


ACG PG Course October 2009

Colorectal Cancer Screening and Surveillance Review and Rationale



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Colorectal Cancer Screening and Surveillance

- Definitions
- Why Screen for CRC
- Is CRC Screening Effective
- Who is at Risk
- Screening Guidelines
- Post Polypectomy Guidelines
- How can CRC Screening be More Effective

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Definitions

- **Colorectal Cancer Screening**
The testing of asymptomatic individuals to determine who is likely to have Adenomas or CRC.
- **Colorectal Cancer Surveillance**
The monitoring of people who have premalignant conditions (IBD) or who have received treatment for Adenomas or CRC.

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Screening?

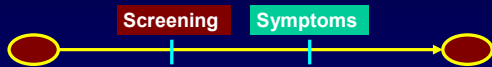
U.S. Incidence	147,000
U.S. Mortality	50,000
Public Health Priority	High
Resources	High

Jemal et al. CA 2009

Colorectal Cancer Screening and Surveillance

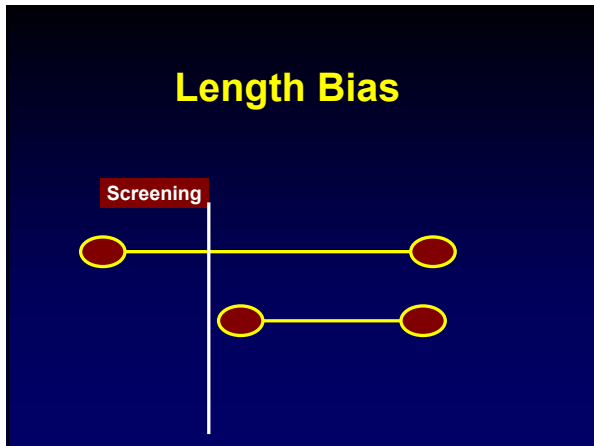
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Lead Time Bias



Overdiagnosis





FOBT Screening Randomized Controlled Trials

	Mortality Reduction		
	Biennial	Annual	Compliers
Minn* 47,000/18 yrs.	21%	33%	45%
Denmark 140,000/10yrs.	18%	-	30%
U.K 153,000/7.8 yrs.	15%	-	-

*Rehydrated slides
Winawer et al, GE 1997

- ### gFOBT
- Decrease in mortality 15-33%
 - Cancer sensitivity (HOS) 50-75%
 - Programmatic sensitivity >90%
 - Digital FOBT sensitivity 5%
 - Needs Annual Compliance
- Winawer Gastro 1997, 2003
Mandel NEJM 1993
Collins Ann Int Med 2005
Hardcastle Lancet 1996
Kronberg Lancet 1996

FIT

- Cancer sensitivity 82-87%
- Advanced Adenoma sensitivity 20-40%
- Many products, User friendly
- No Dietary Restrictions
- 2 Day test
- Cost

Alison JNCI 2007
Smith Cancer 2006

DNA Stool Testing for Colorectal Cancer

	Sensitivity Colorectal Cancer (%)	Sensitivity Advanced Adenomas (%)	Version
*	65 (52-72)	20 (16-24)	1.0
†	87.5%	—	1.1

Issues – whole stool, C/E, Intervals

* Aggregate of 6 studies
† Itzkowitz et al. Clin. GE & Hep. 2007

Sigmoidoscopy

Decrease in mortality 60-80% (RS)
R. colon Adv. Adn. miss 30%
Preferred with Annual FOBT
Compliance

*3 RCTs in progress (PLCO, UK, Nordic)

Levin Gastro 2008
Selby NEJM 1992
Newcomb JNCI 1992
Hoff Gastro 2009 (Abstract)

Colonoscopy

Advanced Adenomas	5-10%
Cancer	<1%
Missed advanced adenomas	2-12%
Interval Cancers (screening)	0.1%
Complications	0.1-0.4%
Incidence reduction (estimate)*	50-70%
Mortality reduction (estimate)*	30-65%

*Nordic RCT initiated June 2009.

