18th International Congress of Anesthesiology, Critical Care and Pain

Point-of-Care Ultrasound (POCUS): A New Paradigm in Everyday Anesthesia Practice

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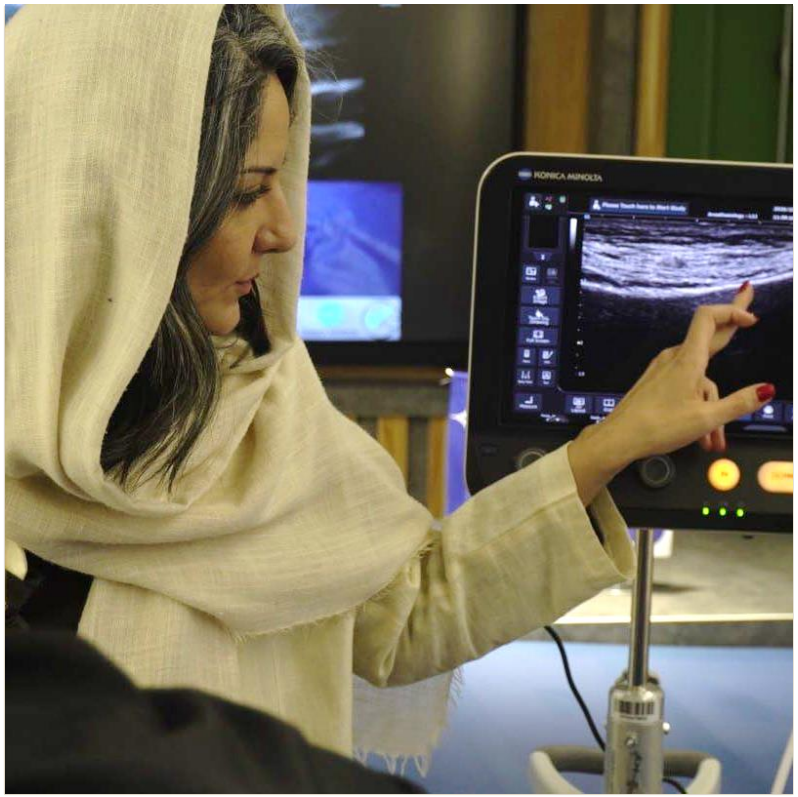
About the Speaker



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01

Point Of Care Ultrasound



Point-of-Care Ultrasound in the Operating Room



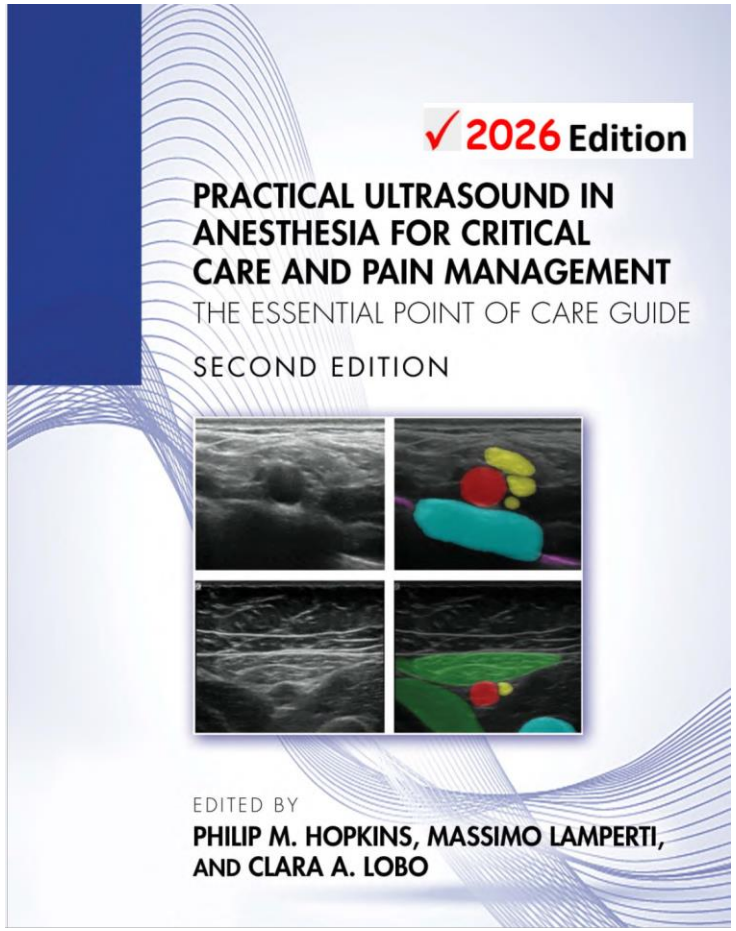
Can one image change what I do in the next 30 seconds?

What is POCUS?

- Ultrasound performed and interpreted by the treating clinician.
- Focused on a specific clinical question.
- Conducted at the bedside or in the operating room.
- Integrated immediately into clinical decision-making.

POCUS transforms uncertainty into actionable information.

Why should every general anesthesiologist know POCUS?



