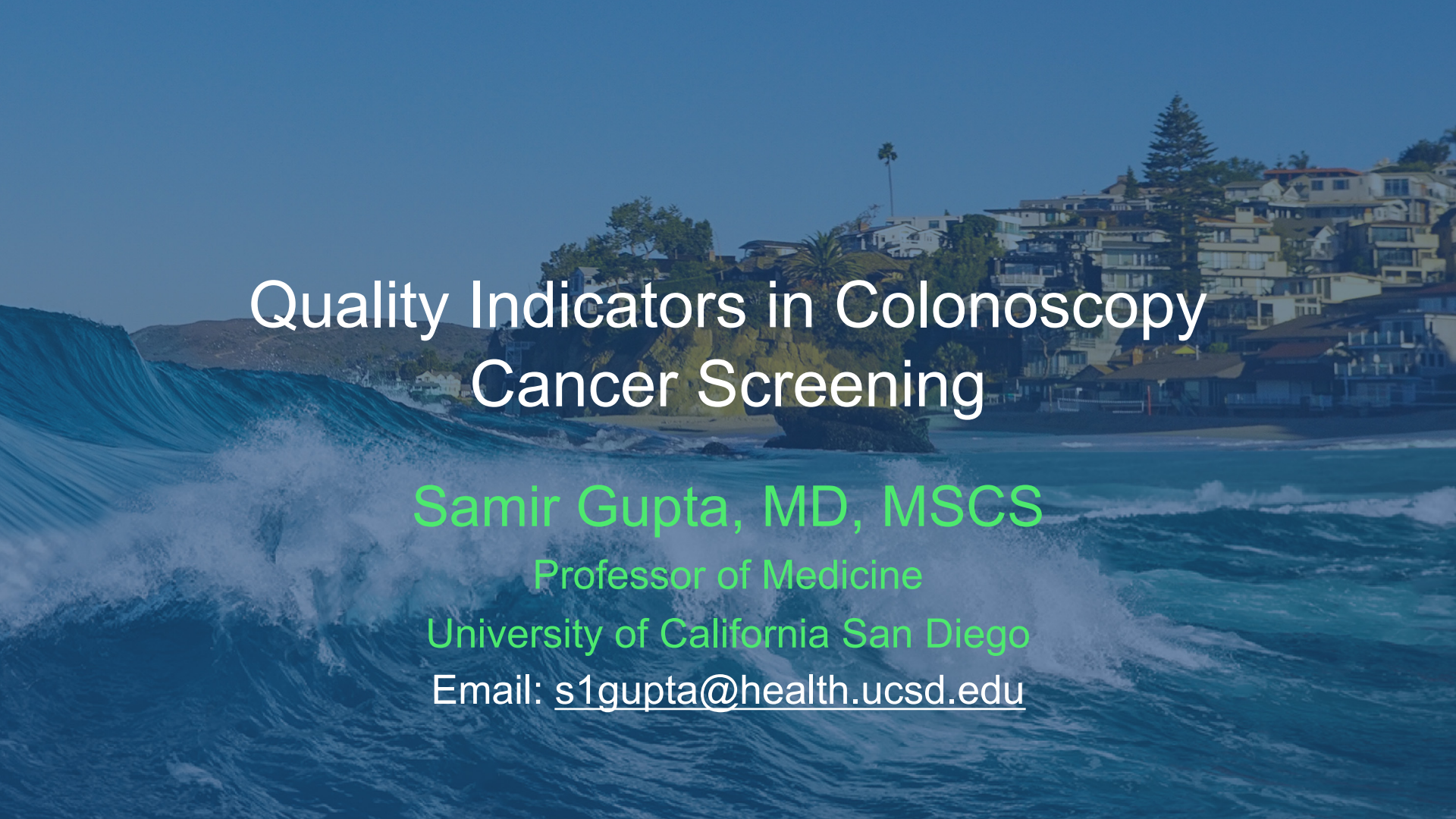

2023 SCSG
GI SYMPOSIUM



Quality Indicators in Colonoscopy Cancer Screening

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Disclosures

Consultant/Advisor for:	Geneoscopy; InterVenn; Universal Diagnostics; CellMax Life
Grant/Research support:	National Institutes of Health, National Cancer Institute; Epigenomics; Freenome
Employee of:	UC San Diego; Veterans Health Administration

