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LETTER TO THE EDITOR

Letter to the Editor: "Human Patient Simulation: Educational Issues and Practical Implications in COVID-19 Times"



LETTER:

oronavirus disease 2019 (COVID-19) looks set to be one of the **C** most terrible pandemics regarding the numbers of contaminated persons, mortalities, and the phenomenal interest in healthcare services. The monetary outcomes from organizational shutdowns have been estimated, with conflicting results. In addition, school closures have become a reality. Also, experts have estimated that quarantine and social isolation could be required for up to 18 months, with these requirements being eased or becoming more restrictive, depending on the demand for intensive care unit beds.¹ For the current pandemic, models are required to manage the exit from lockdowns universally without overburdening medical clinics with a second peak of infected patients. In addition, a need exists to routinely refresh the models for intensive care units and clinics to assess for new dangers from COVID-19 infections in accordance with previous findings. The ability to adapt to new environments and maintain safety and quality is necessary to ensure compliance with established goals. Especially during the current pandemic, medical simulation has become a key part of medical training in many medical schools worldwide.2,3

The COVID-19 pandemic has resulted in many changes in our daily lives. We have continued to experience the impact on medical practice, and it has been necessary to adapt to new environments to continue to ensure the safety of our patients and ourselves and other healthcare workers and to maintain the effectiveness of our treatment. This pandemic has also affected medical education, which, traditionally, has usually involved contact with patients. During the COVID-19 pandemic, medical students in many countries have been forced to leave the hospitals where they were performing their clinical rotations. This has led universities to develop and implement educational strategies and innovations for their students to mitigate the effects COVID-19 has had on medical education.⁴

Simulation is a strategy, not an innovation, to supplant or virtually create genuine encounters with predefined objectives to bridge the gaps in present reality in an intuitive manner.² The initial phase in building a simulation is to determine the general reason and objectives for the simulation; for example, determining the ideal system or strategy for the simulation. Because we know the educational and learning techniques required by important examinations, although an ideal simulation system might not exist, most simulations have followed a comparable plan. The COVID-19 pandemic has provided a unique opportunity for the use of simulations, building on their strengths. The use of simulations has tremendous potential to help manage the worldwide COVID-19 emergency in 2020 and, conceivably, comparative future

pandemics. The use of simulations could quickly encourage emergency clinic readiness and can provide instruction from huge numbers of medical service experts to students at different levels. Simulations have demonstrated their effectiveness in numerous settings. Simulations could also be used to educate persons through experiential learning to increase the workforce available.⁵⁻⁸ Therefore, universities must assertively engage in simulation development and technology integration to optimally acquire the resources necessary and prepare protocols required to implement such programs on their campuses.⁹ With a comprehensive approach, the use of simulation could help alleviate the negative effects of the COVID-19 emergency and, conceivably, could be used in future emergency circumstances.

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REFERENCES

- Ferguson N, Laydon D, Nedjati-Gilani G, et al. Impact of non-pharmaceutical interventions (NPIs) to reduce COVID-19 mortality and healthcare demand. Imperial College COVID-19 Response Team. Available at: https://www.imperial.ac.uk/media/ imperial-college/medicine/sph/ide/gida-fellowships/Imperial-College-COVID19-NPImodelling-16-03-2020.pdf. Accessed March 16, 2020.
- 2. Gaba DM. The future vision of simulation in health care. Qual Saf Health Care. 2004; 13(suppl 1):12-110.
- Cohen L. Medical simulation is the wave of the future, U of O doctors say. Can Med Assoc. 1999;160:557.
- 4. Valdez JE, Eraña IE, Díaz JA, Cordero MA, Torres A, Esperón RI. El papel del estudiante de medicina ante la pandemia de COVID-19: Una responsabilidad compartida. Cir Cir. 2020;88:399-401.
- Speirs C, Brazil V. See one, do one, teach one: is it enough? No Emerg Med Australas. 2018;30:109-110.
- Lavelle M, Reedy GB, Attoe C, Simpson T, Anderson JE. Beyond the clinical team: evaluating the human factors-oriented training of non-clinical professionals working in healthcare contexts. Adv Simul (Lond). 2019;4:11.
- Brazil V, Purdy EI, Bajaj K. Connecting simulation and quality improvement: how can healthcare simulation improve patient care? BMJ Qual Saf. 2019;28:862-865.
- Dieckmann P, Torgeirsen K, Qvindesland SA, Thomas L, Bushell V, Langli H. The use of simulation to prepare and improve responses to infectious disease outbreaks like COVID-19: practical tips and resources from Norway, Denmark, and the UK. Adv Simul. 2020;5:3.
- 9. Fong ZV, Qadan M, McKinney R, et al. Practical implications of novel coronavirus COVID-19 on hospital operations, board certification, and medical education in surgery in the USA. J Gastrointest Surg. 2020;24:1232-1236.