

INTRODUCTION

- Pulmonary aspiration of gastric contents is a rare but potentially catastrophic perioperative complication
- Despite ASA fasting guidelines, aspiration risk has become increasingly uncertain with the widespread use of glucagon-like peptide-1 receptor agonists (GLP-1RAs)
- Point-of-care gastric ultrasound (gastric POCUS) has emerged as a rapid bedside tool to evaluate gastric contents and aspiration risk

GOALS

- Implement a standardized gastric POCUS training program
- Improve provider confidence in image acquisition and interpretation
- Evaluate educational impact using survey-based outcomes

METHODS

- This educational initiative does not contain identifiable patient information thus is exempt from IRB review requirements as per University of Iowa policy

Workshop Structure

- One-hour sessions led by two POCUS-trained instructors, occurring from August to October 2025
- 15-minute didactic presentation to review indications, technique, interpretation of findings, and clinical application of gastric POCUS
- Hands-on scanning session of two standardized patients – one appropriately NPO and the other having recently consumed a full meal
 - Subsequent real-time scanning as NPO patient drinks carbonated liquid to see change in exam and perform validated measurements

Outcome assessment

- Pre- and post-test knowledge assessments
- Pre- and post-test self-reported confidence and competency using a 5-point Likert scale
- 6-month follow-up assessment of both knowledge and self-reported competency (ongoing)

RESULTS

Training Sessions

Figure 1: Dynamic Ultrasound Exam



Fig.1. A total of 35 sessions took place over 4 months. Participants performed real-time scanning and interpretation of results. Images above show gastric ultrasound exam findings of an NPO standardized patient before and after drinking a carbonated beverage.

