

**CRCHUM**

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endoscopy

# Incomplete resection, complete resection, and polyp recurrence

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# Conflicts of interest

None



# Incomplete resection

## Importance and consequences

- Up to 28% of iCRC could be attributed to incomplete resection
- Bowel segments where incomplete resection occurred have higher rates of polyp recurrence

Tollivoro et al. *GIE* 2019  
Kim et al. *Gut* 2018

Samadder et al. *Gastro* 2014  
Adler et al. *CGH* 2014  
Pohl et al. *CGH* 2010



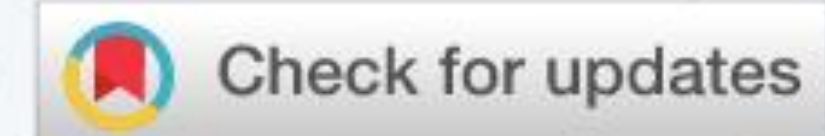


# Incomplete resection

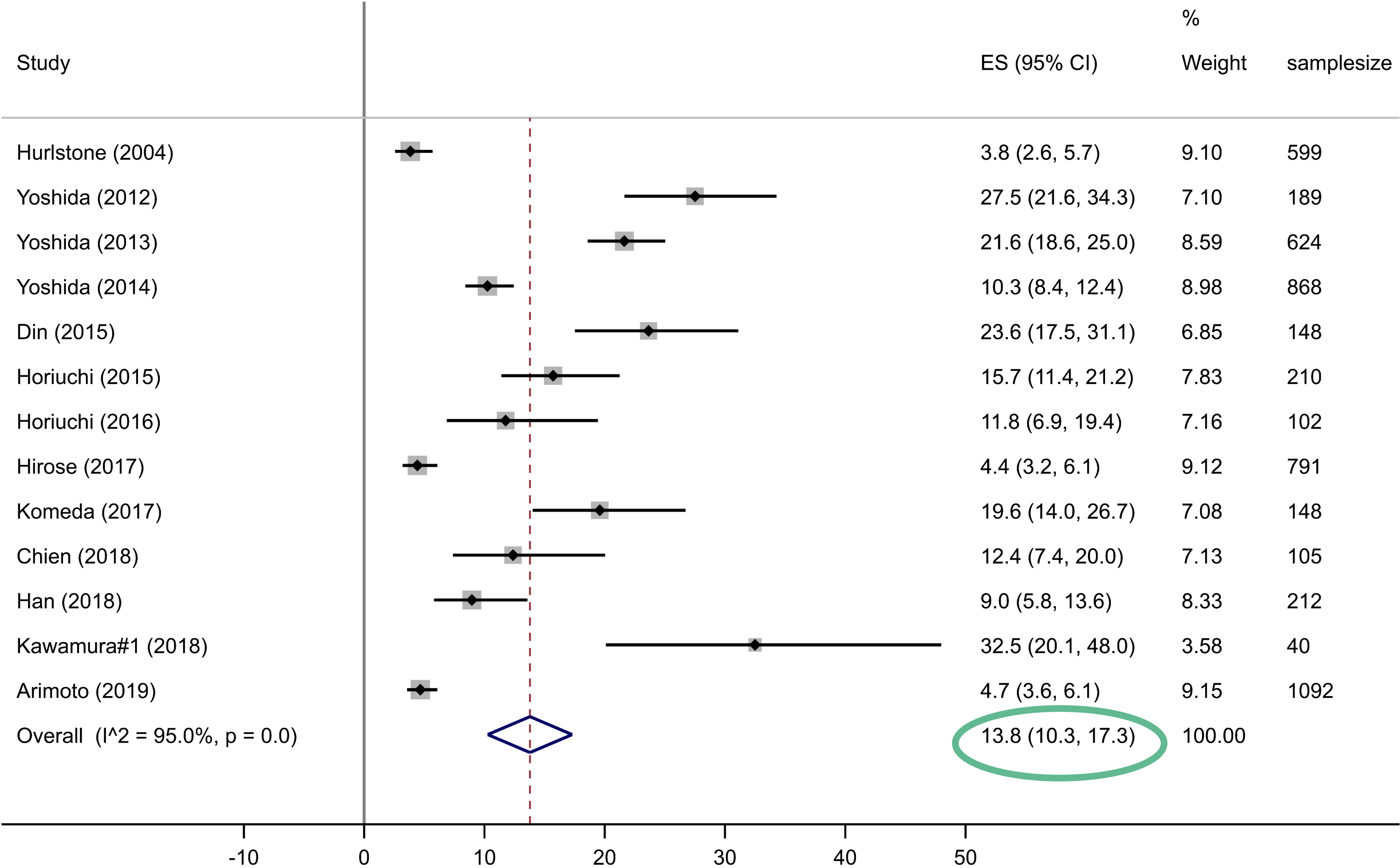
## Rates of Incomplete Resection of 1- to 20-mm Colorectal Polyps: A Systematic Review and Meta-Analysis

Roupen Djinbachian • Ryma Iratni • Madeleine Durand • Paola Marques • Daniel von Renteln  

