Colorectal Cancer: Screening and Prevention Issues

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No disclosures
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Objectives

• Incidence and prevalence data
• Historical and technical aspects of screening
• Quality indicators of colonoscopy
• New technology
• Screening and surveillance guidelines changes
Symptomatic CRC – Stages 3 and 4

Obstructing rectal cancer

Apple-core lesion sigmoid colon
Definitions

• Screening
  – Searching for new cases in patients without symptoms

• Surveillance
  – Follow up program in patients with identified risk factors

• Guidelines
  – Statements generated by experts after consensus, guided by data when available, to promote optimal care
Screening for GI Malignancies

- Esophagus
  - Longstanding acid reflux, head & neck cancer, caustic ingestion, tylosis
- Stomach
  - Atrophic gastritis, pernicious anemia, adenomatous polyps
- Duodenum
  - Familial polyposis syndromes, sporadic adenomatous polyps
- Liver
  - Cirrhosis
- Pancreas
  - Familial pancreatic cancer
- Colon and rectum
  - Everyone!
CRC Data 2008

• Colorectal cancer is the second leading cause of cancer death in the USA
  – 148,810 est. new cases
  – 49,960 est. deaths
    • More than 10% cancer deaths
  – 5.29% life-time risk for men and women born between 2003 – 2005 (1 in 19)

www.cancer.gov
Colon Cancer

Malignant sigmoid polyp nearly obstructing the lumen

Obstructing rectal cancer
## CRC Incidence Trends

<table>
<thead>
<tr>
<th>Period</th>
<th>Male and Female</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975-1985</td>
<td>0.8</td>
<td>1.1</td>
<td>0.3</td>
</tr>
<tr>
<td>1985-1995</td>
<td>-1.8</td>
<td>-2.2</td>
<td>-1.9</td>
</tr>
<tr>
<td>1995-1998</td>
<td>1.5</td>
<td>1.3</td>
<td>1.9</td>
</tr>
<tr>
<td>1998-2005</td>
<td>-2.6</td>
<td>-3.0</td>
<td>-2.4</td>
</tr>
</tbody>
</table>

[www.cancer.gov](http://www.cancer.gov)
# CRC Mortality Trends

<table>
<thead>
<tr>
<th>Period</th>
<th>Trend</th>
<th>Period</th>
<th>Trend</th>
<th>Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1975-1978</td>
<td>0.2</td>
<td>1975-1984</td>
<td>-1.0</td>
<td>1975-1984</td>
</tr>
<tr>
<td>1978-1985</td>
<td>-0.8</td>
<td>1984-1990</td>
<td>-1.8</td>
<td>1984-2002</td>
</tr>
<tr>
<td>1985-2002</td>
<td>-1.8</td>
<td>1990-2002</td>
<td>-4.3</td>
<td>2002-2005</td>
</tr>
<tr>
<td>2002-2005</td>
<td>-4.4</td>
<td>2002-2005</td>
<td>-4.3</td>
<td>2002-2005</td>
</tr>
</tbody>
</table>

All Races

www.cancer.gov
## Incidence Rates by Race

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Races</td>
<td>59.2 per 100,000</td>
<td>43.8 per 100,000</td>
</tr>
<tr>
<td>White</td>
<td>58.9 per 100,000</td>
<td>43.2 per 100,000</td>
</tr>
<tr>
<td>Black</td>
<td>71.2 per 100,000</td>
<td>54.5 per 100,000</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>48.0 per 100,000</td>
<td>35.4 per 100,000</td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>46.0 per 100,000</td>
<td>41.2 per 100,000</td>
</tr>
<tr>
<td>Hispanic</td>
<td>47.3 per 100,000</td>
<td>32.8 per 100,000</td>
</tr>
</tbody>
</table>
Prevalence and Direct Costs for Selected Digestive Diseases