Scope of Project

Figure 2: Provider Participation

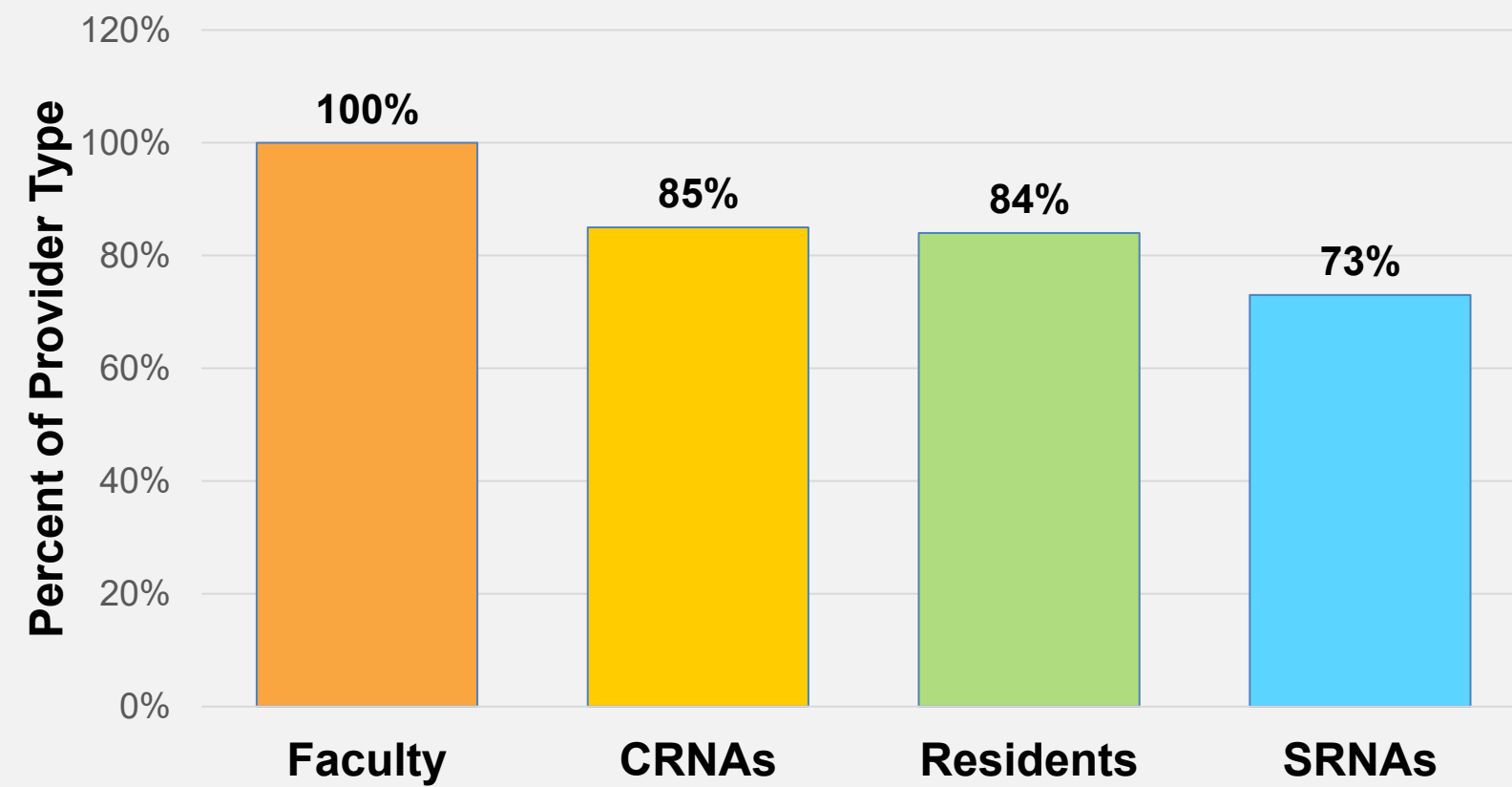


Fig.2. 209 anesthesia providers participated in the Gastric POCUS Workshops. This included faculty, trainees, and 7 additional providers (fellows and locums).

Clinical Utilization

Figure 3: Post-Workshop Implementation

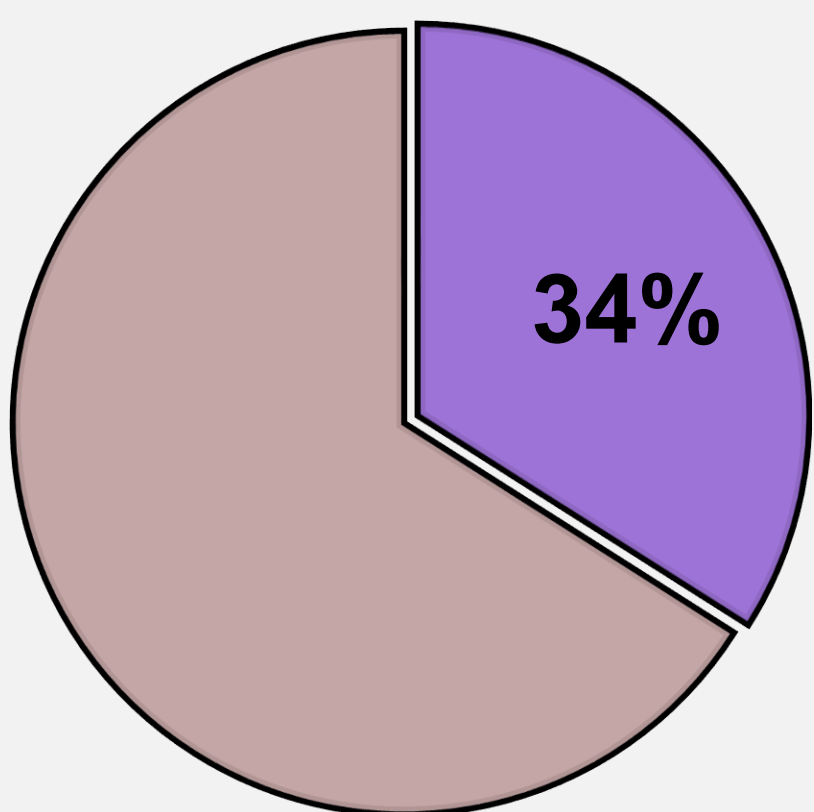


Fig.3. On 6-month follow-up assessment, 34% of providers endorsed using a preoperative gastric POCUS exam to aide in clinical decision making.

Knowledge-Based Assessments

Table 1: Pre- and Post-Test Results

Timepoint	N	Mean ± SD (%)	Comparisont	(df)	P-Value*
Pre-test	150	64.2 ± 25.8	—	—	—
Post-test	158	90.4 ± 16.0	Post vs Pre	10.66 (246)	<0.001*
6-month follow-up	35	75.4 ± 20.1	6mo vs Pre	2.82 (63)	0.006*

Table 1. Knowledge assessment scores before gastric POCUS workshop, immediately after, and at 6-month follow-up. Values are reported as mean percent correct ± standard deviation. Comparisons with baseline were performed using Welch two-sample t-tests. (*Statistical significance defined as $p < 0.05$)

