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381 Prospective Randomized Crossover Study Evaluating the Comparative Effectiveness of Telesimulation versus Standard Simulation for Teaching Medical Students the Assessment and Management of Critically Ill Patients

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Study Objective: To evaluate the comparative effectiveness of telesimulation vs. standard simulation in teaching medical students how to evaluate and manage critically
ill patients.

Methods: We conducted a prospective, randomized crossover study of 32 fourthyear medical students at a university medical simulation center. Students were oriented to the human patient simulator, then randomized to the standard simulation (SIM) or telesimulation (TeleSIM) group between September 2014 and February 2015. The SIM group experience included participating in a live, fully immersive simulation case followed by a group debriefing with an instructor/moderator, their SIM cohort, and a live TV internet connection to the TeleSIM group that was observing their scenario. The TeleSIM group experience included remotely observing the live simulation case at an offsite location, followed by a shared group debriefing with their instructor/ moderator, their TeleSIM cohort, and a live TV internet connection to the SIM group that participated in the scenario. All subjects' assessment and management skills were then evaluated with a written evaluation tool. During a second instructional session, the students crossed over and participated in a different simulation case using the opposite modality (if they were previously in the SIM group, they were crossed to the TeleSIM group, and vice versa) and similar assessments were conducted. Mean evaluation scores of the groups were calculated along with 95% confidence intervals and were analyzed via linear regression, conditional on the student and controlling for simulation case. Our secondary outcome was a survey evaluating the perceptions and attitudes the participants held between the two simulation modalities (TeleSIM vs SIM).

Results: Of 33 eligible students, 32 participated in the study (97.0%). We found no significant difference in the mean evaluation scores of the two groups; SIM group mean 96.6% (95% CI 94.5 - 98.6) and TeleSIM group mean 96.8% (95% CI 94.8 - 98.9). The odds ratio for the SIM group having a higher evaluation score was 0.82 (95% CI 0.29 - 2.26). We also found no significant difference in the favorability of teaching modality (TeleSIM vs. SIM) on the survey. The mean score on the survey that used a five-point Likert scale was 4.78 (95% CI 4.73 - 4.83) for the SIM group and 4.82 (95% CI 4.77 - 4.88) for the TeleSIM group.

Conclusion: In our prospective randomized crossover study evaluating the comparative effectiveness of telesimulation vs. standard simulation, we found no significant difference in evaluation scores amongst the two groups. There was also no significant difference found in the favorability of one teaching modality over the other on a post educational session survey. Our data support and highlight the capability of telesimulation to provide educational benefit to learners who do not have direct access to simulation resources.