

# OMED COLORECTAL CANCER SCREENING COMMITTEE MEETING

Saturday, May 1, DDW New Orleans, 2010

Presenter: Michael B Wallace

## Advanced in Detection and Removal of Colorectal Neoplasms

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Mayo Clinic, Jacksonville, FL



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## Learning Objectives

1. Review fundamental principals of high quality colonoscopy
2. Review new advances in imaging methods to improve polyp detection
3. Know that flat polyps exist in up to 10% of US patients
4. Recognize that flat polyps are size-for-size more likely to harbor advanced histology
5. Understand and be able to integrate methods to detect, classify, and treat flat polyps



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## Fundamental of High Quality Colonoscopy

- Careful inspection
  - At least 6-8 minutes
  - Looking behind folds
  - Attentive to flat mucosal changes
- Prep quality



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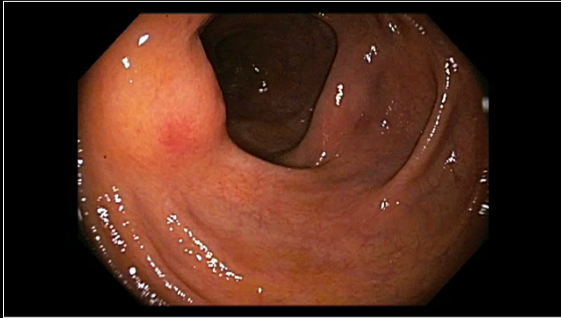
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**Careful Inspection Behind Folds**



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**Does Routine "Pan Chromoendoscopy" Increase Adenoma Detection?**

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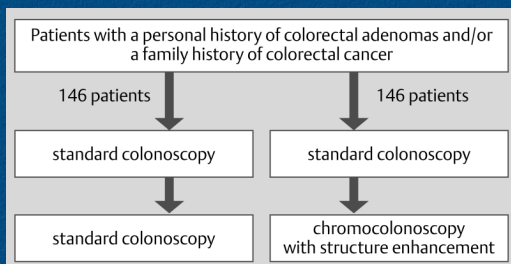
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**Pan Chromo in Average Risk Persons  
A Randomized Controlled Trial**



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Lapalus, Endoscopy, 2006;38:444

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**Chromo in Average Risk**

N = 292	Chromo (146)	Standard (146)	
Pts with Adenomas	40%	36%	(p=0.47)
Total adenomas	115	87	(p= 0.18)
Total Hyperplastic	110	67	9 (p=0.03)
Colonoscopy time	27 min [14-75]	18 [8-60]	(p<0.001)

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**Meta-analysis of Pan Chromo in Average Risk Patients**

- 4 Randomized Controlled Trials

	Odds Ratio	95% CI
Patients with any adenoma	1.61	1.24-2.09
3 or more adenomas	2.55	1.49-4.36

Brown; Cochrane DB Syst Rev, 2007;4:6439

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**Does Routine “Pan Chromoendoscopy” Increase Adenoma Detection?**

**Yes, but with longer procedure times**

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**Does NBI Increase Adenoma Detection**

Probably  
 (compared to standard def. white light, but not HD white light)

Does not increase procedure time




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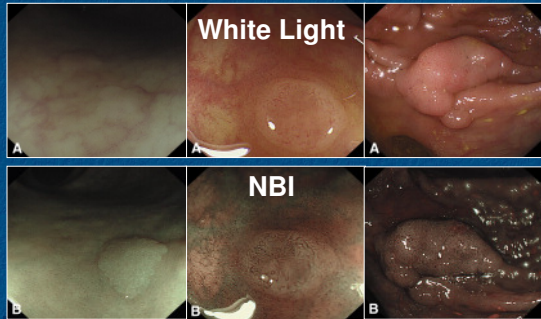
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**Does NBI Increase Adenoma Detection**



White Light

NBI

Hyperplasia    Adenoma    Advanced Ad

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**Does NBI Increase Adenoma Detection**  
**Systematic Review: Randomized Trials**

Study	Pts with adenoma NBI	Pts with adenoma WLE	adenoma/pt NBI	adenoma/pt WLE	O.R. NBI vs WLE
Rex 2007 N=217	65%	67%	1.86	1.82	0.90 (0.61-1.34)
Adler 2007 N= 198	23%	17%	0.33	0.26	1.27 (0.88-1.84)
Inoue 2008 N=122	42%	34%	0.84	0.55	1.55 (1.14-2.11)
<b>Pooled</b>	<b>44%</b>	<b>41%</b>	<b>1.06</b>	<b>0.96</b>	<b>1.23 (0.93-1.61)</b>