Published: May 10, 2020 • DOI: <https://doi.org/10.1053/j.gastro.2020.05.018> •

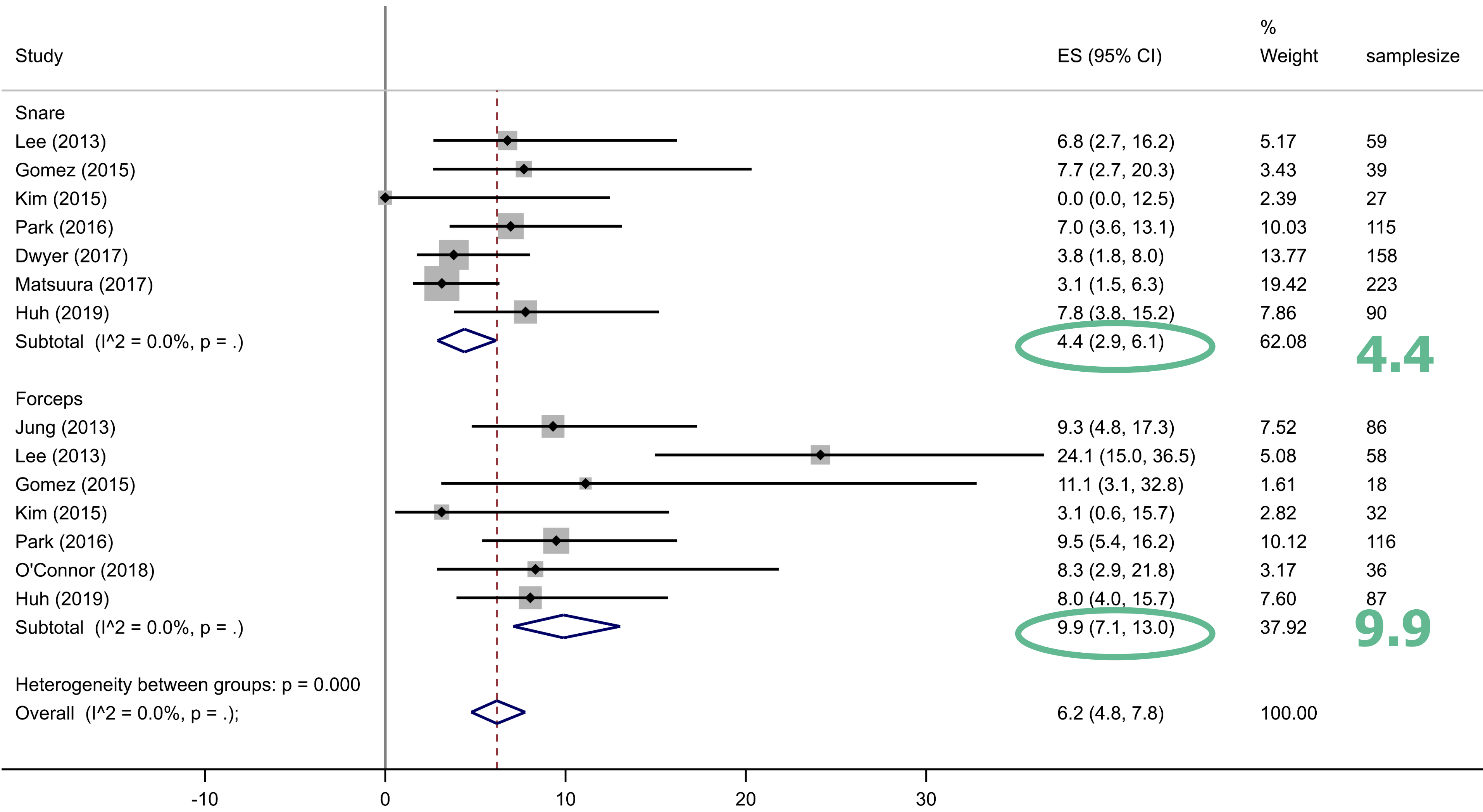


# Overall IRR





# Snare vs Forceps 1-5mm

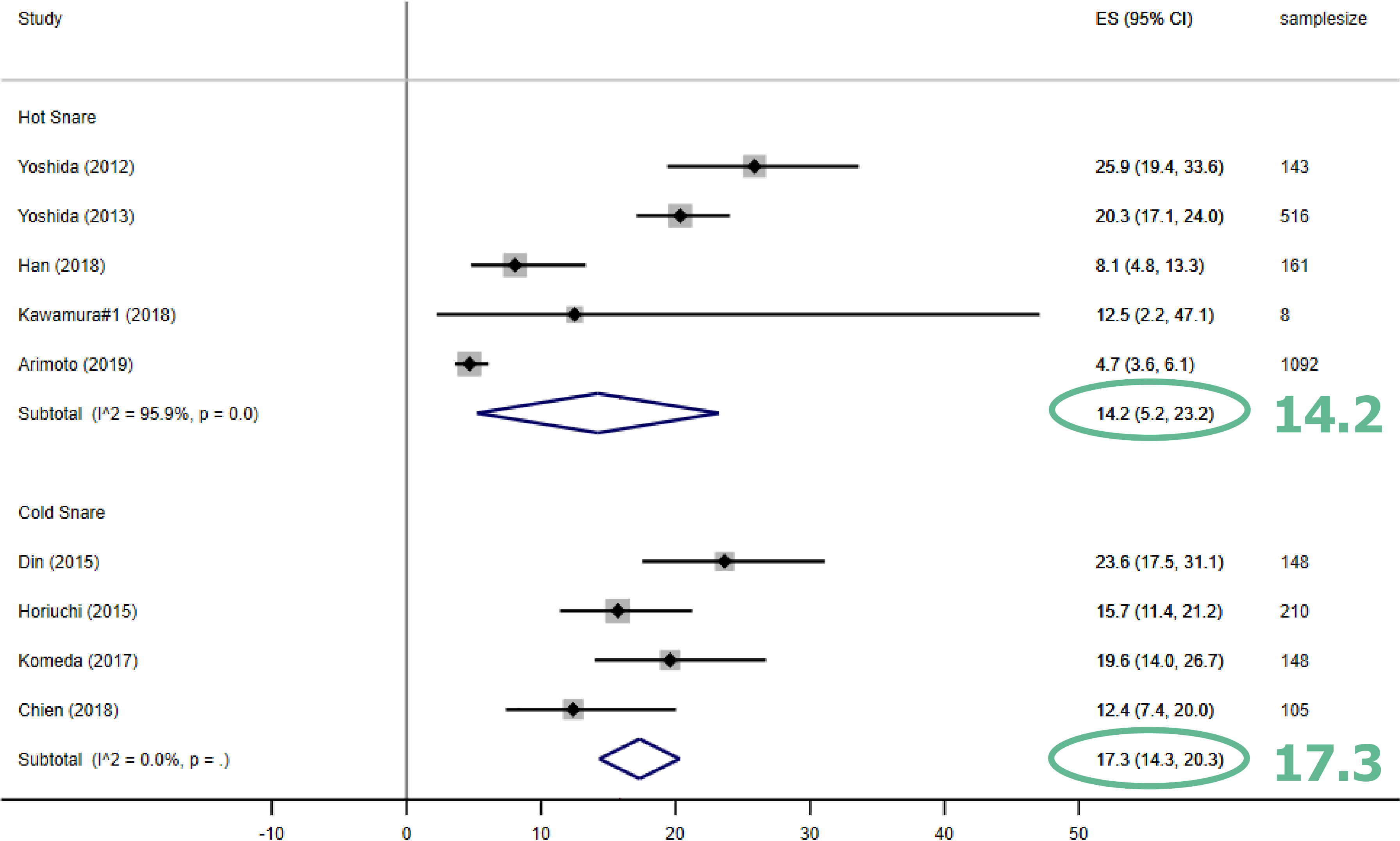


## Snare vs Forceps 1-5mm

- Statistical significance entirely from polyps 4-5mm
- Loss of significance for 1-3mm
- TINYPOLYP trial RCT n=279 1-2mm polyps
