



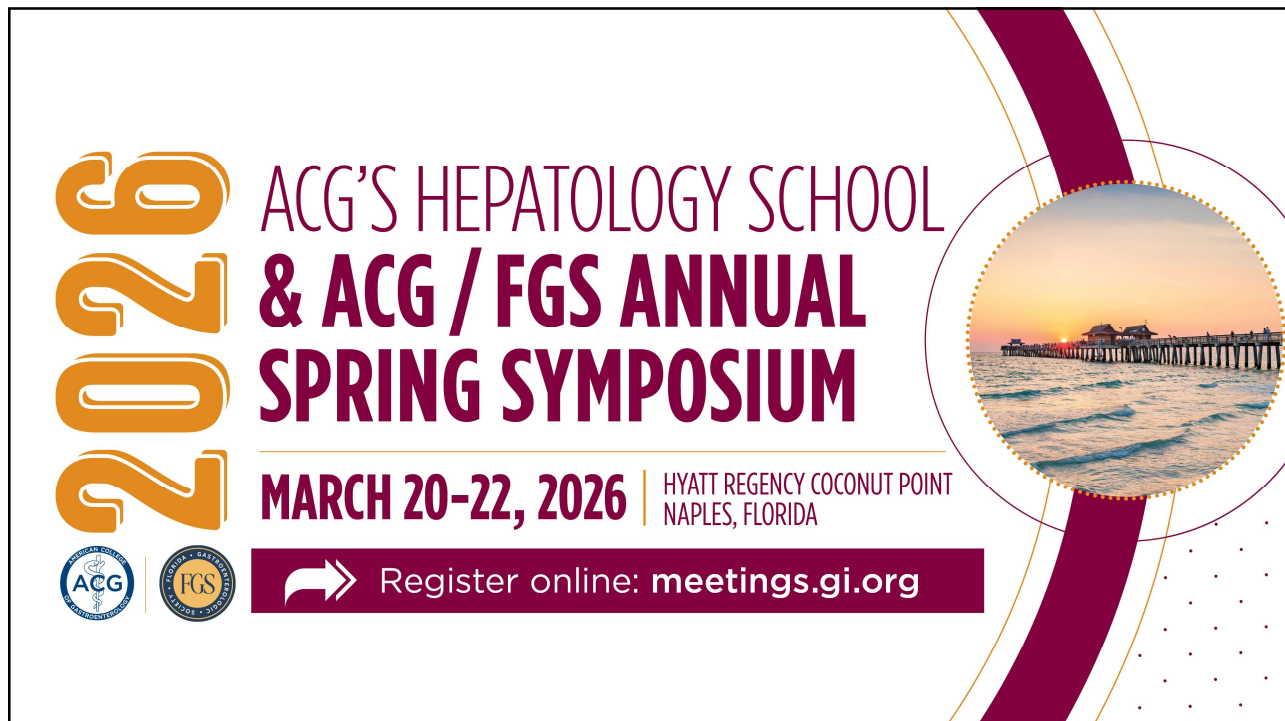
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The banner features a circular inset image of a historic city square with a fountain and a church. The design includes a purple and blue curved graphic on the right side.

1



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2



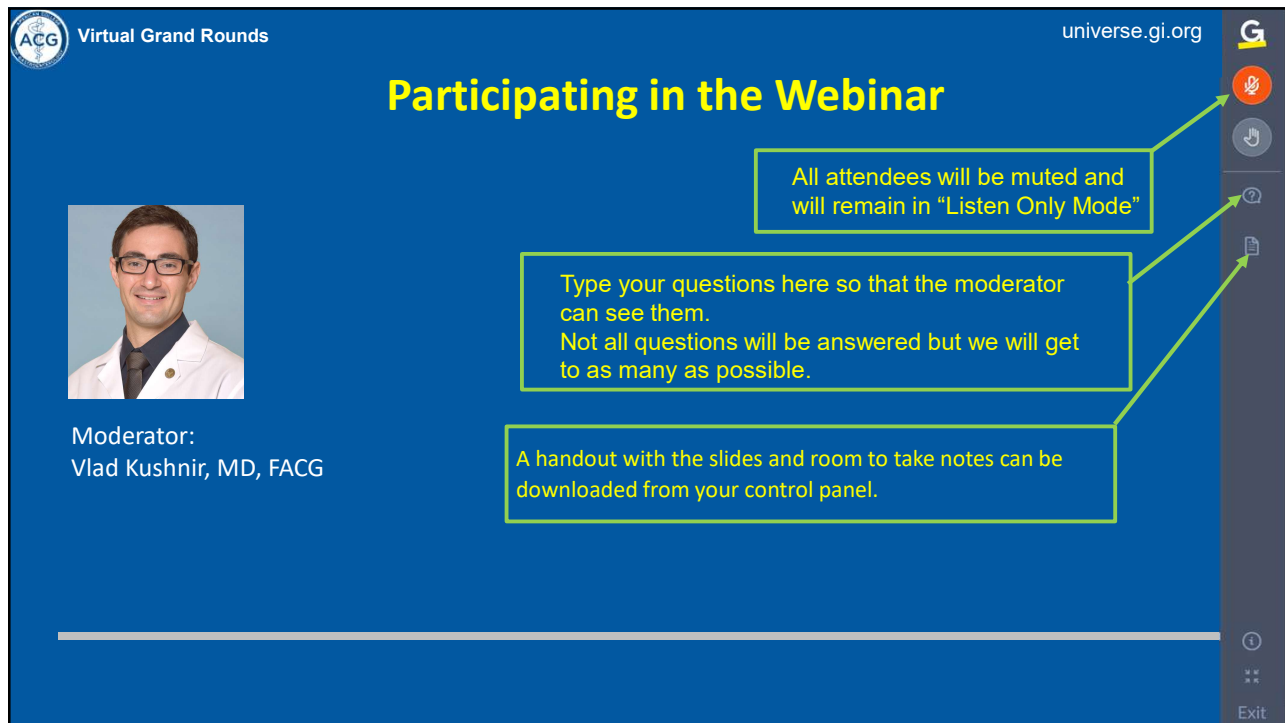
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3



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## Participating in the Webinar

All attendees will be muted and will remain in "Listen Only Mode"

Type your questions here so that the moderator can see them. Not all questions will be answered but we will get to as many as possible.

A handout with the slides and room to take notes can be downloaded from your control panel.

Moderator:  
Vlad Kushnir, MD, FACG

ACG logo, microphone, hand, chat, document, info, and Exit icons are visible in the control panel on the right.

4

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## ACG Virtual Grand Rounds

Join us for upcoming Virtual Grand Rounds!






**Week 10 Special Edition – Tuesday March 3, 2026**  
 Early-Onset Colorectal Cancer: Perspectives from Experts, Trainees, and a Survivor  
*Hosted by EBGJ Ambassadors*  
 Faculty: Mohammad Bilal, MD  
 Survivor: Ms. Vanessa Ghigliotti  
 Trainees: Fnu Vikash, MD, and Aimen Farooq, MD  
 Moderators: Sophia Dar, MD, and Eleazar Montalvan-Sanchez, MD **8pm Eastern**

**Week 10 – Thursday, March 5, 2026**  
 Precision Polypectomy: Mastering Techniques for Safe and Effective Removal  
 Faculty: Douglas K. Rex, MD, MACG  
 Moderator: Neha V. Patel, MD, FACC  
**At Noon and 8pm Eastern**

**Week 11 – Thursday, March 12, 2026**  
 Update on Best Practices for Colonoscopy Bowel Preparation  
 Faculty: Carol A. Burke, MD, MACG  
 Moderator: Ryan K. Fawley, MD, FACC  
**At Noon and 8pm Eastern**

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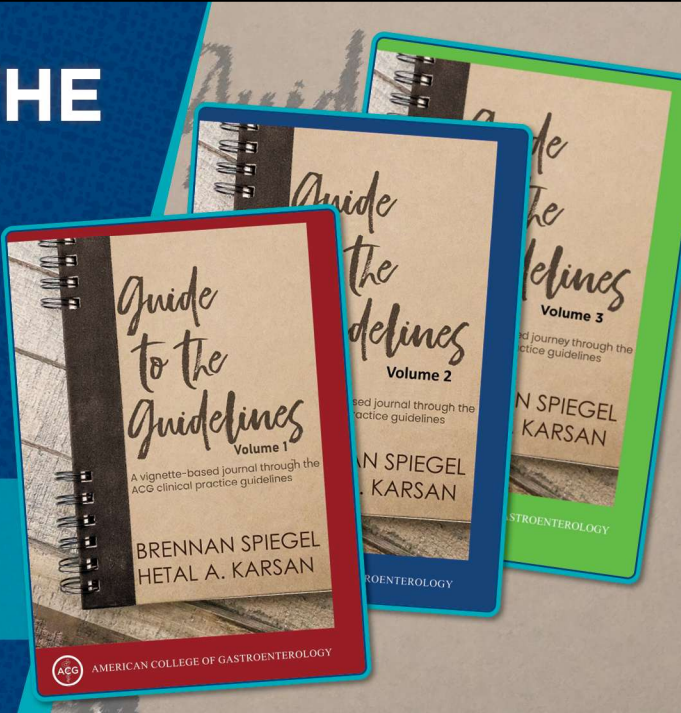
5



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6

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No relevant financial relationships with ineligible companies.



**Neal A. Mehta, MD:**  
Castle Biosciences: Speakers bureau



**Vlad Kushnir, MD, FACP:**  
Allurion: Research Grant; Boston Scientific: Consultant; Castle Biosciences: Speakers Bureau, ConMed: Consultant.

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7

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# ACG VIRTUAL GRAND ROUNDS

Thursday, February 26 | Noon & 8:00 pm ET

## Best of ACG 2025! Outstanding Science, Expert Discussions

*Hosted by the ACG Innovation in Technology Committee*



**Eric C. Swei, MD, MS**  
*Faculty*



**Ekta Gupta, MD, FACP**  
*Faculty*



**Omer Shahab, MD**  
*Faculty*



**Sangeeta Agrawal, MD, FACP**  
*Faculty*



**Hassam Ali, MD**  
*Faculty*



**Neal A. Mehta, MD**  
*Faculty*



**Vlad Kushnir, MD, FACP**  
*Moderator & Committee Chair*

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8

# Best of ACG 2025 in Interventional Endoscopy/Pancreas/Biliary



Neal A. Mehta, MD  
Assistant Professor of Medicine  
Program Director, Interventional Endoscopy Fellowship  
Center for Interventional and Therapeutic Endoscopy (CITE)  
Rush University Medical Center  
Chicago, IL

9

## Evaluating The Cost Of Surveillance In Pancreatic Cysts with Low-risk Features in Patients Over 70-years-Old

Shaina Ailawadi, MD; Abbinaya Elangovan, MD; Apoorva K. Chandar, MD,  
MPH; Andrew Catanzaro, MD; Amitabh Chak, MD

Case Western Reserve University  
University Hospitals  
Cleveland Medical Center,  
Case Western Reserve University, Cleveland, OH

10



## Aim and Methods

- Increase in utilization of high-resolution cross-sectional imaging → rise in incidental pancreatic cysts being diagnosed, particularly among elderly patients

Guidelines	Surveillance Interval (Low-risk features cyst)	When to Stop Surveillance
<b>AGA 2015</b>	MRI/CT at 1 yr, then q2 years if stable.	Stop after <b>5 yrs</b> of stability, or if patient is <b>not a surgical candidate</b> .
<b>ACG 2018</b>	MRI q1–2 years depending on cyst size.	<b>Individualize ≥75 yrs</b> . Stop if <b>no longer surgical candidate</b> .
<b>ACR 2017</b>	<1.5 cm → MRI q2 years 1.5–2.5 cm → MRI q1 years, then q2 yrs if stable.	After <b>age 80, no surveillance</b> unless exceptionally fit/surgical candidate.
<b>European 2018</b>	MRI/EUS q1–2 years depending on size.	Continue only if <b>surgical candidate</b> .

