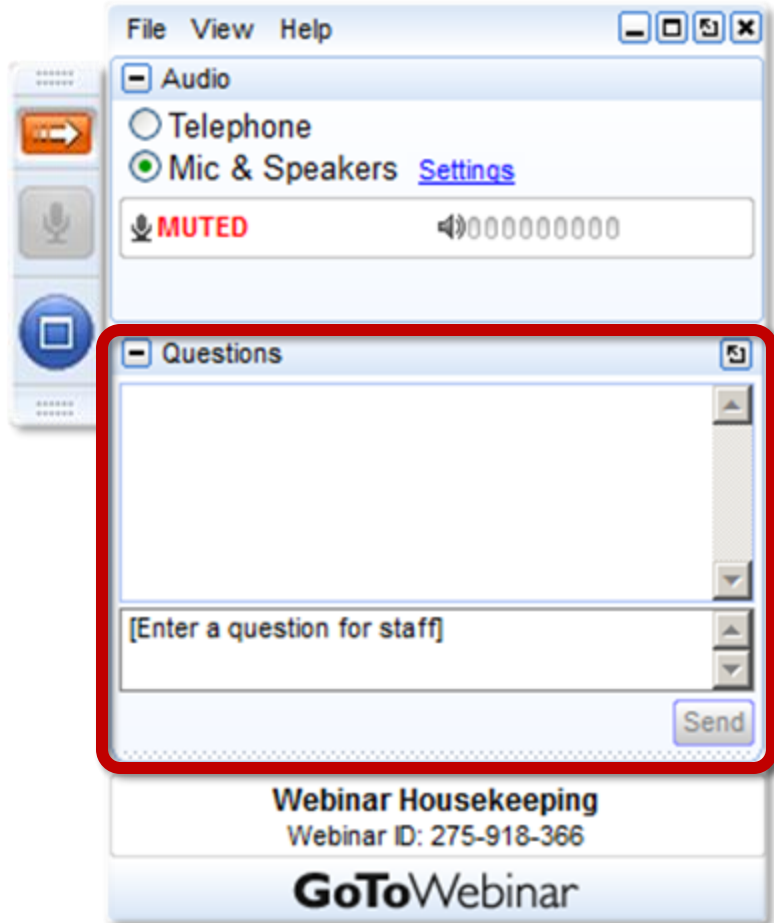


Assembling an ADR Improvement Toolkit for Your Practice

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Questions



- Please submit your text questions and comments using the Questions Panel.
- Today's presentation is being recorded and will be posted on the GIQuIC Registry Support Site (ZenDesk) under "GIQuIC Registry Resources"

Disclosures

- ▶ The presenter has no disclosures.

Why You Should Care About Quality

- ▶ Effective
 - ▶ Detection and prevention of CRC
 - ▶ Reduce missed CRC
- ▶ Safe
 - ▶ Reducing complications
- ▶ Reimbursement
 - ▶ MIPS and APMs
 - ▶ High value practice
- ▶ Patient satisfaction



Quality Indicators of Colonoscopy

- ▶ Completion rate
- ▶ Adenoma detection rate
- ▶ Withdrawal time
- ▶ Prep quality
- ▶ Photo documentation of cecum
- ▶ Prep quality documentation
- ▶ Appropriate indication
- ▶ Appropriate screening interval
- ▶ Appropriate surveillance interval
- ▶ Appropriate surveillance interval for Ulcerative Colitis

Rex DK et al. Quality in the technical performance of colonoscopy and the continuous quality improvement process for colonoscopy: recommendations of the U.S. Multi-Society Task Force on Colorectal Cancer. *Am J Gastroenterol* 2002;97:1296-308.

ASGE practice guideline: Measuring the Quality of Endoscopy. *Gastrointest Endosc* 2006;58:S1-S38; Rex et al. *GIE* 2015; 81: 31-53

Adenoma Detection Rate

- ▶ ADR during screening colonoscopies in average risk men and women over age 45

$$\frac{\text{\# of COL where at least 1 adenoma is found}}{\text{Total \# of COL performed}}$$

In a given time period per endoscopist

- ▶ Higher ADR= higher quality exam = fewer missed cancers
- ▶ Goal is **25%**
 - ▶ $\geq 30\%$ for men ≥ 45 yrs
 - ▶ $\geq 20\%$ for women ≥ 45 yrs

Rex DK et al. Quality in the technical performance of colonoscopy and the continuous quality improvement process for colonoscopy: recommendations of the U.S. Multi-Society Task Force on Colorectal Cancer. Am J Gastroenterol 2002;97:1296-308.

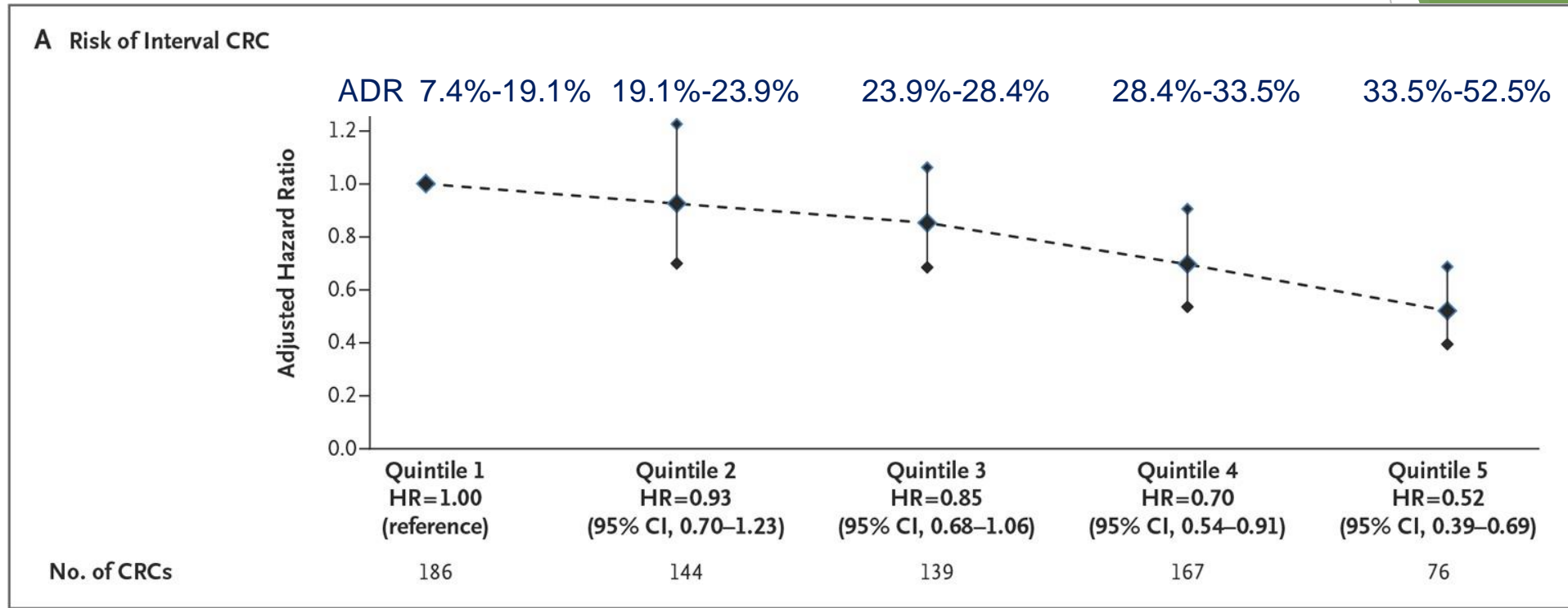
ASGE practice guideline: Measuring the Quality of Endoscopy. Gastrointest Endosc 2006;58:S1-S38 Gastrointest Endosc 2006;58:S1-S38

Rex DK et al. GIE 2015; 81: 31-53

ADR and Interval CRC

- ▶ Kaiser Permanente Northern California health plan members
- ▶ COL for any indication 1998-2010
- ▶ Follow-up: 10 yrs, another COL, CRC diagnosis, Jan 2011, termination of membership
- ▶ 139 Gastroenterologists (min>300 COL, >75 screening COL)