1. Lieberman NEJM 2000
2. Schoenfeld NEJM 2005
3. Regula NEJM 2007
4. Regula Gastro 2008 (Abstr)
5. Lieberman NEJM 2009
6. Sonnenberg Ann Int Med 1995
7. Singh JAMA 2006

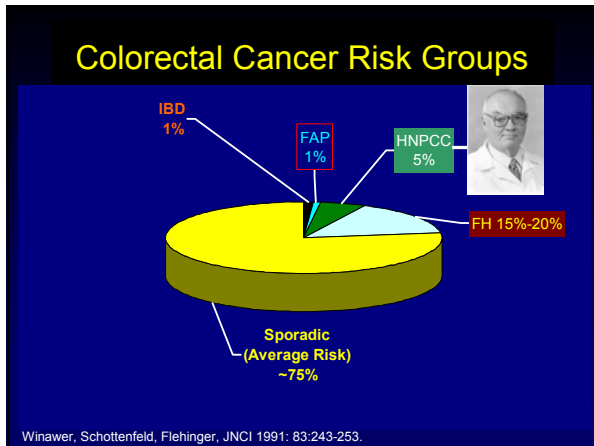
National CTC Trial (ACRIN)

- 2,600 ASX, Age \geq 50
- Trained Radiologists at 15 Centers
- CTC Identified 90% pt's with lesions \geq 1 cm
- CTC Identified 78% pt's with lesions \geq 6 mm
- Issues – RT, C/E, Intervals, Extracolonic findings

Johnson et al. NEJM Sept 2008

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HNPCC

Normal cecum 3/95

Cecal cecum 5/96

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Evolution of U.S. Colorectal Cancer Screening Guidelines

- Prior to 1997
 - No Consensus
 - Options: FOBT, Flex sig, BE
- 1997
 - Positive Consensus **LITIGATION**
 - Options: Colonoscopy q10 yrs added (USMSTF & ACS)
- 2002
 - USPSTF: Evidence Grade A
- 2003
 - USMSTF: Included FIT, Sensitive FOBT
- 2008
 - USMSTF: Prevention vs. Early Detection

Byers et al. CA 1997; USPSTF Ann Int Med 2002; Winawer et al. Gastro 1997, 2003; Levin et al. Gastro 2008.

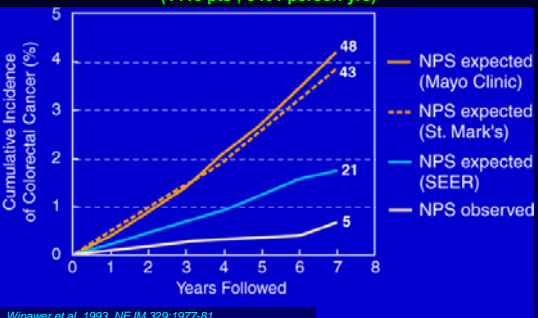
Screening Colonoscopy

- 1997 Guidelines: CO q 10 yrs
 - Adenoma – Carcinoma Sequence
 - Selby, NEJM 1992 – 10-yr protection from SIG
 - Colonoscopy Intervention – NPS

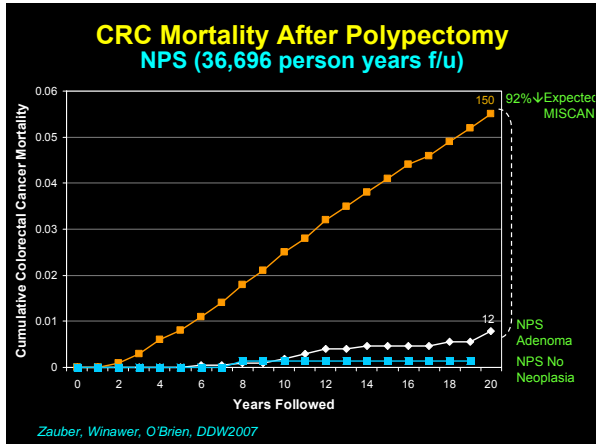
Winawer et al. Gastro 1997.