Agenda

- Rationale
- Colonoscopy quality indicators
  - Not covered: pre and post-procedural quality indicators

Challenge/Opportunity: Post-Colonoscopy Colorectal Cancer

- Definition:
  - CRC diagnosed after a colonoscopy where no cancer was found[1]
- Frequency:
  - 8.2% of all cancers diagnosed[2]

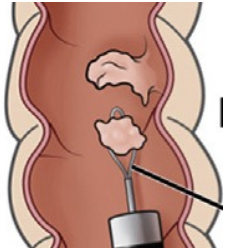
1. Rutter MD Beintaris. *Gastro.* 2018; 2. Kang. *JHE APT*. 2021.

Causes of PCCRC Include Quality and Biologic Factors

< 4 yrs

Missed polyps/CRC

- Prior exam negative but inadequate bowel preparation or exam extent to cecum
- Prior exam negative with adequate bowel preparation and extent of exam



Detected lesion, not resected
Incompletely resected polyps

> 4 yrs

New growth

PCCRC Is More Likely Due to Quality Than Biology

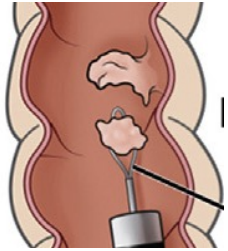
- Reviewed 523 of 1497 PCCRC cases diagnosed 2006–2018 occurring 6 mo to 10 years post colonoscopy
- 473 colonoscopists

Leung LJ. *Gastro* 2023.

Leung Gastro 2023 Findings

≤ 4 yrs

- 70.2% likely missed with adequate exam
- 15.5% likely missed with inadequate extent/prep



- 3.3% Detected lesion, not resected
- 11.0% Incompletely resected polyps

At least 63% due to quality factors

> 4 yrs

- 37% “likely” new growth
  - Some were in same segment as prior adenoma
  - Did not account for stage
    - e.g. Stage IV CRC at 5 years counted as “new”

