GENERAL ENDOSCOPY

S587 Outstanding Research Award in the General Endoscopy Category

High Quality Index Colonoscopies Decrease the Risk for Advanced Outcomes at 10-Year Follow-Up Colonoscopy in Low-Risk Patients With No Index Adenomas or Serrated Polyps

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Introduction: The recent US Multi Society Task Force on CRC (USMSTF) guidelines recommend a 10 year follow up for low risk individuals or those without index adenomas or significant serrated polyps (any SSP/TSA/large (>/= 1 cm) HP). There are few data examining the impact of quality index colonoscopies on the long term risk of advanced outcomes (advanced adenomas, CRC or large (>/= 1 cm) serrated polyps) in these low risk patients. We used data from the New Hampshire Colonoscopy Registry (NHCR) to examine the impact of the quality of index colonoscopies on the risk of advanced outcomes in these patients at a follow up interval of 10 years or longer after index exam.
Methods: Our sample included those NHCR patients with no adenomas or significant serrated polyps on index exam and who had at least one follow up exam 12 months or longer after the index. Our exposure variable was the quality of the colonoscopy. A high quality exam was defined as a complete exam with an adequate bowel preparation, performed by an endoscopist with an adenoma detection rate of 25 or higher. Our outcome was advanced outcomes on follow up colonoscopy 10 years (120 months) or longer. We performed a logistic regression with time as our exposure variable, adjusting for age, sex, family history of CRC and Body Mass Index (BMI). While our main goal was to examine the outcome at 10 years or longer after index, we also examined outcomes at 12-59 months (NHCR median=59 months) and 60-119 months.
Results: There were14,257 individuals in our sample (41.2% men; average age 56.3 years)with low risk findings, 2304 of whom had follow up at 10 years. The absolute risk for advanced outcomes after 120 months was lower for the high quality index exams (4.1% (38/933)) versus (6.6% (91/1371)); (p=0.007). The adjusted risk for the high quality exam group was also lower (OR=0.60; 95% CI 0.40-0.89). While there was a statistically significant increase in the absolute (Table 1a) risk 120 months or longer of follow for patients with low quality index colonoscopy, there was no significant increase in risk for the patients with high quality index colonoscopy (Table 1b).
Conclusion: NHCR data that high quality index colonoscopy provides better protection from interval lesions detected at 10 years or later than low quality exams in individuals with no polyps detected at that index exam. These data support the importance of high quality index exams in the prevention of interval CRC and supports the 10 year interval for normal exams.

Table 1. Absolute risk (and adjusted for 10+ year period) of metachronous advanced outcomes in individuals with 'normal' index colonoscopies (no adenomas or significant serrated polyps), by quality of index colonoscopy

1a. Risk for metachronous advanced outcomes at follow up exams 10 years or longer after index exam

		P value	Adjusted Risk	P value
Low quality index colonoscopy (n=1371)	N=91 6.6%	0.007	1.0 Reference	< 0.01
High quality index colonoscopy (n=933)	N=38 4.1%		OR=0.60 95% CI 0.40-0.89	

1b. Risk for all time periods

	< 60 months	60-119 months	120+ months	P value
Low quality index colonoscopy (n=6952)	94 4.7% 1987	169 4.7% 3594	91 6.6% 1371	< 0.015
High quality index colonoscopY (n=7305)	77 3.6% 2132	184 4.4% 4240	38 4.1% 933	0.30

S588 Outstanding Research Award in the General Endoscopy Category (Trainee)

Cap Assisted Endoscopic Treatment of Esophageal Food Bolus and/or Foreign Body Ingestion: A Systematic Review and Meta-Analysis

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Introduction: Esophageal food bolus and/ or foreign body (FB) impaction is one of the most common gastrointestinal emergencies where early endoscopic intervention is warranted. Early time to intervention with faster procedure time are associated with good patient outcomes. In recent literature, cap assisted endoscopic removal of esophageal FB seems to be associated with favorable outcomes as compared to conventional methods. This meta-analysis reports on the pooled outcomes of cap-assisted endoscopic removal of esophageal FB.
Methods: We conducted a comprehensive search of several databases including Medline, Scopus, Embase, from inception to February 2022, to identify studies reporting on the use of cap in endoscopic treatment of esophageal FB. Standard meta-analysis methods and random effects model was used to calculate the pooled odds-ratio (OR) and mean-difference (MD) with corresponding 95% confidence intervals (CI). I^2% statistics was used to assess the heterogeneity.
Results: Six studies were included that evaluated 677 patients treated with cap-assistance and 694 patients treated with conventional methods. Peptic stricture (32%) and eosinophilic esophagitis (20%) were the most common esophageal disorders. Cap-assisted method demonstrated statistically significant pooled OR for technical success: 7.1 (95% CI [1.9-26.9, p=0.004, I^2%=0]), and enbloc removal: 26.6 [17.6-40.2, p< 0.001, I^2%=0], with significantly faster procedure time, MD: -4.6min [-6.5to-2.8, p< 0.001, I^2%=99]; when compared to conventional method. Better technical success was achieved with cap-assisted method done under general-anesthesia (OR: 8.7, 1.6-47.7, p=0.01, I^2%=0), but faster procedure time was noted with cap-assisted method performed without general-anesthesia (MD: -1.5, -2.7to-0.4, p=0.01, I^2%=99). Pooled adverse events were comparable. However, pooled OR of mucosal tear was significantly less with the use of cap in food-bolus impactions (OR: 0.07, 0.01-0.38, p=0.02, I^2%=0). No airway related adverse events were reported when general anesthesia was not used. (Figure)
Conclusion: This meta-analysis demonstrates significantly better pooled technical success, enbloc removal and faster procedure time with cap-assisted endoscopic removal of esophageal food-bolus and/ or foreign-body impaction as compared to conventional method. With cap-assistance, faster procedure time seems achievable without the need for general anesthesia. However, additional randomized controlled trials are required to further validate this finding.

Outcome	Pooled rate (95% confidence interval) OR: odds ratio, MD: mean difference (cap vs conventional)	Heterogeneity: I2%
Technical success	OR: 7.1 (1.9-26.9), p=0.004 Cap: 99.5% (98.2-99.8) Conv: 97.1% (92.6-98.9), p=0.03	0%
Anesthesia: -yes - no	 OR: 8.7 (1.6-47.7), p=0.01 OR: 5.1 (0.6-44.4), p=0.1	
EnBloc removal	OR: 26.6 (17.6-40.2), p<0.001 Cap: 87.9% (78.1-93.6) Conv: 22.5% (16-30.7), p<0.01	0%
Procedure time	MD: -4.6 (-6.5 to -2.8), p<0.001	99%
Anesthesia: • Yes • No	 MD: -12.1 (-34.8 to 10.6), p=0.3 MD: -1.5 (-2.7 to -0.4), p=0.01	
Adverse events		
Mucosal tear	OR: 0.4 (0.1-1.7), p=0.2	48%
- - food bolus	OR: 0.07 (0.01-0.38), p=0.02	
Loco-regional bleeding	OR: 0.8 (0.4-1.5), p=0.4	0%
Perforation	OR: 1.1 (0.5-2.6), p=0.8	0%

[0588] **Figure 1.** Summary of pooled results

S589

One-Liter Polyethylene Glycol + Ascorbic Acid Bowel Preparation Delivers High Levels of Adequate and High-Quality Bowel Cleansing for Colonoscopy: A Real-World, Multicenter, Observational Study of Over 13,000 Patients

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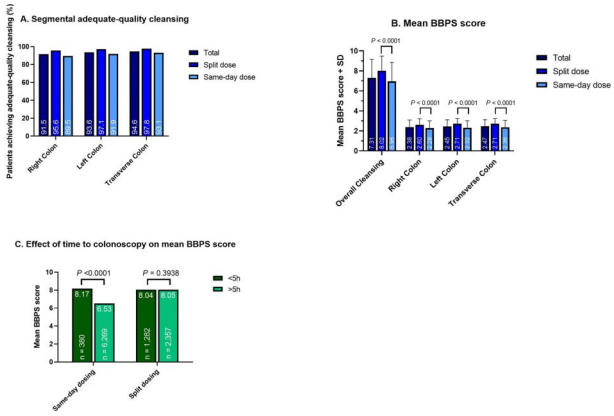
Introduction: 1L polyethylene glycol + ascorbic acid preparation (1L PEG+ASC) has shown high bowel cleansing efficacy in clinical trials. Here we report the largest real-world study on 1L PEG+ASC effectiveness to date.

Methods: An observational, multicenter, retrospective study evaluated outpatients who underwent a colonoscopy between July 2019 and September 2021 at 12 centers in Spain and Portugal. Adults (aged ≥18 years) who had a screening, surveillance, or diagnostic colonoscopy after 1L PEG+ASC as an evening/morning (split dose) or same-day regimen were included. Bowel cleansing was assessed using the Boston Bowel Preparation Scale (BBPS). Adequate cleansing success was defined as a total BBPS score ≥6 with all segmental scores ≥2. Segmental BBPS scores of 3 defined high-quality cleansing. Safety was assessed through registered adverse events (AEs). Cleansing rates between subgroups were compared with the Chi-square test and BBPS scores with the Wilcoxon rank-sum test.

Results: A total of 13,169 patients were included; 48.6% of patients were male, mean (SD) age was 57.0 ± 13.1 years. The main colonoscopy indication was screening (41.9%), followed by diagnostic (29.4%). Most patients (67.2%) received a same-day dosing regimen. Overall cleansing success was achieved in 89.3% (95% CI: 88.7%–89.8%) of patients. High-quality cleansing of the right colon was attained in 49.3% of patients (95% CI: 48.4%–50.2%). The split-dose regimen attained superior adequate colon cleansing success versus the same-day regimen (94.7% vs. 86.7%; $P < 0.0001$) and superior high-quality cleansing of the right colon (65.4% vs. 41.4%; $P < 0.0001$). Rates of adequate bowel cleansing per segment were high for all regimens (Figure A). Overall and segmental BBPS scores were significantly greater with the split-dose versus same-day regimen (Figure B). Effect of time to colonoscopy on mean overall BBPS score was statistically significant in patients receiving same-day dosing (Figure C). Colonoscopy was completed in 97.3% of patients; only 0.8% of procedures were incomplete due to poor preparation. The incidence of AEs was 2.3% (95% CI: 2.0%–2.5%); the main AEs were nausea (1.2%), vomiting (0.8%), and abdominal pain (0.2%).

Conclusion: Results from this large study confirm the high cleansing effectiveness and good tolerability of 1L PEG+ASC in real-world settings.



[0589] **Figure 1.** Bowel cleansing performance of 1L PEG+ASC: (A) Rates of segmental-level adequate-cleansing (BBPS score ≥2); (B) Mean BBPS score for the overall colon and per colon segment; (C) Effect of time to colonoscopy on mean BBPS score in patients receiving same-day or split dose regimens.

S590 Presidential Poster Award

Rubber Band Ligation versus Infrared Coagulation in the Management of Hemorrhoidal Disease: A Systematic Review and Meta-Analysis

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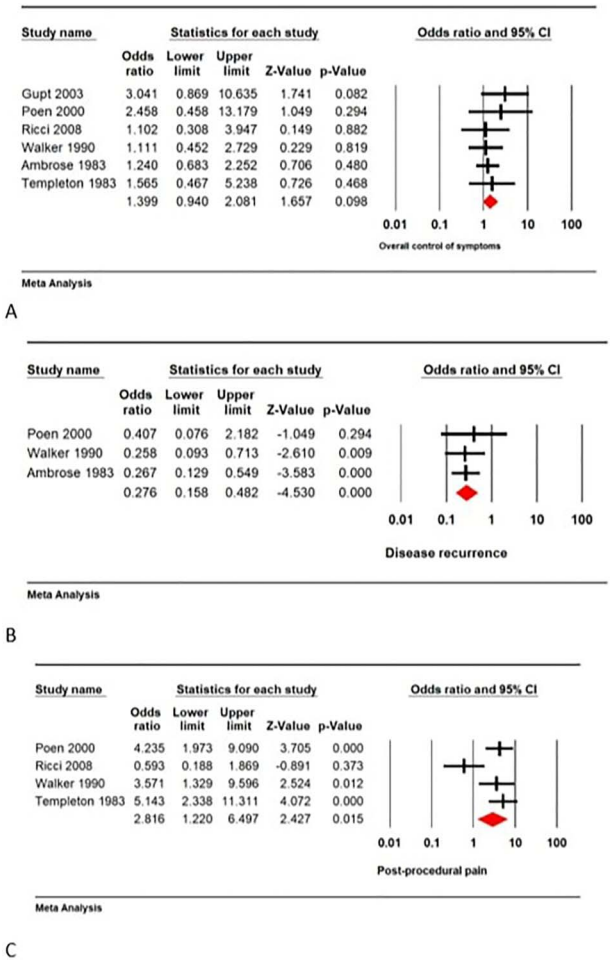
Introduction: Rubber band ligation (RBL) and infrared coagulation (IRC) have been used as office-based procedures in hemorrhoidal disease (HD). Few studies have been published comparing the various types of instrumental therapy. The aim of this systematic review and meta-analysis was to compare the efficacy and safety of RBL and IRC.
Methods: We conducted a systemic review and meta-analysis on the studies that compared RBL and IRC. We performed a comprehensive search in the databases of PubMed/MEDLINE, Embase, and the Cochrane Central Register of Controlled Trials from inception through May, 2022. We considered randomized controlled trials. From each study, we collected the number of patients who were treated with RBL and the number of patients IRC. The primary outcome was overall control of symptoms. The secondary outcomes were disease recurrence, post-procedural pain, and post-procedural bleeding. The random-effects model was used to calculate the odds ratios (OR), mean differences (MD), and confidence intervals (CI). A p-value < 0.05 was considered statistically significant. Heterogeneity was assessed using the Higgins I^2 index.
Results: Six randomized controlled trials involving 359 patients treated with RBL and 381 patients treated with IRC were included in the meta-analysis. The overall control of symptoms was not statistically different between RBL and IRC (OR 1.39, 95% CI 0.94-2.08, p =0.09, I2 = 0%) (Figure A). However, disease recurrence was significantly less in RBL compared with IRC (OR 0.27, 95% CI 0.15-0.48, p =0.00, I2 = 0%) (Figure B). Post-procedural pain was significantly more in RBL compared with IRC (OR 2.8, 95% CI 1.2-6.4, p =0.01, I2 = 70%) (Figure C). No significant difference was observed in post-procedural bleeding between two groups (OR 0.5, 95% CI 0.16-1.7, p =0.29, I2 = 74.9%).
Conclusion: Our meta-analysis demonstrated that RBL is associated with less disease recurrence. There was no statistical difference in overall control of the symptoms or post-procedural bleeding. However, it was associated with more post-procedural pain. Further randomized controlled trials are needed to confirm our findings.



[0590] **Figure 1.** Forest plots showing the odds ratio of: (A) Overall control of symptoms, (B) Disease recurrence, (C) Post-procedural pain

S591 Presidential Poster Award

Comparing Left Colon Mucus Production by Water versus Saline Infusion During Water Exchange Colonoscopy: A Prospective Randomized Controlled Trial

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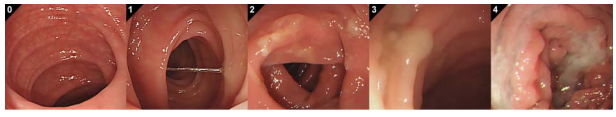
Introduction: Postcolonoscopy colorectal cancer (PCCRC) due to low adenoma detection rate (ADR) prompted search for methods (e.g., cap, endocuff) to increase ADR. Despite human limitations, water exchange (WE) increases ADR vs. gas insufflation (GIE 2021;93:1411). Artificial intelligence (AI) overcomes human limitations to increase ADR (Expert Rev Gastroenterol Hepatol 2019;13:1153). Both WE and AI were amongst the top 10 advances in endoscopy (2017-2021) (GIE 2018;88:1; 2019;90:35; 2020;92:241; 2021;94:441). AI-assisted ADR is hampered by false positives (e.g., bubbles, debris, mucus) (Diagnostics [Basel] 2021;11:1113). WE insertion salvage cleaning improves cleanliness (GIE 2021;93:1411) and reduces false positives (Expert Rev Gastroenterol Hepatol 2019;13:1153). Thus, the strengths of AI and WE complement the weaknesses of each other (GIE 2022;95:1198). However, WE also increases left colon mucus production (Endoscopy 2020;52:1118), a potential source of false positives (GIE 2020;92:900) that can diminish the benefit of WE. We test the hypothesis that saline produces a dose-related inhibition of left colon mucus production.
Methods: Patients were randomly assigned to carbon dioxide (CO_2) insufflation, WE with water, 25% saline, or 50% saline. The primary outcome was the mean left colon mucus scale (LCMS) score obtained by two blinded observers: score 0: no visible mucus; to score 4: opaque mucus in thicker clumps covering views of the lumen (Figure).
Results: Among 296 patients, baseline demographics, indications and procedural data were similar. The LCMS score for WE with water was higher than those for WE with saline and CO_2 insufflation (mean scores were 1.4 [WE water] vs. 0.7 [WE 25% saline] vs. 0.5 [WE 50% saline] vs. 0.2 [CO_2]; $P < 0.0001$), with a kappa value of 0.636 for the interobserver agreement ($P < 0.0001$). More patients who underwent WE with water required additional cleansing for mucus than those who underwent WE with 50% saline (6.7% vs. 0%, $P = 0.032$). Water filling was the only predictor of moderate mucus production (odds ratio, 33.3; 95% confidence interval, 7.2-153.2).
Conclusion: Since mucus is defined as false positive in AI studies, the reduction of WE-induced mucus production by saline opens new avenue of research into the complementary relationship between AI and WE. WE outperforms cap and endocuff (JGH 2021;36:3268; DDAS 2021;66:1175). WE with 50% saline plus AI will be the optimal approach (enhanced ADR) to prevent PCCRC.



[0591] **Figure 1.** Left Colon Mucus Scale score: (score 0) No visible mucus; (score 1) Minimal amounts of clear mucus in thin streaks or strands; (score 2) Mild opaque mucus in thin strands; (score 3) Moderate opaque mucus in thicker clumps covering one side of the surface; (score 4) More opaque mucus in thicker clumps covering more views of the lumen.

S592 Presidential Poster Award

Outcomes and Complications of Radiologic Gastrostomy vs Percutaneous Endoscopic Gastrostomy for Enteral Feeding - An Updated Systematic Review and Meta-Analysis

Zohaib Ahmed, MD[1], Umair Iqbal, MD[2], Muhammad Aziz, MD[3], Syeda F. Arif[4], Joyce Badal, PharmD[5], Umer Farooq, MD[6], Wade M. Lee-Smith, MLS[4], Faisal Kamal, MD[7], Asif Mahmood, MD[4], Ali Nawras, MD[4], Bradley D. Confer, DO[2], Douglas G. Adler, MD, FACG[8].
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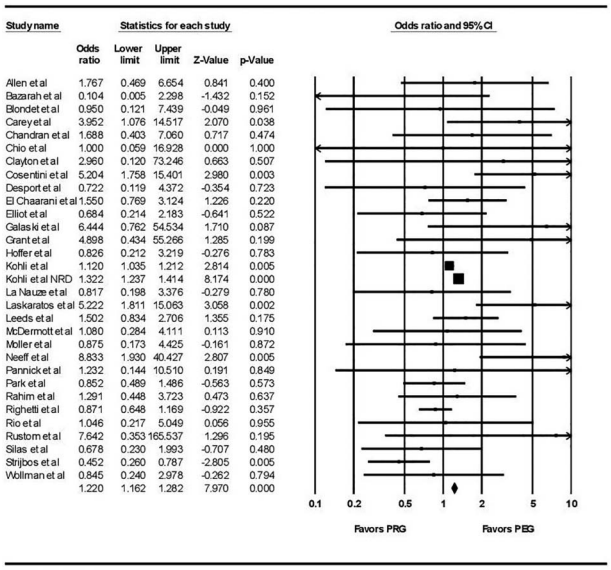
Introduction: Percutaneous endoscopic gastrostomy (PEG) and percutaneous radiological gastrostomy (PRG) are commonly utilized to establish access to enteral nutrition. However, data comparing the outcomes of PEG vs. PRG are conflicting. Our aim was to conduct an updated systemic review and meta-analysis comparing PRG and PEG outcomes.
Methods: A systematic review was conducted using Medline, Embase, and Cochrane library databases until December 21, 2021. Primary outcomes included 30-day mortality, tube leakage, tube dislodgement, perforation, and peritonitis. Secondary outcomes included bleeding, infectious complications, and aspiration pneumonia. All analyses were conducted using comprehensive meta-analysis software.
Results: The initial search revealed 819 studies. Of these, 41 of these studies met our inclusion criteria and were included in the final meta-analysis. Of 471,091 total patients, 194,350 received PRG and 276,741 received PEG. PRG was associated with higher odds of 30-day mortality when compared to PEG (OR: 1.220, 95% CI: 1.162-1.282, I2=54.2%). In addition, tube leakage and tube dislodgement were higher in the PRG group than in PEG (OR: 2.231, 95% CI:1.184-4.2 and OR: 2.612, 95% CI: 1.917-3.56 respectively). Perforation, peritonitis, bleeding, and infectious complications were also higher with PRG than PEG, although this was not statistically significant on sensitivity analysis. There was no significant difference in the risk of aspiration pneumonia. (Figure)
Conclusion: This systematic review and meta-analysis comparing PRG, and PEG outcomes found higher odds of 30-day mortality, tube leakage, and tube dislodgement with PRG compared to PEG. Rates of bleeding, perforation, infectious complications, and peritonitis were significantly higher with PRG than with PEG, but these results did not achieve statistical significance in a sensitivity analysis. Our meta-analysis has the following strengths: systematic literature search with well-defined inclusion criteria, the inclusion of all available studies in the current literature, careful exclusion of redundant studies, high-quality studies with detailed data extraction, and rigorous study quality evaluation. Our pooled rates are calculated from 471,091 patients, a very robust Figure. In summary, PRG is associated with higher 30-day mortality and gastrostomy tube-related complications than PEG. Additional studies, particularly large RCTs, are warranted.