11



## Results: Baseline Characteristics

Characteristic	Surveillance N = 256 <sup>1</sup>	No Surveillance N = 184 <sup>1</sup>	p-value <sup>2</sup>
<b>Age</b>			
<b>Cyst diagnosis of all patients</b>	<b>79.78 ± 12.10</b>	<b>83.32 ± 11.22</b>	<b>0.002</b>
<b>Last encounter of all patients</b>	<b>87.27 ± 9.64</b>	<b>89.02 ± 9.97</b>	0.067
<b>Race</b>			0.611
<b>Black</b>	<b>36 (14.23%)</b>	<b>20 (11.49%)</b>	
<b>White</b>	<b>213 (84.19%)</b>	<b>150 (86.21%)</b>	
<b>Ethnicity</b>			0.769
<b>Hispanic</b>	<b>8 (3.19%)</b>	<b>4 (2.33%)</b>	
<b>Not Hispanic</b>	<b>243 (96.81%)</b>	<b>168 (97.67%)</b>	
<b>Unknown</b>	<b>5</b>	<b>12</b>	
<b>Sex</b>			0.455
<b>Female</b>	<b>168 (65.63%)</b>	<b>127 (69.02%)</b>	
<b>Male</b>	<b>88 (34.38%)</b>	<b>57 (30.98%)</b>	
<b>Total Surveillance Scans (CT+MRI)</b>	<b>4.72 ± 2.75</b>	<b>1*</b>	<b>&lt;0.001</b>

<sup>1</sup> n (%), mean ± SD ;<sup>2</sup> Pearson's Chi-squared test; Fisher's exact test; Welch Two Sample t-test; \*Index Scan

12



## Results and Conclusion

- The average cost of surveillance in this population was **\$17,624 per person**.
- The total cost of surveillance in our study to the healthcare system was **\$4,511,867** and over the ten-year study period, **\$451,187** is projected to be spent on surveillance per year.

**Among patients over the age of 70 who were diagnosed with PCL of LRF, no patients in neither surveillance or no-surveillance cohort developed pancreatic cancer over a 10-year study period.**

- **Conclusion:** Among patients over 70-years-old with **newly diagnosed PCL with LRF**, **current screening practices are associated with high costs and provide no benefit in disease-specific mortality or clinical outcomes.**
  - Reassessment of surveillance practices in the elderly **may reduce unnecessary healthcare use** and highlights the need for physician adherence to guideline-directed imaging.

13



## Safety and Efficacy of Per Oral Cholangioscopy (POC) in Index ERCP for Patients with Indeterminate Hilar Strictures

Muhammad Saad Faisal, Jonathan Montrose, Muhammad Salman Faisal, Ammad Javaid Chaudhary, Sumit Singla

Henry Ford Health  
Detroit, MI

14

## Introduction and Methods

- ERCP is used for sampling and management of indeterminate strictures; however, the low yield of traditional ERCP risks increased time to diagnosis and subsequent management.
- Cholangioscopy offers direct visualization of the biliary tree and allows for targeted biopsies
  - However, index cholangioscopy concerns → increased procedural time and the increased rate of adverse events (cholangitis, pancreatitis) associated with increased instrumentation
- We aimed to assess the safety, efficacy, and adverse event profile of POC used during index ERCP for the diagnosis and management of hilar strictures, compared to standard ERCP performed at the index procedure.

15

## Results

- N = 117 (55.5% with POC at index ERCP)
- No major differences in age, gender, Bismuth classification, use of anticoagulation, hx of PSC, or ethnicity were found between the two groups.

	Index ERCP with POC	Index ERCP without POC	p-value
<b>Number of patients (n)</b>	65 (55.5)	52 (44.4)	
Age (Years)	64.56 +/- 14.2	66.06 +/- 14.0	0.57
Sex, female (n,%)	21 (32.3)	20 (38.5)	0.49
<b>Complications</b>			
	Index ERCP with POC	Index ERCP without POC	p-value
<b>Pancreatitis (n, %)</b>	3 (4.6)	0 (0)	0.15
<b>Bleeding (n, %)</b>	2 (3.1)	2 (3.8)	
<b>Cholangitis (n, %)</b>	1 (1.5)	5 (9.6)	

There was no statistically significant difference in adverse events between the two groups on index procedure.

16

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## Results and Conclusion

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• 47(72.3%) patients in the POC group were eventually diagnosed with malignancy, compared to 42 (80.8%) in the ERCP without POC group.

	Index ERCP with POC	Index ERCP without POC	p-value
Eventual diagnosis of malignancy (n, %)	47 (72.3)	42 (80.8)	0.29
Path positive on index procedure (n, %)	38 (58.5)	18 (34.6)	<b>0.005</b>
Diagnostic Yield of index ERCP (n, %)	38/47 (81)	18/42 (43)	
Time to Diagnosis from Index Procedure, Days +/- SD	8.82 +/- 22.8	37.10 +/- 100.7	<b>0.04</b>
Time to Initiation of Treatment, Days +/- SD	72.17 +/- 71.8	130.77 +/- 185.3	0.06

Index ERCP with POC	
Brushings + Cholangoscopy-directed Biopsies	87%
Brushings + Intraductal Forceps Biopsies	6.5%
Brushings alone	6.5%

Index ERCP without POC	
Brushings + Intraductal Forceps Biopsies	29%
Brushings alone	71%

**Conclusion:** For patients with indeterminate hilar biliary strictures, **POC used in index ERCP increased diagnostic yield, shortens the time to establishment of diagnosis and does not have increased adverse events** compared to standard ERCP during the index procedure.

17

17

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## Comparison of EMR, ESD, and EFTR for Endoscopic Resection of Duodenal and Rectal Neuroendocrine Tumors

Joy Zhao, MD<sup>1</sup>; Adam Goodman, MD<sup>2</sup>; Sunil Dacha, MD<sup>3</sup>; Elizza Villarruel, BS<sup>4</sup>;  
 Danny Issa, MD<sup>4</sup>; Ravishankar Asokkumar, MBBS<sup>5</sup>; Abdulrahman Qatomah, MBBS<sup>6</sup>;  
 Daryl Ramai, MD<sup>6</sup>; Hiroyuki Aihara, MD, PhD<sup>6</sup>; Harneet S. Sangha, BS<sup>7</sup>; Mohit Girotra, MD<sup>7</sup>;  
 Haidar Khan, MD<sup>8</sup>; Daniel Kurtz, DO<sup>9</sup>; Rashmi Advani, MD<sup>10</sup>; Anuroop Yekula, MBBS<sup>11</sup>;  
 Vivek Kaul, MD<sup>11</sup>; Shivangi Kothari, MD<sup>11</sup>; Truptesh H. Kothari MD, MS<sup>11</sup>; Anand Kumar, MD, MPH<sup>1</sup>

(1) Department of Gastroenterology and Hepatology at Thomas Jefferson University, (2) Department of Gastroenterology and Hepatology at NYU Langone, (3) Department of Interventional Gastroenterology at Houston Methodist, (4) Department of Gastroenterology at UCLA, (5) Department of Gastroenterology and Hepatology at SingHealth, (6) Division of Gastroenterology, Hepatology, and Endoscopy at Brigham and Women's Hospital, (7) Division of Interventional Endoscopy at Swedish Medical Center in Seattle, (8) Division of Gastroenterology and Hepatology at Mount Sinai South Nassau Division, (9) Icahn School of Medicine at Mount Sinai South Nassau, (10) Division of Gastroenterology and Hepatology at Icahn School of Medicine at Mount Sinai, (11) Department of Gastroenterology at University of Rochester

18

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## Introduction and Methods

Neuroendocrine tumors (NET) - mostly benign, but have cancerous potential

Duodenal NET and rectal NET (<2 cm) recommended resection

10-year endoscopic surveillance if fail to achieve negative margins

	EMR	ESD	EFTR w/FTRD
Advantages	<ul style="list-style-type: none"> <li>Shorter procedure time</li> <li>Simpler technique</li> </ul>	<ul style="list-style-type: none"> <li>Control over lateral margins</li> </ul>	<ul style="list-style-type: none"> <li>Ease of use in rectum</li> <li>Deeper resection</li> </ul>
Disadvantages	<ul style="list-style-type: none"> <li>Incomplete resections</li> </ul>	<ul style="list-style-type: none"> <li>Difficult technique</li> <li>Increased risk of AE</li> <li>Longer procedure</li> </ul>	<ul style="list-style-type: none"> <li>Training</li> <li>Duodenal access</li> </ul>

**Aim: To compare clinical outcomes of rectal and duodenal NET resection**

19

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## Results

	All NET	Duodenal NET	Rectal NET
Number of patients	174	68	106
Age in years, mean	57.3	60.6	55.2
Sex, % Male	51.7%	54.4%	50%
Lesion size <10mm	80.5%	73.5%	84.9%

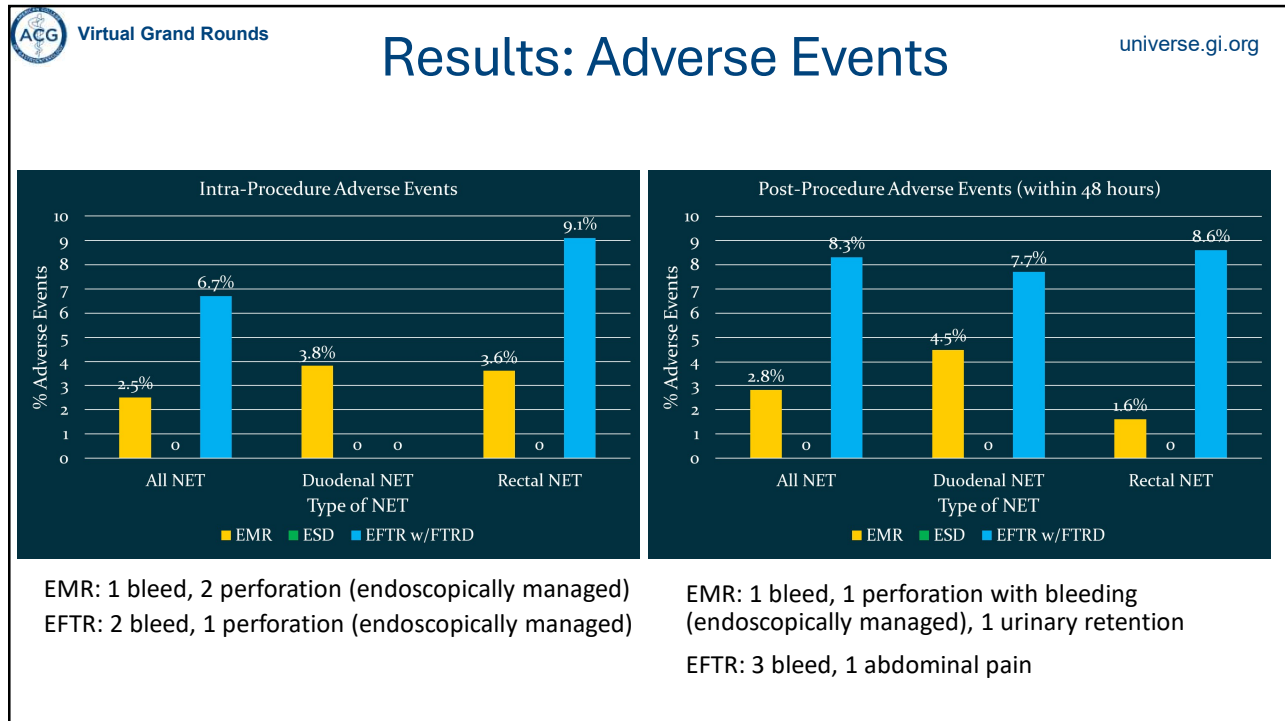
**Resection Technique Used**

Type of NET	EMR	ESD	EFTR w/FTRD
All NET	61.5%	10.9%	27.6%
Duodenal NET	64.7%	16.2%	19.1%
Rectal NET	59.4%	7.5%	33%

