effective for teaching both techniques. Only 57% of staff felt quite/very confident in CMAC® D blade use before training *despite* multiple previous teaching programmes, showing the high frequency of skill decay and the need for regular training; continued training is planned to address this.

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Evaluation of a tissue superobese emergency front-of-neck access model using the scalpel-bougie-tube technique

Sunil Chauhan and Conan McCaul

Rotunda Hospital, Dublin, Ireland

Commercially available part task trainers for emergency front-of-neck access (eFONA) teaching do not replicate the anatomy encountered by clinicians in extreme obesity where the tissue depth between the skin and the cricothyroid membrane can exceed 3 cm.[1 2] We created and evaluated an eFONA bench top trainer using commercially sourced porcine larynx with super obese model of porcine larynges, skin and varied depth fat layer between 0 and 30 mm (non-obese *vs* super obese).

After obtaining ethical approval, consent from participants, and standardised training with the Difficult Airway Society (DAS) advocated scalpel–bougie–tube technique, participants were randomised to perform eFONA in the non-obese and super obese models. Our primary outcome was passage of tracheal tube in trachea, and secondary outcomes were time, success in less than 40 s, anatomical accuracy, injury score, and tracheal ring injury.

Seven anaesthesia trainees performed four repetitions in each model. Failure was significantly more common in obese models (eight/28 [obese] *vs* 25/28 [non-obese], *P*< 0.001, Fig. 4). There was a significant difference in the proportion of successful eFONA in less than 40 s (seven/28 *vs* 19/28, *P*<0.003). The time taken in the non-obese model was significantly shorter than that in super obese models (35 [27–42] *vs* 50 [43–59] s, *P*<0.001). Accidental direct tracheal entry was found in one super obese model but none in the non-obese model. Five false passages were observed in the super obese model and none were observed in the non-obese model. There was no significant difference in injury scale between the obese and non-obese groups (1.0 [0.0–1.5] *vs* 0.0[0.0–1.0], *P*=0.07). Tracheal injury was more common in the obese group than in the non-obese group (12/28 *vs* one/28, *P*<0.002). There was a negative correlation between number of attempts and time in the non-obese (R=−0.55, *P*=0.03) but not in the super obese models.

In summary, the relatively inexpensive super obese model was consistently more difficult than the non-obese model during eFONA with the DAS advocated scalpel–bougie–tube technique. More than four repetitions may be required to improve performance.
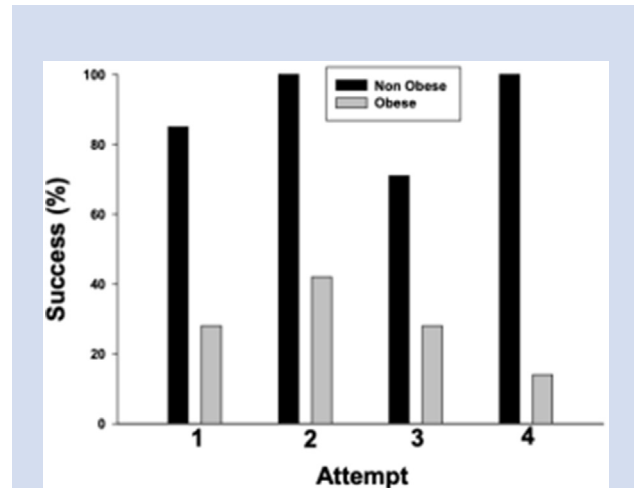
Fig 4 eFONA success rates (%) in non-obese and obese training models

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First pass success is important in prehospital tracheal intubation to minimise the risk of physiologic deterioration

D. Olvera[1], A. Patanwala[2], A. Wolfe Jr.[1] and J. Sakles[3]

[1]Air Methods Corporation, Denver, CO, USA, [2]University of Sydney, Sydney, Australia and [3]University of Arizona, Tucson, AZ, USA

Pre-hospital tracheal intubation of the critically ill and injured can be challenging and patients are at risk of serious complications. The purpose of this study was to determine the association between the number of intubation attempts and the occurrence of physiologic deterioration.

This institutional review board (IRB)-approved project was an observational study conducted in a large USA helicopter emergency medical service (HEMS) of patients undergoing rapid sequence intubation in the field by the flight crew (flight nurse/flight paramedic) over a 4 yr period from January 1, 2015 to December 31, 2018. Data were collected on patient, operator, and procedural characteristics, and included method of intubation, drugs and devices used, difficult airway characteristics, number of intubation attempts, outcome of each attempt, and complications associated with intubation. The predictor variable was first pass failure, which was defined as failure to achieve tracheal intubation on a single laryngoscope insertion. The outcome variable was physiologic deterioration, which was defined as the occurrence of any one of the following three physiologic complications: hypoxemia (SpO_2 <90%), hypotension (systolic blood pressure <90 mm Hg) or cardiac arrest (loss of pulses requiring cardiopulmonary resuscitation). Patients