<table>
<thead>
<tr>
<th>Disease</th>
<th>Prevalence (in thousands)</th>
<th>1998 Direct / Total Cost ($ in millions)</th>
<th>2000 Total Costs ($ in millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERD</td>
<td>18,600</td>
<td>9,325 / 9,804</td>
<td>10,070</td>
</tr>
<tr>
<td>Gall bladder</td>
<td>20,500</td>
<td>5,755 / 6,049</td>
<td>6,467</td>
</tr>
<tr>
<td>Colorectal Ca</td>
<td>422</td>
<td>4,846 / 4,952</td>
<td>5,294</td>
</tr>
<tr>
<td>Diverticular</td>
<td>2,254</td>
<td>2,357 / 2,498</td>
<td>2,667</td>
</tr>
<tr>
<td>Liver Ca</td>
<td>10</td>
<td>1,266 / 1,344</td>
<td>1,518</td>
</tr>
<tr>
<td>Pancreatic Ca</td>
<td>18</td>
<td>1,225 / 1,255</td>
<td>1,370</td>
</tr>
<tr>
<td>Barrett’s</td>
<td>808</td>
<td>351 / 372</td>
<td>389</td>
</tr>
</tbody>
</table>
Reasons for CRC Screening

• Common and deadly
• Grows slowly and cured with early detection
  – Dukes A and B (Stage I and II) cure rate >85%
  – Dukes C and D tend to present with symptoms
• Interrupts the adenoma-carcinoma sequence
• Screening methods are widely available

Mandel NEJM 1993;328:1365
Colonic Polyps

- Diminutive adenoma
- Hyperplastic polyp
Prevalence of Adenomas and Incidence of CRC

- Age ≥ 50
  - Any adenoma 25% - 40%
  - Advanced adenoma 3% - 10%
  - Lifetime risk of cancer 5%

- Large polyps (>1 cm) have a cancer risk of 1% per year
  - A large polyp left alone has cumulative cancer risk of 24% in 20 years

Rex  Am J Gastroenterol 1995;90:363
Ransohoff Lancet 2002;359:1266
Stryker Gastroenterol 1987;93:1009
Adenomatous Polyp and Mass

Advanced adenoma

Sessile adenocarcinoma
CRC Medico-legal Issues

• Delay in diagnosis of CRC accounts for >50% of all litigation against PCP for GI disease
  1. Attributing bleeding to hemorrhoids
  2. Inadequate evaluation of FOBT
  3. Failure to screen

Gerstenberger Gastrointest Endosc 1993;39:132
Rates of CRC Screening

• Only 26% of eligible population had FOBT within 3 years
  – 33% have ever had FOBT
• Most common reason given: test was never recommended
• Only 4% of those offered screening decline

Vernon J Natl Cancer Inst 1997;89:1406
Making Recommendations for CRC Screening

• Basis of screening
  – Randomized controlled trials of FOBT
  – Case-control studies of sigmoidoscopy
  – Case-control studies of colonoscopy

• Approach of guideline groups
  – Accept screening is effective
  – Test based on performance, costs, safety

Winawer  Gastroenterol 1997;112:594
Menu of Options

AHCP R
- Annual FOBT
- Sigmoidoscopy 5 yr
- Annual FOBT plus FS every 5 yr
- ACBE every 5-10 yr
- Colonoscopy 10 yr

ACS
- Annual FOBT or FIT*
- Sigmoidoscopy 5 yr*
- Colonoscopy 10 yr
- ACBE 5 yr
*Prefer in combination

www.ahrq.gov  www.cancer.org
YOO HOO!!!
ANYBODY HERE?!!???
FOBT for CRC Screening

- Decreases mortality by 15 - 30%
  - Haphazard method of selecting for colonoscopy
  - Predictive value of a positive test is ~ 10%
    - limits cost-effectiveness
  - Repeated FOBT increases specificity at the expense of sensitivity
    - a negative second FOBT may dissuade investigation
FOBT for CRC Screening

• Guaiac-peroxidase activity
  – False positives
    • Red meat (hemoglobin)
    • Fresh radishes, turnips, broccoli (peroxidase) avoided by delaying development
  – False negatives
    • Vitamin C inhibits guaiac reaction
    • Adenomas < 1.5 cm
# FOBT for CRC Screening

**Minnesota Colon Cancer Study**

<table>
<thead>
<tr>
<th></th>
<th>Annual</th>
<th>Biannual</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n)</td>
<td>184,160</td>
<td>183,934</td>
<td>181,966</td>
</tr>
<tr>
<td>Cases of CRC</td>
<td>323</td>
<td>323</td>
<td>356</td>
</tr>
<tr>
<td>Deaths from CRC</td>
<td>82</td>
<td>117</td>
<td>121</td>
</tr>
<tr>
<td>Mortality ratio</td>
<td>0.67 (0.5-0.87)</td>
<td>0.94 (0.68-1.31)</td>
<td>1.00</td>
</tr>
</tbody>
</table>