[0592] **Figure 1.** Mortality forest plot.

S593 Presidential Poster Award

Cap-Assisted Endoscopy for Esophageal Foreign Bodies: A Meta-Analysis

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Introduction: Cap-assisted endoscopy has gained popularity as an alternative to the conventional endoscopy techniques of pushing to the stomach or piecemeal removal via mouth of esophageal foreign bodies. We investigated the effectiveness of cap-assisted endoscopy with conventional endoscopy.
Methods: We reviewed several databases from inception to December 2021 to extract studies that compared the effectiveness of cap-assisted endoscopy to conventional endoscopy for removal of esophageal foreign body. Our outcomes of interest were procedure time, time of foreign body retrieval, technical success of the procedure, adverse event rate, and en bloc removal of foreign body. Analysis was performed by calculating odds ratio or mean difference using the random effects model.
Results: Six studies were included in our meta-analysis (n=1,305). Cap-assisted endoscopy demonstrated higher odds of technical success (OR 3.23; 95% CI: 1.53-6.81; p=0.002), and en bloc removal (OR 26.23; 95% CI: 17.41-39.52; p< 0.01) as compared to conventional technique. Furthermore, cap-assisted endoscopy showed decreased odds of adverse events (OR 0.22; 95% CI: 0.06-0.81; p=0.02) and mean time of foreign body removal (MD -11.8 minutes; 95% CI: -18.64 to -4.95; p< 0.01) as compared to conventional technique.
Conclusion: Cap-assisted endoscopy has higher rates of technical success and en bloc removal with reduction in adverse events and time of foreign body retrieval as compared to conventional technique. Cap-assisted endoscopy should be considered as a potential first-line option for esophageal foreign bodies.

S594 Presidential Poster Award

Development and Validation of a Convolutional Neural Network for the Automatic Detection of Multiple Gastric Lesions in Multi-brand Capsule Endoscopy Videos: A Pilot Study

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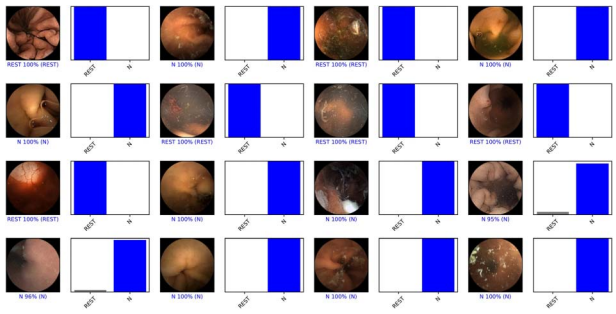
Introduction: Capsule endoscopy (CE) is the goldstandard for the evaluation of the small bowel. However, during the video analysis, various lesions of the upper digestive tract can be seen and reported. To date, performance of artificial intelligence (AI) based algorithms for detection of gastric lesions in CE images has not been evaluated. We aimed to develop and test a CNN-based algorithm for automatic detection of multiple gastric lesions (Vascular and Protruding lesions; Hematic residues and Ulcers/ Erosions of the gastric mucosa).
Methods: We used a total of 12873 CE images, from three different CE types (PillCam Crohn's; PillCam SB3; OMOM HD capsule endoscopy system) for the construction of the CNN: 1407 from protruding lesions; 994 from ulcers and erosions; 840 from vascular lesions and 2851 from hematic residues. The remaining images were from normal mucosa. A training dataset comprising 80% of the images was defined.

Subsequently, we evaluated the performance of the network using an independent test dataset (20% of total image pool). The output was compared to a consensus classification provided by two endoscopists experienced in CE. The performance of the network was measured using the sensitivity, specificity, accuracy, positive predictive and negative predictive values (PPV and NPV, respectively), and area under the curve (AUC).

Results: After optimization of the neural architecture, our model was able to detect detected gastric lesions with a sensitivity, specificity, PPV and NPV of 98.4%, 97.9%, 97.8% and 98.5%, respectively. The algorithm had an overall accuracy of 98.1%. The AUC was 1.00. The output obtained after the CNN application can be seen in the Figure.

Conclusion: To the best of our knowledge this is the first model ever developed for the automatic detection of multiple gastric lesions in multi-brand CE videos. This type of automated algorithms may enhance CE ability for exploring upper gastrointestinal disease.



[0594] **Figure 1.** Output obtained after CNN application

S595 Presidential Poster Award

Efficacy and Safety of the Push and Pull Method for Treatment of Food Bolus Impaction: A Systematic Review and Meta-Analysis

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Introduction: Esophageal food impactions (EFI) contribute significantly to morbidity and health expenditures. Professional recommendations for endoscopic management have advised a pull or bolus extraction method, noting a risk of perforation with the alternative push or gastric advancement method. Recent studies have suggested non-inferior safety of the push method compared to traditional piecemeal extraction. We sought to systematically compare the rate of significant adverse events of the push and pull techniques for EFI.

Methods: MEDLINE and Embase were searched from inception to September 2021. Studies with over five adult participants that reported endoscopic outcomes for EFI were selected. The primary outcomes were success and adverse event rates of endoscopic foreign body removal (FBR) via the pull vs push method. All outcomes were assessed with pooled event rates (ER) and 95% confidence intervals (CI) using a random-effects model, and groups were compared in a mixed-analysis model, with $p < 0.05$ considered significant.

Results: After reviewing 1567 publications, 17 studies with 3296 patients were included. Of these, 1522 cases were treated with the push method and 983 with the pull method. There were no significant differences in demographic data between the two groups. Our analysis of overall adverse events showed that the pull method had ER of 0.046 (95% CI 0.032-0.067), and push ER of 0.058 (95% CI 0.044-0.076), p= 0.798 for the difference. There was a trend towards increased success rates with the push method [pull 0.860 (95% CI 0.749-0.927), push 0.933 (95% CI 0.982-0.997), p= 0.185]. ER of perforation was 0.009 in the pull group (95% CI 0.004-0.019) and 0.012 in the push group (95% CI 0.007-0.023), p= 0.507. ER of bleeding after pull was 0.039 (95% CI 0.024-0.062) and push 0.057 (95% CI 0.040-0.079). For aspiration, the pull ER was 0.024 (95% CI 0.013-0.042) and push 0.014 (95% CI 0.008-0.025), p= 0.536. Overall success rate for all studies for endoscopic treatment of EFI was 0.985 (95% CI 0.935 - 0.996). (Table)

Conclusion: Endoscopic therapy for relieving EFI is effective with low rates of adverse events overall. Based on limited data available, there was a trend for increased success rates with the push technique, and a trend for lower adverse events with the pull method. To our knowledge, this is the first meta-analysis to demonstrate that the push method for treatment of EFI is non-inferior to the pull method with respect to both success rates and safety profile.

Table 1. Pooled event rates of outcomes among patients undergoing treatment of esophageal food impaction with the push vs pull method

Outcome	Event Rate	95% Confidence Interval	No. of Studies (No. of patients)	I Squared Value	P-value
Success, overall	0.985	(0.938-0.996)	14 (2978)	0	
Adverse events, overall	0.009	(0.005-0.015)	17 (3296)	0	
Success, push	0.993	(0.982-0.997)	7 (1479)	81.151	0.185
Success, pull	0.860	(0.749-0.927)	7 (1479)	81.151	0.185
Adverse events, push	0.058	(0.044-0.076)	14 (2908)	57.927	0.798
Adverse events, pull	0.046	(0.032-0.067)	14 (2908)	57.927	0.798
Perforation, push	0.012	(0.007-0.023)	11 (2127)	0	0.507
Perforation, pull	0.009	(0.004-0.019)	11 (2127)	0	0.507
Aspiration, push	0.014	(0.008-0.025)	10 (1915)	0	0.536
Aspiration, pull	0.024	(0.013-0.042)	10 (1915)	0	0.536
Bleeding, push	0.057	(0.040-0.079)	10 (1686)	63.013	0.949
Bleeding, pull	0.039	(0.024-0.062)	10 (1686)	63.013	0.949

S596 WITHDRAWN

S597

A Single Center Clinical Experience With an Intraprocedural Cleansing System for Inadequate Bowel Preparation During Colonoscopy

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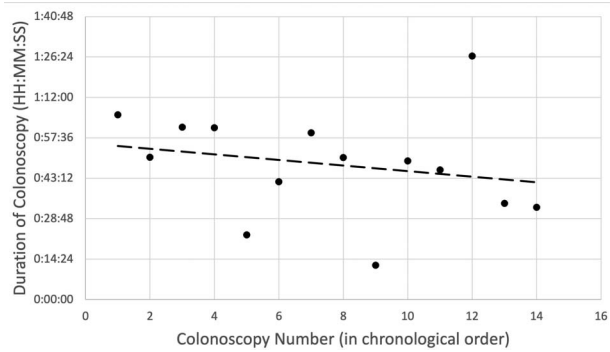
Introduction: Adequate bowel preparation for colonoscopy is essential. Inadequate bowel preparation is common (>25%) despite investments in patient education and advances in low-volume preps. There is an important need to improve bowel preparation at the time of colonoscopy. Pure-Vu® EVS System (MotusGI, Israel) is a single-use oversleeve-based intraprocedural cleansing system. We report the first clinical experience of the 3rd generation of this innovative technology.
Methods: We performed a retrospective review at a VA Hospital assessing the feasibility and efficacy of an intraprocedural cleansing system to improve visualization.
Results: Over 8 weeks, 14 outpatient colonoscopies were performed using the cleansing system. Procedural indications included surveillance and diagnostic (surveillance, n=7; positive FIT, n=1; diarrhea/constipation, n=4; abdominal pain, n=2). Most procedures used moderate sedation. Bowel preparation consisted of 1 bottle of magnesium citrate followed by split-dose large-volume polyethylene glycol and had an adherence rate of 80%. Mean pre-cleansing Boston Bowel Prep Score (BBPS) was 4.2 (range 0-9). In successful cases, the mean post-cleansing BBPS was 8.6 (range 8-9, n=11). Cecal intubation rate was 85%, improving to 100% when excluding sedation and technical failures. Overall procedural success rate was 80%. 3 procedures were unsuccessful (patient discomfort, n=2; technical, n=1). All 7 surveillance exams resulted in the maximum recommended surveillance interval. Average procedure time was 48 minutes. Procedure duration trended shorter over time (R=- 0.22, p-value 0.45) *(Figure)*, especially for the highest-volume proceduralist (n=9).
Conclusion: This is the first reported clinical experience with the 3rd generation intraprocedural bowel cleansing system. Unlike prior generations, this system can be loaded quickly after a poor preparation is endoscopically visualized. The system is relatively easy to use with low procedure failure rates but does come with a learning curve. Procedure duration appears to fall with time and experience. In all surveillance and FIT-positive patients, the procedure was successful and resulted in the longest recommended surveillance intervals. In conclusion, intraprocedural cleansing is both feasible and efficacious. The potential for increased surveillance intervals, improved resource utilization, and patient experience are important considerations when evaluating the utility of an intraprocedural cleansing device to improve bowel preparation.



[0597] **Figure 1.** Colonoscopy Duration Using the Intraprocedural Cleansing System Over Time (All Providers, n=14). There was an overall trend of decreased procedure duration over time using the intraprocedural cleansing system (R=- 0.22, p-value 0.45).

S598

Video Capsule Endoscopy Is of Limited Benefit in the Inpatient Setting

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Introduction: Video capsule endoscopy (VCE) has become an important tool for small bowel evaluation, but its use in the inpatient setting remains controversial as it can have complications (e.g. retention) and increase hospital costs. We investigated whether using VCE resulted in subsequent inpatient procedures that improved inpatient care and overall resource use.
Methods: This is a single-center observational study involving inpatients who presented to SBUH and underwent VCE from 1/1/2018 through 1/1/2022. We used Chi-square testing to determine significance among our categorical variables and used t-tests to compare means for our numerical variables as well multivariable logistic regression to analyze risk factors for increased hospital stay. All statistical analysis was done in R (R Core Team, 2020).
Results: We identified 206 inpatients, including 83 women (40.3%), who underwent VCE from 1/1/2018 through 1/1/2022. Amongst all the listed indications for VCE deployment, melena was the least likely to resolve prior VCE (OR 0.14, 0.07-0.27, p< 0.0001). Melena was also the only variable found to be associated with undertaking of subsequent procedures (OR 2.3, [1.3-4.1], p< 0.0001). Sex, race, body mass index, and other GI-related complaints were not associated with patients' having further procedures or identification of a bleeding or abdominal pain source. Male patients were more likely to be readmitted for bleeding (OR 2.04, [1.04-4.2], p=0.04) while patients who had a stable hemoglobin level (Hgb) prior to VCE deployment were less likely to be readmitted (OR 0.98, [0.96-0.99], p=0.01). Patients with a stable Hgb prior to VCE deployment were discharged after VCE deployment slightly faster than patients without a stable Hgb level prior to deployment (0.05 days, p=0.01). Patients who were not readmitted had a mean 36.3 hours of hemoglobin stability prior to VCE deployment vs. 27.4 hours of hemoglobin stability prior to VCE deployment in those who were readmitted (p=0.01).
Conclusion: VCE has become an important tool in the evaluation of the GI tract, though its utility appears to be most pronounced in men, in patients with melena, and in those with unstable hemoglobin levels. We are developing a risk stratification tool for inpatients who would benefit most from VCE and are also gathering information from prior years for further analysis.

Table 1. Cohort Characteristics and Findings

Variables (n=206)		Number (Percent)
Mean Age in Years (SD)	72.3 (12.4)	-
Mean Body Mass Index	29.4	-
Sex	Men Women	123 (59.7) 83 (40.3)
Race	White Non-White	183 (88.8) 23 (11.2)
Comorbidities	Cardiomyopathy Coronary Artery Disease Chronic Kidney Disease Chronic Obstructive Lung Disease Diabetes Mellitus	65 (31.6) 124 (60.2) 61 (29.6) 56 (27.2) 66 (32.0)
Indication	Melena Anemia Hematochezia Abdominal Pain	105 (51.0) 185 (89.8) 32 (15.5) 12 (5.8)

Table 1. (*continued*)

Variables (n=206)		Number (Percent)
Subsequent Procedure Done	Upper Endoscopy	31 (32.6)
	Push Enteroscopy	32 (33.7)
	Single-/Double-Balloon Enteroscopy	17 (17.9)
	Colonoscopy	15 (15.8)
	None	111 (53.9)
Lesion Found on Subsequent Procedure	Arteriovenous Malformation or Angioectasia	63 (66.3)
	Diulafoy Lesion	3 (3.2)
	Mass	3 (3.2)
	Polyp	9 (9.5)
	Ulcer	12 (12.6)
	None	5 (5.3)
Mean Duration of Stable Hemoglobin Prior to VCE Deployment in Hours (SD)	34.1 (21.4)	-
Mean Time of Discharge after VCE Read in Hours (SD)	122 (130)	-
Mean Readmission Time after Discharge in Days (SD)	27 (26.3)	-
Readmission for Recurrent Bleeding?	Yes	50 (24.3)
	No	156 (75.7)

VCE=Video Capsule Endoscopy, SD=Standard Deviation.

S599

Deep Learning and Device-Assisted Enteroscopy: Automatic Detection of Pleomorphic Gastrointestinal Lesions in Device-Assisted Enteroscopy

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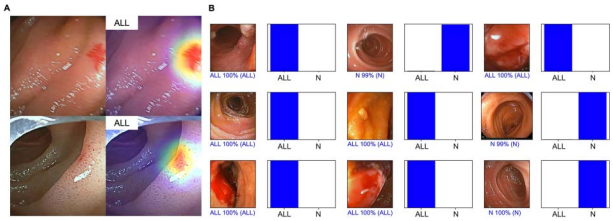
Introduction: Device-assisted enteroscopy (DAE) allows deep exploration of the gastrointestinal (GI) tract, enabling tissue sampling and the application of endoscopic therapy. Convolutional Neural Networks (CNNs) are a multi-layer artificial intelligence architecture with high performance levels for image analysis. Our group aimed to develop and test a deep learning algorithm for the detection of multiple pleomorphic gastrointestinal lesions in DAE, namely vascular lesions (angiectasia, varices, and red spots), protruding lesions (polyps, epithelial tumors, subepithelial lesions, and nodules), ulcers and erosions.
Methods: A total of 260 DAE exams from a single center were included to develop a CNN capable of automatically detecting multiple gastrointestinal lesions. Selected images of gastrointestinal lesions were inserted into a CNN model with transfer learning (n = 22976). A training dataset was used to develop the model (80% of the entire image dataset, n =18380). The network's performance was evaluated using an independent dataset (20% of the entire image dataset, n = 4595). The output provided by the network was compared to a consensus classification provided by three gastroenterologists with experience in DAE. The network's performance was evaluated by calculating its sensitivity, specificity, accuracy, positive predictive and negative predictive values (PPV and NPV, respectively), and area under the receiving operating characteristic curve (AUC) (Figure).
Results: The trained CNN automatically detected gastrointestinal lesions with a sensitivity of 96.2%, a specificity of 95.0%, and a PPV and NPV of 95.6% and 95.7%. The overall accuracy was 95.6%. The AUC was 1.00. The CNN's image processing time was 73 images per second. A subanalysis of the CNN performance in each subgroup (vascular lesions; ulcers/erosions; protruding lesions; blood/hematic residues) was performed. The neural network excelled in all the subgroups, with the best results in the subgroup of blood/hematic residues (overall accuracy of 99.3%) and the worst performance in the detection of ulcers and erosions (overall accuracy of 93.8%).
Conclusion: Our group developed and validated a pionner AI algorithm for the automatic detection of pleomorphic lesions in the GI tract during DAE. Multicentric studies are required for the further development and clinical validation of the AI role in DAE. Neverthless, the development of these tools may enhance the diagnostic yield of DAE.



[0599] **Figure 1.** 1A – Heatmaps showing features detected by the convolutional neural network. 1B Output obtained from the application of the CNN. A blue bar represents a correct prediction. ALL – lesions; N – normal.

S600

Adenoma Detection Rates in the 45- to 49-Year-Old Population in a Nonacademic Center in the Dominican Republic

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Introduction: An increase in incidence and mortality associated with early-age onset colorectal cancer (CRC) prompted the American Cancer Society to recommend the beginning of CRC screening at age 45. This has prompted studies to calculate adenoma detection rate (ADR) in this age group to support these new guidelines, also leading many to wonder whether the minimum acceptable ADR threshold, which according to the U.S. Preventive Services Task Force currently stands at >25% (30% for men and 20% for women), will need adjustments.
Methods: A prospective observational study was conducted on 924 patients who underwent colonoscopies from January 2021 through June 10th, 2022 in a single, non-academic, outpatient Gastroenterology center in the Dominican Republic. The procedures were performed by 2 endoscopists. The patients were divided into two groups, the first one including all patients aged 45-49 undergoing screening colonoscopies, and the other all patients aged >50 undergoing screening colonoscopies. The primary outcome of this study was the adenoma detection rate (ADR). Secondary outcomes included polyp detection rate (PDR), adenomas per colonoscopy (APC), and adenomas per positive participant (APP).
Results: The ADR in the group aged 45-49 was 36.3%, while the ADR in the group aged >50 was 57%. The PDR in the group aged 45-49 was 54.7%, while PDR in the group aged >50 was 71.7%. The APC in patients aged 45-49 was 0.59, while APC in patients aged >50 was 1.1. Finally, the APP in patients aged 45-49 was 1.62, while APP in patients >50 was 1.87.
Conclusion: The ADR was lower in the 45-49 age group with a 36.3%, compared to the 57% ADR in the >50 age group. The same could be said when it comes to PDR, this is related to the fact that polyps are more prevalent with increasing age. This data supports the new guidelines, as the adenoma detection rates in the 45-49 age group were above the current standards for ADR in patients above the age of 50. Further studies will be needed to forecast the full impact of the new screening guidelines on the ADR, however, the need to lower the current ADR threshold would be unlikely. Then again, further studies are still needed to learn how these new standards will impact not only ADR but also CRC detection and prevention in the following years.

S601

Analysis of Reported Adverse Events Related to Hemospray: A MAUDE Database Analysis

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Introduction: Topical hemostatic powder is a highly absorptive, inert mineral powder that forms an adherent mechanical barrier and coagulates active bleeding in the gastrointestinal tract. Hemospray is the only hemostatic powder which has been approved by the Food and Drug Administration (FDA) in the United States. Since its approval in May 2018, Hemospray has been increasingly used to manage upper and lower gastrointestinal bleeding. However, data on the adverse events of hemostatic powders are lacking. Therefore, we aim to report and analyze adverse events associated with Hemospray using the FDA's Manufacturer and User Facility Device Experience (MAUDE) database.
Methods: We analyzed the post-marketing surveillance data from the FDA MAUDE database for Hemospray, initially known as TC-325 from June 2018 through April 2022.
Results: Four hundred ninety medical device reporting claims were identified from June 2018 through April 2022. There were two duplicates, and 488 claims were analyzed. There were 475 device-related problems, eleven patient-related adverse events, and two adverse events in healthcare staff members. The most common device-related problems were activation failure or failure to fire (n=373, 78.5%), obstruction of carbon dioxide (CO2) flow (n=42, 8.8%), inability to remove the Hemospray from the endoscope (n=18, 3.8%), device fracture (n=10, 2.1%), CO2 leak (n=9, 1.9%), defective Hemospray device (n=5, 1.1%) and explosion (n=2, 0.42%). 180 out of these 475 device-related problems were reported on the same adverse event claim. The most common combination claim was activation failure or failure to fire and obstruction of CO^2 flow. Patient-related adverse events included perforation (n=5), unspecified tissue injury or bleeding (n=3), allergic reaction (n=1), failure of removal of hemospray (n=1), and infection (cholangitis) from the use of Hemospray in the bile duct (n=1). In addition, two events healthcare staff reported chest tightness/pain after inhaling Hemospray particles.
Conclusion: While Hemospray is a useful tool in the armamentarium for endoscopists in the management of gastrointestinal bleeding, it is important for endoscopists to be mindful of these adverse events and device related issues. Activation failure or failure to fire and perforation are the most common device- and patient-related adverse events.