- 1.7% IRR for both CSP and CFP



# HSP vs CSP 1-10mm





# Cold vs Hot

## CARE

- HSP 5-20mm
- IRR=10.1%
- 11 Endoscopists
- Various expertise

## CHUM CSP

- CSP 4-20mm
- IRR=17.6%
- 8 Endoscopists
- Various expertise

## CHUM C-EMR/WF

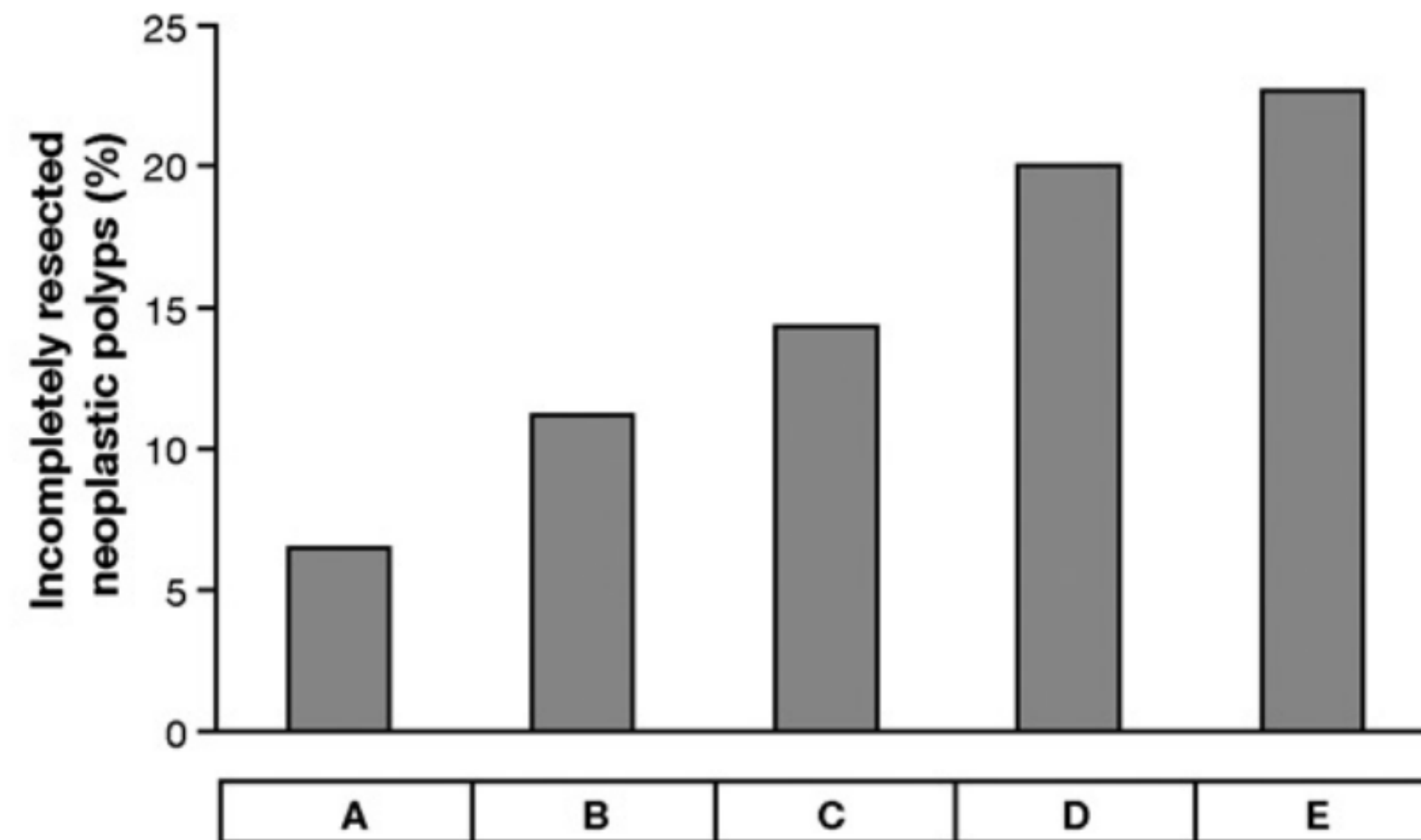
- C-EMR 4-20mm
- IRR=3.8%
- 5 Endoscopists
- 75% performed by experts