*33% Reduction in mortality; FOBT cards rehydrated*

Mandel NEJM 2000;343:1603
### FOBT Detecting Polyps

Test Sensitivity in 81 Patients with Adenomas

<table>
<thead>
<tr>
<th>FOB Result</th>
<th>Hemoccult II</th>
<th>SENSA</th>
<th>Select</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>25</td>
<td>36</td>
<td>47</td>
</tr>
<tr>
<td>Negative</td>
<td>56</td>
<td>45</td>
<td>34</td>
</tr>
<tr>
<td>Sensitivity</td>
<td>31%</td>
<td>44%</td>
<td>58%</td>
</tr>
</tbody>
</table>

St John Gastroenterol 1993;104:1661
# FOBT for CRC Screening

## Test Sensitivity in 107 Patients with CRC

<table>
<thead>
<tr>
<th>FOB Result</th>
<th>Hemoccult II</th>
<th>SENSA</th>
<th>Select</th>
<th>HemoQuant</th>
</tr>
</thead>
<tbody>
<tr>
<td>Positive</td>
<td>95</td>
<td>100</td>
<td>104</td>
<td>76</td>
</tr>
<tr>
<td>Negative</td>
<td>12</td>
<td>7</td>
<td>3</td>
<td>31</td>
</tr>
</tbody>
</table>

Sensitivity:
- Hemoccult II: 89%
- SENSA: 94%
- Select: 97%
- HemoQuant: 71%

St John Gastroenterol 1993;104:1661
Fecal Immunochemical Tests

• Antibodies specific for human globulin
  – Unaffected by diet or NSAIDs (UGI sources)
  – Increased patient acceptance
• Increased sensitivity and specificity to FOBT
• Automated reading and reporting
  – Quality assurance
  – Large screening populations
  – CMS reimbursement $22
## FIT Detecting Polyps

<table>
<thead>
<tr>
<th>Test</th>
<th>Sensitivity CRC</th>
<th>Sensitivity Polyp &gt;1 cm</th>
<th>Specificity CRC</th>
<th>Specificity Polyp &gt;1 cm</th>
</tr>
</thead>
<tbody>
<tr>
<td>HemeSelect</td>
<td>69</td>
<td>67</td>
<td>95</td>
<td>95</td>
</tr>
<tr>
<td>Hemoccult ICT</td>
<td>82</td>
<td>30</td>
<td>97</td>
<td>97</td>
</tr>
<tr>
<td>Magstream</td>
<td>66</td>
<td>20</td>
<td>95</td>
<td>95</td>
</tr>
</tbody>
</table>

Allison Pract Gastro 2007;6:20
Sigmoidoscopy for Screening

- 1 - 3% screened populations have significant proximal adenomas without distal adenomas
## Sigmoidoscopy vs. Colonoscopy

<table>
<thead>
<tr>
<th>Distal Finding</th>
<th>Total n (%)</th>
<th>Advanced Proximal Neoplasm n</th>
<th>% (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No polyp</td>
<td>1564 (78.4)</td>
<td>23</td>
<td>1.5 (0.9-2.1)</td>
</tr>
<tr>
<td>Hyperplastic</td>
<td>201 (10.1)</td>
<td>8</td>
<td>4.0 (1.3-6.7)</td>
</tr>
<tr>
<td>Tubular adenoma</td>
<td>168 (8.4)</td>
<td>12</td>
<td>7.1 (3.3-11.0)</td>
</tr>
<tr>
<td>Advanced neoplasm</td>
<td>61 (3.1)</td>
<td>7</td>
<td>11.5 (3.4-19.5)</td>
</tr>
</tbody>
</table>

Imperiale NEJM 2000;343:169
BE for Screening

• Double Contrast Barium Enema
  – 50% miss rate of polyps 1cm or larger
  – Sensitivity for cancer 50% - 75%
  – Poor sensitivity in the rectosigmoid region
    • Always use in combination with sigmoidoscopy
Colonoscopy

• VA Cooperative study
  – 1463 women (15.7 family history CRC)
    • Advanced neoplasia 72 (4.9%)
    • Only 25 had lesion in rectosigmoid area (1.7%) vs. 47 (3.2%) proximal site alone
  – 35% females vs. 66% males would have cancer detected by sigmoidoscopy (p<0.001)