Colonoscopy Quality Issues Are Too Common

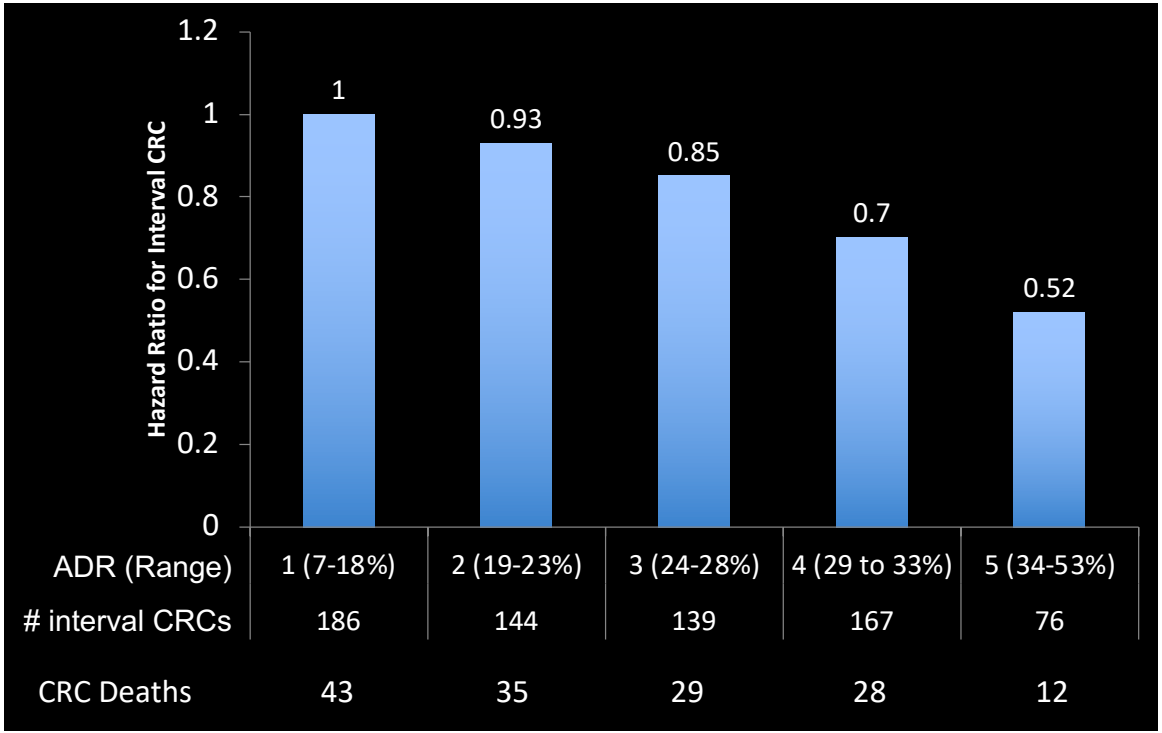
Issue	Evidence
Missed adenomas at tandem colonoscopy Van Rijin. *Am J Gastro*. 2006.	• 2.1% adenomas ≥ 10 mm • 13% adenomas 5–10 mm • 22% adenomas < 10 mm
Incompletely resected polyps Dijinbachian. *Gastro*. 2020.	• 13.8% polyps 1–20 mm • 15.9% polyps ≤ 10 mm • 20.8% polyps 10–20 mm • 28.5% sessile serrated lesions
Incomplete exam to cecum Baxter. *Gastro*. 2011.	• Median completion 87.6%
Inadequate bowel preparation Rex. *Gastroneterol Report*. 2023.	• Up to 20–25%

ACG/ASGE Recommended Metrics

Metric	Target
Cecal intubation rate (Screening)	≥ 95%
Adequate bowel preparation	≥ 85%
Adenoma detection rate Overall Males Females	 ≥ 25% ≥ 30% ≥ 20%
Withdrawal time	≥ 6 minutes
Others candidate metrics: rate of PCCRC, advanced adenoma miss, advanced adenoma detection, adenomas per colonoscopy, polyp detection, sessile serrated lesion detection, complete polyp excision rate	