## Rex et al.

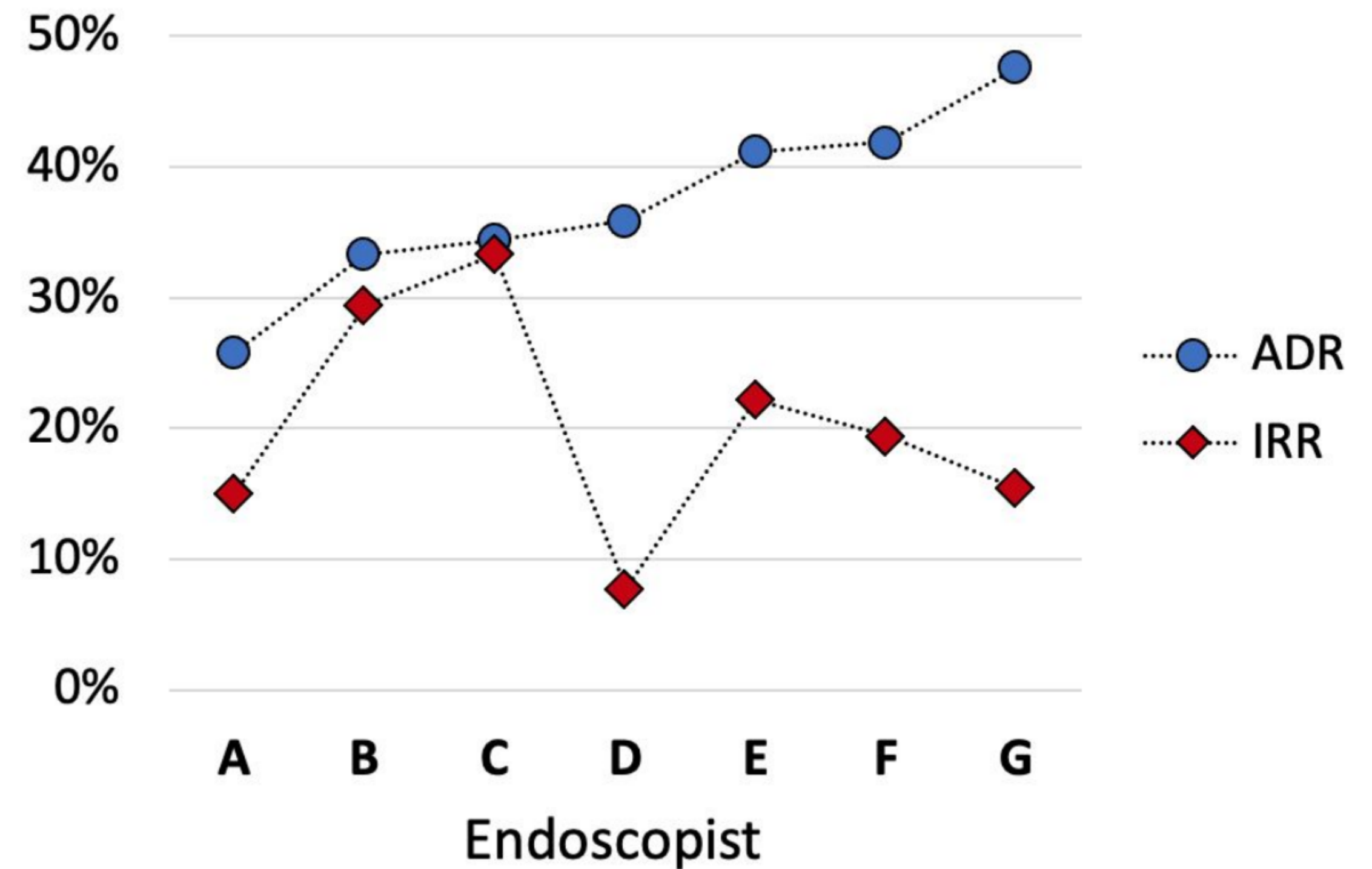
- C/H-EMR, C/HSP
- RCT 6-15mm
- IRR= 0% CSP, 2.2% HSP, 1.8% C-EMR, 6.2% H-EMR
- **Exclusively expert endoscopists**



## CARE



## CHUM



# IRR as a quality measure

- IRR highly variable among endoscopists and significantly tied to iCRC
- Solutions?
  - Systematic margin biopsies after resections for quality assessment (costly)
  - Systematic assessment of resected pathology specimens for clear margins (R0 resection)
  - Implement days when margin biopsies are taken
  - Selective implementation for  $\geq 10\text{mm}$  polyps (highest risk)
- Implementation of regular auditing similar to ADR, cecal intubation rates, etc