 Van den Broek et al. GIE 2009;69:124

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**Does NBI Increase Adenoma Detection  
Back to Back Trials**

Trial	Adenoma/pt NBI	Adenoma/pt WLE
Rastogi 2008 N=40	0.73	1.08
East 2007 N=62	0.34	0.40
Gross [in press] N=91	0.25	0.34*

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**A PROSPECTIVE RANDOMIZED BACK-TO-  
BACK TRIAL COMPARING NARROW BAND  
IMAGING TO CONVENTIONAL  
COLONOSCOPY FOR ADENOMA  
DETECTION**

Gross SA, Buchner AM, Cangemi JR, Wolfsen HC, DeVault  
KR, Crook J, Picco MF, Loeb DS, Woodward TA, Raimondo M,  
Wallace MB

Mayo Clinic, Jacksonville, FL, USA

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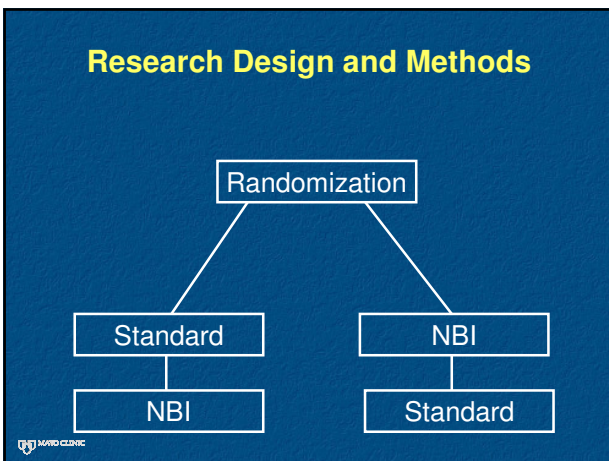
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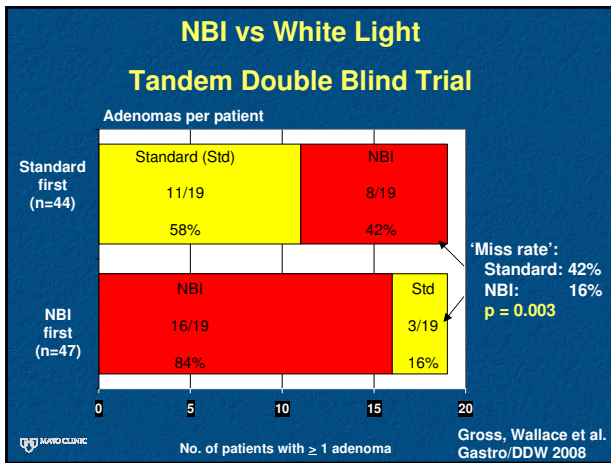
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### Summary NBI

- Evidence favor NO increased detection of adenomas

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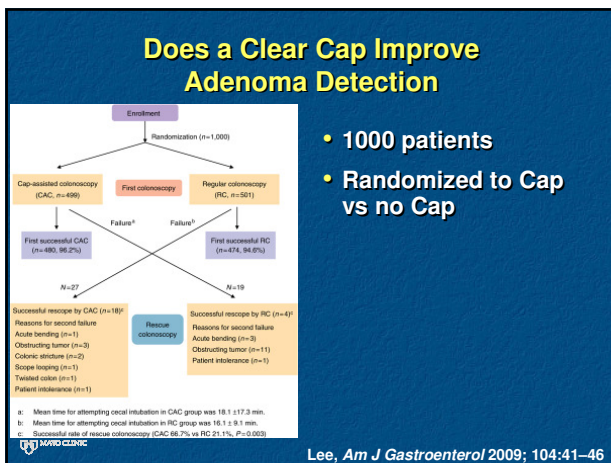
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**Does a Clear Cap Improve Adenoma Detection**

N=1000	Cap	No Cap	P value
All w/ staff MDs			
Cecal Intubation	96%	95%	NS
Intubation time	6.0 min	7.2 min	< 0.001
Total time	14.6 min	16.7 min	<0.001
Adenoma detection	30.5%	37.5%	<0.018

Lee, Am J Gastroenterol 2009; 104:41-46

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**Does a Clear Cap Improve Adenoma Detection: Conflicting Results**