ADR and Risk of Interval Cancer

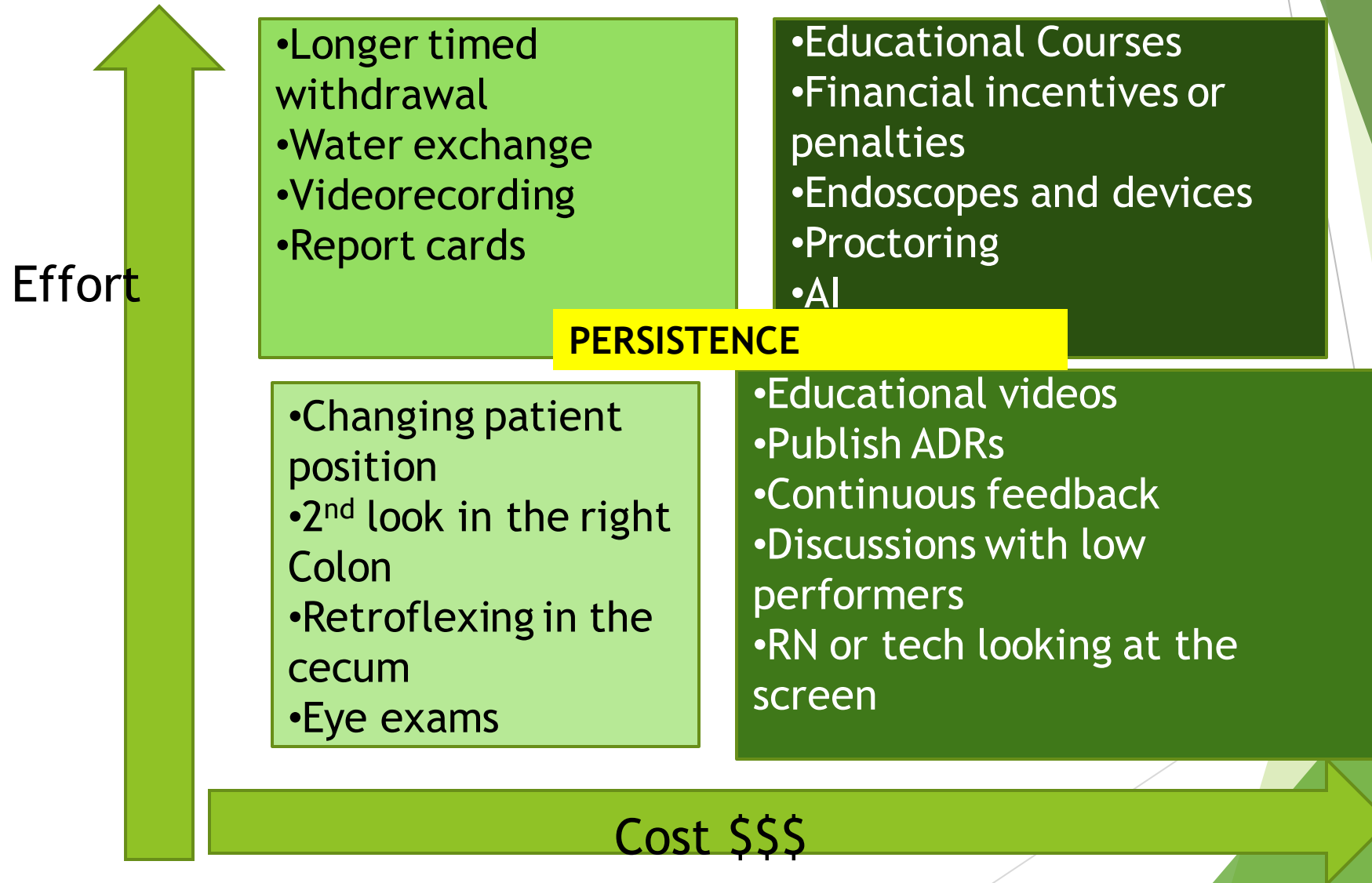


Each 1% increase in ADR is associated with 3% decrease in risk of CRC

No threshold effect above which increases in ADR were without benefit

What Interventions Improve ADR?

Tools to Improve ADRs



Step 1

Sample Report card

- ▶ Measure Quality indicators
- ▶ Provide Report cards
 - ▶ Individual physicians
 - ▶ Group average
 - ▶ Individuals deidentified
 - ▶ Individuals identified
 - ▶ Post them on the ASC wall
 - ▶ Publish online

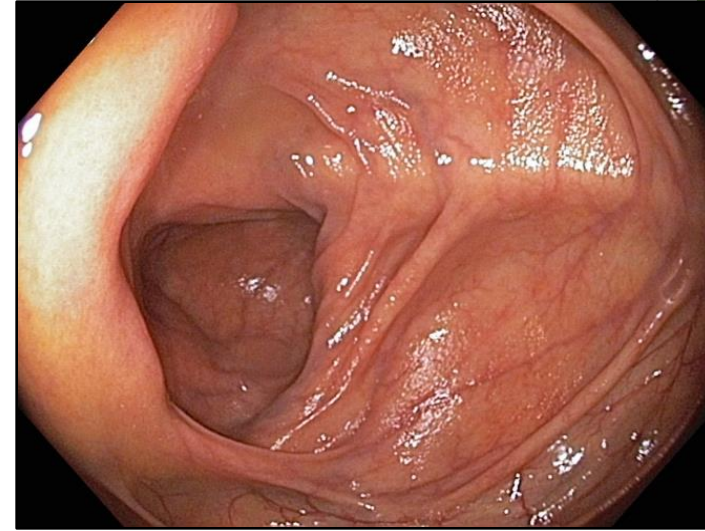
Endoscopist ID: 21314566	Time period: Q1 2021
Total number of colonoscopies performed	300
Total number of screening colonoscopies performed	100
Complete Colonoscopies (excluding cases due to poor prep)	295 (98%)
ADR (for screening colonoscopy)	31%
Withdrawal time (procedures where no polypectomy or biopsies performed)	8.2 min _± 1.15 min
Number of Colonoscopies with inadequate bowel prep	5 (2%)

Endoscopist Report Card

- ▶ 6 Endoscopists
- ▶ Quarterly report card on quality measures starting 2009
- ▶ Compared ADR and cecal intubation rate before and after intervention

