

"Antral content assessment to assess NPO status in a flipped classroom model: An innovative way to introduce POCUS curriculum in a GI fellowship program"

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CURRICULAR INNOVATIONS

Problem/Needs Assessment: Unlike our European counterparts, the structure and content of point-of-care ultrasound (POCUS) curricula in the United States has not been standardized; and among American gastroenterology (GI) training programs, POCUS curriculum is essentially absent and thus understudied^{1,3}. Available data suggests that antral content assessment can help assess nil per os (NPO) status, yet this is not common practice in the United States². Given the importance of ensuring an empty stomach for performance of GI endoscopy on anesthetized patients, we developed a novel, hands-on model to introduce GI POCUS education into GI fellowship training.

Program Objectives: The educational objectives for the session were 1) how to identify and assess the gastric antrum with POCUS, and 2) demonstrate how to use POCUS as an extension of the physical exam to answer basic questions regarding stomach contents.

Description of Program: Seven GI fellows (PGY 5-7) were provided a pre-workshop assessment of their knowledge of GI POCUS and then subsequently reviewed three short, freely available YouTube introductory videos prior to attending an hour-long workshop. The workshop was structured as a short, 10-minute lecture followed by approximately 50 minutes of scanning three standardized patients (SP). The lecture focused on basics of ultrasound terminology and how to evaluate the antrum to assess NPO status and identify solid versus liquid stomach contents. Then each of the seven fellows were divided into two groups and scanned SP's while the SP's were NPO, then after SP's drank 20 ounces of water, and finally after SP's consumed a sandwich. The antrum and antral contents were identified by each of the GI fellows under the guidance of two, highly experienced lead instructors that were proficient in GI POCUS. A post-test was then administered to the fellows to assess change in knowledge base.

Evaluation/Assessment: The facilitator in each group observed fellows and assessed their ability to acquire an adequate image, identify the antrum, and interpret the findings. By the end of the workshop, all participants were able reliably identify the antrum and accurately interpret the ultrasound findings. Based on the pre- and post-test assessments, participant's ability to correlate bull's eye appearance with NPO status, starry sky appearance to liquid antral content, and frosted glass appearance to solid antral content markedly improved from 12.5%, 25%, and 25%, respectively to 100%, 100%, and 100%, respectively.

Conclusions and Lessons Learned: Using GI POCUS to evaluate antral appearance in order to accurately assess NPO status is an easy and effective hands-on model to teach basic ultrasound principles to GI fellows. The examination of the antrum was selected on the basis of the clinical need to accurately predict gastric contents prior to endoscopy and the predicted ease of incorporating a brief educational session to accomplish this. It was felt that this was a reasonable, evidence-based, and feasible intervention, as the cognitive and technical components of the curriculum could be learned in a competency-based manner while minimizing potential risks to patients^{2,4}. This is a relevant and applicable skill for gastroenterologists and could easily be incorporated into GI training programs and clinical practice alike.

References:

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Internal Medicine Point-of-Care Ultrasound Curriculum: Consensus Recommendations from the Canadian Internal Medicine Ultrasound (CIMUS) Group.

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