

Pediatrics research using clinical simulation

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Following the recent editorial by F. Ferrero,¹ we recognize his earnest request to comply with ethical safeguards in research and offer a practical proposal. The aim of this article is to highlight the value of clinical simulation in research and its ability to address the important difficulties and concerns discussed in the aforementioned article.

Clinical simulation can be very useful—not without risk, but with a very low risk—to generate important research and thus contribute to the knowledge that will result in improvements in the care of pediatric patients. As an example of this, there was an article published² in this journal which, shortly after being published, was included by the European Resuscitation Council in the argumentation of a section of the pediatric life support guidelines that was mentioned in that article (depth and frequency of chest compressions).³

Perhaps one of the most striking advantages of clinical simulation is its ability to replicate difficult or unusual clinical situations. However, clinical simulation is not only useful for the technical aspects of health sciences. It also helps to develop skills that are sometimes underestimated: the ability to make quick and effective decisions under pressure, to communicate clearly and empathetically with patients, to work as a team and, most importantly, to learn from mistakes.⁴

In addition, clinical simulation also confronts us with the reality of a science that is not exact, such as medicine, exposes us to uncertainty, and encourages us to be creative. Likewise, it is an opportunity to break down the barriers of experience and provide a safe environment to test, experiment, and learn without fear of causing tangible harm to the patient. All these attributes are present both for individuals participating as students and also in the challenge for the facilitator (the person in charge of the simulation activity).

These characteristics mean that many situations that involve great complexity of execution or the exposure of participating subjects to potential harm, may be developed through investigations with patient simulation, in a safer and more feasible setting. In this regard, many studies related to emergency actions in pediatric patients are hindered by the need to obtain the corresponding informed consents or allocation to a placebo group. Precisely in relation to this, here we mention several examples where clinical simulation was a valuable setting for research.

Our group generated, through clinical simulation, evidence on the behaviors of resident physicians facing violent mothers,⁵ prescribing errors during resuscitation,⁶ use of an app to reduce prescribing errors,⁷ recognition and

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treatment of anaphylaxis,⁸ depth of chest compressions during resuscitation,⁴ fatigue during chest compressions,⁹ communication of medical errors,¹⁰ and airway management during respiratory arrest.¹¹

In all these experiences, a common feature is the difficulty that would have arisen if, as investigations, they had been planned to be carried out on real patients and/or in real situations. Even assuming the limitations of the simulation scenario, its results and conclusions can be added to the body of published evidence on each case and serve as a basis for reflection and, eventually, be used as a basis to change actions.

It is important to emphasize that, although clinical simulation does not involve real patients, the participating staff (healthcare providers) may become research subjects, so that the activity, if it is understood as an investigation, should include the administration of informed consents and the approval by an ethics committee.

To conclude, we would just like to emphasize that the nature of this article is to excite readers to have a desire to investigate and to do so with clinical simulation. If you have never done so, we hope to encourage you to explore this world of possibilities and overcome the risks of potential harm to real patients or ethical conflicts in pursuit of the benefits over the acquisition of knowledge on pediatric health. ■

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