

# **Polypectomy Pearls**

## **Combined Small Group Discussions**

### **Endoscopy Skills Day 2025**

**Nauzer Forbes, MD, MSc, FRCPC, FASGE**  
Advanced Endoscopy Lead, Calgary Zone  
Associate Professor of Medicine  
University of Calgary



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# Objectives

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At the end of this session, the participant will be equipped to:

- determine if endoscopic removal is possible based on polyp characteristics
- recognize when a case should be sent to an advanced endoscopist or surgeon
- determine the risk of submucosal invasive cancer in a given lesion
- have improved knowledge of lifting and tattooing techniques
- determine snare placement and closure speeds by polyp type
- effectively assess and treat residual tissue
- recognize and manage complications seen at polypectomy (Sydney classification)



# CanMEDS Roles Fulfilled

X	<b>Medical Expert</b> (as <i>Medical Experts</i> , physicians integrate all of the CanMEDS Roles, applying medical knowledge, clinical skills, and professional values in their provision of high-quality and safe patient-centered care. <i>Medical Expert</i> is the central physician Role in the CanMEDS Framework and defines the physician's clinical scope of practice.)
X	<b>Communicator</b> (as <i>Communicators</i> , physicians form relationships with patients and their families that facilitate the gathering and sharing of essential information for effective health care.)
X	<b>Collaborator</b> (as <i>Collaborators</i> , physicians work effectively with other health care professionals to provide safe, high-quality, patient-centred care.)
	<b>Leader</b> (as <i>Leaders</i> , physicians engage with others to contribute to a vision of a high-quality health care system and take responsibility for the delivery of excellent patient care through their activities as clinicians, administrators, scholars, or teachers.)
X	<b>Health Advocate</b> (as <i>Health Advocates</i> , physicians contribute their expertise and influence as they work with communities or patient populations to improve health. They work with those they serve to determine and understand needs, speak on behalf of others when required, and support the mobilization of resources to effect change.)
X	<b>Scholar</b> (as <i>Scholars</i> , physicians demonstrate a lifelong commitment to excellence in practice through continuous learning and by teaching others, evaluating evidence, and contributing to scholarship.)
	<b>Professional</b> (as <i>Professionals</i> , physicians are committed to the health and well-being of individual patients and society through ethical practice, high personal standards of behaviour, accountability to the profession and society, physician-led regulation, and maintenance of personal health.)



# Endo Skills 2025 – Disclosure of Commercial Support

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- Endo Skills is presented by the Alberta Society for Endoscopic Practice (ASEP)
- ASEP: not for profit organization, whose goal is to provide education, resources and collaboration for endoscopists and their teams
- Endo Skills planning is independent from the exhibitors
- ASEP covers expenses of speakers and provides gift+/- small honorarium to speakers and planning committee



# Endo Skills 2025 – Managing Sources of Potential Conflict

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- Endo Skills Planning Committee: oversees the program's content development to ensure accuracy and balance.
- Information and recommendations are evidence and/or guidelines-based, and opinions of the independent speakers will be identified as such.
- Program developed in accordance to ethical standards meeting Cert+ guidelines.



# Personal Disclosures (Past 36 Months)

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- **Personal Fees:**

- Pentax Medical (speaker's fees, consultancy fees)
- Boston Scientific (speaker's fees, consultancy fees)
- AstraZeneca (consultancy fees)

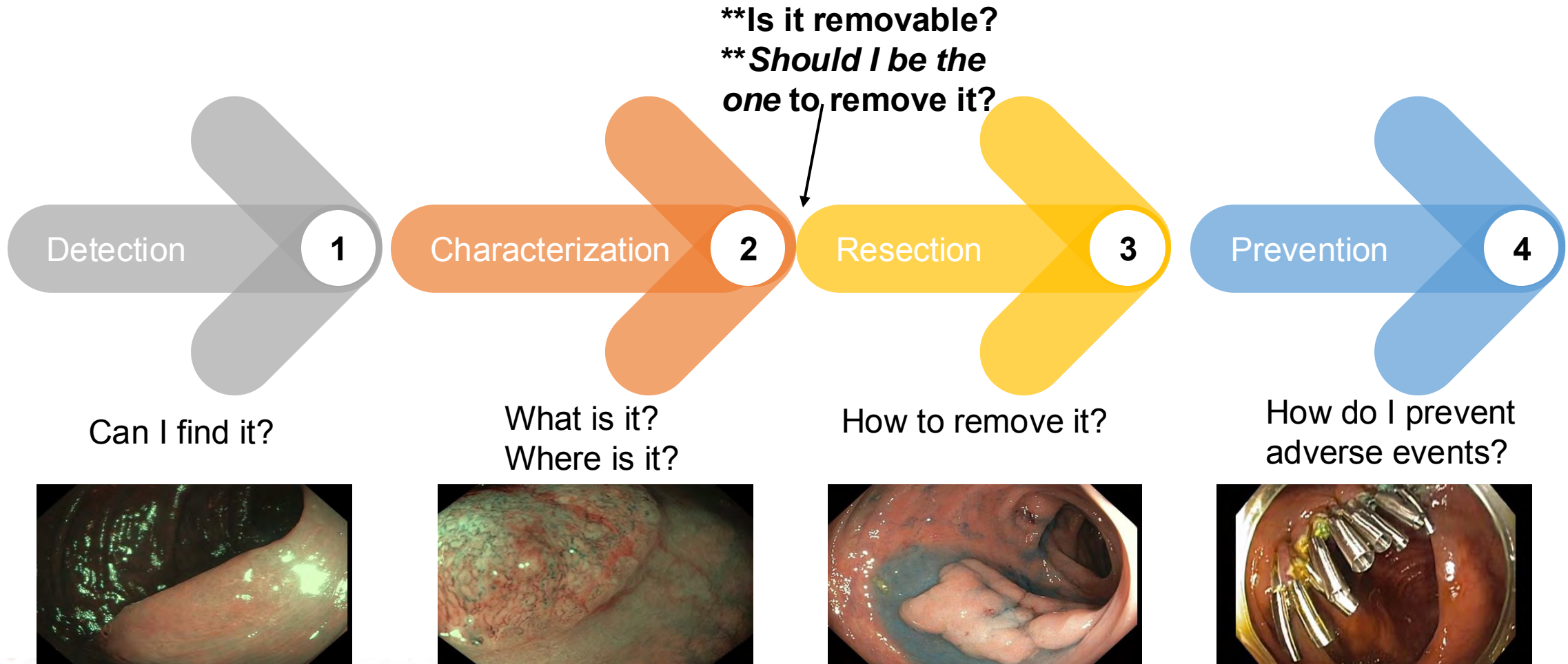
- **Research Funding:**

- Canadian Institutes of Health Research (CIHR)
- American Society for Gastrointestinal Endoscopy (ASGE)
- AHS Digestive Health Strategic Clinical Network (DHSCN)





# Overall Approach to Polypectomy



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# POLYP DETECTION



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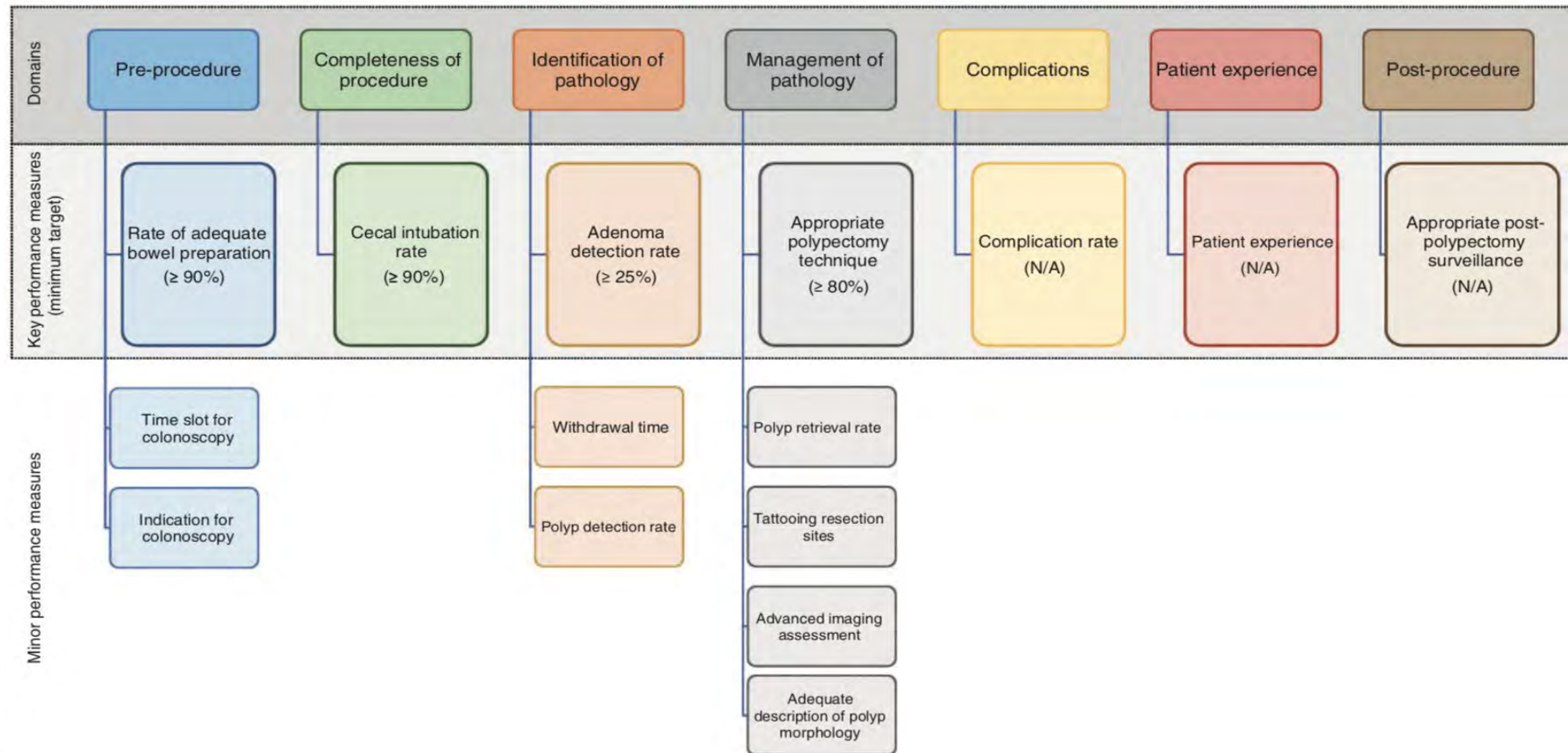
# Polyp detection starts with the prep!

