



Assessing CRNA Perceptions of a Cognitive Aid Focused on Aspiration Pneumonitis: A DNP Project

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INTRODUCTION

- ❖ Aspiration pneumonitis is a significant anesthesia complication
- ❖ Associated with 5% of malpractice claims related to anesthesia
- ❖ Mortality rate of 57% of patients (3)
- ❖ Pre-screening tools such as coexisting diseases, fasting guidelines, ultrasound imaging, and use of medications can be predictors of risk (2)
- ❖ Purpose: To develop, implement, and evaluate the perception of adequacy of a QRG, (Quick Reference Guide) to aid in prompt identification, prevention, and treatment of aspiration pneumonitis

METHODS

- ❖ A single cycle of PDSA (Plan, Do, Study, Act) was completed (1)
- ❖ Educational presentation via PowerPoint along with digital and in-person QRG utilized for 14 days
- ❖ Data collection via pre- and post-implementation Qualtrics Surveys
- ❖ Analysis via Excel

QUICK REFERENCE GUIDE

Risk Factors for Aspiration

Delayed gastric emptying:

- Obesity
- Diabetes Mellitus
- Neuromuscular Disorder
- ASA Status IV or V
- Gastroesophageal Reflux Disease (GERD)
- Chronic Nausea and Vomiting

Age:

- Elderly
- Children < 2 years

ASA Fasting Guidelines for Elective Procedures for Healthy Patients

Ingested Material	Fasting Period
Clear Liquids	2h
Breast milk	4h
Infant formula	6h
Nonhuman milk	6h
Light meal	8h
Fried foods, fatty foods, meat	8h

Cricoid Pressure for RSI

Apply at the start of induction and do not release until intratracheal position of the tube is confirmed.

Goal is to occlude the esophagus between cricoid cartilage and cervical vertebrae without occluding the airway.

How much is enough?

30-40 N of pressure!

Pushing to 33 mL on a 50 mL syringe OR 3 kg on a kitchen food scale!

Management of Aspiration

Aggressive tracheal suctioning

Administer supplemental oxygen

Rapid sequence intubation (RSI)

ABG

Bronchoscopy and/or chest X-ray if large particulate matter

Post-operative observation for complications

No prophylactic antibiotics → use only if pneumonia occurs post-surgery

ASPF & ASA GLP-1 Agonists Holding Parameters:

ASPF & ASA GLP-1 Agonists	Hold Time	Notes
Exenatide	36h	Associated with gastrointestinal side effects
Liraglutide	24h	Associated with gastrointestinal side effects
Semaglutide	7 days	Associated with gastrointestinal side effects
Tirzepatide	7 days	Associated with gastrointestinal side effects

Gastric Point-of-Care Ultrasound

Grade	Description
Grade 0	Empty stomach: No content is visualized in the supine and RLD position
Grade 1	Low risk: Fluid content is visualized and calculated to be less than 1.5 mL/kg
Grade 2	High risk: Fluid content is visualized and exceeds 1.5 mL/kg

Patients are scanned in 2 positions: supine and right lateral decubitus

Supine: Assess for type and amount of content

RLD: Assess for grade of risk based on the gastric volume present

Gastric volume (mL) = 27.2 x (SLA x Cx of antrum in RLD) - (1.28 x Age)

Gastric Ultrasound

Empty Stomach: "Belly-Flat" or "Therapeutic" Appearance

Fluid Content: "Frothy" (black), may give a "starry night" appearance if fluid is contained

Thick Fluid or Solid Content: "Hyperechoic" (white)