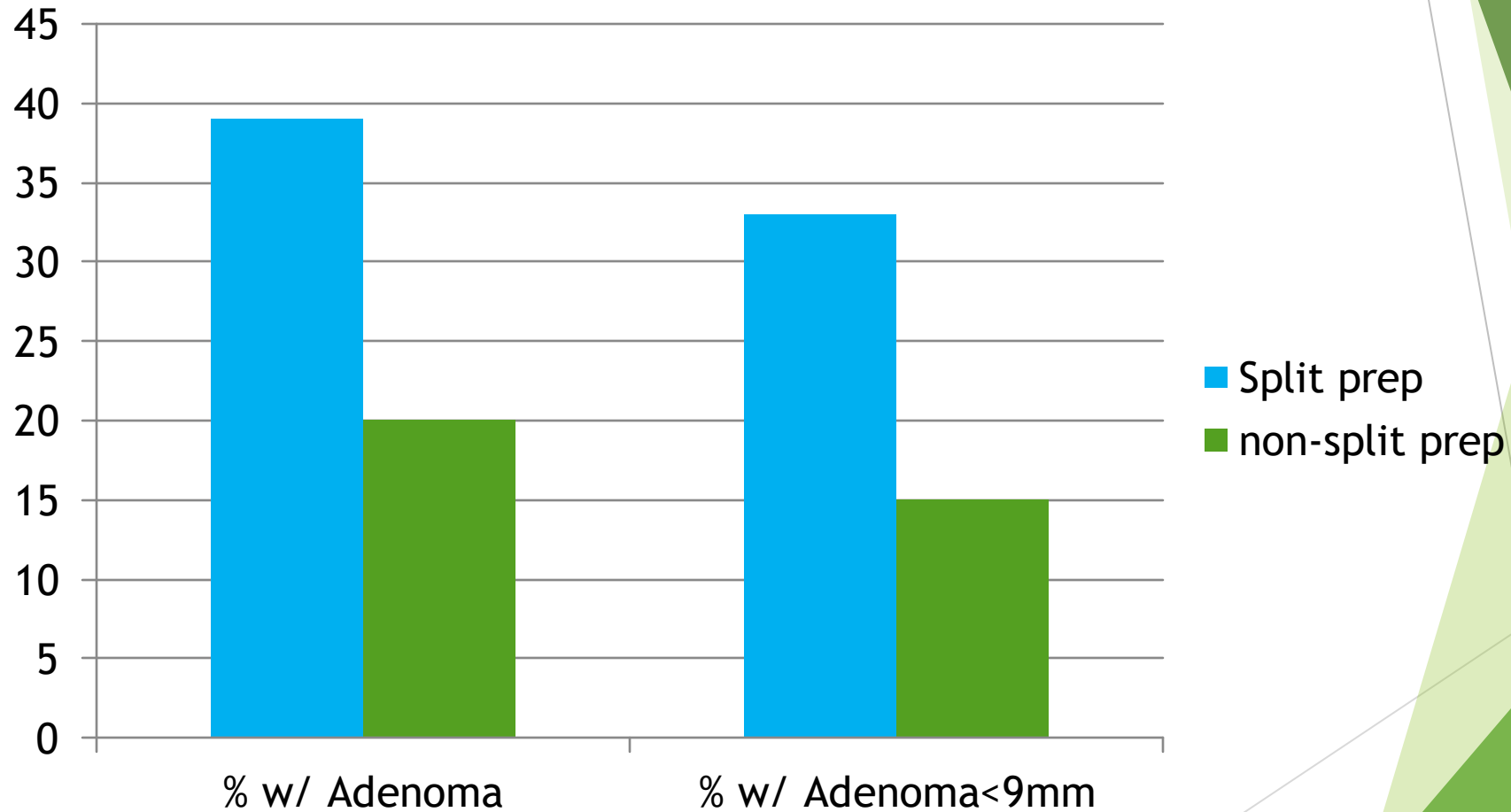
	Before (95%CI)	After (95% CI)	P-value
ADR	44.7% (39.1%-50.4%)	53.9% (49.7%-58.1%)	0.013
Cecal intubation rate	95.6% (92.5%-97.5%)	98.1% (96.7%-99.0%)	0.027

Step 2. Improve Prep



- Use split dose or same day prep
- Begin second dose 4-6 hours prior to colonoscopy
 - Finish prep at least 2 hours prior to colonoscopy
- Judge prep after all washing has been done
- Adequate prep should be achieved in at least 85% of cases
- If inadequate prep, repeat within 1 year

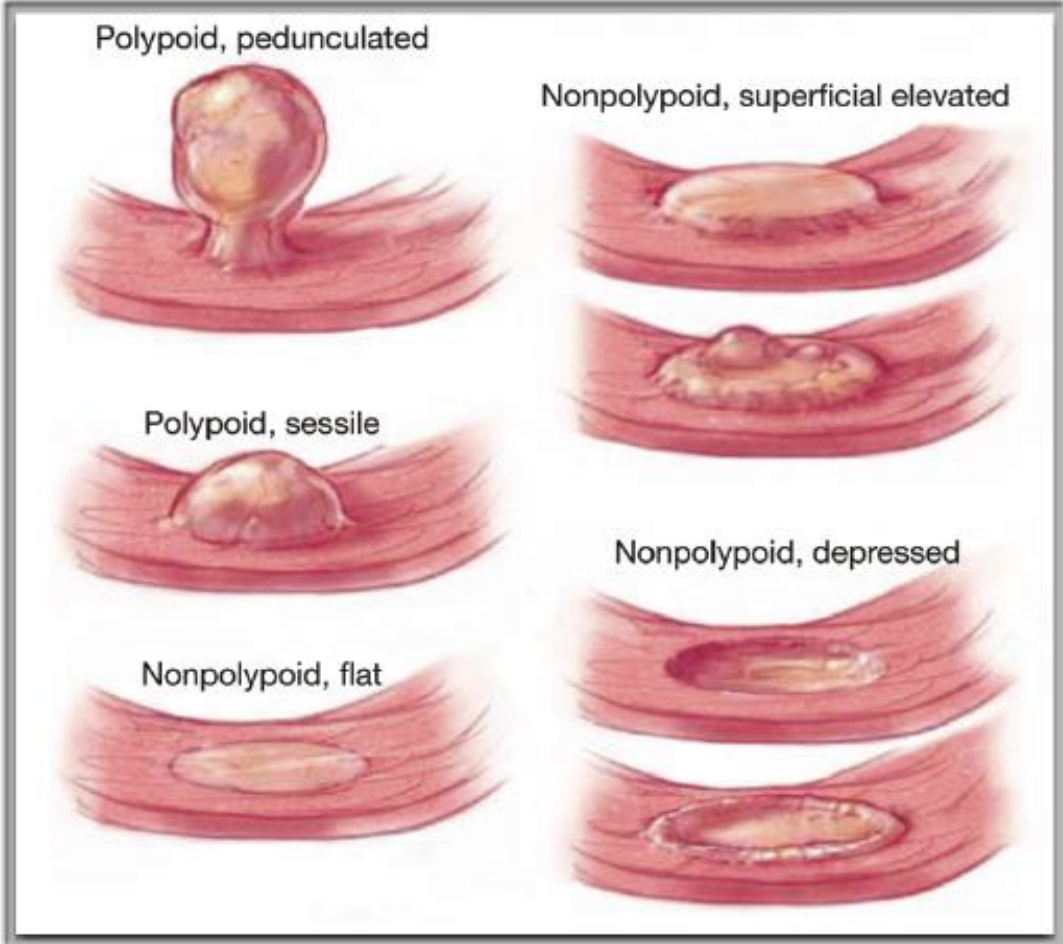
Split Prep = Higher ADR



Cohen LB et al. Clinical trial: 2-L polyethylene glycol-based lavage solutions for colonoscopy preparation - a randomized, single-blind study of two formulations. *Aliment Pharmacol Ther* 2010; 32: 637-44

Step 3. Know What to Look For!

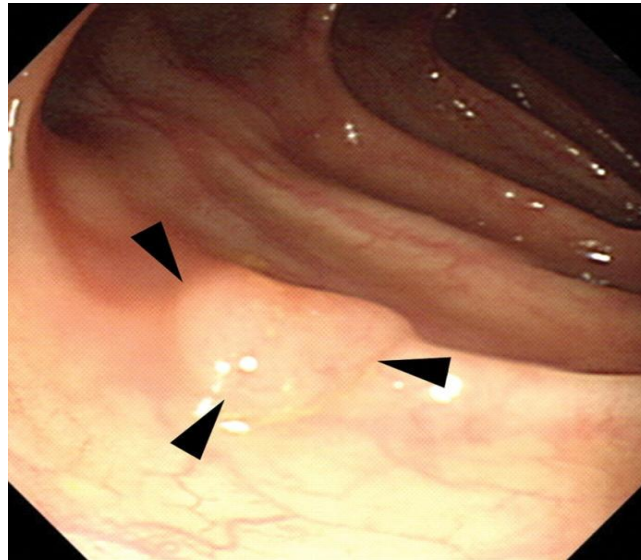
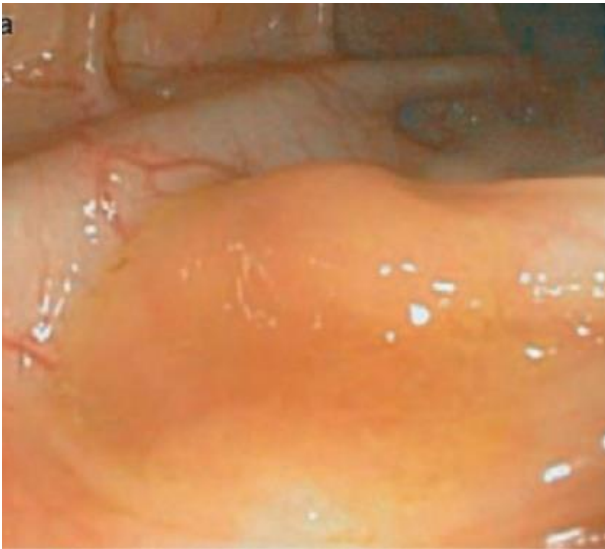
Polyp Recognition is Important!