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- Teaching – verbal, written – predicts success
  - Wide variety of bowel preparations available
- Accurate reporting of bowel preparation
  - Inadequate prep associated with high miss rates (15-40%)
  - ~1/3 of 'interval colon cancer' cases had suboptimal bowel preparation
- Be clear when 'high quality' colonoscopy achieved
- Early interval repeat colonoscopy for suboptimal preparation
  - Individualized according to risk

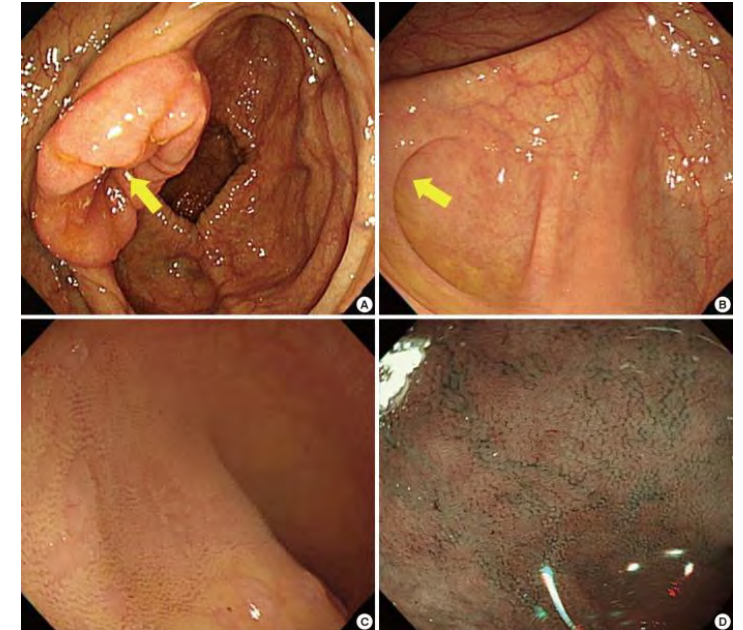


# Colonoscopy Quality Indicators



# Cecal Intubation Rate – Aspirational Target **>95%**

- CIR is a surrogate measure of procedural completion
- Low CIR leads to:
  - missed diagnoses
  - failure to prevent CRC
  - increased cost (repeat procedures, alternatives)
- CIR < 80% correlates with higher proximal and distal interval CRC
- Challenges:
  - Bowel preparation typically worse in right side
  - Right sided polyps often more subtle and more aggressive in behavior



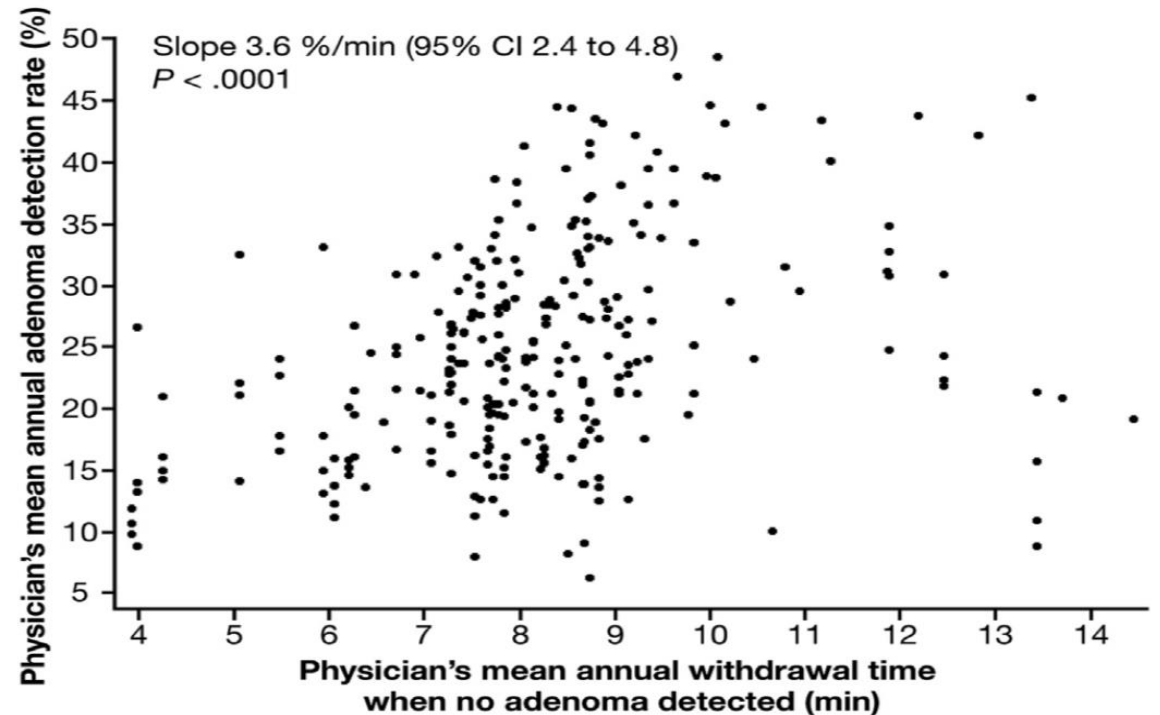
Armstrong D *et al.* Can J Gastroenterol 2012  
Rex DK *et al.* Am J Gastroenterol 2015  
Rees CJ *et al.* Gut 2016  
Kaminski MF *et al.* Endoscopy 2017



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# Withdrawal Time – New Target **>8 MINUTES**

- Longer withdrawal time = associated with increased neoplasia detection
- 3.6% ADR increase per minute of withdrawal
- Also a decrease in interval cancers shown with longer withdrawals
- Withdrawal times  $\geq 6$  mins increase ADR



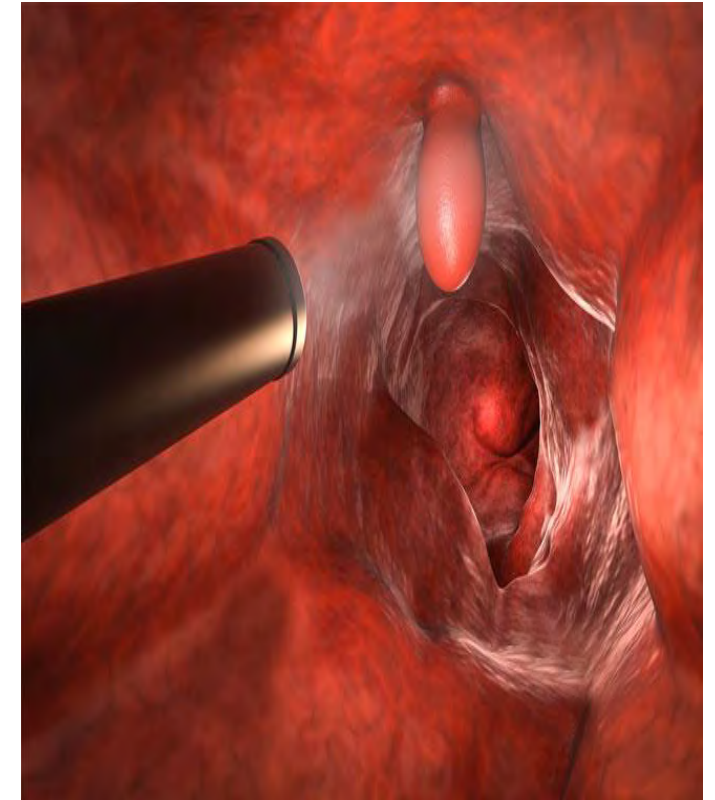
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Rex DK *et al.* *Gastrointest Endosc* 2024  
Shaukat A *et al.* *Gastroenterology* 2015  
Lee RH *et al.* *Gastrointest Endosc* 2011  
Rex DK *et al.* *Gastrointest Endosc* 2000  
Barclay RL *et al.* *N Eng J Med* 2006

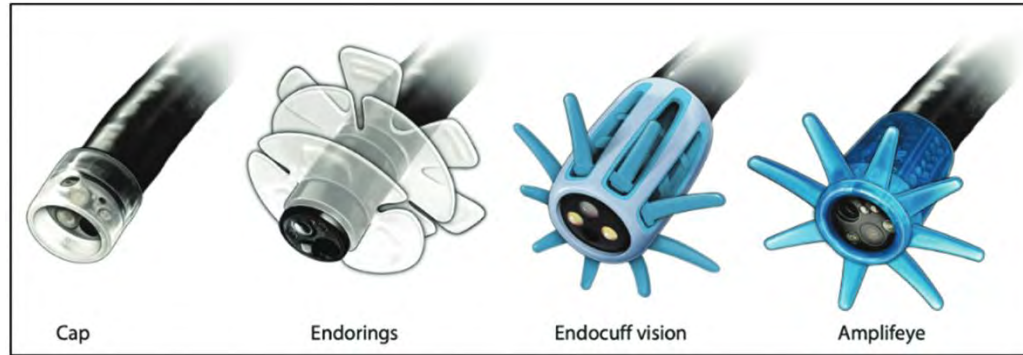


# ADR – New Targets **>35% (non-FIT) and >50% (FIT)**

- ADR = proportion of colonoscopies performed during which one or more adenoma is identified
  - Adenomas are major precursor lesions for CRC
  - Correlates well with PDR (polyp detection rate)
- ADR inversely proportional to interval cancer rates
  - 1% increase in ADR predicts 3% decrease in interval CRC
- Setting ADR threshold is challenging
  - Different patient populations
- SSADR target >6%