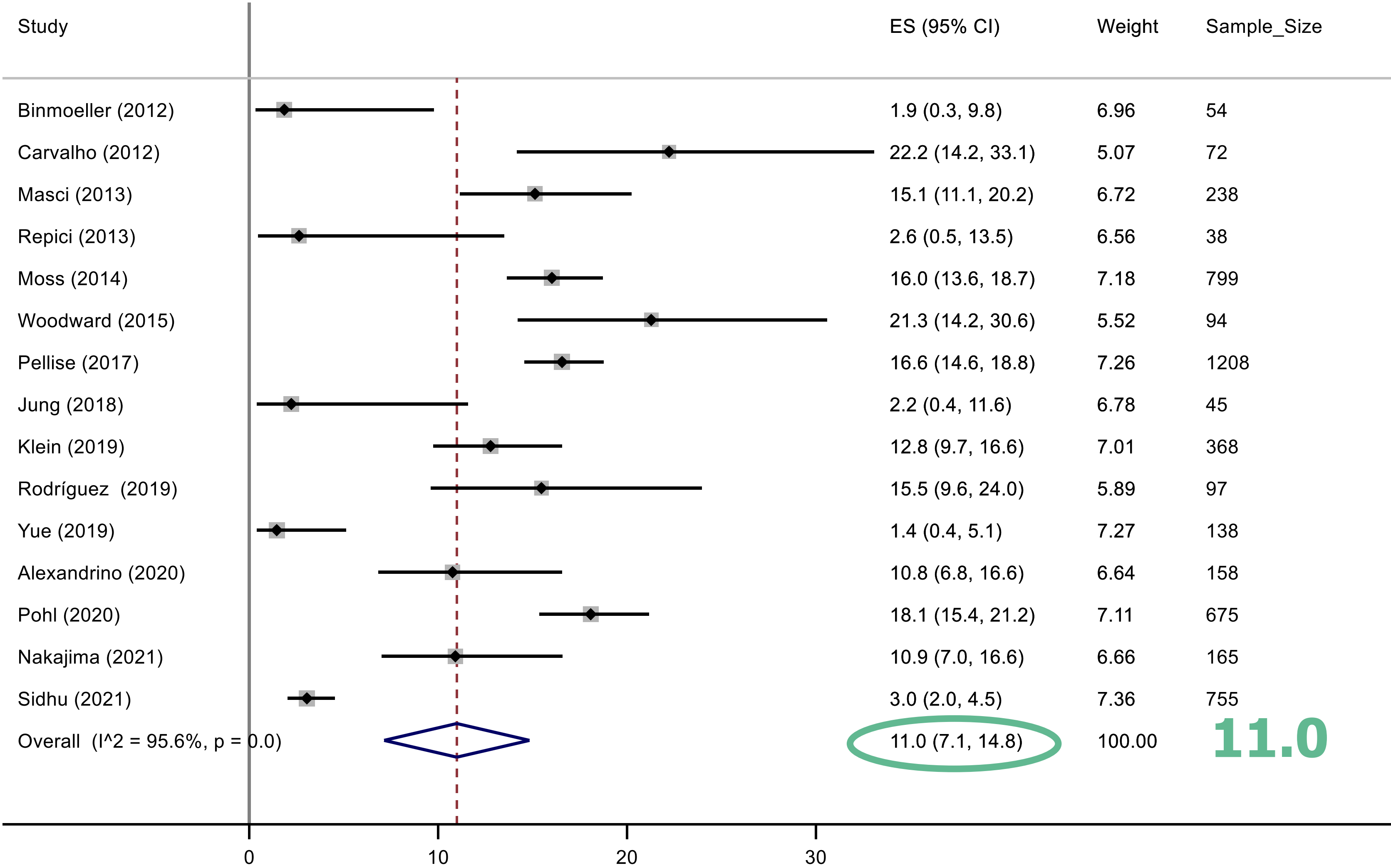
# Local Recurrence

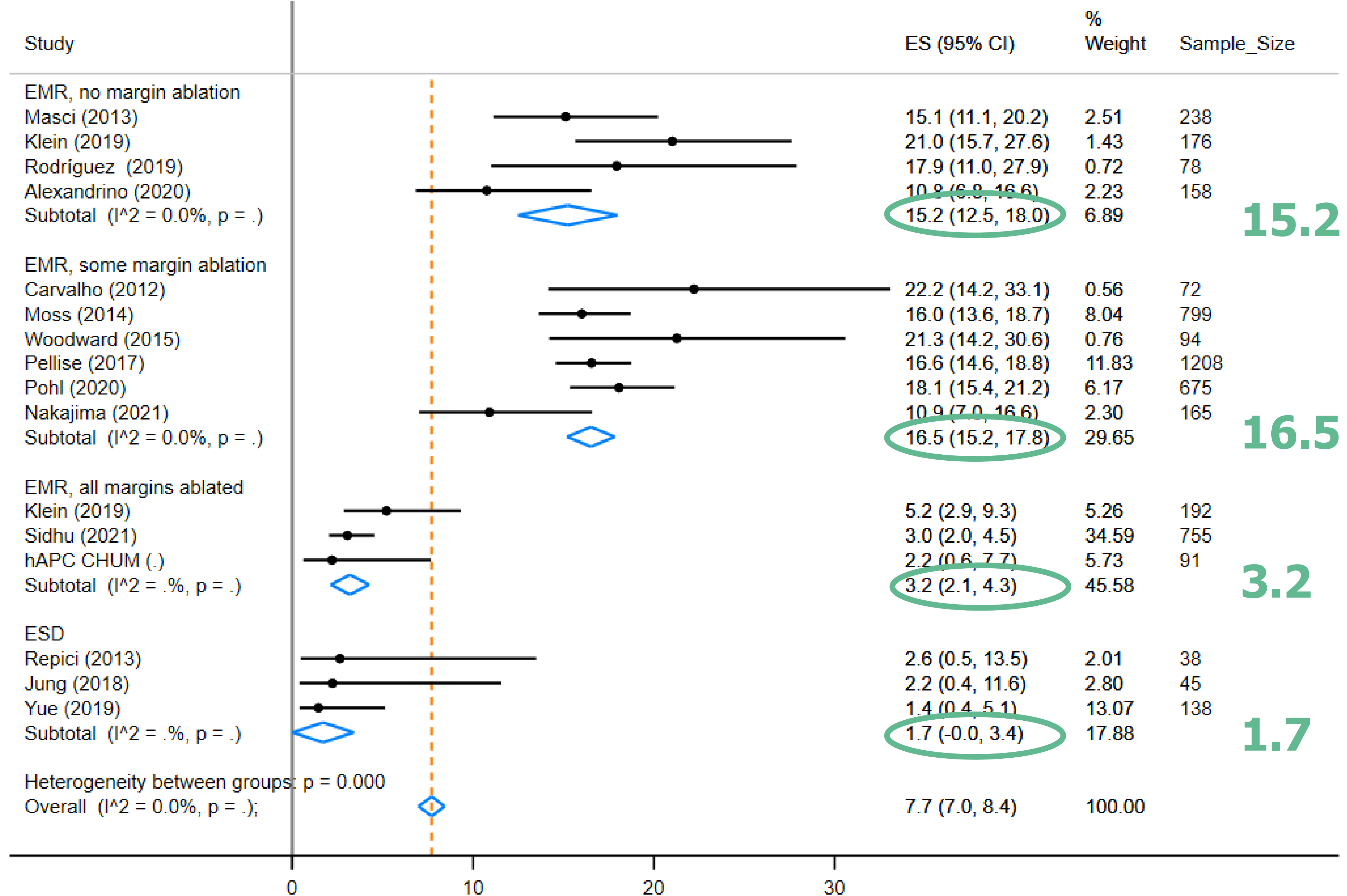
- Ultimately the more important outcome compared with IRR
- Variable among studies, resection methods, endoscopists
- Follow-up to CARE study: 52% vs. 23% metachronous neoplastic polyps in segments with incomplete vs complete resection
- 18% vs 3% advanced neoplasia





