

Controversies in Colorectal Cancer Prevention: Stool, Scope, Stain or Scan?

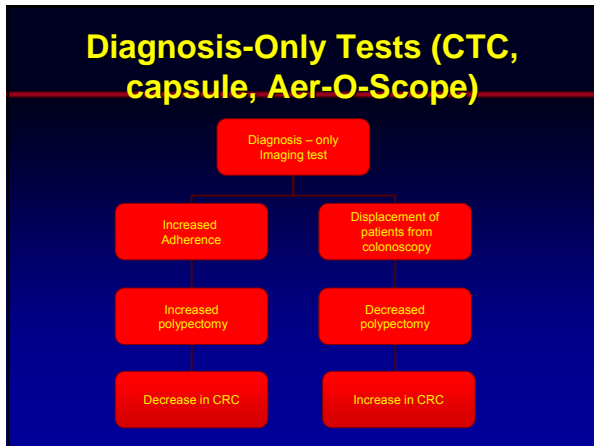
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Why did CMS not cover CTC?

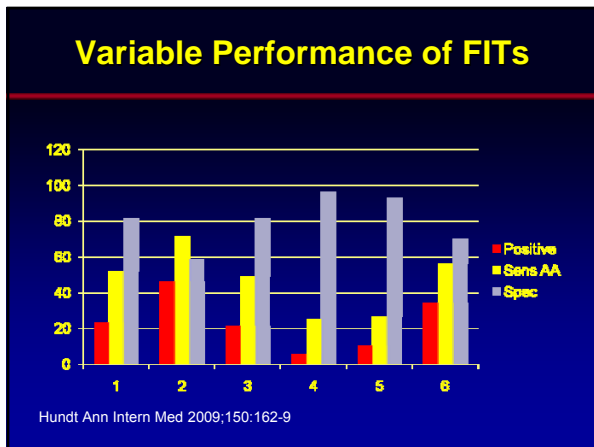
- Elderly are a high prevalence population
- Extracolonic findings can cause harm and increase costs
- No convincing evidence of improved adherence
- (CTC not recommended by USPSTF)

Will CTC Increase Adherence?

- Adherence is a complex phenomenon
 - No evidence currently that CTC will increase adherence or by how much
 - Australian study: Adherence
 - Colonoscopy 16.3
 - CTC 18.1
 - Colonoscopy or CTC 17.5
- Scott Am J Gastroenterol 2004;99:1145-51



- ### Role of the Gastroenterologist in Colorectal Cancer Prevention
- Guiding local PCPs in the utilization of non-invasive tests
 - FIT dominates non invasive imaging tests
 - Which FIT should they use?
 - Maximizing the effectiveness of colonoscopy
 - Quality priorities
 - Technical innovations that work



RCT of FIT vs g-FOBT

- 20,623 screenees
- RCT of FIT (OC-Sensor) vs g-FOBT (HII)
- Adherence 59.6% vs 46.9% (HII)
- Positivity 5.5% vs 2.4% (HII)

Van Rossum, GASTRO 2008;135:82

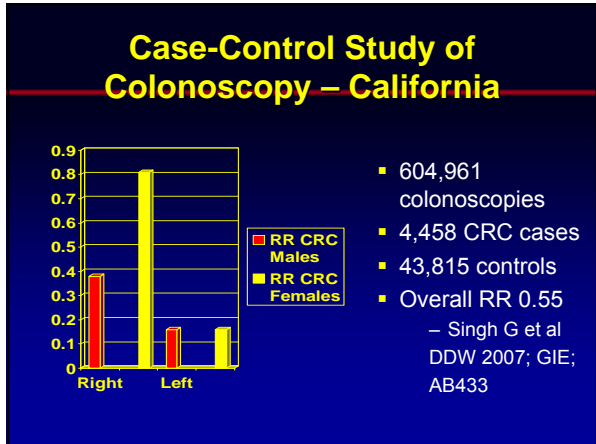
Method	Advanced adenomas and cancers
FIT	~1.40%
g-FOBT	~0.60%