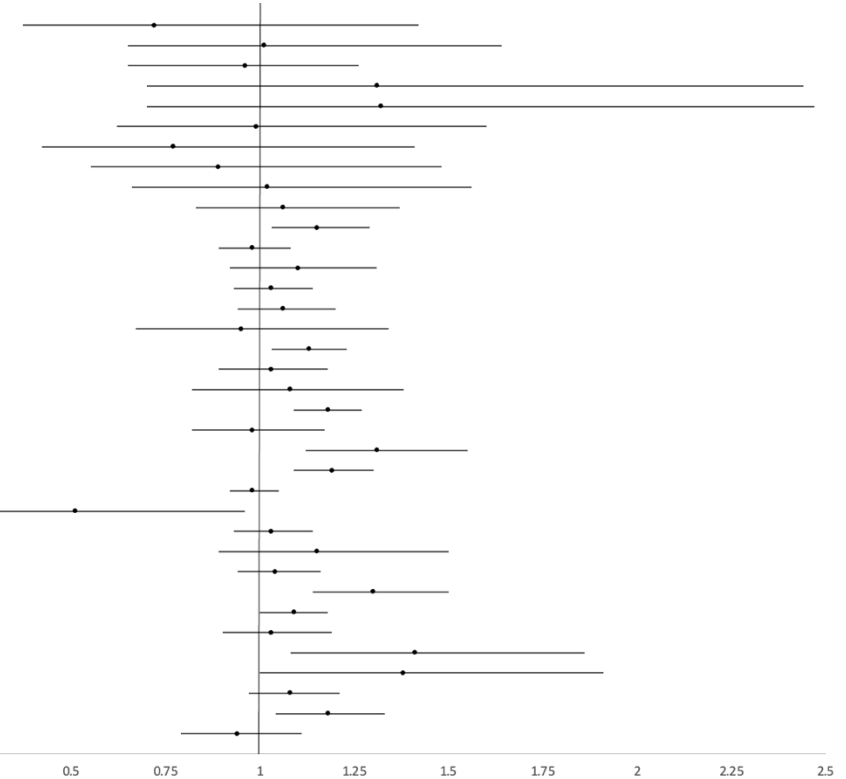
# Optimizing Polyp Detection



Outcomes	No of participants (studies)	Certainty of the evidence (GRADE)	Relative effect (95% CI)
Adenoma detection rate (ADR)	33,184 (12 observational studies)	LOW	RR 1.21 (1.09 to 1.34)
Polyp detection rate (PDR)	6,432 (5 observational studies)	LOW	RR 1.27 (1.11 to 1.45)
Proximal adenoma detection rate (PADR)	2,206 (2 observational studies)	VERY LOW	RR 1.15 (0.82 to 1.61)
Advanced neoplasia detection rate (ANDR)	7,155 (5 observational studies)	VERY LOW	RR 1.08 (0.90 to 1.2)
Withdrawal time (WT)	12,835 (4 observational studies)	VERY LOW	RR 1 (0.99 to 1)
Cecal intubation rate (CIR)	9,891 (4 observational studies)	LOW	RR 1 (0.99 to 1)

© ASGE / GIE

- Bisacodyl
- Low dose-PEG
- Low fibre diet
- Sulfate free-PEG
- Low fibre diet and sulfate free-PEG
- Patient education
- Single dose-PEG
- Simethicone
- Sulfate based-PEG
- Abdominal compression device
- Dual observer
- Inspection on insertion
- Positional change
- Second forward view
- Segmental timed withdrawal
- Short withdrawal time
- Water exchange
- Water immersion
- BLI
- CADe
- FICE
- iScan
- LCI
- NBI
- Ultrathin colonoscope
- Wide-angle colonoscope
- AmplifEYE
- Cap-assisted colonoscopy
- Endocuff vision 1
- Endocuff vision 2
- EndoRings
- G-EYE
- WingCap
- Indigo carmine
- Oral methylene blue
- Menthol



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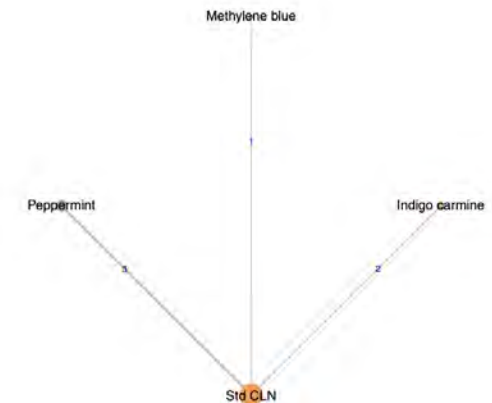
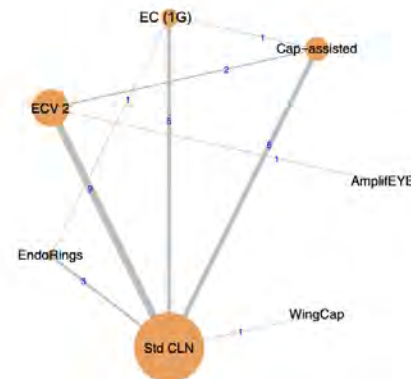
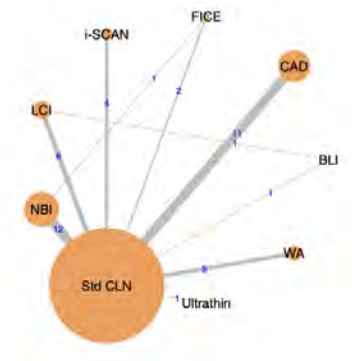
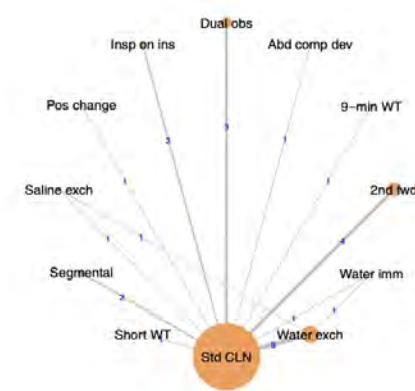
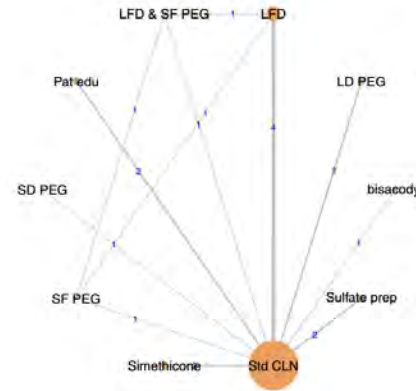
Bishay K *et al.* ... Forbes N. *Gastrointest Endosc* 2020  
 Samnani S *et al.* ... Forbes N. *Exp Rev Gastroenterol Hepatol* 2023  
 Khan R *et al.* ... Forbes N. *Gastroenterology* 2024



# Interventions to Improve Adenoma Detection

## 9 interventions that significantly improve ADR:

- 9-minute withdrawal time
- dual observation
- water exchange
- i-SCAN [Pentax]
- linked color imaging [Fujifilm]
- Narrow band imaging [Olympus]
  - only improve SSL detection
- computer-aided detection [various platforms]
- Endocuff Vision [Olympus]
- oral methylene blue



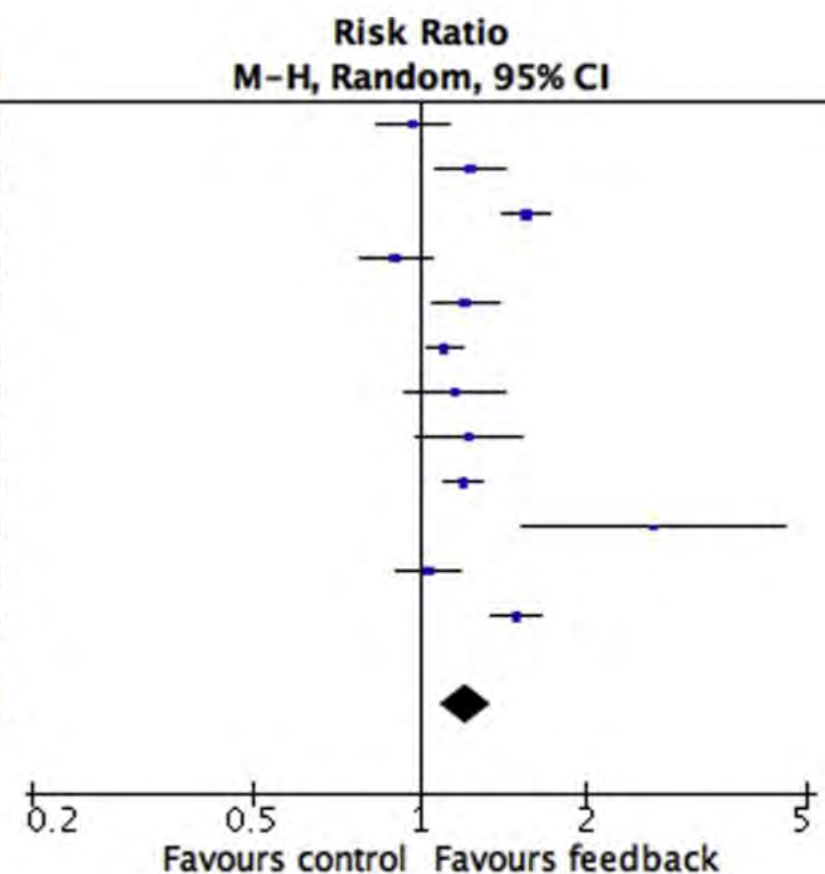
# Measuring Performance

Study or Subgroup	Feedback		Control		Weight	Risk Ratio
	Events	Total	Events	Total		M-H, Random, 95% CI
Coe 2013	238	680	215	598	8.7%	0.97 [0.84, 1.13]
Gurudu 2017	398	1057	169	555	8.7%	1.24 [1.07, 1.43]
Hewett 2011	1491	3460	362	1310	9.7%	1.56 [1.42, 1.72]
Inra 2017	241	996	265	991	8.6%	0.90 [0.78, 1.05]
Kahi 2013	319	592	150	336	8.8%	1.21 [1.05, 1.39]
Keswani 2015	2111	6811	684	2444	10.0%	1.11 [1.03, 1.19]
Lin 2010	123	541	167	850	7.4%	1.16 [0.94, 1.42]
Mellen 2010	146	343	75	217	7.1%	1.23 [0.99, 1.54]
Nayor 2018	502	1296	1856	5750	9.9%	1.20 [1.11, 1.30]
Nielsen 2017	39	105	14	100	2.7%	2.65 [1.54, 4.58]
Rein 2011	216	670	476	1536	9.0%	1.04 [0.91, 1.19]
Sey 2017	421	813	391	1133	9.5%	1.50 [1.35, 1.67]
<b>Total (95% CI)</b>		<b>17364</b>	<b>15820</b>	<b>100.0%</b>		<b>1.21 [1.09, 1.34]</b>

Total events 6245 4824

Heterogeneity:  $\tau^2 = 0.03$ ;  $\chi^2 = 84.96$ ,  $df = 11$  ( $P < 0.00001$ );  $I^2 = 87\%$