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Making POCUS part of everyday anesthesia

MINIMUM SUPERVISED POCUS TRAINING

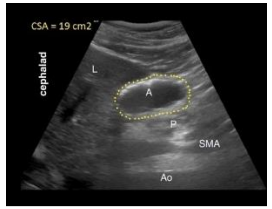
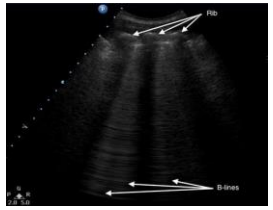
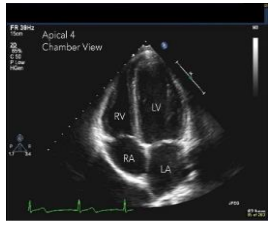
Personally performed & interpreted + Additional studies interpreted

POCUS DOMAIN	PERFORMED + READ	ADDITIONAL READ
Focused cardiac (FoCUS)	50	100
Focused gastric	30	20
Focused airway	30	20
Pleural / pulmonary	30	20
FAST examination	30	20
Renal / GU and DVT (each)	30	20
Transcranial Doppler	100	N/A

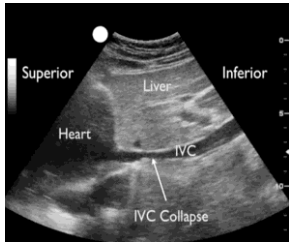
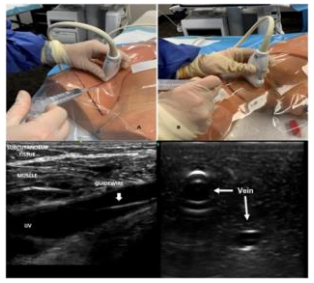
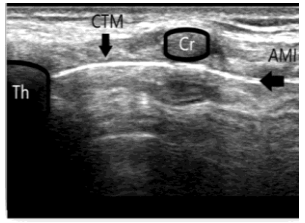
Ocular and musculoskeletal / soft-tissue: no numeric minimum proposed (insufficient evidence).

Source: ASA Ad Hoc Committee, Committee Work Product on Diagnostic POCUS, Appendix A, pp. 7–8. Not an official ASA guideline.

Essential POCUS techniques

Technique	Description
1. Gastric POCUS 	Assess gastric content and volume to estimate aspiration risk before induction, particularly in emergency surgery, patients with uncertain fasting status, and selected patients taking GLP-1 receptor agonists.
2. Lung POCUS 	Rapidly assess pneumothorax, interstitial edema, pleural effusion, and lung aeration in patients with hypoxemia or unexpected respiratory deterioration.
3. Focused cardiac POCUS (FoCUS) 	Assess gross ventricular function, pericardial effusion, right ventricular dilation, and major abnormalities in patients with unexplained hypotension or cardiovascular instability.

Essential POCUS techniques

Technique	Description
4. Hemodynamic POCUS 	Integrate cardiac findings, lung findings, and venous assessment to help evaluate shock and guide fluid or vasopressor decisions.
5. Vascular POCUS 	Improve peripheral and central venous access, identify vessel anatomy, distinguish veins from arteries, and confirm needle-tip position during ultrasound-guided procedures.
6. Airway POCUS 	Airway Examination and tube placement confirmation. e.g. Localize the cricothyroid membrane and support tracheal tube confirmation.

02

Point-of-Care Gastric Ultrasound

For Estimation of Aspiration Risk



یک تجربه تلخ: مرگ ناشی از آسپیراسیون در مصرف‌کننده داروهای آگونیست GLP-1



- بیمار با وضعیت عمومی پایدار و بررسی‌های پیش از عمل طبیعی، برای انجام یک جراحی **برنامه‌ریزی‌شده** تحت بیهوشی عمومی قرار گرفت.
- بیمار اعلام کرد که دستورالعمل ناشتایی را رعایت کرده و ۱۰ ساعت کاملاً ناشتا بوده است.
- پس از القای **بیهوشی عمومی**، دچار آسپیراسیون، افت شدید اکسیژن خون و نارسایی حاد تنفسی شد و علی‌رغم اقدامات احیا، **فوت** کرد.
- در بررسی‌های بعدی مشخص شد بیمار به‌طور هفتگی یکی از داروهای کاهش وزن از گروه **آگونیست‌های GLP-1** (مانند **Ozempic**، **Wegovy** یا **Mounjaro**) را مصرف می‌کرده است.
- بیمار این موضوع را به تیم درمان اطلاع نداده بود و مصرف دارو نیز در شرح حال و پرونده ثبت نشده بود.
- بیمار در مرحله افزایش تدریجی دوز دارو قرار داشت و هنوز دچار تأخیر در تخلیه معده بود.

Guidelines

NEWS

June 29, 2023

American Society of Anesthesiologists Consensus-Based Guidance on Preoperative Management of Patients (Adults and Children) on Glucagon-Like Peptide-1 (GLP-1) Receptor Agonists

Update: In October 2024, ASA issued an Affirmation of Value for a more recent, multi-society guidance GLP-1 document. Read more ...

Preprocedure Care of Patients on Glucagon-like Peptide-1 Receptor Agonists: A Multisociety Clinical Practice Guidance

Girish P. Joshi[1], Teresa LaMasters, Tammy L. Kindel

Authors and Affiliations ›

Anesthesiology 141(6):p 1208-1209, December 2024. | *DOI:* 10.1097/ALN.0000000000005231

BJA British Journal of Anaesthesia

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CORRESPONDENCE · Volume 136, Issue 5, P1682-1685, May 2026

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Perioperative management of glucagon-like peptide-1 receptor agonists: international guidance and variability in recommendations

Clayton Lam [1,2] · Venkatesan Thiruvenkatarajan [1,3] · Nagesh Nanjappa [1,3] · Yasmin Endlich [3,4] · D-Yin Lin [5]

Affiliations & Notes Article Info

Modified Summary Recommendations from the Multisociety Clinical Practice Guidance on Periprocedural Use of GLP-1RAs