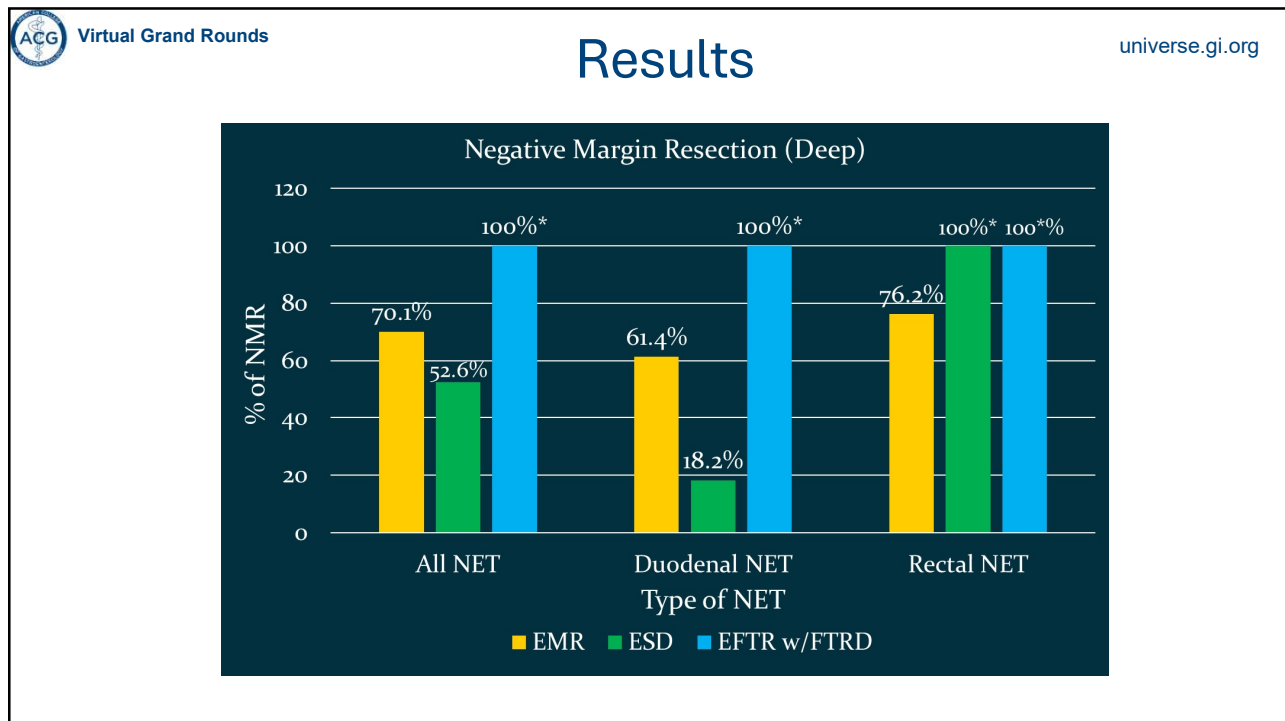
**Procedure Time**

Type of NET	EMR	ESD	EFTR w/FTRD
All NET	42.9	54.8	39.1
Duodenal NET	44.8	58.7	41.9
Rectal NET	41.4	N/A	38.4

20



21



22



## Conclusion

- For <20 mm NET NMR:
  - Overall: EFTR w/FTRD > EMR > ESD
  - Duodenal: EFTR w/FTRD > EMR > ESD
  - Rectal: EFTR w/FTRD = ESD > EMR
- EFTR with FTRD has favorable objective procedure times \EFTR with higher number of AE, but no significant statistical difference

EFTR may be a more efficient and successful resection technique for rectal and duodenal NET.

23



## Best of ACG 2025 in Interventional Endoscopy/Pancreas/Biliary



Hassam Ali, MD

24



## Associations Between Early Fluid Resuscitation, SIRS Status, and BUN Changes in Acute Pancreatitis: Real World Results from the APPRENTICE Consortium

Daniel Marino MD/MBA<sup>1</sup>, Stacey Culp PhD<sup>2</sup>, Peter J Lee MBChB<sup>3</sup>, Jordan Burlen MD<sup>3</sup>, Raj Shah MD Tamas Gonda MD<sup>1</sup>, Georgios Papachristou MD/PhD<sup>3</sup>

1 Division of Gastroenterology, NYU Langone Health ; 2 Department of Biomedical Informatics, Ohio State University ; 3 Division of Gastroenterology, Ohio State University

25



## Introduction

- Acute pancreatitis (AP): fluids = only disease-modifying therapy
- SIRS and BUN are the strongest early prognostic markers
- ACG recommends  $\geq 1.5$  mL/kg/hr, but real-world practice varies
- Key question: Are fluids helping, or just marking severity?

### Study Design

- APPRENTICE Consortium: multinational prospective registry
- **999** patients with 24-hr fluid data; **957** with 6-hr data
- Measured at admission, 6 hr, 24 hr:
  - SIRS status
  - BUN change
  - Fluid rates/volumes
- Outcomes: severe AP, necrosis, organ failure

26



## Key Results and Conclusion

- **Persistent SIRS at 24 hours = much worse disease**
  - Severe pancreatitis: 18.4% vs 0.5% (no SIRS)
- **After adjustment (logistic regression):**
  - Higher fluid rate at 6 hours → higher odds of persistent SIRS (aOR 1.33, 95% CI 1.21–1.46)
  - Higher fluid rate at 24 hours → higher odds of persistent SIRS (aOR 1.29, 95% CI 1.09–1.54)
- **BUN rise at 24 hours = early warning signal**
  - Severe pancreatitis: 11.4% vs 3.8% (no BUN rise)
  - Each unit increase in BUN independently predicted SIRS (aOR 1.03, p=0.001)
- **Organ failure**
  - Out of the 25% of patients who developed (any) organ failure, the fluid rate was higher at 24 hours (p = 0.028) but not at 6 hours (p = 0.329)

### Take-Home Message:

Even small increases in **BUN** independently predict worse outcomes. Although sicker patients received more fluids, outcomes remained worse, suggesting early BUN trajectory may be a better risk marker than fixed fluid targets.

27



## Early versus Delayed Cholecystectomy in Patients Admitted for Choledocholithiasis: Impact on Biliary Complications and Role of Sphincterotomy or Stenting

Arpita Jajoo, MD, Yana Cai, MD, Aditya Chandrashekar, MBBS,  
Jianing Li, MD, Alistar Kent, MD, Venkata Akshintala, MD, PhD

Department of Gastroenterology, Johns Hopkins

28



## Background & Study Design

- Choledocholithiasis complicates up to 20% of symptomatic cholelithiasis and is typically managed with ERCP followed by cholecystectomy
- Guidelines (ASGE, European) recommend same-admission cholecystectomy, this occurs in only ~40% of cases
- **Retrospective** cohort study of adults hospitalized with choledocholithiasis undergoing ERCP at a tertiary center and affiliated hospitals (**2005–2023**)

Patients were stratified into:

- Concurrent (same-admission) cholecystectomy
- Deferred cholecystectomy
- Patients were followed for **12 months** for pancreatobiliary complications
- Assessed whether **ERCP with sphincterotomy or biliary stent placement** reduced subsequent biliary events

29



## Key Results and Conclusion

- **Biliary complications within 1 year:**
  - Concurrent cholecystectomy: ~**1.6%**
  - Deferred cholecystectomy: ~**23%**
- Highest incidence of recurrent events occurred within the first 3 months after index admission
- **ERCP adjuncts:**
  - Sphincterotomy and biliary stenting did not reduce the risk of future biliary complications
- Surgical delays were most commonly related to perceived operative risk, not improved outcomes with delay

### Take-Home Message:

- Same-admission cholecystectomy is associated with the lowest risk of recurrent pancreatobiliary events after ERCP for choledocholithiasis.
- ERCP alone, even with sphincterotomy or stenting, does not provide definitive protection against recurrence.

30



## Feasibility of Targeted Pancreatic Cooling in Acute Pancreatitis: A Prospective, First-in-Human, Multi-Center, Single Arm Study

Bernardo Goecke, MD1 , Karina Carcamo, MD1 , Jose I. Vargas, MD2, Jan Cubilla, MD3, \*Walter G. Park, MD4

1 Hospital Base Osorno, Osorno, Chile; 2 Hospital Católica, Santiago Chile; 3 Hospital Santo Tomás, Panama City, Panama; 4 Stanford University School of Medicine, Stanford, CA, USA

31



## Background & Study Design

- Acute pancreatitis is driven by local pancreatic inflammation, and current therapy is largely supportive
- Regional pancreatic cooling may reduce inflammatory injury without systemic hypothermia
- This was a prospective, first-in-human, multi-center, single-arm study evaluating a novel trans-gastric pancreatic cooling catheter
- 21 adult patients with acute pancreatitis treated within 72 hours of symptom onset; Device remained in place for up to 72 hours
- **Primary endpoints:**
  - Technical success of catheter placement
  - Device-related adverse events
- **Secondary endpoints:**
  - Change in PASS score (Pancreatitis Activity Scoring System)
  - Length of stay
  - Clinical follow-up at 14 days

32



## Key Results and Conclusion

- **Technical success:**
  - 100% successful placement (21/21 patients)
  - Target gastric temperature <29°C achieved, corresponding to pancreatic temperature <34°C
  - No systemic hypothermia observed
- **Safety:**
  - No unanticipated device-related serious adverse events
  - One possible aspiration pneumonia, resolved with antibiotics
- **Disease severity:**

PASS score improved from 151 ± 78 at baseline

  - To 70 ± 88 at **72** hours/discharge
  - To 8.8 ± 11.7 by day **14**, with full clinical recovery
  - Length of stay comparable or shorter than historical controls

### Take-Home Message:

- Targeted pancreatic cooling is feasible and safe in early acute pancreatitis, achieving regional hypothermia without systemic effects.
- This represents a potential disease-modifying adjunct beyond fluids, warranting randomized trials to assess clinical efficacy.

33



# Best of ACG 2025 in General Gastroenterology

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34

# Yield of Post-Polypectomy Interval Fecal Immunochemical Testing: Results from a Nationwide VA Database

Natalie Wilson, MD, Mohammad Bilal, MD, Anders Westanmo, PharmD, Amy Gravely, MA, Khalid Ishani, BS, Rahul Karna, MD, Aasma Shaukat, MD, MPH

University of Minnesota, University of Colorado Anschutz Medical Campus, Minneapolis VA Medical Center, NYU Langone Health

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October 24-29, Phoenix, AZ

35

## Methods

### Design:

- Retrospective cohort study
- Data collected from Veterans Health Administration Corporate Data Warehouse from 2000-2024

### Population:

- Adults with colonoscopy performed for any indication followed by FIT within  $\leq 10$  years
- Stratified by polypectomy using CPT codes

### Definitions:

- Advanced neoplasia: adenoma with HGD, TVA/villous adenoma, or CRC

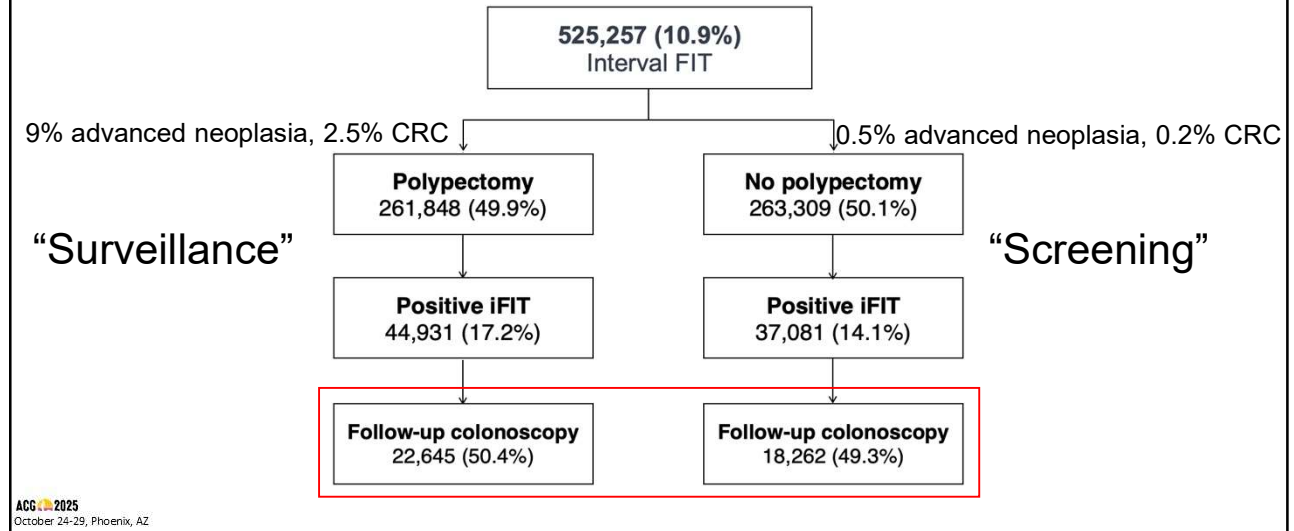
### Analysis:

- Descriptive statistics
- Multivariable logistic regression for predictors of advanced neoplasia and CRC