RESULTS

Figure 1

Pre and Post evaluation on current ASA NPO elective surgery recommendations

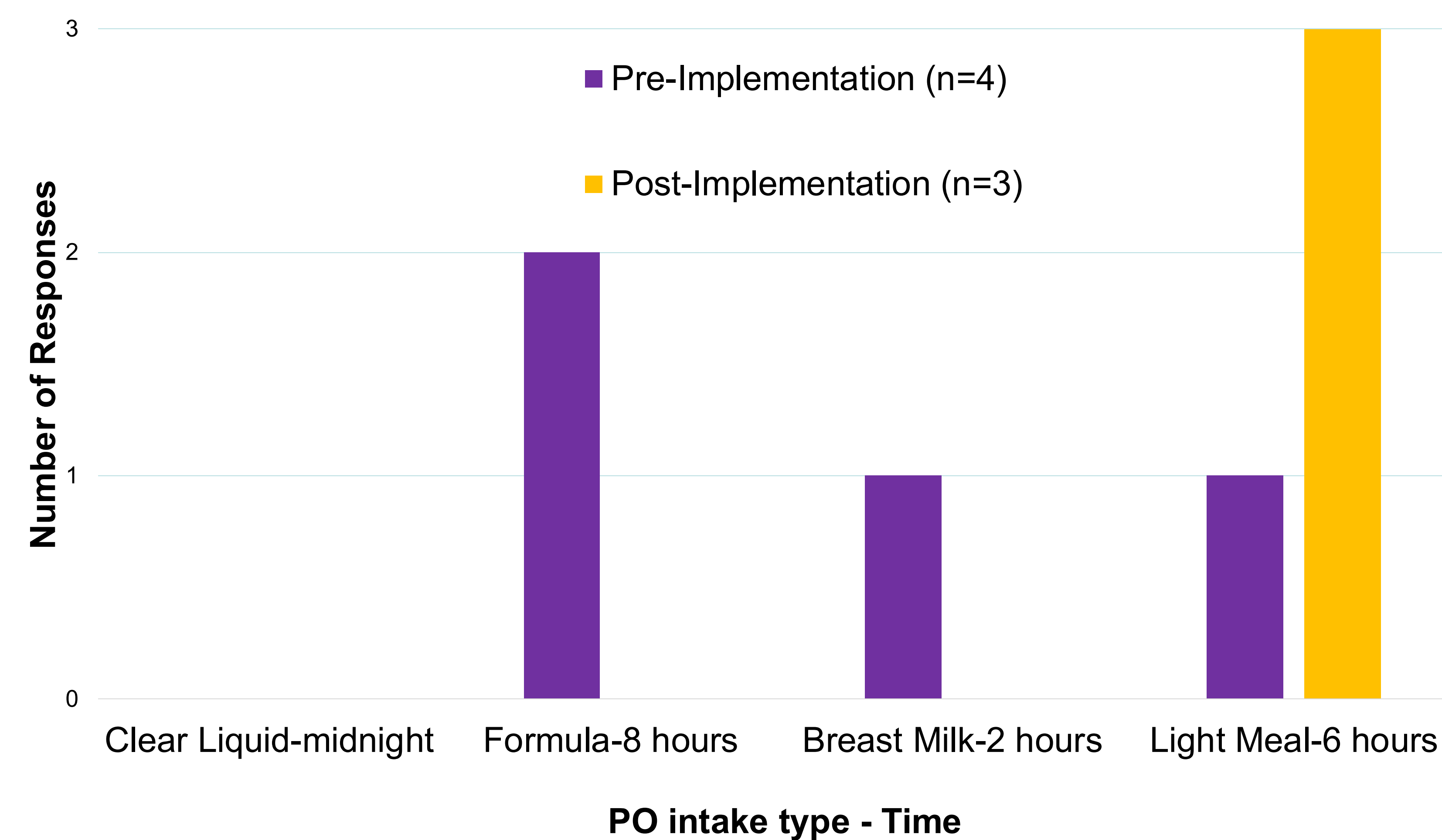
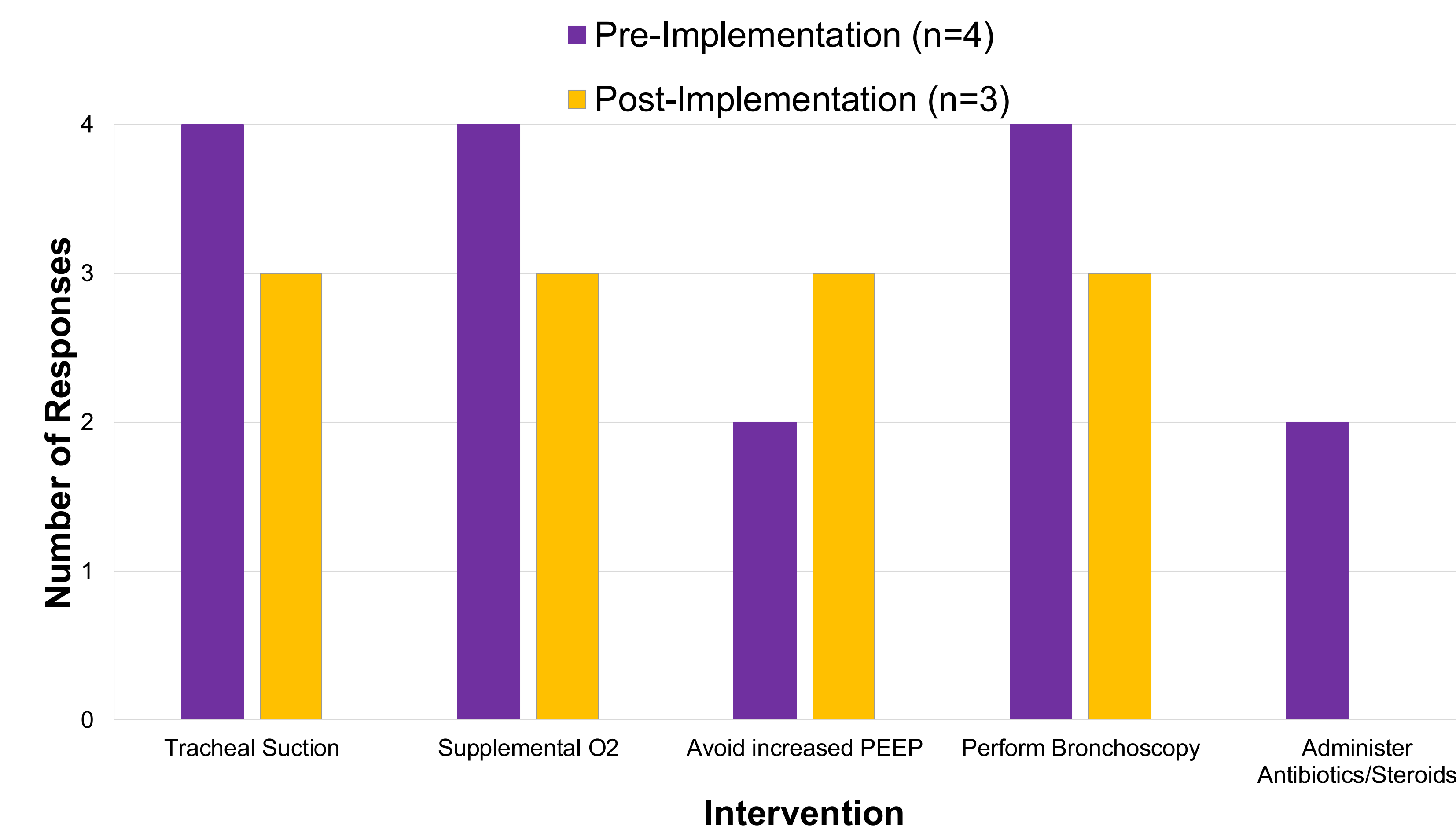