The right colon – colonoscopy effectiveness gap

- Interval cancers are clustered in the right colon

RR of CRC after colonoscopy in Ontario

Location	RR cancer
Right	1.0
Left	~0.15



- ### Priorities in Colonoscopy Effectiveness
- Bowel preparation
 - Cecal intubation rates and documentation
 - Adenoma detection rates

- ### Bowel preparation priorities
- Efficacy
 - Safety
 - Tolerability

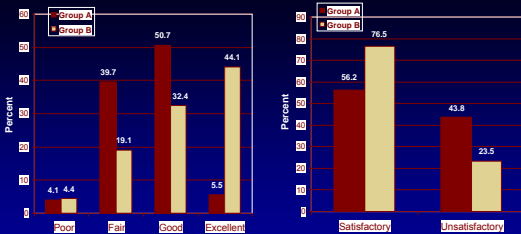
Poor quality preparation

- Inadequate preps in CORI in 26% of examinations
- Costs of delivering colonoscopy goes up by 1% for every 1% of exams that are aborted or require early repeat
- Poor preparation results in longer insertion, longer withdrawal, lower detection rates of large and small polyps

Conclusions about preps

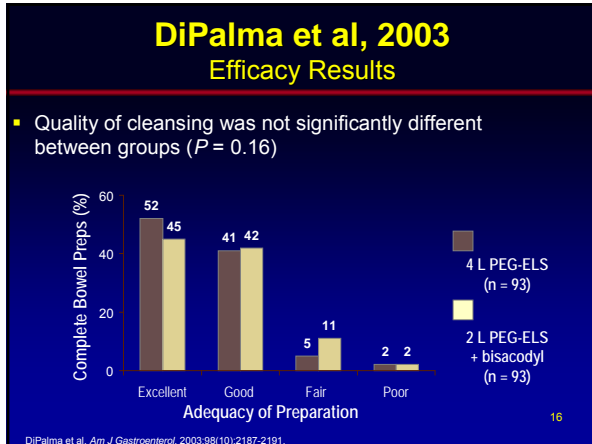
- Split dosing is consistently more effective
- Split dosing is better tolerated
- 2 liter preps have some loss of efficacy compared to 4L preps
- Non-FDA approved preps are controversial
 - PEG-3350
 - Magnesium citrate

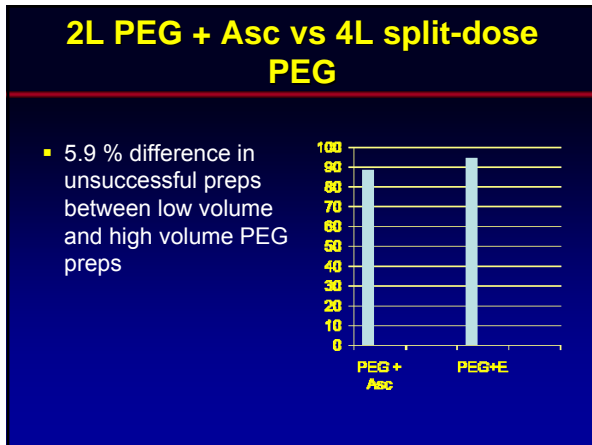
Split-Dosing Provides More Satisfactory Results Than Traditional Dosing (cont)



Group A = 4 L of PEG on the night before the procedure; Group B = 2 L of PEG on the evening before and 2 L on the morning of the procedure.

Reprinted from Acun et al. *Gastrointest Endosc.* 2005;62(2):213-218.





Bowel preparation priorities – what's the right balance?