# Local Recurrence ≥10mm

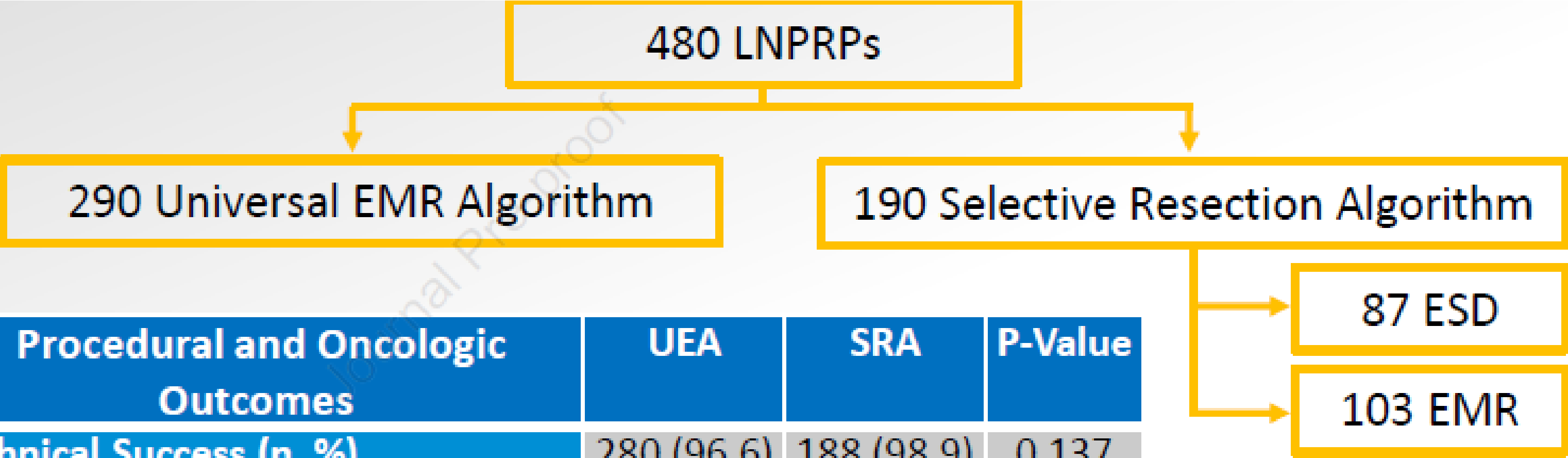




# EMR-T vs ESD

## Selective rectum resection algorithm

- EMR for all
- Vs selective ESD if:
  - **Superficial SMIC** (< 1000µm; S-SMIC; Kudo pit pattern Vi)
  - **Increased risk of SMIC** (Paris 0-Is or 0-IIa+Is non-granular, Paris 0-IIa+Is granular with a dominant nodule ≥ 10mm)



Procedural and Oncologic Outcomes	UEA	SRA	P-Value
Technical Success (n, %)	280 (96.6)	188 (98.9)	0.137
Cancer after EMR (n, %)	35 (12.1)	1 (1.0)	0.001
Curative Oncologic Resection (n, %)	2 (5.7)	7 (33.3)	0.010



# EMR-T vs ESD

**Table 2: Procedural Outcomes**

	<b>Overall LNPRPs</b> (N = 480 %)	<b>UEA LNPRPs</b> (N = 290, %)	<b>SRA LNPRPs</b> (N = 190, %)	<b>P-value</b>
<b>Duration, min (median, IQR)*</b>	30 (15-60)	29 (15-50)	45 (25-78)	<b>&lt;0.001</b>
<b>Technical success (n, %)</b>	468 (97.5)	280 (96.6)	188 (98.9)	0.137
<b>Margin thermal ablation (n, %)**</b>	164 (41.7)	66 (22.8)	98 (95.1)	<b>&lt;0.001</b>
<b>Deep mural injury III-V (n, %)</b>	23 (4.8)	12 (4.1)	11 (5.8)	0.407
<b>CSPEB (n, %)</b>	40 (8.3)	21 (7.2)	19 (10.0)	0.285
<b>Delayed perforation (n, %)</b>	1 (0.2)	1 (0.3)	0 (0.0)	1.000
<b>SC1</b>				
Eligible (n)	393	244	149	
Underwent SC1 (n, %)	360 (91.6)	233 (95.5)	127 (85.2)	<b>&lt;0.001</b>
Months to SC1 (median, IQR)	6 (5-8)	5 (4-7)	7 (6-9)	<b>&lt;0.001</b>
<b>Recurrence</b>	42 (11.7)	40 (17.2)	2 (1.6)	<b>&lt;0.001</b>