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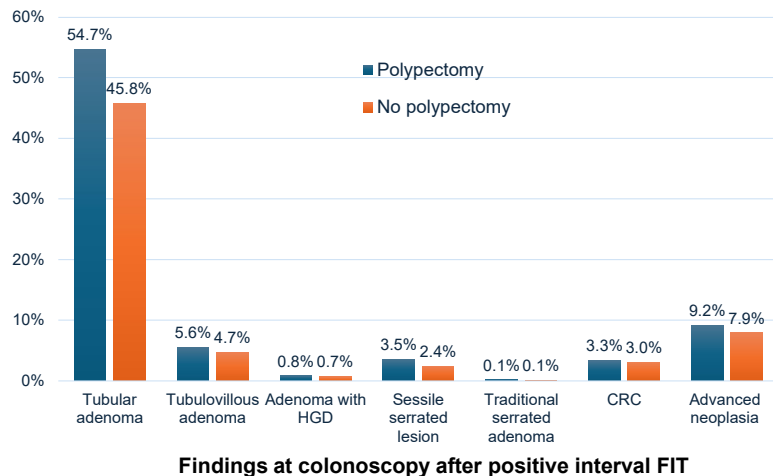
# Rate of follow-up colonoscopy after positive interval FIT



37

# Findings at follow-up colonoscopy

- More tubular adenomas and SSLs in polypectomy group
- Advanced neoplasia: **9.2% vs 7.9%**
- CRC: **3.3% vs 3.0%**



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38



# Impact of GLP-1RA Therapy on Esophageal Motility Patterns

Annie L. Wang, BS, BA<sup>1</sup>, Laura Bach, DO<sup>2</sup>, David A. Leiman, MD, MSHP<sup>2,3</sup>

<sup>1</sup>Duke University School of Medicine, Durham, NC, <sup>2</sup>Division of Gastroenterology, <sup>3</sup>Duke Clinical Research Institute

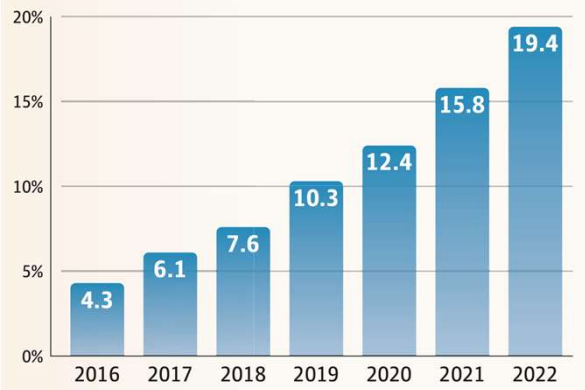
39



## Background

### Percentage of US adults with type 2 diabetes who used GLP-1 medications to treat it

About 1 in 5 US adults with diabetes, or 5.1 million people, used dulaglutide, exenatide, liraglutide, semaglutide, or tirzepatide in 2022.



➤ Glucagon-like peptide-1 receptor agonists (GLP-1RAs) impact gastrointestinal motility

- Slow transit
- Delayed gastric emptying

Hegland TA, et al. JAMA 2024.  
Jalleh RJ, et al. J Clin Endocrinol Metab 2024.

40



## Methods

- Patients with type 2 diabetes (T2DM) who underwent high-resolution manometry (HRM) between 12/2022-10/2024
- Biodemographic data, glycemic control parameters, HRM diagnoses per Chicago Classification 4.0, and reflux testing results were extracted from the electronic health record
- Patient-reported outcomes were collected from the Brief Esophageal Disease Questionnaire (BEDQ), Eckardt, and Reflux Symptom Index (RSI)

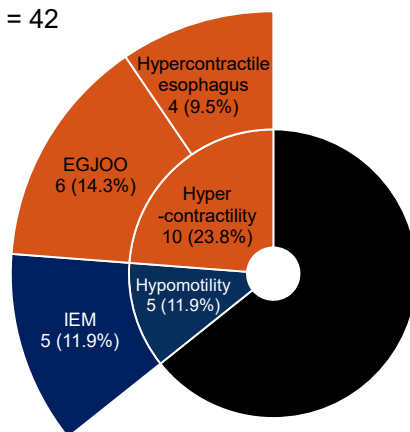
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## Results: HRM diagnoses

### a) GLP-1RA

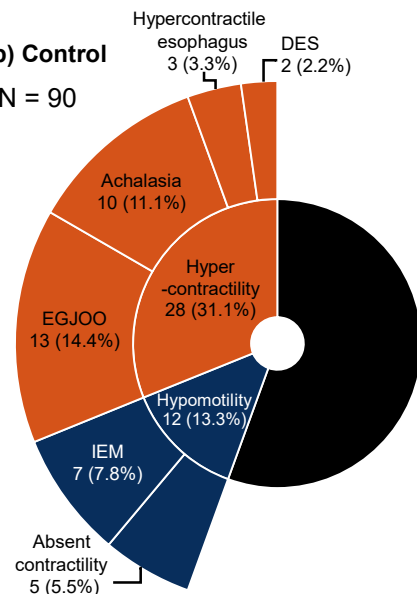
N = 42



DES = distal esophageal spasm  
 EGJOO = esophagogastric junction outflow obstruction  
 IEM = ineffective esophageal motility

### b) Control

N = 90



p=0.07

42



## Results: HRM indications & pH testing

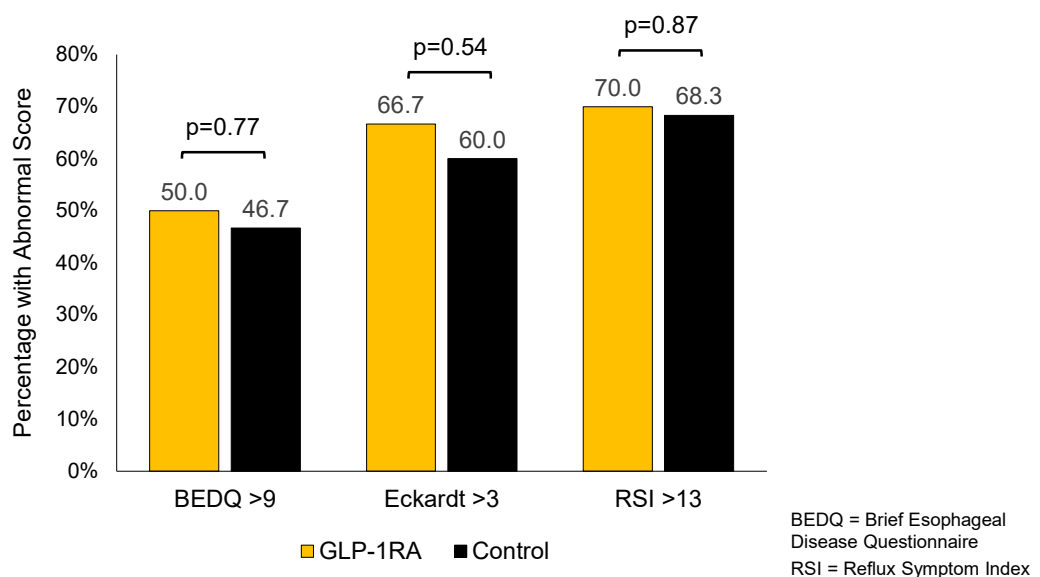
	GLP-1RA (N=42)	Control (N=90)	P-value
<b>HRM indications</b>			0.82
Dysphagia	17 (40.5)	42 (46.7)	
GERD	24 (57.1)	45 (50.0)	
Other	1 (2.4)	3 (3.3)	

	GLP-1RA (N=42)	Control (N=90)	P-value
<b>pH testing ordered</b>	23 (52.4)	42 (46.7)	0.54
<b>Pathologic GERD</b>	9 (21.4)	13 (14.4)	0.51
Positive pH impedance testing	6 (14.3)	9 (10.0)	
Positive wireless pH testing	3 (7.1)	4 (4.4)	

43



## Results: Symptom scores



44



# Best of ACG 2025!

## Outstanding Science, Expert Discussions

**Category : General GI**  
**Ekta Gupta MD, FACP, AGAF**  
**Associate Professor of Medicine**  
**Chief of Gastroenterology, UMMC Midtown**  
**Director Ambulatory Operations,**  
**Division of Gastroenterology and Hepatology**  
**University of Maryland.**



45



# From ED to EoE: Improving Practices for Timely Diagnosis

**Rosa L. Yu MD<sup>1</sup>, Natalie Sanfratello MPH<sup>2</sup>, Megan M. Leo MD<sup>3</sup>, Frederic F. Little MD<sup>4</sup>, Alison Li MPH<sup>2</sup>, Christopher S. Huang MD<sup>1</sup>**

<sup>1</sup>Boston Medical Center, Section of Gastroenterology, Boston, MA

<sup>2</sup>Boston University Chobanian & Avedisian School of Medicine, Center for Continuing Education, Quality Improvement Hub, Boston, MA

<sup>3</sup>Boston Medical Center, Department of Emergency Medicine, Boston, MA

<sup>4</sup>Boston Medical Center, Section of Pulmonary, Allergy, Sleep, and Critical Care, Boston, MA

46



## Introduction

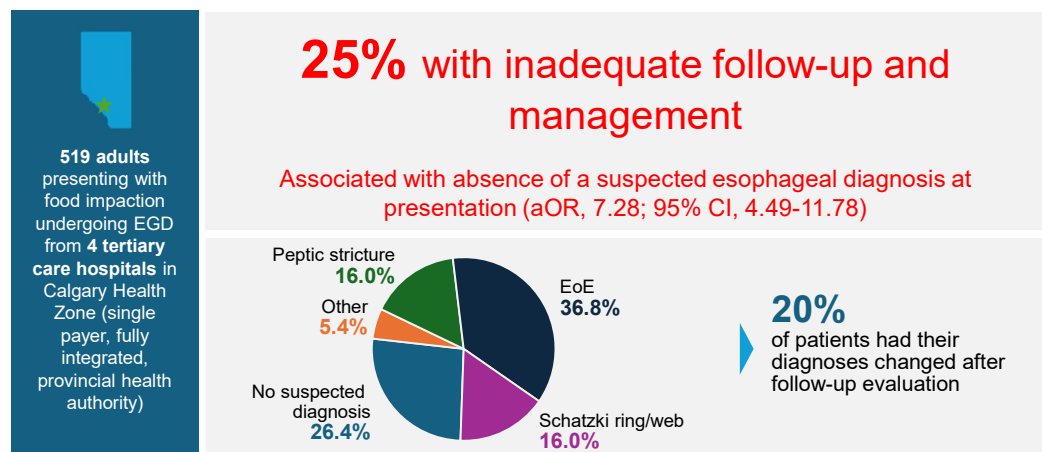
- Early diagnosis of Eosinophilic Esophagitis (EoE) is critical for timely treatment and avoidance of complications
- With rising prevalence and frequent diagnostic delays, adults with undiagnosed EoE may present to the ED with esophageal food impaction (EFI) or dysphagia.
- Prompt EGD with biopsies, ideally concurrent with treatment of impaction, is essential to confirm diagnosis and prevent loss to follow-up, ensuring optimal care.

