# Simulating high-fidelity emergency front-of-neck access training in an obstetric setting

M O'Sullivan, S Gaffney, S Smith
Coombe Women and Infants University Hospital

In a cannot intubate, cannot oxygenate scenario (CICO), emergency front of neck access (eFONA) is the final lifesaving step in airway management to reverse hypoxia and minimize progression to brain injury, cardiac arrest and death (1).
The Difficult Airway Society (DAS) guidelines advise the scalpel cricothyroidotomy for eFONA (2). Anatomical and physiological changes in pregnancy exacerbate the already challenging obstetric airway. We aim to assess the impact made by introducing formal eFONA training to the perioperative department of an obstetric hospital.

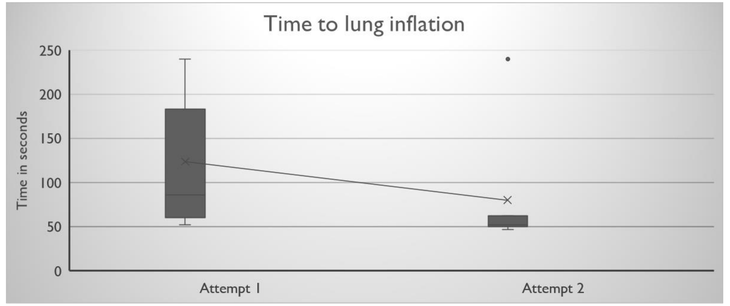
## Methods

- Ethical approval obtained
- AirSim Advance X cricothyroidotomy training mannikin purchased
- Recruitment at departmental teaching. Written, informed consent obtained.
- Pre-protocol questionnaire performed
- Simulated Scenario 1 (CICO, timed from declaration of CICO to achievement of lung inflation via front of neck access)
- Training- include still of DAS training video
- Simulated Scenario 2 repeated conditions of Sim 1
- Post- protocol questionnaire
- Data analysis Microsoft Excel

## Results

- 17 anaesthetists participated: 4 consultants, 1 SpR, 4 registrars and 8 SHOs
- Mean years' experience 4.9
- 1 participant received eFONA training in the previous 6 months

| Parameter Assessed | Pre-intervention | Post-intervention |
|---|---|---|
| Successful attempt | 14 (82%) | 16 (94.1%) |
| Time to lung inflation (s) | 123 (69.4 SD) | 76 (46.3 SD) **(p= 0.0192)** |




| Parameter Assessed | Pre-tutorial | Post-tutorial | Difference |
|---|---|---|---|
| VAS | 4.13 (±2) | 7.47 (±1.5) | 3.33 (p<0.0001) |
| Correct identification of CT membrane | 8 (47%) | 8 (47%) | 0 |

- 29.4% of participants previously practiced eFONA on a plastic mannikin. None had performed a cricothyroidotomy on a patient.
- Post-intervention
  - Confidence improved in 100%
  - 94% felt more prepared to perform eFONA
  - All found training to be beneficial and believe it should occur 6 monthly in our institution
- Limitation: small sample size, palpable landmarks, low risk simulation environment, no decision-making required- study based on dexterity.

## Discussion

We demonstrate a statistically significant improvement across participants from SHO to consultant. Our equipment is affordable and, other than the mannikin, is available in all theatres. The training video is free online.

This is an important skillset particularly in the high-risk, time sensitive obstetric setting. The dangers of the obstetric airway out of hours were highlighted in NAP 4 (3)

6 monthly training will be established for all members of our department going forward.

This simple intervention can be brought to a hospital near you!

## References

1) Cook T, MacDougall-Davis S. Complications and failure of airway management. British Journal of Anaesthesia. 2012;109:i68-i85.
2) Frerk C, Mitchell V, McNarry A, Mendonca C, Bhagrath R, Patel A et al. Difficult Airway Society 2015 guidelines for management of unanticipated difficult intubation in adults † †This Article is accompanied by Editorials aev298 and aev404. British Journal of Anaesthesia. 2015;115(6):827-848.
3) Cook T, Woodall N, Frerk C. Major complications of airway management in the UK: results of the Fourth National Audit Project of the Royal College of Anaesthetists and the Difficult Airway Society. Part 1: Anaesthesia †. British Journal of Anaesthesia. 2011;106(5):617-631.