S602

Mortality After Surgery of Non-Malignant Colorectal Polyps: A Study From National Inpatient Database

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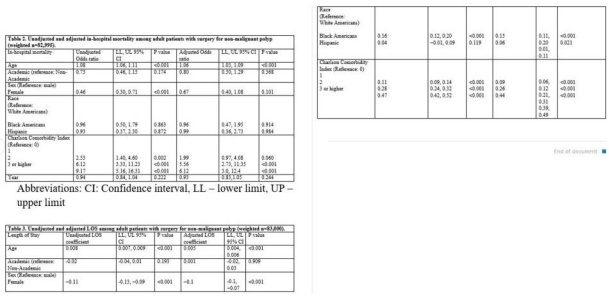
Introduction: Majority of the color cancer rise from benign colorectal polyps. Endoscopic management now a days is a standard method of treatment is associated with lower mortality, morbidities, and cost. Despite good evidence of endoscopic treatment of colorectal polyps, surgical resection/colectomy is routinely performed in United States. The main objective of this study is to evaluate the predictors of in-hospital mortality and hospital length of stay after surgery of nonmalignant colorectal polyps.
Methods: We analyzed the data between January 1, 2012, and December 31, 2019, from the National Inpatient Sample (NIS) database. Discharged adult patients (≥18 years old) hospitalized for non-malignant colonic or anorectal polyp as principal diagnosis and who underwent colectomy or proctectomy as a primary procedure were included. The principal or primary diagnosis is the unique diagnosis during the hospitalization for which the patient was primarily admitted or treated. Patients with any diagnosis of colorectal cancer using both the ICD 9, ICD 10 diagnosis, and procedural codes were excluded from our analysis. (Figure)
Results: There were 99330 primary admissions for surgical resection of non-malignant polyp resection in the United States from the year 2012 to 2019. Fifty one percent cases were female (n=50191) and 66 % cases (n=59407) from academic hospitals. Unadjusted univariate regression models demonstrated-age, sex, and higher comorbidity category were associated with increase in-hospital mortality. Also, hospitalizations with CCI (Charlson-comorbidity-index) of 2 (adjusted odds ratio, aOR 5.56; 95% CI: 2.73, 11.35; p< 0.001) or higher [CCI 3 and above] (aOR 6.12; 95% CI: 3, 12.4; p< 0.001) had a statistically significant higher likelihood of in-hospital mortality than those in the lower morbidity category. Females had significantly lower LOS after adjusting for covariates (age, hospital teaching status, race, CCI, and year) [adjusted coefficient (β)= -0.1; 95% CI: -0.1, -0.07, p< 0.001]. No significant difference was found in LOS and in-hospital mortality between academic and non-academic hospitals- [adjusted coefficient (β)= 0.001; 95% CI: -0.02, 0.03, p=909] and (adjusted odds ratio, aOR 0.80; 95% CI: 0.50, 1.29; p=0.368)
Conclusion: Surgery with higher comorbidities is associated with increase in-hospital mortality. There endoscopic management of colorectal polyps should be highly considered. Appropriate selection of patient is important for best possible outcome.



Abbreviations: CI: Confidence interval, LL – lower limit, UP – upper limit

[0602] **Figure 1.** Adjusted/unadjusted in-hospital mortality and length of stay

S603

Assessing the Role of Prophylactic Antibiotics in Preventing Clinically Relevant Bacteremia in Neutropenic Patients Undergoing GI Endoscopy

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Introduction: Patients with neutropenia are at increased risk for bacteremia and sepsis after endoscopy. According to the American Society for Gastrointestinal Endoscopy (ASGE), there is insufficient evidence to recommend for or against administration of prophylactic antibiotics prior to routine endoscopic procedures in patients with neutropenia. This study was conducted to assess the safety of gastrointestinal endoscopic procedures in patients with neutropenia and to compare outcomes between patient who received periprocedural prophylactic antibiotics to those who did not.
Methods: We studied neutropenic patients who underwent endoscopic procedures from 2012 through 2022. Neutropenia was defined as an absolute neutrophil count (ANC) < 1500 cells/mL which was further sub-classified into mild (ANC < 1500), moderate (ANC < 1000) and severe (ANC < 500) neutropenia. Multilevel logistic regression models were used to assess factors associated with clinically relevant bacteremia.
Results: We identified 102 neutropenic patients who underwent gastrointestinal endoscopies; 45% (N=46) of patients received periprocedural prophylactic antibiotics. 16% (N=9) of patients who did not received prophylactic antibiotics were started on antibiotics within 3 days following the procedure due to sepsis. A similar proportion of patient 15% (N=7) who received periprocedural antibiotics developed sepsis within 3 days of endoscopy and required either resumption or broadening of antibiotic regimen. Subsequently, blood cultures that were drawn on these septic patients did not grow any organisms. Poor performance status was associated with increased risk of infectious adverse events. No association was observed between low ANC or use of steroid with infectious adverse events (p > 0.6) (Table).

Conclusion: This study showed a low rate of mortality and clinically relevant bacteremia following endoscopy in neutropenic patients. The functional status of the patient, in the absence of the need for urgent or necessary endoscopic interventions, should be considered when deciding to perform endoscopy. The ANC did not seem to affect outcomes, neither did the use or periprocedural prophylactic antibiotics. At this interim analysis, our study is underpowered to detect significant differences and further data collection will be carried out to ensure appropriate statistical power.

Table 1. Distribution of sample characteristics and outcomes stratified by periprocedural antibiotic use during endoscopy

		No antibiotics (N=56) N (%)	Periprocedural antibiotics (N=46) N (%)
Age - Mean (SE)	Overall 60.4 (1.51)	64.3 (1.95)	55.7 (2.18)
Gender	Male Female	26 (46.4) 30 (65.2)	30 (53.6) 16 (34.8)
Type of cancer / Transplant	Solid organ Hematologic malignancy status post solid organ transplant	17 (94.4) 7 (28) 32 (54.2)	1 (5.6) 18 (72) 27 (45.8)
ANC count	ANC < 250 ANC < 500 ANC < 1000 ANC < 1500	3 (23.1) 10 (66.7) 21 (61.8 22 (55)	10 (76.9 5 (33.3) 13 (38.2) 18 (45)
Performance status	ECOG 1-2 ECOG 3-4 Unknown	18 (64.3) 4 (57.1) 34 (50.7)	10 (35.7) 3 (42.9) 33 (49.3)
Blood Cultures Collected Within 3 Days of Endoscopy	Yes No	10 (17.9) 46 (82.17)	7 (15.2) 39 (84.8)
Patient required new antibiotic started within 3 days of procedure	Yes No	10 (17.9) 46 (82.1)	8 (17.4) 38 (82.6)
Adverse events related to sepsis (Hypotension, fever, hypoxia, ICU admission)	Any None	6 (10.7) 50 (89.29)	8 (17.4) 38(82.6)

S604

It Matters! Sex Differences Impact Ergonomic, Endoscopic Training for Gastroenterology Fellows

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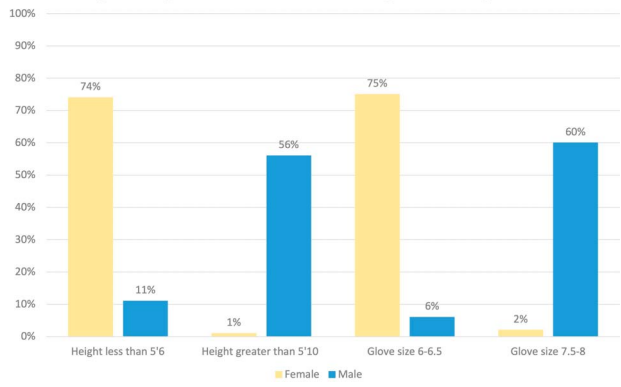
Introduction: Repetitive movements, poor posture, and insufficient education on endoscopic ergonomics can lead to endoscopic related injuries (ERI). More women are entering gastroenterology (GI), and may encounter increased ergonomic challenges due to smaller average hand size and stature. This study assesses whether sex and gender-related characteristics impact ERI, ergonomic training, and knowledge among current GI fellows.
Methods: A 56-item anonymous survey was sent to general and advanced GI fellows via email between May and June 2022 to 73 academic centers across the United States. Basic demographic information was obtained including: age, sex, gender, training level, height, glove size, types of endoscopy teachers, and whether ERI was sustained. Questions related to endoscopy suite environment, ergonomic instruction, techniques, equipment availability/use and basic ergonomic knowledge were also included. Univariate and multivariate analyses were utilized in order to compare responses of male and female GI fellows.
Results: The questionnaire was emailed to 667 participants; 203 surveys were initiated with response rate of 31%; 200 surveys were completed and included in analyses. Of the 200 respondents, 99 (49.5%) reported female sex at birth and 101 (50.5%) reported male sex at birth. Female fellows were noted to have average smaller hand size and stature (Figure). More female fellows reported that equipment was not ergonomically optimized for their use (47.5% vs 28.7%, p = .006) (Table). Additionally, more females reported that their female teachers had trained them with consideration of physical size (22.4% v 9%, p = .068), and voiced increased desire for access to dial extenders (55.6% vs 20.2%, p = .001). There was a higher incidence of neck and shoulder pain following endoscopy sessions among female fellows (55.6% vs 28.7%, p=.001). Despite no sex differences, overall poor ergonomic understanding was noted, with an average score of 60% on 5-point knowledge-based test.
Conclusion: Sex differences exist in ergonomic and endoscopic training of current GI fellows. This study highlights the urgent need for formal ergonomic training with consideration sex of the trainee and physical stature, in order to enhance safety, comfort, efficiency, and equity in training and practice of endoscopy.

Figure 1: Physical stature of male and female gastroenterology fellows



[0604] **Figure 1.** Physical stature of male and female gastroenterology fellows

Table 1. Comparison of ergonomic, endoscopy experience between male and female trainees

	Overall	Females	Males	*P*-value
Preference for same gender teacher	11 (5.5%)	11 (11.1%)	0 (0%)	0.001
Transient neck/shoulder pain	84 (42.0%)	55 (55.6%)	29 (28.7%)	0.001
Equipment not ergonomically optimized	76 (38.0%)	47 (47.5%)	29 (28.7%)	0.006
Glove size not available	18 (9.0%)	`15 (15.2%)	3 (3.0%)	0.003
Dial extenders not available	68 (34.0%)	43 (43.4%)	25 (24.8%)	0.001
Teachers train with consideration of stature	103 (52.0%)	43 (43.9%)	60 (60.0%)	0.033
Female teachers train with consideration of stature	31 (15.7%)	22 (22.5%)	9 (9.0%)	0.068
Desire for dial extenders	75 (37.9%)	55 (55.6%)	20 (20.2%)	0.001
Desire for well-fitting aprons	78 (38.6%)	45 (45.9%)	33 (33.3%)	0.030
Desire for formal ergonomic training	194 (98.0%)	98 (99.0%)	96 (97.0%)	0.625

S605

Improving Barrett's Diagnosis and Surveillance Service at a District General Hospital in the United Kingdom

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Introduction: Barrett's oesophagus is a well identified precursor for oesophageal adenocarcinoma, with the risk of malignant transformation being 0.5% annually. It is therefore crucial that diagnosis and surveillance standards meet national guidelines. This audit was carried out to assess if our District General Hospital was meeting the standards set by the British Society of Gastroenterology with regards to Barrett's diagnosis and surveillance.
Methods: Data was collected looking at 143 OGDs carried out for Barrett's diagnosis and surveillance at a District General Hospital in the United Kingdom from 01/01/2018 to 30/06/2018. The OGD reports were compared against recommended national standards set by the British Society of Gastroenterology. A proforma was created and was put into use from August 2020. It was utilized by all endoscopists when carrying out OGDs for Barrett's diagnosis and surveillance. The proforma was added to the end of the hospital's standard endoscopy report. Following the intervention and use of the proforma, the second cycle of the audit was carried out looking at 58 OGDs completed between 05/08/2020-27/02/2021 to see if they met the standards set out by the British Society of Gastroenterology. The Barrett's surveillance service and the volume of OGDs carried out following the introduction of the proforma was affected by the Covid-19 pandemic.
Results: The first cycle of the audit found that only 34% of OGDs had a Prague classification documented correctly. 0% of OGDs had the correct biopsy protocol followed and 12.6% of endoscopies did not have any biopsies taken. 26% of patients had no follow up or surveillance endoscopy interval documented or organised. Following the intervention, it was found that 96% of endoscopies now had a Prague classification documented, an increase of 62%. There was a 65% increase in correct biopsy technique being followed and 100% of OGD reports now had surveillance interval documented if deemed appropriate.
Conclusion: The audit clearly displays that following our intervention there was a significant improvement in the quality of Barrett's diagnostic and surveillance endoscopies, when compared to national guidelines. Given its potential for malignant transformation, correct surveillance is exceptionally important to improve patient care and reduce mortality. The introduction of a proforma drastically improved the standard of the service provided at our District General Hospital and is one that can be transferable to other hospitals.

S606

High Rates of *Clostridioides difficile* Colonization Among Patients Undergoing Gastrointestinal Endoscopy

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Introduction: Endoscopy is an essential part of medical care for both diagnostic and therapeutic indications. Gastro-intestinal endoscopy (GIE) can also provide a window into individuals' microbiome. Clostridiodes difficile infection (CD) is a common healthcare associated infection (HAI) that causes significant morbidity and mortality. The aim of our study is to evaluate the presence of CD in patients undergoing GIE for cancer screening or other indications.
Methods: A prospective non-randomized study was performed between December 2021 and April 2022 at GIE suite at an academic medical center. The study included 115 individuals who underwent GIE for screening and other medical reasons (110 outpatients and 5 inpatients). Electronic health records were reviewed for procedure-related information as well previous infection or colonized with CD and resistant bacteria within the past 2 years. A water sample was obtained from the GIE used immediately after use and after processing and high-level disinfection. An environmental culture was used for CD detection.
Results: The study had 74 (64%) females and 41 (36%) males with mean age of 57 with a standard deviation of 13 years. The procedures were done by 12 physicians with an average time for the procedure of 37 with a standard deviation of 20 minutes. Only 1 patient was diagnosed with CD previously. However, environmental CD culture was positive in 28 (24%) patients. Post disinfection samples were all negative for CD. The majority of the patients had no multidrug resistant organisms 3 (2.6%). Colonoscopies were predominantly performed for colon cancer screening 104 patients (90%).
Conclusion: Colonoscopic examination revealed high prevalence of within the community. Endoscope processing was effective in eliminating CD from the GIE. Hospital associated CD infection could be originating from a community source. Colonized hospitalized patients are at high risk for developing CD disease especially after antibiotic use.

S607

Clopidogrel Bisulfate and the Risk of Bleeding After Endoscopic Sphincterotomy

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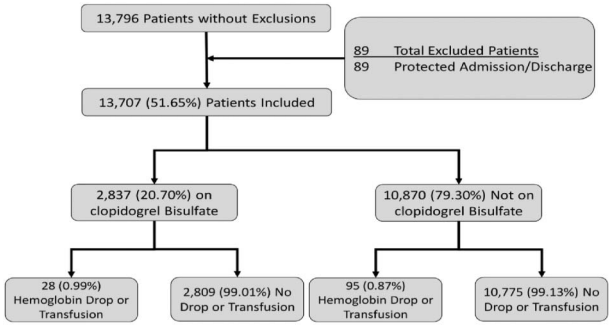
Introduction: Guidelines from several professional societies suggest "holding" antiplatelet agents in advance of high-risk procedures. Previous studies suggested that antiplatelet agents did not significantly increase the risk of clinically-important bleeding events following endoscopic sphincterotomy (ES). Given the scant evidence in support of these contentions, our primary aim was to determine if the risk of post-sphincterotomy bleeding was increased in patients taking clopidogrel bisulfate.
Methods: We conducted a retrospective cohort study. Data were collected (2016-2020) on adult patients who underwent Endoscopic sphincterotomy (n=13,796). From the total patient population, 89 were excluded due to protected admission/discharge. Of the remaining 13,707 patients in the study, 2,837 patients were taking clopidogrel bisulfate and 10,870 were not taking Clopidogrel. We employed logistic regression, bleeding event was defined as a hemoglobin drop (>3 g/dL), and/or a required transfusion, as our primary dependent variable. clopidogrel was the main predictor variable and acuity variables and selected co-morbidities were co-variates (Table).
Results: Copidogrel was not a significant predictor of bleeding events (Odds ratio, 0.70; 95% CI 0.44-1.16, NS). Bleeding events were also not significantly related to age ($P = 0.31$) or emergency department admission ($p = 0.70$). However, year admitted, length of stay, emergency ES vs scheduled ES, chronic pulmonary disease, hypothyroidism, and obesity were significantly ($P < 0.05$) related to bleeding events. (Figure)
Conclusion: Bleeding occurred after ES in 0.87% of patients in the control group and 0.99% of those taking Clopidogrel. clopidogrel was not significantly related to bleeding risk in our population. The bleeding rates in Clopidogrel group and control group were less than 1%. several covariates were significantly related to an increased risk of bleeding such as emergent ERCP, and patients with chronic pulmonary disease, hypothyroidism, hypertension, or obesity.Our study has limitations, all patients in our data set were in our hospitals network, increasing the risk of selection bias. we also did not analyze the indications for

endoscopic sphincterotomy . Despite that, we had a large sample size and an extended data gathering period (2016-2020) which likely counteracted some of the above concerns.In conclusion, peri-procedural or post-procedural use of clopidogrel bisulfate was not associated with a significant risk of bleeding events following endoscopic sphincterotomy.



[0607] **Figure 1.** Patient counts, exclusions, and groupings for the 13,796 patients in the initial data extraction

Table 1. Primary outcome measures for bleeding events (hemoglobin drop >3 g/dL, required transfusion) for patients in the clopidogrel bisulfate (CB), control group (CON, not taking CB), or All patients (ALL).

	CB (N=2,837)	CON (N=10,870)	ALL (N=13,707)
Hemoglobin Drop >3 and/or Transfusion	28 (0.99%)	95 (0.87%)	123 (0.90%)
Hemoglobin Drop >3	24 (0.85%)	75 (0.69%)	99 (0.72%)
Required Transfusion	7 (0.25%)	21 (0.19%)	28 (0.20%)
Required Readmission Transfusion	3 (0.11%)	18 (0.17%)	21 (0.15%)

S608

Clinical Course and Outcomes Following Dental Foreign Body Ingestion: Adverse Events and Need for Endoscopy

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Introduction: Foreign body ingestion during dental procedures is a rare complication that often requires medical evaluation and consideration for object extraction. There is scarcity of data in existing literature on patient outcomes and need for endoscopy after dental foreign body ingestion (DFBI). Given the uncommon presentation of DFBI, more information would aid gastroenterologists and hospital inpatient teams to help guide treatment plans. We aim to better define patient clinical course after DFBI and identify factors that may influence outcomes.
Methods: We conducted a retrospective review of DFBI cases at a tertiary care center between 2015 and 2021. Patients younger than 18 years old were excluded. Data was collected through electronic medical record review, including patient information, clinical course, imaging, interventions, and timeline.
Results: 25 patients were included (56% male) from a diverse cohort (40% Caucasian, 20% African American, 8% Hispanic) and mean age of 64 (SD14.8). 1 patient had an ASA of ≥ 3. 3 individuals were symptomatic, foreign body sensation being most common. Most patients underwent imaging (n=24,96%), with all undergoing x-rays (100%), and 3 CT scans (12.5%). All objects were past the esophagus at time of evaluation and all patients were evaluated within 48hrs of ingestion. Gastroenterology was consulted for 9 (36%) patients and 8 (32%) were admitted to the hospital. 4 patients underwent endoscopy (16%) with object removal in 3 (12%); 0 required surgery. Endoscopy was associated with an increased likelihood of admission (p=0.047). Descriptive data was available on 19 DFB objects; the mean length was 13mm, 9 were sharp, and object sharpness was not found to be associated with requiring endoscopy (p=0.413) (Table). Both the complication and mortality rate of DFBI was 0% and all patients managed conservatively did well.
Conclusion: This study examines a rare cohort of patients who experienced DFBI and provides better understanding of their clinical course to help guide care decisions. Our findings highlight that DFBI has mostly a benign clinical course and can likely be managed conservatively if the object is distal to the esophagus. While a number of DFBs are sharp, even those that were not retrieved passed uneventfully and without complications, likely due to their small size. No specific patient/object characteristics were associated with need for hospital admission, endoscopy, or increased rate of adverse events.

	Sharp (9)	Blunt (11)	Unknown Sharpness (5)	P-value
Object Length (mm)				
unknown	3	3	0	
<10	2	4	4	
>10	4	4	1	
Object Width (mm)				
unknown	5	5	3	
<10	0	4	2	
>10	4	2	0	
Admitted (8)	3	2	3	0.436
X-ray (24)	9	10	5	
CT Scan (3)	2	1	0	0.413
Specialty Consult (10)	4	2	4	0.202
Object Removed (3)	2	1	0	0.413
Endoscopy (4)	2	1	1	0.413
Complications	-	-	-	

[0608] **Table 1.** Clinical course of DFBI based on object sharpness

S609

Gender Disparities in the Clinical Trial Enterprise: Lead Authorship in Gastroenterology Trials, 2013-2019

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Introduction: Clinical trials are considered the gold standard for evaluating the safety and efficacy of new therapies and generating evidence-based guidelines. However, there is growing concern regarding gender inequality at the leadership level. Diversity in clinical trial leadership is associated with more diverse trial participants, which improves the generalizability of results. The objective of this study is to evaluate gender differences in lead authorship among gastroenterology clinical trials registered in the primary clinical trial database, ClinicalTrials.gov.