47



## Post-endoscopy Care for Food Impaction

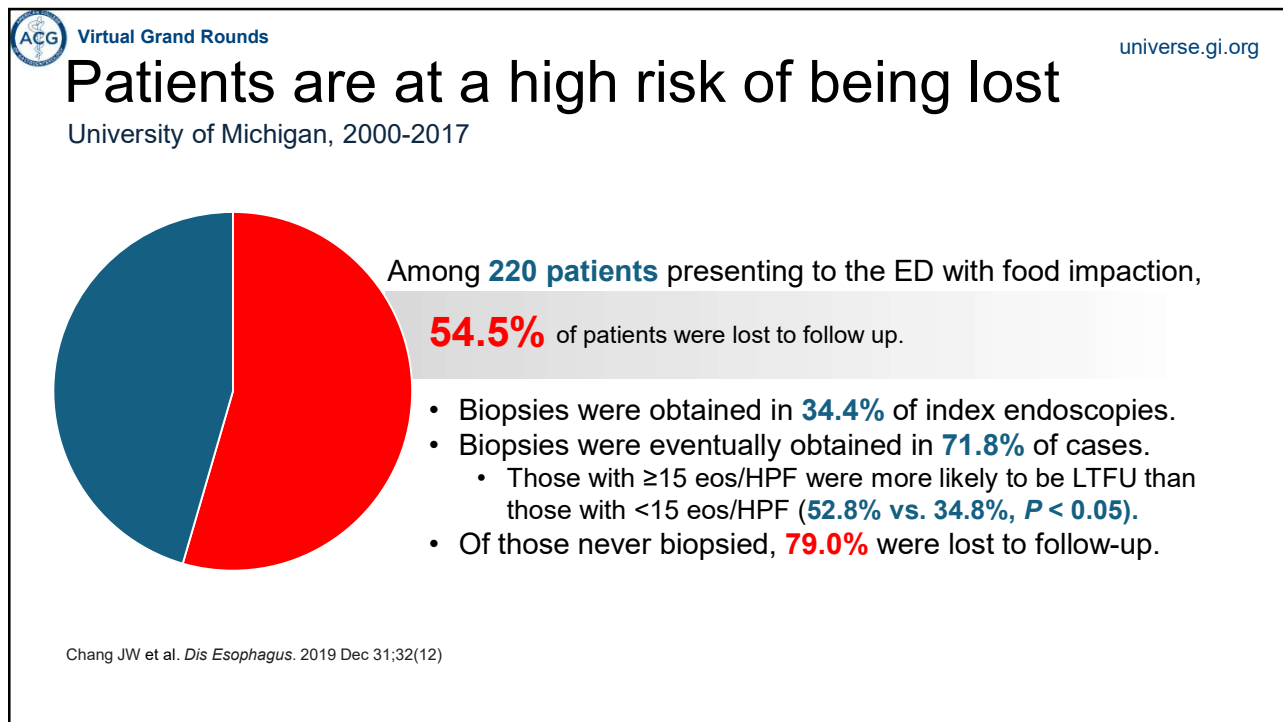
Alberta Health Services, Canada, 2016-2018



aOR, adjusted odds ratio

Guo H et al. *Am J Gastroenterol.* 2023;118(10):1787-1796

48



49

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## Core Goals of QI Project

- **Facilitate screening** of patients presenting to the ED with symptoms of EoE, including referral to appropriate specialists and/or endoscopy/biopsy
  - ↳ **AIM:** To improve the average time to diagnosis for patients with EoE after presentation to the ED for dysphagia or food impaction
- **Promote timely diagnosis** of patients with EoE by obtaining biopsies at the time of initial endoscopy, if feasible
- **Reduce the number of patients lost to follow-up** by providing additional supportive resources

50

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# Interventions

**Clinician Education**

**Patient Education**

**Operations**

- **For ED:** recognition and triage of EoE
- **For GI:** regarding importance and safety of biopsies during index endoscopy

- **Resources for patients** regarding EFI and importance of follow-up, translated into multiple languages

- Building a rapid referral process allowing ED providers to order expedited endoscopy

51

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## ED Rapid Referral for endoscopy

✓ Accept

**Order ED Rapid Follow Up for appointments needed within the next 3 days to avoid admission.**

For all other urgent appointments within 30 days, please place an Ambulatory Referral.

ED Rapid Follow Up Appointment

**GI Endoscopy Request**

Endoscopy

**Inclusion Criteria:**

1. Dysphagia (if never previously investigated endoscopically) or self-resolved food impaction
2. Melena or concern for upper gastrointestinal bleed not requiring hospitalization (if never previously investigated endoscopically)
3. Abnormal imaging in the upper gastrointestinal tract concerning for neoplasm or other chronic abnormality

GI Endoscopy Request -with Moderate Sedation  
Location: MOA ENDOSCOPY, Panel 1, UPPER ENDOSCOPY, Laterality: N/A, Anesthesia Type: Moderate Sedation

GI Endoscopy Request -with Monitored Anesthesia Care  
Location: MOA ENDOSCOPY, Panel 1, UPPER ENDOSCOPY, Laterality: N/A, Anesthesia Type: MAC

Colonoscopy

**Inclusion Criteria:**

1. Hematochezia not requiring hospitalization (if never previously investigated endoscopically) – for younger patients with outlet-type bleeding and negative family history of colorectal cancer, flexible sigmoidoscopy may be sufficient
2. Acute uncomplicated diverticulitis (if no prior/recent colonoscopy within the past year, however, must wait at least 4-6 weeks from diagnosis of acute diverticulitis, so may be more suited for primary care physician to order)
3. Abnormal imaging in the colon concerning for neoplasm or other chronic abnormality

GI Endoscopy Request - with Moderate Sedation  
Location: MOA ENDOSCOPY, Panel 1, COLONOSCOPY, Laterality: N/A, Anesthesia Type: Moderate Sedation

GI Endoscopy Request - with Monitored Anesthesia Care  
Location: MOA ENDOSCOPY, Panel 1, COLONOSCOPY, Laterality: N/A, Anesthesia Type: MAC

Upper Endoscopy and Colonoscopy

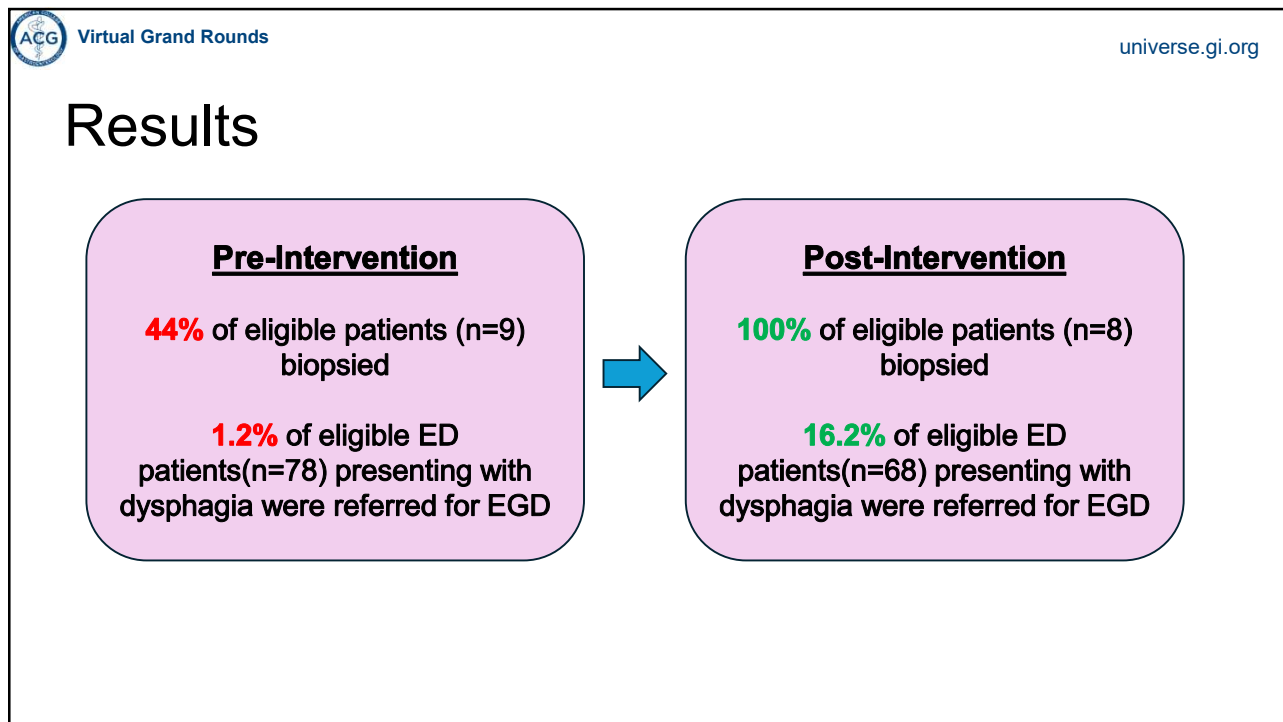
**Inclusion Criteria:**

1. Iron deficiency anemia (if never previously investigated endoscopically)

GI Endoscopy Request - with Moderate Sedation  
Location: MOA ENDOSCOPY, Panel 1, DOUBLE (COLONOSCOPY AND UPPER), Laterality: N/A, Anesthesia Type: Moderate Sedation

GI Endoscopy Request - with Monitored Anesthesia Care  
Location: MOA ENDOSCOPY, Panel 1, DOUBLE (COLONOSCOPY AND UPPER), Laterality: N/A, Anesthesia Type: MAC

52



53

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## Conclusion

Through **targeted education** and **updated workflows** between the ED and GI, we were able to significantly improve biopsy rate during index EGDs for EFI (**44% to 100%**) and referrals to GI (**1.2% to 16.2%**) to expedite EoE diagnosis and care.

**Take Home** :Food impaction should trigger an automatic EoE diagnostic pathway with biopsies, even if mucosa appears normal.

54

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## Reducing Inappropriate Proton Pump Inhibitor Prescribing in Non-Critically Ill Hospitalized Patients: A Single Center Quality Improvement Project

**Matthew Ryan, MD<sup>1</sup>**, Christopher D. Ma, MD<sup>1</sup>, Ami Panara Shukla, MD<sup>2</sup>,  
Marlene Onaindia, PharmD, BCPS<sup>3</sup>, Sebastian Suarez, MD, MPH<sup>1,4</sup>

<sup>1</sup>UM/JMH Internal Medicine Residency Program, University of Miami, Miami, FL  
<sup>2</sup>Division of Digestive Health and Liver Diseases, University of Miami, Miami, FL  
<sup>3</sup>Department of Pharmacy Services, University of Miami, Miami, FL, USA.  
<sup>4</sup>Division of Hospital Medicine, University of Miami, Miami, FL

55

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## Overview of Proton Pump Inhibitors (PPIs)

- Prescribed to nearly 25% of adults worldwide
- \$3.8 billion global market value **greater than GDP of Belize**
- Historically considered safe for various GI conditions
- Commonly used “off-label” for stress ulcer prophylaxis (SUP)

PPIs by distribution

Distribution Channel	Percentage
Hospitals	45%
Retail	38%
Online	17%

- Hospitals
- Retail
- Online

Krag M et al., N Engl J Med. 2018;379(23):2199-208.

Strand DS et al., Gut Liver. 2017;11(1):27-37.

Shanika LGT et al., Eur J Clin Pharmacol. 2022;76(9):1459-1468.


GDP (current US\$). <https://data.worldbank.org/indicator/NY.GDP.MKTP.C>

Proton Pump Inhibitors Market. <https://market.us/report/proton-pump-inhibitors-market/>


56

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## Adverse effects of PPIs within the hospital



*Clostridium difficile* (*C. diff*) infection



Hospital Acquired Pneumonia



Acute Interstitial Nephritis

Finke M et al., J Infect. 2025;90(5):106488.  
Herzig SJ et al., JAMA. 2009;301(20):2120-8.  
Geevasinga N et al., Clin Gastroenterol Hepatol. 2006;4(5):597-

57

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## Aims and scope

- 🎯 Goal: 20% reduction in inappropriate PPI admission orders
- 🏢 Setting: Academic tertiary care hospital, Epic EMR
- 👨‍⚕️ Population: All patients admitted to hospital medicine
- 👥 Design: QI project using the PDSA model
- ✅ Root Cause Analysis performed prior to interventions