Soetikno, Kaltenbach, Rouse et al. JAMA 2008.

Polyp Recognition

- ▶ Endoscopic Features of easily missed polyps:
 - ▶ Right sided
 - ▶ Flat/sessile
 - ▶ Irregular borders
 - ▶ Covered by mucus



Step 4. Think of Interventions in the Following Categories:

Technique
Technology
Education

Technique: Withdrawal Time

- ▶ **Withdrawal time:**
- ▶ Should be at least 6 minutes in colonoscopies without biopsy or polypectomy

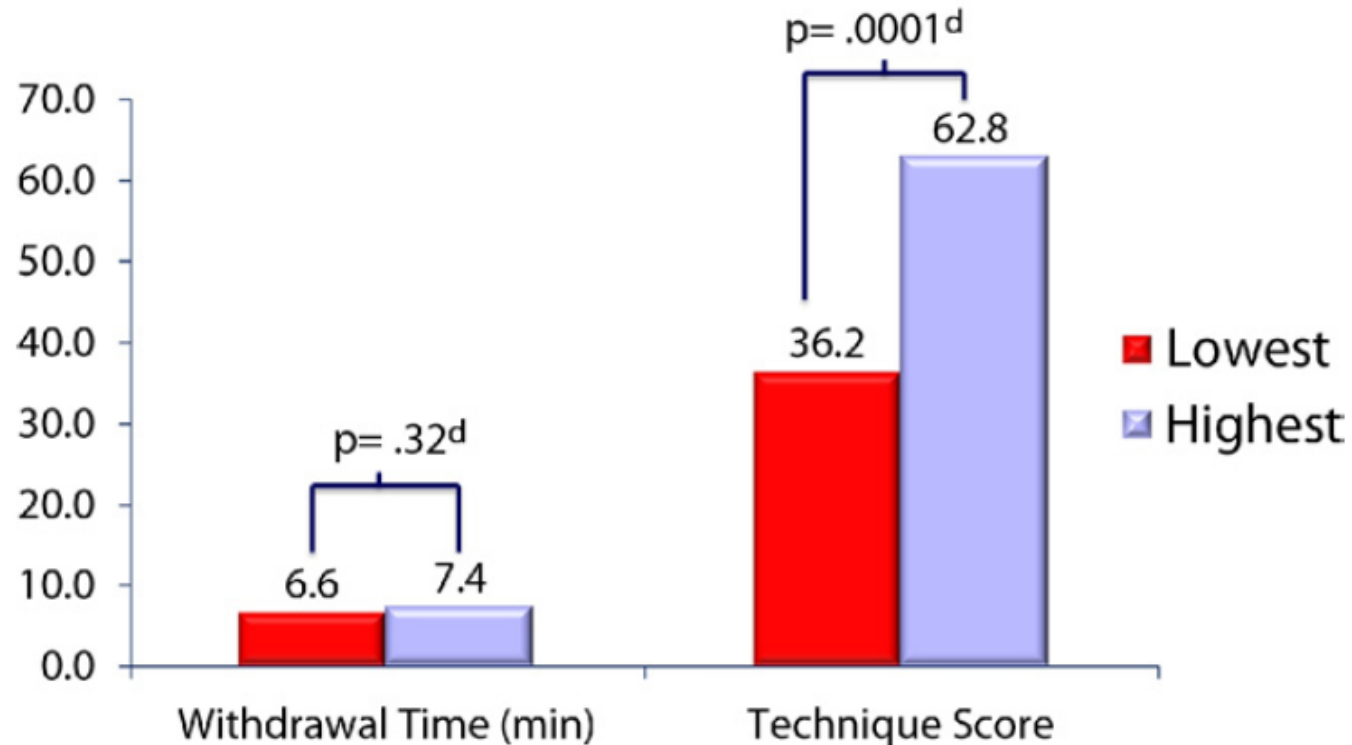
- ▶ **Withdrawal technique:**
 - ▶ Adequate distention
 - ▶ Washing and clean up
 - ▶ Looking behind folds
 - ▶ Segmental inspection and subjective timing

ASGE practice guideline: Measuring the Quality of Endoscopy. *Gastrointest Endosc* 2006;58:S1-S38

Rex DK. Colonoscopic Withdrawal technique is associated with adenoma miss rate. *Gastrointest Endosc* 2000;51:33-6

Time Alone Isn't Enough: Technique Matters

Lowest vs Highest ADR Endoscopist



Segmental Withdrawal Time Plus Enhanced Inspection Technique

- ▶ Setting:
 - ▶ 12 GI, community-based practice setting, Rockford, IL
- ▶ Intervention:
 - ▶ Adopted an 8-min withdrawal time (2 min per colonic segment) using an audible timer
 - ▶ Reviewed inspection techniques
- ▶ Results: ADR improved from 23.5% to 34.7%
(*P* = .0001)

Barclay RL, et al. Effect of a time-dependent colonoscopic withdrawal protocol on adenoma detection during screening colonoscopy. Clin Gastroenterol Hepatol 2008;6:1091-8.