Test for overall effect:  $Z = 3.59$  ( $P = 0.0003$ )



**ADR 30.5% → 36.0%**



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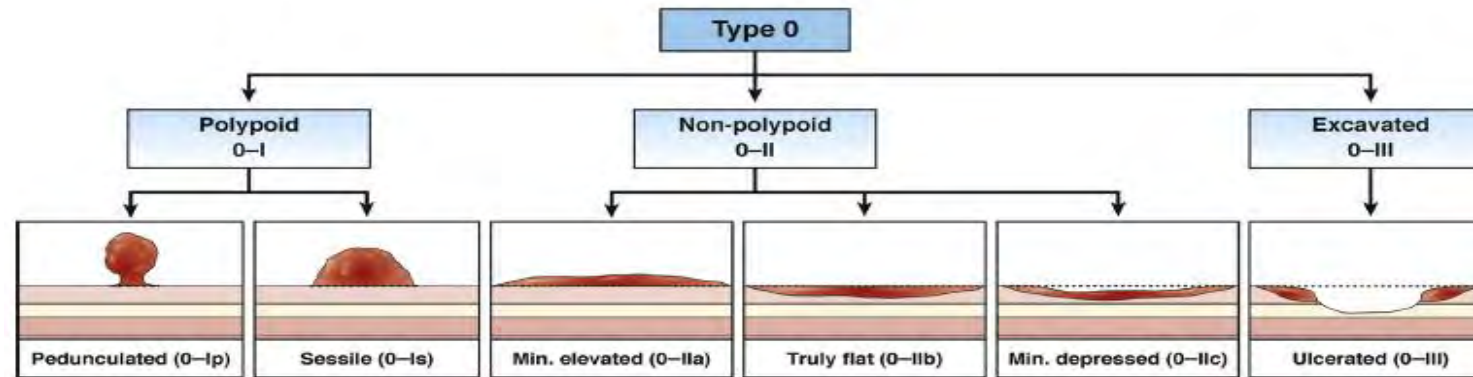
# POLYP CHARACTERIZATION



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# Polyp Evaluation and Characterization - Paris

- Location; size; morphology; pit pattern



**Risk of  
SMI**





# Polyp Evaluation and Characterization - Kudo

I		Round pit (normal pit)		<p>~0%</p> <p>Risk of SMI</p> <p>~56%</p>
II		Asteroid pit		
III <sub>s</sub>		Tubular or round pit that is smaller than the normal pit (type I)		
III <sub>L</sub>		Tubular or round pit that is larger than the normal pit (type I)		
IV		Dendritic or gyrus-like pit		
V <sub>I</sub>		Irregular arrangement and sizes of III <sub>L</sub> , III <sub>s</sub> , IV type pit pattern		
V <sub>N</sub>		Loss or decrease of pits with an amorphous structure		

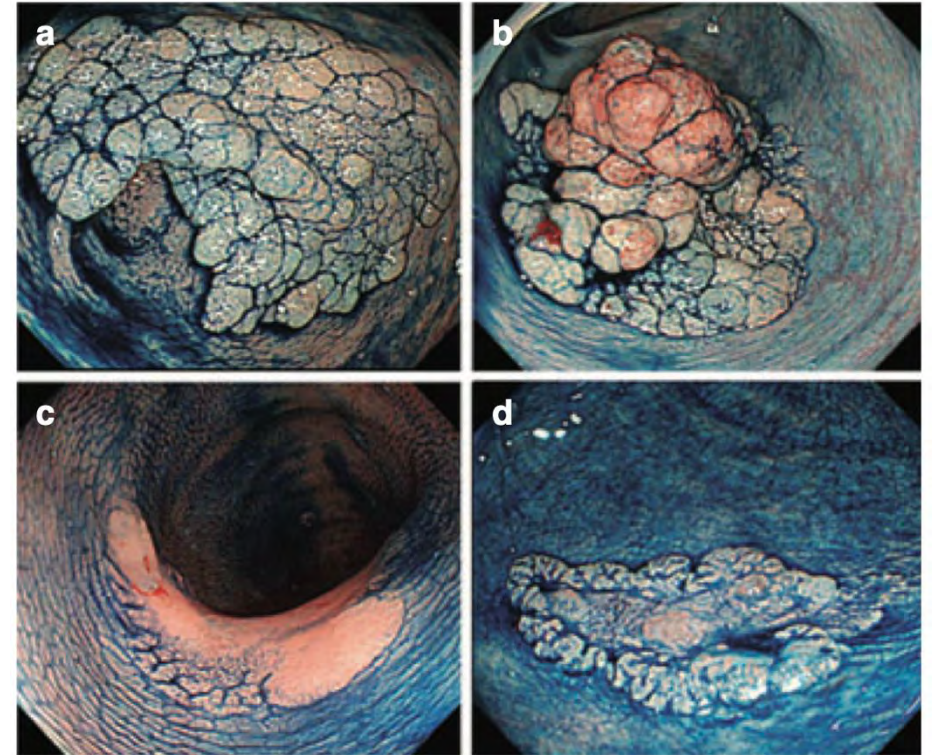


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Kudo S *et al.*... Watanabe H. *Gastrointest Endosc* 1996  
Tanaka *et al.* *Gastrointest Endosc* 2006

# Predictors of Invasion/ Cancer

- Risk of polyp harbouring cancer increases with size
- Risk of adenoCA invading SM ~ 7% for polyps  $\geq 20$  mm
- Poor predictive features:
  - Paris classification 0-IIa+c morphology
  - Nongranular surface (LST-NG)
  - Kudo pit pattern type V





# Polyp Description/ Reporting

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1. Location
2. Size
3. Border
4. Shape/ Morphology (Paris)
5. Surface Pattern (Kudo)



# When to Remove vs. When to Refer?

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- Any of features discussed
  - May require ESD vs. surgery
- Larger polyps (> 30 mm?)
  - IRR/ recurrence risk increases with size
- Difficult location
  - Appendix
  - ICV
  - Anorectal junction
  - Behind fold, distal ascending



# When to Remove vs. When to Refer?

- Any of features discussed
  - May require ESD vs. surgery
- Larger
  - IRRM
- Difficult
  - App
  - ICV
  - Anorectal junction
  - Behind fold, distal ascending

**Anytime you're not 100% comfortable!**



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# POLYP RESECTION



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# Broad Categories of Polyp Resection

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- Main groups to consider:
  - Small (<10mm) lesions
  - Sessile or flat lesions measuring between 10 and ~20-30 mm\*\*
    - SSLs likely their own category here
  - Pedunculated lesions

**\*\*Patients with lesions greater than 20-30 mm should be referred depending on local policy, expertise, comfort, training and skill levels, etc.**



# Types of Colonic Polyp Resection



COLD SNARE



HOT SNARE



COLD SNARE  
EMR



HOT SNARE EMR



CAP EMR



UNDERWATER  
COLD SNARE



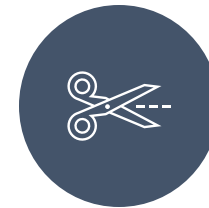
UNDERWATER  
EMR



PRECUT EMR



HYBRID ESD



ESD

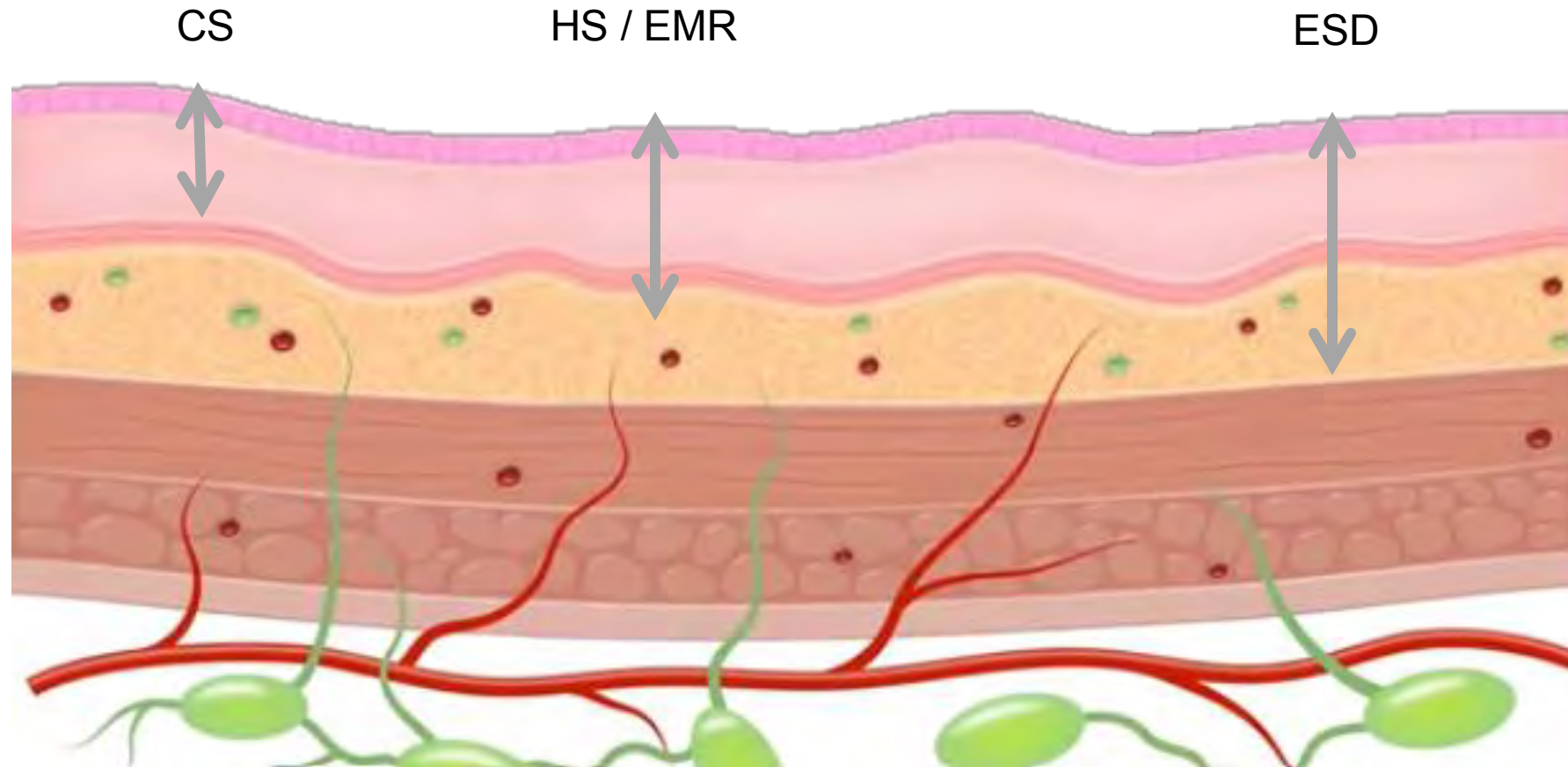


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Graphic courtesy of Dr. Charles Ménard, 2023