58

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## PDSA Cycles

<p>Intervention 1 5/1/24 – 7/30/24</p>  <p>Removal of PPI option on admission order set</p>	<p>Intervention 2 7/31/24 – 12/31/24</p>  <p>Implementation of a standardized H&amp;P template for hospital medicine</p>
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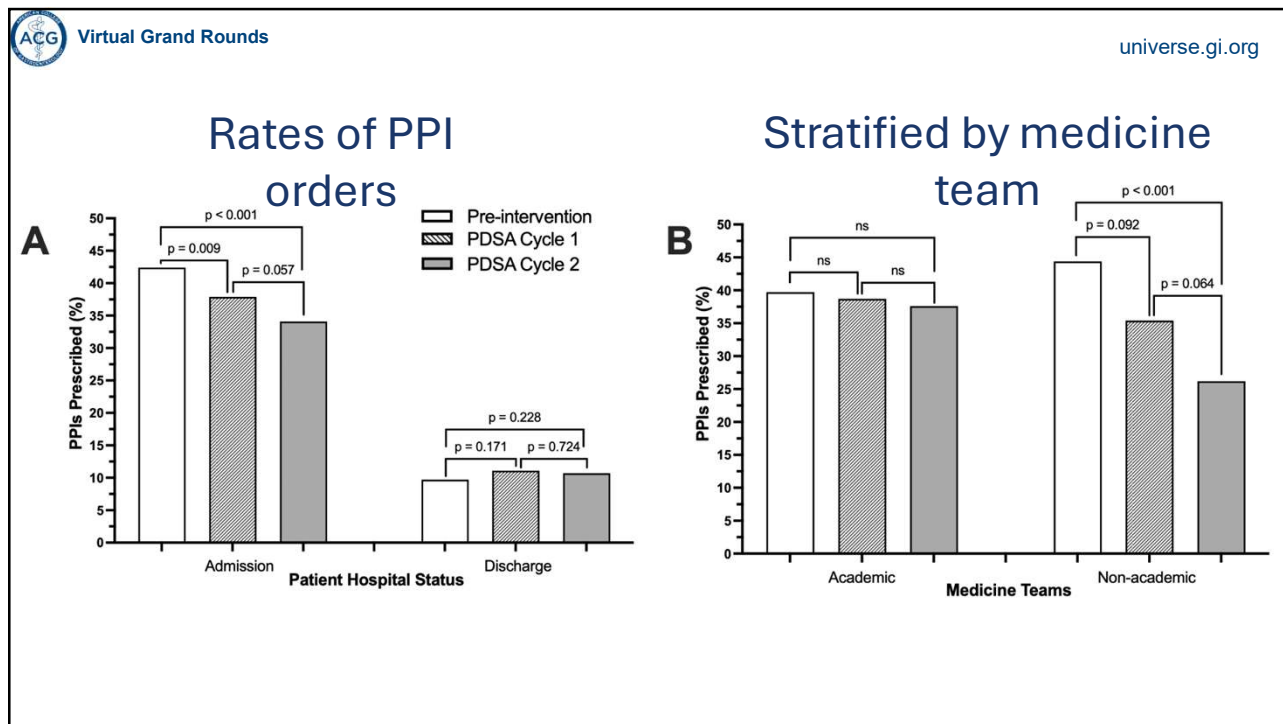
59

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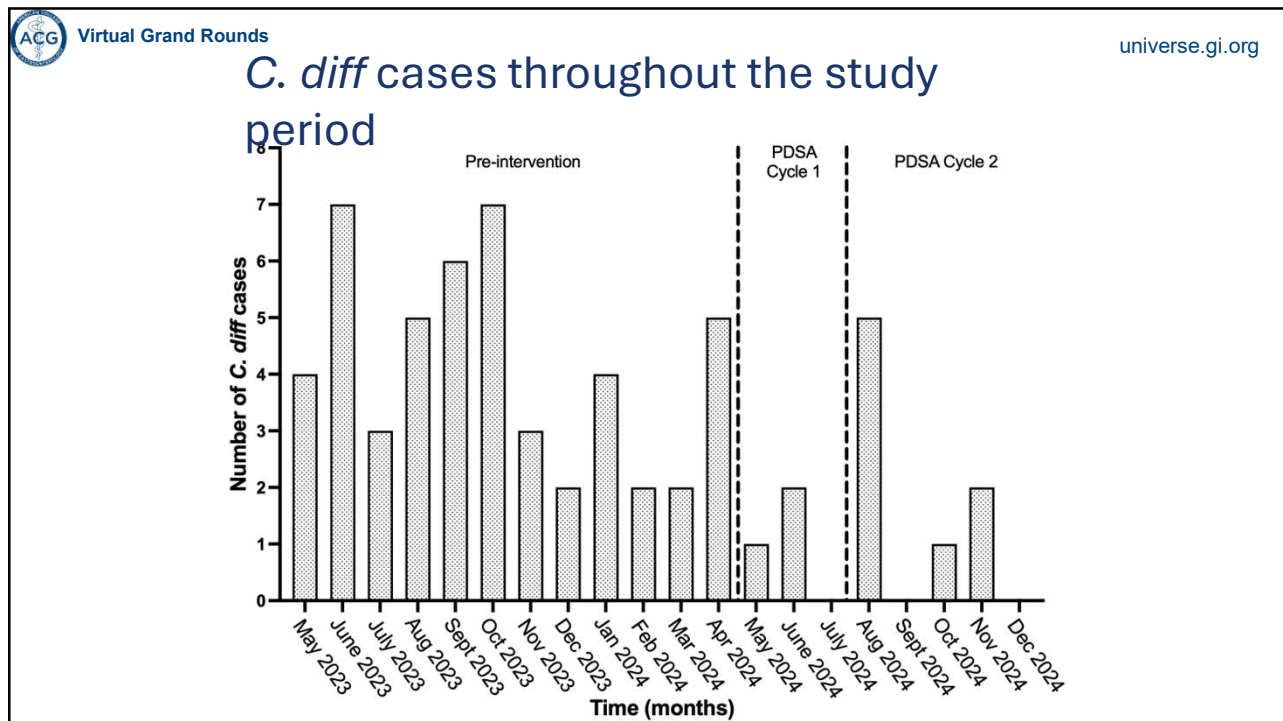
## Methods and Data Analysis

- Appropriate PPI orders excluded via ICD-10
- Groups: Pre-intervention, Intervention 1, Intervention 2
- Primary measure: PPI orders on admission
- Secondary measures: *C. diff* diagnosis
- Sub-analysis: teaching vs. non-teaching teams
- Chi-square test performed

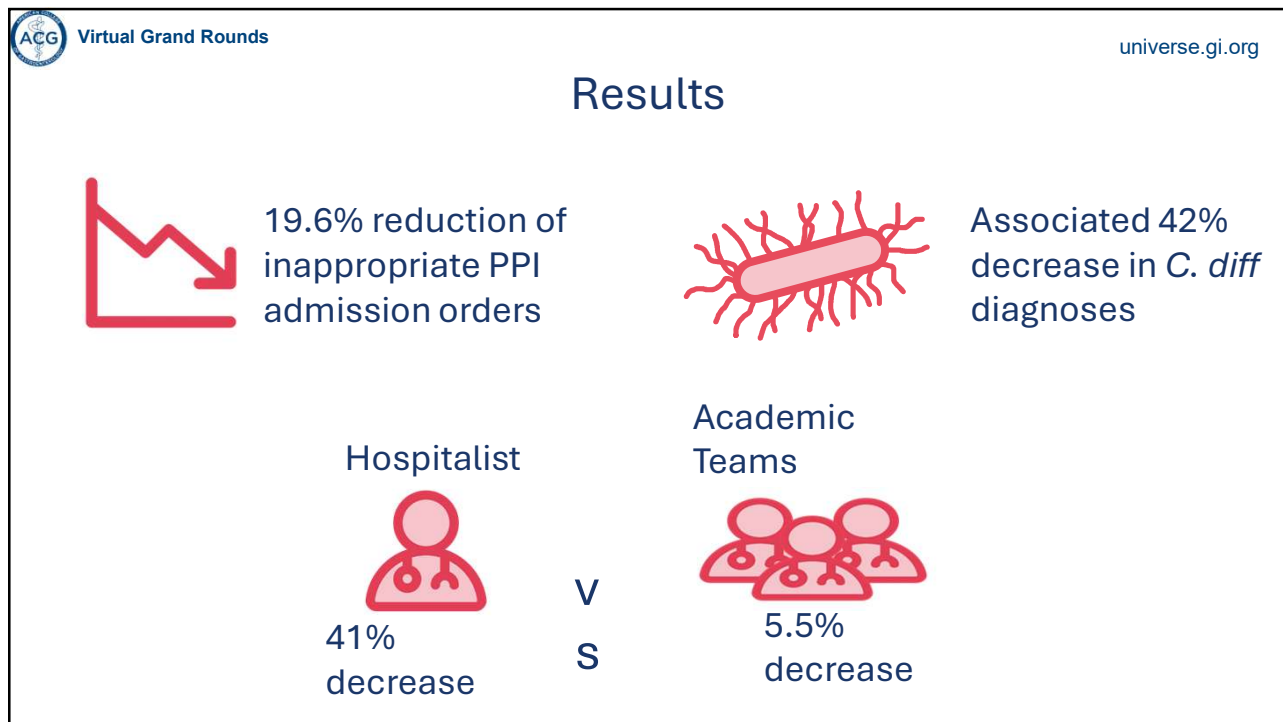
60



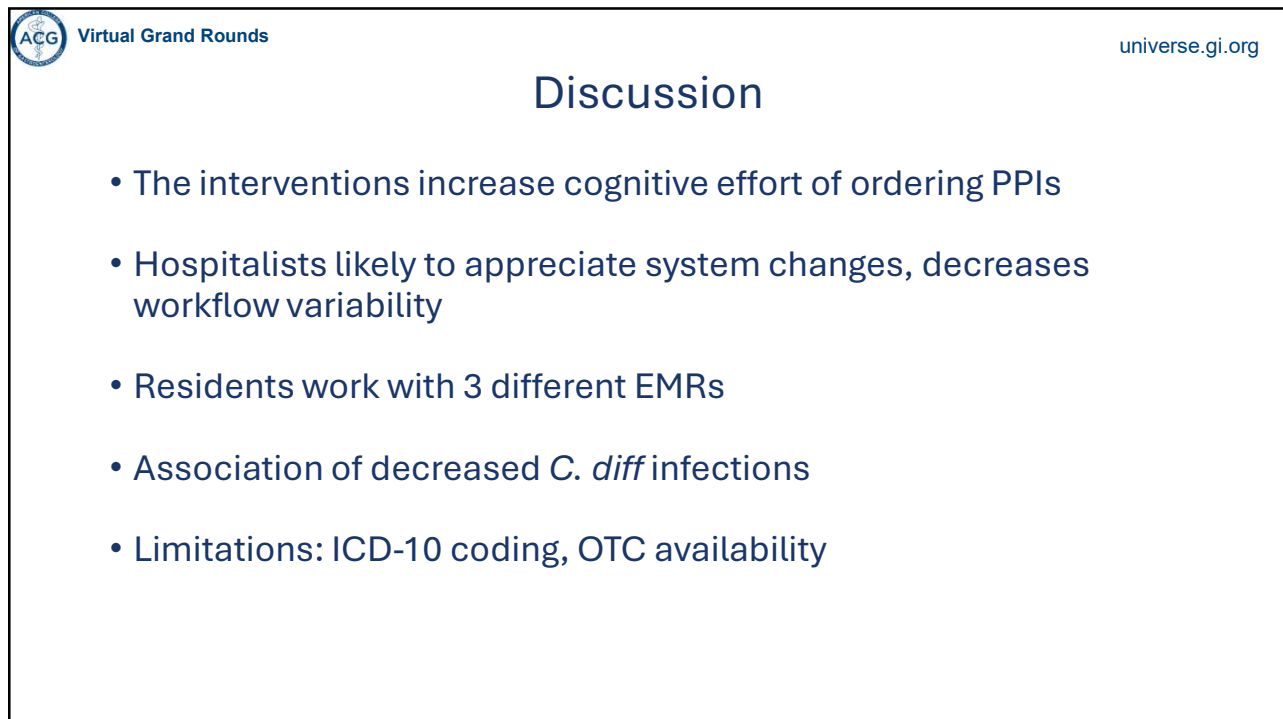
61



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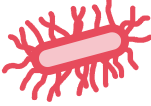
64

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## Summary




Systems-based interventions are effective for PPI stewardship



Lowering PPI orders on admission **may** decrease complications; more research needed



Other institutions can replicate EMR changes



Further studies needed for academic teams and impact of PPI prescriptions on discharge

65

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## Take Home message

- Recommend multifaceted, workflow-level EMR changes are effective for PPI stewardship and may reduce inpatient complications.