Recommendation 1	Standardized preoperative assessment for risk of delayed gastric emptying (yes/no): 1. Presence of gastrointestinal symptoms suggesting delayed gastric emptying; recent dose increases, higher doses, and weekly administered medications may increase the risk of gastrointestinal symptoms 2. Medical conditions beyond GLP-1RA usage, which may also delay gastric emptying
Recommendation 2	Selective preoperative care plan based on delayed gastric emptying assessment and shared decision-making: 1. Continue GLP-1RA therapy preoperatively if there is no concern for delayed gastric emptying 2. If elevated risk of delayed gastric emptying exists: a. Recommend liquid only diet for at least 24 h before procedure with usual recommended fasting protocol, or b. Evaluation of the feasibility of medication bridging if GLP-1RAs need to be discontinued
Recommendation 3	On the day of procedure, reassess for delayed gastric emptying and mitigate risk if clinical concern: 1. Proceed with procedure as planned if there is no concern for delayed gastric emptying 2. If elevated risk of delayed gastric emptying exists: a. Consider point-of-care gastric ultrasound and/or b. Consider rapid sequence induction of general anesthesia, if appropriate c. Minimize procedure cancellation when possible

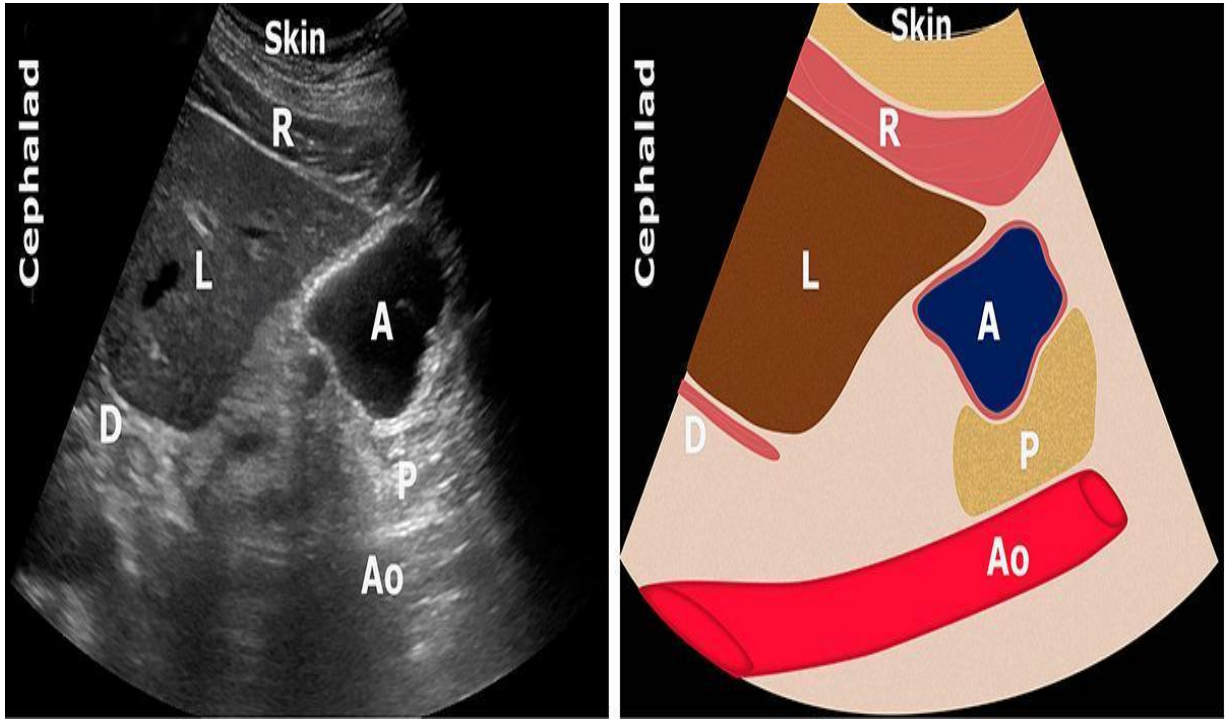
GLP-1RA, glucagon-like peptide-1 receptor agonist.

A **Multisociety consensus** for the management of patients on GLP-1RAs was developed by representatives from the American Society of Anesthesiologists, the American Gastroenterological Association (Bethesda, Maryland), the American Society for Metabolic and Bariatric Surgery (Gainesville, Florida), the International Society of Perioperative Care of Patients with Obesity (Lynnwood, Washington), and the Society of American Gastrointestinal and Endoscopic Surgeons (Los Angeles, California).

Gastric ultrasound

Fasting history is essential, but sometimes insufficient:

- **Emergency or urgent surgery**
- **Uncertain fasting status**
- **Conditions associated with delayed gastric emptying**
- **Selected patients taking GLP-1 receptor agonists**
- **Clinical situations in which the result could change anesthetic management**



