

Multiple Casualty Simulation Scenario Secondary to Natural Disaster at a Music Festival

Stephanie Cohen, DO; Robert Pell, MD; Casey McGillicuddy, MD; Nidhi Sahi, MD; Ariel Vera, MD; Steven Nazario, MD; Andrew Bobbett, MD; Rebecca Beiler; Noe Navarro; Latha Ganti, MD, MBA; Shayne Gue, MD, MSMEd

Background

Communication plays a significant role in medicine, especially in the emergency department. Using simulation will teach learners how to actively listen, delegate roles, and effectively engage with the entire team despite the continuous distractions. This simulation adds innovative value as the elected team leader is blindfolded and therefore must rely solely on team member communication to effectively triage, manage, consult, and appropriately determine the patient's disposition.

Objective

To assess the effectiveness of team communication towards triage, assessment, and management of multiple trauma patients during a mass casualty simulation (MCI) and develop confidence for future real-life applications.



Curricular Design

Learners will begin in a group and should assign roles amongst themselves to manage a critical pediatric patient during a shift in the emergency department. During a simulated earthquake, the team leader is affected by dust and is blindfolded for the rest of the scenario. Three patients will arrive with various traumatic injuries from a nearby music festival. The team will need to quickly assess, stabilize, treat, and disposition these patients appropriately for immediate surgical intervention. During the debrief, the blindfolded team leader should be asked to explain their understanding of each patient's clinical course which can be compared to the non-blindfolded team members in order to determine the accuracy of communication between the team during the MCI. To assess the utility of this project, a pre and post questionnaire to evaluate their knowledge, confidence, and engagement was obtained.

#1 - Pediatric Asthma Exacerbation

#2 - Tension Pneumothorax

#3 - Open Head Injury & Penetrating Neck Injury

#4 - Penetrating Abdominal Wound & Lower Extremity Amputation

Impact/Effectiveness

Image 1 demonstrates there was a significantly greater confidence in their ability to handle an MCI in the post than the pre-test, Mann-Whitney U = 227, p<0.05.

