

Colorectal Cancer Screening: Colonoscopy and its Alternatives

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Colonoscopy and its Alternatives

- Rationale for screening
 - Assessing risk
- Colonoscopy, the gold standard
- Alternative screening modalities
 - Flexible sigmoidoscopy
 - Stool-based testing
- What regimens are not recommended?

Rationale for screening

- The goal of any screening program is reduction of mortality through early detection and prevention
- Selection of appropriate patients for screening based on individual risk factors

Risk Assessment

- Average risk
 - Age ≥ 50
 - No prior history of adenoma or sessile serrated polyp
 - No prior history of colorectal cancer
 - No prior history of inflammatory bowel disease
 - No family history of colorectal cancer

Risk Assessment

- Increased risk
 - Personal history of adenoma or sessile serrated polyps
 - Personal history of colorectal cancer
 - Personal history of inflammatory bowel disease

Risk Assessment

- High risk
 - Hereditary nonpolyposis colon cancer (HNPCC)/Lynch syndrome
 - Polyposis syndromes
 - Familial adenomatous polyposis (FAP)
 - Attenuated FAP
 - Peutz-Jeghers syndrome
 - Juvenile polyposis
 - Cowden syndrome
 - Li Fraumeni syndrome

Risk Assessment

Average Risk	Increased Risk	High Risk
Age ≥ 50		Hereditary nonpolyposis colon cancer (HNPCC)/Lynch syndrome
No prior history of adenoma or sessile serrated polyp	Prior history of adenoma or sessile serrated polyp	Polyposis syndromes (e.g. FAP, attenuated FAP, juvenile polyposis)
No prior history of colorectal cancer	Prior history of colorectal cancer	Cowden syndrome
No prior history of inflammatory bowel disease	Prior history of inflammatory bowel disease	Li Fraumeni syndrome
No family history of colorectal cancer	Family history of colorectal cancer	

Colonoscopy, the Gold Standard

- Ability to detect, diagnose, treat, and prevent colon polyps and colon cancer
- Improved sensitivity over other methods
- Treat at time of screening, polypectomy
- Decreases mortality of colorectal cancer
 - VA Health Care Study
 - RR 0.43 (95%CI: 0.30-0.63)
 - Nurses Health Study and Health Professionals Follow Up Study
 - 68% reduction in mortality

Barriers to colonoscopy

- Bowel preparation
- Access to care
 - May be improving with ACA
- Associated risks
 - Perforation or bleeding

Alternative screening regimens

- Flexible sigmoidoscopy
 - Visualize the distal aspects of the colon
 - With or without intervention
 - Decreases mortality of colorectal cancer
 - VA Health Care study
 - RR 0.66 (95%CI: 0.54-0.82)
 - Nurses Health Study and Health Professionals Follow Up Study
 - RR 0.56 (95%CI: 0.20-1.60)

Alternative screening regimens

- Fecal-based testing
 - Guaiac-based (FOBT)
 - Detects peroxidase activity
 - 4 major RCTs (12-18 years follow-up)
 - Overall reduction in colorectal cancer mortality 13-21%
 - Cochrane review (2008) RR 0.84 (95%CI:0.78-0.92)
 - Fecal immunochemical testing (FIT)
 - Employs antibodies to blood components

Barriers to alternative screening regimens

- Fecal-based testing drawbacks
 - Poor compliance (38-60% in studies)
 - False-positives due to dietary agents
 - Natural aversion to stool sampling
 - Referral for colonoscopy for abnormal results
- Flexible sigmoidoscopy drawbacks
 - Relies on detection of distal lesions
 - Less optimal preparation
 - Variation in sedation
 - Referral for colonoscopy for abnormal results

Risk Assessment

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The jury is still out. . .

- CT colonography
 - Potential to decrease mortality if viewed as an ‘acceptable’ alternative by patients
 - Increased cumulative radiation exposure
 - Unavailable in varying parts of the country
 - Continued requirement for bowel prep
 - Not recommended for routine screening by USPSTF

The jury is still out. . .

- Fecal DNA testing
 - Has potential to be highly specific
 - Such tests are evolving, one standard test is not widely employed
 - Likely high monetary cost per test
 - Not recommended for routine screening by USPSTF

Summary

- Colonoscopy remains the gold standard method of screening for colorectal cancer in average, increased, and high-risk populations
- Alternative regimens including flexible sigmoidoscopy, fecal-based testing
- Patients may ask about CT colonography or fecal DNA testing which are not part of current recommendations

Summary

- Efforts to prevent colorectal cancer deaths should maximize the screening of individuals by any appropriate method
- Requires shared decision making between patients and providers, as patient acceptance and adherence to particular screening methods is variable

Questions?