N=684	Cap	No Cap	P -value
All w/ trainees			
Cecal Intubation	95.3%	95.3%	NS
Intubation time	11.5.0 min	13.5 min	< 0.001
Adenoma detection	49.3%	39.1%	<0.04

Kondo, Am J Gastroenterol 2007;102:75-81

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**Randomized Trial Initial colonoscopy randomized to repeat 3 months later NBI vs Cap-WL**

N=107	Cap	NBI	P -value
Procedure time	25min	21 min	
Incremental Adenoma detection	31%	5%	<0.04

Horiuchi et al. CGH 2010;8:379

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**Randomized Trial**  
**Initial colonoscopy**  
**randomized to repeat 3 months later**  
**NBI vs Cap-WL**

Incremental polyps	Cap	NBI
<5mm	24	5
5-10mm	9	0
Flat	7	2
Sessile	26	3



Horiuchi et al. CGH 2010;8:379

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**Does a Clear Cap Improve**  
**Adenoma Detection?**

With Fellows: Yes  
With Staff MDs: Mixed results



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**Does White light HD Endoscopy**  
**Increase ADR?**

- Comparative Effectiveness Study
  - 2430 colonoscopies in practice setting
  - 1/2 of unit had HD, 1/2 had Std def
  - Observational but pts assigned to HD vs SD at random

Buchner et al. Clin Gastro Hep 09



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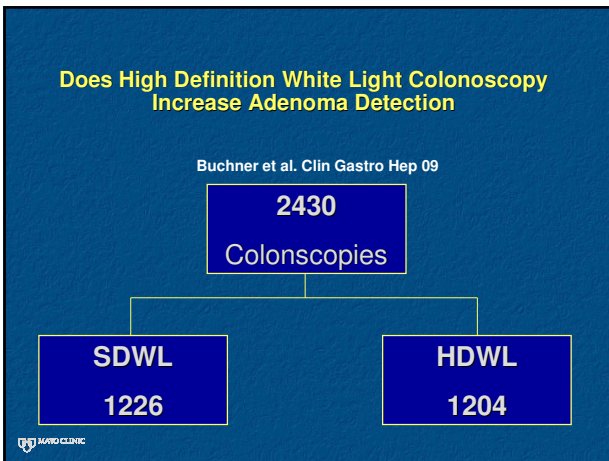
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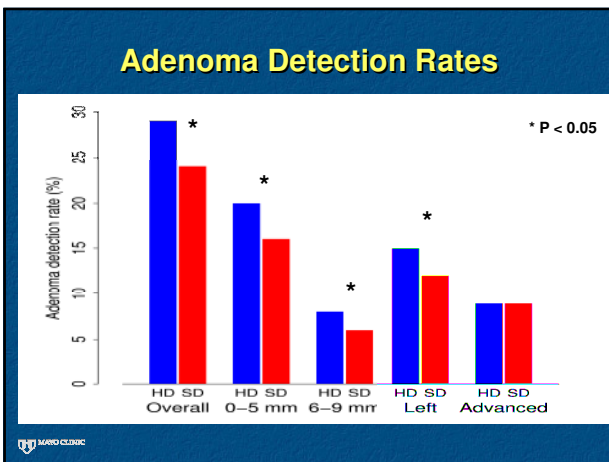
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- Summary:**  
**How Can I Increase (Flat) Adenoma Detection**
- Slow Careful Colonoscopy!!!
    - Look behind folds
    - Look for flat mucosal change (red, rough, reduced vessels)
  - HD Endoscopes
  - Panchromo (but at a cost of time)
  - Unclear if NBI or caps help
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**Prevalence of Nonpolypoid (Flat and Depressed) Colorectal Neoplasms in Asymptomatic and Symptomatic Adults**

**JAMA**<sup>®</sup>  
The Journal of the American Medical Association

Roy M. Soetikno, MD, MS	Anamika Maheshwari, MD
Tonya Kaltenbach, MD, M	Tohru Sato, MD
Robert V. Rouse, MD	Suzanne Matsui, MD
Walter Park, MD	Shai Friedland, MD, MS

**The New York Times**

MEMORANDUM

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**Prevalence of Flat Polyps**

- 27,400 colonoscopies
  - Flat adenoma 5.3%
- Among all adenomas
  - Polypoid 74%
  - Flat 26%
- More likely in right colon (OR 2.92)
- Risk of advanced histology similar
  - Unless depressed (OR 10.56)

