

Evaluating in situ Simulation in Critical Care: Insights from Healthcare Professionals [Letter]

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Dear editor

We read with great interest Sung and Hsu's article on "Improving Critical Care Teamwork: Simulation-Based Interprofessional Training".¹ While they demonstrate valuable outcomes from laboratory-based simulation, our experience implementing in-situ simulation (ISS) in an intensive care unit offers complementary insights by bringing simulation directly into the clinical workspace, enhancing environmental fidelity and contextual learning.

Our center has conducted simulation-based education since 2018, with ISS as a cornerstone in training healthcare professionals.² A distinctive feature of our program is its comprehensive multidisciplinary approach, encompassing clinical professionals, technical staff, and administrative personnel.³ This inclusive strategy aligns with emerging evidence suggesting that effective healthcare delivery requires meaningful collaboration across all hospital staff levels.

While high-fidelity simulation is widely recognized as a valuable educational strategy, its impact on practicing healthcare providers remains understudied in critical care settings.³ There exists a significant gap in assessing real-world effects on trained professionals working in high-risk environments such as ICUs, particularly concerning given the complex nature of critical care delivery.

The findings by Sung and Hsu regarding interprofessional team communication and collaboration challenges are particularly relevant.¹ Our program deliberately addressed hierarchical barriers by including not only physicians and nurses but also nursing assistants, respiratory therapists, and other healthcare professionals (Figure 1). This inclusive approach helps address the "unclear team roles for collaboration" and "incomplete allocation of tasks" that Sung and Hsu identified as resulting from traditional hierarchical structures.

To systematically assess impact, we conducted a comprehensive mixed-methods analysis combining qualitative approaches with quantitative measures, including Likert satisfaction scales and an adapted Simulation Effectiveness Tool-Modified.⁴ Data collection occurred six months post-simulation with descriptive statistics and satisfaction scores analyzed using Excel 365. Response rate was 87% (61/70 participants). Mean experience years were 9.6 (\pm 7). Healthcare professionals showed high program satisfaction (recommending ISS: 9.45/10 \pm 1.1) and significant improvements in team communication and collaboration (4.36/5 \pm 0.8), emergency response capabilities (4.44/5 \pm 0.8), and patient safety promotion (2.6/3 \pm 0.5). Debriefing sessions were highly valued (2.85/3 \pm 0.3) for learning contribution, clinical judgment enhancement, and self-reflection opportunities (Figure 1). We use the PEARLS debriefing framework, focusing on learning objectives while actively identifying latent safety threats to develop or improve protocols that strengthen patient safety.

Beyond quantitative metrics, participants reported enhanced situational awareness, team coordination, and emergency response resilience without workflow disruption. Our experience suggests that regular ISS creates opportunities for developing shared mental models in authentic clinical environments. While Sung and Hsu identified challenges in creating shared understanding in laboratory settings,¹ the contextual authenticity of ISS may address these by allowing professionals to practice within their actual workspaces using familiar equipment and established team structures.³ An

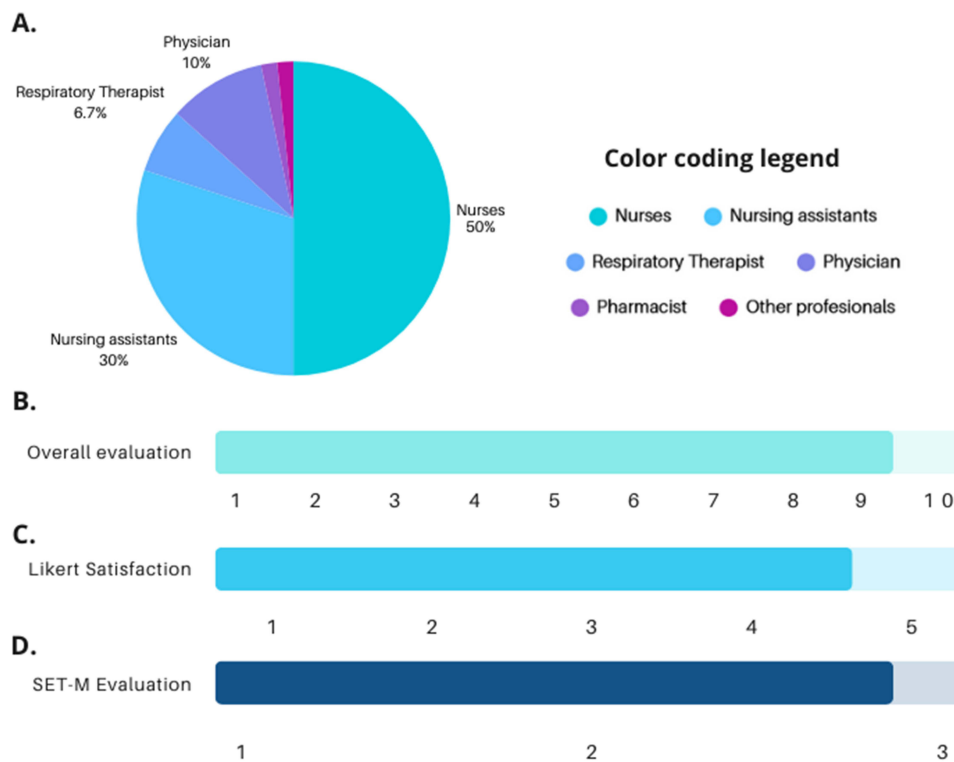


Figure 1 Participant Distribution and Program Evaluation Outcomes. **(A)** Professional distribution of participants. **(B)** Overall program evaluation score (1–10). **(C)** Likert satisfaction scale results (1–5). **(D)** SET-M evaluation outcomes (1–3).

Abbreviations: SET-M, Simulation Effectiveness Tool-Modified; SLT, Speech and Language Therapy.

experience that can be incorporated into their workflow without perceived disruption to patient care, as observed in other settings.⁵

The challenge, as identified by Sung and Hsu, lies not in proving simulation's value but in ensuring structured evaluation that addresses power dynamics and promotes lasting behavioral change.¹ Their findings on leadership communication challenges mirror our experience. Future research should examine long-term clinical outcomes as the ultimate measure of effectiveness. Through rigorous evaluation of diverse approaches—both laboratory and in situ—we can build stronger evidence for interprofessional simulation's impact on healthcare delivery and patient outcomes.

Data Sharing Statement

The data that support the findings of this letter are referenced in the article. The post intervention survey data is available upon reasonable request from the first and corresponding author. No information of patients was used in the development of this article.

Ethical Approval

The survey was approved by Finis Terrae University Ethics Committee ID 023-089 on December 2023.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

During the preparation of this study, the authors used Claude. AI to improve the redaction of this article. After using this tool, the authors reviewed and edited the content as needed and takes full responsibility for the content of the publication.

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