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**Airway management is a crucial aspect of patient care, where effective and prompt actions can be life saving. The RCoA recognises the importance of continuous education and training to ensure healthcare professionals are well equipped to handle complex airway scenarios.**

Multidisciplinary simulation has arisen as a valuable tool in this regard, offering an immersive and dynamic learning experience that fosters collaboration among different professionals involved in patient care.

Traditionally, training in airway management has often been siloed, with the focus on individual disciplines. However, real-life situations demand a coordinated effort from various healthcare professionals, including anaesthetists, operating department practitioners, nurses, physiotherapists, surgeons and theatre nurses. Therefore, conventional training styles may not adequately prepare individuals for the intricacies of interdisciplinary communication and cooperation.

Multidisciplinary simulation addresses this deficit by providing a platform for teams to practise in a controlled environment that mirrors real-life situations. It allows for the evolution of a shared mental model, improving communication and teamwork. Multidisciplinary simulation fosters a collaborative approach to airway management. It encourages a mutual understanding of each team member's role, hopefully leading to

improved patient outcomes. Simulation provides a safe and controlled environment to replicate the challenges of airway management (Figure 1). This allows participants to practise and refine their skills without endangering real patients. Simulations allows healthcare providers to make critical decisions under pressure gaining valuable experience without consequence. This contributes to increased confidence and competence in handling complex airway situations.

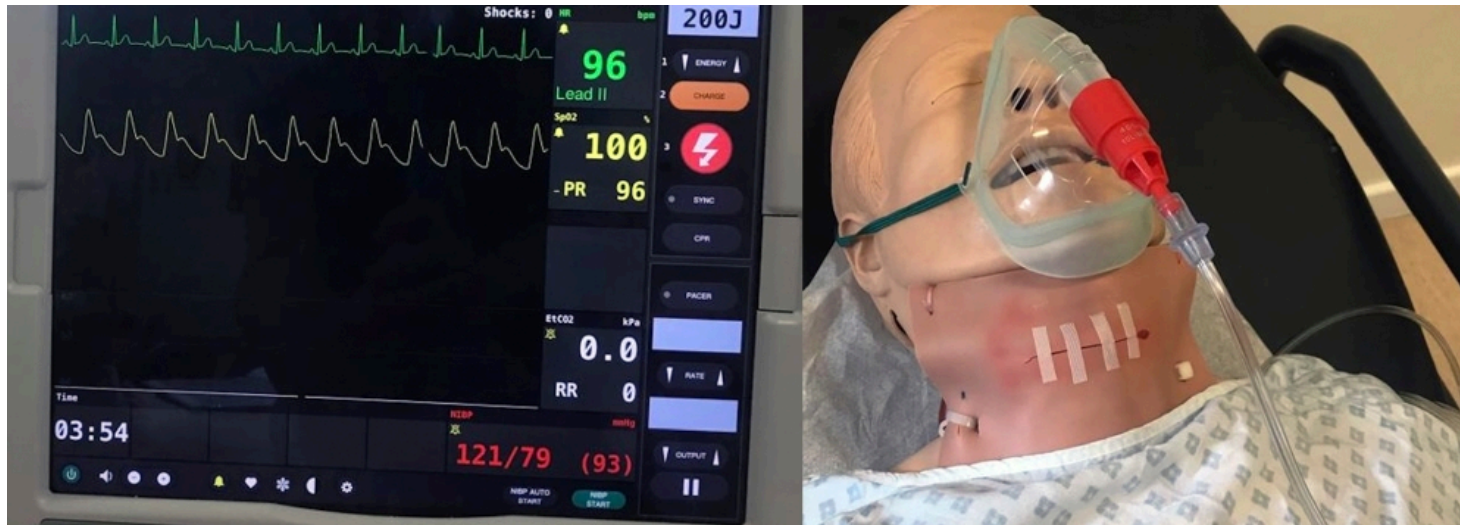


Figure 1: Simulation set-up for post-thyroidectomy haematoma from the Simulation Course for Airway and Tracheostomy Emergencies. The manikin allows candidates to perform remove steri-strips, cut sutures, open skin, open muscles and pack wound (SCOOP). Adjustable vital parameters with alarms simulate real-life monitoring and noise distractions.

## Challenges

Despite the benefits, implementing and sustaining multidisciplinary simulation programs pose certain challenges. One major challenge is the allocation of time and resources for training together, as healthcare professionals often have demanding schedules with time constraints. Additionally, integrating simulation into existing educational frameworks can be logistically challenging. Limited availability of simulation facilities, high-fidelity mannequins and trained facilitators can hinder the global adoption of multidisciplinary simulation.

Healthcare professionals often face time constraints due to busy clinical schedules, making it difficult to dedicate sufficient time for simulation training. However, once a multidisciplinary team simulation course has been developed and implemented, with careful planning it is possible to offer a flexible scheduling for participants to minimise the interruption to clinical duties.

## **Evidence for improving patient safety**

While the benefits of multidisciplinary simulation are widely acknowledged, there is a notable gap in empirical evidence supporting its efficacy. This deficit can be attributed to the inherent challenges of performing rigorous research in real-world clinical environments. However, anecdotal evidence and observational studies consistently highlight the positive impact of multidisciplinary simulation on team performance, participant confidence, knowledge, and perceived patient outcomes.

## **The future of multidisciplinary simulation**

The future of multidisciplinary simulation holds exciting possibilities with the integration of virtual reality (VR) and artificial intelligence (AI). VR simulations can offer highly immersive and realistic scenarios, allowing healthcare professionals to practise in virtual environments that closely mimic real-world situations. AI could enhance simulation experiences by providing realtime dynamic feedback, adapting simulations based on participant performance, and creating personalised learning pathways.

Furthermore, VR and AI technologies have the potential to address the hurdles of resource constraints and time limitations associated with conventional simulation methods. Virtual simulations can be accessed remotely, enabling healthcare professionals to engage in collaborative training experiences without the need for physical presence in a simulation centre. Due to the world-wide nature of the internet participants can be from any area of the world, at any time. Bots could be used for any member of the multidisciplinary team missing, allowing a single participant to train in a multidisciplinary team whatever their background.

In conclusion, multidisciplinary simulation in airway management constitutes a remarkable step forward in enhancing patient safety through improved teamwork and communication among healthcare professionals. While challenges remain, the evolving landscape of technology, including VR and AI, offers potential solutions to overcome these hurdles. Simulation provides a risk-free environment for healthcare professionals to practise and make mistakes without harm to actual patients. This can contribute to a more confident and competent team when faced with real-life airway emergencies. The integration of multidisciplinary simulation into curricula of various disciplines stands as a pivotal strategy for preparing healthcare teams to excel in the dynamic and complex field of airway management.