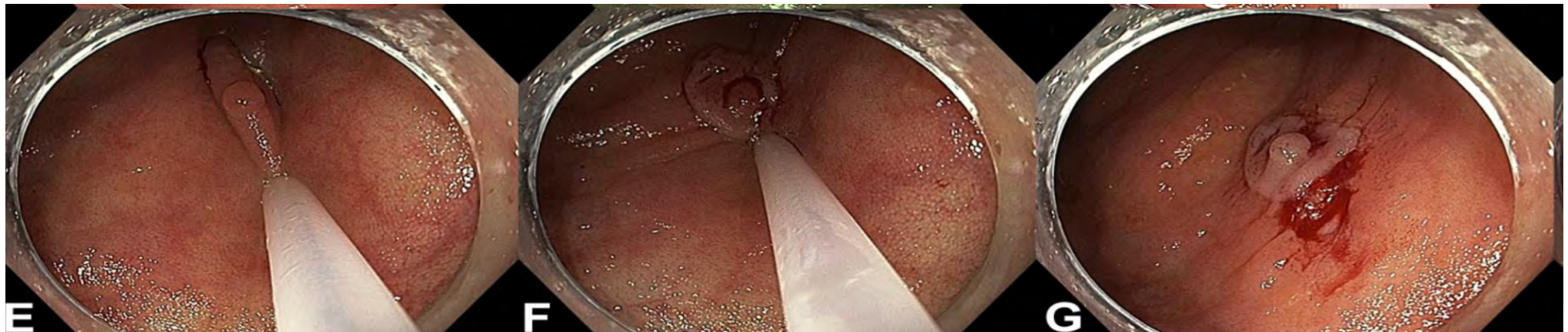
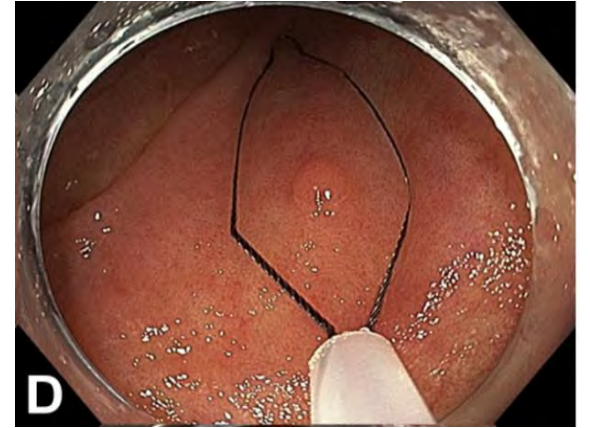


# Depth of Colonic Resection by Type



# Small Lesions = Cold Snare Polypectomy (CSP)

- Position at 5-6 o'clock
- Center lesion, get >2mm normal tissue margins
- Do not pull/tent mucosa up (suction)
- Hold snare closed until polyp off
- IRRIGATE the defect with saline





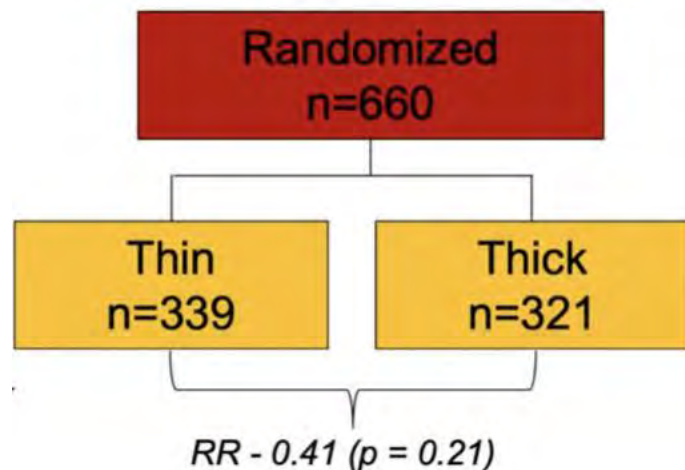
# CSP – Normal margins are key!

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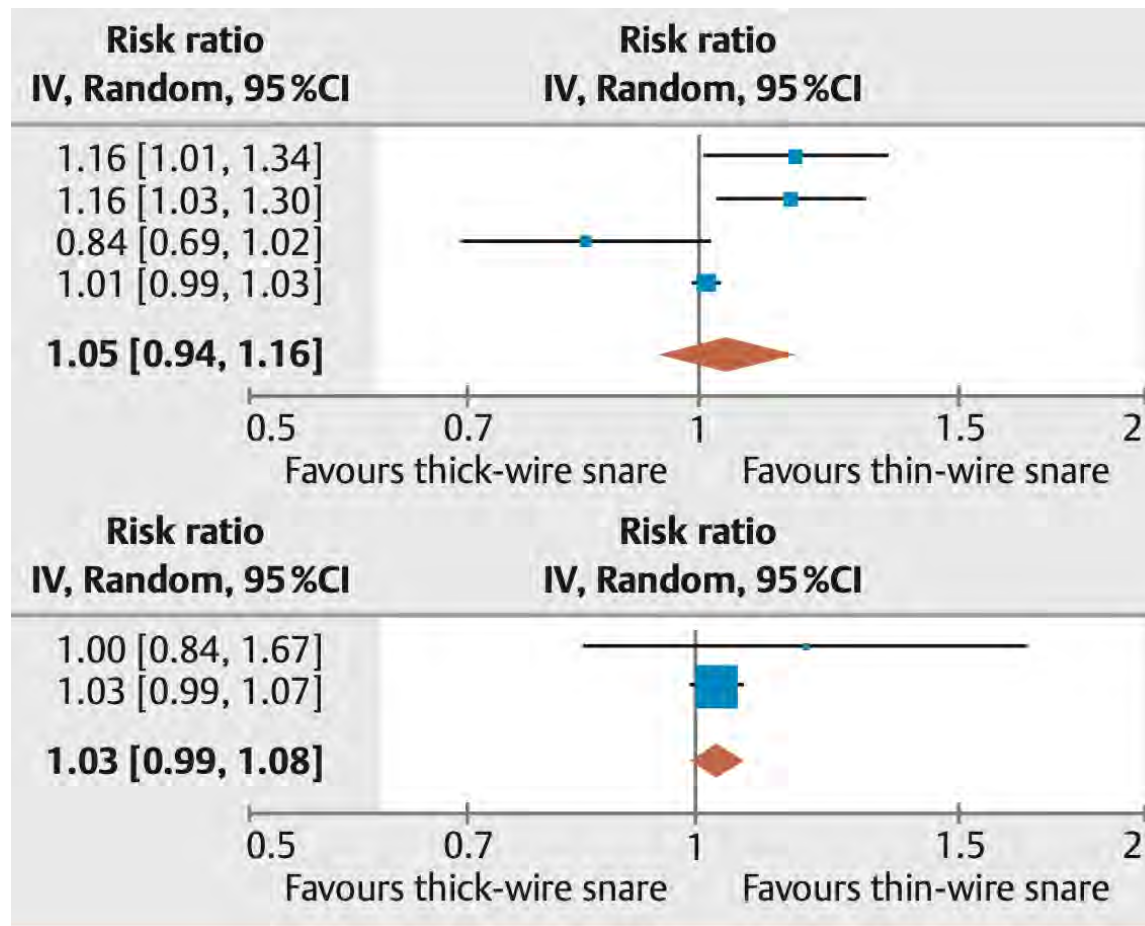


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# Snare Choice for CSP – Thick vs. Thin



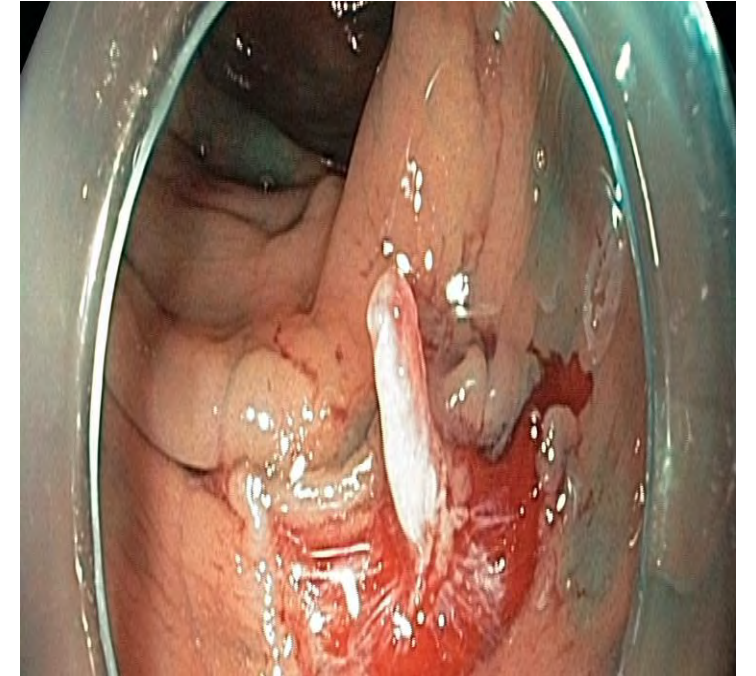
CSP for small colorectal polyps can achieve very low IRR, independent of snare design



# Forced CSP

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- If closed but not going through – may be too much tissue
- Open snare by ~1/3 and reposition
- Can attempt FCSP – snare slightly opened, pulled into scope channel – do not use excessive force\*\*
- Can expect protrusion
- Note that FCSP *is a risk factor for RRA*





# Forced CSP-related Perforation

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# CSP Pitfalls

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- Incomplete resection rate
- Residual/recurrent adenoma rate (RRA)
- Widely variable:
  - **2-3% all the way up to >25%**
- Why?
  - Identification: incomplete delineation of polyp margins
  - Technique: incomplete tissue capture/removal
  - Inspection post-resection: limited by immediate bleeding



