Five-Day Simulated Boot Camp Helps Prepare Medical Students for Transition to Internship Emergency Medicine Rotation

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To the Editor,

Medical simulation-based training offers a risk-free clinical environment and also promotes learner investment in active participation and allows for structured feedback for individual performance improvement. Adult learning needs specific methodologies for knowledge acquisition and skill improvement, which can be met by simulation sessions. Nowadays, integration of medical simulation into curriculum is the main concern of faculties. Patient safety, malpractice, and increased mortality rates caused by human errors increases the importance of medical simulation sessions for both undergraduate and postgraduate training programs (1). Many patient profiles that can be encountered in the emergency department (ED) can be simulated. High-fidelity patient simulators allow medical students to gain experience in contemporary educational practices before practicing on patients.

For internship programs before they meet with real patients, boot camp courses in medical simulation centers are widely organized by universities. In Turkey, our university is pioneering this kind of educational programs. After preclinical conditions, interns feel fear and anxiety to take part in the real ED and work with the staff and equipment. Also, it is diffucult to manage that kind of situations for the instructors. This type of learner presents a challenge to the ED staff and physicians in teaching setings while still maintaining ED flow and the same level of patient care (1, 2).

Center of Advanced Simulation and Education (CASE) is a multidisciplinary medical simulation center under the supervision of the university. The center has been running since 21 October 2013. CASE aims to give high-quality education with new training methodologies by using state-of-art simulation modalities and medical equipment. The center consists of two departments, medical simulation training center and advanced endoscopic/robotic surgery training center. CASE offers three types of simulation-based experiential learning via standardized patients, virtual reality task trainers, and high-fidelity manikins in a real hospital environment (Figure 1).

The medical simulation education laboratory consist of the following:

- Intensive care unit (high-fidelity patient simulator, pediatric simulator),
- Emergency room (high-fidelity patient prehospital, high-fidelity trauma simulator),
- Delivery room (high-fidelity birth simulator, high-fidelity baby simulator),
- Nursing simulation laboratory (patient care unit has six simulators),
- Drug preparation room,
- Skills training laboratory (resuscitation mannequins, intravenous virtual, otoscope ophthalmoscope, etc.),
- Ambulance area,
- One inpatient room (high-fidelity patient simulator nursing),
- One outpatient room,
- Five debriefing rooms, one meeting room.

Before trainees come to the center, e-learning modules and pretests are sent to them via a web-based system. Basic and advanced skills are demonstrated on the task trainers. After passing the basic skills training, they can attend to the simulation sessions. During the simulation sessions, participants are video recorded. Debriefings are performed after each simulation session. At the end of the course, participants are evaluated by posttests and Objective Structured Clinical Examination (OSCE). Also, participants give feedback for every course, including debriefing technique, course program, task trainer demonstration level, and simulation sessions.

For internship program of ED, we organized boot camp course lasting 5 days in July 2014. Before this boot camp course, 21 interns trained in the center for basic skills management on task trainers, including airway management, alternative supraglottic airway devices, foley and nasogastric tube placement, cardiac compression, and

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defibirillation. Also, Basic Life Support/Advanced Life Support courses were organized. Six interns attended the ED boot camp course. E-learning material of the program was sent to them before they came to the center. During the boot camp period, we created major emergency conditions that they will encounter in a real clinical environment. Each day, after the 15-minute lecture of the program, they practised on skills laboratory and then attended the simulation sessions, which were recorded by learning space software. At the end of the session, debriefings were performed by watching the recorded videos of participants. We aim to share our experinces of this boot camp courses.

The aim of this boot camp course

To provide the student with the opportunity to gain experience in assessing a wide range of clinical problems seen in a teaching hospital ED;

Learning outcomes

At the end of this program the students will be able to

- Consider the worst possible (life-threatening) conditions first.
- Take an accurate and concise history and physical examination in the undifferentiated patient.
- Generate a comprehensive differential diagnosis in ED.
- Have technical skills in providing patient care in the ED (e.g., cardiopulmonary resuscitation, intubation, defibrillation).
- Have communication, collaboration, and professional skills required for patient care in the ED.

Program content

First day; Altered Mental Status Management

Second day; Multiple Trauma Management

- Focused Assessment with Sonography for Trauma (FAST)

Third day; Chest Pain Management, Dyspnea Management

Fourth day; Abdominal Pain Management

Fifth day; Busy Day in the ED

- Chaos of the ED is created by standardized patients and simulators

In the first 3 days, we used high-fidelity simulators during simulation sessions. Instructors played the role of patient's relatives to increase the stress factor of the situation. Also, all the interventions can be performed on simulators (nasogastric, Foley catheterization, intravenous access, drug administration, defibrillation, etc.).

In the last 2 days, standardized patients created by real actors and instructors and high-fidelity simulators were used together to improve communication skills and for crisis resource management training.

To enhance the realism, real hospital documentation and laboratory tests were used, such as electrocardiogram, computed tomography, ultrasonography. For crisis resource management training, breaking bad news to agitated patient's relatives were added to the scenarios at busy ED. At the end of the each simulation session, debriefings were performed by watching the recorded videos. According to their technical and nontechnical skills, participants were evaluated.

Figure 1. Emergency room in CASE

Course program content, scenarios, and instructors were evaluated by the trainees.

Our feedback of interns about the boot camp course were highly pleasent. Internship Boot Camp is a unique learning environment that is recalled by participants as the most helpful, of all components of their medical school education, in preparation for internship (3).

In conclusion, to improve patient safety and to increase knowledge acquisition and skill improvement in the healthcare providers, integration of medical simulation-based training into the curriculum of ED training programs has vital importance.

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