Rex. *Am J Gastro*. 2015; Rex. *Gastroenterol Repor.* 2023

ADR Evidence – Variation Associated With CRC Mortality

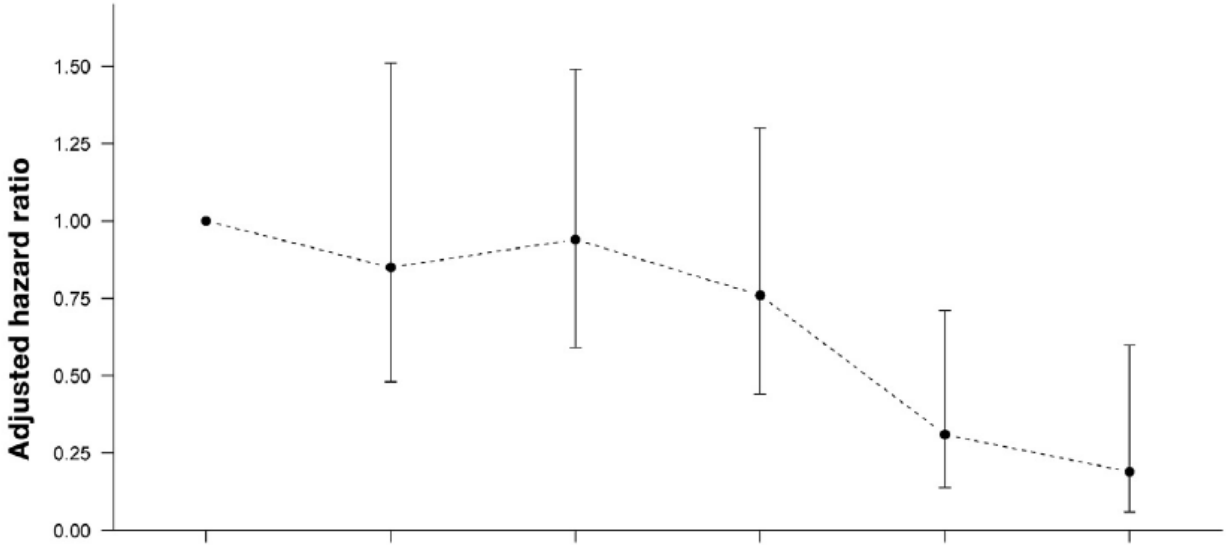


- ~315K colonoscopies performed by 136 GIs
- Highest ADR quintile associated with 50% relative reduction in risk for CRC death[1]
- Modern study: HR CRC death 0.26 for ADR ≥28.3% vs <28.3%[2]

1. Corley. *NEJM*. 2014; 2. Schottinger. *JAMA*. 2022.

Improving ADR Reduces CRC Incidence

Figure 3. Adjusted hazard rates for interval colorectal cancer according to ADR improvement category. Endoscopists in the no improvement category scored a mean ADR of 10.8%, those reaching categories 2, 3, 4, or 5, or