

# How to Facilitate Simulation in Telemedicine in the COVID Era

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## ABSTRACT

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## The Challenge

Health Care Simulation is widely used to train healthcare professionals as it contributes to long-term retention of acquired complex technical, clinical and teamwork skills when compared to traditional learning methods. In addition, translational science research shows that measured outcomes transfer to improved patient care practices, and improved patient and public health [1]. Health Care Simulation follows experiential learning theory that proposes that a two-dimension cycle is necessary for learning to occur. The first dimension represents perception, where the learner begins by either grasping a concrete experience or a concept. The second dimension represents processing, where the learner transforms the experience by reflecting on it and the concept by actively experimenting on it [2]. To complete this cycle, learners and educators usually get together on site to participate in highly interactive, high-fidelity clinical scenarios using mannequins, actors, task trainers or a combination of them, followed by debriefing [3]. But the rapid development of technology-assisted learning methods, which are on the rise since the coronavirus (COVID-19) pandemic in order to help reduce the transmission

risk among professionals, opens up new alternatives for distance experiential learning [4].

The best approach to carrying out clinical simulation activities in this context remains to be elucidated. Several solutions are proposed to fit the pieces in a suitable way that would allow professionals to continue with their training activities and, at the same time, to serve the clinical safety of the participants, avoiding, as far as possible the spread of the disease. They include a variety of simulation based asynchronous (e.g. recorded videos, vignettes, serious games) and synchronous (e.g. webinars, team collaboration) methods. They recreate the clinical environment with a different level of fidelity and learner personal engagement in combination with reflection strategies in combination with reflection strategies [5]. Moreover, innovations in healthcare simulation technologies can now provide the learner with opportunities to practice increasingly complex motor, decision-making and communication skills using virtual patient simulation. They recreate dynamic health conditions in a variety of clinical settings that respond to user interventions and show improvements in learning satisfaction when compared to a case-based learning approach [6].

## Where to Start

The basic principle is to generate a training tool that maintains the essence of the simulation as a clinical practice that allows participants not to be in the simulation room in person in order to guarantee their safety in the midst of the COVID 19 pandemic. We have developed in Spain a model of distance clinical simulation in Valdecila Virtual Hospital, suitable for emergency physicians and we have proved in staff and also in internal medicine resident's program [7] obtaining promising perspectives. This model can achieve positive results using distance clinical simulation combining their traditional simulation technology to address the training needs of healthcare organizations.

## The Goal

Using virtual patient simulation to provide simulation-based distance learning experiences that are extremely realistic and highly interactive for the learner remains a challenge. Communicating with patients, family members and healthcare workers, performing physical examination on patients, monitoring of physiological parameters, evaluating complementary examinations in an actual clinical environment are all constricted by mathematical algorithms and software capabilities. A mix of synchronous on-site/on-line distance learning methods may address aspects of the richness and complexity of a true clinical experience and facilitate reflection on action promoting participant engagement, while limiting exposure to infectious diseases during a pandemic. Distant learning combining on site simulation technology with teleconferencing software based on experiential learning principles is feasible and easy-to-implement, and is well-accepted by participants for acute care training in the emergency room. The promising results of this new approach of "taking care of patients from a distance" can be useful not only during a pandemic, but also in our daily work because surely this new model will be able to facilitate future learning courses in the health field.

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## Conflict of Interests

The authors declare that they have no financial relationship with any commercial company of products or services related to simulation. Valdecilla Virtual Hospital is affiliated with the Center for Medical Simulation, Boston, USA. Both are non-profit, charitable, educational institutions offering tuition-based clinical and educator training programs.

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