

# Assessing the role of simulation-based training to improve efficacy of cricoid pressure application during RSI

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## Background

- Cricoid pressure is routinely used in the UK during rapid sequence inductions.
- Guidelines suggest a force equivalent to 30N (3kg) is recommended to prevent aspiration.<sup>1</sup>
- Although studies show cricoid pressure to be of no benefit when compared to a sham procedure<sup>2</sup>, wrongly applied cricoid pressure may worsen view during intubation and provide little benefit in preventing pulmonary aspiration.
- We aimed to assess the role of simulation-based training to improve cricoid pressure application in operating department practitioners (ODPs).

## Methods

- A survey was conducted on ODPs working in theatre requesting their views and previous training on cricoid pressure.
- Simulation-based training consisted of 3 standardised scenarios, feedback on performance and a 10 minute tutorial on the PlastiPak 60ml syringe technique.<sup>3</sup>



- Follow up for re-assessment was conducted after 3-4 weeks (based on staff availability).

## Results

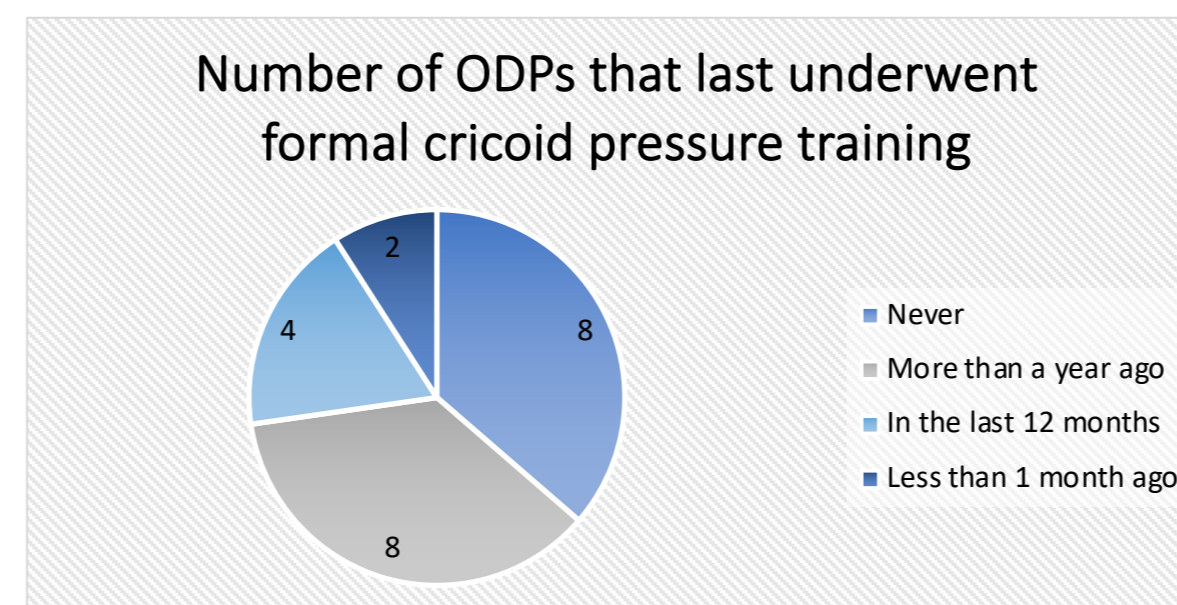
- 23 ODPs were recruited into the study. Follow up was possible in 22 participants (1 lost to follow up - not included in data analysis).
- The average time to follow up was 24 days. The median years of experience was 7 years.

## Survey

- Eleven (50%) ODPs did not feel cricoid pressure was necessary during RSI.
- ODP comments when asked about cricoid pressure application were allowed:

“Traumatic for patients who are already anxious”  
“I don’t believe everyone applies the same practice and amount of pressure and in my experience has resulted in causing a poorer view for intubation.”  
“There is no training given for cricoid pressure so how do we as practitioners know we are applying this correctly.”