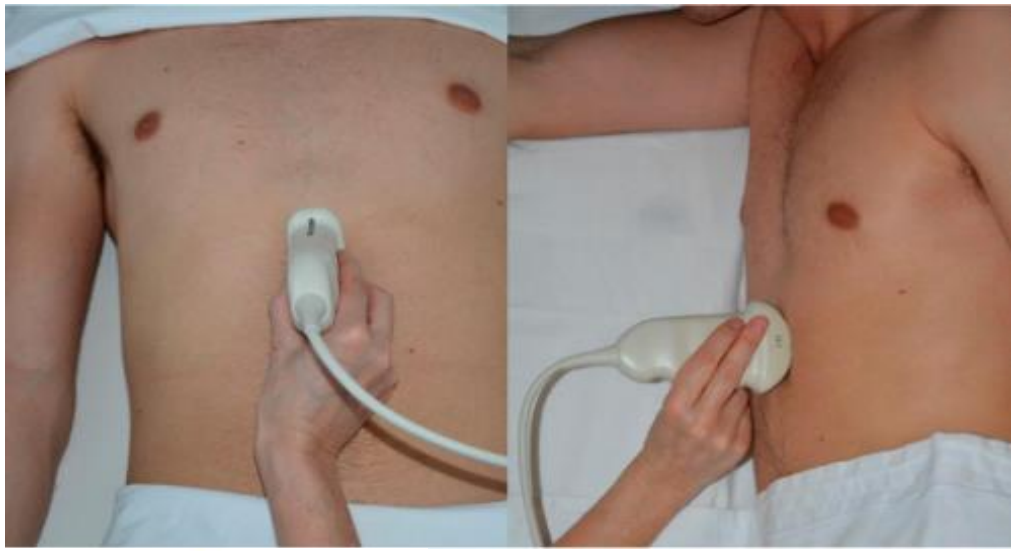
How to perform gastric POCUS

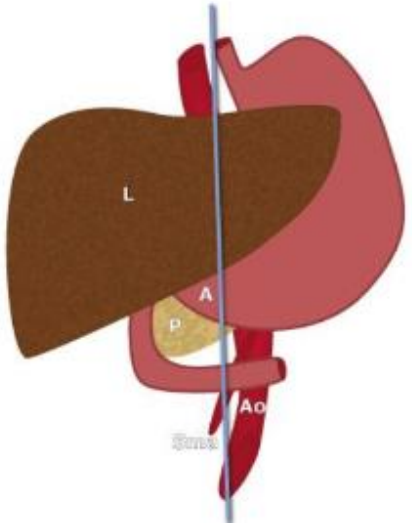
Position: Begin supine;
then right lateral decubitus position when feasible.

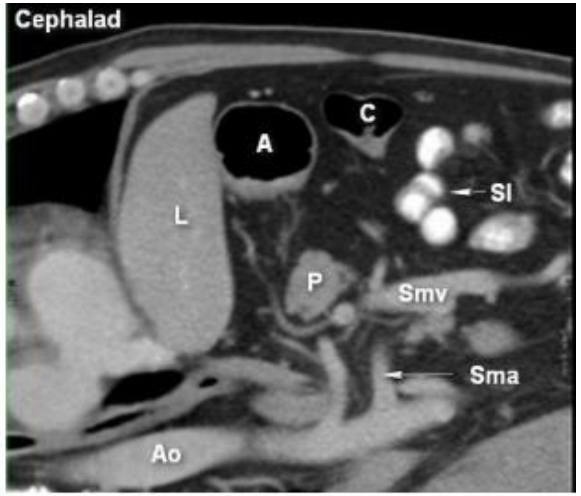
Probe: low-frequency curvilinear probe for adults.

Landmarks: Identify the gastric antrum between the left liver lobe anteriorly and
the pancreas/aorta region posteriorly.

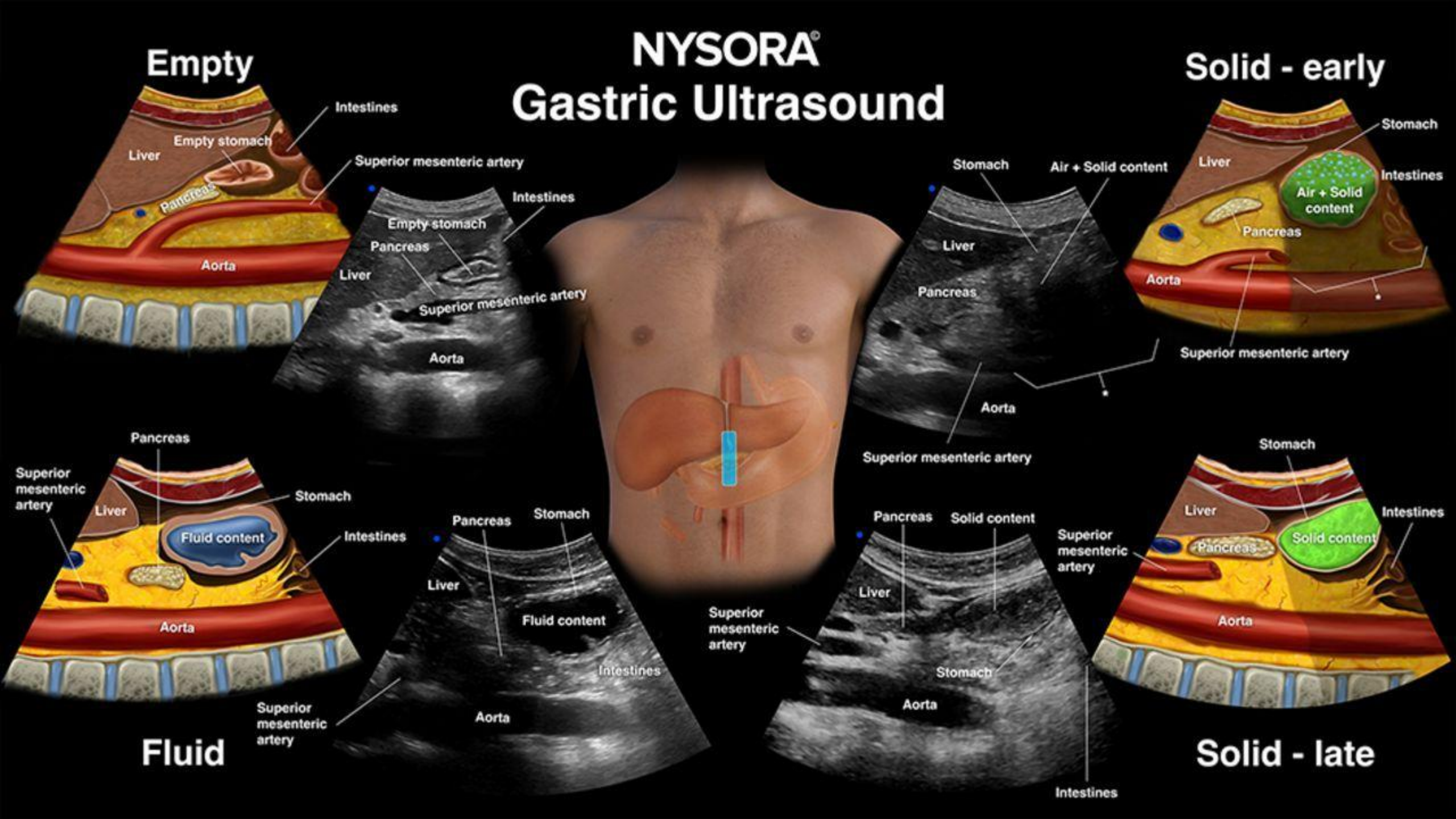
Assess: Examine the antrum qualitatively and, when appropriate, quantitatively.