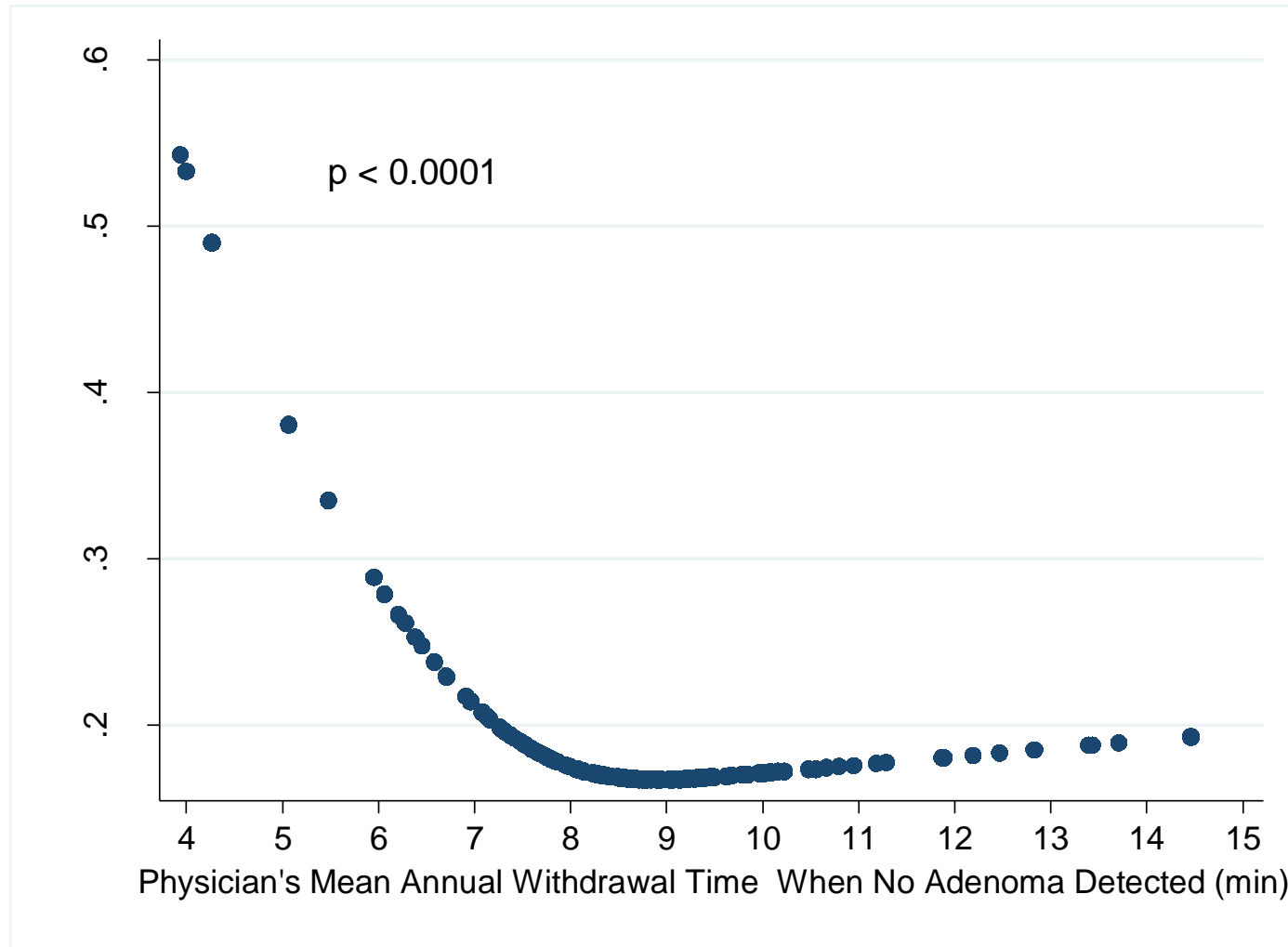
ADR, WT and Interval CRC

- ▶ Community based practice in Minneapolis/St. Paul
- ▶ 51 GI
- ▶ 76,810 Screening colonoscopies over 6 years
- ▶ Linked records with State cancer registry for incident cancers within 5 years of colonoscopy
- ▶ Average annual ADRs: $26\% \pm 9\%$; WT: 8.6 ± 1.7 min
- ▶ 56 interval cancers over 249,261 person-years of follow-up

Shaukat A et al. Longer withdrawal time is associated with a reduced incidence of interval cancer after screening colonoscopy. *Gastroenterology*. 2015 Oct;149(4):952-7

WT and Interval Cancer

Physicians' average annual withdrawal times were inversely associated with interval cancers ($p < 0.0001$)



Other Techniques

- ▶ Retroflexion in the cecum versus re-examining right colon during withdrawal
- ▶ Left versus right lateral decubitus position during withdrawal
- ▶ Changing patient position during withdrawal
- ▶ 2nd observer looking at the screen (Tech or Nurse)
- ▶ Water immersion and water exchange

- ▶ **Mixed Results**
 - ▶ Seem to benefit low performers

Lee Sw et al. Am J Gastroenterol. 2016 Jan;111(1):63-9

Ball AJ et al. Gastrointest Endosc. 2015;82(3):488-94

Kushnir VM et al. Am J Gastroenterol 2015;110:415-22

Increasing ADR by Water Immersion and Exchange

	Air	WI	WE	
N	217	217	217	
Overall ADR (%)	37.8	40.6	49.8	WE vs. AI, p=0.016; WE vs. WI, p=NS
Pt age, WE, indication, WT>8 min were significant predictors of ADR				



Cadoni S et al. Water exchange for screening colonoscopy increases adenoma detection rate: a multicenter, double-blinded, randomized controlled trial. *Endoscopy*. 2017;49(5):456-467

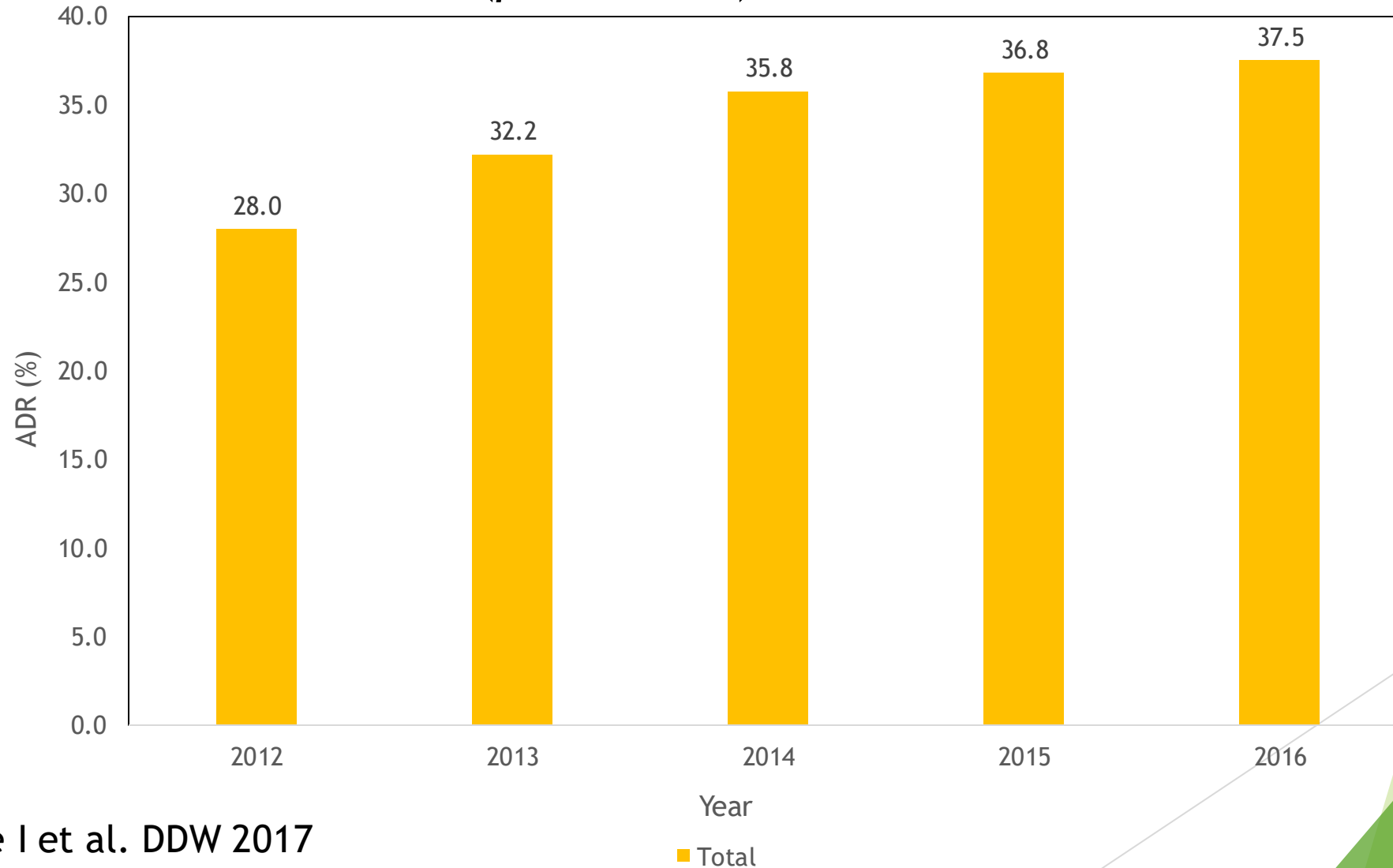
Hsieh YH, et al. Prospective multicenter randomized controlled trial comparing adenoma detection rate in colonoscopy using water exchange, water immersion, and air insufflation. *Gastrointest Endosc*. 2017;86(1):192-201.

Jia H, et al. Water Exchange Method Significantly Improves Adenoma Detection Rate: A Multicenter, Randomized Controlled Trial. *Am J Gastroenterol*. 2017;112(4):568-576.