\*Blanco et al. Endoscopy 2010;42:279

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**How are Flat Polyps Classified?**

**Impact on management**

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### The Paris Classification

	Histology	Resection
I-p I-s	Adenoma	Snare polypectomy
II-a -b -c	High grade adenoma	EMR en bloc Or piecemeal
III mixed	Carcinoma	EMR en bloc, ESD, or surgery

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### Paris Classification

**I-p (pedunculated)**    **I-s (sessile)**    **II-a (flat elevated)**

**II-b (flat flat)**    **IIc (flat depressed)**    **III (flat ulcerated)**

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### The Kudo Classification Pit Patterns

	Histology	Management
I	Hyperplastic	Nothing
II	Adenoma	Snare polypectomy
III-L III-S	High grade adenoma	EMR en bloc Or piecemeal
IV V	Carcinoma	EMR en bloc, ESD, or surgery

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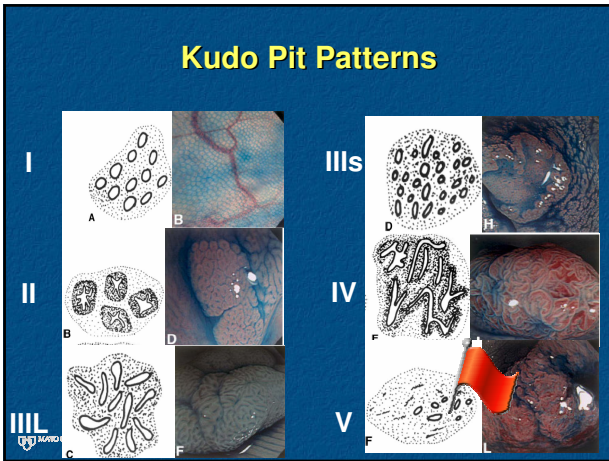
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**Methods To Detect Flat Adenomas**

- Exchange with experts in detection of non-polypoid lesions (Japan, US experts)
- Review of video examples
- Careful inspection of NP-CRN characteristics
  - Slightly red appearance
  - Altered or absent vascular network
  - Friability
  - Wall deformity
  - Use of optical enhancement (indigocarmine, NBI, FICE, iScan)

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**Endoscopic Removal of Big Polyps**




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**EMR Large Villous Adenoma  
 Piece Meal EMR**





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**Effectiveness of EMR**

Study	N	Diameter (mm)	En bloc	Final Success	Recurrence
Bergman	71	25 (10-50)	59%		2.8%
Doniec	186	47 (30-130)	11%		3.8%
Stergiou	68	>30	7%		29%
Church	58	45 (10-80)	34%		43%
Conio	136	25 (15-100)	0%		21%
Hurlstone	83	30 (18-42)	8%		8%
Hurlstone	82	30 +/-10	38%	96%	17%*
Wallace	111	19 (3-70)	71%	95%	19%*




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**Complications of Colonic EMR**

Study	N	Bleeding	Perf	Post polyp. syndrome
Bergman	71	1%	1%	0
Doniec	186	18%	0.7%	0
Stergiou	68	22%	0	0
Church	58	5%	3%	2%
Conio	136	11%	0	4%
Hurlstone	83	8%	0	2%
Hurlstone	82	10%	0	0
Wallace	111	3%	1%	0

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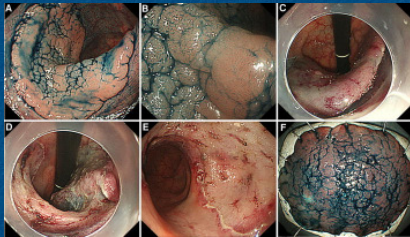
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**ESD in the Colon**

ESD



EMR



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Saito et al. Surg Endos 2010;24:343

**ESD in the Colon**

N=373	EMR (228)	ESD (145)
All > 2cm, flat		
En bloc resection	33%	84%
Perforation	1.3%	6.2% (0 "surgical")
Delayed Bleed	3.1%	1.4%
Procedure time (min)	29 (3-120)	108 (15-360)
Local recurrence	14.5%	2.1%

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Saito et al. Surg Endos 2010;24:343

### ESD in the Colon

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- ### Summary
- Flat polyp are there, you just need to look for them
  - Good technique is most important.
  - New Technology may help detect and classify
  - Small, non-depressed lesions treated with simple EMR
  - Larger (> 2cm) or depressed lesions need wide-EMR/ESD, +/- referral to expert centers
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