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THE ROLE OF SIMULATION TECHNOLOGIES IN HIGHER MEDICAL EDUCATION

Yakubbekova M., Abdulladjanov B.R.
Andijan State Medical Institute

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Abstract:

In this article, the authors cite the relevance of simulation training in medicine, in particular in the specialty therapy. At the present stage, the main burden of simulation training should be assigned to teachers of specialized departments working in clinical institutions. Optimal is the parallel work of the teacher both in the clinic and in the simulation center, which allows for high–level training.

Keywords: technology, education, medicine, simulation, therapy, students, disinfection, patient

RELEVANCE OF THE PROBLEM. In accordance with the Decree of the President of the Republic of Uzbekistan "On approval of the concept of development of the higher education system of the Republic of Uzbekistan until 2030" №DP-5847 dated October 8, 2019, in order to determine priority areas for systemic reform of higher education in the Republic of Uzbekistan, raising the process to a qualitatively new level training of independently thinking highly qualified personnel with modern knowledge and high spiritual and moral qualities, modernization of higher education, development of the social sphere and economic sectors based on advanced educational technologies, in all forms and types of institutions of the continuous education system of the Republic of Uzbekistan, the educational process can be achieved through the creation of modern conditions for teaching, provided that it is scientifically and methodologically fully ensured [1].

First of all, computer technology is the main tool for using information and communication technologies in the education system. Opportunities are emerging for collecting, storing, processing information resources and using electronic and virtual libraries based on computer technology. Secondly, the education system uses special software to create multimedia electronic educational literature, lecture texts, virtual laboratory work and various animation developments. Today, in order to increase the efficiency of the educational process, the simulation training system has entered the system of higher medical education and is widely used as a modern teaching tool [5, 7].

When we talk about intensive care or emergency medical care, we understand the provision of emergency medical care in the form of diagnostic and therapeutic measures used in cases of a sharp deterioration in the patient's health as a result of the development of acute diseases, poisoning of the body under the influence of various factors. We are talking about taking measures to respond to the development of a life-threatening situation in the event of injury or exacerbation of chronic diseases [10, 12].

A sharp deterioration in a patient's health requires a medical professional to take urgent measures called intensive care. It includes therapeutic measures aimed at correcting impaired vital functions: breathing, blood circulation, metabolism, etc. In some cases, replacement of lost functions and resuscitation measures are required: artificial ventilation and chest compressions. The effectiveness of intensive care largely depends on how well the doctor knows invasive methods. Thus, intensive care is an ideology of special approaches to treating patients, based on diagnosis and eliminating delays in providing qualified care. Inappropriate intensive care increases the number of complications and deaths.

It is important to note that any doctor can be faced with a life-threatening situation, so any medical specialist must be able to provide emergency medical care. In addition, a professional doctor must have proven practical skills and quickly make the right decision under stress and time pressure.

However, in real life this is not the case. Unfortunately, no one is immune from mistakes, and mortality and economic losses from disability are still high. Naturally, the question arises about the training of medical personnel, which is especially important for resuscitators. In this regard, let us turn to teaching issues. Until recently, medical education in the Russian Federation was based on the traditional education system: lectures, seminars, practical classes and training with the participation of patients do not meet the requirements of modern high-tech medicine and its changes. in society. In this regard, new approaches to personnel training are required. The training of doctors in intensive care methods, as well as in the specialty of

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anesthesiology and resuscitation, is characterized by complex organizational and deontological specifics for a number of reasons. First of all, this is a high proportion of invasive diagnostic and treatment methods in the training program for specialists in this field. The educational process in these specialties consists of two integral components: understanding the pathophysiological basis of the disease and training a doctor through the development of practical skills [3, 9]. But the lack of conditions and opportunities for developing the practical skills of doctors caused difficulties.

A logical question arises: "How were specialists trained before the advent of simulation centers?" There is an answer to this question for most doctors working in modern medicine.

Our experience in a modern simulation center suggests otherwise. The use of fathoms, dummies and dummies allows you to practice mechanical skills in providing emergency medical care (indirect cardiac massage, upper respiratory tract patency, etc.). Unfortunately, it is impossible to reproduce the realism of the situation on mannequins. Robotic simulator training will fundamentally change the way trainees view emergency care.

We understand that it is difficult for students and young doctors to find patients who want to teach them. In this regard, the concept of simulation training was formed first in medical universities of the Republic of Uzbekistan, and later in the technical schools of public health named after Abu Ali ibn Sina, and corresponding centers appeared.

Today we will talk about simulation training as a component of the professional training of nurses and doctors at all levels of education - undergraduate and postgraduate. In addition, paramedics and anyone else who encounters life-threatening situations while on duty will undergo simulation training.

MATERIALS AND METHODS. Purpose: intravenous administration of large doses of drugs, parenteral nutrition and treatment.

Indication: doctor's prescription.

Contraindication for use: the presence of hypersensitivity to the drug, local skin damage, inflammation, swelling, hematoma.

Difficulties: air embolism, hematoma, allergic reactions, sepsis, HIV, Russian hepatitis, necrosis.

Injection site: elbow, radialvein, vessels of the upper and lower extremities, subclavian vein.

Intravenous drip administration is carried out for a special purpose. For this procedure, treatment rooms and departments should first be cleaned and ventilated using a bactericidal installation.

Preparation for intravenous drip administration, equipment: a set of replaceable overalls: a robe, a cap (cap), a hygienic cover with shoes.

Personal protective equipment: mask, gloves, goggles or face shield.

