

safety, these critically important skills must be practiced in controlled simulation settings to eliminate risks to actual patients.

Objective

To justify the role of and describe the structure of standardized training for residents in FAST/eFAST protocols using simulation platforms and a virtual environment within a simulation center.

Materials and Methods

This study is based on an analysis of current approaches to simulation-based training and the mastery-learning methodology as applied to the training of interns. The simulation-based program consists of four sequential stages:

1. Theoretical component: video lectures and a detailed analysis of anatomical landmarks and “acoustic windows.”
2. Practical training: practicing basic skills (hand positioning, pressure applied to the sensor, understanding the orientation of the scanning plane) on physical phantoms, as well as working with a library of pathologies on VR simulators (e.g., CAE Vimedix) — ranging from free fluid to cardiac tamponade. A hybrid environment is used, combining a standardized patient and attachable simulators.
3. Clinical scenarios: solving virtual cases on simulators to integrate skills into the patient management algorithm.
4. Certification: Objective Structured Clinical Examination (OSCE) based on standardized checklists (equipment setup, image configuration, scanning at the RUQ, LUQ, Pelvis, Subxiphoid, and eFAST pleural window sites).

Results

During the implementation of the standardized simulation training program, residents demonstrated a marked positive trend in the acquisition of practical skills. Analysis showed that as residents progressed through the simulation cases (from Case 1 to Case 15), the number of diagnostic errors in assessing the trauma profile decreased by an average of 78%: the proportion of false-negative interpretations decreased from 42% to 9%.

The use of simulators also made it possible to reduce the average time required to complete the full eFAST protocol by a factor of 3.4. While it took 8.5 minutes in the initial stages without specialized simulation training, it was reduced to 2.5 minutes after the standardization course, which is critically important for adhering to the “golden hour” concept.

Based on the results of an objective structured clinical examination (OSCE) using checklists: 92% of residents correctly configured the equipment and visualized the “acoustic windows” on their first attempt (compared to 34% before the simulation training began); the accuracy of detecting free fluid in Morrison’s pocket and the rectovesical space on phantoms and VR platforms reached 95%; the total score for proficiency in the eFAST technique (including scanning of the pleural cavities for pneumothorax) increased on average from 51±12 to 89±6 points on a 100-point scale.

All skills were fully developed in a controlled simulation environment without involving real patients, thereby eliminating clinical risks during the training phase.

Discussion

The data confirm that “bedside” training without clear criteria and a regulated number of procedures performed does not yield the required accuracy. Simulation technologies, on the other hand, create a controlled environment in which it is easier to overcome operator-dependent variability. Regular practice in simulation increases residents’ clinical confidence, reduces cognitive load when encountering emergency conditions, and allows for the standardization of criteria for admission to clinical practice.

Conclusions

It is advisable to implement training in ultrasound navigation according to the FAST/eFAST protocols during residency as a strictly standardized program delivered using simulation platforms. The use of phantoms, VR simulators, and standardized scenarios in a mastery-learning mode ensures the safe and effective development of sustainable diagnostic skills. Regulated simulation training shortens the time to diagnosis and reduces the number of operator errors, which ultimately improves the quality of emergency care and overall patient safety.

Manuscript received on September 13, 2026

THE USE OF “STANDARDIZED PATIENT” TECHNOLOGY IN DEVELOPING AND ASSESSING THE COMMUNICATION COMPETENCE OF FUTURE PHYSICIANS

Turova I. V.

Professor V. F. Voino-Yasenetsky Krasnoyarsk State Medical University, Krasnoyarsk, Russian Federation
iraturova@mail.ru

DOI: 10.46594/2687-0037_2026_3_2320

Abstract. This study examines the use of the “standardized patient” technique in developing and assessing the communicative competence of future physicians. The experiment involved 144 fifth-year students majoring in 31.05.01 “General Medicine” and 31.05.02 “Pediatrics.” The technique was used as part of a comprehensive program for developing and structurally assessing communicative behavior. Positive trends were observed in most components of communicative competence, and statistically significant differences were found between the experimental and control groups.

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

Relevance

Developing the communicative competence of future physicians is a significant goal of medical education; however, assessing it is complicated by the multi-component nature of this construct and the limitations of self-report methods. The “standardized patient” technique allows for the simulation of professionally relevant interaction scenarios, the practice of communication strategies, and the receipt of feedback in conditions that closely resemble

real clinical practice. A key advantage of this technology is the ability to assess not only students' stated knowledge and attitudes but also their directly observable communicative behavior, which expands the possibilities for objectively evaluating the development of future physicians' communicative competence.