# Intermediate Sized Lesions (Flat or Sessile)

- More and more evidence for 'piecemeal' CSP

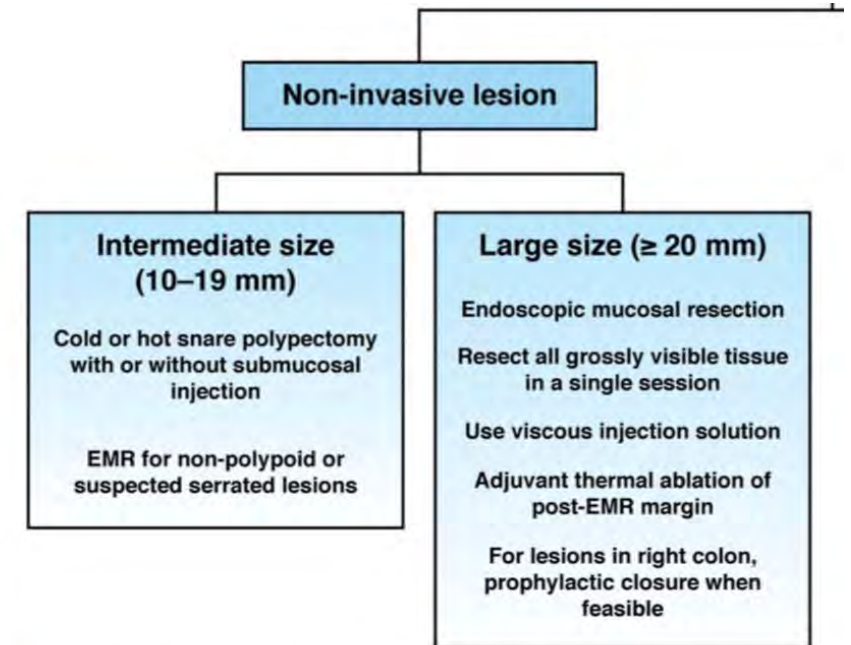
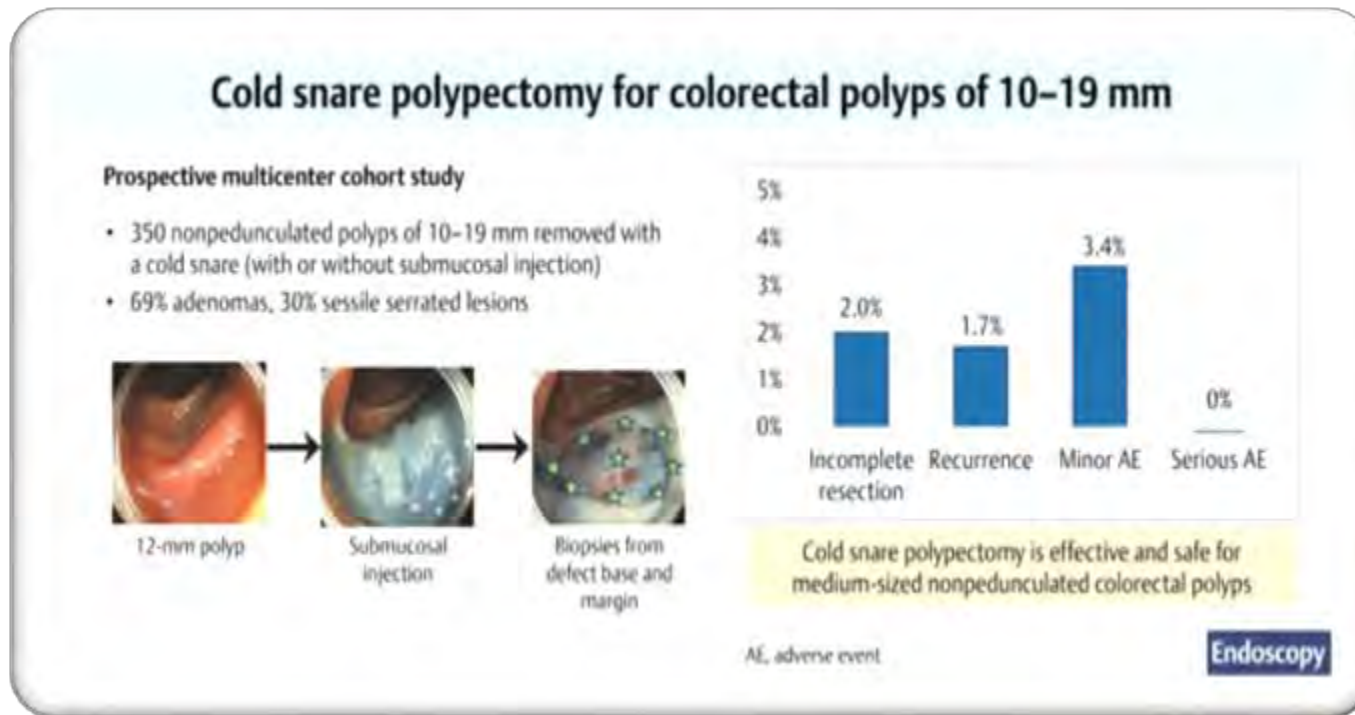
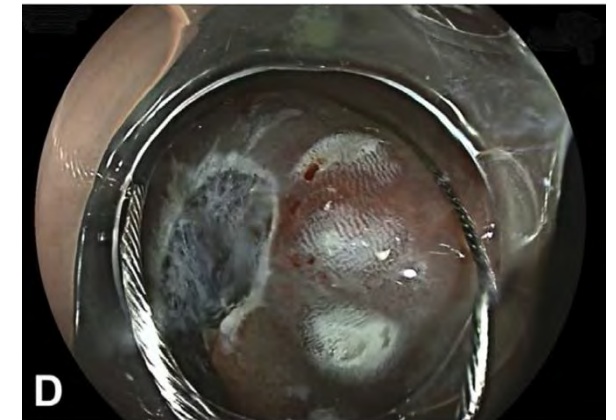


Figure 5. Algorithm for the management of colorectal lesions.



# Large Polyp Resection – Initial Steps

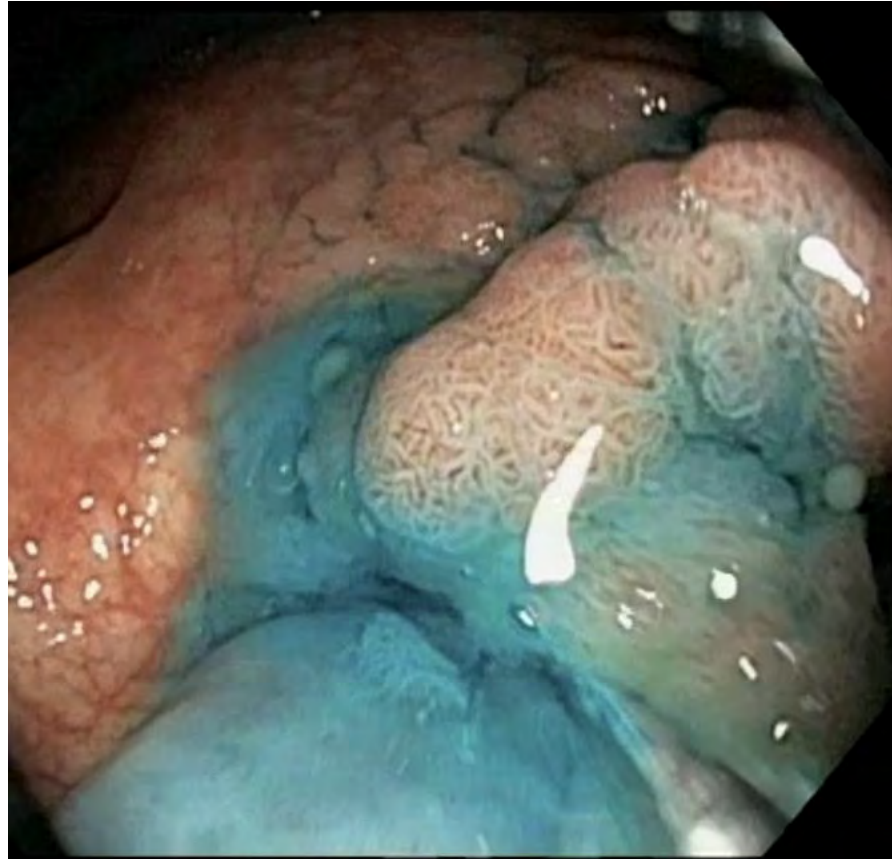
- Consider marking edges with cautery
  - Less recurrence at 6 months (8% vs. 29%)
- Choose your lifting agent
  - Saline-based
  - Hydroxypropyl methylcellulose (HPMC)
  - Hydroxyethyl starch (VOLUVEN®)
  - Eleview®
  - ORISE™\*\*
- Snare selection/ electrosurgical unit settings





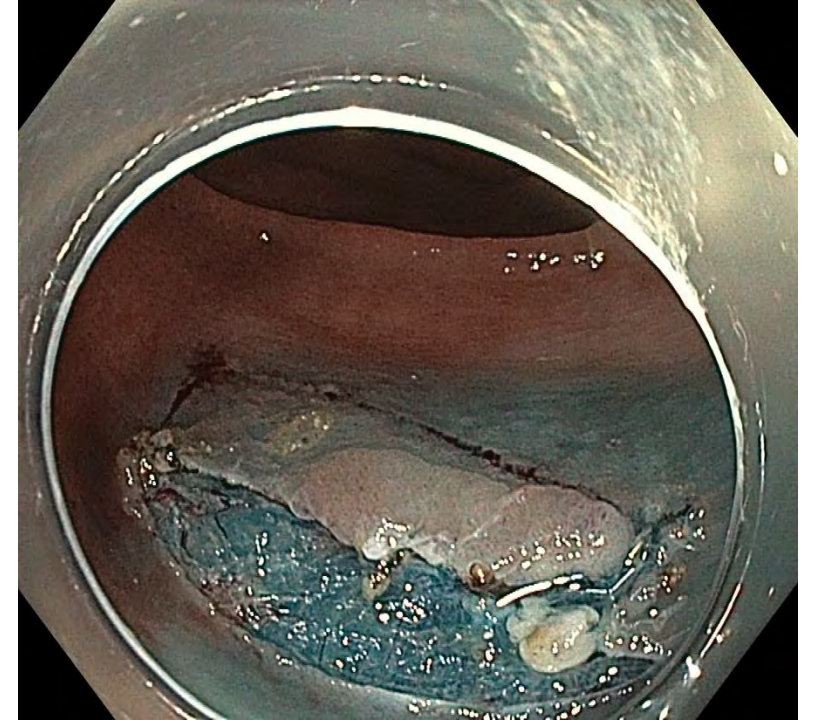
# Dynamic Injection and Initial Snare Placement

