

Letter to the Editor

Simulation-based training for ICU nurses: a crucial investment

Sir,

The evolving complexity of critical care settings has placed increased demands on nursing professionals, particularly those working in intensive care units (ICUs). In this context, I would like to highlight the urgent need to integrate simulation-based training as a core component of ICU nurse education and professional development in India. Simulation offers a safe, reproducible, and learner-centric approach to mastering essential clinical competencies, and is no longer a luxury but a necessity in modern healthcare education.

Simulation-based training provides a controlled, risk-free environment where nurses can develop and refine both technical and non-technical skills. It bridges the gap between classroom learning and real-life patient care by allowing learners to practice high-risk scenarios such as cardiac arrest, sepsis, ventilator management, and code blue protocols without endangering patient safety. Recent

Indian studies have confirmed the effectiveness of such interventions. For instance, Agarwal et al. in 2024 demonstrated a significant improvement in CPR knowledge and performance among healthcare workers after structured simulation training in a tertiary care center in North India.¹

The Indian government and leading health institutions are beginning to recognize the value of simulation. The All India Institute of Medical Sciences (AIIMS), New Delhi, has initiated plans to establish the National Advanced Nursing Simulation Institute (NANSI) to provide standardized, high-quality simulation training for nurses in critical care settings.² Similarly, private sector institutions such as Narayana Health City have opened advanced simulation centers with a focus on nursing education.³ These initiatives mark important progress toward institutionalizing experiential learning in critical care nursing. As shown in Table 1 Various Barriers to Simulation Training in Indian Nursing Institutions.

Table 1: Barriers to simulation training in Indian nursing institutions.

S. no.	Barrier	Description
1.	High cost of equipment	Limited funds for high-fidelity simulators and simulation labs
2.	Shortage of trained faculty	Lack of simulation-trained nurse educators
3.	Inadequate curriculum integration	Simulation not formally mandated by most nursing councils
4.	Urban-centric access	Concentrated in tertiary care and private institutions
5.	Limited policy support	Few national guidelines or funding incentives

A 2023 survey reported that only 28% of Indian nursing colleges consistently use simulation-based education in critical care.⁵ Key challenges include the high cost of simulation equipment, lack of trained faculty, minimal policy enforcement by regulatory bodies, and limited access in rural institutions.⁶

Evidence continues to support simulation as a vital adjunct to clinical experience. Kaur and Dhingra in 2024 found that scenario-based ventilator simulation improved skill accuracy and confidence among North Indian ICU nurses.⁷ Global literature also supports simulation's role in reducing medical errors and improving teamwork in high-risk environments.^{8,9}

To improve adoption across India, we recommend the following.

Development of low-cost simulation models (e.g., OSCEs, hybrid models) suitable for rural and resource-limited settings. Regional simulation hubs to decentralize access to high-fidelity tools. Mandatory inclusion of simulation training in Indian Nursing Council (INC) curricula for M.Sc. and post-basic ICU nursing. Faculty development programs to train simulation instructors in both public and private institutions.

However, access to simulation training remains limited and unevenly distributed. Rural and government hospital settings often lack simulation infrastructure, trained facilitators, or policy support. High equipment costs and insufficient curriculum integration are additional barriers.

To address these challenges, the adoption of scalable, cost-effective simulation strategies such as low-fidelity

models, scenario-based role plays, and mobile simulation units should be prioritized. In addition, nursing regulatory bodies like the Indian Nursing Council (INC) and state councils should mandate simulation-based clinical training as part of continuing professional development (CPD) and postgraduate critical care nursing programs.

Simulation-based training represents a transformative approach to ICU nurse education, offering hands-on, experiential learning that enhances clinical competence, decision-making, and patient safety. As critical care demands continue to rise in India, integrating simulation into nursing education is no longer optional it is essential. Strategic investment, curriculum integration, and policy-level support are urgently needed to ensure that all ICU nurses, regardless of geographic or institutional setting, are adequately prepared to deliver high-quality, safe critical care.

Neha Rai*

Department of Nursing, AIIMS Jodhpur, Rajasthan, India

***Correspondence to:**

Neha Rai

Email: neharai2429@gmail.com

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