Systemic Interventions

Increasing ADR by Participating in GIQuIC

- ▶ ADR for screening colonoscopies increased from 28% in 2012 to 38% in 2016 ($p < 0.0001$)



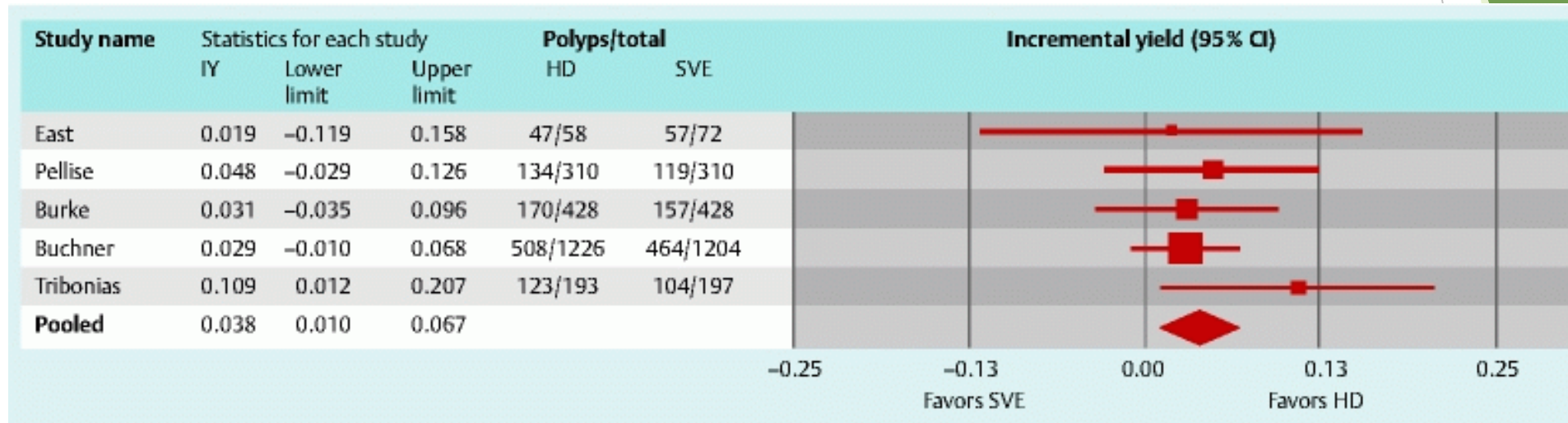
Intervention: Train the Leader

- ▶ 40 Polish endoscopy centers with ADR <25% for the leader
- ▶ Randomized to
 - ▶ Feedback only (individual report cards)
 - ▶ Training: assessment, hands on training, post training feedback
- ▶ 24,582 colonoscopies by 38 leaders

ADRs	Pre-intervention	Early post-intervention (6 mo)	Later post intervention (12 mo)
Feedback only	18.5%	19.6%	20.8%
Train the leader	17.4%	25.6%	23.9%

Technology

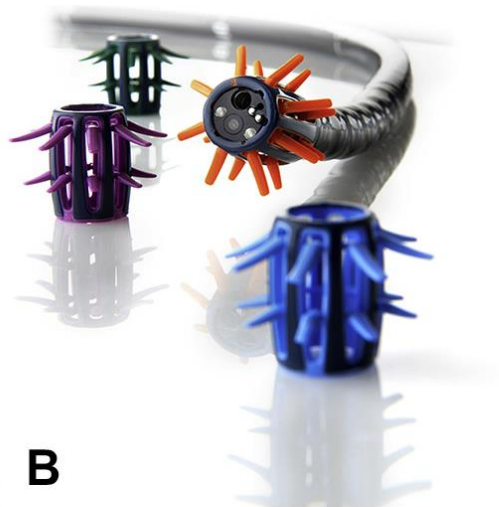
High Definition vs. Standard Video Endoscopes



- ▶ 5 studies; n= 4422
- ▶ Incremental yield for adenoma detection with HD:
3.5 % (95 %CI 0.9 % - 6.1 %)
- ▶ No difference in the detection of advanced adenomas, -0.1 % (95 %CI -1.7 % to 1.6 %)

Subramanian V, et al. High definition colonoscopy vs. standard video endoscopy for the detection of colonic polyps: a meta-analysis. *Endoscopy*. 2011 Jun;43(6):499-505.

Accessory Devices



Comparing Technique, Devices and Endoscopes

	OR for ↑ADR (vs. High def colonoscopy)	95% CI
Technique (WE, 2 nd observer, position changes)	1.29	1.09-1.35
Enhanced imaging techniques (chromoendoscopy, narrow-band imaging, flexible spectral imaging color enhancement, blue laser imaging)	1.21	1.07-1.29
New scopes (full-spectrum endoscopy, extra-wide-angle-view colonoscopy, dual focus)	0.98	0.79-1.21

- No specific technology for increasing ADR was superior to others
- No difference in detection of advanced ADR, polyp detection rate, or mean number of adenomas/patient

Facciorusso A, et al. Compared Abilities of Endoscopic Techniques to Increase Colon Adenoma Detection Rates: A Network Meta-analysis. Clin Gastroenterol Hepatol. 2018 Dec pii: S1542-3565(18)31335-1. doi: 10.1016/j.cgh.2018.11.058

AI-Enabled Program for CADe FDA Approved

- ▶ 685 patients, 3 centers in Italy
- ▶ All indications
- ▶ Randomized to CADe vs standard COL
- ▶ ADR: 40.4% standard COL vs. 54.8% CADe
- ▶ Adenoma per Colonoscopy higher e CADe: 1.07 vs. 0.71
- ▶ No difference in WT, non-neoplastic rates
- ▶ Pooled two trials:
- ▶ 660 patients, 10 endoscopists
- ▶ Italy, all indications
- ▶ ADR 44.5% vs. 53.3%
- ▶ CADe, indication associated with ADR improvement, but not endoscopist experience



Repici A. Efficacy of Real-Time Computer-Aided Detection of Colorectal Neoplasia in a Randomized Trial. Gastroenterology. 2020 Aug;159(2):512-520. Repici A et al. Artificial intelligence and colonoscopy experience: lessons from two randomised trials. Gut. 2022 Apr;71(4):757-765.

CADe Improves APC

Improvement in Adenomas per Colonoscopy Using a Computer-Aided Detection Device



Randomized trial, standard vs. CADe colonoscopy



1359 screening and surveillance participants



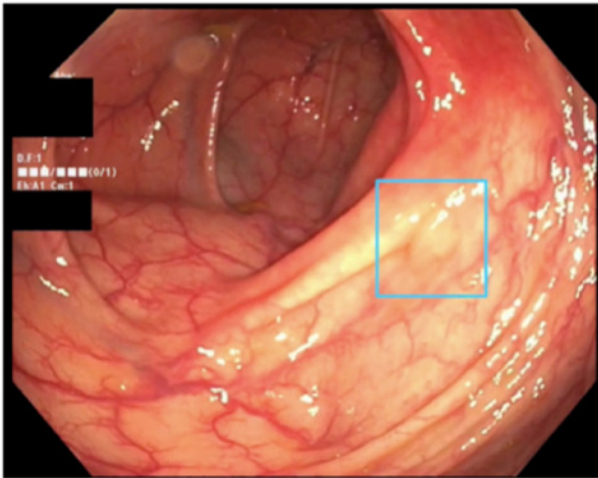
5 U.S.-based academic and community centers