Figure 4: Pre- and Post-Test Results

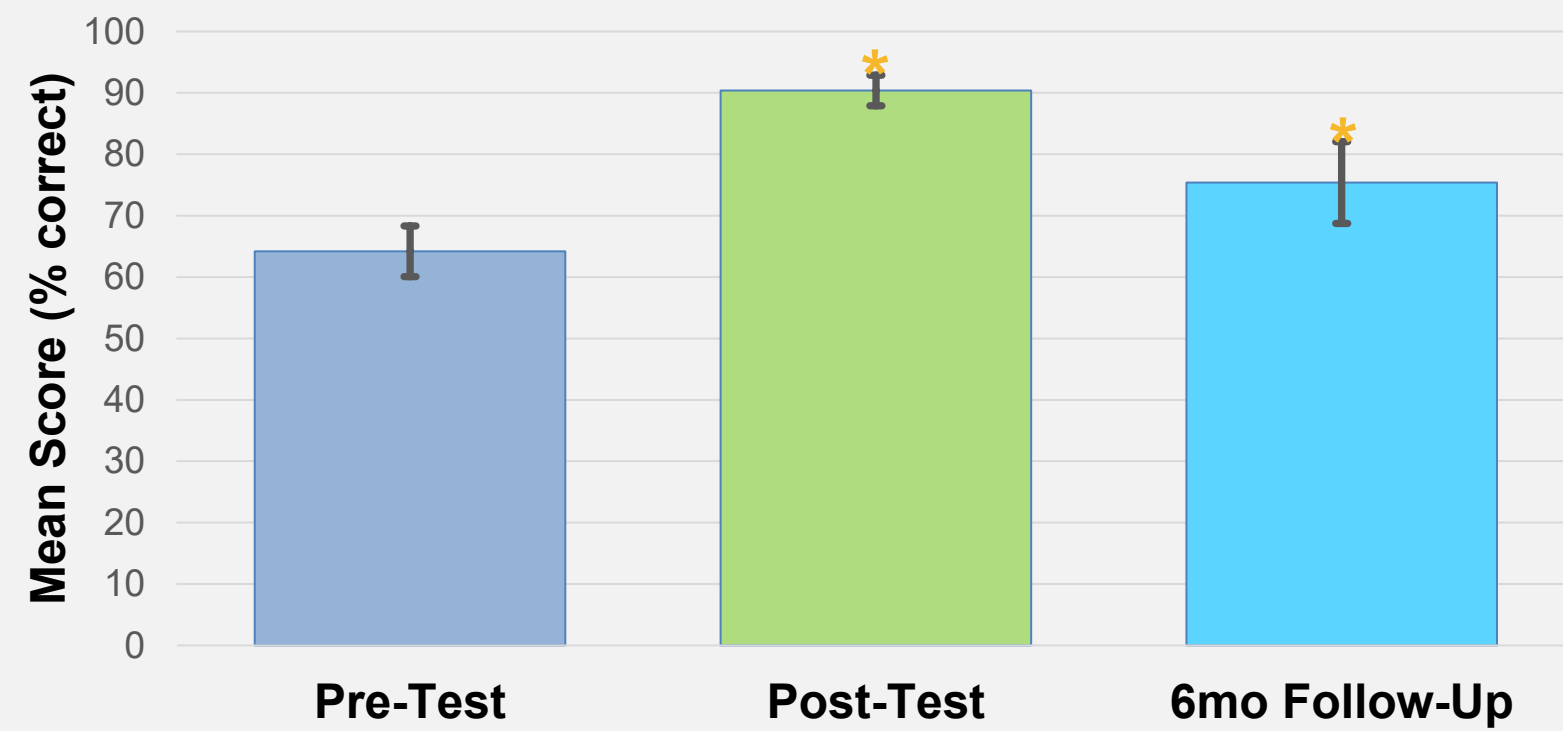


Fig.4. Mean knowledge assessment at different timepoints. Error bars represent 95% confidence intervals.