Methods: We downloaded records of interventional clinical trials registered on ClinicalTrials.gov starting between January 1, 2013 and December 31, 2019. A study set consisting of only gastroenterology and hepatology trials was then created using disease condition terms (both Medical Subject Heading [MeSH] and non-MeSH) from the National Library of Medicine. Records were manually reviewed and verified as relating to either gastroenterology or hepatology. The ClinicalTrials.gov identifier was extracted for each entry and a linked search was performed on PubMed for associated publications. From this study set, the first randomized controlled trial (RCT) was evaluated for lead authorship gender and the publication journal's impact factor.
Results: 9,705 trials were manually reviewed, from which 4,182 were verified as trials relating to gastroenterology or hepatology. 1,148 trials (27.45%) had results posted as of January 1, 2022, and 462 (11.05%) had an associated publication indexed within PubMed. The gender was determined for 100% of lead authors of published RCTs. The lead author was male in 333 (72.08%) trials and female in 129 (27.92%) trials. The mean impact factor for male first-authored publications was 16.17 ± 1.06, while the mean for female first-authored publications was 18.73 ± 5.55.
Conclusion: Women are under-represented as leaders of gastroenterology clinical trials, constituting fewer than 3 in 10 lead authors of gastroenterology trials in the examined study period. The rate of female first-authorship lags behind the broader rate of women entering the field. Recalibration efforts must address the structure and processes that lead to the gender gap in the clinical trial enterprise.

S610

A Patient-Centered Model for Implementing a Patient Education Intervention for Inpatient Colonoscopies

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Introduction: Inadequate bowel preparations are a common cause of delayed colonoscopies in the inpatient setting, compromising patient safety and quality of care. Patient education interventions have been shown to improve the quality of bowel preparations. However, high-quality, validated educational tools for use in the hospital are not widely available. As part of a quality improvement initiative, we aimed to develop an educational resource for inpatient colonoscopies using direct input from patients and subject matter experts from conception to roll out.
Methods: We identified patients who recently had a colonoscopy in a large academic hospital system to participate in open-ended interviews. Consented subjects were asked general questions about the bowel preparation process and specific questions to guide the development of an educational tool. A patient-facing resource was created and reviewed by subject matter experts in Gastroenterology and health literacy. Readability was assessed using a validated measure. In a series of Plan-Do-Study-Act (PDSA) cycles, additional feedback was collected from patients and experts to further optimize the resource. The finalized resource was provided to hospitalized patients undergoing bowel preparation for a colonoscopy. Patients were later asked to complete a survey on their experience with the tool.
Results: Feedback from 12 adult patients and 4 subject matter experts were used in the development of the resource. Patients desired a resource that is clear, thorough, and focused on the patient experience. Most patients expressed a preference for a booklet format over an online, video, or other printed resource. A booklet was adapted from existing materials found in the literature and outpatient settings and optimized in subsequent PDSA cycles.[1] The finalized booklet had a Flesch Kincaid grade level of 3.9. Preliminary survey data (n=6) on the booklet showed an average rating of 4/5 for clarity, trustworthiness, and reassurance; and satisfaction ratings increased by 20% on average when compared to no booklet.
Conclusion: We describe a dynamic model for implementing an educational intervention for inpatient colonoscopies using patient engagement principles and quality improvement methodologies.

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S611

Quantitative Analysis of Teaching Behaviors by Endoscopy Educators During Trainee-Performed Colonoscopy

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Introduction: Within competency-based medical education, Directly Observed Procedural Skills (DOPS) is a recommended method for assessing trainee procedural skills. With the rise of train-the-trainer courses educating endoscopy trainers on best practices for teaching endoscopy, a similar assessment of Directly Observed Teaching Skills (DOTS) may be beneficial. We previously created and held a workshop teaching a standardized approach to endoscopy training[1]. Our study aims to quantify directly observed teaching behaviors by endoscopy trainers near the time of our workshop.
Methods: Participants (attendings) were filmed supervising trainees (fellows) performing colonoscopy procedures up to 7 months before and 5 months after our workshop intervention. Data encoded from videos included timing of teaching behaviors by attendings, timing and ability of trainees performing polypectomy, trainee ergonomics, and management of any distractions. Videos were encoded by a second-year GI fellow. The study was approved by Boston University IRB H-36951.
Results: Out of 109 total filmed procedures, 50 colonoscopies (37 pre-, 13 post-intervention) involving 11 attendings have been encoded at the time of this abstract. Uneven group sizes precluded a robust pre- and post-intervention comparison.On average, attendings provided verbal instruction 5.27 (SD 4.65) times during insertion and 8.61 (SD 7.2) times during withdrawal. Instructional behaviors are further quantified in Table. (Table) A mean of 0.5 (SD 0.68) distractions occurred per colonoscopy, and 5.32% (SD 22.93%) of distractions were addressed by the attending. Of an average 1.18 (SD 1.77) polypectomies per session, fellows took the lead in 63.8% (SD 48.0%) of instances. Monitor height was appropriate in 82% of procedures. Bed height was appropriate in all cases. Fellows showed none to very little neck craning in 68% of procedures. Fellows showed good posture for the entire or majority of the case in 82% of procedures.
Conclusion: We performed a quantitative analysis of teaching behaviors and ergonomics filmed during trainee-performed colonoscopy. Our observations reinforce two main teaching points. Endoscopy trainers should recognize and address distractions during colonoscopy. Trainee endoscopy position and ergonomics should always be observed and corrected. Completion of video encoding will allow for pre- and post-intervention analysis.

Table 1. Proportion of Trainee-Performed Colonoscopy Involving Directly Observed Teaching Behaviors by Attendings

	Insertion Mean (SD)	Withdrawal Mean (SD)
Positioned appropriately to observe patient, trainee, and monitor	68.4% (41.2%)	71.5% (37.0%)
Provided verbal instruction	20.7% (36.2%)	19.2% (21.0%)
Provided hands-on instruction (holding the colonoscope)	3.3% (11.7%)	4.7% (13.6%)

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S612

Effectiveness of a Mindfulness-Based Intervention in Endoscopy Among Gastroenterology Fellows: A Pilot Study

Nayantara S. Orekondy, MD[1], Caitlin Fai, MD[1], Kathryn Welp, MD[2], Christina Pastan, DMD[3], Carter Lebares, MD[4], Sushrut Jangi, MD[1].
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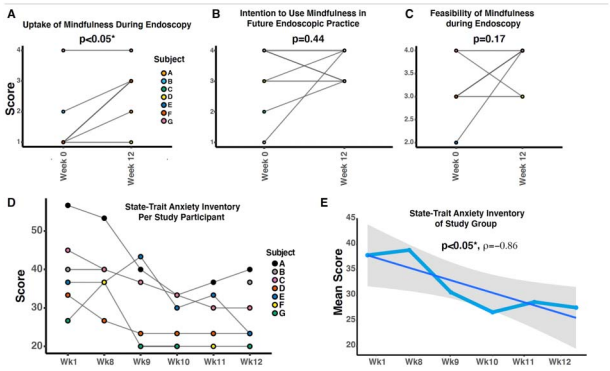
Introduction: Mindfulness training reduces stress and improves performance among surgical trainees. However, such interventions have not been examined for endoscopy among gastroenterologists. In this novel pilot study, we assessed (i) the feasibility of implementing a mindfulness intervention for endoscopy among gastroenterology (GI) fellows (ii) the impact of this intervention on endoscopy-associated stress measures.
Methods: We performed a prospective cohort study enrolling GI fellows (n=7) at a tertiary academic medical center, over a 12 week study duration. Participants underwent two 1 hour workshops in Mindfulness Based Stress Reduction (MBSR) taught by a trained mindfulness practitioner at weeks 0 and 8. Participants completed baseline and post-intervention surveys measuring feasibility, stress, and use of mindfulness practice during endoscopy during week 0 and week 12 and, (ii) weekly validated State-Trait Anxiety Inventory (STAI-6) surveys measuring stress during endoscopic sessions from week 8 – week 12. Pre- and post- survey results were reported with mean differences using paired t-tests or Wilcoxon signed-rank tests ($p < 0.05$); STAI-6 trends were analyzed with linear regression and Pearson's correlation.

Results: All seven GI fellows completed the 12 week study. GI fellows significantly increased the use of mindfulness practice during endoscopy (mean [SD] difference +1.14 [0.18], p< .05) (Figure Panel A, Table). STAI-6 scores significantly decreased following mindfulness intervention over the course of 12 weeks ($p < 0.05$, $r = -0.86$) (Figure Panel E), with the largest improvement of stress measures among first-year GI fellows.
Conclusion: During this prospective study, we provide novel evidence that a simple mindfulness intervention for endoscopy among GI fellows is feasible, improves uptake of mindfulness during endoscopy, and is associated with stress reduction. Mindfulness practice may prove a valuable technique to reduce stress during endoscopic training for GI fellows.



[0612] **Figure 1.** Panel A: Actual use of mindfulness practice during endoscopy by individual GI fellows as measured using a four point Likert Scale pre (week 0) and post (week 12) mindfulness based intervention. Panel B: Self reported likelihood of using mindfulness practice during endoscopy in the future as measured using a four point Likert Scale pre (week 0) and post (week 12) mindfulness based intervention. Panel C: Perceived feasibility of mindfulness practice during endoscopy as measured using a four point Likert Scale pre (week 0) and post (week 12) mindfulness based intervention. Panel D: STAI-6 scores per participant over time. Panel E: Mean STAI-6 scores across all GI fellows over time.

Table 1. Comparison of Pre and Post-Survey Responses

Question	Mean Change in Score	P-value
Uptake of Mindfulness During Endoscopy	1.14 (0.28)	< **0.05***
Feasibility of Mindfulness During Endoscopy	0.57 (0.98)	0.17
Intention to Use Mindfulness in Future Endoscopic Practice	0.42 (1.39)	0.44
Burnout	-0.42 (0.53)	0.23
Positive Learning Environment	-0.43 (0.98)	0.29
Enthusiasm	-0.29 (0.49)	0.52
Positive Teaching	0.14 (0.90)	0.68
Fulfillment	-0.14 (1.07)	0.74
Sense of Accomplishment	0.57 (0.79)	0.12

S613

Standardized General Endoscopy Lexicon for Learners

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Introduction: Physicians completing subspecialty training in gastroenterology are expected to develop competence in performing general endoscopic procedures including upper endoscopy, colonoscopy, and flexible sigmoidoscopy. Endoscopy education is often provided through an apprenticeship model where trainees work with various endoscopists and develop skills in real-time procedures. Inherent to this model is heterogeneity in the education provided. Recent research exploring essential teaching competencies for those involved in endoscopic education suggests usage of succinct standardized language when teaching endoscopy, but to date no one has examined the breadth of terms used or developed consensus around specific language to be used in this aspect of medical training. In this study we surveyed terminology used worldwide by expert teachers of endoscopy and, through a Delphi process, developed a standardized lexicon for general endoscopic education.
Methods: We invited 26 physicians identified as expert endoscopy educators from various countries around the world to participate in this Delphi process. A total of 20 physicians participated. Four rounds of surveys were completed. Common terminology was identified in round 1. Rounds 2 through 4 consisted of surveys where participants indicated terms they were most likely to use when instructing learners during endoscopy. A consensus threshold of 70% was defined for term inclusion into the lexicon. Terms that achieved a 70% minimum consensus were included as “recommended terms”. Terms that offered balance to the lexicon but did not reach the threshold consensus were included as “suggested terms”.
Results: After 4 rounds of surveys, 36 recommended terms and 5 suggested terms were included in our general endoscopy lexicon (Table).
Conclusion: Through this international Delphi project, we constructed a general endoscopy lexicon for learners. The use of standardized language has been shown to have several benefits in other areas of healthcare including improved communication, quality of patient care, and knowledge generation. We expect that adopting a uniform lexicon will improve quality of endoscopic education for learners. In addition, because this study was conducted on an international level, we anticipate this lexicon to be applicable to trainees throughout the world. Future projects exploring standardized language for advanced endoscopic procedural education should be considered.

Table 1. Terms included in general endoscopy lexicon post-survey

Endoscopy Instruction	Committee Consensus (%)	Final Stance
Scope Manipulation		
Rotate (torque)clockwise/counterclockwise Rotate (torque) right/left	100*	Recommended
Big wheel/dial up	94.42	Recommended
Big wheel/dial down	88.9	Recommended
Little wheel/dial up	88.9	Recommended
Little wheel/dial down	88.89	Recommended

Table 1. (*continued*)

Endoscopy Instruction	Committee Consensus (%)	Final Stance
Advance scope	77.78	Recommended
Pull scope back	100%	Recommended
Brush Manipulation		
Put brush out	100%*	Recommended
Pull brush in Withdraw brush Advance brush	83.33*	Recommended
Brush tissues	56.25	Suggested
Clip Manipulation		
Open clip	93.75	Recommended
Close clip	81.25	Recommended
Rotate clip	87.5	Recommended
Deploy clip Fire clip	91.67*	Recommended
Cautery - Monopolar, Bipolar – Manipulation		
Advance cautery probe	75	Recommended
Start cautery Cut/coagulate	58.33*	Suggested
Forceps Manipulation		
Open forceps	93.75	Recommended
Close forceps	81.25	Recommended
Advance forceps	91.67	Recommended
Withdraw forceps	100	Recommended
Pictures/Video		
Take a picture/video	77.78	Recommended
Air (blue button)		
Insufflate	72.22	Recommended
Water (blue button)		
Clean your lens	88.89	Recommended
Suction (red button)		
Suction	77.78	Recommended
Through the Scope Balloon Dilator Manipulation		
Advance dilator	56.25	Suggested
Inflate balloon	100	Recommended
Deflate balloon	56.25	Suggested
Bougie Dilator Manipulation		
Advance wire	81.25	Recommended
Advance dilator over wire	87.5	Recommended
Net Manipulation		
Open net	93.75	Recommended
Close net	93.75	Recommended
Use of Electrocautery Pedals (blue, yellow)		
Blue pedal	81.25	Recommended
Yellow pedal	81.25	Recommended
Snare Manipulation		
Open snare	93.75	Recommended
Close snare	93.75	Recommended
Cut	56.25	Suggested

*The committee consensus to include both terms in the lexicon

S614

Comparison of Diagnostic Accuracy of Different Non-Invasive Scores in Predicting Esophageal Varices

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Introduction: Guidelines recommend periodic endoscopic surveillance for the detection of esophageal varices. However, its avoided by certain patients due to invasiveness and high cost. Identification of non-invasive methods will allow appropriate patient selection. The aim is therefore, to compare the diagnostic performance of different non-invasive indices in predicting esophageal varices.
Methods: This was a cross-sectional prospective study which was conducted at the Department of Hepatogastroenterology, Sindh institute of Urology and Transplantation from July 2021 to December 2021.All patients recently diagnosed with liver cirrhosis were included in the study. Upper GI endoscopy was performed in each patient for the detection of esophageal varices. Area under ROC was obtained to determine

the sensitivity ,specificity, PPV ,NPV and diagnostic accuracy of different non-invasive scores such as CTP score, splenic stiffness, liver stiffness,APRI,FIB-4,Platelet count to splenic diameter ratio,P2/MS,AST/ALT,API,SPRI,ASPRI,LSPS in detection of esophageal varices.

Results: Total number patients included in the study were 91.EV were present in 66(72.5%) patients. AUROC was obtained for all the above mentioned scores and was highest for INR to platelet ratio (INPR) (0.987,95% CI 0.97-1.00),followed by splenic size to platelet ratio(SPRI)(0.98,95% CI 0.95-1.00) ,platelet count to splenic diameter(0.977,95%CI of 0.942-1.00) and sum of age and splenic size to platelet ratio(ASPRI)(0.973, 95% CI 0.947-1.00).AUROC for APRI was 0.885(95%CI 0.818-0.95) , for liver stiffness-splenic diameter and platelet count(LSPS) was 0.858(95%CI 0.662-0.887) while that for FIB-4 was 0.79(0.695-0.888).At an INPR cutoff of ≥1.1,the sensitivity was of 98.48%,specificity of 84%,PPV of 94.2%,NPV of 95.5% with diagnostic accuracy of 94.51% for detection of esophageal varices.

Conclusion: Among the studied indices, INR –platelet ratio ≥1.1 is a reliable non-invasive bedside assessment tool for the detection of esophageal varices with an excellent diagnostic accuracy.However,further studies comprising of large sample size are required to validate these indices.

S615

Risk of Hemorrhagic Gastropathy Using Tablet Preparation for Colonoscopy

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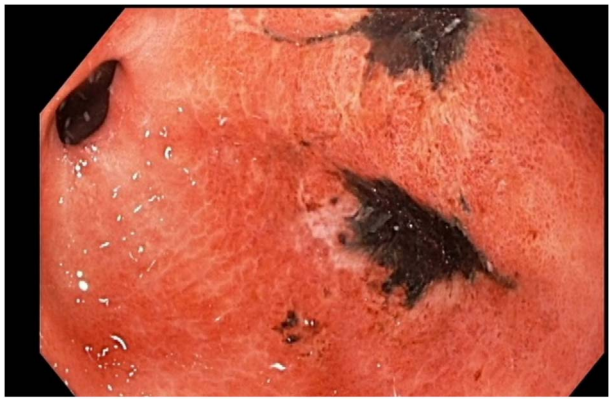
Introduction: Tablet preparation for colonoscopy has been a major advance and has been widely adopted. Performance of endoscopy at the same time as screening or surveillance colonoscopy is convenient for patients and commonly performed. Soon after adopting standard SUTAB preparation (sodium sulfate, magnesium sulfate, potassium chloride), an increase in acute hemorrhagic erosive gastropathy was observed. This case review was performed to assess the frequency of these findings after Tablet versus standard prep in a single provider's experience.

Methods: Retrospective review was made of 27 consecutive patients undergoing esophagogastroduodenoscopy and colonoscopy (EGD/ COL) after SUTAB bowel prep, group A, compared with 27 consecutive patients undergoing EGD/ COL after alternate preps, group B (suprep 22 ; miralax/ dulcolax 2 ; Plenvu 3).

Results: In group A, (sutab prep), 16 of 27 (60%) had significant mucosal findings: Erosions: 12 ; Friability: 3 ; Stigmata hemorrhage: 2. The most severe endoscopic changes were present in the antrum.In group B (liquid preps),4 of 27 (15%) had significant mucosal findings: Erosions: 4 ; Friability: 0; Stigmata hemorrhage 0. The changes were milder and less extensive than in group A.

Conclusion: Acute hemorrhagic erosive gastropathy was seen in 60% of patients taking Tablet prep as vs 15% taking alternate, liquid bowel preparations. The endoscopic changes were often dramatic, severe, and clearly have the ability to confound the interpretation of endoscopic findings. Further studies are needed to confirm this association, assess if similar changes are present in the esophagus, duodenum or more distal small bowel, and guide choice of bowel preparation. Based on the preliminary observations described, if indication for upper endoscopy is evaluation for gastric mucosal pathology, at this time, it seems prudent to use a non-tablet bowel preparation (Figure).



[0615] **Figure 1.** Severe erosive gastropathy after Tablet preparation for colonoscopy

S616

Impact of COVID-19 on Outpatient EUS and Screening Colonoscopy Utilization in the Medicare Population

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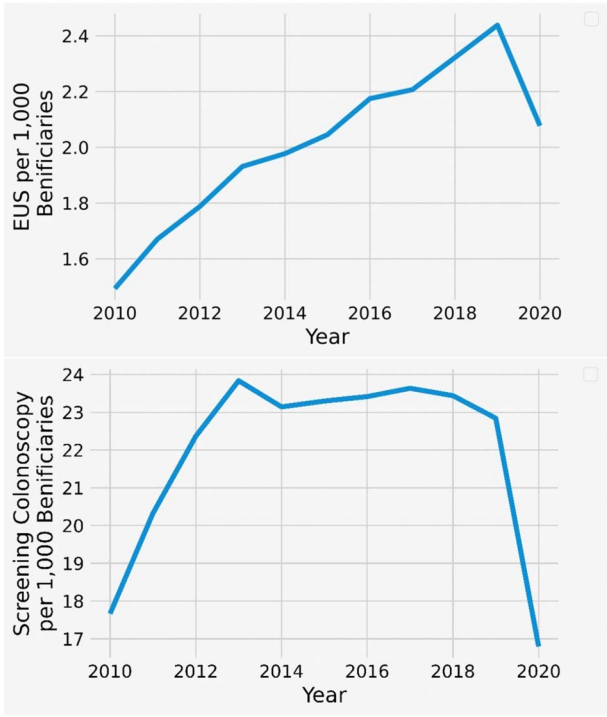
Introduction: With the COVID-19 pandemic, the Centers for Medicare & Medicaid Services (CMS) initially recommended all nonurgent surgical and medical procedures be delayed. We evaluated the impact of COVID-19 on endoscopic ultrasound (EUS) and screening colonoscopies in the outpatient setting in the Medicare population.

Methods: The CMS Physician/Supplier Procedure Summary (PSPS) Database displays Part B claims organized by CPT code. Codes that involved EUS [43237, 43238, 43240, 43242, 43253, 43259], and screening colonoscopies [G0105, G0121], were included. Services at the top 4 outpatient places-of-service (ambulatory surgery centers, office, and off- and on-campus outpatient hospitals) were used to evaluate outpatient volumes. The number of EUS and screening colonoscopies was normalized by the number of Original Medicare beneficiaries per year to produce number of procedures per 1,000 Medicare enrollees. The compound annual growth rates (CAGRs) as well as absolute volumes were calculated. CAGRs were calculated for two time periods: 2010-2019 and 2019-2020. A linear regression model for 2010-2019 procedure volume data estimated anticipated yearly procedure volume for 2020. (Figure)

Results: The number of EUS per 1,000 Medicare enrollees increased from 1.49 in 2010 to 2.44 in 2019, for a CAGR10-19 of 5.6%. This decreased to 2.08 in 2020, for a CAGR19-20 of -14.81%. The number of EUS increased from 48,139 in 2010 to 80,468 in 2019, for a CAGR 10-19 of 5.90%. This decreased to 66,976 in 2020, for an AR of -16.95%. The number of screening colonoscopies per 1,000 Medicare enrollees increased from 17.66 in 2010 to 22.84 in 2019, for a CAGR 10-19 of 2.90%. This decreased to 16.79 in 2020, for a CAGR19-20 of -26.47%. The number of screening colonoscopies increased from 569,372 in 2010 to 755,491 in 2019, for a CAGR 10-19 of 3.19%. This decreased to 541,522 in 2020, for an AR of -28.32%. A linear regression model for 2010-2019 procedural volume data predicted a 12-month EUS volume of 84,043 (95% CI, 83,606-84,480; multiple R 2, 0.973) and a 12-month screening colonoscopy volume of 772,481 (95% CI, 758,819-786,091; multiple R2, 0.445). The total EUS and screening colonoscopy volume was significantly lower than the low range of the 95% CI (66,976 versus 83,606; 541,522 versus 758,819, $p < 0.05$).