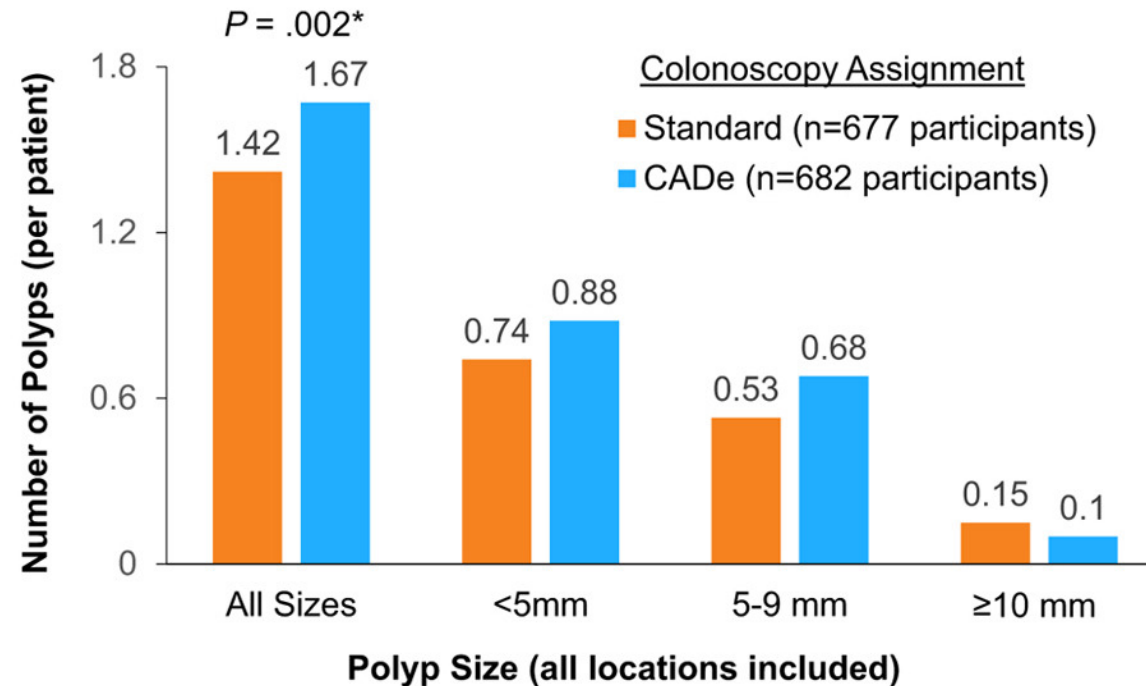
22 experienced endoscopists

↑ 27%

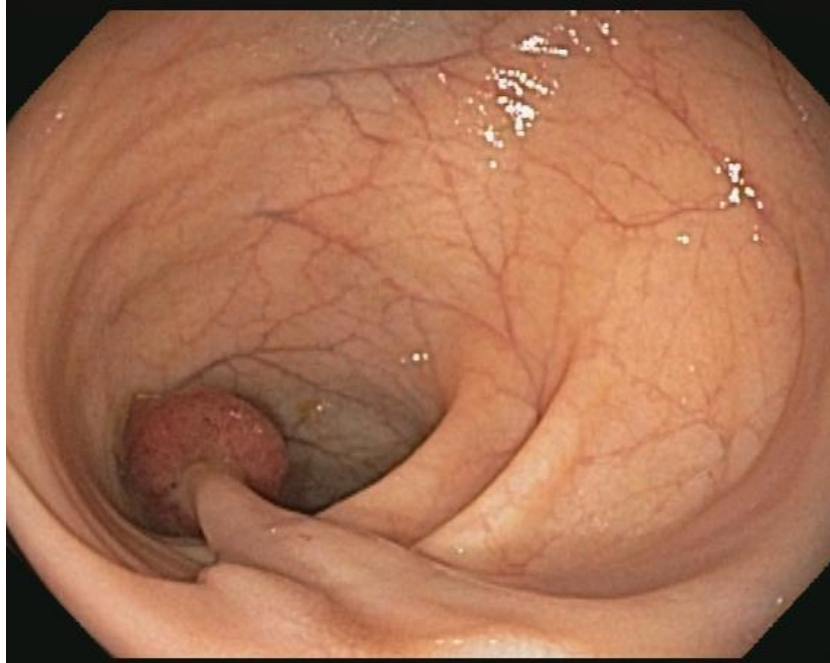
in adenomas per colonoscopy



Detection of a 4-mm adenoma in the hepatic flexure by the computer-aided detection (CADe) device



Changing Landscape



- Make a commitment to quality
- Measure and track your Quality metrics
- Excellent Prep quality
- Careful segmental inspection
- Proper resection technique
- Think beyond ADR

Multifaceted Interventions are Needed



Educational interventions

Technique



Report cards and feedback

High-quality colonoscopy

Technology



Video recording / feedback
AI

Interventions to improve adenoma detection rates for colonoscopy

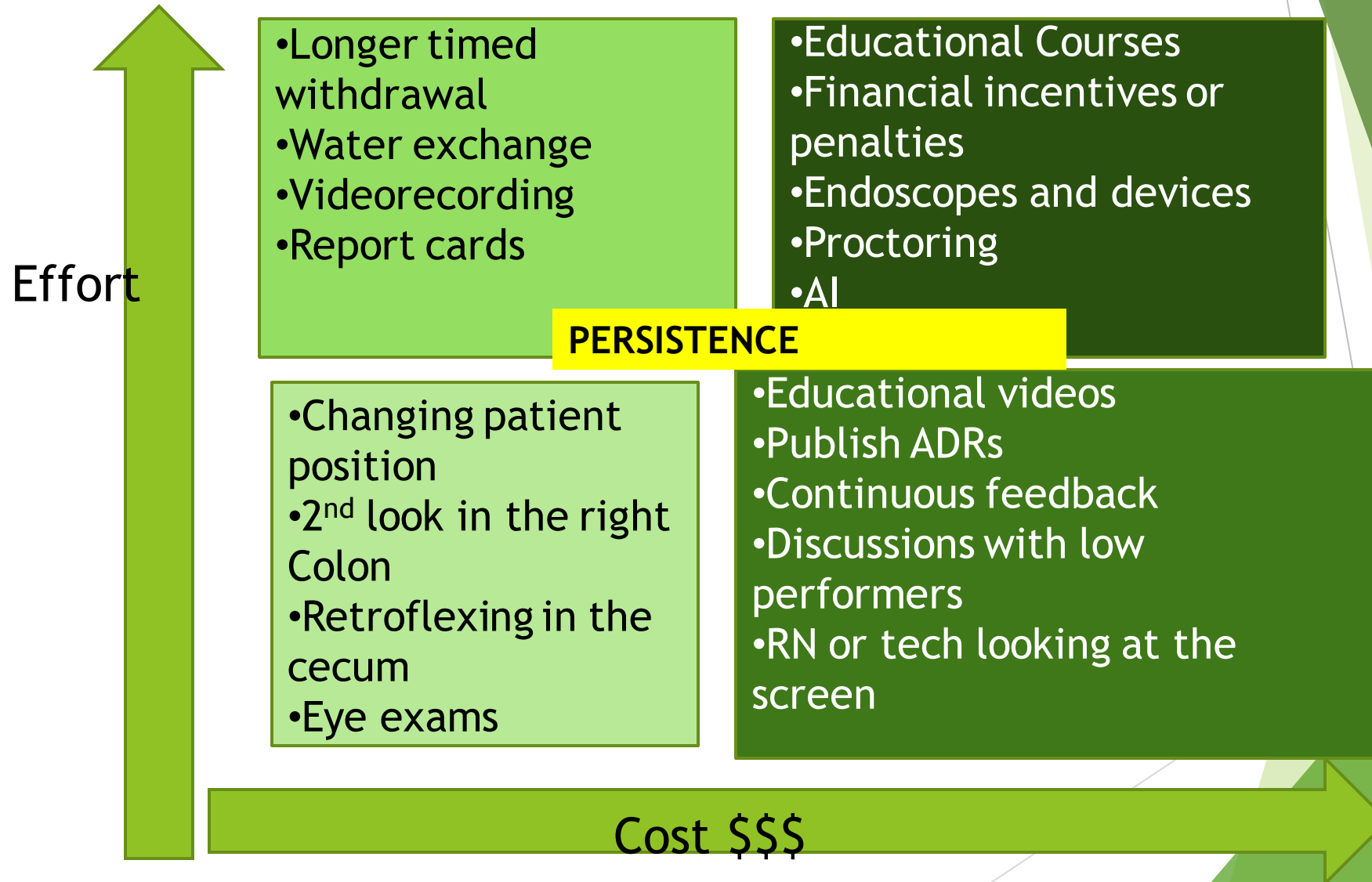
Aasma Shaukat, MD, MPH,¹ Anne Tuskey, MD,² Vijaya L. Rao, MD,³ Jason A. Dominitz, MD, MHS,⁴ M. Hassan Murad, MD,⁵ Rajesh N. Keswani, MD, MS,⁶ Fateh Bazerbachi, MD,⁷ Lukejohn W. Day, MD,⁸ (ASGE Quality Assurance in Endoscopy Committee Chair)

