

Designing the Future of Healthcare Training

Skill Training in Virtual Reality (STRIV) & Virtual Reality Simulation Lab (VRSL)



Problem Statement

Healthcare education worldwide remains constrained by **inadequate hands-on training, high resource demands, and patient safety risk**, leaving graduates underprepared and creating inequities in access to quality training — a gap that urgently requires innovative, scalable, and sustainable solutions.

WHO Projects global deficit of health workers against needs could exceed **18 million by 2030**



Needs based shortage of healthcare workforce: The report specifically identifies issues such as skill-mix imbalances, referring to gaps in essential skills necessary to meet population health needs

At the core of our innovation is the mission to bridge this competency gap through immersive, measurable, and safe training experiences.

Innovation Overview & Goal: Virtual Reality Simulation Lab

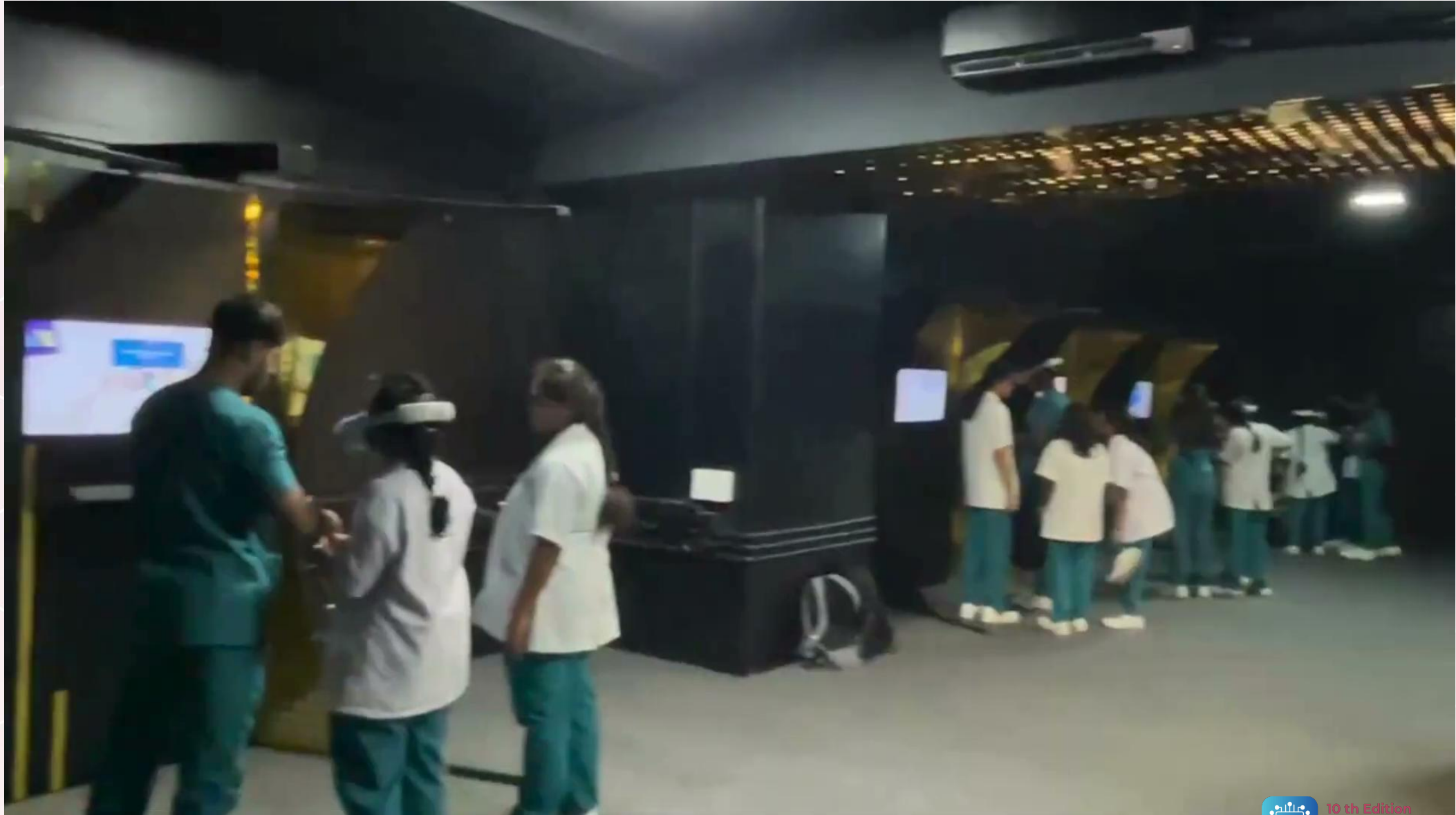
The **Virtual Reality Lab** at St. Peter's Medical College, *established in 2023*, integrates **MediSim VR's simulation software** to deliver competency-based, hands-on training in a safe and scalable environment. The lab currently supports the *training of 750 students — 450 Medical (2nd–final years) and 300 Nursing (1st–3rd years) students* — with the goal of enabling all learners to achieve competency across *60+ essential clinical skills* within a single academic year through immersive and standardized VR simulations.

