

# Routine Evaluation with Gastric Ultrasound to Reduce Gastric Aspiration (REGURGA)

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## Abstract and Introduction

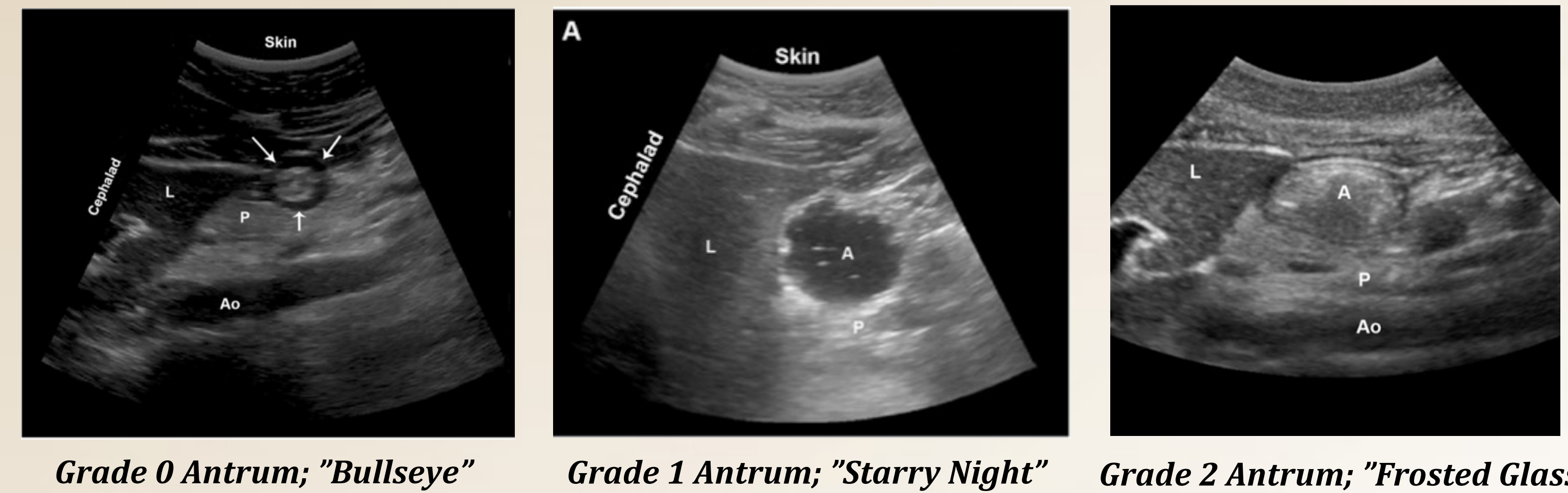
- Patients undergoing anesthesia are at risk for intrapulmonary aspiration of gastric contents
- Despite adherence to ASA guidelines, patients still aspirate
- Technological advancements in ultrasonography allow point-of-care evaluation of the gastric antrum with volume estimation
- Gastric volume of >1.5 ml/kg suggests a “full stomach”
- Patients with full stomachs are at a higher risk for aspiration

## Significance

- Perioperative aspiration can lead to long-term complications and death
- Mechanically ventilated ICU stays are costly to patients and their families
- Comorbidities are not always known; proper anesthetic technique not always chosen

## Problem Statement

(P) In patients undergoing anesthesia with specific, risk-identified comorbidities or conditions, (I) would the development and implementation of EBP guidelines for evaluation of preoperative gastric status using point-of-care ultrasound (C) versus traditional anesthetic approaches (O) affect the incidence of perioperative aspiration?



## Project Description and Design

- Clinical practice guideline implementation at a large, urban, level one trauma center in the midwestern United States
- Education program to familiarize anesthesia providers with ultrasound assessment of the gastric antrum
- Implementation of proposed guidelines, monitoring implementation, and adjusting the project implementation as needed
- Anesthesia providers will use ultrasound to assess the gastric antrum of at-risk patients regardless of their self report of fasting status to rule out unexpectedly full stomachs
- Anesthesia providers will document their findings in the electronic medical record

Task	Proposed Timeline											
	1	2	3	4	5	6	7	8	9	10	11	12
Guideline Development, Technology, Meet with Key Stakeholders	█	█	█									
Train Anesthesia and Pre-operative Nursing Staff		█	█	█								
Integrate Guideline into Practice			█	█	█	█	█	█	█	█	█	█
Observe Compliance, Survey Staff, Collect Data				█	█	█	█	█	█	█	█	█
Review Data											█	█
Make Adjustments According to Comprehensive Plan												█

## Guideline Recommendations

### Recommendation #1

All anesthesia providers should receive education, including hands-on practice, about qualitative gastric antrum assessment and quantitative gastric volume estimation.

### Recommendation #2

Patients that warrant preoperative ultrasound assessment of the gastric antrum are those with:

1. Unknown/uncertain NPO status, including those with acutely or chronically altered mental status (intoxication, dementia, etc.)
2. Type I and II diabetics
3. End-stage renal disease
4. Liver disease
5. Critical illness
6. Neuromuscular disorders
7. Acute pain, opioid use

### Recommendation #3

Anesthesia providers will document ultrasound imaging and interpretation in the EMR, evaluate the anesthesia plan, and make modifications if indicated.

Recommended modifications are:

1. If the urgency of the surgery allows, delay or cancel surgical cases for a patient with a Grade 1 antrum and estimated gastric volume of >1.5 ml/kg in the RLD position or those with a Grade 2 antrum in any position.
2. If the surgery must be performed, consider preoperative premedication, preoperative nasogastric tube suctioning, and RSI intubation.

## Evaluation

- Retrospective chart review to determine aspiration incidence, stomachs identified as full, surgical delay creation
- Surveying of staff by the Chief CRNA/Chief Anesthesiologist for feedback regarding the process
- Modify the plan based upon findings and feedback in collaboration with stakeholders

## References

