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â??Having simulation-based training within the college curriculum can enhance competencies of fresh doctors/nursesâ?•

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With the medtech sector strengthening its position in the domestic market, Maverick Simulation Solutions has emerged as a notable player in India which is indigenously designing and manufacturing medical simulators. This Delhi-based startup has recently announced plans to invest Rs 50+ crore in R&D to advance medical training simulators. The objective behind this R&D investment is to support better clinical education by developing practical, realistic, re-usable training tools. The company aims to expand its R&D capabilities to meet the growing demand for hands-on training in medical, nursing, and paramedical education. To find out more about the companyâ??s current product portfolio and future plans, BioSpectrum India spoke to Dr Sunil Tomar, Director at Maverick Simulation Solutions.



What gap in medical training are you aiming to address?

In simple words, simulation-based training enables budding doctors and nurses to have better motor skills, critical case handling, and more confidence while treating their first few crucial patients.

Being the only Indian company designing and manufacturing medical simulators locally, how has that influenced your product development and reach?

Maverick has a team of doctors, engineers, designers, and a production team. We initially analysed the inferior quality of simulators available in the Indian market and realised the need for better products that are being used by doctors who are always under pressure to save the lives of their patients. Hence, the device selection should be the best, whether it's being used for training a medical student or treating patients in real scenarios. We are regularly trying to design and produce the most realistic simulators to enhance motor skills and decision-making while treating the patient more confidently. Our reach is limited as of now, due to less acceptance of Indian made products in comparison to imported products.

Tell us about the recent acquisition of Swiss-based company Neosim and how it supports Maverick's broader innovation and international expansion goals.

The acquisition of Neosim & Organis is one of the best decisions of Maverick. The autonomous lung simulator LuSi (for neonates) and TestChest (for paediatrics & adults) are the world's only advanced & patented technology simulators for Mechanical ventilation training. Our in-house productions of various low, medium, and high-fidelity simulators have built up the trust in terms of technology, and after-sales support & service have proven us as a trusted partner for our customers. We have presence and installation in more than 10 countries in such a short period.

How is simulation helping bridge the gap between classroom learning and hands-on clinical experience for medical students and professionals?

Simulation-based learning provides a safe and controlled environment where healthcare professionals can practice critical procedures, decision-making, and teamwork without posing any risk to real patients. In India's high-pressure healthcare settings, marked by heavy patient loads and resource constraints, simulation allows practitioners to experience and rehearse rare or high-risk clinical scenarios beforehand. This reduces medical errors, improves emergency communication, and enhances system-wide safety through team-based drills and reflective debriefings. It turns patient safety from a theoretical concept into a daily, actionable practice.

With medical education in India shifting towards competency-based training, how do your simulators support this evolving approach?

With this ever-evolving shift from theoretical knowledge to competency-based training, our medical simulators are adding value and proving themselves to be the trusted mechanism to enhance the competencies of fresh doctors/nurses. There are lakhs of nursing students who move to various parts of the globe for jobs, and they have to clear different kinds of exams, viz. NCLEX, AHPRA, etc, which includes the competency-based training. Having only the theoretical knowledge was a hindrance for them, and they had to study or take extra courses to develop such skills. Having simulation-based training within the college curriculum will reduce their efforts and time.

How important is real-time feedback in simulation-based learning, and how do your systems deliver it to trainees and educators?

Real-time feedback is the most important factor in simulation-based training, as the student gets to know the errors and mistakes that he/she has committed while treating a dummy patient. Would you trust a pilot flying an aircraft for the first time in their life? Most of us wouldn't. Similarly, none of us learned to ride a bicycle without a few falls. Yet in healthcare, there's often an unspoken expectation that students and young professionals should never make mistakes. The truth is, we all learn from our mistakes. However, in medicine, mistakes can be fatal. This is where simulation-based learning becomes central to patient safety. It offers a risk-free, controlled environment where medical professionals can make errors, analyse them, and learn without causing harm to real patients. Trainees can repeat procedures until they gain confidence and competence. This results in reduced medical errors, improved clinical outcomes, and, most importantly, enhanced patient safety when those skills are applied in the real world. In the Indian context, where clinical exposure is often variable and patient loads are high, simulation fills a critical gap by ensuring standardised, safe, and repeatable learning.

What kind of collaborations do you have with medical institutions, and how are you working to make simulation a standard part of training?

We are collaborating with India's best medical institutions, like All India Institute of Medical Science (AIIMS), and also India's best technology institutions, like Indian Institutes of Technology (IITs), and we are working with AIIMS and IITs to create a specific simulator for the Indian market. We understand the needs of Indian people and create advanced simulators and basic task trainers to train medical staff. All our simulators are vetted by doctors to make sure that they are best quality and serve the purpose for which they are made. Medical staff trained on these simulators will be more confident in treating the patients. The fewer mistakes they make more lives we save, and that's our motto.

What technologies or innovations are you currently exploring to enhance simulation further, and are AI and immersive tech part of your future roadmap?

Yes, we are using artificial intelligence (AI) and have plans to use AI for further product development in the field of respiratory, cardio, neuro, and many other advanced simulators for neonate, paediatric, and adult simulators for birthing. We aim to make simulators smart, and with the help of AI, they will be more realistic, responsive, and accurate for all real-life scenarios.

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