Patented MediSim
VR - Smart
Automated Virtual
Reality Station



Ideal to Train
Large Cohorts

Software: Skill Training in Virtual Reality (STRIV)

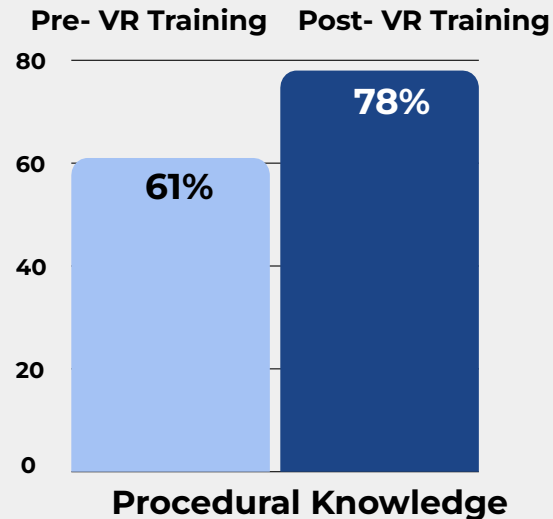


Impact of the Solution - Quantitative Research Findings

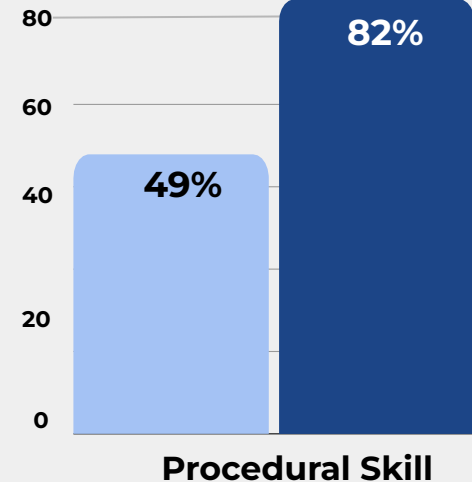
A **pre - post intervention study** was conducted to investigate VR's efficacy in enhancing the procedural knowledge and skills of ECG among medical students, and explore students' experience with VR for procedural skill development.

Procedural Knowledge Improvement

The procedural knowledge scores **increased by 17% (from Pre-test: 61% to Post-Test: 78%)**, with a large effect size ($d = 0.91$) after a single VR training session.

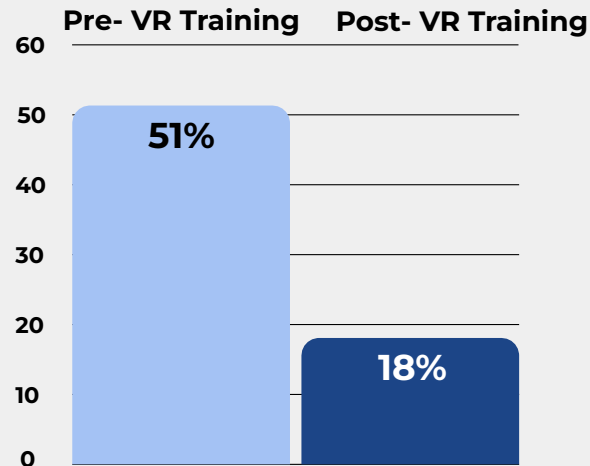


Pre- VR Training Post- VR Training



Procedural Skill Improvement

Procedural skill scores **increased by 33% (Pre-test: 49% → Post-test: 82%)** with a large effect size ($d = 1.20$) after a single VR training session.



Procedural Error Reduction

Procedural errors **reduced by 64.8% post-VR training** (from 51% to 18% errors on average), with significant **improvements in patient communication, procedural preparation, and lead placement domains** ($r = 0.68-0.71$).

Impact of the Solution - Qualitative Research Findings

Objective: To explore students' experiences and perceptions of VR-based procedural skill training through semi-structured interviews.

Thematic analysis identified **four major themes from participant interviews** (N = 30).

Theme 1: Experience with VR



"The VR environment felt real, almost like dealing with a real patient."

Theme 2: Learning Process



"In VR, we do mistakes and correct it, but in real patient we can't."

Theme 3: Engagement & Motivation



"Since it's more interactive, we feel interested to learn. We don't feel pressured — it's an enjoyable way of learning."

Theme 4: Real-world Application



"I feel much more confident performing ECGs on real patients after the VR training."



10 th Edition

CAH  **TECH**  2025

Scalability & Replicability

Technology Scalability

Our **AI-powered VR development platforms** enable creation of unlimited clinical scenarios, adaptable across diverse specialties and skill levels.

Scalable Trainer Model

VR Lab can be leveraged to be Center of Excellence where **VR-based training initiatives can reach over 100,000 healthcare professionals**, with a train-the-trainer model that multiplies reach exponentially.

Institutional Impact

Each **trained instructor** can cascade VR-based **training to hundreds of students**, ensuring sustainable knowledge transfer.

Cross-Disciplinary Integration

VR training serves as a versatile tool for medical, nursing, and allied health education, **fostering consistency and collaboration across disciplines**.

Hybrid Training – VR integrated with Manikin based training

Combines the tactile realism/**Haptics of manikin** simulations with the **scalability and cost-efficiency of VR** for comprehensive clinical training.

Sustainability

Built for long-term **educational and operational sustainability** through efficient resource use, faculty empowerment, and continuous innovation.