CSPEB, clinically significant post-endoscopic resection bleeding; IQR, interquartile range; LNPRP, large non-pedunculated rectal polyp; Min, minutes; SC1, surveillance colonoscopy 1; SRA, selective resection algorithm; UEA, universal EMR algorithm

\*116 participants duration not classified

\*\*Denominator: LNPRPs which underwent EMR





# EMR-T

## APC vs STSC

- No head-to head comparison as of yet
- STSC studies with 3-5% LRR
- Our experience (CHUM) with hAPC: 2.2% LRR
- More studies needed to determine best margin ablation method



# CSP/C-EMR ≥20mm

**Table 5.** Efficacy and adverse events for cold snare resection of ≥20mm polyps

Study	Polyp size, mm	Adjunct technique	Polyp type	N	IRR	LRR	IPB (n)	PPB (n)	Follow-up	Comments
<u>Piraka et al. 2017</u> <sup>41</sup>	20–60	Cold EMR	HP, SSL, TA, TVA	37	–	18.4% (7/37)	2.7% (1/37)	0% (0/37)	150 days	2.7% SSLs included
<u>Tutticci et al. 2018</u> <sup>39</sup>	20–40	Cold EMR	SSL	61	0% (0/61)	0% (0/61)	0% (0/61)	1.2% (2/163)	154 days (median)	2 polyps <20mm incompletely resected; 1 polyp <20mm recurred; 1 IPB for polyp <20mm
<u>Mangira et al. 2020</u> <sup>40</sup>	20–50	Cold EMR	SSL, TA, TVA	204	–	5.5% (9/164)	2.2% (4/186)	3.8% (7/186)	150 days (median)	66% SSLs included
<u>Van Hattem et al. 2021</u> <sup>44</sup>	20–70	Cold EMR	SSL	156	–	4.3% (4/92)	0% (0/121)	0% (0/121)	6 months (median)	2 delayed perforation, 5.1% IPB, 1.4% PPB for hot EMR
<u>Suresh et al. 2021</u> <sup>45</sup>	20–80	Cold EMR	HP, SSL, TA, TVA	310	–	34.8% (108/310)	–	–	6.5 months (mean)	14.5% SSLs included
<u>Barros et al. 2021</u> <sup>48</sup>	20–45	CSP	SSL	122	–	–	0% (0/122)	0% (0/122)	19.4 months (mean)	1 IPB in a 12mm polyp
<u>Kimoto et al. 2021</u> <sup>50</sup>	20–40	CSP	SSL	97	0% (0/97)	0% (0/NA)	–	0% (0/97)	7 months (median)	–

CSP: Cold snare polypectomy; EMR: Endoscopic mucosal resection; HP: Hyperplastic; IRR: Incomplete resection rate; IPB: Intra-procedural bleed; LRR: Local recurrence rate; NA: Not available; PPB: Post-procedural bleed; SSL: Sessile serrated lesion; TA: Tubular adenoma; TVA: Tubulovillous Adenoma