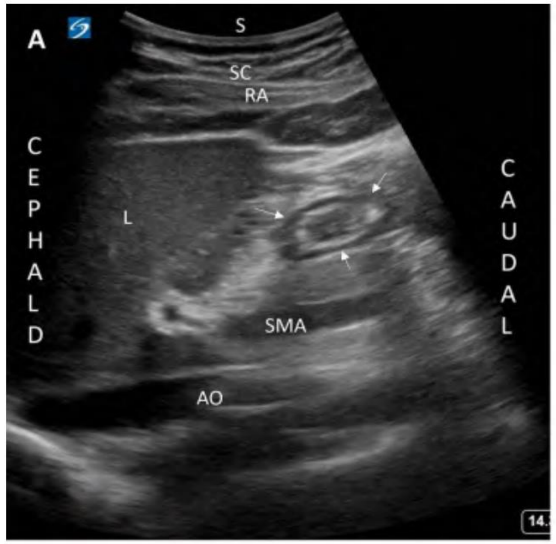






NYSORA®
Gastric Ultrasound

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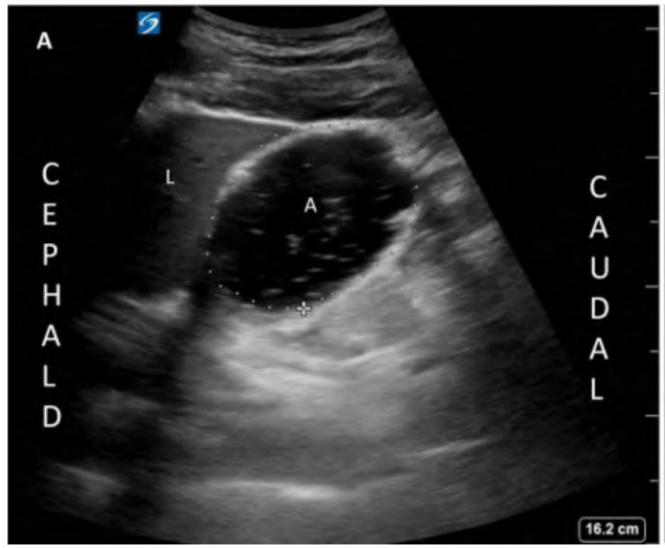
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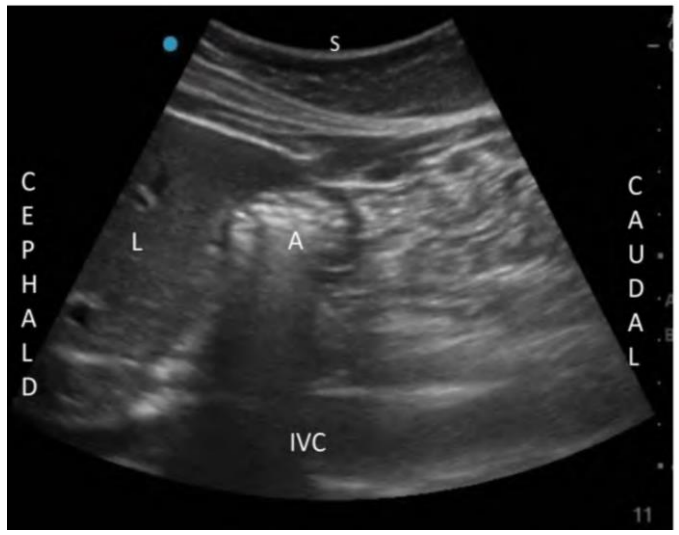
CAUDAL
L
A
16.2 cm