those consistently in category 5, scored a mean ADR of 13.1% (at least 11.22%), 17.1% (at least 15.11%), 21.6% (at least 19.18%), 28.8% (at least 24.57%), and 31.3% (at least 24.57%), respectively. *Vertical lines* indicate 95% CIs. HR, hazard ratio; p–yrs, patient-years.

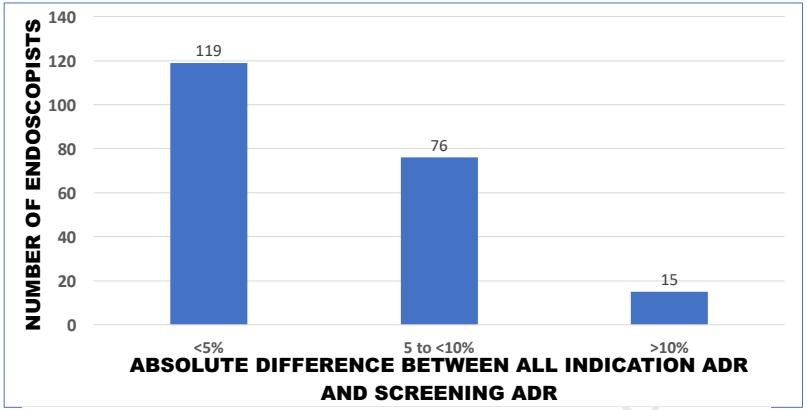


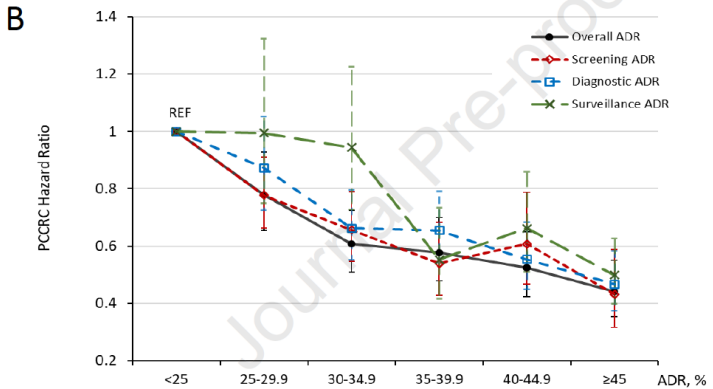
	No improvement	Improvement from 1 to 2	Improvement from 1 or 2 to 3	Improvement from 1–3 to 4	Improvement from 1–4 to 5	Remain in 5th
HR	1.00	0.90	0.74	0.64	0.27	0.18
95% CI		(0.61, 1.34)	(0.47, 1.16)	(0.41, 1.01)	(0.12, 0.63)	(0.06, 0.56)
No. of cancers/ 100,000 p–yrs	25.34	22.67	18.86	16.25	7.09	4.49