Conclusion: COVID-19 significantly impacted outpatient utilization of EUS and screening colonoscopies. This is concerning as missed or delayed diagnoses could directly impact the incidence of avoidable gastrointestinal malignancies.



[0616] **Figure 1.** Trends in EUS and screening colonoscopies per 1,000 Medicare Beneficiaries from 2010-2020.

S617

Practice Makes Permanent: Implementing Ergonomic Training During Fellowship to Prevent Future Endoscopic Burn-Out

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Introduction: Musculoskeletal injuries from performing endoscopy are common amongst gastroenterology fellows. The ASGE recently published the Ergonomics Core Curriculum, which states that training programs should incorporate formal ergonomics training into their curricula. However, the best method of doing this is unknown. In this study, we assessed whether one-on-one evaluation and feedback by physical therapists (PT) would improve ergonomics during endoscopy amongst GI fellows.
Methods: This study was a Quality Improvement project approved by the Institutional Review Board. A total of 8 fellows participated in the study. Demographic data and baseline information about musculoskeletal injuries and ergonomics training was obtained. The study was 2 phases. During phase 1, each fellow was observed by PT during one colonoscopy procedure and feedback regarding improving ergonomics and stretching exercises was provided afterwards. At the end of phase 1, a group session was organized to further educate fellows about common sites of musculoskeletal pain and stretches to avoid them. Phase 2 of the study was done 10 weeks later, and fellows were again observed for one colonoscopy procedure by PT and one-on-one feedback was provided. A post-intervention survey was conducted 3 weeks later.
Results: 7 fellows had previous training on ergonomics. Despite this, only 3 fellows properly adjusted the bed height and monitor position prior to the procedure during phase 1. Sustained awkward postures were observed in 7 fellows, most common being forward head/cervical extension, elbow flexion, wrist extension, forearm pronation and lumbar flexion. 3 fellows reported musculoskeletal pain secondary to performing endoscopy prior to phase 1. 2 fellows reported improvement in pain after phase 1; however, sustained awkward postures were persistent and only 1 additional fellow properly adjusted bed height and monitor position after phase 1. 2 additional fellows reported musculoskeletal pain after phase 1 and incorporated helpful changes in phase 2. While none of the fellows did any stretching prior to the study, 6 fellows reported doing some form of stretching on days they performed endoscopy after training by PT. The fellows reported that stretching instructions were the most helpful intervention.
Conclusion: Sustained awkward postures during endoscopy persisted among GI fellows even after one-on-one feedback by PT. However, musculoskeletal pain from endoscopy appeared to improve, with stretching exercises being most helpful (Table).

Table 1. Baseline characteristics of fellows

	32.75 (+/- 2.68)
Age (years)	
Gender	
Female	6 (75%)
Male	2 (25%)
Year of Fellowship	
1st year	3 (37.5%)
2nd year	2 (25%)
3rd year	3 (37.5%)
Colonoscopies Performed	
1st year	92 (+/- 42.4)
2nd year	266 (+/- 162)
3rd year	747 (+/- 222.9)

Table 1. (*continued*)

	32.75 (+/- 2.68)
Prior Ergonomics Training	
1st year	2 (66%)
2nd year	2 (100%)
3rd year	3 (100%)
Musculoskeletal Pain Related to Endoscopy	
1st year	2 (66%)
2nd year	1 (50%)
3rd year	0 (0%)

S618

Clinical Adverse Events Associated With Bravo pH Monitors: A MAUDE Database Analysis

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Introduction: The Bravo pH capsule monitoring system is a widely utilized diagnostic tool to identify and treat patients with gastroesophageal reflux disorder. While the Bravo pH capsule is minimally invasive, the associated procedural complications are not well described. We aim to investigate post Food and Drug Administration (FDA) approval outcomes associated with the Bravo pH capsule.
Methods: We analyzed post-marketing surveillance data on the Bravo pH capsule from the FDA Manufacturer and User Facility Device Experience (MAUDE) database from January 2016 to December 2021 to report device-related injuries and modes of failure. This database is an open access platform that receives device reports from mandatory sources, including manufacturers and facilities, as well as, voluntary sources such as healthcare professionals and patients. These reports allow the FDA to monitor device performance and device-related safety concerns.
Results: During the study period, approximately 4210 reported cases with 4655 device issues and 759 patient complications were examined. The most reported device issues were due to loss of or failure to bond (n= 2190, 47.1%), followed by malposition (n= 1074, 23.1%), detachment of device (n= 325, 7.0%), communication or transmission problems (n= 270, 5.8%), and entrapment of device (n= 104, 2.2%). The most reported patient complications were airway obstruction (n= 156, 20.6%), foreign body retention (n= 107, 14.1%), unintended radiation exposure (n= 69, 9.1%), aspiration/inhalation (n= 59, 7.8%), and pain (n= 53, 7.0%). A number of cases reported unspecified complications with insufficient information (n= 50, 6.6%).
Conclusion: The Bravo pH capsule is routinely utilized by Gastroenterologists for ambulatory pH monitoring. Our analysis of the FDA MAUDE database revealed a predominance of reported device complications related to capsule adherence and placement difficulties. In our study, airway obstruction represented the most commonly reported patient adverse event. This database has notable limitations, including limited information on patient comorbidities, detailed endoscopy reports, and an absence of a total volume of procedures performed in the United States. Furthermore, reporting can be inconsistent and underreported. This study provides insight into the most commonly reported complications of the Bravo pH capsule that will help inform the risk/benefit conversation with patients and may lead to a more detailed approach on how to mitigate and manage complications.

S619

Open Access Colonoscopy: A Study on Indications, Appropriateness and Efficiency of Colonoscopy Referrals in a Tertiary Care Center

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Introduction: Open access colonoscopy (OAC) refers to screening colonoscopies ordered by primary care providers (PCP) without a specialist's evaluation. In our institution, referral candidacy is based on specific parameters including a PCP visit within 6 months, controlled chronic conditions, normal laboratory values, and no gastrointestinal (GI) complaints. All referred patients are reviewed by a nurse, and patients that do not meet these criteria are considered rejected from OAC. OAC is currently challenged by inappropriateness of referrals and low follow-up rates. We sought to assess the rate of inappropriate OAC referrals, effectiveness of OAC, and identify most common reasons for rejection.
Methods: This retrospective study was conducted at a large tertiary care center. All patients referred to OAC in October 2020 were included and a random sample of 200 patients was selected for manual chart review. Data collected includes: demographics, comorbidities, date of approval/rejection, reasons for rejection, and rates of colonoscopy completion.
Results: Of the 200 patients reviewed, 1 was removed due to incomplete data. Of the remaining 199 patients, the mean age was 61, 98 (49%) were female, 79 (44%) were white, and 86 (48%) were black. A total of 114 (57%) were approved for OAC, of which 63 (55%) completed their colonoscopies with a mean of 121 days post-approval (SD=107, range 5-498 days). A total of 85 (43%) were rejected from OAC. The most common reasons for rejection included high risk comorbidities (26%), outstanding/abnormal laboratory results (21%), active GI conditions (18%), not due for colonoscopy (11%), uncontrolled diabetes (A1c >10; 7%), uncontrolled hypertension (1.2%) and lack of PCP visit within 6 months (4%). Among the 85 rejected patients, only 31 (36.5%) followed up with GI/PCP, of whom 21 (24.7%) underwent a colonoscopy. There were no significant differences between the accepted and rejected groups regarding age, gender, ethnicity, or insurance. (Table)
Conclusion: Our study revealed that OAC continues to be significantly burdened by the high rate of inappropriate referrals that lead to delays in patient care and increased resource utilization. Rejected patients have low follow up rates and lower colonoscopy completion rates. As OAC use continues, future studies should assess the efficacy of various interventions targeting current flaws in the referral process to help achieve higher rates of successful and more efficient colon cancer screening.

Table 1. **Summary of patient demographics and OAC approval/rejection data**

			All Patients(N=199)
Age		(Mean ± SD)	61.4 ± 8.7
Gender	Female Male	N (%)	98 (49.2%) 101 (50.8%)
Race	White Black Other	N (%)	79 (43.6%) 86 (47.5%) 16 (8.8%)
Approved OAC referrals	Approval rate Colonoscopy completion rate Duration between OAC approval and colonoscopy completion	N (%) N (%) (Mean days ± SD)	114 (57.3%) 63 (55.3%) 121.3 ± 107.4

Table 1. (*continued*)

			All Patients(N=199)
Rejected OAC referrals	Rejection rate	N (%)	85 (42.7%)
	Colonoscopy completion rate	N (%)	21 (24.7%)
	Duration between OAC rejection and colonoscopy completion	(Mean days ± SD)	129.8 ± 96.4
Reason for Rejection	High Risk Comorbidities	N (%)	22 (25.8%)
	Outstanding/Abnormal Labs		18 (21.2%)
	Active GI Condition		15 (17.6%)
	Not Due for Colonoscopy		9 (10.6%)
	No PCP Visit in Last 6 Months		3 (3.5%)
	Other		18 (21.3%)

S620

Impact Analysis of an Endoscopic Triage Algorithm Implemented During the Early Stages of the COVID-19 Pandemic

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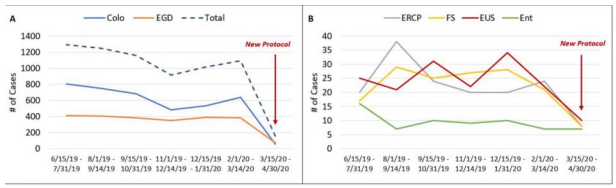
Introduction: Early in the COVID-19 pandemic, gastroenterology practices were forced to cancel or reschedule procedures to preserve personal protective equipment (PPE) and minimize viral spread. Such prolonged disruption in endoscopic activity was unprecedented. ACG and other societies released triage guidelines, but these could not account for regional or institutional idiosyncrasies. The GI section of our veterans affairs (VA) hospital created an internal triage protocol based on expert review. Our aim was to gauge appropriateness of this algorithm by evaluating the resulting case load and outcomes. This analysis will help inform future endoscopy planning and resource management.
Methods: We assessed the number of endoscopic cases—including EGD, colonoscopy, EUS, enteroscopy, flexible sigmoidoscopy, and ERCP—performed during the study period (3/15/20-4/30/20) after launch of the new protocol. We tabulated procedures completed in the preceding nine months, divided into six-week windows, to estimate historical case volume. Each urgent case was reviewed for diagnostic and therapeutic yield, complications, and COVID-19 status. Procedures were deemed "high-yield" if associated with an intervention, change in management, or time-sensitive diagnosis such as malignancy. (Figure)
Results: 6,730 endoscopic cases were completed in the nine months prior to study period, an average of 1,122 per six-week block. Over an equivalent period in the COVID-19 era, 158 endoscopic procedures were deemed "urgent" via our triage protocol and performed—14% of the usual case load. Colonoscopy volume fell most significantly to 8% of baseline, with EGD volume following at 18%. Of 158 urgent cases, 54% were categorized as high-yield and < 2% produced complications. No patients or staff tested positive for COVID-19 within two weeks. (Table)
Conclusion: Our analysis suggests that the endoscopic triage protocol deployed during the first wave of COVID-19 was safe and effective. The algorithm selected for procedures that were high-yield over half the time. In addition, administrative policies enacted (e.g., screening, PPE) were effective in limiting spread of COVID-19. Notably, advanced endoscopic procedure volume was less affected by adoption of the triage protocol and thus scheduling and staffing should facilitate such cases. Creative strategies will be necessary to reduce queues resulting from marked decline in colonoscopy volume, such as use of FIT testing, re-triage based on new surveillance guidelines, and emphasis on optimizing bowel prep.



[0620] **Figure 1.** Endoscopic case load over nine months prior to implementation of triage protocol, separated into total and high-volume procedures (A), and low-volume procedures (B).

Table 1. **Comparison of relative utility and complication rate for urgent cases performed during the study period by procedure type**

Procedure	Case Count	% Outpatient	% Inpatient	% High-Yield	Complications
Colonoscopy	54	46%	54%	24%	0
EGD	71	41%	59%	68%	0
ERCP	8	25%	75%	100%	1
Flex Sig	8	25%	75%	50%	1
EUS	10	90%	10%	60%	0
Enteroscopy	7	14%	86%	86%	0
Total	158	43%	57%	54%	2

S621

Simplifying and Unifying Anticoagulation Guidelines for Gastrointestinal Procedures at University Health, University of Missouri–Kansas City: A Quality Improvement Project

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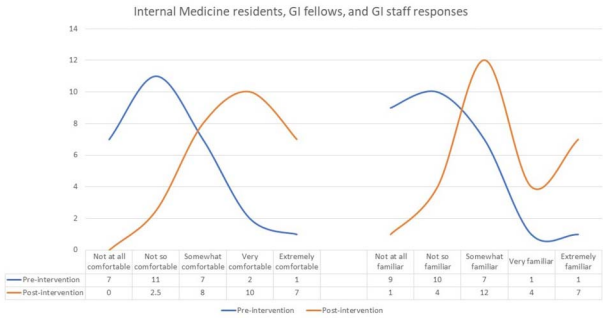
Introduction: Gastrointestinal (GI) endoscopy is a common procedure in the US, with around 22.2 million GI endoscopies performed in 2018. An estimated 6 million Americans are on anticoagulation (AC) and the overlap between these two populations presents a unique peri-operative challenge. Improper management of AC can result in an increased risk of thromboembolic complications related to the underlying condition, bleeding risk secondary to endoscopic interventions, or a delay in diagnosis and treatment due to procedure cancellation. Although societal guidelines specific to various anticoagulants

exist, it may be time-consuming to review them and arrive at a decision. Our aim was to standardize the decision-making process for the duration of holding periprocedural AC at University Health (UH) by providing simplified guidelines to the residents, PCPs, GI fellows, and endoscopists.
Methods: Under the supervision of two GI faculty, who built the general scheme of the poster, ACG guidelines were thoroughly reviewed and compiled onto a single chart, that was prominently displayed in primary care clinics, GI clinic, GI lab, and the IM resident lounge. An illustrative video was distributed. After 120 days of poster availability, an outcome survey was sent out and data was collected for analysis.
Results: 24 IM residents took the survey. 66.7% of them utilized the poster, 20.9% of them became extremely familiar with the guidelines and felt comforTable making recommendations regarding holding AC, compared to 0% and 0% respectively prior to intervention. 29.2% strongly agreed that the poster saved them time when making AC decisions prior to endoscopy. Four GI fellows and staff took the survey. 75% of them utilized the poster, 50% of them became extremely familiar with the endoscopy anticoagulation guidelines and 75% were comforTable making recommendations regarding holding anticoagulation peri procedures, compared to 25%. and 25% respectively prior to intervention. 25% strongly agreed that the poster saved them time when making anticoagulation recommendations in preparation for endoscopy.
Conclusion: Although a small proportion of the target population participated in the post-intervention survey, they reported increased familiarity with the guidelines and better comfort in making AC recommendations. The use of such tools can save valuable time for providers and contribute to faster decision-making.



[0621] **Figure 1.** Internal Medicine residents, GI fellows, and staff - Pre & post-intervention . Comfort making recommendations regarding holding anticoagulation surrounding the time of GI procedures. Familiarity with anticoagulation guidelines.

S622

Methodological Quality of Clinical Practice Guidelines for the Management of Antithrombotic Agents in Patients Undergoing GI Endoscopy: A Systematic Critical Appraisal Using the AGREE II Tool

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[1]James A. Haley VA Hospital, Tampa, FL; [2]USF Health Morsani College of Medicine, Tampa, FL; [3]University of South Florida Morsani College of Medicine, Tampa, FL.

Introduction: Several published clinical practice guidelines (CPGs) exist for the management of antithrombotic agents in patients undergoing GI endoscopy. However, to date, the quality of such CPGs has not been systematically appraised. The goal of this study was to identify and evaluate the quality of CPGs for the management of antithrombotic agents in peri endoscopic period published within last 6 years.
Methods: A systematic search of PubMed and Embase database was performed to identify eligible CPGs. Any CPGs published between January 1, 2016 and April 14, 2022 addressing management of antithrombotic agents in patients undergoing GI endoscopy were eligible. The Canadian Agency for Drugs and Technologies in Health (CADTH) broad filter for the CPG terms was used since it is the most sensitive filter. The quality of the CPGs was independently assessed by five reviewers using the Appraisal of Guidelines for Research & Evaluation II (AGREE II) instrument. Domain scores were considered of sufficient quality when >60% and of good quality when >80%.
Results: The search yielded 343 citations of which 7 were CPGs and included for the critical appraisal (Table) (one CPG was published in two journals). Five CPGs were published by the gastroenterology associations in Europe (n=2) and Asia (n=3) and two in the United States. The overall median score for the AGREE II domains was 100% for scope and purpose, 72% for stakeholder involvement, 86% for rigor of development, 100% for clarity of presentation, 29% for applicability and 89% for editorial independence. Table presents scores for the AGREE II domains for each included CPG.
Conclusion: The findings from our study show that the overall methodological quality of the CPGs for the management of antithrombotic agents in patients undergoing GI endoscopic procedures varies across various domains. Only one CPG included patient representatives in the CPG development process. There is a significant scope for improvement for methodological rigor and the applicability.

Table 1. **Clinical practice guidelines included in the critical appraisal using AGREE II instrument.**

Authors	Title	Journal	AGREE II scores [%]						
			Scope and purpose	Stakeholder involvement	Rigor of development	Clarity of presentation	Applicability	Editorial independence	Overall
Acosta et al.	The management of antithrombotic agents for patients undergoing GI endoscopy	Gastrointest Endosc 2016 Jan; 83(1):3-16. doi: 10.1016/j.gie.2015.09.035.	100%	29%	64%	100%	14%	57%	64%
Kato et al.	Guidelines for Gastroenterological Endoscopy in Patients Undergoing Antithrombotic Treatment: 2017 Appendix on Anticoagulants Including Direct Oral Anticoagulants	Dig Endosc. 2018 Jul;30(4):433-440. doi: 10.1111/den.13184.	100%	57%	64%	86%	29%	79%	61%
Chan et al.	Management of patients on antithrombotic agents undergoing emergency and elective endoscopy: joint Asian Pacific Association of Gastroenterology (APAGE) and Asian Pacific Society for Digestive Endoscopy (APSDE) practice guidelines	Gut 2018 Mar;67(3):405-417. doi: 10.1136/gutjnl-2017-315131	100%	86%	79%	100%	14%	100%	73%
Farcas et al.	Gastrointestinal endoscopy in patients on direct oral anticoagulants. A consensus paper of the Romanian Society of Gastroenterology and Hepatology	J Gastrointestin Liver Dis. 2018 Jun; 27(2):179-187. doi: 10.15403/jgld.2014.1121.272.end.	100%	57%	71%	71%	29%	86%	61%
Lim et al.	Clinical Practice Guideline for the Management of Antithrombotic Agents in Patients Undergoing Gastrointestinal Endoscopy	Clin Endosc. 2020 Nov;53(6):663-677. doi: 10.5946/ce.2020.192	100%	86%	100%	100%	29%	100%	85%

Table 1. (*continued*)

Authors	Title	Journal	AGREE II scores [%]						
			Scope and purpose	Stakeholder involvement	Rigor of development	Clarity of presentation	Applicability	Editorial independence	Overall
Veitch et al.	Endoscopy in patients on antiplatelet or anticoagulant therapy: British Society of Gastroenterology (BSG) and European Society of Gastrointestinal Endoscopy (ESGE) guideline update	Endoscopy. 2021 Sep;53(9):947-969. doi: 10.1055/a-1547-2282	100%	100%	100%	100%	43%	100%	90%
Abraham et al.	American College of Gastroenterology-Canadian Association of Gastroenterology Clinical Practice Guideline: Management of Anticoagulants and Antiplatelets During Acute Gastrointestinal Bleeding and the Periendoscopic Period	1. J Can Assoc Gastroenterol.2022 5(2):100-101. doi: 10.1093/jcag/gwac010. 2. Am J Gastroenterol 2022 117(4): 542-558. doi:10.14309/ajg.0000000000001627.	100%	100%	100%	100%	57%	93%	83%

S623

The Correlation Between Early Endoscopy and In-Hospital Outcomes in Patients With Upper GI Malignancies Admitted for Upper GI Bleeding

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Introduction: Upper gastrointestinal bleeding (UGIB) in the setting of UGI malignancies is challenging due to friable vasculature. Data on the role of esophagogastroduodenoscopy (EGD) remains limited on improving overall outcomes. New therapeutics are now available to achieve hemostasis during EGD such as Hemospray which prompts promising outcomes for early interventions. The goal of this report was to investigate whether early EGD in cancer related UGIB improves overall in-hospital outcome using a large representative database.
Methods: Using the National Inpatient Sample, we examined patient characteristics and predictors for in-hospital outcomes for patients with UGI malignancies (esophagus to stomach) admitted with UGIB stratified based on undergoing early EGD (≤ 24 hours) vs not during 2016. In-hospital outcomes of interest were all-cause mortality, need for blood transfusion, invasive mechanical ventilation, length of stay and total hospital charge. Multivariate analysis was used to predict in-hospital outcomes stratified based on undergoing early EGD after adjusting for baseline characteristics, Charlson comorbidity index, day of admission during the week and medical comorbidities.
Results: In our retrospective study, a total of 1,935 patients with UGI malignancy were admitted for UGIB in 2016, of which 695 (35.9%) underwent early EGD. Patients who underwent early EGD when compared to patients who did not had similar demographic, racial and medical comorbidities baseline characteristics. On Multivariate analysis, Early EGD patients were more likely to require blood transfusion (OR 1.77 95%-CI 1.09-2.85, P=0.020). There was a trend towards lower all-cause mortality in patients undergoing early EGD, but it did not reach statistical significance (OR 0.48 95%-CI 0.12-1.91, P=0.304). There was no significant difference in the requirement of invasive ventilation (OR 0.58 95%-CI 0.05-6.23, P=0.654), length of stay (Coef. -0.41 95%-CI -1.16-0.34) and total hospital charge (Coef. -2.38 95%-CI -1.07-5.97, P=0.576), (Table).
Conclusion: Early EGD did not show improved all-cause mortality rate for patients with UGI cancer who have UGIB, but showed increased requirement for blood transfusion which possibly indicates more severe bleeding and more vigilant anticipation of complications. This study preceded the approval of new therapeutics such as Hemospray, which was approved in the US in 2018, and raises the question whether outcomes would improve after further utilization of newer therapeutic innovations.