Self-Rated Competency

Figure 5: Pre- and Post-Test Confidence

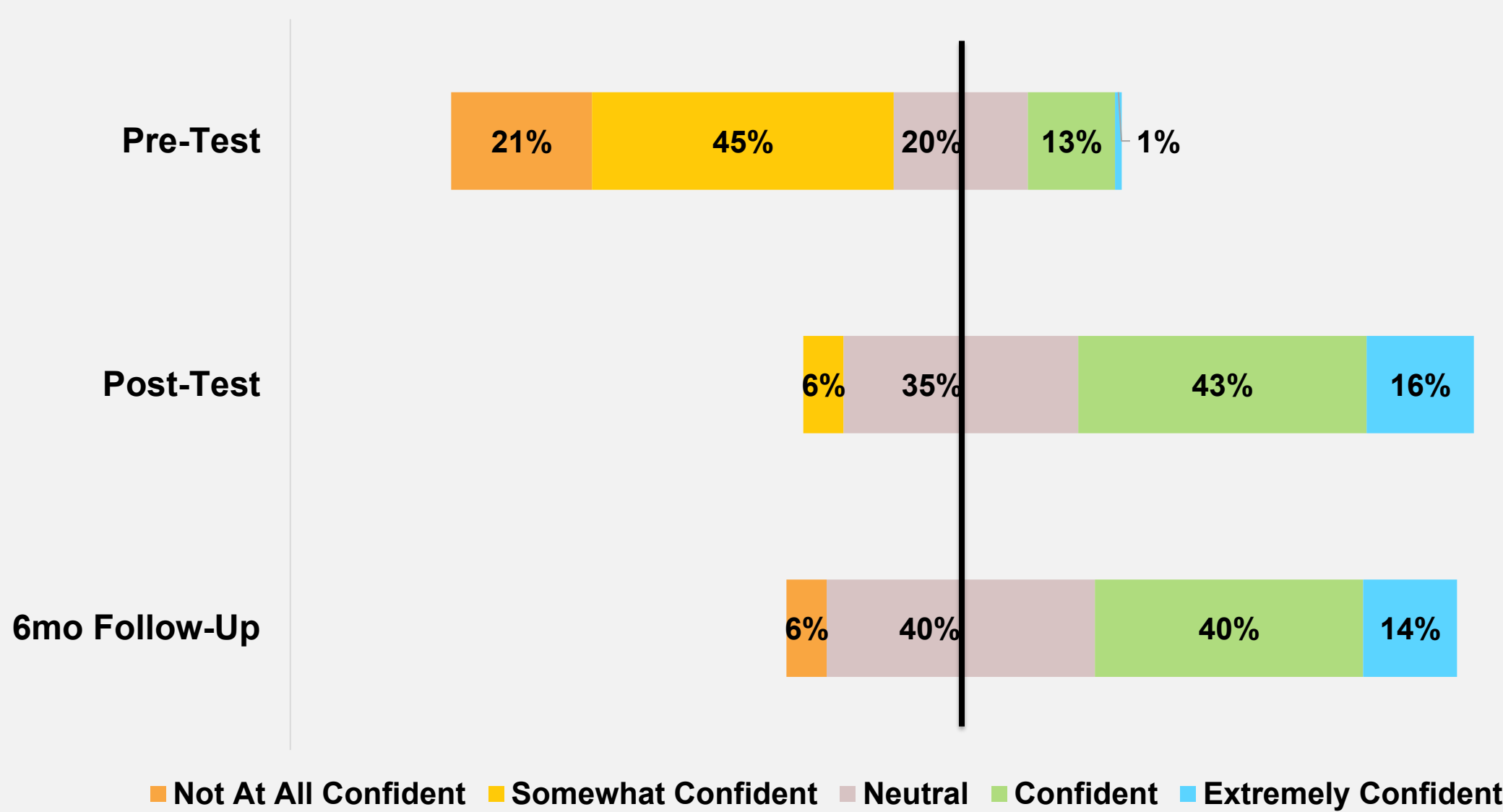


Fig.5. Confidence scores increased from median 2 (IQR 2–3) pre-workshop to 4 (IQR 3–4) immediately post-workshop and remained elevated at 6 months (Mann–Whitney U tests, $p < 0.001$). The probability that a randomly selected post-workshop participant scored higher than a pre-workshop participant was 84.6%, and 87% at 6 months, indicating a large and sustained educational effect. The proportion of participants reporting high confidence (Likert ≥ 4) increased from 16.5% pre-workshop to 53.8% post-workshop and 51.4% at 6 months.

DISCUSSION

- This educational initiative demonstrates how a brief, structured workshop can significantly improve provider knowledge of and confidence in gastric POCUS
- Key strengths of the program include:
 - Strong engagement across training levels
 - Brief time commitment (1 hour)
 - Combination of didactic teaching and hands-on scanning
 - Exposure to dynamic gastric changes
- As perioperative management evolves with medications such as GLP-1-RAs, gastric POCUS may play an increasing role in perioperative risk stratification

CONCLUSIONS

- A structured gastric POCUS training initiative successfully trained >200 anesthesia providers at a large academic center
- Preliminary results demonstrate:
 - Retained knowledge at 6-month follow-up
 - Significant improvement in provider confidence
- Future analysis will assess long-term knowledge retention and clinical adoption, informing scalable educational strategies for gastric POCUS training

REFERENCES

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