B
RIGHT
LEFT
Py
A
14.3 cm


A
CEPHALD
CAUDAL
L
14.3 cm


B
RIGHT
LEFT
14.3 cm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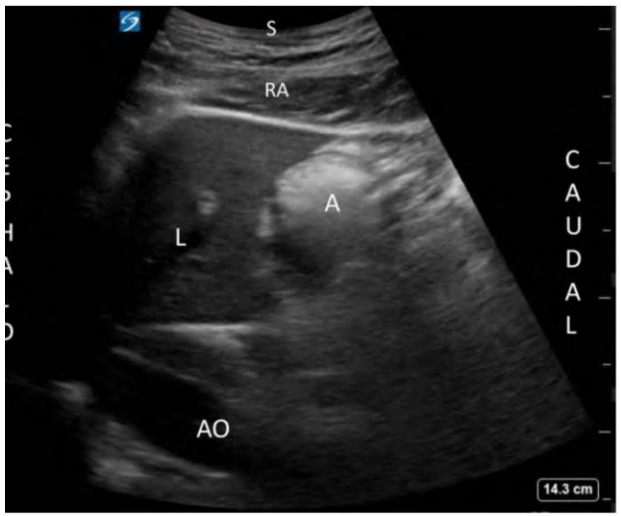
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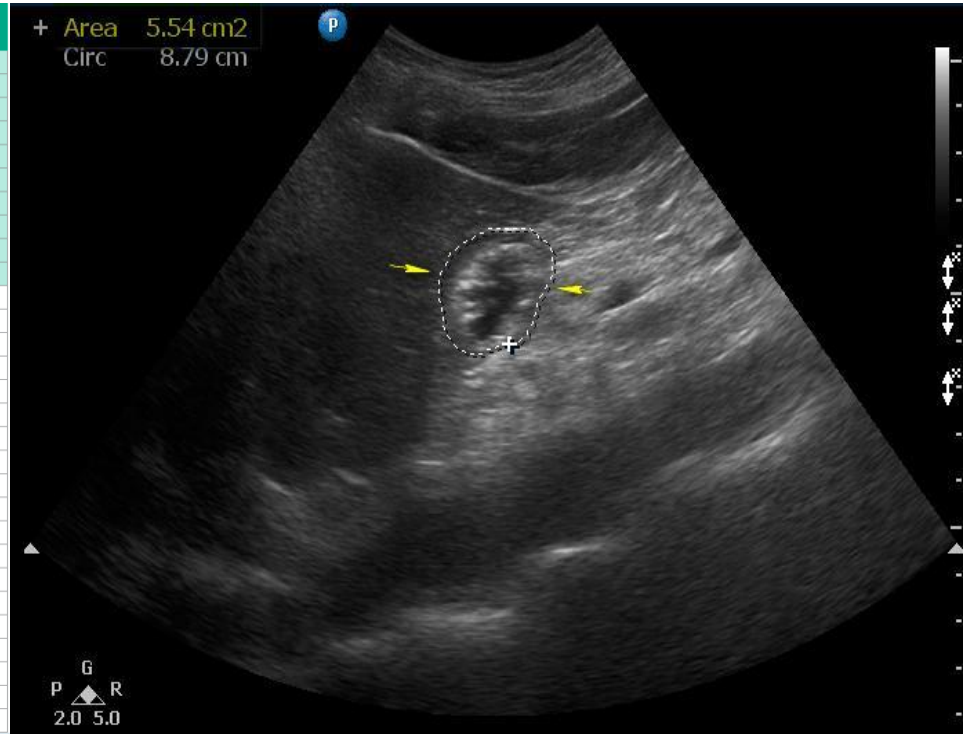
14.3 cm

GASTRIC VOLUME ASSESSMENT (CLEAR FLUIDS)



Right lat CSA (cm^2)	Age(y) 20	30	40	50	60	70	80
2	**31**	**18**	**5**	**0**	**0**	**0**	**0**
3	**45**	**32**	**20**	**7**	**0**	**0**	**0**
4	**60**	**47**	**34**	**21**	**9**	**0**	**0**
5	**74**	**62**	**49**	**36**	**23**	**10**	**0**
6	**89**	**76**	**63**	**51**	**38**	**25**	**12**
7	103	**91**	**78**	**65**	**52**	**40**	**27**
8	118	105	**93**	**80**	**67**	**54**	**41**
9	133	120	107	**94**	**82**	**69**	**56**
10	147	135	122	109	**96**	**83**	**71**
11	162	149	136	123	111	**98**	**85**
12	177	164	151	138	125	113	100
13	191	178	165	153	140	127	114
14	206	193	180	167	155	142	129
15	220	207	194	182	169	156	143
16	235	222	209	200	184	171	158
17	249	236	224	211	198	185	173
18	164	251	239	226	213	200	187
19	278	266	253	240	227	214	202
20	293	281	268	255	242	229	217
21	307	295	282	269	256	244	231
22	323	310	297	284	271	259	246
23	337	324	311	298	285	273	260
24	352	339	326	313	301	288	275
25	366	353	340	327	315	302	289
26	381	368	355	343	330	317	304
27	395	382	369	357	344	331	318
28	410	397	385	372	359	346	333
29	424	411	398	386	373	360	347
30	439	427	414	401	388	375	363



Medical Decision Making

ANTRAL GRADING SYSTEM (GRADES 0 - 2)