Table 1. **Outcomes**

	Total number (UGIB in GI cancer receiving early EGD [N=695] vs late EGD [N=1,240])	OR (95% CI)	P value
All-cause mortality	20 (2.8) vs 80 (6.4)	0.48 (0.12 to 1.91)	0.304
Blood transfusion	305 (43.8) vs 425 (34.2)	1.77 (1.09 to 2.85)	0.020
Invasive mechanical ventilation	15 (2.1) vs 30 (2.4)	0.58 (0.05 to 6.23)	0.654
Length of stay (days)	4.4 ±0.33 vs 4.5 ±0.32	Coef. -0.41 (-1.16 to 0.34)	0.288
Total hospital charge (USD)	48,324 ±4,606 vs 41,874 ±3.953	Coef. -2.38 (-1.07 to 5.97)	0.576

*Multivariate analysis comparing UGIB in patients with GI cancer based on receiving early EGD (24 hours) adjusted for age, gender, race/ethnicity, Charlson Comorbidity Index, hypertension, atrial fibrillation, coagulopathic disorder, diabetes mellitus, cirrhosis, varices, coronary artery disease, chronic kidney disease, dyslipidemia, alcohol misuse, protein calorie malnutrition, weekend.

S624

Role of Esophagogastroduodenoscopy Before Transesophageal Echocardiography

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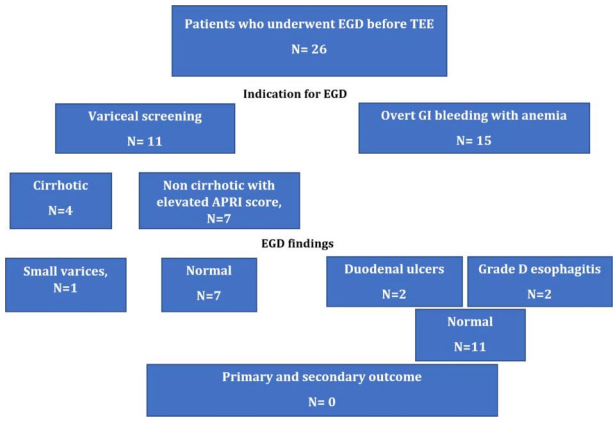
Introduction: As per American Society of Echocardiography (ASE) guidelines, esophageal varices, dysphagia, thrombocytopenia, symptomatic hiatal hernia, active esophagitis, are relative contraindications to transesophageal echocardiography (TEE). It is not uncommon for gastroenterologists to get consulted to perform an esophagogastroduodenoscopy (EGD) to determine any lesions that will preclude performing a TEE. The evidence behind this recommendation is scant. We aim to determine whether an upper endoscopy before TEE changes patient management.
Methods: This is a retrospective chart review of patients who underwent a diagnostic EGD to assess for clearance before TEE. All the EGDs were done 3 weeks prior to TEE. The primary outcome was preclusion of TEE based on EGD findings. Secondary outcomes were overt GI bleeding or drop in hemoglobin post TEE requiring endoscopic intervention.
Results: A total of 26 patients met the inclusion criteria. Bacteremia and fungemia are the indications for TEE in 23 patients and cardioversion for Atrial fibrillation, mitral valve disease are the indications in the others. Variceal screening is the indication in 11 patients and anemia with overt GI bleeding is the indication in the rest. Of the 11 patients in the variceal screening group only 4 were known to have cirrhosis, and the rest were requested to have EGD for variceal screening due to elevated AST and thrombocytopenia with an APRI Score >1. All the consult requests are from cardiology team. 15 patients had EGD due to concerns for GI bleeding in the setting of anemia and overt GI bleeding. Of these 15, 2 patients had Grade D esophagitis and they underwent TEE 2-3 weeks after EGD (Figure). None of the patients experienced primary or secondary outcomes.
Conclusion: Based on our findings upper GI endoscopy before TEE for risk stratification has limited utility. However, we agree with ASE guidelines of consulting gastroenterology when there is a question as to whether gastrointestinal symptoms or pathology present poses a risk for TEE. Our study is limited by small sample size, however, adds to the limited literature available on this subject.



[0624] **Figure 1.** Breakdown of indication for EGD and EGD findings.

S625

Adenoma Detection Rate Using LCI vs White Light Colonoscopy Both With and Without the Use of Artificial Intelligence: A Prospective Study in a Non-Academic Center in Latin America

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Introduction: The adenoma detection rate (ADR) is a strong predictor of cancer prevention. The use of artificial intelligence could increase the detection of colorectal polyps. The Computer-Aided Polyp Detection systems (CADe) have shown high accuracy in polyp detection when retrospectively applied to endoscopy videos or images, but their live performance is still under scrutiny. There are other ways in which technology has helped in performance and efficiency, Linked Color Imaging (LCI) is a modern image-enhancing technology, its use along with artificial intelligence could be another tool in the detection of precancerous lesions.
Methods: A prospective observational study was conducted on 637 subjects undergoing screening colonoscopies, follow up colonoscopies, or work-up from a fecal occult blood test, from January 2021 through June 10th, 2022, in a nonacademic center in the Dominican Republic. Colonoscopies performed during 2021 did not use the CADe technology, while patients in 2022 were exposed to the CADe technology, in addition, each patient was alternatively assigned to either LCI or white light colonoscopy. Two endoscopists performed the procedures during these two years. The primary outcome evaluated was the ADR using LCI vs. white light colonoscopy both with and without the use of artificial intelligence. Secondary outcomes were polyp detection rate (PDR) and average withdrawal time.
Results: The ADR in patients not exposed to CADe (2021) was 56.6%, while patients exposed to CADe (2022) presented an ADR of 54.5%. PDR in 2021 was 72.3%, and in 2022 the result was 70.6%. The average withdrawal time in 2021 was 13 minutes and 14 minutes in 2022. When it comes to the use of LCI and white light without the use of AI (2021), the ADR with LCI was 52%, while the use of white light colonoscopy resulted in an ADR of 50.9%. The ADR in patients exposed to LCI with AI (2022) was 61.1%, while patients exposed to white light with AI presented an ADR of 61%.
Conclusion: The polyp and adenoma detection rates calculated were higher than the average considered for a high-quality colonoscopy both with and without the use of artificial intelligence. When it comes to the use of other technologies like LCI, ADR was higher with LCI when compared to white light colonoscopy, while the NNT was 90. When comparing the use of both technologies, there was still no significant difference. Further studies are still needed to assess these new technologies and their effect on colonoscopy and polyp detection.

S626

Safety of Endoscopic Procedures in Patients With Neutropenia: A Systematic Review and Meta-Analysis

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Introduction: Neutropenic patients are at high risk for infectious complications, and endoscopic procedures carry a risk of infections which may be increased in these patients. Many of these patients have concomitant thrombocytopenia and are at higher risk of bleeding, and gastroenterologists are frequently consulted to consider endoscopic evaluation in these patients. Current evidence regarding the safety of endoscopic procedures in neutropenic patients is limited, and guidelines are unclear, with some suggesting use of periprocedural antibiotics in such high-risk patients. We performed a systematic review and meta-analysis to evaluate the safety of endoscopic procedures in neutropenic patients.
Methods: Systematic literature search was performed until June 2022 at Medline, Embase, Web of Science, and Cochrane library database to identify all studies that evaluated the safety of endoscopic procedures in neutropenic patients. Our primary outcome was to evaluate the rate of infectious complications, and the secondary outcome was to evaluate the rate of bacteremia. All analysis was conducted utilizing Comprehensive meta-analysis software.
Results: Four observational studies were included in the final analysis. There were 1392 procedures performed on neutropenic patients. Neutropenia was defined as $<$ 500 cells/ul in one study, $<$ 1000 cell/ul in two studies and less than 1500 in one study. Periprocedural antibiotics were given to approximately 70% of the patients. Pooled rate of infectious complications were 10.6% (95% CI: 2.8%-33%), I2=97.63%. In a subgroup analysis including patients with blood cultures done post-procedure, the risk of the pooled rate of bacteremia was 9.5% (5.5%-16.1%), I2=34.39%.
Conclusion: Our study revealed that the risk of infectious events and bacteremia is high in neutropenic patients. However, given the lack of a control group in most studies, it is hard to conclude if a higher risk of infectious complications is secondary to neutropenia or endoscopic procedures. Therefore, larger prospective comparative studies are needed to compare infectious outcomes of neutropenic patients who underwent endoscopic procedures and those who do not require any invasive procedures. Endoscopic procedures should be performed with caution in neutropenic patients with valid indications, and periprocedural antibiotics should be considered to decrease the risk.

S627

Differences in Scope Withdrawal Times by Age and Gender at a Large Veterans Affairs Medical Center Endoscopy Unit

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Introduction: Disparities in adenoma detection rates (ADR) between men and women have been noted, particularly in those under 50. However, there is less literature regarding differences between gender and race in relationship to age.
Methods: Endoscopy records between October, 2020 and August, 2021 at a single Veterans Affairs (VA) medical procedure unit were retrieved from the electronic health record (EHR). A total of 2513 colonoscopies were performed during this period. Of these, 744 were excluded due to incomplete demographic or endoscopic data. Patients were separated into deciles according to decade of life, with those under 50 and over 80 considered inclusively. ADR and scope withdrawal times were analyzed by age, gender, and race. Continuous variables were analyzed using Mann Whitney U test, categorical data via Fisher's exact test, and multivariable regression assessed factors in adenoma detection.
Results: The study population was consistent with typical VA demographics (median 67.0 yrs, 90.8% M, 80.7% white). Of 1769 patients, Native American (2), Pacific Islander (7), and Latino (20) patient numbers precluded subgroup analyses. A progressive increase in ADR was noted as age increased ($<$ 50: 29.3%; 50-59: 36.9%; 60-69: 40.5%; 70-79: 43.4%; $>$80: 48.2%, p=0.002). This trend was only present for

men (in women: < 50: 12.5%, 50-59: 33.3%; 60-69: 31.0%; 70-79: 26.9%, >80: 33.3%, p=0.341), but was present regardless of race (p=0.038 for white patients, 0.046 for black patients). Further, ADR was significantly higher in both black (43.4%) and white (41.0%) men compared to either black (28.6%) or white (27.0%) women overall (p=0.008). This difference was particularly marked in younger (< 50: men: 32.4%; women: 12.5%) and older (70-79: men: 44.7%; women: 26.9%) cohorts (p≤0.023). When removing patients with adenomas (which *de facto* increases scope withdrawal time), SWT was longer in men (17 minutes, IQR 11-26 minutes) compared to women (14 minutes, IQR 10-20 minutes, p< 0.001). Although scope times increased as age increased (p=0.018), there was no difference in SWT between white and black patients (p=0.990). On multivariable regression, age greater than 80 was the strongest predictor for adenoma detection (OR 2.15, CI 1.27-3.64), with female gender serving as a protective factor (OR 0.55, CI 0.38-0.80, p=0.002).

Conclusion: There are important differences in ADR between men and women, but differences in scope withdrawal times warrant further investigation.

S628

Disparities in Colonoscopy Utilization After the COVID-19 Pandemic

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Introduction: In the first 3 months of the COVID-19 pandemic, our institution in San Francisco like many others limited routine elective procedures which resulted in a stark decline in endoscopy volume. There is concern that despite returning to pre-pandemic colonoscopy rates in the recovery period, these procedural delays may have had a lasting impact and worsened preexisting disparities in access to endoscopy. We aim to examine disparities in colonoscopy utilization in the post COVID-19 era as compared to the pre-pandemic period.

Methods: We included all adult patients who underwent outpatient colonoscopy at our institution in the following time periods: (1) 7/1/17 to 3/15/20 ("pre-COVID") and (2) 3/16/20 to 11/30/21 ("post-COVID"). We abstracted age, gender, race, language preference, insurance type and income quartile by zip code from the medical record. We identified those that were "high risk" for CRC based on personal or family history. Multivariable logistic regression analysis was performed to assess the association between subject characteristics and colonoscopy exposure in the post-COVID era. (Table)

Results: There were 14,381 and 10,376 colonoscopies included in pre and post-COVID periods respectively. English-speaking patients comprised 92.8% of the pre-COVID cohort which increased to 94.2% in the post-COVID era (p < .001). This difference was statistically significant on multivariable analysis (OR 1.63, 95% CI 1.09-2.42). While there was also a statistically significant increase in colonoscopies of patients who identify as LatinX compared to white race (OR 1.14, 95% CI 1.03-1.26), the magnitude of this change was small – 8.3% versus 9.2% in the pre and post-COVID cohorts. We found an inverse association between the post-COVID era and Medicare insurance status as compared to private insurance (OR 0.87, 95% CI 0.81-0.95). There were no significant associations on multivariable analysis between colonoscopy in the post COVID phase and age, gender, race, income quartile by zip code nor high-risk status.

Conclusion: In the aftermath of COVID-19 and after colonoscopy volume had returned to pre-pandemic levels, there was a reduction in colonoscopy utilization by non-English speakers as well as patients with Medicare insurance. Reassuringly, it does not appear that the well-established pre-existing racial gap in colonoscopy access was worsened by the COVID 19 pandemic in our population nor was there a material difference in colonoscopy use by income quartile – a common measure of socioeconomic disparity.

Table 1. Multivariable Logistic Regression of Attributes Associated with Colonoscopy Utilization in the post-COVID era (March 16, 2020 - November 30, 2021) compared to pre-COVID (July 1, 2017 - March 15, 2020)

	Odds Ratio	95% CI	p-value
Age			
< 45	1.05	0.98-1.12	0.21
45-59	1.0	-	-
60-69	0.92	0.86-0.99	0.03
70-79	1.03	0.93-1.14	0.58
>80	1.22	1.01-1.47	0.04
Female	1.05	1.00-1.11	0.05
Race			
White	1.0	-	-
Black	1.11	0.99-1.25	0.07
Asian	1.01	0.94-1.09	0.77
Latinx	1.14	1.03-1.26	< 0.01
Other	1.004	0.90-1.12	0.95
Language			
English	1.0	-	-
Spanish	0.70	0.44-1.12	0.14
Russian	0.59	0.38-0.93	0.02
Chinese Dialects	0.55	0.36-0.84	< 0.01
Other	0.66	0.43-1.01	0.054
English v. All Others	1.63	1.09-2.42	0.02
Insurance			
Private	1.0	-	-
Medicare	0.87	0.81-0.95	< 0.01
Medical/Covered CA	0.95	0.87-1.02	0.16
Income			
Highest Quartile	1	-	-
2nd Quartile	0.88	0.39-1.97	0.76
3rd Quartile	0.83	0.37-1.85	0.65
4th Quartile	0.80	0.36-1.80	0.59
High Risk	0.95	0.90-1.00	0.05

S629

Clinical Setting and Outcomes in Patients Undergoing Endoscopic Disimpaction of Esophageal Food Bolus

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Introduction: Esophageal food impaction (EFI) resulting in obstruction is a common gastrointestinal emergency most often treated with disimpaction by emergent upper endoscopy. EFI's may occur secondary to the underlying esophageal stricture, eosinophilic esophagitis, mass, or underlying dysmotility. We sought to understand the association between the clinical setting, including the emergency department (ED), operating room (OR), or endoscopy unit (EU), in which endoscopic disimpaction was performed with clinical outcomes among patients presenting with EFI.
Methods: We conducted a retrospective review of 409 adult patients that presented to the ED with suspected EFI at any of the three Lifespan academic or community hospital sites from 2015 to 2021. We compared 30-day readmission and length of stay (LOS), among individuals who were treated with an upper endoscopy. Chi-square, Fisher exact test, and Student's t-tests were performed for descriptive analysis to report demographics and other health-related measurements. The multivariable regression models were adjusted for age, race, ethnicity, Charlson Comorbidity Index score (CCI), and if the procedure was done during the weekend. The multivariable logistic regression model was adjusted for age, CCI, and if the procedure was done during the weekend, or after 5 pm. Analysis was performed in SAS version 9.4.
Results: The majority of the procedures were done in the EU (62.2%), followed by ED (29.5%) and OR (8.3%). Eighty-five percent of the individuals were white, 6.4% were hispanic or latino, and average age at presentation was 57.0. Individuals undergoing upper endoscopy in the ER were sicker, with a mean CCI of 2.8, compared with 1.8 at EU, p-value=0.0126. The average LOS was higher (3.5 days) among patients that had the procedure in the ED, compared with the EU (2.4 days), adjusted p-value=0.0173, but higher (10.8 days) among patients that had the procedure in the OR, compared with the ER, adjusted p-value=0.0249. Individuals having upper endoscopy in the ED were observed having over 2-fold greater likelihood for 30-day readmission compared with the EU, OR 95%CI 2.3 [1.03-5.13].
Conclusion: Endoscopic food disimpaction can be safely completed in a controlled setting such as the ED, EU, or OR. We observed a 30-day readmission and lower LOS is seen when the procedure is done on the EU compared with ED.

S630

Characterizing Racial Disparities in Follow-Up Care in an Open-Access Endoscopy Cohort

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Introduction: Open-access endoscopy (OAE) describes access to endoscopic procedures for patients who are not office-established patients of a gastroenterologist. OAE has expanded access to endoscopy and can decrease healthcare disparities. Previous studies have explored factors associated with non-attendance to OAE. However, disparities in follow-up care after OAE have not been described.
Methods: Barnes-Jewish Hospital (BJH) is a large nonprofit hospital in St. Louis, MO. BJH offers OAE to the St. Louis community. Utilizing the procedure list for open-access esophagogastroduodenoscopies (EGD), we completed a retrospective analysis of all patients who received an open-access EGD during 2019. During this time, 677 open-access EGDs were scheduled. Demographic and clinical variables, EGD indication, EGD findings, recommended follow-up, and completed follow-up care were collected from the electronic health record. Means ± standard deviations (SD) were used to express continuous variables. Student's t-tests were utilized to compare means. Chi-square test or Fisher Exact Test were used to determine the unadjusted odds ratio (OR) and 95% confidence interval. A two-sided p-value of < 0.05 was considered statistically significant.
Results: Of the 677 open-access EGDs, 294 (43.4%) were male, 414 (61.2%) identified as white, and 259 (38.3%) identified as minority. Within minority patients, 223/259 (86.1%) identified as Black. Some type of follow-up care was recommended in 176/677 patients (26.0%). Of the 176 patients who were recommended for follow-up, 130/176 (73.9%) were able to obtain the recommended follow-up. Of the 176 patients who were recommended for follow-up care, 37 (21.0%) were found to have HP. When stratifying the population who required some type of follow-up care by race, minority patients with HP were more likely than minority patients without HP to receive appropriate follow-up (OR=2.3; 95% CI 1.2 – 3.9). For white patients, those with HP were just as likely as those with a differing diagnosis to receive proper follow-up (OR 0.85, 95% CI 0.2 - 3.9).
Conclusion: OAE has the potential to decrease healthcare disparities by providing access to endoscopies for patients who do not have a primary gastroenterologist. Minority patients with HP were more likely to receive the appropriate follow-up care than minority patients who required follow-up care without HP. Implementing strategies to ensure that all patients receive follow-up care after OAE, regardless of the findings made during OAE, is necessary.

S631

Overnight Split Dosing With 1L Polyethylene Glycol + Ascorbic Acid Bowel Preparation Delivers High Levels of High-Quality Cleansing for Colonoscopy: A Sub-Analysis of a Large Real-World Study

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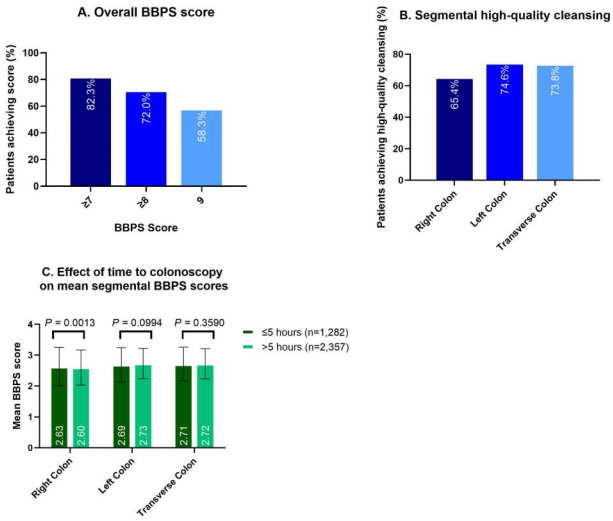
Introduction: Clinical guidelines recommend evening/morning split dosing for routine colonoscopy procedures. Overnight split dosing with 1 liter polyethylene glycol + ascorbic acid (1L PEG+ASC) has demonstrated strong cleansing performance in clinical trials. Here we report a sub-analysis from the largest real-world study to date of 1L PEG+ASC, evaluating patients who received this split dosing regimen.
Methods: An observational, multicenter, retrospective study evaluated the medical records of colonoscopy outpatients between July 2019 and September 2021 at 12 centers in Spain and Portugal. Eligible adults (aged ≥18 years) had a screening, surveillance, or diagnostic colonoscopy after an evening/morning (split dose) or same-day regimen of 1L PEG+ASC. Bowel cleansing was assessed by site endoscopists using the Boston Bowel Preparation Scale (BBPS). Segmental BBPS scores of 3 defined high-quality cleansing. High adherence was defined as consumption of ≥75% of each dose and safety was assessed based on registered adverse events (AEs). BBPS scores were compared between time to colonoscopy groups with the Wilcoxon rank-sum test.
Results: A total of 13,169 patients from the 12 centers were enrolled in the study, of which 4,316 received a split-dosing regimen and were included in this analysis. In the split-dose group, 48.0% of patients were male, mean (SD) age was 58.1 ± 13.4 years, and 33.4% were ≥65 years old. An overall BBPS score of 9 was attained in 58.3% of patients (Figure A). High rates of BBPS 3 were observed in all segments (Figure B). There was no effect of time lapse to colonoscopy on segmental cleansing in the transversal and left colon (Figure C). Only 1.6% of colonoscopies were incomplete, 0.39% due to poor preparation. Overall, 3.9% (95% CI: 3.4%–4.6%) of patients experienced an AE. The main AEs were nausea (2.4%), vomiting (1.2%), and abdominal pain (0.4%). Adherence was high at 97.6% of those 1,834 patients who reported volume intake.
Conclusion: Results from this analysis show that overnight split dosing with 1L PEG+ASC delivered an excellent overall and segmental bowel cleansing quality in real-world settings.