Figure 2

Pre and Post evaluation of current evidence-based management of pulmonary aspiration



DISCUSSION

- ❖ Four participants completed the pre-implementation survey
- ❖ Three participants completed the post-implementation survey
- ❖ Variation in pre- and post-surveys may indicate gaps in awareness of the latest evidence—based recommendations
- ❖ Shift in responses support use of the QRG to improve patient care processes
- ❖ Short timeframe and few participants was a limitation
- ❖ Results support use of QRG only at this location

CONCLUSION

- ❖ **Limitations:**
 - ❖ CRNA sample size compared to total at organization
 - ❖ Short implementation timeframe
 - ❖ Multiple vacations of participants during implementation
- ❖ **Recommendations:**
 - ❖ Use of this project as pilot for future projects
 - ❖ Expand the project timeframe
 - ❖ Expand the number of CRNAs included
 - ❖ Could be replicated in other institutions
- ❖ **Implications:**
 - ❖ Benefit patients by reducing aspiration events which would shorten hospitalizations and decrease costs
 - ❖ QRG could improve providers time efficiency
 - ❖ Increase in satisfaction scores
- ❖ **Sustainability:**
 - ❖ Digital availability of QRG and readily available supplies would allow ongoing use
 - ❖ Clinical providers could maintain the QRG with annual education requirements as well as new hire onboarding

REFERENCES

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- (3) Warner, M. A., Meyerhoff, K. L., Warner, M. E., Posner, K. L., Stephens, L., & Domino, K. B. (2021). Pulmonary aspiration of gastric contents: A closed claims analysis. *Anesthesiology*, 135(2), 284–291. <https://doi.org/10.1097/ain.0000000000003831>

