

Initiatives for the quality of medical simulation in the training of nurses

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Summary

Introduction. In the training of nurses, simulation is used more and more often as an educational tool. For that purpose, various means and tools of simulation are employed, starting with simple trainers, which have been in use for quite a long time, through complex in structure and more and more physiologically and informatically advanced high-fidelity simulators placed in a realistic virtual environment to trained people (so called standardised patients). The addressee of the educational actions, assuming an active role, is a student, but it is the teacher with a special training in conducting this type of courses that is the coordinator of such actions.

Purpose. Presentation of selected initiatives for the quality of medical simulation in training nurses.

Method. Unsystematic review of literature, based on the thematic selection of articles, with a preference for the studies constituting a systematic review of works published in the last 14 years.

Results. All the organizations mentioned below support and shape globally the development of medical simulation in the training of nurses. It is worth getting familiar with their mission and standards as they can help to develop medical simulation and educate the students of nursing at the best possible level so as to master not only the basic skills, but also those related to the communication within a team or decision making.

Summary. Simulation has existed for centuries, but only recently has it started to have a big impact on healthcare. A need exists for the change in the training of nurses to facilitate the transfer of theoretical knowledge for the student into the clinical context and develop the necessary personal competences, which can be provided for by high-fidelity simulation.

Key words: medical simulation, training of nurses

Introduction

Education based on medical simulation is a practical and effective method in the training process. Its purpose is to fill in the gap between the theory and the practice through modern training strategies. It is described as a strategic element in learning and in preparing students for the practical performance of the medical profession¹.

Using simulation as an educational tool is becoming more and more common in nursing education, as it relates to teaching based on undertaking the professional role through performing various tasks or procedures using simple trainers, patient simulators or trained persons (so called standardized patients) placed in a realistic virtual environment².

As mentioned before, the **equipment** used in medical stimulation can be divided into **simple trainers**, which serve the purpose of learning basic nursing skills, such as, e.g. intravenous line insertion, insertion of a Foley catheter into the bladder or performance of the enema. Another part of the assortment consists in **medium-fidelity simulators**. They can imitate physiological sounds of a human body, i.e. heart sounds, pulmonary murmurs or peristaltic movements of the bowels. They can be used while teaching advanced life support procedures (ALS). On the other hand, **high-fidelity simulators** are the most advanced simulators, which faithfully imitate the varied condition of the patient, thus allowing the creation of e.g. respiratory failure, through the symptoms of cyanosis, the number and type of breaths, saturation, whistling and rales. Incorporating simulators into the didactic process is possible thanks to very precise rules of their application in the educational context, contained in specific outlines of the classes labelled as scenarios. Not only nursing students can get trained with the use of medical simulation, but also experienced nurses. Thanks to that, they support their professional development and communication skills, they diagnose, adjust their habitual mistakes and practise rare situations³. The students who participate in simulation trainings report a lowered level of fear and a high sense of confidence in their abilities⁴. The review of studies on mental safety of students making use of classes carried out by means of the medical simulation method conducted by Edmondson can help nursing staff in obtaining arguments in favour of popularising it. It deals with organisational behaviour and presents elements of a safe learning environment. It discusses its influence on the probability of getting engaged in 'educational behaviours' such as admitting to lack of knowledge, looking for explanations or being open to feedback.

Standards of the best simulation practices in nursing by The International Nursing Association for Clinical Simulation and Learning (INACSL): Simulation SM are based on scientific proofs and they draw on the studies from the scope of simulation in healthcare as well as simulation in various fields⁵.

Medical simulation implementation programmes

National League of Nursing (NLN) is an American organisation associating nurses and leaders of nursing education, promoting the highest quality in the education of nurses⁶. With the support of *Laerdal Medical*, in 2003 it conducted an innovative study under the title '*Designing and Implementing Models for the Innovative Use of Simulation to Teach Nursing Care of Ill Adults and Children: A National, Multi-Site, Multi-Method Study*'⁷.

The aim of that study was to:

- ✓ Work out and test protocols that could be used by nursing staff in implementing simulation in order to promote better learning of the student,
- ✓ Train nursing staff so that they could conduct classes with the use of the medical simulation method in order to improve the quality of students' learning,
- ✓ Improve the knowledge from the field of using medical simulation in the training of nurses,

- ✓ Show the value of cooperation between a person and an organisation⁸.

The study was additionally going to bring benefit in the form of working out the framework of teaching and learning with the use of medical simulation that could be used by teachers in order to help in creating, implementing and assessing simulation in the education of nursing students. What was also essential was the development and testing of a project which would promote the educational effects and could be used for nursing simulations. Another important aspect of this project was testing the connection between the theoretical ideas of the simulative framework and the theory and practice of nursing, in order to assess the complementarity of these fields. The last important element was checking and analysing the effects of implementing medical simulation in the training of nurses in the context of selected theoretical concepts⁸.

The project used the following research tools: *The Simulation Design Scale (SDS)*, *The Educational in Simulation Scale (EPSS)*, *The Students Satisfaction with Learning Scale*, *The Self Confidence in Learning Using Simulation Scale*, *The Self Perceived Judgment Performance Scale*.

Summing up, the study led to the specification of the simulation framework (*NLN Jeffries Simulation Framework*) being widely used as the theoretical basis for the assessment of the effectiveness and efficiency of medical simulation in the training of nurses⁹.

