

Evaluating in situ Simulation in Critical Care: Insights From Healthcare Professionals [Response to Letter]

Tzu-Ching Sung¹, Hsiang-Chin Hsu^{2,3}

¹School of Medicine for International Students, College of Medicine, I-Shou University, Kaohsiung, Taiwan; ²School of Medicine, College of Medicine, National Cheng Kung University, Tainan, Taiwan; ³Department of Emergency Medicine, National Cheng Kung University Hospital, College of Medicine, National Cheng Kung University, Tainan, Taiwan

Correspondence: Hsiang-Chin Hsu, Department of Emergency Medicine, National Cheng Kung University Hospital, 138 Sheng-Li Road, Tainan, 70428, Taiwan, Tel +886-6-2353535 ext. 2237, Fax +886-6-2749095, Email i3593120@gmail.com

Dear editor

We read with great interest the letter by Dr Giglio et al concerning our recent article, “Improving Critical Care Teamwork: Simulation-Based Interprofessional Training for Enhanced Communication and Safety.”¹ We are grateful for their thoughtful insights and the valuable experience they shared from implementing in-situ simulation (ISS) in intensive care units. Their contribution not only highlights the benefits of ISS in enhancing contextual fidelity and addressing challenges such as unclear team roles and incomplete task allocation but also offers complementary perspectives that further enrich the discourse on interprofessional simulation in critical care.

We fully acknowledge that ISS offers unique advantages by embedding training within authentic clinical environments, enabling participants to rehearse teamwork using familiar equipment and workflows. This contextual authenticity fosters the development of shared mental models, strengthens collaboration, and enables the detection of latent safety threats that may go unnoticed in laboratory-based simulations.² For instance, a systematic review found that in situ simulation frequently identifies such threats—particularly regarding equipment and teamwork—and yields a high number of threats per scenario when leveraging multimodal feedback.² Another quality improvement initiative using ISS in a newly built ICU revealed and addressed 70 latent safety threats pre-launch, with follow-up showing sustained risk mitigation.³

Dr Giglio et al’s comprehensive mixed-methods evaluation, conducted six months post-intervention, further substantiates the sustainability of ISS outcomes, demonstrating ongoing improvements in communication, teamwork, and situational awareness.

At our institution, however, the feasibility of ISS is constrained by institutional realities. As a tertiary medical center, our ICUs are frequently overcrowded, with critically ill patients often boarding in the emergency department while awaiting ICU admission. Conducting ISS in these conditions risks further disrupting patient care. Consequently, we have primarily utilized a simulation skills center as our educational venue. To narrow the gap between simulation and actual practice, we incorporated authentic clinical equipment, including ventilators, defibrillators, sphygmomanometers, and real emergency medications, into our training sessions.⁴ This approach enhances environmental fidelity, thereby reducing the perceptual distance between the simulated environment and clinical reality.⁵

Another important distinction lies in the participant profiles. Dr Giglio’s cohort had an average of 9.6 years of professional experience, whereas our participants, postgraduate physicians from diverse specialties, had less than five years of practice. Despite clinical exposure, many have not yet developed strong interprofessional teamwork habits. To ensure structured collaboration and effective role performance, we intentionally assigned tasks and responsibilities to our team members in advance. This pedagogical strategy aligns with their developmental stages as novice team members.

Prior literature indicates that flat team structures can increase the risk of role ambiguity, as blurred hierarchies may obscure responsibility and reduce efficiency. For example, role ambiguity and conflict have been associated with decreased work satisfaction and impaired decision-making in healthcare teams.⁶ On the other hand, flat structures may provide benefits

such as faster decision-making, improved adaptability, and enhanced collaboration and creativity.^{7–9} Moreover, when combined with peer-assisted learning in high-fidelity simulation, flat structures have been shown to significantly enhance clinical competence, teamwork, and confidence among postgraduate trainees.¹⁰ These contextual differences highlight how participant experience levels and institutional environments inevitably shape the design of training.

We also emphasize that ISS and skill-based training are not mutually exclusive but complementary. ISS excels in identifying latent safety threats and strengthening team performance in authentic environments, whereas skill-based simulation provides greater flexibility in scheduling, accommodates larger multidisciplinary groups, and offers a safe space for novices to practice without disrupting patient care. The coexistence of both modalities can broaden the scope of interprofessional education and create a continuum of learning that supports healthcare providers at different stages of training and development.

