

IN PRACTICE

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CUTTING COSTS, NOT CORNERS: A DIY, SUSTAINABLE SOLUTION FOR FRONT OF NECK ACCESS TRAINING

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Introduction: Simulation-based training has been shown to significantly improve clinician performance in emergency front of neck access (eFONA), particularly

among professionals in high-acuity settings [1]. However, traditional simulation options—including animal tissue models and commercially available part-task trainers—present notable limitations. Ethical concerns, unpleasant sensory experiences, high costs, and environmental impacts restrict their accessibility and scalability. In response to ongoing budget constraints within the NHS, we aimed to develop a low-cost, sustainable, and easily reproducible model for eFONA training using readily available materials.

Methods: Inspired by commercially available part-task trainers [2], we developed a prototype using plaster of Paris (POP), washing machine waste pipe, sleek tape, silicone, and a balloon. The total material cost per unit was £1.65. During the design process each prototype was tested and adaptations were made to ensure functionality, such as minor increases in diameter of the ‘cricothyroid membrane’ to ensure compatibility with a size 6 endotracheal tube. Functionality was further validated by an anaesthetist prior to course deployment.

The model was implemented in a trauma simulation course, where both quantitative and qualitative feedback were collected from participants regarding anatomical realism, tactile feedback, and overall usability (see Figure 1).

Results: All participants rated the models realistic or very realistic in terms of anatomical landmarks and procedural feel, and all said that they would recommend using the models. Participants commented on specific features of the models:

1. “Landmarks easily identified and able to see if successful due to balloon inflation which have not seen on previous animal models/ models used”
2. “Able to practice procedure without needing animal models is great”

Cost analysis revealed an average saving of £612 per unit compared to four commercially available part-task trainers.

Discussion: This low-cost, ethical, sustainable, and reusable alternative to traditional part-task trainers represents a significant step forward in accessible simulation training. Its favourable cost profile and positive user reception support its integration into existing training programmes, particularly in resource-constrained healthcare environments. Such innovations demonstrate that high-quality simulation education need not come at high financial or ethical cost and can be easily reproduced in any simulation setting.

Ethics Statement: As the submitting author, I can confirm that all relevant ethical standards of research and dissemination have been met. Additionally, I can confirm that the necessary ethical approval has been obtained, where applicable.

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