66

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# Thank You

67

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# ACG 2025: Best of IBD Abstracts



Omer Shahab, MD

68



## Data in Action: Improved Patient Adherence Using a Novel IBD Dashboard. Results of a Multi-Site 6-Month Pilot.

Michael Mills, MD, MPH, FACP<sup>1, 3</sup>, Gena Ettinger, PA-C, MSHS<sup>1</sup>,  
Nicole Smith, MS<sup>2</sup>, Wanda Wilt, RN, BSN<sup>2</sup>, Paul Berggreen, MD<sup>1</sup>  
1-GI Alliance, 2 – Cardinal Health, 3-Univ of Arizona College of  
Medicine

69



## Implementing a Novel IBD Dashboard to Improve Patient Adherence

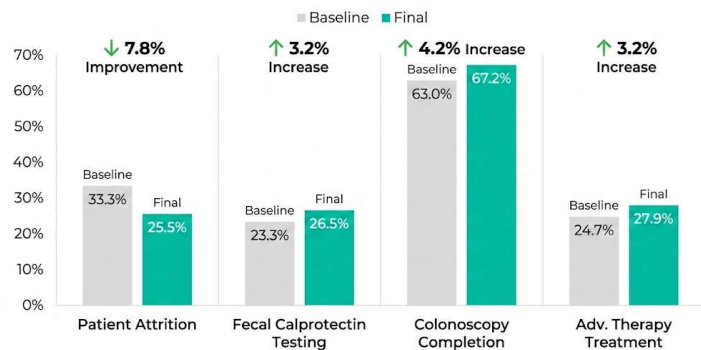
- Community IBD practices face challenges with patient attrition, inconsistent monitoring, and adherence to care pathways
- A novel IBD clinical dashboard was developed to proactively identify patients needing intervention and track key care metrics
- KPIs were aligned with STRIDE-II treat-to-target recommendations, including:
  - Patient attrition
  - Lab monitoring adherence
  - Colonoscopy completion
  - Advanced therapy utilization
  - Chronic care enrollment

70



## Results and Statistical Outcomes

- Patient Attrition: Decreased significantly from a baseline of 33.3% to 25.5% ( $P < 0.0001$ )
- Fecal Calprotectin Testing: Adherence rates increased from 23.3% to 26.5% ( $P < 0.0001$ )
- Colonoscopy Completion: Rates for patients on advanced therapy improved from 63.0% to 67.2% ( $P = 0.0034$ )
- Advanced Therapy Treatment: Treatment rates for high-risk patients rose from 24.7% to 27.9% ( $P = 0.0062$ )

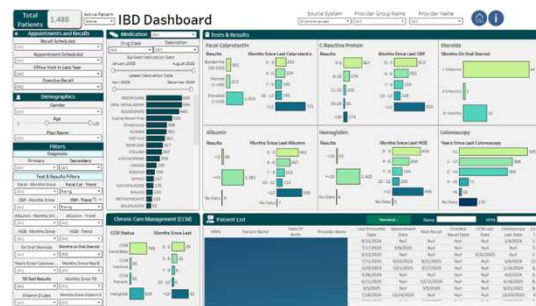


71



## Clinical Impact and Future Directions

- The initiative identified over 900 potential care gaps, resulting in **407 patients** being "recovered" and re-engaged by the practices.
- The project establishes a national baseline for community-based GI practices, moving care processes from reactive to proactive
- Future: AI-enabled data curation, enhanced KPI tracking, expansion to other disease states



72



## Both Low (TECH) and High (TEAM) Touch Interventions Improve Behavioral Health, IBD Symptoms, and Quality of Life: A Randomized Control Trial

Laurie Keefer, PhD, FACP on behalf of:

Professor of Medicine and Psychiatry

Icahn School of Medicine at Mount Sinai, New York, NY USA

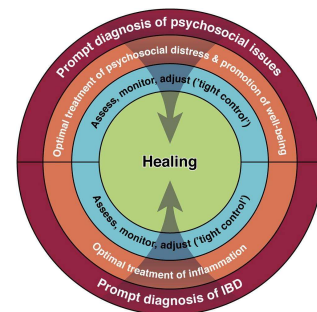
Benjamin L. Cohen, MD, Jeffrey M. Dueker, MD, MPH, Benjamin Click, MD, MS, Marla C. Dubinsky, MD, Miguel Regueiro, MD, Stephen E. Lupe, PhD, Ashley L. Taylor, MLIS, Jane Kogan, PhD, Cara Nikolajski, PhD, MPH, Nina Oryshkewych, MS, Meredith Wallace, PhD and Eva Szigethy, MD, PhD, FACP

73



## Both Low (TECH) and High (TEAM) Touch Interventions Improve Behavioral Health, IBD Symptoms, and Quality of Life: A Randomized Control Trial

- Objective: To compare the impact of two specialty medical home approaches on patient outcomes, specifically IBD symptoms, behavioral health (BH), and quality of life
- RCT involving **657 randomized patients** across three major sites: Mount Sinai (NY), UPMC (PA), and Cleveland Clinic (OH)
- Interventions compared:
  - (High Human Touch): Integrated behavioral care delivered by licensed therapists using a hybrid of telemedicine and face-to-face visits, with care coordination by the medical team
  - TECH (Low Human Touch): Digital tools serve as the first line of care. Digital coaches provide support via interactive text messaging, with a focus on telemedicine delivery



74



## Methodology and Study Population

- Patient Eligibility
  - Adults (18-60) with confirmed Crohn's disease or Ulcerative Colitis.
  - Must exhibit mild to severe behavioral health symptoms (PHQ-4 score >6).
- Demographics: The average age was ~34.8 years, predominantly female (64.5%), with 67% of participants having Crohn's Disease and 53.9% on advanced therapy.
- Key Outcome Measures (Tracked at Baseline, 6, & 12 Months):
  - Primary:
    - IBD symptom severity (Physical Health Composite Score)
    - BH symptom severity (PHQ-ADS) .
  - Secondary:
    - Functional impairment, healthcare utilization (ED visits/hospitalizations), self-efficacy, and IBD-related quality of life

75



## Results and Clinical Implications

- Both interventions worked effectively. There were no significant "group by time" interactions, meaning the TECH (Low Touch) and TEAM (High Touch) approaches produced similar positive trajectories
- Patients in both groups demonstrated significant improvement in:
  - Biopsychosocial Complexity (Combined IBD and BH severity). \* Quality of Life and Self-Efficacy.
  - Anxiety and Depression scores (PHQ + GAD) decreased significantly from baseline to 6 and 12 months.
- Conclusion: This was the first large RCT of its kind, proving that integrated behavioral health interventions, whether delivered through licensed therapists or scalable digital tools, significantly improve outcomes for high-risk IBD patients

76

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## Best of ACG 2025 Innovations in Liver



By  
Sangeeta Agrawal, MD, FACG, FASGE, AGAF



77

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## Treatment with Resmetirom for Up to Two Years Led to Improvement in Liver Stiffness, Fibrosis Biomarkers, Fibrosis Scores and Portal Hypertension in 122 Patients with Compensated MASH Cirrhosis

**N. Alkhouri,<sup>1</sup> R. Taub,<sup>2</sup> X. Lu,<sup>2</sup> R. Pushkin,<sup>2</sup> M. Charlton,<sup>2</sup> S. Moussa,<sup>3</sup> A. Kohli,<sup>1</sup> M. Nouredin,<sup>4</sup> J. M. Schattenberg<sup>5</sup>**

1: Summit Clinical Research, San Antonio, TX, US; 2: Madrigal Pharmaceuticals, West Conshohocken, PA, US; 3: University of Arizona for Medical Sciences, Tucson, US; 4: Houston Research Institute, Houston, US; 5: Universitätsklinikum des Saarlandes, Homburg, Germany

78

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## Unmet Need in MASH Cirrhosis

### High Risk of Outcomes, No Approved Disease Modifying Therapies

Resmetirom, an oral, once-daily, liver-directed thyroid hormone receptor  $\beta$  (THR- $\beta$ ) agonist, was the first drug approved by FDA for MASH in March 2024

No approved therapies for patients with compensated cirrhosis due to MASH.

Cirrhosis (F4) is highly associated with clinical outcomes including hepatic decompensation events, liver failure, liver transplant and mortality

MASH: metabolic dysfunction-associated steatohepatitis  
Harrison SA et al. N Engl J Med. 2024 Feb 8;390(6):497-509; Sanyal AJ et al. N Engl J Med. 2021 Oct 21;385(17):1559-1569;

79

79

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### Trial Design – Open-Label (OL) 52-Week Cirrhosis Arm of MAESTRO-NAFLD-1 followed by an Extension Trial

**Inclusion Criteria**

≥3 metabolic risk factors  
Well-compensated MASH cirrhosis - Child Pugh A:

- F4 fibrosis<sup>1</sup> OR
- Non-invasive clinical assessment (liver stiffness (VCTE, MRE), platelets, ELF)
- **Allowed platelet count ≥70,000**
- No history of decompensation

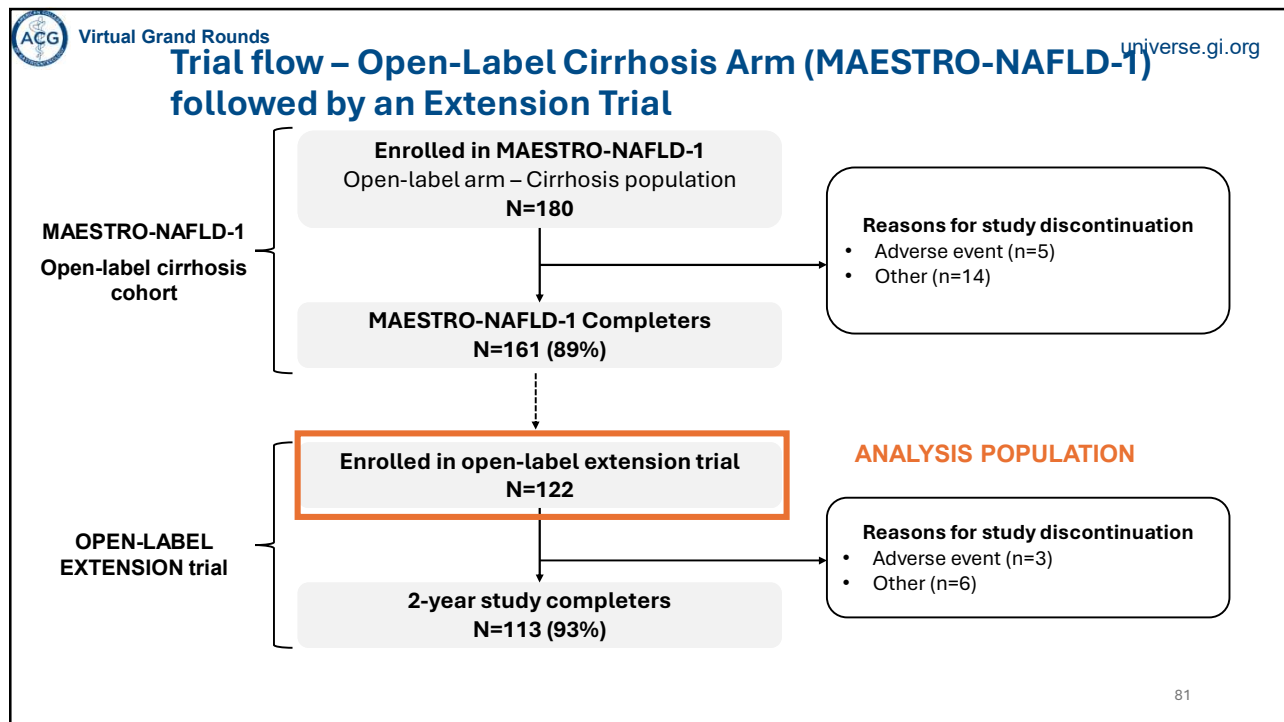
**Primary Endpoint**  
Safety and tolerability of resmetirom in cirrhosis patients