Colorectal Cancer Incidence in NPS Following Colonoscopic Polypectomy

(1418 pts ; 8401 person yrs)



Winawer et al. 1993. NEJM 329:1977-81



CRC Screening Guidelines Average Risk Men and Women Age ≥ 50

1. USMSTF	Prevention preferred CO, FS, CTC, (BE)
2. USPSTF	Menu; ? D/C at Age 75; ! D/C at Age 85, No BE or CTC
3. ACG	CO preferred Other options: FS, CTC, FIT
4. IDCA	Cascade; Evidence based Resource Driven

1. Levin et al. Gastro 2008
2. Whitlock Ann Int Med 2009
3. Rex et al. Am Jn GE 2008
4. Winawer et al. WGN website and WGN 2008

High Risk Screening

HNPCC Colonoscopy q 1-2 yrs. EGD q 3 yrs.	– Genetic Counseling and Testing, CO, EGD, Urine Cytology, TVUS, CA 125, Endom. Bx.
1 or 2 FDR Colonoscopy q 5 yrs.	– CO age 40 (or 10 years before affected FDR)

Burt Gastro 2000
Winawer Gastro 2003

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Recommendations for Follow-up Colonoscopy

Increased Risk		
▪ 3–10 adenomas, or any advanced adenoma	3 yrs	<i>Serrated Adenoma</i>
▪ >10 adenomas	<3 yrs	
▪ Piecemeal or incomplete	2–6 months	
▪ HNPCC	Intensive F/U (1–2 yrs)	
Lower Risk 70%		
▪ 1 or 2 <1 cm TA & LGD	5–10 yrs	<i>Sessile Serrated Adenoma</i>
▪ Hyperplastic Polyps	10 yrs	

US Multisociety Taskforce & ACS, 2006
Winawer et al., GE&CA, 2006

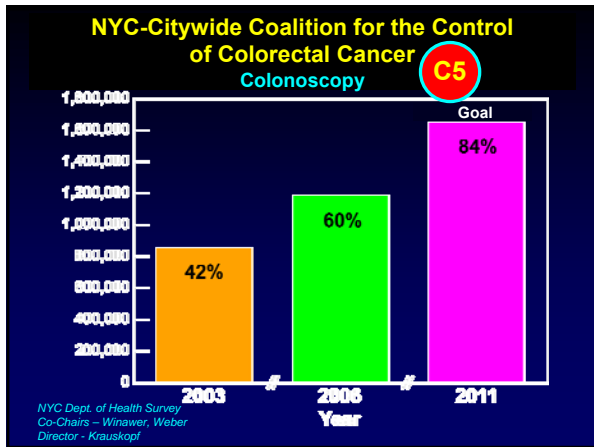
Interval Neoplasia

- **0.3-0.9%**
- **Technological Limitations**
- **Technique**
 - Incomplete Colonoscopy
 - Inadequate Bowel Prep
 - Withdrawal – Quality/Time
 - Piecemeal Removal of Large Sessile Polyps
- **Biology**
 - MMR (15–20%) – Fast Track
 - FA, Depressed, SA, SSA

US Multisociety TaskForce Rex et al. Am J. GE 2002.
Barclay et al. GIE 2005, Sawney et al., Gastro 2008
Pabby, Gastrointest Endosc 2005;
Alberts, NEJM 2000;
Robertson, Gastroenterol 2005;
NPS, Winawer, 1993 NEJM

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Effective CRC Screening

- Quality Screening Program
- Timely Diagnosis
- Timely Treatment
- Appropriate Surveillance
- Healthy Lifestyle

CRC Screening and Surveillance Summary

- Screening is a package – screening, Dx, Rx, Surv
- All tests are C/E (ex CTC)
- All tests have issues
- All tests reduce risk of CRC death (estim.)
- Any test is better than none (ex Digital FOBT)

Lieberman NEJM 2009

THE BEST SCREENING TEST IS

THE ONE THAT GETS DONE.

WELL

Thank You
