

A Pilot Study of Multiple Simultaneous Critical Care Simulations

Due to the dynamic nature of patient care on hospital wards and in the intensive care unit (ICU), critical events can occur in different patients simultaneously, and inappropriate triage and management of such patients can lead to adverse outcomes. There is a paucity of literature to guide the training of physicians on the triage and stabilization of multiple critically ill patients simultaneously.¹ We present a simulation curriculum in which several cases are run simultaneously to train residents in the triage and management of multiple simultaneous critical events.

In our pilot study, 10 postgraduate year (PGY)-2 internal medicine residents at Massachusetts General Hospital participated in a simulation session in which 3 critical care cases were run simultaneously. Learners were divided into groups of 3 or 4, and the session consisted of a 30-minute simulation followed by a 30-minute debriefing. The debriefing session emphasized complex task switching, triage, and the management of hemodynamically unstable patients.

Following the session, learners were asked to evaluate the effectiveness of the session on a 5-point Likert scale and to indicate whether simultaneous simulation was more, less, or equally effective than sequential-case simulation. Learners were also asked the advantages and disadvantages of simultaneous simulation compared with sequential simulations.

The study was approved by the Partners HealthCare Institutional Review Board.

A total of 10 PGY-2 internal medicine residents participated in the simulation, and 9 (90%) completed the survey. Eight respondents (89%) reported that the simultaneous case format is a more effective way to practice clinical skills that are utilized in the ICU compared with the standard sequential-case format. Seven residents (78%) indicated that they learned more from running multiple cases simultaneously than they learned from sequential-case simulation. Residents commented that this format was “more realistic” than sequential-case simulation and allowed them to “build skills in multitasking,” a critical component of managing hospitalized patients. Learners noted that while this format was effective for learning, there was less time available for debriefing about the

management of each case than there was during sequential-case simulation.

Deliberate attempts to improve physicians’ skill sets can lead to positive results. Practicing complex task switching, for example, can reduce the amount that learners’ performance suffers when asked to multitask.² Simulation has previously been used to improve physician performance and patient outcomes in the resuscitation of critically ill patients.^{3,4} Training learners to manage multiple complex and critically ill patients simultaneously may improve their ability to perform on both a hospital ward and in the ICU environment. A critical component of such a curriculum is the discussion of a framework for the triage and management of multiple simultaneous critical events during the simulation debriefing. Further studies are needed to assess the impact of simultaneous simulation on both patient and learner outcomes in the ICU and ward settings.

TRACI N. FRASER, MD

Resident, Department of Medicine, Massachusetts General Hospital, Harvard Medical School

MICHAEL GENUARDI, MD

Resident, Department of Medicine, Massachusetts General Hospital, Harvard Medical School

STEPHEN A. MCCULLOUGH, MD

Resident, Department of Medicine, Massachusetts General Hospital, Harvard Medical School

GRACE PELOQUIN, MD

Resident, Department of Medicine, Massachusetts General Hospital, Harvard Medical School

PAUL F. CURRIER, MD

Assistant Professor of Medicine, Department of Medicine, Massachusetts General Hospital, Harvard Medical School

ELI M. MILOSLAVSKY, MD

Instructor in Medicine, Department of Medicine, Massachusetts General Hospital, Harvard Medical School

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