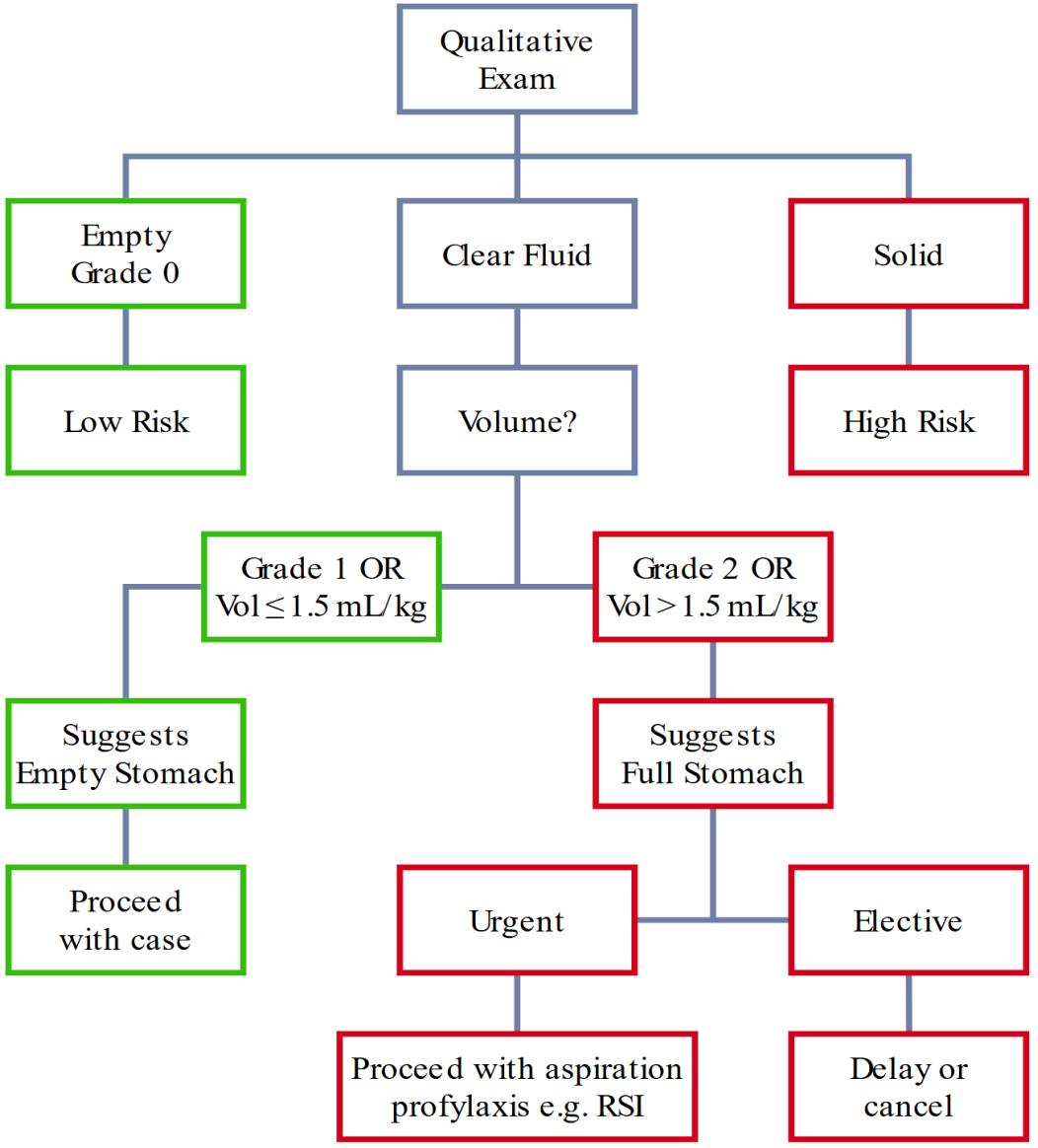
GRADE	ANTRAL PRESENTATION	VOLUME IMPLICATIONS	ASPIRATION RISK
0	Empty in both supine and RLD position	Minimal	Low risk
1	Empty in supine, clear fluid visible in the RLD	⩽ 1.5 mL/kg, compatible with baseline gastric secretions	Low risk
2	Clear fluid visible in both positions	> 1.5 mL/kg, likely in excess of baseline gastric secretions	High risk

- Most fasted individuals (> 95 %) present a grade 0 or 1 antrum which correlates with low gastric volume
- A grade 2 antrum is rarely seen in fasted patients and is suggestive of significant gastric volume
- This antral grading system has been validated in children, obese and non-obese adults and obstetric patients

Qualitative Interpretation

Your findings will help you decide if you should:

- Delay
- Cancel
- Proceed ± aspiration prophylaxis
- Insert nasogastric tube: pre-, per- or post-operatively
- Use a laryngeal mask or endotracheal tube
- Do standard intubation or rapid sequence



BJA | British Journal of Anaesthesia



Perioperative management of glucagon-like peptide-1 receptor agonists: international guidance and variability in recommendations



Clayton Lam [1,2] · Venkatesan Thiruvenkatarajan [1,3] ✉ · Nagesh Nanjappa [1,3] · Yasmin Endlich [3,4] · D-Yin Lin [5]

BJA | Volume 136, Issue 5, P1682–1685, May 2026 | Correspondence

Table 1 Comparison of international recommendations for perioperative management of GLP-1 receptor agonists

