

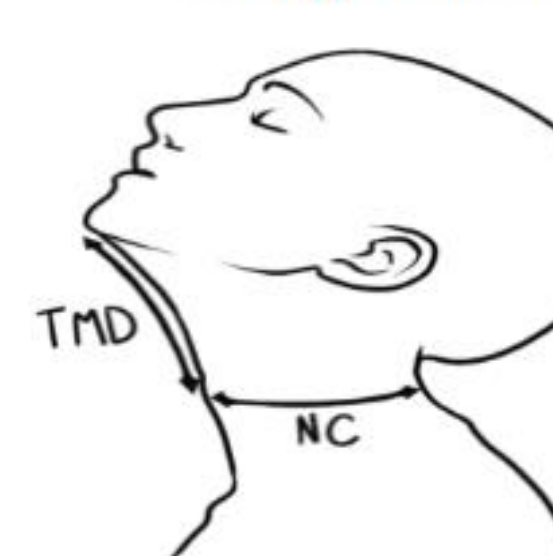
INTRODUCTION

- Patients with obesity are at a 30% increased risk of difficult mask ventilation and difficult tracheal intubation (AANA, 2023).
- The prevalence of obesity continues to rise in North Carolina by more than 7% over 10 years (2011-2021) and is unlikely to slow (CDC, 2021).
- No national standards from professional organizations nor prospective studies that address airway assessment tools.
- The purpose of this Doctor of Nursing Practice (DNP) quality improvement (QI) project was to assess nurse anesthetists' perception of adequacy of a newly developed airway assessment quick reference guide (QRG) as a useful tool for their practice as it pertains to assessment of the airway of patients with obesity.

METHODS

- Pre- and post-implementation survey design
- Framework adapted from Plan-Do-Study-Act methodology.
- An evidence-based, preoperative airway assessment QRG was developed.
- QRG & educational video distributed to CRNAs at level 1 trauma center.
- Two-week implementation period.

Airway Assessment of the Patient with Obesity




Increased risk for DI if:

- NC (>40cm)^{1,2}
 - Measure at cricoid cartilage in sitting position
- TMD (<6cm)^{1,2}
 - Measure from thyroid notch to mentum with head extended and mouth closed
- NC:TMD Ratio (>5)^{1,3}
 - Better reflects distribution of adipose tissue around neck

Difficult Mask Predictors⁷

Age>55, BMI>26, beard, lack of teeth, history of snoring, Mallampati III or IV, male




STOP-Bang Questionnaire for OSA Screening

S Snoring: Do you snore loudly?	Yes or No
T Tiredness: Do you often feel tired, fatigued, or sleep during the day?	Yes or No
O Observed apnea: Has anyone observed you stop breathing during sleep?	Yes or No
P Blood pressure: Do you have, or have you been treated for high blood pressure?	Yes or No
B Body mass index (BMI): BMI>35 kg/m ²	Yes or No
A Age: Age>50 yr?	Yes or No
N Neck circumference: Neck circumference >43.18 cm (17 in) in males or >40.64 cm (16 in) in females?	Yes or No
G Gender: Male?	Yes or No

Low risk: <3 yes Medium risk: 3-4 yes High risk: ≥5 yes

The Mallampati Score

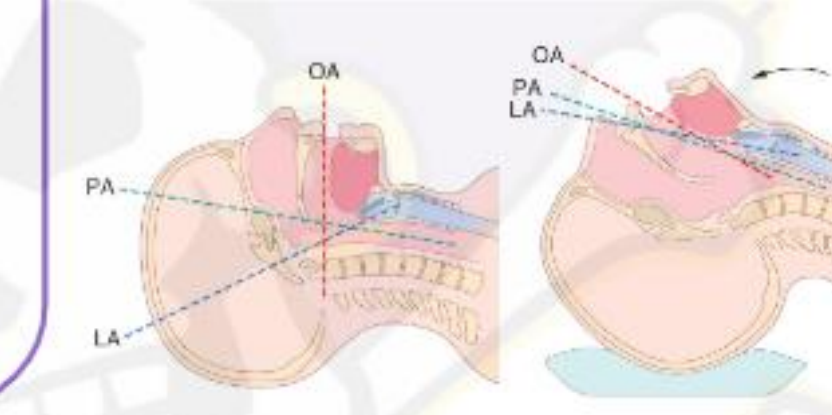


- Class III or IV correlated with difficult airway (Hung et al., 2019)
- Only moderate sensitivity when used alone - many events missed (Roh et al., 2019)
- Many different possible combinations
 - o Mallampati score III or IV with an increased NC predictive for DI (Sriv et al., 2021)
 - o Enhances 3-3-2 Rule sensitivity (Sharma et al., 2023)