- Eleven (50%) ODPs are asked to remove cricoid pressure in more than 50% of RSIs conducted due to difficulty in laryngoscopy.

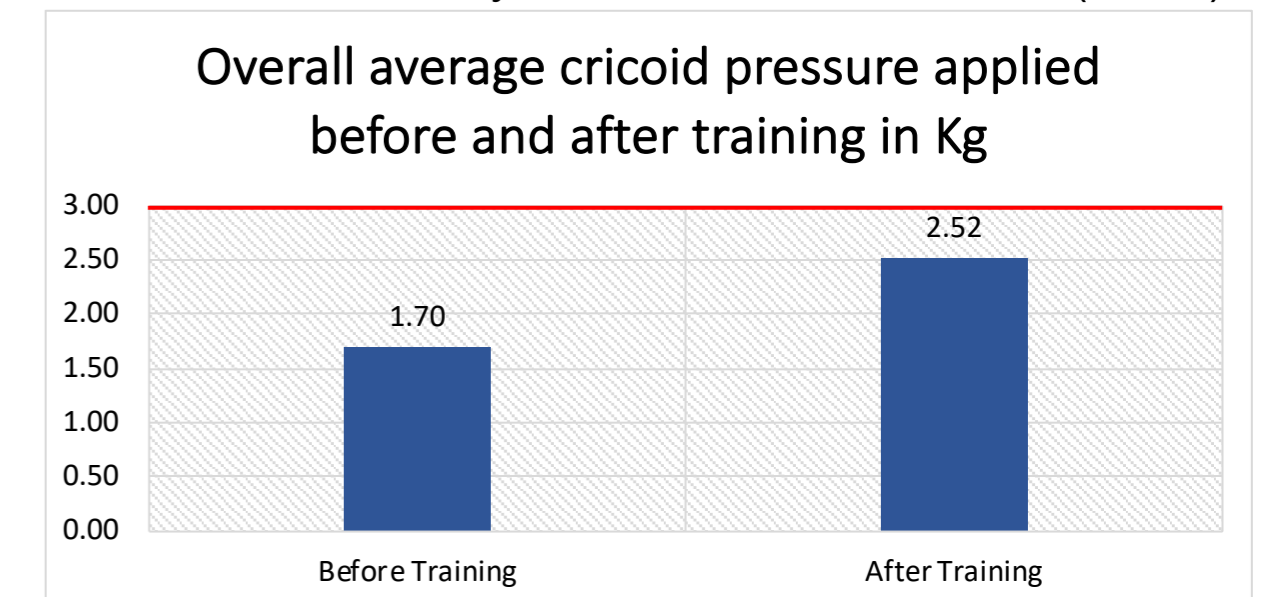


### References:

1. Salem, M., Khorasani, A., et al, 2017. Cricoid Pressure Controversies. *Anesthesiology*, 126(4), pp.738-752.
2. Birenbaum, A., Hajage, D. et al, 2019. Effect of Cricoid Pressure Compared With a Sham Procedure in the Rapid Sequence Induction of Anesthesia. *JAMA Surgery*, 154(1), p.9.
3. Kopka, A. and Robinson, D., 2005. The 50ml syringe training aid should be utilized immediately before cricoid pressure application. *European Journal of Emergency Medicine*, 12(4), pp.155-158.

## Simulation

- Nineteen (86.4%) ODPs showed improvement and progression towards the recommended 30N force.
- During simulation, overall average of 3 attempts before training was 1.70kg.
- After training, overall average increased to 2.52kg showing a 27% change in improvement of application of cricoid pressure.
- Standard deviation before and after training was 0.94 and 0.75, respectively.
- Paired T-test analysis showed P value <0.05 (0.002).



## Limitations

- This study only assesses the force of cricoid pressure applied.
- It does not consider the direction and anatomical placement of cricoid pressure.

## Conclusion

- This study shows that simulation-based training can improve the efficacy of cricoid pressure application in ODPs during RSI.