Schoenfeld NEJM 2005;352:2061
Colonoscopy

• Expensive
• Risks of serious complications
• Requires large amounts of time, equipment and expertise
• Imperfect with missed polyps and cancers
• Preferred method CRC prevention and detection
Hot Biopsy Polypectomy

Small sessile adenoma

Fresh hot biopsy site
## Cost Analysis of CRC Screening Methods

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Ca Avoided</th>
<th>Cost / Ca Avoided</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOBT</td>
<td>4.5</td>
<td>$127,676</td>
</tr>
<tr>
<td>FOBT + FS</td>
<td>10</td>
<td>$98,449</td>
</tr>
<tr>
<td>Colonoscopy</td>
<td>13.5</td>
<td>$75,840</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cancer</th>
<th>Estimated C/E Ratio per Life-year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colon</td>
<td>$6,600</td>
</tr>
<tr>
<td>Breast</td>
<td>$22,000</td>
</tr>
<tr>
<td>Cervical</td>
<td>$250,000</td>
</tr>
</tbody>
</table>

Pignone Ann Intern Med 2002;137:96
Quality and Comfort in Colonoscopy

- Patient apprehension
  - Loss of dignity
  - Anticipated discomfort
- 5% colons difficult due to anatomic reasons
  - Inappropriate force causes inevitable pain and irreducible loops

Williams Gastrointest Endosc 1994;40:769
## Incident Cancers

<table>
<thead>
<tr>
<th>Study</th>
<th>n</th>
<th>Mean</th>
<th>Patient-yr</th>
<th>Incidence (per 1000 pt/yr)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winawer 1993</td>
<td>1418</td>
<td>5.9</td>
<td>8401</td>
<td>0.6 (5)</td>
</tr>
<tr>
<td>Schatzkin 2000</td>
<td>1905</td>
<td>3.05</td>
<td>5810</td>
<td>2.41 (14)</td>
</tr>
<tr>
<td>Alberts 2000</td>
<td>1303</td>
<td>2.91</td>
<td>3789</td>
<td>2.38 (9)</td>
</tr>
</tbody>
</table>
Quality Indicators

• Adenoma detection rate ≥ 25%
  – Men over age 50
• Cecal intubation rate 90% - 95%
• Withdrawal time ≥ 6 minutes
  – 2.4 times as many adenomas than those average
    < 6 minutes withdrawal time

Barclay NEJM 2006;355:2533
Incident Cancers after Clearing Colonoscopy

- Potential explanations not involving negligence:
  - Inherent miss rate of colonoscopy due to available technology (blind spots)
  - Inadequate preparation
  - Variable growth rate of adenomas and CRC
  - Flat neoplasms
Incident Cancers after Clearing Colonoscopy

- Implications for the colonoscopists:
  - Informed consent missed lesions
  - Documentation of cecal intubation
  - Description of preparation
  - Careful withdrawal technique 6 to 8 minutes
  - Biopsy or remove subtle lesions
  - Monitor adenoma detection rates
Incomplete Colonoscopy

• Retrospective review
  – 331,608 patients age 50 to 74
  – 13% incomplete
    • Older (10 yr)  1.20 [1.18-1.22]
    • Female       1.35 [1.30-1.39]
    • Surgery      1.07 [1.05-1.09]
    • Pelvic surgery 1.04 [1.01-1.06]
    • Private office 3.57 [2.55-4.98]

Shah Gastroenterol 2007;132:2297
Complications of Colonoscopy

- Electrolyte and fluid abnormalities
- Cardiopulmonary events
- Perforation
- Bleeding
- Post-polypectomy syndrome
- Missed lesions
Complications of Polypectomy

• Hemorrhage ~ 3%
  – Immediate bleeding occurs in ~ 1.5%
    • Injection with epinephrine 1:10:000
    • Thermal coagulation with heater probe or BICAP
    • Clip, band or loop devices
  – Delayed bleeding occurs in ~ 2%
    • 1 week after polypectomy (range 1 - 12 days)
Hot Biopsy Polypectomy