Once again, we thank Dr Giglio et al for their constructive comments and for contributing to this important effort to put ISS in critical care. We share their view that the next step in simulation research should focus on rigorous, longitudinal evaluations linking training modalities, both in situ and laboratory-based, to long-term clinical outcomes. Such evidence will be pivotal in determining how best to integrate diverse simulation approaches to improve teamwork and, ultimately, patient safety, in the context of the current health care system.

Disclosure

The authors declare no conflicts of interest in this communication. This communication represents the author's personal views only.

References

1. Giglio A, Ferre A, Garcia J. Evaluating in situ simulation in critical care: insights from healthcare professionals [letter]. *J Multidiscip Healthc.* 2025;18:5271–5273. doi:10.2147/JMDH.S531343
2. Grace MA, O'Malley R. Using in situ simulation to identify latent safety threats in emergency medicine: a systematic review. *Simul Healthc.* 2024;19(4):243–253. doi:10.1097/SIH.0000000000000748
3. Sarwal A, Morris NA, Crumpler J, et al. Pragmatic approach to in situ simulation to identify latent safety threats before moving to a newly built ICU. *Crit Care Med.* 2024;52(7):e351–e364. doi:10.1097/CCM.0000000000006256
4. Sung TC, Hsu HC. Improving critical care teamwork: simulation-based interprofessional training for enhanced communication and safety. *J Multidiscip Healthc.* 2025;18:355–367. doi:10.2147/JMDH.S500890
5. West AJ, Kim B, Parchoma G. Towards an enhanced conceptualization of fidelity for instructional design in simulation-based respiratory therapy education. *Can J Respir Ther Fall.* 2017;53(4):69–74.
6. Johansen ML, Cadmus E. Conflict management style, supportive work environments and the experience of work stress in emergency nurses. *J Nurs Manag.* 2016;24(2):211–218. doi:10.1111/jonm.12302
7. Manser T. Teamwork and patient safety in dynamic domains of healthcare: a review of the literature. *Acta Anaesthesiol Scand.* 2009;53(2):143–151. doi:10.1111/j.1399-6576.2008.01717.x
8. Salas E, Wilson KA, Burke CS, Priest HA. Using simulation-based training to improve patient safety: what does it take? *J Comm J Qual Patient Saf.* 2005;31(7):363–371. doi:10.1016/S1553-7250(05)31049-X
9. Edmondson A. Speaking up in the operating room: how team leaders promote learning in interdisciplinary action teams. *J Manage Studies.* 2003;40(6):1419–1452. doi:10.1111/1467-6486.00386
10. Chiu PW, Chu SC, Yang CH, Lee HF, Hung HM, Hsu HC. Peer-assisted learning in critical care: a simulation-based approach for postgraduate medical training. *Med Educ Online.* 2025;30(1):2497333. doi:10.1080/10872981.2025.2497333

Dove Medical Press encourages responsible, free and frank academic debate. The content of the Journal of Multidisciplinary Healthcare 'letters to the editor' section does not necessarily represent the views of Dove Medical Press, its officers, agents, employees, related entities or the Journal of Multidisciplinary Healthcare editors. While all reasonable steps have been taken to confirm the content of each letter, Dove Medical Press accepts no liability in respect of the content of any letter, nor is it responsible for the content and accuracy of any letter to the editor.

Journal of Multidisciplinary Healthcare

Publish your work in this journal

The Journal of Multidisciplinary Healthcare is an international, peer-reviewed open-access journal that aims to represent and publish research in healthcare areas delivered by practitioners of different disciplines. This includes studies and reviews conducted by multidisciplinary teams as well as research which evaluates the results or conduct of such teams or healthcare processes in general. The journal covers a very wide range of areas and welcomes submissions from practitioners at all levels, from all over the world. The manuscript management system is completely online and includes a very quick and fair peer-review system. Visit <http://www.dovepress.com/testimonials.php> to read real quotes from published authors.

Submit your manuscript here: <https://www.dovepress.com/journal-of-multidisciplinary-healthcare-journal>

<https://doi.org/10.2147/JMDH.S563031>