Domain	ANZCA 2025	Canadian guidelines, 2025 (Goldenberg et al.)	SPAQI 2025	AOA/RCOA 2025	ESAIC 2025	ASA 2024	ISMP 2023
GLP-1RA cessation before surgery	Not recommended.	• Routine cessation not recommended in the absence of higher risk factors. • High-risk: recent long-acting (within 16 weeks or during titration) or short-acting GLP-1RAs, GI symptoms, HbA1c >9%, or other drugs delaying gastric emptying.	—	Elective procedures should be rescheduled, if possible, for those on recent long-acting agents or still under titration.	—	• If not feasible, or if other risk factors are present, withhold long-acting agents for five half-lives and short-acting agents for three half-lives, and maintain a liquid diet the day before. • Assess hyperglycaemia and weight gain risks, and consider bridging therapy.	Not recommended.
Preoperative diet	Mandatory 24-h clear fluid diet, followed by 6-h standard fasting.	24-h liquid diet 1 day before surgery and standard fasting guidelines in those without higher risk factors.	• Mandatory 24-h clear liquid diet followed by NPO for 4 h. • Fasting for high-carbohydrate content clear fluids (≥10% glucose) for 8 h preprocedure.	Standard fasting recommendations. No mention of clear fluid diet.	Clear fluid diet considered 24 h preprocedure.	Consider 24-h preprocedure clear fluid diet for high-risk patients only.	Standard recommended fasting.
Gastric ultrasonography	Recommended.	Recommended if gastrointestinal symptoms present on day of procedure.	Recommended.	Recommended.	Recommended.	Recommended.	Recommended.
Prokinetic therapy	Erythromycin 3 mg kg^{-1} i.v. (up to 250 mg) 90–120 min preprocedurally.	Not mentioned in recommendations.	Not mentioned.	Erythromycin 3 mg kg^{-1} (up to 250 mg) 60–120 min preprocedurally.	Not mentioned.	Not mentioned.	Not mentioned.

Take-Home Messages

1

POCUS is an extension of the anesthesiologist's clinical examination.

2

POCUS is an extension of the anesthesiologist's clinical examination.

3




CPR


Care with Confidence
Together, we shape better outcomes.
DEMO MODE


67
124 / 79
99
82
99
IRANIAN SOCIETY OF ANAESTHESIOLOGY AND CRITICAL CARE

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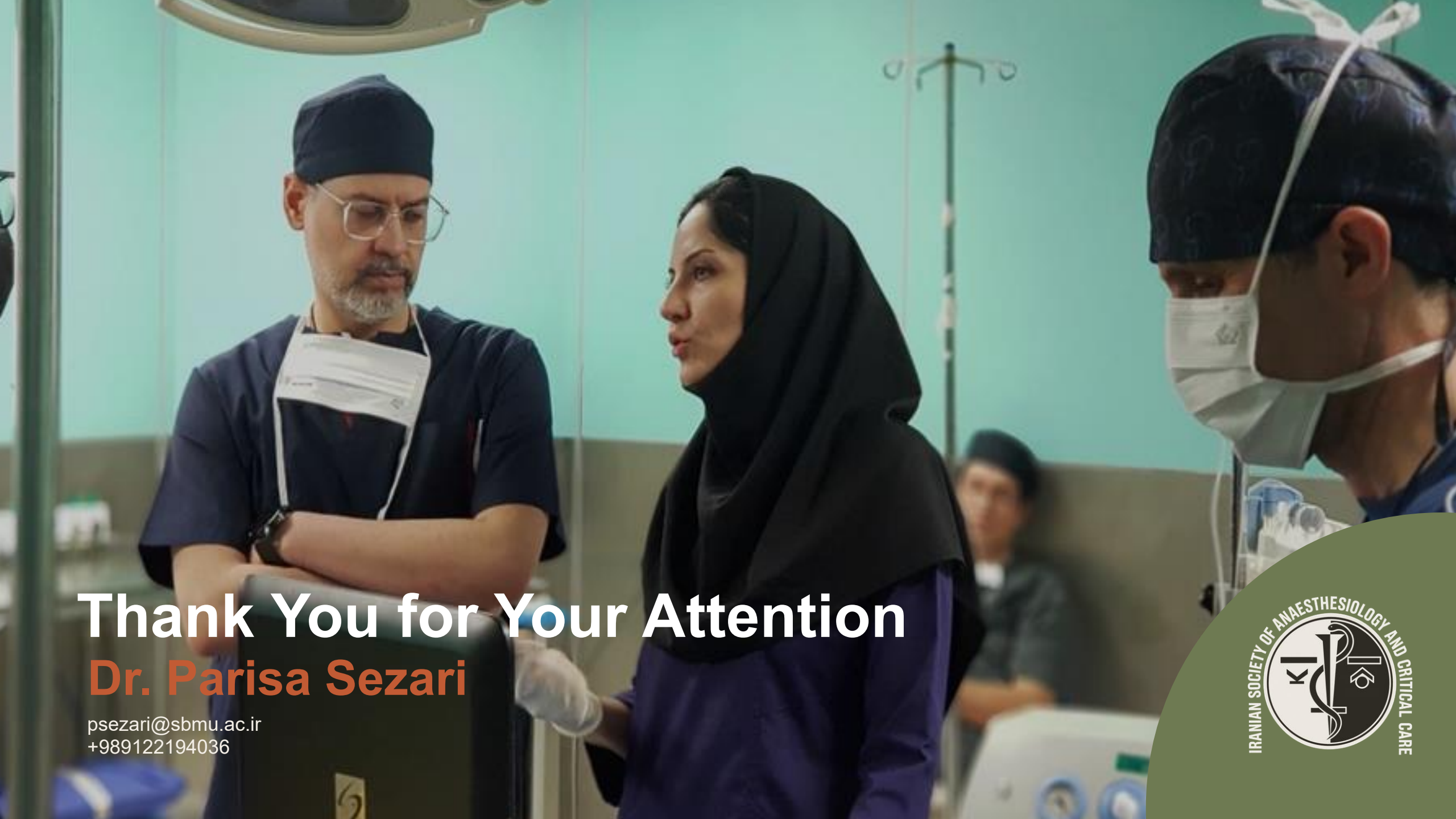

Thank You for Your Attention

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