Kaminski Wieszczy. *Gastro*. 2019.

Measuring ADR and Meeting Minimum Benchmarks Much More Important Than Source of Data

- Low screening ADR similar to low non-screening ADR[1]
  - Ok to pool
- Addition of 45 to 49 year olds associated with small drop in ADR[2]
  - Ok to lump 45 to 49 with older groups





1. Gawron. DDW 2023; Kaltenbach. *CGH*. 2021; Corley. *Gastro*. 2023; 2. Bilal. *Am J Gastro*. 2022.

ADR Bottom Line

- One of the most rigorously validated quality metrics in medicine
- Measure it
- Aspire to maximize it
  - 20% or more of colonoscopists are 35% or higher
  - Average nationally 38% overall, 45% for men, 32% for women
- Higher thresholds likely coming

Shaukat. *Am J Gastro*. 2021.

Cecal Intubation and Bowel Preparation

- Cecal intubation rate ≥90% vs. <90% associated with reduced risk for PCCRC
  - RR: 0.69 (95% CI: 0.56–0.83)[1]
- Inadequate bowel preparation
  - Commonly cited as a reason for missed CRC[2]

1. Lund. *JBI Datab Syst Rev Impl Rep*. 2019; 2. Leung. *Gastro*. 2023.

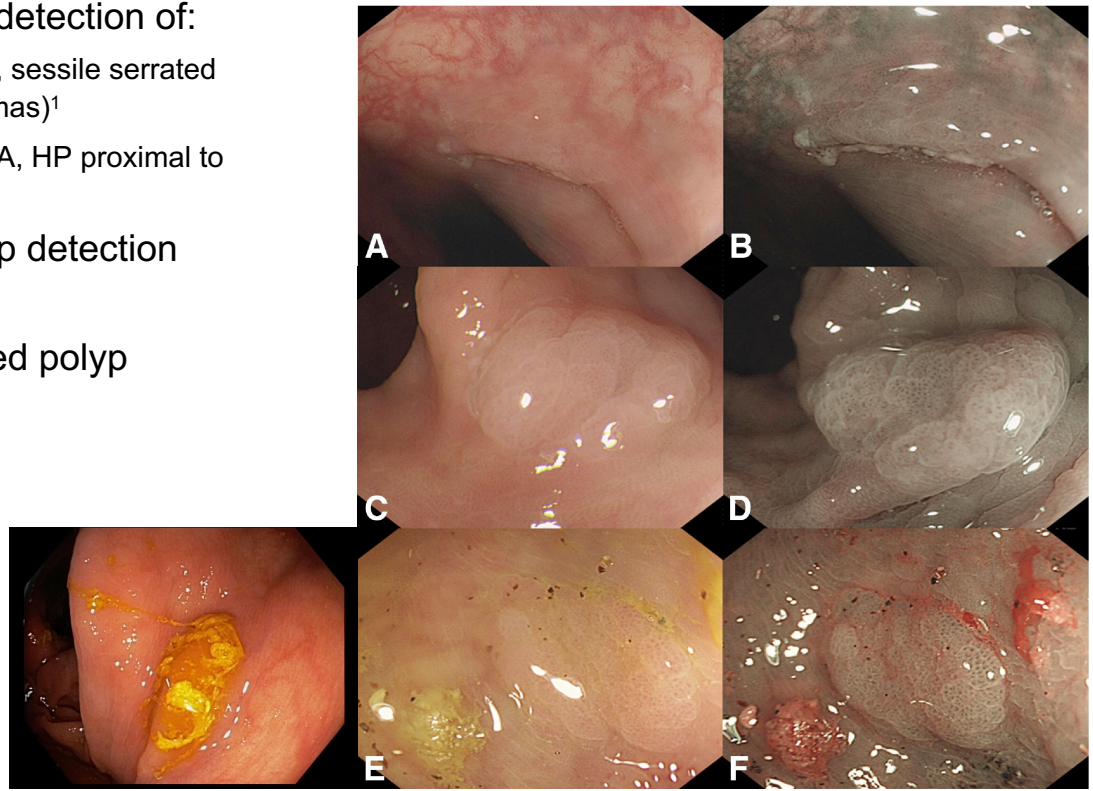
Withdrawal Time

- Retrospective studies
  - Correlates with ADR
  - Risk for PCCRC for WT ≥6 vs. <6 mins:
    - RR 0.39 (95% CI: 0.23–0.66)
- Prospective studies
  - Modification does not consistently improve ADR
- Favored more as a correlative measure to inform strategies for improving ADR

1. Lund. *JBI Datab Syst Rev Impl Rep*. 2019; 2. Rex. *Gastroenterol Rep*. 2023.

Serrated Polyp Detection

- Reduced risk for PCCRC with increased detection of:
  - Proximal serrated polyps (hyperplastic polyps, sessile serrated lesions (SSL), and traditional serrated adenomas)[1]
  - Clinically significant serrated polyps (SSL, TSA, HP proximal to sigmoid >5mm or any HP ≥10mm)[2]
- ADR largely correlates with serrated polyp detection
  - Measurement may not need to be a priority
- Consider focusing on learning key serrated polyp characteristics[3]
  - Indistinct borders
  - Obscured blood vessel
  - Irregular shape
  - Dark spots in crypts/ “O” shaped crypts
  - Cloud-like nodular appearance
  - Adherent mucus/rim of debris



1. Zessner-Spitzenberg. *Endoscopy*. 2023; 2. Anderson. *GIE*. 2022; 3. Shaukat. *End Int Open*. 2022; Hazewinkel. *Gastrointest Endosc*. 2013.