- Carpet sessile polyp
- Fresh polypectomy site
Complications of Polypectomy

- Post-polypectomy syndrome ~ 1%
  - Localized inflammatory response of the serosa
  - Onset of pain ~ 2 days (6 hr - 5 days)
  - Perforation may occur ~ 0.3% (1 - 9 days)
  - Hospitalization for antibiotics and bowel rest
Polypectomy and Saline Cushion

Sessile adenoma partially obscured by folds

Submucosal injection and endoscope rotation allow snare polypectomy
Complications of Polypectomy

• Perforation 1 of 1,000 procedures
  – Care must be individualized according to the patient’s clinical status by the gastroenterologist and surgeon
  – Mortality rate of 1 - 3 per 10,000 procedures
Malignant Colon Polyps

Diagram showing the anatomy of malignant colon polyps, including levels and tissue layers.
Snare Polypectomy

Pedunculated polyp with snare

Fresh cautery site
Malignant Colon Polyps

Sessile adenoma with invasive cancer <2 mm from the resection margin
Malignant Colon Polyps

• Five criteria for conservative approach:
  – Complete excision at endoscopy
  – Specimen processed properly
  – Moderate or well differentiation
  – Resection margin is not involved
  – No vascular or lymphatic involvement
Malignant Colon Polyps

- Cancer at surgery or 5 year follow up
  - 23 studies reporting 1,002 malignant polyps
  - 103 (10%) had cancer in specimen or follow up
  - 10 (1%) could be classified in the favorable histology group
  - All 6 authors reporting unfavorable outcome failed to report details about resection margin
Flat Colorectal Adenomas

- Flat or depressed lesions noted on dye spraying
  - Visible flat or depressed - height <\(\frac{1}{2}\) diameter
  - May have higher incidence of high-grade dysplasia
  - Case reports of early submucosal invasion
New Colonoscopy Techniques

- Narrow band imaging
- Third eye retrospective mini-scope
- Wide angle lenses
- Cap-fitted endoscope
- Dye staining
Virtual Colonoscopy

CT Pneumocolography
CT Colonography
## CT Colonography

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>CTC</th>
<th>OC</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n=3120</td>
<td>n=3163</td>
<td></td>
</tr>
<tr>
<td>Use of OC</td>
<td>246 (7.9%)</td>
<td>3163 (100%)</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Polypectomy</td>
<td>561</td>
<td>2434</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Carcinoma/</td>
<td>14</td>
<td>4</td>
<td>0.04</td>
</tr>
<tr>
<td>Patients</td>
<td>12</td>
<td>4</td>
<td>0.02</td>
</tr>
<tr>
<td>≥ 10 mm polyps</td>
<td>103</td>
<td>103</td>
<td>0.92</td>
</tr>
</tbody>
</table>

Kim NEJM 2007;357:1403
CT Colonography

• ACRIN trial – 15 centers
  – 2600 patients tandem CTC + OC
  – Adenomas ≥10 mm and adenocarcinoma
    • Sensitivity 0.90 ± 0.03
    • Specificity 0.86 ± 0.02
    • PPV 0.23 ± 0.02
  – Adenomas ≥ 6 mm
    • Sensitivity 0.78

Johnson NEJM 2008;359:1207
Capsule Endoscopy for CRC Screening

• Colonic capsule (PillCam Colon)
  – n=77
  – Mean colonic transit time 157 ±132 min (5 – 481)
  – Agreement with colonoscopy
    • Any lesion k = 0.68
    • Polyps k = 0.47
    • Number polyps k = 0.32
    • Size polyps r = 0.84
  – PPV 75%; NPV 62%

Delvaux Gastrointest Endosc 2008;AB322
Preparation for Colonoscopy

- Discuss goals of procedure
- Begin informed consent process
  - Open access endoscopy programs
- Avoid fiber and iron supplements for 7 days
- Push clear liquids up until 2 hours procedure
- Antibiotic prophylaxis rarely for high risk cardiac lesions
  - Cover enterococci with ampicillin/amoxicillin or vancomycin in penicillin allergic patients
Preparation for Colonoscopy

- **Anticoagulants**
  - **Coumadin** – withhold for 5 days
  - **Clopidogrel** – withhold for 7 days
    - Start aspirin in place of clopidogrel
  - **Aspirin** – no change in dose
  - **Heparin** for high risk patients
    - Anecdotal data on LMW heparin