Objective

To determine the potential for applying "standardized patient" technology to develop and assess the communication competence of future physicians as part of a comprehensive program aimed at fostering effective professional interaction.

Materials and Methods

The study included 144 fifth-year students from the Prof. V. F. Voino-Yasenetsky Krasnoyarsk State Medical University, majoring in 31.05.01 "General Medicine" and 31.05.02 "Pediatrics." The experimental group consisted of 72 students, and the control group consisted of 72 students; both specializations were equally represented in each group. Over the course of 8 weeks, the experimental group underwent a comprehensive 72-hour program designed to develop communicative competence, which included training sessions, analysis of clinical cases, role-playing exercises, the "standardized patient" technique, and the completion of a reflective journal.

Communicative competence was assessed before and after the program using a set of methods corresponding to its main components: N. V. Yakovleva's "Professional Communicative Competence of a Physician" method, V. N. Nedashkovsky's "Diagnosis of Communication Characteristics" method, the Perth Empathy Scale, the method for diagnosing motivational orientations in interpersonal communication by I. D. Ladanov and V. A. Urazaeva, the method for determining the individual degree of reflectivity by A. V. Karpov, and the CSAS scale for attitudes toward communication skills training. In addition, the authors' own checklist for assessing the cognitive component and a checklist for assessing the communicative competence of future physicians were used.

To analyze changes in the experimental and control groups, we applied descriptive statistical methods, the Wilcoxon signed-rank test for paired samples, and the Mann-Whitney U test for between-group comparisons. The critical level of statistical significance was set at $p \leq 0.05$.

Results

Upon completion of the program, the experimental group demonstrated statistically significant positive changes in virtually all measured indicators of communicative competence. Significant changes were observed in the cognitive, behavioral, emotional, motivational, reflective, and value-semantic components. The exception was the composite indicator "Professional Communication Skills" ($p = 0.825$), although the sub-indicators of professional communication skills and general communication skills included in it showed a statistically significant increase ($p < 0.001$). In the control group, no significant changes were observed for most indicators.

At the control stage, statistically significant differences

between the experimental and control groups were found on 16 of the 19 scales under study. According to the authors' checklist, differences were identified in the cognitive ($p < 0.001$), behavioral ($p < 0.001$), emotional ($p = 0.008$), motivational ($p < 0.001$), and reflective ($p < 0.001$) components. Differences were also found in the level of empathy ($p = 0.046$), indicators of understanding the conversation partner, characteristics of communicative messages and the establishment of interpersonal boundaries, motivational orientations, and attitudes toward learning communication skills. Differences did not reach statistical significance for the integrated indicator of professional communication skills ($p = 0.760$), the value-semantic component of the author's checklist, and the scale of professional communication values.

An additional assessment of 12 students in the experimental group in real clinical practice settings showed that the distribution of communication competence levels corresponded to the results of the author's checklist assessment after training: 25% of students demonstrated an intermediate level, 58% a high level, and 17% an advanced level; no students were identified as having a low level. The most consistently observed behaviors included structuring the medical interview, active listening, adapting to the patient's emotional state, checking for understanding, and empathetically concluding the interaction.

Conclusions

The "standardized patient" technique can be viewed as a significant component of practice-oriented training for future physicians, allowing for the combination of professional interaction practice with its structured assessment. The inclusion of this approach in the comprehensive training program was accompanied by positive trends in most components of communicative competence and statistically significant differences between the experimental and control groups for most of the indicators studied. The alignment of assessment results based on the authors' checklist with data from expert observation of some students in real clinical practice indicates the possibility of transferring acquired communication skills beyond the simulation setting. At the same time, the identified changes cannot be attributed exclusively to the "standardized patient" technique, since it was used as part of a comprehensive program, and the assessment of the transfer of communication competence to real-world practice was conducted on a limited sample and requires further study.

Manuscript received on September 13, 2026

ERGONOMIC ASPECTS OF IMPLEMENTING THE 5S SYSTEM AT THE SIMULATION CENTER OF PERM STATE MEDICAL UNIVERSITY

A. A. Przhevalskaia, A. A. Shchegoleva, O. A. Artamonova, Y. A. Kabirova

Perm State Medical University named after Academician E. A. Wagner, Perm, Russian Federation

schegolevaa@yandex.ru

DOI: 10.46594/2687-0037_2026_3_2321

Abstract. This paper presents the experience of implementing the 5S system (lean manufacturing) to organize the stor-