- Efficacy
- Tolerability

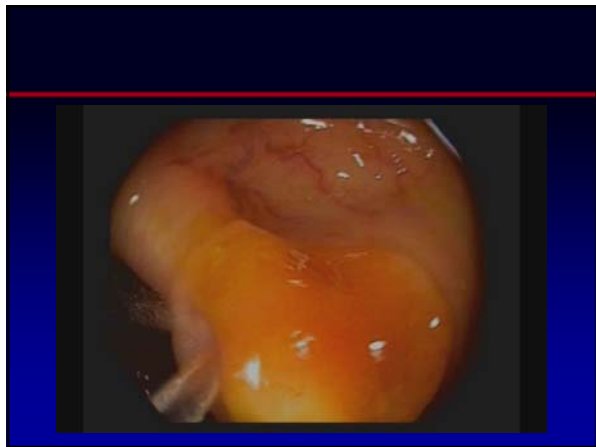
The impact of split dosing



Not split



Split



What do we miss with poor right colon preps?

- Flat lesions?
- Serrated lesions?
 - Highlighted by adherent mucus in an otherwise clean colon

Arguments Against Split-Dosing Regimens

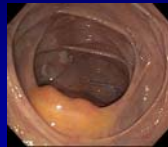
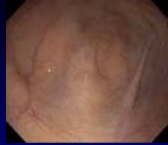
- Inconvenient to the patient
 - Unlikely to be a factor once the process is explained to the patient
- Anesthesiologists will not allow split-dosing
 - Clear liquids allowed up until 2 hours prior to sedation¹

Warner et al. Anesthesiology, 1999;90(3):896-906.

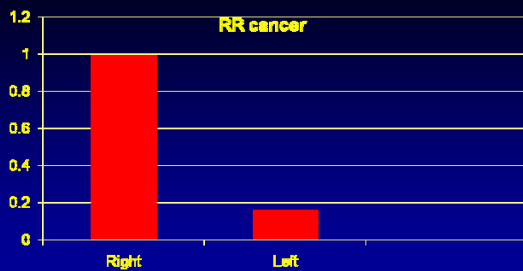
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Documentation of cecal intubation

- Landmark notation
- Photography



RR of CRC after colonoscopy in Ontario



Adenoma Detection Rates

- 2002 USMSTF quality recommendations
 - Prevalence rates of adenomas
 - $\geq 25\%$ in men age ≥ 50 years
 - $\geq 15\%$ in women ≥ 50 years
 - Did not specify the indication
 - Rex et al Am J Gastroenterol 2002;97:1296-308
- 2006 ACG/ASGE quality recommendations
 - Same targets
 - Specified screening examinations
 - Rex et al Am J Gastroenterol 2006; 101:873-7

Adenoma Detection Rates

- Withdrawal time is highly associated with ADR
- Lengthening withdrawal time increases ADR
- WT does not explain all of ADR
- Large adenoma detection rate measurement is not currently recommended
 - Harder to measure (much larger number of cases needed)
 - Ideal targets less certain
 - Overall ADR and large adenoma detection are correlated
 - Large adenoma detection subject to size measurement bias

Adenoma Detection – the Future

- Current targets are well below the true prevalence of adenomas
 - They reflect mean adenoma detection in colonoscopy studies performed by a mix of performers (20 - 25%)
 - The actual prevalence of adenomas is that determined by high level detectors and autopsy studies (40-50%)

Technical developments to improve mucosal exposure

Hidden lesions	Effective	Practical
Wide angle	no	yes
Cap-fitted	no	yes
Third Eye	?	?