Zuckerman Gastrointest Endosc 2005;61:190
Veitch Gut 2008;57:1322
Preparation Solutions

• Split dose RCT
  – n=382
  – PEG (polyethylene glycol) and promotility agent
  – 4 arm randomization scheme
    • Split dose vs. whole dose: 88.9% vs. 42.6% good or excellent effect
    • Tegaserod did not improve preparation with either dosing

Abdul-Baki Gastrointest Endosc 2008;68:294
CRC Risks

- Personal history CRC or adenomatous polyp
- Personal history inflammatory bowel disease
- Family history of CRC or adenomatous polyps
- Family history of hereditary CRC syndromes
  - Familial Adenomatous Polyposis (FAP)
  - Hereditary Non-Polyposis Colon Cancer (HNPCC)
CRC and Family History

• Strong family history
  – 1\textsuperscript{st} degree relative CRC age <60 yr
  – 2 or more 1\textsuperscript{st} degree relative CRC any age
  – 1st degree relative with adenomas with advanced pathology
  – 3 - 4 fold risk of CRC than general population
  – Colonoscopy age 40 or 10 yr less than youngest relative and every 3 - 5 yr thereafter
MSTF Surveillance Guidelines

• Increased risk
  – Multiplicity – 3 or more adenomas
  – Size – 1 cm or larger
  – Villous features
  – High-grade dysplasia

• Lower risk
  – No villous features
  – No high-grade dysplasia

US Multi-Society Task Force on CRC and ACS 2006
MSTF Surveillance Guidelines

• Complete exam to cecum with adequate preparation
  – Repeat examination with inadequate bowel prep or incomplete polypectomy

• Endoscopists make clear recommendation of interval

• Discourage FOBT in addition to colonoscopy

• Discontinue surveillance in patients with serious comorbidities

• New symptoms should prompt repeat evaluation

US Multi-Society Task Force on CRC and ACS 2006
## MSTF Surveillance Guidelines

### Increased risk
- 3 – 10 adenomas or advanced pathology
- 10 adenomas
- Piecemeal or incomplete
- HNPCC

### Lower risk
- 1 – 2 small adenomas
- Hyperplastic polyps

US Multi-Society Task Force on CRC and ACS 2006
ACG Screening Guidelines

• African Americans beginning at age 45 years

• Family history of only small tubular adenomas is not considered to increase risk of CRC

• A single first-degree relative with CRC age 60 years can be screened like average-risk persons

• Cigarette smokers and obese patients – make special efforts to screen these patients

Rex Am J Gastroenterol 2009;104:739
ACG Screening Guidelines

- CT colonography every 5 years replaces double contrast barium enema as the radiological alternative, when patients decline colonoscopy

- FIT replaces older guaiac-based FOBT and the preferred cancer detection test

- Annual Hemoccult Sensa and fecal DNA testing every 3 years are alternative cancer detection tests

Rex Am J Gastroenterol 2009;104:739
Screening in High Risk Patients

• Hereditary Non-Polyposis Colorectal Cancer (HNPCC)
  – Colonoscopy at age 20 - 25 yr every 2 yr until age 40, then annually
  – Amsterdam Criteria
    1) 3 first-degree relatives CRC
    2) CRC must span 2 generations
    3) 1 case must be age < 50 yr
  – Genetic testing successful in 50% patients
    • Consider MSI testing of suspect tumors first
Screening in High Risk Patients

• Familial Adenomatous Polyposis (FAP)
  – Kindred - sigmoidoscopy every 1 - 2 yr, beginning at 10 - 12 yr of age until 40 yr
  – Older unscreened patients should have colonoscopy
  – APC gene found 80% of index patients
    • 20% of families will require sigmoidoscopy screening
    • Attenuated APC requires colonoscopy
CRC Prevention Goals

- Increase screening rates with education
- Define optimum surveillance intervals
  - Subgroups of patients at risk for CRC
- Develop primary prevention with dietary supplements or medications
- Refine non-invasive screening tools
- Refine colonoscopy techniques
  - Preparation, comfort and detection rates
Conclusions

• Colonoscopy
  – Most efficient and effective strategy
  – FIT and CTC when colonoscopy not possible
  – CRC risks and adequacy of the colonoscopy determine intervals

• CRC prevention outcomes related to physician performance
  – Primary care screening rates
  – Gastroenterologists’ detection rates