

Objective

To evaluate the effectiveness of simulation-based training and objective, structured assessment in organizing the practical phase of a first aid competition among first-year students.

Materials and Methods

A total of 109 first-year students from the Faculties of Medicine, Medical Diagnostics, and Medical Psychology participated in the competition. The practical phase was organized at the Simulation and Assessment Center. To simulate emergency conditions (clinical death, external bleeding, and trauma), training manikins (CPR manikins), wound simulators, and standardized patients (actors) were used. Skills were assessed by instructors using checklists developed based on current standards and first aid protocols. A post-competition survey was administered to analyze students' stress levels and engagement.

Results

The use of simulation scenarios allowed participants to be immersed in conditions that closely resembled real-life emergency situations. Analysis of the results showed that 89% of students successfully performed basic cardiopulmonary resuscitation; however, the greatest difficulties (for 21% of students) arose from coordinating actions within the group and assigning roles under time constraints; 31% of students neglected to make contact with the "casualty"; 16% of students deviated from the priority algorithm for actions when dealing with a combination of bleeding and a fracture; and 13% made tactical errors during chest compression. According to the survey, 94% of participants noted that the simulation format of the competition significantly boosted their confidence in their own abilities and motivated them to further improve their practical skills. The expert commission confirmed the objectivity of the evaluation thanks to standardized checklists and automated mannequin monitoring systems.

Conclusions

Simulation-based training is an optimal and highly effective foundation for conducting the practical phase of first aid competitions among first-year students. It not only allows for an objective assessment of practical skills but also develops critical thinking, stress resilience, and teamwork at the very earliest stage of training. This format is recommended for widespread implementation as part of the midterm assessment for the "First Aid" course.

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SIMULATION AND GAME-BASED PRACTICES IN TEACHING LEAN MANUFACTURING TECHNOLOGIES TO STUDENTS IN SECONDARY VOCATIONAL EDUCATION

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Abstract. This paper presents the experience of the Department of Public Health and Healthcare at the

Federal State Budgetary Educational Institution of Higher Education "Russian University of Medicine" under the Ministry of Health of Russia in teaching the course "Fundamentals of Lean Manufacturing" to second-year vocational education students majoring in "General Medicine," "Preventive Dentistry," and "Orthopedic Dentistry". The role of game-based and simulation-based practices — designed to encourage active student participation and account for students' lack of professional experience is demonstrated. The result is an understanding of and acceptance of lean production as early as the vocational training stage.

Scientific specialty: 3.2.3. Public Health and Health Care Organization, Sociology, and History of Medicine.

Relevance

Starting in 2024, the Department of Public Health and Healthcare at the Russian University of Medicine (a Federal State Budgetary Educational Institution of Higher Education) under the Ministry of Health of Russia will offer the "Fundamentals of Lean Manufacturing" course series for students in secondary vocational education (SPO) majoring in "General Medicine," "Preventive Dentistry," and "Orthopedic Dentistry."

The course is taught during the second year of SPO, when most students have not yet gained professional experience. Therefore, to ensure the learning process is effective, it is important to make it understandable for students, interactive, and rich in simulation exercises where students can see themselves in these processes.

"Scenes from everyday life" have become a mandatory element of the classes, featuring situations that students can relate to and draw upon from their own life experiences. Students work through case scenarios with the support of instructors: describing them as processes, analyzing possible developments in the "plot," and identifying losses and areas for potential improvement. This includes a description of the process, an analysis of losses, a timeline, and expert opinions.

The next step is the transition to professionally oriented case studies.

The final stage of the course involves completing a team project to improve a professional process of the students' choice. Students are divided into teams of 5–7 people, select a process from their future professional field, analyze the process using BP tools, identify losses and areas for improvement, and present their findings in class.

Upon completion of the training cycles, students are surveyed using a questionnaire specifically designed by the instructors, with the aim of gathering students' opinions on the outcomes of the cycle.

At the end of the cycle, students are surveyed, and the results are presented in this study.

Objective

To assess the opinions of vocational education students regarding the organization of the "Fundamentals of Lean Manufacturing" course.

Materials and Methods

In the fall semester of 2025, a survey was conducted among vocational education students majoring in

"Nursing" using a questionnaire developed by the department's faculty. The survey is strictly anonymous and voluntary and is administered on the last day of the "Fundamentals of Lean Production" course.