Complete Polyp Resection

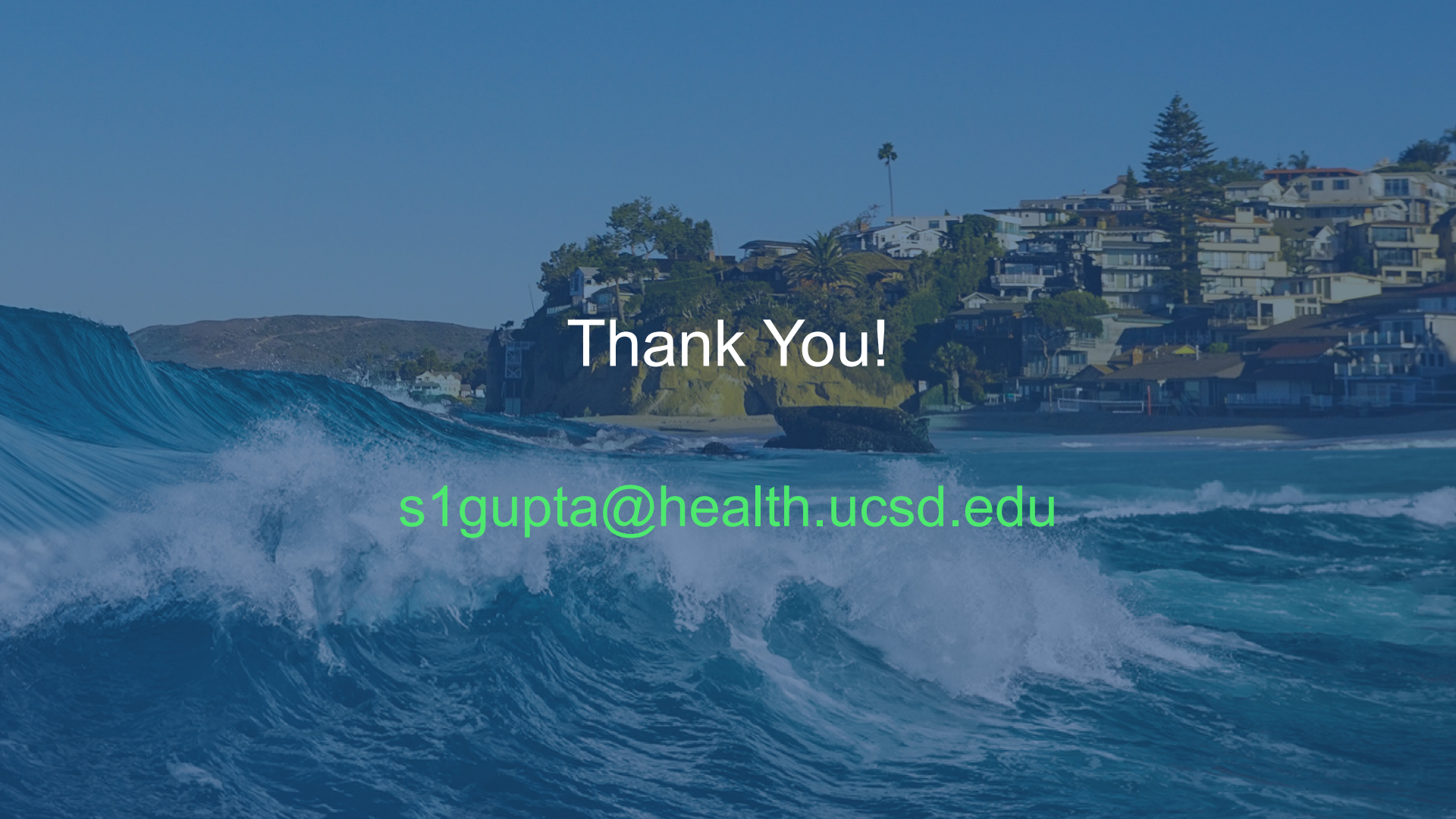
- No formal quality metric but clear that goal is complete polyp excision
- Validated checklists with best practices have been developed

Key polypectomy metrics included in the Direct Observation of Polypectomy Skills (DOPys) or Cold Snare Polypectomy Assessment Tool (CSPAT)	
Metric	**Definition**
Achieves optimal polyp views and position	Clear views with position at 5 to 6 o'clock
Examines remnant stalk/polyp base	Demonstrates examining remnant stalk/polyp base and any residual polyp tissue
Anchors sheath of snare several mm distal to polyp	Efficiently and accurately positions and anchors snare several mm distal to polyp
Keeps tools close to endoscope	Keeps tools close to scope at all times
Ensures rim of normal tissue is resected	Rim of normal tissue around entire polyp

Gupta, Sachin. *GIE*. 2011; Patel, Swati. *GIE*. 2019.

Take Home Points

- Post colonoscopy colorectal cancer is a key challenge to success of screening colonoscopy
- Most post colonoscopy cancers are attributable to quality issues: missed and incompletely resected lesions
- Colonoscopy quality issues are common
  - Incomplete extent, inadequate prep, missed and incompletely resected polyps
- Key metrics improve colonoscopy outcomes
  - ADR, cecal intubation rate, adequate bowel prep
- Committing to measuring and addressing quality will allow all patients exposed to colonoscopy to realize the full benefits of the procedure


Thank You!
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