

EDITORIAL

High-fidelity simulation: Who has the most impressive laboratory?☆



La simulación de alta fidelidad: ¿quién tiene el laboratorio más impactante?

The last decade could be defined as the “baby boom” of simulation as multiple laboratories have emerged, first in universities and soon after in hospitals, in response to strong marketing campaigns, but also as a result of it being ‘in fashion’, which is a reason for the “call for papers” in various prestigious scientific publications.

Simulation includes a variety of educational techniques in which the participants have the opportunity to practice a process of active learning in an environment that mimics the clinical setting, and to experience situations that are similar to real-life but without putting patient safety at risk.¹

The profile of the users we attend has changed; on the one hand, we find older patients with more co-morbidities who require more complex and technological care and who are better informed and protected by the various patient safety measures; on the other hand, we are seeing changes in the nursing profession associated with access to master's and doctorate degrees, which has enabled research in nursing care to be transferred to clinical practice. All this justifies the training of professionals by means of simulation, as we, the Catalan universities, have already defended in our position paper in favour of the simulation as a training and evaluative methodology in the Nursing Degree.² Thus, nowadays, it is unthinkable that the nursing or medical student, or the resident or inexperienced professional, would practice for the first time in a real patient environment without first having trained on a manikin.

Simulation allows health professionals to be trained and evaluated in an environment that imitates the clinical surroundings, centred on the professional-student, and

with immediate *feedback* from teachers-facilitators, to encourage the development of technical skills (procedures) and non-technical skills (decision-making, critical thinking, intra- and inter-professional communication, and team-work). All of this is from a uni- and inter-disciplinary focus throughout their academic training.³

There are different types of simulators. Perhaps the one most widely used for many years⁴ is the *task trainer*, static manikins that do not interact with the student but simulate different body parts of a patient, to acquire technical or psychomotor skills. A more recent development is the high fidelity simulator, known as *Human Patient Simulators*. These are computer controlled manikins which interact with the students to imitate patient care in the corresponding clinical setting. The term “high-fidelity” does not only refer to the manikins’ level of technology, but also to the creation of a realistic professional environment.³ Therefore, when an actor is trained to simulate a patient (standardized patient, SP) in a clinical setting, this too is considered as high fidelity simulation, as is the use of hybrids (the combination of *task trainers* and SPs). Hybrids are needed when a simulated clinical situation includes patient examination that cannot be imitated by an SP, such as giving birth.

The *Human Patient Simulators*, SPs and hybrids are used: to acquire non-technical skills; when the aim of the simulation is to learn ‘problem solving’ and ‘evidence-based decision-making’; learning based on team training, (communication and team work team); or error training (patient safety).⁵

A plus for the *Human Patient Simulators* is that they allow the physiological changes which are secondary to the administration of medicinal products or other interventions (mechanical ventilation, chest tube, etc.) to be observed. However, they have a lesser capacity than the SPs to teach the skills needed for the clinical interview, because they lack non-verbal communication and also, the technological environment (microphones and cameras) can cause anxiety in some participants.

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Driven by the trend in recent years to invest in simulation, universities and hospitals have high-fidelity simulators that are "highly" underused.⁶ This is due to deficiency in teacher training, not only with regards to the technical management but also in the theoretical framework which supports the simulation, a teaching methodology that must be implemented with respect to the models and protocols, and the objectives they entail, so as to ensure effective teaching. Without this pedagogical training you can "play-act" but not simulate the clinical setting according to its role and organizational complexity, and for the professional, this is an activity that is interesting depending on the personal characteristics.

Consequently, due to the economic cost involved in the high-fidelity simulation laboratories, the current debate is: does simulation serve to improve patient care? The systematic review of Khanduja et al.⁷ showed that few studies assess whether training using simulators achieves level 4 in the Kirkpatrick⁸ hierarchy, when it produces a benefit in patient care.

To be able to transfer the knowledge, skills and attitudes acquired by simulation to the clinical practice it is recommended:

- To integrate the training in the academic curriculum according to the educational level of the participants (Degree, Master's, Continuing Education–*Life Long Learning*–).
- To implement the standards for the correct practice of simulation.⁹
- To respect the sociological fidelity in the inter-professional simulation, that is, for the scenario to reproduce the social factors involved in the clinical practice (hierarchy, power relationships, inter-professional conflict, and professional identity).¹⁰

Since negative attitudes between professions develop early in the Degree education,¹¹ an inter-professional education is recommended. This trains nurses and physicians together in order to reduce the influence of what is known as the hidden curriculum on the nurses, i.e. a set of unintended messages that work at an institutional and cultural level, and which are the cause of the disconnection between what the nurse learns in the university and what he/she experiments in the professional practice.

In this sense, it is recommended to select professionals for the simulation who have comparable levels of experience, and to assign tasks to team members based on their professional "expertise". The inter-professional simulation must respect the usual ratio of professionals in the clinical practice, and all the roles represented must be present for the scenarios to have sufficient realism. To imitate reality, the physician assumes the role of leader while the nurses take responsibility for medication, procedures, monitoring and registration.

This may lead to the emergence of leadership conflicts in the simulation, when the doctor and the expert nurse compete for this role of leader. This simulated scenario is an ideal situation to train communication strategies, such as those proposed by the team TeamSTEPPS[®],¹² closed-loop communication, a communication model in which *feedback* is the key element.

Here are some examples:

- look a person straight in the eyes when talking
- nod to show that you understand the orders
- verification from the receiver to ensure he/she has received and understood the order properly
- express aloud all the information that is considered important so that all team members hear and understand the information presented.

The Two-Challenge Rule is a way to manage conflict between team members, to ensure adequate communication in situations where the initial information has been ignored for some reason. It involves showing the issuer to be responsible for advocating and asserting his/her statement in a loud, clear voice, at least twice, to ensure that it has been heard. The team member who is being challenged must acknowledge, and if the outcome is not acceptable it obliges the issuer to take a stronger course of action or resort to the chain of command (consult a supervisor). This tool tries to train all team members to stop the course of action if any of them think that there is a safety breach that could affect the patient.

These tools can be useful in managing the inter-professional conflict, when some members of the team assume roles for which they are not trained and do not listen to the input from other members, based on their clinical experience and judgement rather than on a hierarchical distribution according to professional category.

Simulation can ultimately influence the tribalism of the professions, i.e. the tendency of the various professions to act in isolation from or even in competition with each other, and with the training of teamwork, to improve patient care.

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M. Raurell-Torredà (RN, PhD)^a,
R. Gómez-Ibañez (RN, PhD)^b, Members group GRISCA
(Research Group in Simulació a Catalunya i Andorra)
^a *Universidad de Barcelona, Barcelona, Spain*
^b *Universidad Autónoma de Barcelona, Barcelona, Spain*