GIE 2022;96:171-188

TABLE 1. Summary on interventions to improve ADR

Intervention	Compared with	Absolute increase in adenoma detection	Comments
<i>Technique</i>			
Water assistance	CO ₂ /air insufflation	6% water immersion 10% for water exchange	Water exchange increases insertion time but withdrawal time same as other techniques
Lengthening withdrawal time	<6 min	9% for 9-min WT compared with 6 min	Evidence supports emphasizing training in withdrawal technique rather than time
Retroflexion in cecum	No retroflexion	17% for right-sided adenomas	Overall success rate 91%, adverse vents .03%
Second look, either retroflexion in the cecum or second forward look in the proximal colon	Single forward look	10% for all adenomas, 5% for right-sided adenomas	Second forward look improves adenoma detection; no difference in retroflexed or straightforward second look
Dynamic change in patient position	No change in position	7%	Adequate distention during position changes is key, particularly with excellent preparation
<i>Technology</i>			
Distal attachment devices	Standard colonoscopy	5%-11%	May reduce procedure time
Enhanced imaging technology (narrow-band imaging, i-SCAN, linked-color imaging, blue-laser imaging, chromoendoscopy, and Methylene Blue-MMX (Cosmo Pharmaceuticals, Dublin, Ireland))	Standard or high definition white-light colonoscopy	5% to 18% absolute improvement in adenoma detection	Narrow-band imaging with 190 colonoscopes is superior to white-light colonoscopy
Computer aided detection technologies	Standard colonoscopy	10%-12% in adenoma, .2 in adenoma per colonoscopy	Added benefit of polyp histology recognition

Tools to Improve ADRs





Future of Colonoscopy Practice



AI enabled

Automated Reporting

taskcentre[®]

BUSINESS PROCESS MANAGEMENT SUITE

REFRESH

Schedule Status	Value	Task by Resource
Completed	48.00	John's Colonoscopy
In Progress	12.00	John's Colonoscopy
Not Started	10.00	John's Colonoscopy
Completed	15.00	John's Colonoscopy
In Progress	8.00	John's Colonoscopy
Not Started	20.00	John's Colonoscopy
Completed	18.00	John's Colonoscopy
In Progress	14.00	John's Colonoscopy
Not Started	16.00	John's Colonoscopy
Completed	11.00	John's Colonoscopy
In Progress	9.00	John's Colonoscopy
Not Started	13.00	John's Colonoscopy
Completed	17.00	John's Colonoscopy
In Progress	10.00	John's Colonoscopy
Not Started	14.00	John's Colonoscopy
Completed	12.00	John's Colonoscopy
In Progress	11.00	John's Colonoscopy
Not Started	15.00	John's Colonoscopy
Completed	13.00	John's Colonoscopy
In Progress	16.00	John's Colonoscopy
Not Started	10.00	John's Colonoscopy

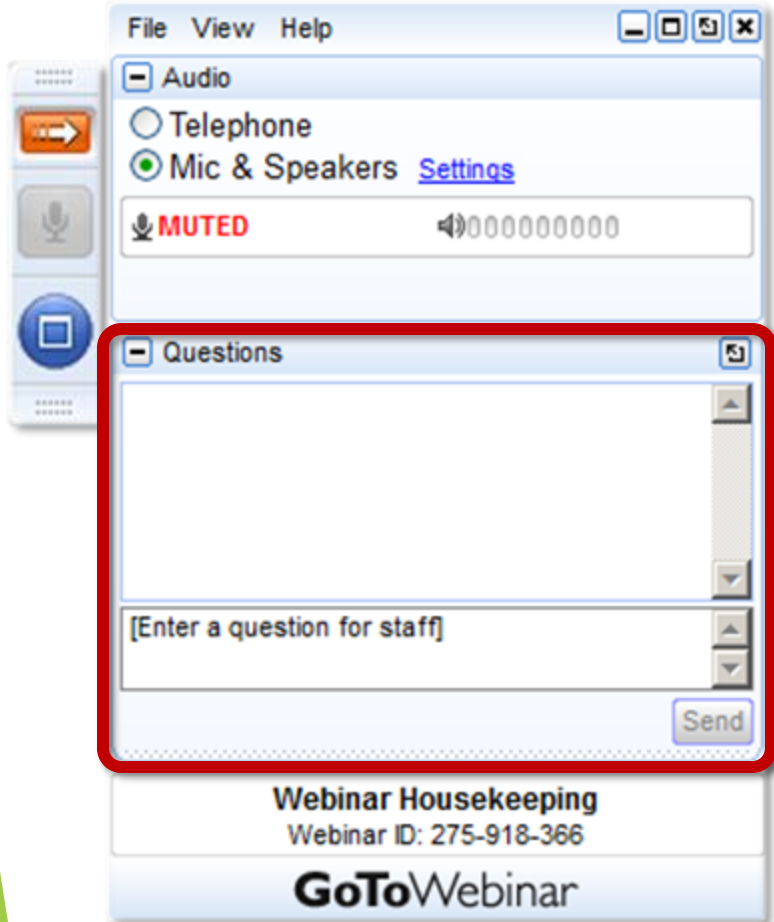
Entry into a registry, benchmarking, Payors



Summary

- ▶ ADR is a valid quality metric that should be tracked and can be improved
- ▶ Good technique is essential
 - ▶ Careful segmental inspection
 - ▶ Look behind folds
 - ▶ Segmental and timed withdrawal
 - ▶ Look for flat lesions
 - ▶ Water exchange
- ▶ Technology can help but is no substitute
- ▶ Educational programs can help but effort and cost involved

Questions



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- Today's presentation is being recorded and will be posted on the GIQuIC Registry Support Site (ZenDesk) under "GIQuIC Registry Resources"

GI Society Resources

Visit www.asge.org to:

- ▶ Download open access documents via the ASGE Guidelines page
Pro Tip: Scroll down to the Quality section
- ▶ Learn more about performance improvement through ASGE masterclasses, dedicated Quality courses, and STAR certificate programs
- ▶ Visit the Education Event Calendar to register for an event and visit GI Leap for on-demand courses
- ▶ View the ASGE Video Tip of the Week delivered via its weekly member e-newsletter SCOPE
- ▶ Learn more about the ASGE Endoscopy Unit Recognition Program - spanning from education to recognition, earn the ASGE Quality Star through application to EURP

Visit www.gi.org to:

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- ▶ Read *The American Journal of Gastroenterology* which publishes high-quality, clinically relevant articles that directly affect patient care and is home to the ACG Clinical Guidelines
- ▶ Gain unlimited free CME each year through ACG's online learning platform, the ACG Education Universe
- ▶ Visit the ACG Toolbox for a variety of articles written by practicing gastroenterologists to help improve the quality of your practice and the care you provide to patients
- ▶ Check out the ACG Blog for a snapshot of the association's upcoming and most recent offerings

Where to Go to Ask a Question

- Submit a question/request
 - Click on your username in the upper right corner of the registry
 - Click **ARMUS Support**
 - This will take you to the support website, ZenDesk
 - Click **Submit a Request** in the upper right corner
 - Click **GIQuIC Request Form**
 - Follow the prompts to submit your question
 - Be sure to include your site ID(s) within the request
- Email armus.support@healthcatalyst.com