[0631] **Figure 1.** Bowel cleansing performance of split dose 1L PEG+ASC: (A) Rates of overall colon high-quality cleansing (BBPS score >6); (B) Rates of segmental high-quality cleansing (BBPS score 3); (C) Effect of time to colonoscopy on mean segmental BBPS scores.

S632

Investigating the Effects of Endocuff on Polyp Detection and Miss Rate in the Right Colon

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Introduction: EndoCuff (Olympus America) is an attachment device at the end of a colonoscope that enhances visualization of the colonic mucosa to improve polyp detection rate upon withdrawal. Some studies recommend a second pass through the right colon due to increased likelihood of missed polyps on the first pass. Documented polyp miss rates can range as high as 28% per previous studies with traditional colonoscopy. Although the EndoCuff-assisted colonoscopies result in lower polyp miss rates, the necessity of a second pass remains unknown. In our pilot study, we investigated the effects of EndoCuff on polyp detection and miss rates during the second pass in the right colon.
Methods: This survey-based study was conducted at a single community hospital. 54 participants underwent screening, diagnostic, or surveillance colonoscopies with the assistance of EndoCuff. Participant characteristics included sex (25 males, 29 females), age (39-80), and quality of prep (93% with good or excellent prep). The number of polyps detected on the first and second pass through the cecum/ascending colon were recorded and analyzed using two-proportions tests (Minitab Statistical Software).
Results: A total of 32 polyps were detected in the right colon on the first pass. Only 5 participants (9.3%) had evidence of a single missed polyp on the second pass, which occurred exclusively with the low polyp number detected on the first pass (0-1 polyp) under good/excellent prep quality.
Conclusion: Our preliminary data suggest that EndoCuff is associated with effective detection of polyps during first pass. Furthermore, EndoCuff resulted in significantly lower polyp miss rates than what is routinely reported in the field. However, it remains to be determined whether a second pass is clinically necessary during screening and/or surveillance colonoscopy with the use of Endocuff. A follow-up to this study is needed with a larger number of patients to validate.

S633

The Association of Patient Demographics and Socioeconomic Status With Advanced Neoplasia in Endoscopic Mucosal Resection

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Introduction: Endoscopic Mucosal Resection (EMR) is a minimally invasive procedure that allows for the removal of pre-cancerous and cancerous lesions. In recent years, colorectal cancer mortality in the United States (U.S.) southern states including Alabama have exceeded national levels with minority and under-represented populations having a higher risk of advanced neoplasia on screening colonoscopies. Socioeconomic status (SES) can affect access to EMR procedures. Our study examines the factors associated with advanced neoplasia following EMR.
Methods: We performed a retrospective review study examining patients who had EMR at our institution between March 2017 to March 2022. Patient demographics, procedural data, and census data were collected. Census data included median household income and home value which were calculated in U.S. dollars, disability status, occupation, and education attainment which were joined by zipcode to the primary data. Patients were divided into two groups, patients with advanced and non-advanced neoplasia. Advanced neoplasia was defined according to the recent U.S. multi-society task force on colorectal cancer.
Results: Our cohort consisted of 450 patients divided into two groups: 79.3% (N=357) with advanced neoplasia and 20.7% (N=93) with non-advanced neoplasia with baseline characteristics reported in Table. Compared to patients with non-advanced neoplasia, patients with advanced neoplasia were older (64.5 vs 60.3 years) and male (86.3%). Patients with advanced neoplasia had a higher percentage identifying as African-American or non-white (88.9%, 66.7% respectively), were overweight (85.4%), and were current alcohol users (74.5%). Census data indicated that patients with advanced neoplasia had a lower median household income ($49,374 vs $59,740) compared to patients with non-advanced neoplasia respectively.
Conclusion: Our study demonstrated that patients with advanced neoplasia were more likely to be older males, overweight, and with a lower income compared to patients with non-advanced neoplasia. Furthermore, patients with advanced neoplasia were more likely to be among minority populations. Within the limitations of this small retrospective study, our findings shed light on important factors associated with advanced neoplasia potentially allowing us to personalize care. Larger prospective studies are needed to confirm our findings.

Table 1. Baseline Characteristics of Patients with Advanced and Non-Advanced Neoplasia following EMR

Category	Overall	Pathology		p-value
	N=450	Advanced Neoplasia (N=357), 79.3%	Non-advanced Neoplasia (N=93), 20.7%	
Age (years), mean (SD)	63.6 (10.3)	64.5 (10.1)	60.3 (10.4)	0.001*
Sex				
Male	227 (50.4%)	196 (86.3%)	31 (13.7%)	< 0.001*
Female	223 (49.6%)	161 (72.2%)	62 (27.8%)	

Table 1. (*continued*)

Category	Overall	Pathology		p-value
	N=450	Advanced Neoplasia (N=357), 79.3%	Non-advanced Neoplasia (N=93), 20.7%	
Race				
White	297 (66.9%)	224 (75.4%)	73 (24.6%)	0.003*
African-American	135 (30.4%)	120 (88.9%)	15 (11.1%)	
Other+	12 (2.7%)	8 (66.7%)	4 (33.3%)	
BMI++				
Normal	111 (25.6%)	88 (79.3%)	23 (20.7%)	0.047*
Overweight	137 (31.6%)	117 (85.4%)	20 (14.6%)	
Obese	185 (42.7%)	137 (74.1%)	48 (25.9%)	
ASA classification				
1	3 (0.7%)	2 (66.7%)	1 (33.3%)	0.642
2	266 (59.2%)	207 (77.8%)	59 (22.2%)	
3	177 (39.4%)	145 (81.9%)	32 (18.1%)	
4	3 (0.7%)	2 (66.7%)	1 (33.3%)	
Smoking				
Current	103 (22.9%)	89 (86.4%)	14 (13.6%)	0.127
Former	128 (28.4%)	96 (75.0%)	32 (25.0%)	
Never	217 (48.2%)	171 (78.8%)	46 (21.2%)	
Alcohol				
Current	208 (46.2%)	155 (74.5%)	53 (25.5%)	0.006*
Former	31 (6.9%)	21 (67.7%)	10 (32.3%)	
Never	209 (46.4%)	180 (86.1%)	29 (13.9%)	
Drugs				
Current	16 (3.6%)	14 (87.5%)	2 (12.5%)	0.327
Former	20 (4.4%)	18 (90.0%)	2 (10.0%)	
Never	396 (88.0%)	309 (78.0%)	87 (22.0%).	

*Statistical significance: p-value<0.05 +Other Race includes: Hispanic, Asian, other ++Normal: BMI between 18.5 and 24.9, Overweight: BMI between 25.0 and 29.9, Obese: more than 30.0.

S634

Global Trends in Training and Credentialing Guidelines for Gastrointestinal (GI) Endoscopy: A Systematic Review

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Introduction: Credentialing in GI endoscopy is not a universally standardized process. National guidelines may provide a framework for local training, however in certain settings, training committees set minimal competency requirements that must be met before a clinician can be accredited to practice independently. There is a paucity of literature assessing the inter-societal and geographic variability in guidelines and training requirements in endoscopy. Our aim was to systematically review the available credentialing guidelines proposed by different GI endoscopy societies and affiliated training committees internationally

Methods: We conducted a systematic review according to the PRISMA guidelines. A comprehensive literature search was performed for credentialing guidelines for GI endoscopy from inception until January 2022. Two reviewers screened and one reviewer abstracted data using a pre-defined data collection form.

Results: From the 653 records obtained from our search, 20 credentialing guidelines from 12 different GI societies were ultimately included in the review. These guidelines encompassed the following procedures and outlined the following key-performance indicators; a) Colonoscopy: the recommended minimum number of procedures performed ranged from 150-275 with a minimum cecal intubation and adenoma detection rate of 85-90% and 20-30% respectively; b) EGD: the minimum number of procedures prior to credentialing ranged from 130-1000, the minimum duodenal intubation rate ranged from 95-100%, and the range for minimum number of upper GI bleeds managed was 20-45 (in addition to other procedural KPIs); c) ERCP: the recommended minimum number of procedures prior to credentialing ranged from 100-300 cases with a minimum selective duct cannulation rate of 80-90%. Guidelines for flexible sigmoidoscopy, EUS and capsule endoscopy were also obtained. (Table)

Conclusion: There is a general concordance amongst the various international GI societies with regards to minimum procedural volume and performance in key procedural tasks prior to credentialing, however the use of validated education assessment tools was lacking in the majority of guidelines. Additional KPI's need to be explored for less routinely performed procedures such as EUS and capsule endoscopy.

Table 1. **Key performance indicators for credentialing colonoscopy, EGD and ERCP by GI endoscopy societies**

Procedure	Performance Metric (min)	Range	GI Endoscopy societies included
Colonoscopy	Procedural volume Cecal intubation rate Adenoma detection rate Polypectomy (volume)	150-275 85-90% 20-30% 20-50	ESGE, Europe JAG, United Kingdom ASGE, United States KSGE, South Korea
EGD	Procedural volume Duodenal intubation rate Endoscopic hemostasis	130-1000 95-100% 20-45	PSG, Poland SSG, Switzerland CAG, Canada FOCUS, Canada
ERCP	Procedural volume Selective duct cannulation Biliary stent placement (volume)	100-300 80-90% 25-60	Conjoint Committee, Australia NZCC, New Zealand ERCP Working Group, Singapore Academy of Medicine, Singapore

S635

Biopsy Results Follow-Up After Outpatient Endoscopy: A Survey of Patient Preferences

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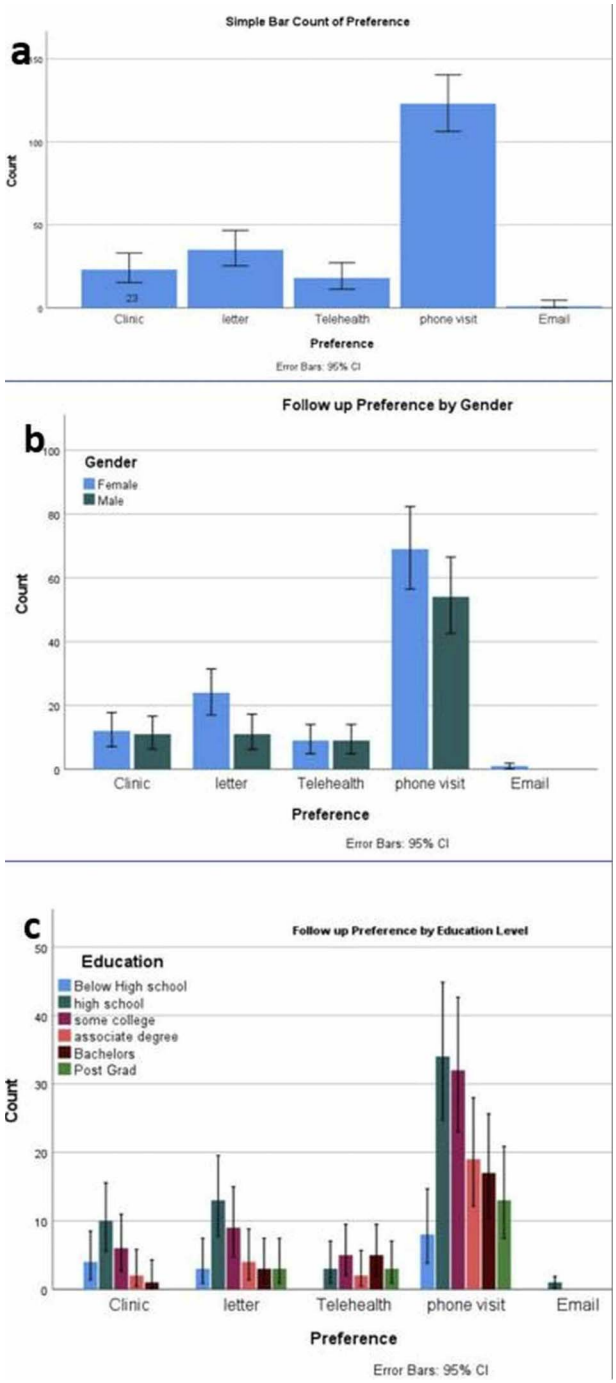
Introduction: Effective communication is the cornerstone of healthcare delivery and patient satisfaction. Good communication between patient and physician has been demonstrated to increase adherence to treatment along with follow-up plans. Open access endoscopy, while achieving the goal of increasing screening rates poses a challenge in providing patients with pathology results from specimens obtained

during the procedure. Institutions have implemented a variety of strategies to communicate such results to patients. We conducted a survey of patients undergoing outpatient endoscopy at our center to assess their preferences for obtaining pathology results.

Methods: All outpatients presenting to our institution for endoscopy for 30 consecutive days were approached for participation in this quality improvement (QI) project. A one-question survey assessed the patient's preferred communication method of pathology results. The options included phone visit, letter, email, telehealth and in person clinic visit. Demographics assessed included age, gender, race and educational level.

Results: A total of 200 patients presenting to our outpatient endoscopy suite during the period of interest completed the QI survey instrument and comprise the study group. Demographics were as follows: female 57.5%, male 42.5%; Age ranges in years - 18-40 (11.5%), 41-60 (44.5%) & >60 (44%); race - African American 51%, Caucasian 44%, Asian 2.5%, Hispanic 1% & Other 1.5%; Educational level - below high school 7.5%, high school 30.5%, some college 26%, Associates degree 13.5%, Bachelor's degree 13% & Pos- graduate 9.5%. The preferred follow up method was phone visit (61.5%) followed by letter, in person clinic visit, telehealth & email (Figure a). This was not influenced by age, gender (Fig b), race or educational level (Fig c) on univariate/multivariate regression models.

Conclusion: The current QI study indicates patients preferred telephone follow up to other post-procedure communication methods. We believe this is due to direct discussion with a provider, enabling better understanding of results along with time-related flexibility from a phone visit. However, implementation may increase physician workload. In addition, communication using a patient preferred intervention may yield significant increases in patient practice satisfaction. These preliminary results should be confirmed using larger patient cohorts and assess the role of GI advanced practice providers in this process.



[0635] **Figure 1.** Patient preferences for post-endoscopy biopsy results follow-up (a). Patient preference by gender (b). Patient preference by educational level (c).

S636

Gastrointestinal Bleeding in COVID-19

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Introduction: Coronavirus-19 (COVID) is primarily a respiratory virus which is known to impact the gastrointestinal tract through propagation of a proinflammatory cytokine cascade. It is unknown if inflammation from COVID, acuity of illness due to COVID or other factors such as medications or co-morbidities increase the risk of bleeding in COVID-19 patients as compared to non-COVID infected patients.
Methods: This is a retrospective study performed between July 1, 2020 and January 30, 2021. A total of 395 patients were identified that met the inclusion criteria of the protocol. Patient charts were reviewed and data extracted. Fisher's exact test or Chi-squared test were used to find the association between 2 categorical variables. Two-sample t-test or Wilcoxon rank-sum test were used to compare a continuous variable between the two groups. A p-value < 0.05 was considered statistically significant and Stata V17 was used to perform the analysis.
Results: The average age in the whole sample was 67.23 years old (Std. dev=14.68). Table also shows that there was no statistical difference (p=0.94) in mean age between patients with COVID (mean: 67.32, Std. dev: 11.92) and non-COVID (mean: 67.19, Std. dev: 15.80). There was statistically significant association (p-value=0.010) between the comorbidity Diabetes and the COVID group. Specifically, there were more Diabetic patients (51.22%) in the COVID group than the non-COVID group (37.5%). The median INR in the non-COVID group was lower 1.20 (1.10-1.40) compared with the COVID group 1.30 (1.10-1.50; p=0.003). NSAID use was higher in non-COVID patients than in COVID patients (30 vs. 3, p=0.003). The rate of active bleeding among COVID patients was 36/123 (29%), versus 63/272 (23%) in non-COVID patients (p=0.21). Although the rate of active bleeding was higher in Non-COVID patients, the location of bleeding etiology was higher in the small bowel for COVID patients (13% vs. 8%).
Conclusion: There was no statistically significant relationship found between rate of active bleeding in COVID and non-COVID patients. This could potentially be explained by the tendency to defer endoscopy early in the pandemic in COVID patients due to infectious control concerns. Additionally, there was also an inclination to conservatively manage critically ill patients. In the future, the rate of bleeding in COVID and non-COVID patients should be reviewed over a longer time frame of the pandemic, and the vaccination status of patients should also be considered.

Table 1. Patient's characteristics by COVID-19 group

	Total N=395	Non-COVID N=272	COVID N=123	p-value
Age (years)				
Mean (Std. dev)	67.23 (14.68)	67.19 (15.80)	67.32 (11.92)	0.94
Median (IQR)	70.00 (59.00-77.00)	71.00 (59.00-78.00)	69.00 (63.00-74.00)	
Comorbidities				
HTN				0.24
no	122 (30.89%)	89 (32.72%)	33 (26.83%)	
yes	273 (69.11%)	183 (67.28%)	90 (73.17%)	
Diabetes				**0.010**
no	230 (58.23%)	170 (62.50%)	60 (48.78%)	
yes	165 (41.77%)	102 (37.50%)	63 (51.22%)	
Renal Disease†				0.19
no	290 (73.42%)	205 (75.37%)	85 (69.11%)	
yes	105 (26.58%)	67 (24.63%)	38 (30.89%)	
Liver Disease‡				0.95
no	341 (86.33%)	235 (86.40%)	106 (86.18%)	
yes	54 (13.67%)	37 (13.60%)	17 (13.82%)	
Admission Data				
HR (in bpm)*				
Mean (Std. dev)	83.15 (16.93)	81.78 (16.41)	86.12 (17.71)	
Median (IQR)	80.50 (71.00-94.00)	80.00 (70.00-92.00)	82.00 (72.00-100.00)	**0.045**
Hb (g/dL)*				
Mean (Std. dev)	8.56 (2.76)	8.67 (2.69)	8.33 (2.91)	
Median (IQR)	7.90 (6.50-10.70)	8.20 (6.60-11.00)	7.50 (6.20-10.30)	0.15
Platelets (*k/uL)				
Mean (Std. dev)	226.23 (110.47)	230.29 (112.93)	217.34 (104.76)	
Median (IQR)	213.00 (153.00-288.00)	214.00 (156.00-292.00)	202.00 (144.00-287.00)	0.31
INR*				
Mean (Std. dev)	1.56 (1.38)	1.47 (1.08)	1.75 (1.82)	
Median (IQR)	1.20 (1.10-1.50)	1.20 (1.10-1.40)	1.30 (1.10-1.50)	**0.003**
Transfusion required				0.066
no	135 (34.18%)	101 (37.13%)	34 (27.64%)	
yes	260 (65.82%)	171 (62.87%)	89 (72.36%)	
NSAIDs				**0.003**
no	362 (91.65%)	242 (88.97%)	120 (97.56%)	
yes	33 (8.35%)	30 (11.03%)	3 (2.44%)	

*Data was analyzed using Wilcoxon-rank sum. Data was missing for: Hb in 1 patient; INR in 94 patients; platelets in 2 patients; HR in 7 patients.
†Renal disease was defined as ranging from chronic kidney disease stage 3 to end-stage renal disease requiring dialysis.
‡Liver disease was defined as a range of chronically elevated liver enzymes without fibrosis to decompensated cirrhosis.

S637

Evaluation of Online Educational Materials on Hospital Websites for Bowel Preparation

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Introduction: High-quality screening colonoscopy is dependent on adequate colonoscopy preparation (prep). Despite many new formulations including low-volume laxative preps and split-prep schedules, inadequate colon preps are not uncommon. One important factor in improving the quality of colon prep is ensuring that patients understand the prep instructions. Apart from verbal communication, many hospitals post colonoscopy prep instructions on their website. In this study, we evaluated the readability, understandability, and actionability of online colonoscopy prep instructions.
Methods: The top 75 hospitals in gastroenterology as ranked by 2021-22 US News and World Report were selected. These hospitals were entered into the Google search engine using the hospital's name followed by "bowel preparation." Each hospitals' bowel preparation information was evaluated independently by four reviewers using a total of 21 website criteria including readability, understandability, and actionability. Readability of each website was evaluated by assessing the approximate reading grade level of the materials using the Flesch Kincaid Grade Level Calculator with a preferred reading grade level below 6. Understandability and actionability were measured with the Patient Education Materials Assessment Tool (PEMAT) with recommended scores above 70% for both. Materials were excluded from review if no standardized document was listed on the hospital website or if duplicate materials were listed among two websites.
Results: After exclusion, a total of 51 out of 75 web pages were evaluated. Average reading grade level of the materials assessed was 9.1 ± 2.3. Overall understandability score was 78.1% ± 9.7%, and overall actionability score was 74.7% ± 30.1%. Of the websites assessed, 6% of hospitals included images to support text and 20% included videos in addition to text. 18% of the hospitals linked resources in different languages. 59% of materials did not include side effect warnings, and only one website listed an allergic reaction statement.
Conclusion: The readability, understandability, and actionability of the written materials for bowel preparation among hospital websites are quite variable and do not meet the recommended standards. In addition, materials often lack key information. The educational content provided by physicians can be improved by further identifying what constitutes effective communication and using online tools to assess and improve readability and display.