Ramping

Ear level with sternal notch.²

- Aligns the 3 axes in patients with obesity - improved laryngoscopy view
- Decreases dependent atelectasis
- Improves V/Q
- Increases safe apnea time




3-3-2 Rule

Increased risk for DI if:

A) <3 fingers between upper and lower incisors	B) <3 fingers in the thymental distance	C) <2 fingers in the hyo-thyroid cartilage distance
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Enhanced results with Mallampati Score (Sharma et al., 2023)

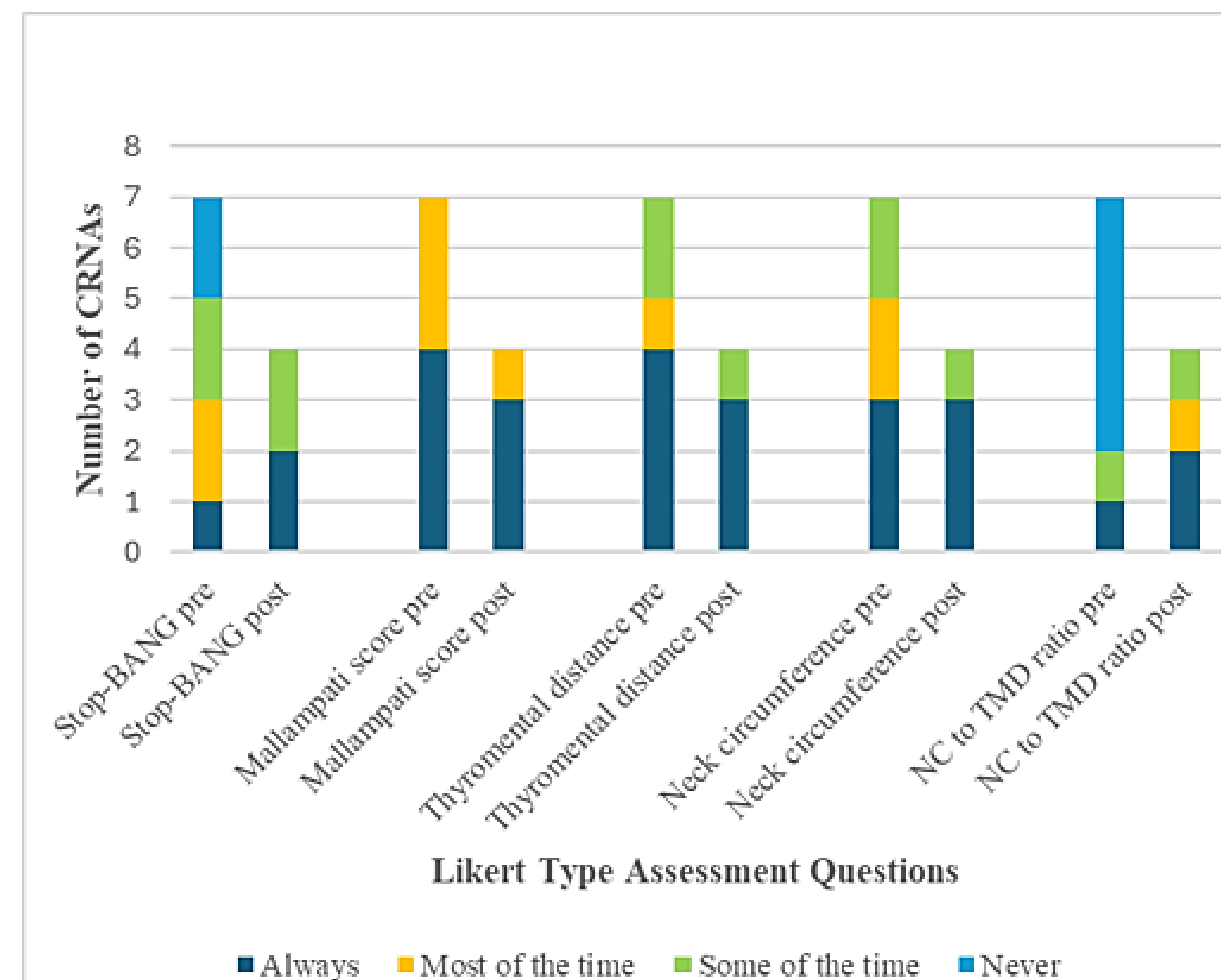


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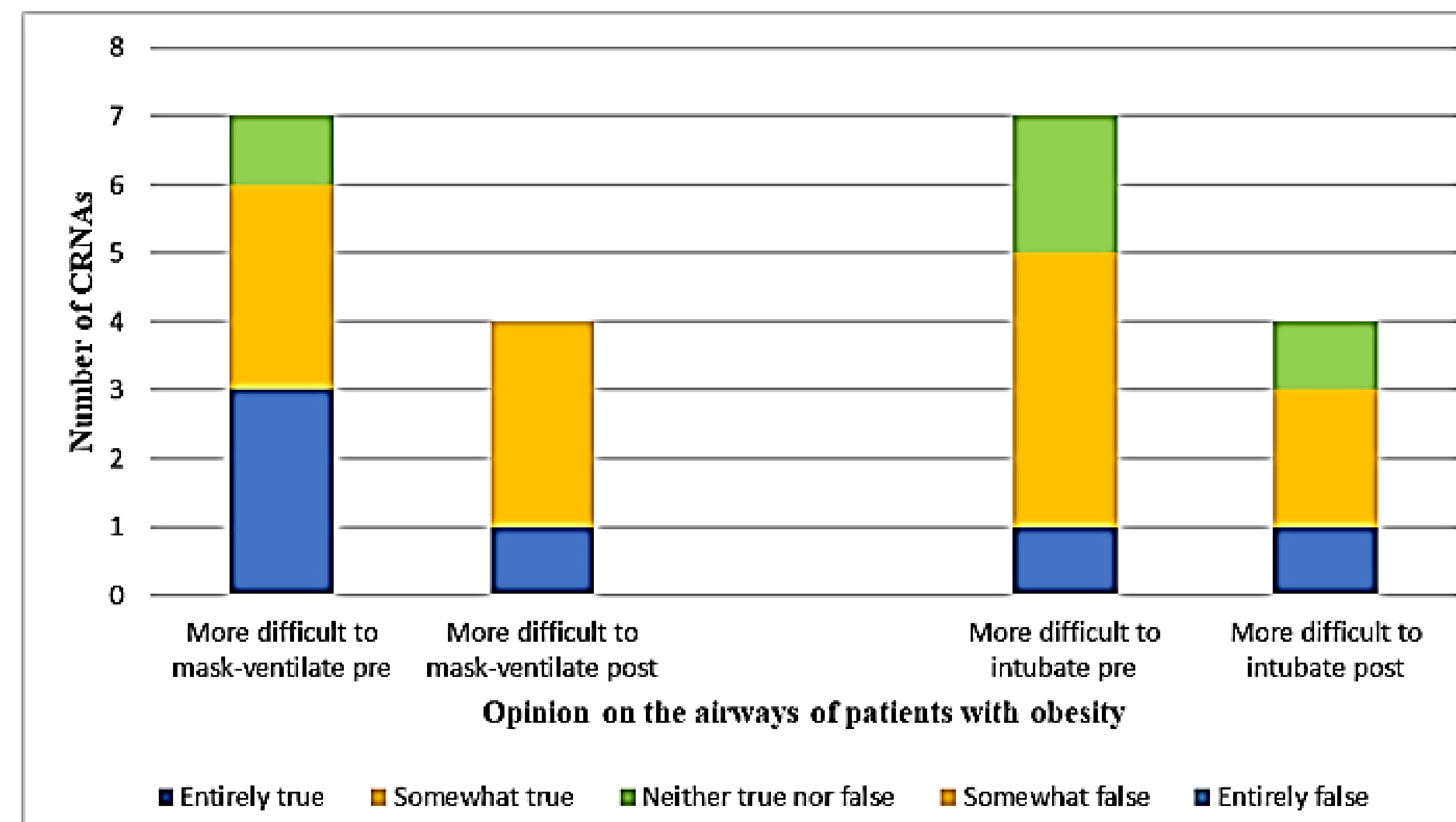
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RESULTS

Evaluation of the AIRWAYS of patients with OBESITY (BMI>30) with various assessment methods



AIRWAY MANAGEMENT DIFFICULTY for patients with OBESITY (Pre: n= 7, Post: n= 4)



DISCUSSION

- Seven CRNAs completed pre-implementation survey. Four CRNAs completed the post-implementation survey.
- Post implementation, participants were more likely to use the Stop-BANG questionnaire and the neck circumference to thyromental distance ratio compared to pre-implementation
- Lower percentage of post-implementation responses deemed patients with obesity to be more difficult to mask ventilate or intubate.

CONCLUSIONS

- Care delivered should be based on objective evidence from well-designed studies to ensure our patients are receiving the best care.
- Difficult to draw conclusions based on small samples size, low response rate, and uneven pre-implementation to post-implementation responses.
- Recommendations for future projects
 - Larger sample size
 - Longer data collection period

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