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# Hot Snare Polypectomy – Non-pedunculated Lesions

- Consider submucosal injection if  $> 15$  mm\*
- \*If sessile serrated lesion, can safely resect via piecemeal cold snare polypectomy even if  $>> 20$  mm
- Lay snare over lesion with as much normal margin as possible – then SUCTION gas as snare is closed to tension
- Use ***blended*** current on ECU – hold down\*\*





# Pedunculated Lesions < 10 mm

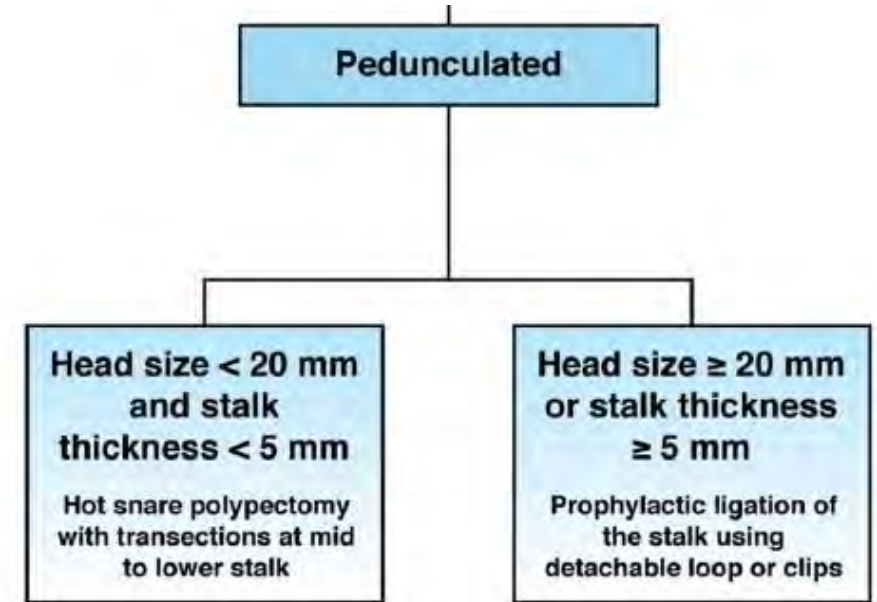
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- Can consider removal with CSP
- Observational study of 239 polyp
- Immediate bleeding observed in 30.1% of polyps
- 57% of these required intervention
- Zero cases of delayed bleeding or other AEs
- Similar results in other obs studies



# Pedunculated Lesions Greater than 10 mm

- Important considerations:
  - Complete resection of adenomatous portion
    - Inspection of lesion for demarcation of polyp portion
  - Mitigation of risk (bleeding)
    - Stalk houses vascular supply to polyp head
    - Immediate *and* delayed bleeding



# Pedunculated Polyps – Pre-treatment?

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- Which stalks warrant pre-treatment consideration?
  - Stalk diameter > 5mm
  - Polyp head > 20mm
  - Difficult positioning
  - Patient factors for increased bleeding – ASA, NSAIDs, renal disease, etc.
- Pre-treatment options are generally
  - Epinephrine
  - Mechanical (clips or detachable snare/loop)
    - Clips and loop similar but latter requires experience and communication



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# PREVENTION OF AEs



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# RRA - Post-resection Assessment and Adjunctive Therapy

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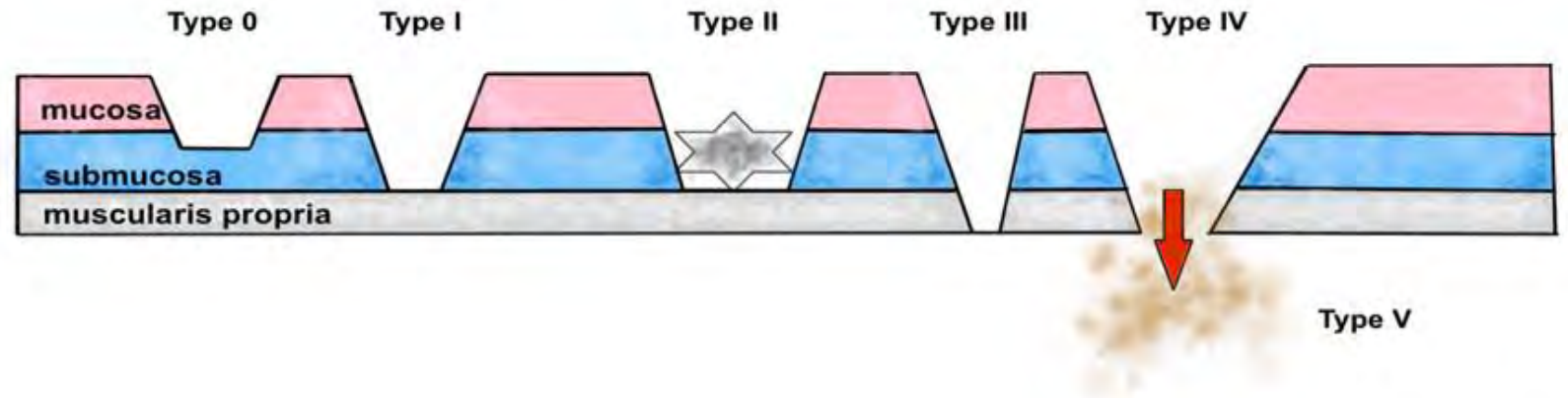
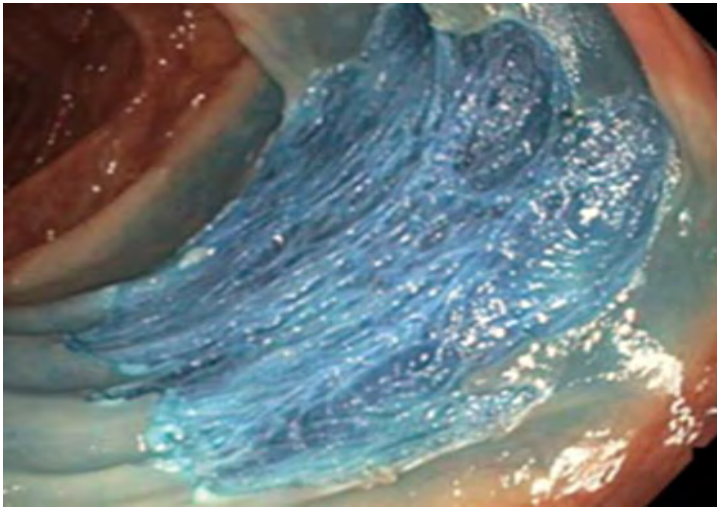
- Apply STSC to edges
- Soft coagulation, 80W
- RRA 3.6% vs. 36%





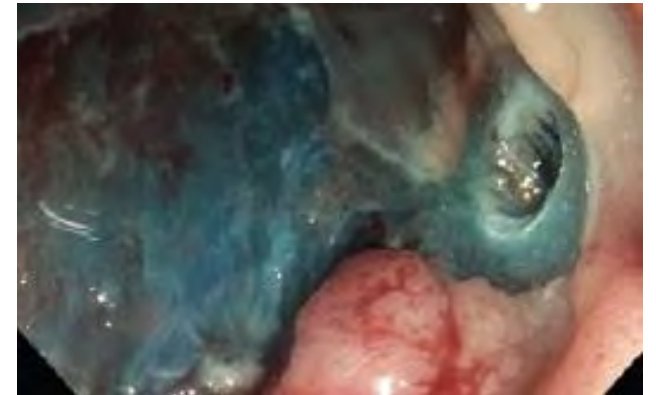
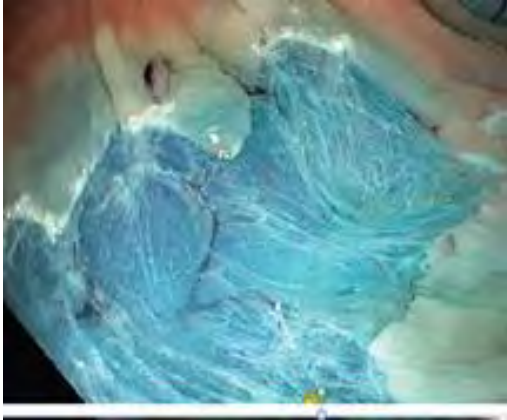
# DMI / Perforation - Post-resection Assessment (Sydney)

- Inspect
- Use water to expand
- Rule out DMI



# DMI / Perforation – Sydney Examples

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Burgess NG *et al.*... Bourke MJ. Gut 2017

# Bleeding - Prophylactic Clipping

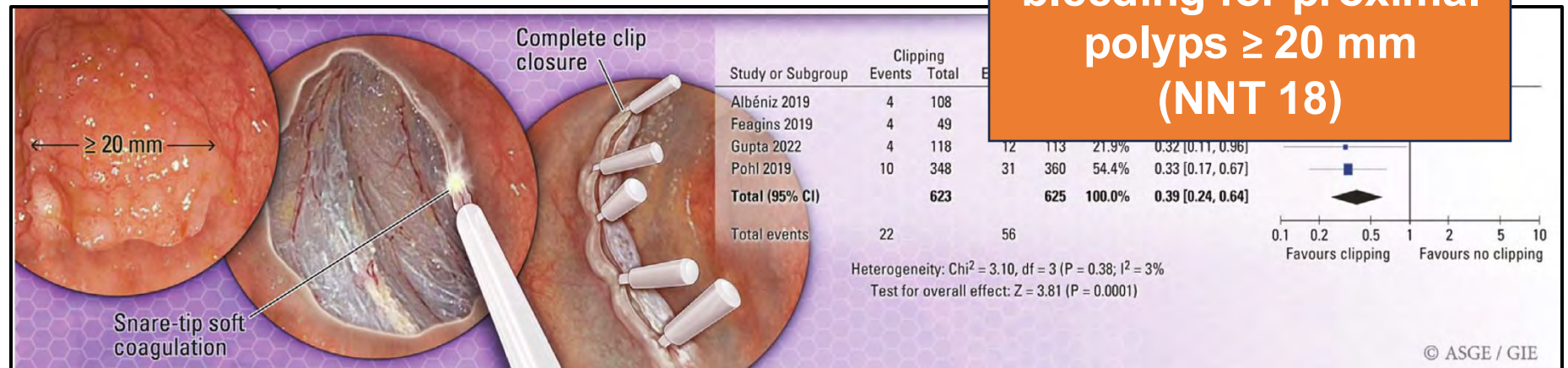
ARTICLE

*Open*

Prophylactic Endoscopic Clipping Does Not Prevent Delayed Postpolypectomy Bleeding in Routine Clinical Practice: A Propensity Score–Matched Cohort Study