# Summary

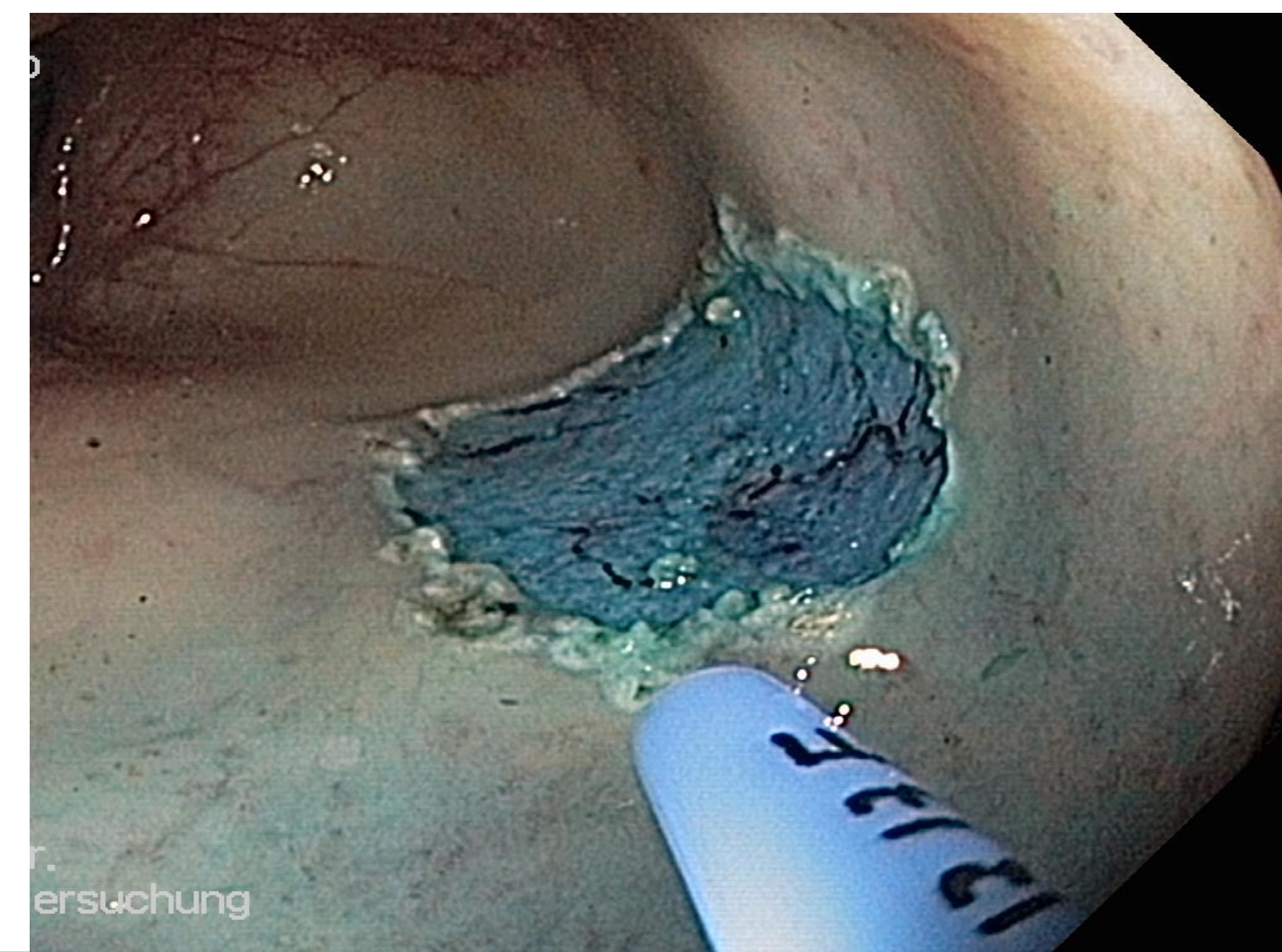
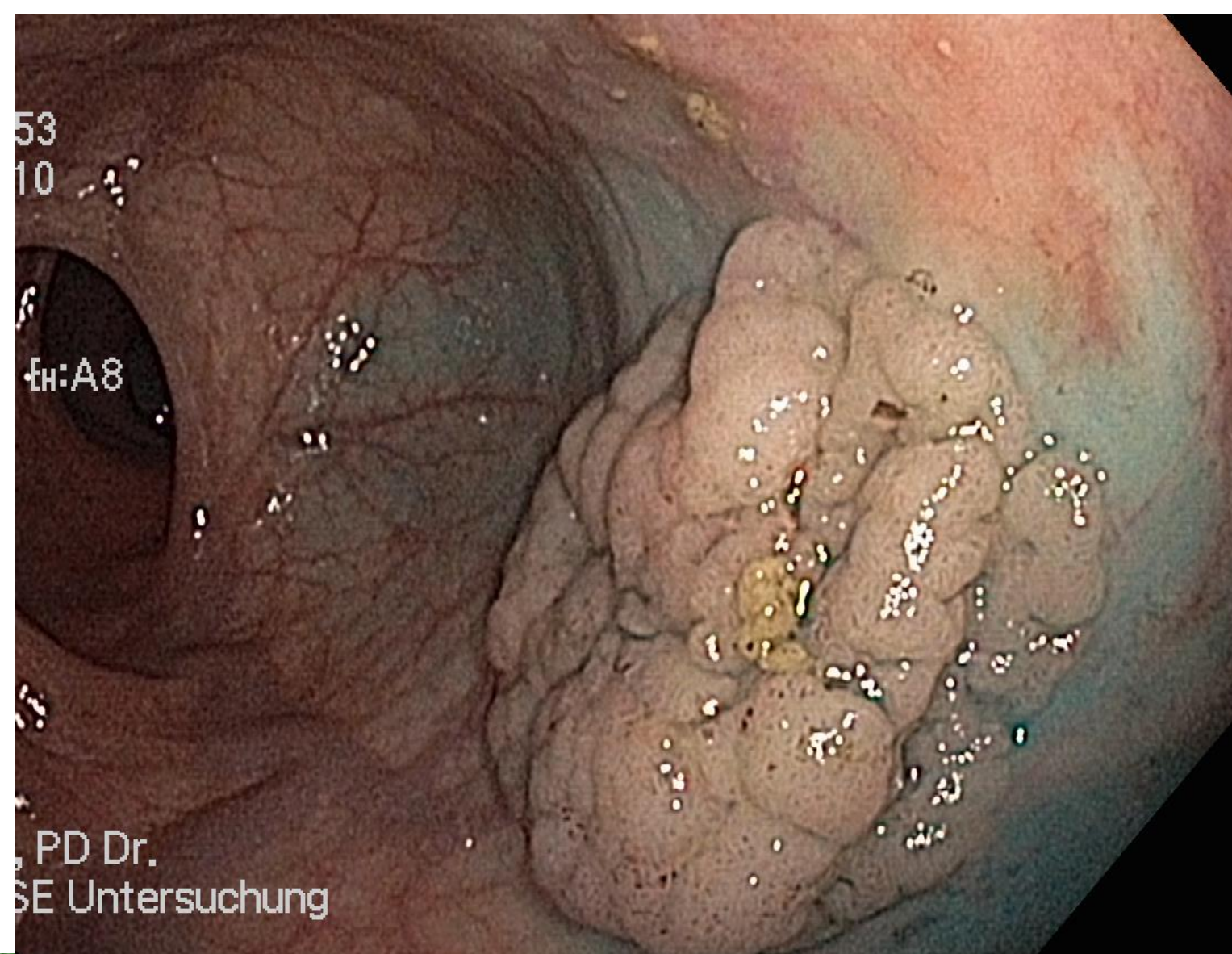
- IRR important quality metric similar to ADR, regular audits needed
- Forceps or CSP for 1-3mm polyps
- CSP or HSP for 4-10mm polyps
- EMR with **systematic margin ablation** = ESD for  $\geq 20\text{mm}$  polyps
  - (place for rectal ESD?)
- C-EMR effective for  $\geq 20\text{mm}$  SSLs
- More data needed for cold resection of  $\geq 10\text{mm}$  adenomas







Thank you







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