**Secondary/Exploratory Endpoints**  
VCTE, MRE, MRI-PDFF, liver enzymes, biomarkers, lipids, liver and spleen volume

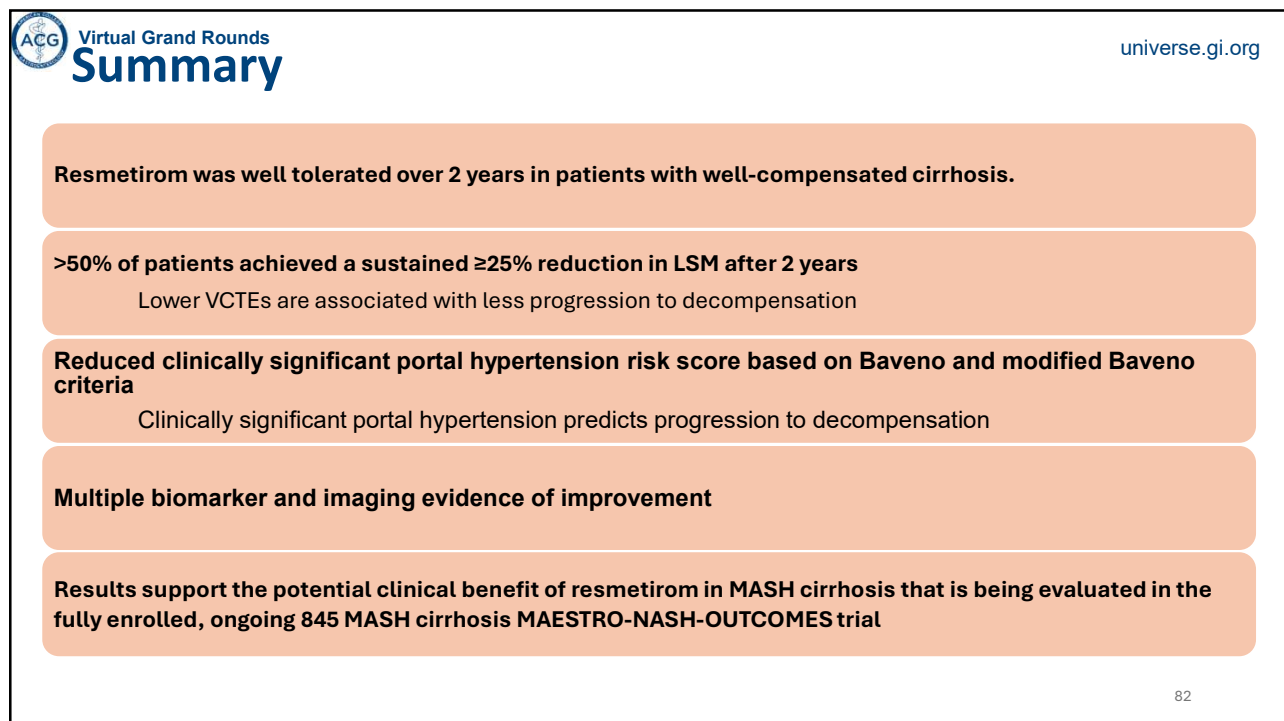
Liver biopsy was obtained 66% of patients; for patients with clinical progression from F3 on biopsy to F4, F4 was confirmed by platelets <LLN. (most) or MRE >4.2

80

80



81



82



## Change in Pruritus in Patients With Primary Biliary Cholangitis and Moderate to Severe Pruritus: A Pooled Analysis From the RESPONSE and ENHANCE Studies

David E. J. Jones<sup>1</sup>, Cynthia Levy<sup>2</sup>, Andreas E. Kremer<sup>3</sup>, Alma Ladron de Guevara Cetina<sup>4</sup>, Alejandra M. Villamil<sup>5</sup>, Ewa Janczewska<sup>6</sup>, Mordechai Rabinovitz<sup>7</sup>, Pietro Andreone<sup>8</sup>, Xin Qi<sup>9</sup>, Susheela Carroll<sup>9</sup>, Timothy R. Watkins<sup>9</sup>, Marlyn J. Mayo<sup>10\*</sup>

<sup>1</sup>Translational and Clinical Research Institute and Centre for Rare Disease, Newcastle University, Newcastle upon Tyne, UK; <sup>2</sup>Division of Digestive Health and Liver Diseases, Miller School of Medicine, University of Miami, Miami, FL, USA; <sup>3</sup>Department of Gastroenterology and Hepatology, University Hospital Zürich, Zürich, Switzerland; <sup>4</sup>Centro de Investigación y Gastroenterología, Hospital Angeles Clinica Londres, Mexico City, Mexico; <sup>5</sup>The Liver Autoimmunity Unit, Hospital Italiano de Buenos Aires, Buenos Aires, Argentina; <sup>6</sup>Department of Basic Medical Sciences, Faculty of Public Health in Bytom, Medical University of Silesia, Bytom, Poland; <sup>7</sup>Division of Gastroenterology, Hepatology, and Nutrition, Department of Medicine, University of Pittsburgh, Pittsburgh, PA, USA; <sup>8</sup>Division of Internal Medicine, Università di Modena e Reggio Emilia, Modena, Italy; <sup>9</sup>Gilead Sciences, Inc., Foster City, CA, USA; <sup>10</sup>Division of Digestive and Liver Diseases, University of Texas Southwestern, Dallas, TX, USA

83



### Background

- Pruritus may occur in up to 70% of patients with PBC during the course of disease and can greatly reduce quality of life
- Seladelpar is a first-in-class delapar (selective PPAR $\delta$  agonist) indicated for the treatment of PBC in combination with UDCA in adults who have an inadequate response to UDCA, or as monotherapy in patients who are unable to tolerate UDCA
- In two Phase 3, placebo-controlled trials—ENHANCE and RESPONSE—seladelpar significantly reduced pruritus among patients who had moderate to severe pruritus at baseline, defined as an NRS score  $\geq 4$

**Objective:** To explore pruritus outcomes in greater detail from the pooled dataset of patients with PBC and NRS  $\geq 4$  at baseline in ENHANCE and RESPONSE

84

**ENHANCE and RESPONSE Study Designs**

**Entry Criteria**

- PBC and UDCA for the past 12 months (stable dose) or intolerant to UDCA
- ALP  $\geq 1.67 \times$  ULN
- ALT and AST  $\leq 3 \times$  ULN
- TB  $\leq 2 \times$  ULN
- Compensated cirrhosis allowed

**Stratification**

- Pruritus NRS  $< 4$  vs NRS  $\geq 4$
- ALP  $< 350$  U/L vs ALP  $\geq 350$  U/L

**Methods**

- Patients were randomized to seladelpar 10 mg or placebo as add on therapy to UDCA (if tolerant of UDCA)
- Data up to month 6 were assessed in patients with moderate to severe pruritus at baseline (NRS score  $\geq 4$ ) change in daily NRS scores (range 0–10)<sup>a</sup>
- Change in PBC-40 itch domain scores (range 0–15)
- Change in 5-D Itch scale scores (range 5–25 for total score),
- Sleep disturbance item scores in both PBC-40 and 5-D Itch scale<sup>b</sup>

85

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**Conclusions**

- Consistent with previous studies, This pooled analysis demonstrated that seladelpar treatment for up to 6 months reduced pruritus to a greater extent vs placebo in patients with PBC who had moderate to severe pruritus at baseline
  - Improvement vs placebo was evident at month 1 of treatment and was sustained through month 6 using 3 different measures of pruritus (NRS, 5-D Itch, PBC-40)
  - Improvements in sleep disturbance were seen in patients receiving seladelpar vs placebo through month 6 using 2 different measures of (5-D itch and PBC-40)
  - Seladelpar was overall safe and well tolerated regardless of baseline itch

86



## Outcomes of Liver and Cardiovascular Metabolic Diseases Among Lean vs. Non-Lean Individuals with Metabolic Dysfunction-Associated Steatotic Liver Disease —A Meta-analysis

**Mexan Mapouka MD, MPH (Principal Author)**

*PGY-1 Resident Physician in Internal Medicine, University of Maryland Capital Region Health, Maryland, USA*

**Nkafu Betchem Ndemazie, MD, MPH, PhD (Co-Author)**

*PGY-3 Resident Physician in Internal Medicine, Richmond University Medical Center, New York, USA*

**Ijeoma Ikedum, MD, MSc (Co-Author)**

*PGY-2 Resident Physician in Internal Medicine, Wellstart Kennestone Hospital, GA, USA*

87



## Background

- **MASLD (Metabolic dysfunction–associated steatotic liver disease)** is a leading cause of liver and cardiometabolic complications.
  - Traditionally associated with **overweight/obesity**, but...
  - **Lean individuals** (BMI < 25 kg/m<sup>2</sup>, or < 23 kg/m<sup>2</sup> for Asian populations) can also develop MASLD.
  - Their **clinical profiles and outcomes are poorly defined** in comparison to non-lean MASLD.
- **Knowledge gap:**
  - Do lean MASLD patients experience different risks for fibrosis, cirrhosis, CVD, hypertension, or mortality?
  - Are current **screening strategies**, based on obesity alone, adequate?

Hoochuay K, Kunhapan P, Puangpetch A, et al. *World Journal of Hepatology*. 2024;16(3):452–464.

88

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## Objectives

- **Primary Objective:**  
Compare **liver** and **cardiovascular outcomes** between **lean and non-lean individuals** with MASLD.
- **Outcomes analyzed:**
  - Liver fibrosis
  - Hepatic steatosis
  - Nonalcoholic steatohepatitis (NASH)
  - Cirrhosis
  - Hypertension
  - Cardiovascular disease (CVD)
  - Mortality
- **Database searched:**  
PubMed, Medline, Cochrane, Embase
- **Time frame:** last 20 years (up to Feb 2025)
- **Final Inclusion**
  - 31 studies
  - 10,735,550 participants

89

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## Results (Summary)

Outcome	pOR (Lean vs Non-Lean)	95% CI	p-value	I <sup>2</sup> (%)	Interpretation
Liver fibrosis	2.0	1.0, 3.9	0.04	82	↑ Non-lean risk
Hepatic steatosis	2.1	1.5, 2.9	<0.001	78	↑ Non-lean risk
Hypertension	0.7	0.6, 0.9	0.002	64	↑ in non-lean (protective for lean)
Cirrhosis	0.7	0.5, 0.9	0.007	57	↑ in non-lean
NASH	1.2	0.7, 2.0	0.5	69	NS difference
Cardiovascular disease	0.9	0.7, 1.0	0.1	71	NS difference
Mortality	1.4	1.0, 2.0	0.06	84	Trend toward ↑ in non-lean

pOR = prevalence Odds Ratio  
NS = non statistically significant difference

90



## Summary of Clinical Relevance

- Expand **screening and surveillance** for MASLD beyond BMI:
- Consider **body fat percentage, metabolic markers, and ethnicity-specific thresholds**
- Develop **risk stratification** models for *lean* individuals
- Raise awareness among:
  - Gastroenterologists
  - Primary care providers
  - Cardiologists

91



## Indwelling Pleural Catheters as a Safe and Convenient Alternative to Serial Thoracentesis for the Management of Hepatic Hydrothorax: A Retrospective Propensity-Matched Cohort Study

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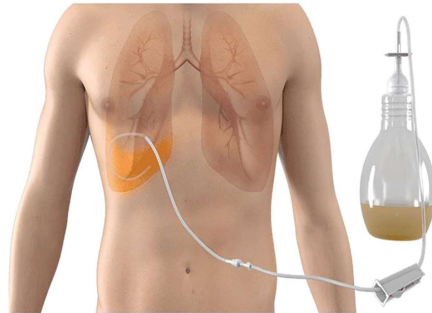
92



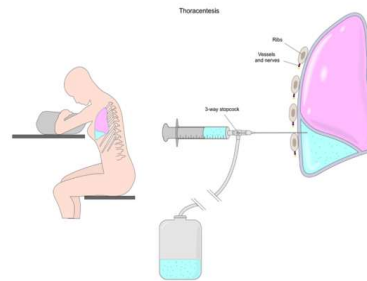
## Objective of the Study

The aim of this study was to evaluate the impact of PleurX™ catheters versus serial thoracentesis in patients with HH.

IPCs<sup>4</sup>



Thoracentesis<sup>5</sup>



93



## Methods

- Study design: retrospective 1:1 propensity matched cohort study.
- Intervention: IPCs vs. serial thoracentesis.
- Study population: aged 18-89 years with hepatic hydrothorax secondary to liver cirrhosis of any etiology.
- Exclusion criteria: any malignancy, congestive heart failure, nephrotic syndrome, chronic kidney disease, prior TIPS placement, or pleural effusion from non-hepatic causes.
- Study cohorts:
  - IPCs cohort- Patients managed with IPCs placement.
  - Serial thoracentesis cohort- Patients undergoing  $\geq 2$  thoracentesis per month.

94



### Primary outcome:

All-cause mortality and healthcare utilization (emergency department and urgent care visits) within 18 months post-intervention.

### Secondary outcomes

- Systemic complications: dehydration, sepsis, severe sepsis, and septic shock
- Hepatic and renal complications: hepatic encephalopathy and acute kidney injury
- Electrolyte abnormalities
- Pulmonary and infectious complications: empyema, pneumonia, and hemothorax
- Liver-related outcomes: spontaneous bacterial peritonitis, and liver transplant status

### Conclusions

- IPCs placement was associated with a lower healthcare utilization (emergency room and urgent care visits), hepatic encephalopathy, pneumonia, hypokalemia, and reduced need for liver transplantation compared to serial thoracentesis in patients with HH.
- These findings suggest that IPCs may offer a safe and effective alternative for long-term effusion management in this population.
- However, prospective studies are warranted to confirm these results.

95



## Questions



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96



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97