Medical instruments can be disposable or reusable (for each injection):

- sterile drip system;
- sterile tray;
- sterile trays;
- non-sterile trays;
- tray for used material;
- sterile cotton balls;
- turnstiles;
- oiled fabric pillow;
- skin antiseptic approved for use;
- adhesive plaster;
- medicine.

Containers for disinfection and disposal of medical waste. Containers for treating work surfaces before and after work are marked accordingly:

- "clean cloth napkins";
- "for disinfection of work surfaces";
- "for recycling used napkins."

Containers for disinfection of medical devices can be reloaded with the appropriate information: 15

- "disinfect trays";
- "disinfect tweezers."

On one-time loading of containers for disinfection and disposal of medical products with the appropriate:

- at level "A";
- "G-class";
- "stage B";
- "for disinfection of disposable loading systems";
- "one-time measures for disinfecting needles";
- "disinfect used cotton balls";
- "for disinfection of used masks";
- "Disinfect used gloves."

Preparation for the procedure:

1. Invite and inform the patient, find out the allergy history, and obtain consent for the procedure.
2. Carry out hand hygiene according to the algorithm.
3. Put on a mask, put on gloves and treat them with an antiseptic.
4. Prepare a sterile tray with sterile cotton balls and sterile pads. Soak cotton balls in alcohol-based antiseptic.
5. Prepare the medicine: check the list of doctor's prescriptions, check the expiration date of the medicine, make sure that the integrity of the ampoule corresponds to the name on the ampoule packaging, visually assess the medicine for compatibility. Treat the outer cap of the drug bottle with the first ball, open the central part of the metal cap of the bottle with non-sterile tweezers

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(if necessary) and treat the rubber stopper of the bottle with a second cotton swab.
7. Check the integrity of the packaging and the sterility of the infusion system.
8. Open the package containing the system and receive it.
9. Close the clamp on the system, remove the cap from the bottle needle, insert the full needle into the bottle.
10. Turn the bottle upside down and secure it on a tripod, open the air channel.
11. Press and fill the system cylinder halfway.
12. Using sterile tweezers, remove the injection needle with cap,
place on a sterile tray.
Open the clamp and fill the dropper with liquid along its entire length, completely displacing the air (on the tray).
14. Close the clamp, secure the injection needle with the cap, and force air through the needle without removing the cap.
15. Mount the system on a tripod.
At the end of the process:
1. Dispose of the used needle using a "B" needle forceps or tweezers and throw into a solid "class waste" container.
2. Insert the used infusion system and cotton balls.
Appropriate containers for the neutralization of class "B" waste,
has special characters.
3. Empty bottles are thrown into a container marked "Waste".
Category "G".
4. Treat the used tourniquet, oilcloth, glasses with napkins moistened with a disinfectant solution twice with an interval of 15 minutes.
5. Place used trays and tweezers in appropriate containers for disinfection.
Take off your gloves and place them in a container for disinfection "waste with a special designation of class "B".
7. Remove the mask and place it in a "waste" disinfectant container specifically marked as "B" grade.
8. Practice good hand hygiene.
Note: If it is necessary to add medication to the vial before infusion, it is introduced into the vial through a rubber stopper using a disposable syringe, controlling infection safety, and then connecting the drip system.

RESULTS AND DISCUSSION. Our results are consistent with literature data [2,4]. Yu.K. Smailov [8] showed that the use of simulation equipment for teaching students in clinical departments has a number of advantages over traditional teaching methods. Students in the "Simulation" group showed good results in mastering blood pressure measurements, peripheral vascular catheterization and other practical skills.
Teplova N.N. et al. [9] compared the effectiveness of training for intensive care unit residents and simulator training for mechanical ventilation residents, and simulation training was shown to produce significantly better results.
Many studies have assessed the effectiveness of central venous puncture and catheterization training. It was found that training at the simulation center was accompanied by a decrease in the number of complications such as pneumothorax in real practice.
Thus, our data add to a large body of evidence demonstrating the successful transfer of skills acquired by a physician in a simulation center to the patient.
Our personal experience and publications by foreign authors allow us to emphasize that in the simulation process, teamwork methods are also used and it is possible not only to achieve interaction between specialists of the same profile, but also to establish interdisciplinary connections [11, 13, 14].
One of the most important unresolved problems of simulation training is personnel training. Almost all educational institutions face this problem. The master's program has experience in using tutors trained from senior students. In addition, pre-trained instructors are widely used to train paramedics.
The department's employees are not yet sufficiently motivated to teach at the simulation center. Of course, with the advent of simulators, we saw the interest of doctors in this equipment, but later disappointment set in, since teachers have high hopes for the realism of modern simulators.
Clinicians are not convinced that simulation medicine is here to stay. Fortunately, they have encountered situations where the initial investment (purchase of expensive equipment) was not supported by subsequent financing for the purchase of consumables and services.
At the present stage, the main burden of simulation training should be placed on teachers of specialized departments working in clinical institutions. Using experts only for simulation training is unwise. Optimally, parallel work of the teacher both in the clinic and in the simulation center. This allows training to be carried out at a high level. In fact, if we are talking about manual training, then a simple certified specialist is enough.
To summarize, simulation training has the following advantages:
1) students have no fear of the patient;
2) the patient has no complications during the procedure;
3) the ability to coordinate and control the actions of students during practice;

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4) unlimited number of exercises and their repetition;
5) unlimited period of topic development;
6) effective movement training in rare clinical situations;
7) reducing the impact of stress factors on patients during the first invasive procedures;
8) objective assessment of the level of practical training of a doctor, the possibility of conducting tests, certifications, certifications and exams.

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