The International Nursing Association for Clinical Simulation and Learning is a world leader in the field of medical simulation for nurses. Its mission is to develop, propagate and increase the level of science related to medical simulation through the performance of studies, projects and the exchange of experience between nurses all around the world. The development of Standards of the Best Practice: Simulation was a long-term process. Between 1999 and 2001, when the application of high-fidelity simulators was becoming more and more popular, several people who had met during an annual conference, felt the need to set up a professional organisation that would deal with the education of nurses in the context of medical simulation. In 2002, INACSL was set up. Later, in 2011, Standards of the Best Practice: Simulation were issued for the first time. In order to be able to offer medical simulation to academic teachers as a training method, guidelines were developed for every standard. Additionally, INACSL set up a task team, which reviews and analyses the guidelines for the standards. In 2013, another edition of those standards was published. Currently, a Committee has been set up, which performs the review of the Standards and adjusts them to the needs, obtaining information from the members as well as from the external stakeholders. In 2017, the Standards of the Best Practice: Simulation were updated again, and they look as follows¹⁰:

1. *Simulation Design*
2. *Outcomes and Objectives*
3. *Facilitation*
4. *Debriefing*
5. *Participant Evaluation*
6. *Professional Integrity*
7. *Simulation – Enhanced Interprofessional Education*
8. *Operations*”¹⁰.

The National Council of State Boards of Nursing, NCSBN is an independent organisation, which deals with the education of nurses, conducts studies with the aim of promoting the safety of patients and the protection of their subjectivity. It has representatives in various parts of the world¹¹. It has defined simulation as ‘*an activity or event replicating clinical practice using scenarios, high-fidelity manikins, medium-fidelity manikins,*

standardized patients, role playing, skills stations, and computer-based critical thinking simulations'¹². In 2014, the Council conducted a study, from which it follows that traditional classes in the nursing department can be substituted with simulation classes in up to 50%, on condition that these classes are conducted by qualified staff that have undergone appropriate training from the scope of medical simulation.⁵ What is important is learning through experience, which is why it is so crucial for the teachers to have essential knowledge and skills so as to be able to make use of the potential of medical simulation to the full¹².

After the publication of the study, a Panel of experts was set up, consisting of representatives of various organisations, including, among others, *The International Nursing Association for Clinical Simulation and Learning (INACSL)*, *American Association for Colleges of Nursing (AACN)*, *National League for Nursing (NLN)*, *Society for Simulation in Healthcare (SSH)*.

The Panel analysed the results of the study and presented national guidelines for the use of medical simulation in the training of nurses. They are based on the data from the NCSBN National Simulation Study (2014), the INACSL standards in the scope of Best Practice: Simulations SM and other essential resources¹³.

Society for Simulation in Healthcare (SSH) was founded in 2004 by specialists from the field of medical simulation and it deals with granting accreditations and certificates. It covers with its range doctors, nurses, paramedic staff, researchers, educators and programmers from all over the world. One of the aims of SSH is to improve the efficiency and reduce the number of errors in patient care thanks to the use of simulation¹⁴. *Simulation in Healthcare* is a magazine published by SSH. The first issue of the magazine was published in 2006 by Lippincott Williams & Wilkins¹⁵. In June 2015 The Strategic Plan for the years 2015-2020 was issued. Then, in late 2017/early 2018 selected members revised the above-mentioned plan and established, based on a questionnaire conducted among the SSH personnel, board members and representatives of organisations, seven priorities that the Society would focus on until the end of the strategic plan. They are as follows:

1. *"To strengthen the organisational infrastructure to achieve our strategic priorities*
2. *To develop and pursue an advocacy agenda with health systems insurers, professional associations, select government agencies, industry, specialty groups and patient-based associations*
3. *To increase the depth and breadth and type of education offerings and materials and make greater use of online delivery, regional delivery, global access.*
4. *To innovate offerings and delivery at future IMSHs to meet the diverse needs of increasing attendance and to create the best possible user experience.*
5. *To advance simulation in healthcare globally.*
6. *To continue to facilitate the execution and publication of research that advances the use of simulation in healthcare. Repeat and expand on the process of the 2011 Research Consensus Summit to update the state of research and to identify future research priorities.*
7. *To extend the types of accreditations and certifications offered, among others, in the scope of innovations, fellowships, administrative and executive*"¹⁶.

The SSH Committee for Accreditation of Healthcare Simulation Programs has been also dealing with the process of accreditation of simulation centres since 2010 in order to secure high standards of medical simulation as offered by a given entity. The first centre to obtain such an accreditation was American College of Chest Physicians (ACCP) in 2013¹⁷. Since 2015, fifty-four programmes in six countries have gone through the SSH accreditation process¹⁸.

The SSH Certified Healthcare Simulation Educator (CHSE) programme has been created, so that entities can:

- receive professional recognition of their specialised knowledge, skills, abilities and accomplishments in simulation education,
- receive international recognition of professional accomplishments,
- demonstrate skills and specialised knowledge to others.

Currently, the programme covers 1450 medical simulation centres from 30 countries¹⁹.

Summary

Simulation has existed for centuries, however, only recently has it started to have a big influence on healthcare. There is a need to introduce changes in nursing training in order to facilitate for the students the transfer of the theoretical knowledge to the clinical context and to develop necessary personal skills. Simulation classes efficiently help nursing students to construct better organised communication and develop increased self-confidence. As the results of research show, simulation is an effective teaching method. It contributes to better results of patient treatment and to the improvement of the safety culture among the nursing staff²⁰.

All the above-mentioned organisations support and shape globally the development of medical simulation in the education of nurses. The development of technology in today's world causes that thanks to 'one click' we gain access to rich contents, guidelines and data on how to use medical simulation effectively in the context of nurse training. However, as educational experience suggests, that is not enough, as the main function in this educational process is played by teachers who must have a thorough factual training in running the courses, confirmed by appropriate certification. You cannot overestimate the attitude of permanent need for improving the educational qualifications of the teachers in the scope of medical simulation in order to achieve the best possible effects.

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