Technical developments for improving detection

Flat lesions	effective	practical
Chromoendoscopy	yes	no
NBI	no	yes
FICE	no	yes
I-Scan **	?	yes
Autofluorescence**	yes	yes

** limited data

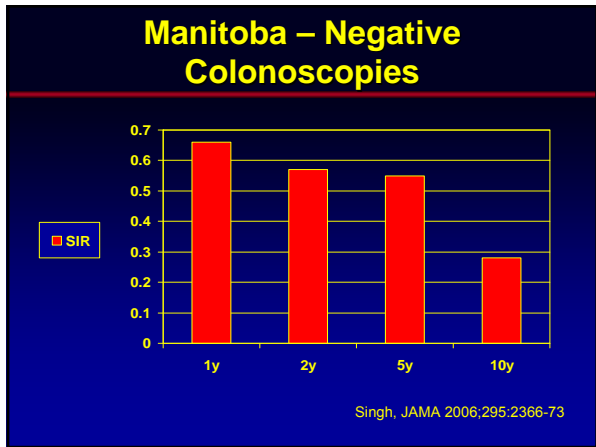
Soetikno study

- Lesions found with:
 - White light
 - 140 and 160 series colonoscopes
- Dye spraying used after detection

New colonoscope imaging technology does allow real time diagnosis

Adenoma vs hyperplastic	Effective	Practical
Confocal laser	yes	no
Endocytoscopy	yes	no
NBI	yes	yes
FICE	yes	yes
I-Scan	yes**	yes**

** limited data available



- ### Conclusions
- Help the PCPs and hospital set up FIT
 - Commit to effective colonoscopy – take care of the basics!
 - Preparation must first be effective
 - Document cecal intubation
 - Measure adenoma detection
 - Technology may fix our detection problems but it hasn't yet
 - Slow and careful white light examination in a clean colon is still the fundamental route to high level detection



CRC Screening Guidelines

MSTF-ACS-ACR

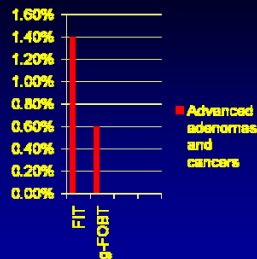
- Annual FIT or HOS
- Flex sig q 5-10 y
- CTC q 5y
- Fecal DNA (interval not stated)
- DCBE q 5 y
- Colonoscopy q 10 y

ACG and ASGE

- Colonoscopy q 10y preferred
- If colonoscopy is declined offer another test

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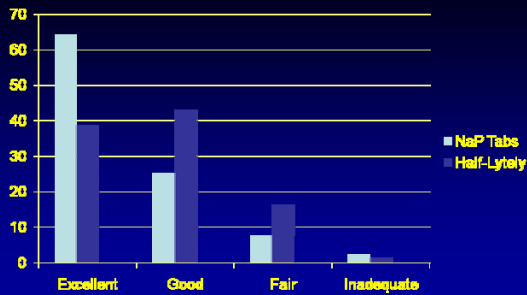
DiPalma et al, 2003 Safety/Tolerability Results

- Significantly more “clinically inadequate” preps in the reduced-volume group (6.5% vs 0%, $P < 0.05$)
- Significantly diminished side effects in the reduced-volume group ($P \leq 0.01$)
 - Fullness
 - Nausea
 - Vomiting
 - Overall discomfort

DiPalma et al. *Am J Gastroenterol*. 2003;98(10):2187-2191

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Osmoprep 32 tabs vs Half-Lytely Johanson AJG 2007;102:2238



What's the largest selling bowel preparation in the United States?

- Half-lytely
 - Low volume
 - Not split
 - expensive

Importance of Dose "Splitting" for Bowel Preparation

- Rostom et al. *Gastrointest Endosc.* 2006;64(4):544-552.
 - 12- or 24-hour split doses of liquid NaP is better than a 6-hour split dose of liquid NaP or 4 L of PEG
- Aoun et al. *Gastrointest Endosc.* 2005;62(2):213-218.
 - 2 L PEG on the evening preprocedure plus 2 L of PEG the morning of the procedure is better than 4 L of PEG on the night before the procedure
- Parra-Blanco et al. *World J Gastroenterol.* 2006;12(38):6161-6166.
 - PEG or NaP given on the same day of the procedure obtained good to excellent scores more frequently than PEG or NaP given on the day prior to the procedure

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