the time of the adoption of the Law to 80,7 %.

The reason for this problem had a systemic nature. On the one hand, EMS personnel have traditionally responded to the vast majority of calls to ambulances without differentiating between “emergency” and “non-emergency” cases. For example, in 2016, out of 9,5 million calls from citizens, only 2 million resulted in hospitalization. In fact, in Ukraine, EMS personnel have taken on the functions of family doctors, social workers, etc. The society at that time had not formed an understanding that the purpose of EMS is to save the life of a person in an emergency at the accident scene, during transportation to a medical center and to prevent serious complications.

The system of training emergency medicine doctors has also adapted to this situation. In most higher medical education institutions, the basic department for training such specialists was the Department of Family Medicine. At the same time, the real implementation of postgraduate education for training paramedics in emergency medicine has not taken place, despite the fact that the proportion of paramedic teams has increased to 60 %.

On the other hand, in the educational community, there was no understanding that a medical worker for EMS should be trained by a teacher who is a specialist in emergency medicine and works directly in an ambulance. Lifesaving outside of a hospital is a multidisciplinary system of medical knowledge and skills, as well as physical and psychological conditions of the employee, which requires constant education and training, primarily through the means of stimulating learning [1]. At the same time, training in emergency medical care “at the patient's bedside” is only of an observational nature.

It should come as no surprise, therefore, that ambulance medics had insufficient reservoir of knowledge and skills in emergency medicine. This is clearly evidenced by the

results of national medics' performances at national championships of EMS teams with international participation, during which emergency cases are simulated. For many years, the winners of such competitions have been paramedics from Lithuania or Poland, whose training is focused on rescue medicine [2].

All of this motivated a different approach to the staffing of the emergency medical service. In 2017 The Order of the Ministry of Health of Ukraine № 918 “On Changes to the Handbook of Qualification Characteristics of Occupations. Issue 78 “Healthcare” in the section “Specialists” added qualification requirements for the new profession of “Paramedic”. In the 2018-2019 academic year, the I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine (TNMU) and Cherkasy Medical Academy are allowed to accept students for the first level of higher education, specialty 223 “Nursing”, field of knowledge 22 “Healthcare”, qualification “Paramedic”.

The aim of the work is to highlight the main technologies of paramedic training at the Ternopil I. Horbachevsky National Medical University of the Ministry of Health of Ukraine.

The main part. At the first stage, we analyzed paramedic training programs in different countries of the world. Among them, we selected positive experience worthy of adoption from the paramedic training system in Lithuania and Poland [3, 4]. In these countries, at the beginning of the reform, the situation in health care and, in particular, in the EMS system was similar to Ukraine. The transition from an «ambulance» doctor to a paramedic at the accident scene was painful for the society of these countries. However, the effectiveness of this transition soon became apparent.

At the second stage, we took into account the qualification requirements for the profession of “Paramedic”, which were approved by the Order of the Ministry of Health of Ukraine dated 09.08.17 № 918 “On Changes to the Handbook of Qualification Characteristics of Occupations. Issue 78 “Healthcare”. This profession was included in the National Classifier of Ukraine, which was approved by Order of the Ministry of Economic Development and Trade of Ukraine № 1542 dated 26.10.2017 “On Approval of Change № 6 to the National Classifier of Ukraine DK 003:2010”, which came into legal force from November 1, 2017.

The educational level of paramedic training was defined as “bachelor” with a training volume of 180 ECTS credits on the basis of complete general secondary education and a training period of 3 years; on the basis of a diploma of junior specialist, junior bachelor, medical specialist – 120 ECTS credits.

Based on these data, we have formulated the following *purpose of paramedic training in Ukraine*: to train bachelor's degree paramedics who have an innovative way of clinical thinking, fundamental knowledge and relevant competencies necessary for the effective provision of EMS to patients and victims in an emergency at the accident scene, during transportation to a medical institution and at the early hospital stage.

An important element of a paramedic's training is to adapt him or her to work both at the pre-hospital and early hospital stages – in the Emergency Department, which is just beginning to be established in Ukraine, but without which the EMS reform will be unsuccessful.

In this context, **the objects of study for a paramedic are** human emergencies and technologies for providing EMS at the prehospital and early hospital stages.

The goals of paramedic training are defined as training of specialists competitive in the labor market for the needs of the EMS service, who have modern innovative clinical thinking, relevant competencies necessary for the effective provision of EMS to victims and patients in EMS centers and clinics of all forms of ownership.

The training subject area includes knowledge of the human body anatomy, its function, pathogenesis of common emergencies and emergency medical protocols with a

defined sequence of organizational and therapeutic measures aimed at saving a person's life at the accident scene, preventing complications, and providing care at the early hospital stage.

Paramedic training in Ukraine is facilitated by clinical guidelines and protocols on emergency medicine that have been created and prepared for approval, based on modern international standards of EMS provision. In the course of training, a paramedic must master a system of general scientific and special methods, professional techniques and technologies necessary to save a person in an emergency at the accident scene, prevent complications and transport them to a specialized medical institution.