S638

Complication Rates for Esophagogastroduodenoscopy and Colonoscopy Procedures Performed by GI Trainees at a Tertiary Care Center

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Introduction: There are well-established quality indicators for esophagogastroduodenoscopy (EGD) and colonoscopy which include post-procedure complication rates for perforation, bleeding, infection and cardiopulmonary events. Despite knowledge of complication rates for practicing gastroenterologists, there is limited data regarding complication rates for procedures performed by GI trainees. We report the results of our tertiary care hospital experience with the rate of complications for endoscopic procedures performed by GI trainees.
Methods: We performed a retrospective chart review of 772 procedures performed by GI trainees over a three year period from 2018 to 2021. Data was collected for total of 478 EGDs and 294 colonoscopies including level of trainee, type of anesthesia/sedation, procedure indication, inpatient versus outpatient status, ASA classification, and significant co-morbidities including coronary artery disease, pulmonary disease, inflammatory bowel disease and cirrhosis. Specific endoscopic interventions were also reviewed including biopsy, polypectomy, hemostasis, banding and dilation. Charts were reviewed for any complication occurring within 14 days after each procedure.
Results: Out of 772 procedures, a total of three complications occurred. All complications were in patients undergoing EGD (6.2 per 1000 EGDs). One complication was post-variceal banding ulcer bleeding event in a patient with cirrhosis. Two complications were aspiration events, one in setting of moderate sedation and one with anesthesia. Both aspiration events were in high-risk patients – one with vomiting and the other with food impaction. All complications were evenly distributed among level of training leading to a complication rate of 0.4%, 0.4% and 0.5% for first year, second year and third year fellows respectively (p 0.97). There were no complications for the 294 colonoscopies performed. The majority of procedures were performed as inpatient status and over 80% of the patient population was ASA 2 and 3 classification. (Figure)
Conclusion: GI trainee involvement in EGD and colonoscopy procedures does not confer high risk of complication despite a majority of patients being inpatient status and with significant co-morbidities. More research is needed to elicit information regarding complication rates for procedures performed by GI trainees.

	First year fellows (n = 261)	Second year fellows (n = 238)	Third year fellows (n = 189)	p-value
Mean age ± SD	57.4 ± 14.9	59.2 ± 15.4	58.5 ± 15.2	0.92
Female (%)	42%	41%	42%	0.98
Type of procedures				
• EGD	71%	47%	51%	<0.01
• Colonoscopy	15%	42%	38%	
• Both	14%	11%	11%	
Sedation				
• Moderate	58%	72%	73%	<0.01
• MAC	34%	21%	18%	
• General	8%	7%	9%	
Blood thinner (%)	70%	79%	77%	0.06
ASA Classification				
• 0	0%	0%	0%	<0.01
• 1	3%	5%	13%	
• 2	34%	59%	52%	
• 3	53%	30%	30%	
• 4	10%	5%	5%	
Coronary artery disease (%)	16%	16%	11%	0.41
Pulmonary disease (%)	17%	17%	15%	0.75
Cirrhosis (%)	26%	15%	22%	0.01
IBD (%)	4%	4%	8%	0.04
BMT/GVHD (%)	0%	2%	0%	0.01
History of abdominal surgery (%)	22%	37%	36%	<0.01
History of diverticular disease (%)	11%	17%	14%	0.14
Types of Interventions				
Polypectomy (%)	8%	22%	31%	<0.01
Biopsy (%)	46%	44%	51%	0.28
Hemostasis (%)				
• None	86%	90%	86%	0.88
• Clip	7%	7%	7%	
• Cautery	2%	0%	1%	
• Banding	5%	3%	6%	
Dilation (%)	1%	2%	4%	0.12
Outcome				
Complication (%)	0.4%	0.4%	0.5%	0.97

[0638] **Figure 1.** Results

S639

Trainee Effects on Upper Endoscopy-Related Adverse Outcomes in the Months of July-September: An Analysis of National Inpatient Sample Database

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Introduction: Trainees early in their career are on the path to acquiring new knowledge and skills & this applies to all fields of work including gastroenterology. As fellows begin the journey in navigating realm of endoscopy, they are prone to inadvertently making mistakes. Aim of our study is to evaluate differences in outcomes of upper endoscopies performed before and after new trainees join programs across the nation.
Methods: Retrospective study utilizing the 2016 to 2018 National inpatient sample, and we included patients aged 18 or older who underwent upper endoscopy during hospitalization at teaching hospitals. We excluded patients who were admitted from January-March and October-December, transferred from another facility & admitted to non-teaching hospitals. Procedural complications, all cause in hospital mortality, length of stay (LOS), hospitalization cost was compared between early academic months (July-September) to late academic months (April-June). Multivariate logistic regression model was used to for procedural complications, all-cause mortality and linear regression was used for the analysis of LOS and hospitalization cost.
Results: Total sample size attained was 911,235 upper endoscopies performed and nearly comparable percentages of these were performed in the months of July-September and April-June. No significant difference in age of patients in these two groups and neither for gender. Majority of patients in both groups were Caucasian but distribution of races between the two groups was not significant. Medicare was predominant form of insurance in these patients but distribution was not significant. Procedure related complications such as aspiration, bleeding, accidental puncture/laceration, were not statistically different between the two groups. However, in-hospital all-cause mortality, cost of hospitalization, length of stay were all significantly higher in group with upper endoscopies performed between months of July-September. Adjusted odds ratio for in-hospital mortality was 1.09 (95% CI 1.01-1.17) (Table).
Conclusion: Upper endoscopy related 3 major adverse events were not different in both groups likely as a result of adequate procedural supervision. Our study showed that there was a significant increase in cost, length of hospitalization, all-cause mortality in upper endoscopies that were performed in the months of July-September when new trainees enter residency and fellowship. Further measures may be needed to improve these outcomes early on, though some may be unavoidable.

Table 1. In Hospital Outcomes

OUTCOMES	EGD DURING JULY-SEPTEMBER		EGD DRURING APRIL-JUNE	*P*-VALUE
Aspiration (N=28,695)	3.09%	[1]Adjusted Odds ratio 1.01 (95% CI 0.94-1.06)	3.07%	0.81
Bleeding or hematoma (N=1,870)	0.22%	1Adjusted Odds ratio 1.12 (95% CI 0.89-1.41)	0.2%	0.39
Accidental puncture or laceration (N=1,155)	0.12%	[1]Adjusted Odds ratio 1.01 (95% CI 0.75-1.3)	0.13%	0.97
In-hospital mortality (N=19,280)	2.14%	[1]Adjusted Odds ratio 1.09 (95% CI 1.01-1.17)	1.95%	0.01
Mean total hospitalization charge	81,597$	[1]Adjusted total charge 2052$ higher	79,023$	0.005
Mean length of stay (days)	6.8		6.6	< 0.001

S640

Multidisciplinary Quality Improvement Intervention Following Dental Foreign Body Ingestion Improves Health Outcomes

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Introduction: Foreign body ingestion during dental procedures is a rare but recognized complication that often requires medical evaluation and specialist consultation. There is little existing literature on management of dental foreign body ingestion (DFBI) in the hospital setting. Appropriate care for this patient population requires collaboration between the Dental, Emergency, Internal medicine, and Gastroenterology (GI) teams. We aim to develop a multidisciplinary protocol to help minimize DFBI occurrence and to optimize management.
Methods: A retrospective review of DFBI cases at a tertiary care center was conducted between 2015-2022. On 6/2019, a quality improvement intervention was effected involving a unique collaboration and simultaneous implementation of two separate protocols by the College of Dentistry (CoD) and GI teams. The CoD protocol was multifaceted including determining indications for ED referral after DFBI, maintaining patients NPO, and comprehensive education of practitioners. The GI protocol defined the response to a DFBI consultation, parameters for endoscopy, and how to conservatively monitor stable patients without indication for endoscopy. These protocols were disseminated among both teams with the goal of improving communication, maximizing safety, and providing education on clinical management of DFBI.
Results: A total of 27 patients were included, with 20 cases identified prior to the intervention (over a span of 53 months) and only 7 occurring after the intervention (spanning 32 months). Table summarizes the clinical course before and after the intervention. 7 patients (35%) were admitted to the hospital pre-intervention and just 1 (14%) was admitted after. Specialists were consulted on 9 cases prior (45%) and 1 case post (14%). Endoscopies were performed in 4 patients, 3 pre (15%) and 1 post (14%). The complication rate was 0% before and after the intervention.
Conclusion: A targeted intervention implemented to improve outcomes following DFBI led to a 42% decrease in the incidence of overall cases adjusted over time, developed a clear path of action, and streamlined the process for improved patient safety. Further larger cohort studies would be beneficial to further assess the impact of the intervention. Our study provides preliminary guidance on the management of DFBI.

Table 1. Clinical Course of DFBI pre and post intervention

	Pre-intervention (20)	Post-intervention (7)	p-value
X-ray (26)	19	7	
CT Scan (3)	3	0	
Admitted (8)	7	1	.30
Specialty Consult (10)	9	1	.15
Object Removal (3)	2	1	.76
Endoscopy Performed (4)	3	1	.96

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Spectrum of Endoscopic Findings in Patients With *Helicobacter pylori* Infection in a Nigerian Tertiary Institution

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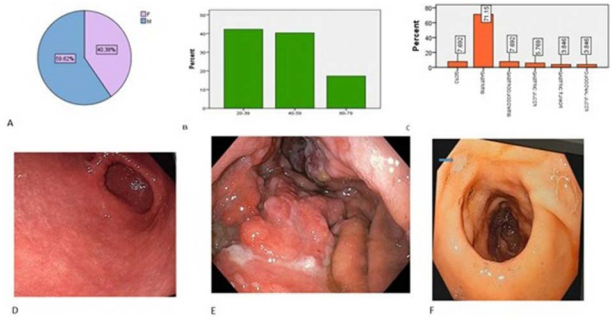
Introduction: *Helicobacter pylori* (*H. pylori)* is a widely prevalent infection considered a significant public health challenge. It is a major cause of gastroduodenal disorders, including gastric cancer. Thus prompt diagnosis and treatment are required for eradication. Nigeria has the highest worldwide *H. pylori* prevalence.
Aims: To determine the spectrum of endoscopic findings in patients with *H.pylori* infectionat a tertiary care academic medical center.
Methods: This retrospective hospital-based study was conducted between April 2018 and April 2022 among patients aged ≥18 years with dyspepsia. *H. pylori* was evaluated using non-invasive tests (urea breath test and fecal antigen test). Patients who tested positive for *H. pylori* and were further assessed with upper gastrointestinal endoscopy were included in the study. Demographics, clinical data, and endoscopic findings were extracted for analysis. A descriptive analysis of data obtained was carried out using SPSS version 20.
Results: One hundred and twenty-nine (129) patients tested positive for *H. pylori* infection out of the two hundred and eighty dyspeptic patients evaluated during the period under study. However, only fifty-two (52) out of 129 dyspepticpatients who tested positive for *H.pylori* were evaluated with upper gastrointestinal endoscopy and thus met the inclusion criteria. Thirty-one (59.62%) were males, and 21 (40.38%) were females. The mean age was 45.65 years, with a range of 21-76 years. (Figure) Upper gastrointestinal endoscopy among the patients revealed predominantly gastritis 37 (71.15%), with gastritis involving the corpus and antral area being the most typical form. Others were gastro-duodenitis in 4 (7.7%), esophagitis in 4 (7.7%), gastric ulcer in 3 (5.8%), and duodenal ulcer in 2 (3.8%), and gastric tumor in 2 (3.8%).
Conclusion: Our study revealed that gastritis was the predominant endoscopic finding in patients with *H. pylori* infection. This finding is particularly significant because of the risk of progression of chronic gastritis in some of these patients to intestinal metaplasia, dysplasia, and gastric cancer. Hence, endoscopy with gastric biopsy should be obtained in patients with gastric erythema for early diagnosis and treatment.



[0641] **Figure 1.** Socio demographics and spectrum of the endoscopic images A- Sex distribution of the study population. B- Age distribution of the study population. C- Endoscopic findings of the study population. D- Endoscopic image showing a widespread patchy redness involving the corpus and the antrum. E- Endoscopic image of fungating gastric mass involving the body and the antrum. F- Endoscopic image of a Forrest III gastric ulcer located on the lesser curvature.

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Safety and Efficacy of Etomidate and Propofol in ERCP: A Meta-Analysis

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Introduction: Patients undergoing Endoscopic retrograde cholangiopancreatography (ERCP) are commonly hemodynamically unsTable: Proper choice of the anesthetic drug is important to decrease morbidity and mortality. Therefore, we aim to compare the safety and efficacy of etomidate and propofol in ERCP undergoing patients.
Methods: We searched the following literature databases for relevant articles till May 2022: PubMed, Web of Science, Scopus, and Cochrane Library. The inclusion criteria were randomized control trials that compared both drugs in patients who underwent ERCP procedures. The efficacy outcomes were induction time, procedure duration, recovery time, patients' satisfaction, and endoscopists' satisfaction. The safety outcomes were bradycardia, tachycardia, hypotension, hypertension, injection-site pain, myoclonus, and other adverse events. Then, the data were extracted and analyzed using whether random or fixed effect models according to the heterogeneity.
Results: Four studies were eligible for qualitative synthesis and meta-analysis. The efficacy outcomes showed no significant difference between the two drugs. While in the safety outcomes, etomidate showed significant results compared to propofol in decreasing the risk of hypotension (RR = 0.19, 95% CI [0.05, 0.71], P = 0.01) and injection site pain (RR = 0.27, 95% CI [0.10, 0.70], P = 0.007). On the other hand, etomidate was associated with higher myoclonus risk compared to propofol (RR = 7.58, 95% CI [1.76, 32.73], P = 0.007).
Conclusion: Both drugs showed the same efficacy on sedation or anesthesia of patients who underwent ERCP. Etomidate was associated with increased risk of myoclonus while propofol was associated with increased risk of hypotension and injection site pain. Further clinical trials are needed to verify these findings. Also, the combination of both drugs should be investigated to decrease the risk of complications resulting from single drug administration.

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Gastric Polyps: Examining Adherence to Polypectomy Guidelines and the Role of Demographic and Clinical Data in Endoscopic Management

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Introduction: Gastric polyps are found on 6% of EGDs and encompass a wide range of epithelial and sub-epithelial lesions. Although commonly visualized as an incidental finding, malignant potential cannot be determined from endoscopic appearance alone; thus, excision and biopsy are recommended by the American Society for Gastrointestinal Endoscopy (ASGE). This study sought to assess adherence to the American Society for Gastrointestinal Endoscopy (ASGE) guidelines regarding resection of gastric polyps and to identify clinical and demographic data influencing endoscopic management. The primary aim is to determine if 50% of all gastric polyps visualized during non-emergent esophagogastroduodenoscopies (EGDs) are excised as recommended. The secondary aim is to identify leading demographic, clinical, and pharmacologic data influencing endoscopic management.
Methods: In this retrospective study, 600 medical records were queried for patients ages 18 to 90 undergoing non-urgent EGD from October 17th, 2020, to October 17th, 2021, at Westchester Medical Center (WMC). Demographic, clinical, and histopathologic data were extracted. Descriptive statistics and analytics were completed via SPSS to assess associations to polypectomies.
Results: Preliminary results from 300 medical records indicated >80% of gastric polyps visualized were excised according to ASGE guidelines, with >70% of histopathologies indicative of fundic gland polyps. Gastric polyps were less likely to be excised when EGD was performed in the setting of gastrointestinal bleeds or esophageal varices screening in patients with cirrhosis. Histopathology was more likely to indicate malignancy in patients with a history of tobacco use and those with a family history of gastrointestinal malignancy.
Conclusion: This study confirmed polypectomies were performed in >80% of routine EGDs as recommended by ASGE guidelines, with strong associations seen between PPI use and fundic gland polyps as well as malignancies in patients with strong family histories.

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ColoWrap Real-World Evidence: Colonoscopy Compression Device Mitigates Ergonomic Hazards for Endoscopists and Staff

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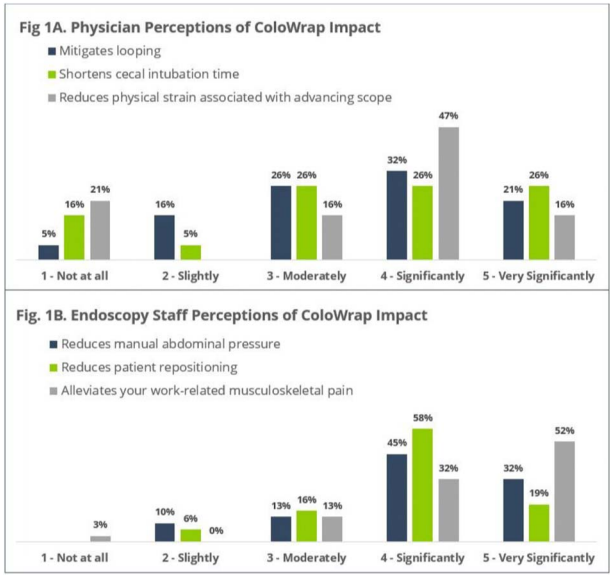
Introduction: Looping during colonoscopy increases scope forces and torquing which are causes of ergonomic injury among endoscopists. In addition, manual abdominal pressure and patient repositioning, used to address looping in 52% and 34% of colonoscopies, respectively, are known causes of musculoskeletal injuries among endoscopy staff. ColoWrap (ColoWrap, LLC, Durham, NC) is an anti-looping abdominal compression device applied during colonoscopy to decrease looping and limit the need for manual pressure and patient repositioning. We aimed to determine extent to which ColoWrap reduces ergonomic hazards associated with colonoscopy by performing a chart review and obtaining physician and staff feedback following use of the device.
Methods: This retrospective, multi-center, observational chart review included patients that underwent colonoscopy with the ColoWrap device between September 25, 2016, and June 15, 2022. Demographics and procedural information were abstracted from patient records. Physician and staff experiences were captured using a survey instrument.
Results: 849 procedures were included in the review. The population was majority male (53%), over 60 (mean age: 60.8 ± 11.6), and obese (mean BMI: 33.6 ± 7.2). 49 patients (5.7%) had an abdominal hernia, 139 (16.3%) had at least one prior abdominal surgery, and 52 (6.1%) had a history of difficult or incomplete colonoscopy. Cecal intubation was achieved in 841 cases (99.1%). Mean cecal intubation time was 6.8 ± 6.2 (min). Manual pressure was used in 109 cases (12.8%); significant manual pressure (> 3 min) was needed in only 21 procedures (2.5%). Patient repositioning was used in 48 cases (5.6%). No significant adverse events were reported. 84% of physicians indicated that ColoWrap use mitigated looping, shortened cecal intubation time, and reduced physical strain associated with advancing the scope. 90% of endoscopy staff reported reduced manual pressure and patient repositioning, and alleviation of musculoskeletal pain (Figure).
Conclusion: ColoWrap is safe and significantly reduces manual pressure and patient repositioning during colonoscopy relative to published rates. Physicians using ColoWrap experience less looping and physical strain and endoscopy staff suffer less musculoskeletal pain. The device is a viable tool among solutions to improve the safety and efficiency of colonoscopy. Further studies to identify circumstances in which ColoWrap use offers the greatest benefit to patients, physicians, and staff are warranted.



[0644] **Figure 1.** Endoscopist and Endoscopy Staff Experience with ColoWrap Device

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Choice of Sedation for Initial Colonoscopy Determines Compliance With Follow-Up Colonoscopy in Patients With a History of Trauma

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Introduction: Approximately 7% of Americans report post-traumatic stress disorder (PTSD). Despite the invasive and often sensitive nature of our specialty, little has been studied regarding best practices for trauma-informed care in gastroenterology. We hypothesize that endoscopy with conscious sedation (CS) may reactive trauma and impact follow-up care. We therefore designed a retrospective study to assess factors that may determine colonoscopy compliance in this population.
Methods: All patients aged 50-74 years old seen at our hospital system's primary care practices from 12/31/2009-12/31/2019 were included. Diagnoses were assessed by ICD-coding, and demographics and procedure documentation were obtained from the medical record. Adjusted odds ratios were calculated via logistic regression.
Results: 65,062 patients were included in the study, of which 3.7% had a diagnosis of PTSD. The majority of those with PTSD were female (62%). Those who underwent a colonoscopy (N=7,356) versus those who did not (N=57,706) were similar in demographics. However, PTSD patients were more likely to undergo colonoscopy than those without trauma (OR 7.31, 95% CI 5.67-9.42). This was attenuated after additionally controlling for irritable bowel syndrome or chronic diarrhea (OR 3.37 95% CI 2.5-4.52). In contrast, after initial colonoscopy, PTSD patients trended toward lower likelihood of receiving follow-up colonoscopy (OR 0.85, 95% 0.49-1.46). Notably, all patients were more likely to undergo follow-up colonoscopy if the initial procedure was performed with general anesthesia (GA) (OR 2.05, 95% CI 1.82-2.30), however, this effect was significantly amplified among PTSD patients (OR 6.25, 95% CI 2.70-11.46) compared to patients without trauma (OR 2.05, 95% CI 1.82-2.31). (Table)
Conclusion: PTSD patients comprise a notable portion of the outpatient screening population. These patients are more likely to be compliant with follow-up colonoscopy if initial procedure is performed under GA, an effect that is significantly magnified compared to the non-PTSD population. Current paradigms do not routinely screen for PTSD when considering candidates for GA, and so while the choice must be individualized, this finding has important clinical implications. PTSD patients may be keener to undergo initial colonoscopy due to active GI symptoms given the strong overlap with functional GI disorders. However, poor tolerance or a negative experience with CS may impact follow-up. This remains to be validated in future prospective studies.

Table 1. Odds Ratios of Surveillance Colonoscopy Among Eligible Patients Who Underwent Initial Colonoscopy Between 2009-2019

	Primary adjusted odds ratio*	95% Confidence Interval	*p*-value
Conscious sedation	-	-	-
General Anesthesia	2.05	1.82-2.30	< .0001
History of trauma	6.25	2.70-11.46	< .0001
No trauma	2.05	1.82-2.31	< .0001

*Adjusted for age, race, sex, and poverty as defined by living in a residential zip code with >30% population below poverty line