



## LETTER TO THE EDITOR

### Patient safety, what does clinical simulation and teaching innovation contribute?



### Seguridad del paciente, ¿qué aportan la simulación clínica y la innovación docente?

We have read with pleasure the interesting article published in *Medicina Intensiva*, “Patient safety: what do clinical simulation and educational innovation contribute?”<sup>1</sup> The authors focus on the use of clinical simulation to enhance and improve patient safety, an issue with which we agree; however, we want to contribute that simulation currently, and in the future has in the undergraduate education of medical students.

The introduction of simulation mannequins served as a complement to medical education since 1960. In the United States and Canada, the Resusci Anne mannequin was implemented to teach mouth-to-mouth resuscitation and later evolved for the practice of cardiopulmonary resuscitation. Another mannequin, the SIM 1, was used in the 1960s for other educational purposes, as it included blinking eyes, pupils capable of changing size, a jaw that could open, and palpable carotid and radial pulses.<sup>2,3</sup>

Until recently, it was noted that in Spain, medical students received training through clinical simulation in a testimonial manner.<sup>4</sup> However, we should mention that, in certain medical schools and teaching hospitals, simulation was introduced many years ago, and currently, we are experiencing a time when a portion of the investment in many educational centers is precisely focused on it. At hospital level, one of the first groups of intensivists interested in simulation as an educational tool was the group from Santander, with the so-called Center for Emergency Medicine Studies (CEMU), created in 1987. Quesada Suescun et al. created a school, and their magnificent center grew, which eventually led to the current Hospital Virtual Valdecilla (HvV).<sup>5</sup> In medical schools, one of the first one to have a permanent Simulation structure was Valladolid, which created in 1995 four 40 m<sup>2</sup> spaces dedicated to it. Currently, we have more than 200 m<sup>2</sup> with 3 high-complexity simulation rooms, 1 low-complexity and early clinical immersion simulation room, 3 debriefing rooms, 2 offices, and 2 control centers. In them, cases of emergencies and urgencies are recreated, such as stroke intensive care, heart attack, intoxication,

sepsis, polytrauma, hypoglycemia, seizures, dyspnea, heart failure, anaphylaxis, cranioccephalic trauma, digestive hemorrhage, smoke inhalation, or tachycardia, for 4th-, 5th-, and 6th-year medical students and, from the next academic year 2024–2025, for 3rd-year students.

In 2023, the Ministry of Health urged medical schools to increase the number of students by 706 per year. It is unquestionable that Simulation Centers in faculties and hospitals will play an essential role in complying with this mandate, as they allow reducing the number of students in hospitals and enable the analysis and training in decision-making in the face of a clinical problem.<sup>6</sup> Additionally, simulation will be a tool that will shape the next era of postgraduate medical education, patient safety, and recertification of medical professionals.<sup>1,2</sup>

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### Conflicts of interest

None declared.

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## Reply to “Patient safety, what does clinical simulation and teaching innovation contribute?”



### Respuesta a “Seguridad del paciente, ¿qué aportan la simulación clínica y la innovación docente?”

Dear Editor,

We are writing in response to the letter submitted by our colleagues, Dueñas-Ruiz et al.,<sup>1</sup> in which they express their agreement with our recently published article, entitled: “Patient safety, what does clinical simulation and teaching innovation contribute?”<sup>2</sup> and highlight the importance of clinical simulation as a teaching strategy in the field of medical education. We are pleased to learn that there is consensus on the points raised by the authors. In our country, an increasing number of Faculties of Medicine are integrating clinical simulation into their medical teaching programs with the objective of providing students with secure practical experiences that emulate the reality they will encounter when interacting with patients. This increase is due in part to the growing emphasis being placed on patient safety as a fundamental concern in our profession.<sup>3</sup> However, the integration of simulation in the study plans in Medicine requires a gradual approach consistent with a series of objectives and competencies clearly defined in the training program. The *ad hoc* use of simulation that increases the teaching burden without achieving palpable results should be avoided.<sup>4,5</sup> Consideration is also required of the importance of adapting the simulation exercises to the rhythm and learning capacity of the student and the possible need for repetition.<sup>6</sup> Lastly, a key aspect of simulation is the feedback it offers the teacher which, if effective, will contribute to modifying performance, molding skills and knowledge, stimulating learning and contributing to creating the professional identity of the student. A poorly executed simulation exercise can result in deficient learning and may be lived as a negative emotional experience, leading to future rejection and distrust towards the profession in the future. As a complement to the use of advanced mannequins, high-fidelity simulators or actors, online simulation or enhanced virtual reality strategies may be considered as alternatives that are well accepted by the students and offer unlimited opportunities to practice

and perfect skills in a risk-free environment, reducing the costs associated with the use of facilities and sophisticated equipment that require additional staff. Game-based learning allows for the addition of game elements in non-leisure settings, encouraging engagement and increasing enthusiasm among participants. In this regard, we have so-called serious games (interactive software applications that pose a challenge and incorporate some scoring mechanism, affording practical knowledge, skills or attitudes in the real-life scenario) and gamification (a strategy that can be described as a leisure thinking process with game mechanics that seek to engage users and solve problems). The use of these tools provides medical students with a pleasant and attractive immersion experience that moreover improves the study results.<sup>7</sup>

In sum, the integration of clinical simulation into undergraduate programs is highly desirable, as it will guide students towards safe and effective future practices when faced with solving patient problems. Many effective and complementary techniques can be used, provided the objectives are clearly defined and the teacher is well-trained in their use.

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