The educational activities are based on student-centered learning, problem-based learning in small groups, lectures, seminars, practical classes, reflective learning, internships, individual and autonomous learning, and consultations with teachers. In other words, the teachers work with paramedics in a teaching mode, forming a positive motivation to achieve the ultimate goal, because in exactly 3 years of training, graduates will be saving lives as part of field EMS teams.

The largest amount of training is provided for the implementation of emergency scenarios using standardized patients, mannequins, and dummies at the TNMU Simulation Training Center using the entire range of educational technologies for simulation training [5]. This puts serious demands on the logistics of the educational process, special training of teaching staff and technical staff.

In addition to the traditional forms of control (tests, differentiated tests, testing, oral and written exams, etc.), an objectively structured clinical exam (OSCE) is being introduced.

The educational program is provided by 25 departments consisting of 42 people, including 14 Doctors of Sciences, Professors and 24 Candidates of Sciences, Associate Professors, 1 Doctor of Philosophy and 3 Assistant Professors. All academic staff involved in the implementation of the educational component of the educational program are full-time employees of the I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine and have a proven level of scientific and professional activity. Most of the teachers who teach professional disciplines are practicing specialists, including emergency medicine.

Practical training in the amount of 66 credits is conducted by certified teachers, namely: 4 are certified as "Prehospital Care Instructor", 6 have received a certificate of instructor "Basic Life Support", 5 – "Pediatric Basic Life Support", 6 – "Advanced Life Support", 3 – "European Pediatric Advanced Life Support", 2 – "European Pediatric Immediate Life Support", 2 – "Immediate Life Support", 2 – "International Trauma Life Support", 1 – "Pediatric Trauma Fundamentals", 3 – "European Trauma Course", 2 – "Chemical, Biological, Radiological, Nuclear and Explosives Training", 1 – "Mass Causality", 2 – "Trauma and Disaster Team Response", 2 – "Stop the Bleed". In addition, all of them, as emergency medicine doctors, have practice in the EMC and DM Centers and are also degree candidates. This approach to the selection of teaching staff for paramedic training is the "gold standard", which, in our opinion, will ensure the formation of high-quality specialists.

It is clear that the technology of the educational process is based on the principles of simulating training [6]:

- acquisition of basic theoretical knowledge;
- development of individual practical skills;
- interactive simulation training;
- teamwork with a simulated patient;
- clinical experience.

For this purpose, the TNMU Simulation Center is fully equipped with the necessary means for training paramedics, including a training module for working in a fully equipped ambulance.

During the study of clinical disciplines, students are provided with professional uniform, protective equipment (glasses, masks, helmets, etc.) and a full set of equipment for an ambulance. All students take courses on working with oxygen equipment. Thus, during the work with simulated emergency patients, students have a full set of medicines, equipment and disposables provided by the regulatory documents for a type «C» ambulance, and will work in professional uniforms with load-bearing equipment. There are elements of specialized physical activity (laying on a long transport board, carrying on a board, soft stretcher, chair on horizontal and inclined surfaces, stairs, loading a patient on a wheelchair, loading into an ambulance, etc.) For the convenience of students, the simulation center has a special dressing room with individual lockers for changing clothes separately for men and women.

An important element of the second year of study is cognitive practice, which is the student's participation in the EMS team's ambulance visits. A mandatory condition for such participation is to acquire knowledge and skills in basic resuscitation and, if necessary, to assist the team in resuscitation activities at the accident scene. By the end of the first year, future TNMU paramedics, in addition to studying basic resuscitation according to the main curriculum, are certified as providers of the ERC course “Basic Life Support”. The cognitive practice for students will start at the beginning of the academic year. Students will be involved in almost all the duties of TNMU teachers at the Ternopil Regional Center for EMS and DM. It is important both to participate in the call and to debrief with the teacher afterwards. This practice will help bring future paramedics closer to the realities of their future profession. The practice will be conducted in the presence of a teacher in a “safe” condition, which is of great psychological importance for the formation of a correct perception of one's professional activity and effective origin of the internship at the end of the year.

It should be noted that more than 60 % of clinical disciplines (including resuscitation, trauma and others) rely on emergency medicine specialists. We are convinced that motivated practitioners of emergency medicine who keep up with the latest advances in science and technology for rescue medicine have an undoubted advantage over physicians of traditional clinical departments.

Therefore, providing high-quality training of paramedics is a fundamental task of modern higher medical education, which should correspond to the key principles of world and national experience in rescue medicine and be aimed at significantly reducing the mortality of patients and victims in emergency conditions at the pre-hospital and early hospital stages.

Conclusions

1. The educational and professional program for the training of paramedics, developed at TNMU, has incorporated the best Eastern European experience and provides a vector for the quality training of future specialists. The time and content distribution of the disciplines remains flexible and can be revised in accordance with the gained teaching experience and changes in emergency medical care technologies.

2. The key principles of educational activities in the training of paramedics include the availability of a complete set of equipment and medicines that correspond to the equipment of a type «C» ambulance; maximum involvement of practicing emergency

medicine specialists in teaching activities; availability of a simulation training center with specialized training modules for emergency medicine.

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Summary

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