**AOR 1.27 of delayed bleeding for all polyps (n > 8300)**

**OR 0.31 of delayed bleeding for proximal polyps  $\geq 20$  mm (NNT 18)**

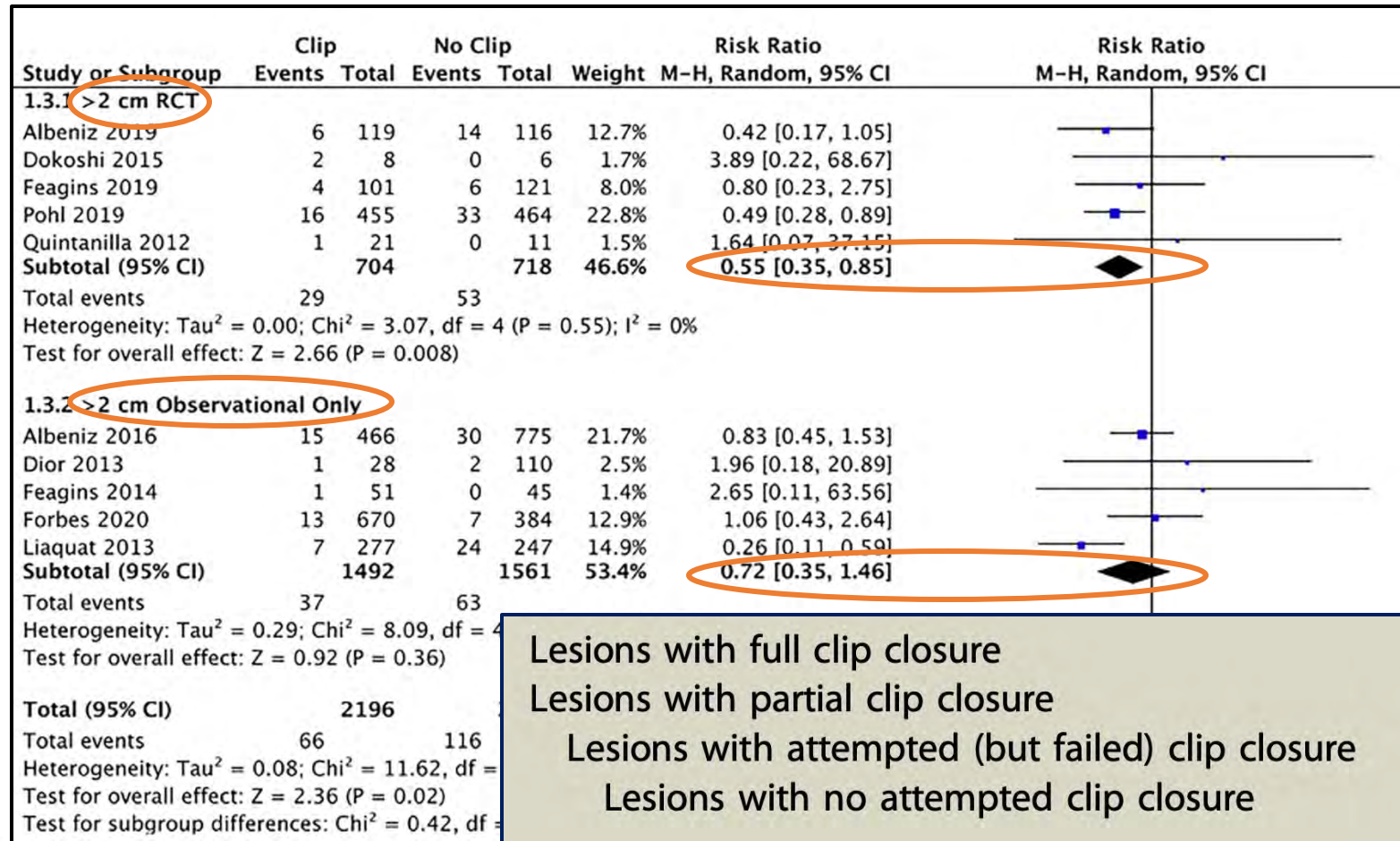


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Forbes N *et al*... Heitman SJ. Am J Gastroenterol 2020  
 Forbes N *et al*... Bourke MJ. Gastrointest Endosc 2022



# Prophylactic Clipping – Technique?



Lesions with full clip closure	2.6 (11/425)
Lesions with partial clip closure	1.7 (2/118)
Lesions with attempted (but failed) clip closure	5.6 (1/18)
Lesions with no attempted clip closure	9.0 (56/625)
	P < .001



# Intraprocedural Bleeding

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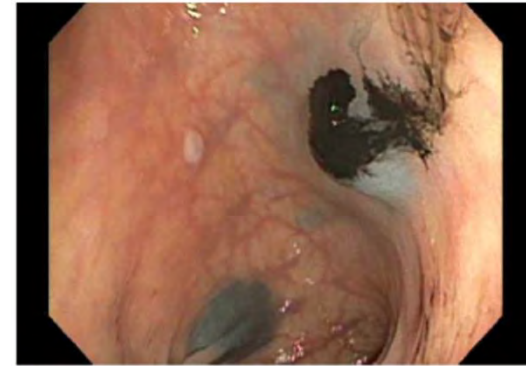
- Techniques/ modalities include:
  - Clipping
  - Snare tip soft coag
  - Coagulating forceps
  - Hemostatic powder





# Tattooing

- No need if easily landmarked
- Prime with saline
- Place 3-5 cm distal (anal side)
- 0.5 – 1.0 cc bleb per site



21 Sigmoid Colon



22 Sigmoid Colon



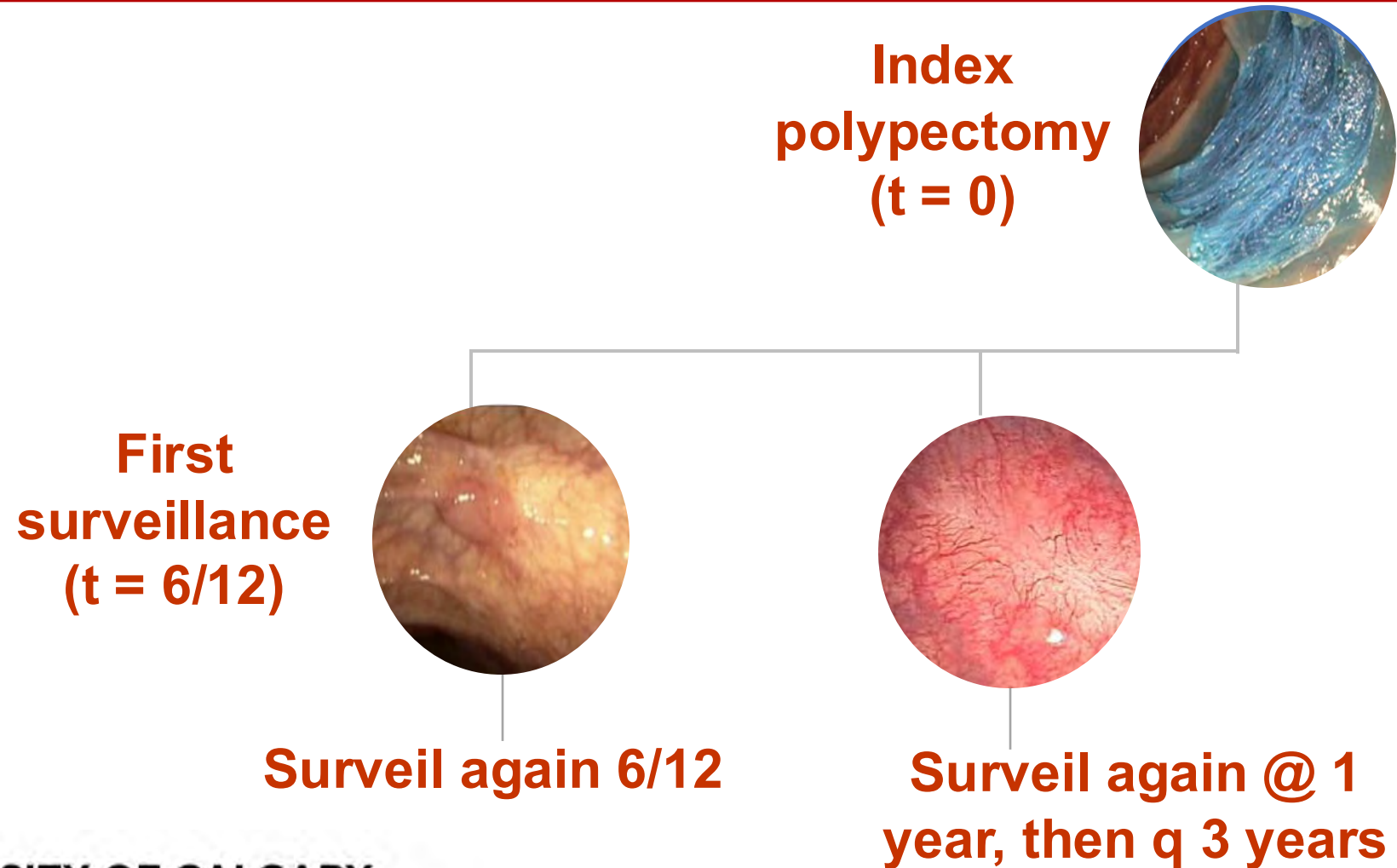
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# POST-POLYPECTOMY SURVEILLANCE



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# Surveillance for Larger Lesions



# For Polyps in General – Always in Flux

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- New CAG post-polypectomy guidance coming ~ spring-summer 2026!





# Take-home Points

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- Pre-resection assessment and planning is critical
- Appropriate referral is key
- Cold snare for >95% of polyps!
- Take your time; do not start if you cannot finish
- Minimize recurrence and minimize adverse events



# Thank you!

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**Questions?**



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