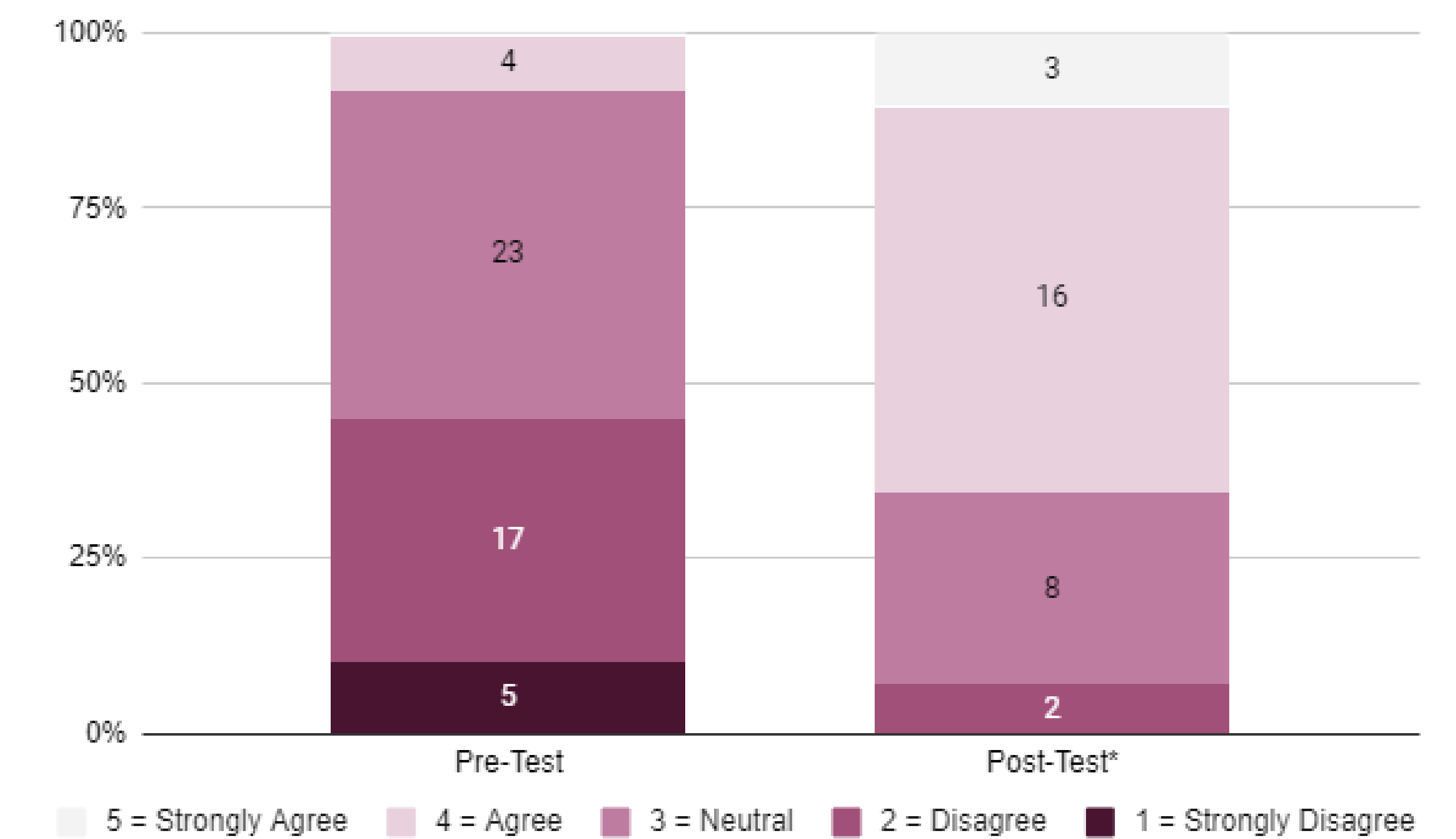


Image 1. Frequency counts to the Likert-scale "I am confident in my ability to handle an incident such as this" before and after the MCI simulation.

*Statistical significance (Mann-Whitney U = 227, p<0.05.)

References

- Schenk E, Wijetunge G, Mann NC, Lerner EB, Longthorne A, Dawson D. Epidemiology of mass casualty incidents in the United States. *Prehosp Emerg Care*. 2014 Jul-Sep;18(3):408-16.
- DeNolf RL, Kahwaji CI. EMS Mass Casualty Management. 2022 Oct 10. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-.
- McElroy JA, Steinberg S, Keller J, Falcone RE. Operation continued care: A large mass-casualty, full-scale exercise as a test of regional preparedness. *Surgery*. 2019 Oct;166(4):587-592.
- CRED. 2022 Disasters in Numbers. Brussels: CRED; 2023. Available from: https://cred.be/sites/default/files/2022_EMDAT_report.pdf (Last Accessed on 19 Nov 2023).
- FEMA. Homeland Security exercise and evaluation program. <https://www.fema.gov/emergency-manager/national-preparedness/exercises/hseep>.
- Gue S, Cohen S, Tassone M, et al. Disaster day: a simulation-based competition for educating emergency medicine residents and medical students on disaster medicine. *Int J Emerg Med*. 2023 Sep 13;16(1):59.
- Gue S, Ray J, Ganti L. Gamification of graduate medical education in an emergency medicine residency program. *Int J Emerg Med*. 2022 Aug 30;15(1):41.
- Moran ME, Zimmerman JR, Chapman AD, et al. Staff Perspectives of Mass Casualty Incident Preparedness. *Cureus*. 2021 Jun 23;13(6):e15858.
- Moran ME, Ballas D, Blecker N, et al. Evolution of a mass casualty drill design team: A program evaluation. *J Emerg Manag*. 2021 Jul-Aug;19(4):367-377.
- Bentley S, Iavicoli L, Boehm L, et al. A Simulated Mass Casualty Incident Triage Exercise: SimWars. *MedEdPORTAL*. 2019 May 10;15:10823.
- Ledbury K, Glasgow S, Tallach R. Learning From Simulating Mass Casualty Events: A Systematic Search and a Comprehensive Qualitative Review. *Disaster Med Public Health Prep*. 2022 Oct 14;17:e242.