The questionnaire contains six open-ended questions about learning outcomes; at the end of the questionnaire, respondents are invited to provide additional comments in free form if they wish.

A total of 15 questionnaires were received, representing 100% of those present at the final session and 92% of the total number of students.

Results

All students who participated in the survey answered "yes" to the first question: "Was the course useful to you?" The respondents' comments ranged from general remarks such as "I learned a lot of new things," "it broadened my horizons," "there was a lot of useful and interesting information," and "I gained a new perspective on the profession," to more specific observations: "The course helped structure my understanding of processes and showed how even small time losses affect work efficiency," "It provided practical tools and a systematic approach for identifying losses, optimizing processes, and fostering a mindset of continuous improvement," "The course helps build teamwork."

In response to the second question, "Briefly describe your impressions of the course," the overwhelming majority of responses focused on the methods learned for identifying waste and addressing it. Among the responses were: "I came to understand that the problem isn't always a lack of funding," "there's a way out of any difficulty," "it was interesting to analyze real-world examples and see how lean methods are applied in medicine," and "I realized that I really want to be a paramedic."

Responses to the question "What discoveries did you make during the training?" covered virtually all aspects of lean technologies — from individual tools to systematic knowledge: "It's necessary to focus on the value stream, since the process must be continuous and free of delays," "It's important to see the process as a whole, not just a single part of it," "employee engagement and open communication within the team significantly accelerate the implementation of changes," "I was surprised by how much 'small' delays add up to significant time losses."

The answers to the next question, "What did I learn?" also reflected virtually all aspects of Lean: "identifying and solving problems," "organizing my workspace," "analyzing and identifying types of waste, and knowing how to deal with them," "managing my time effectively," "working as part of a team."

The answers to the final questions — "How will I apply this new knowledge to organizing my life?" and "How will I apply this new knowledge to organizing my work?" — complemented one another: "organize my space/workplace effectively," "manage my time," "pay close attention to my habits, simplify routine tasks, and eliminate unnecessary steps."

Discussion

It is important to begin teaching business processes while students are still in school, especially for those pursuing a secondary medical education. After all, it is precisely this

category of personnel who, in addition to participating in the provision of medical care, are responsible for preparing workstations and ensuring that processes are carried out. The department's faculty set out to instill in students a natural desire to apply the knowledge and skills they have acquired in their professional practice. Of particular value in this regard is harnessing students' creative potential as they participate in developing case scenarios, acting them out, and analyzing them. This experience accelerates the process of knowledge acquisition and the development of practical skills.

Conclusions

The game-based learning technologies presented here help foster an understanding of and acceptance for lean production as early as the vocational training stage, thereby creating the conditions for future healthcare professionals to be prepared to work in a team, manage their time effectively, and understand their role in processes, their level of responsibility, and their contribution to the overall outcome of patient care.

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STANDARDIZATION OF COMPETENCY DEVELOPMENT IN ULTRASOUND NAVIGATION IN EMERGENCY MEDICINE: TRAINING IN FAST/EFAST PROTOCOLS DURING RESIDENCY USING SIMULATION TECHNOLOGIES

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Abstract. This article addresses the issue of how to standardize the training of medical residents in ultrasound navigation skills in emergency medicine using simulation platforms. It demonstrates the need for algorithm-based mastery of the FAST/eFAST protocols in a simulated environment — this helps reduce operator dependency, lower cognitive load, and minimize risks during the initial diagnosis of critical conditions and multiple trauma. The structure of the training program is described: phantom training, work on virtual simulators, and objective assessment using checklists.

Scientific specialty: 3.2.3. Public Health and Health Care Organization, Sociology, and History of Medicine.

Relevance

POCUS at the scene of an injury and the FAST/eFAST protocols are crucial for the initial assessment of patients in emergency medicine, as they allow for the rapid detection of free fluid in the abdominal cavity, pericardium, and pleural cavities. When time is of the essence, every minute counts: a 5-minute delay in diagnosis of internal bleeding increases the risk of mortality by 10%. At the same time, the lack of a unified training standard in traditional residency programs leads to significant variability in skills, pronounced operator dependence, and reduced scanning accuracy. Residents often struggle with anatomical orientation and locating the "acoustic window." Given modern ethical requirements and the priority of patient