Colon and Rectal Cancer Screening: Home Based Tests vs. Colonoscopy

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University Hospitals

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Case Western Reserve University
Objectives

• Review the advantages and disadvantages of colonoscopy vs multi-targeted stool DNA testing
• Describe the characteristics of a high quality colonoscopy based screening program
• Develop strategies for dealing with colonoscopy findings and the possibility of a false positive stool DNA result

• Disclosures: None
Osteopathic Principles

• The body is a unit; the person is a unit of body, mind, and spirit
  – Patients are either motivated or reluctant for colorectal cancer screening

• Rational treatment is based upon an understanding of the basic principles of body unity, self-regulation, and the interrelationship of structure and function
  – The adenoma – carcinoma sequence is destiny in some individuals
  – Advanced colorectal cancer disrupts the structure and function relationship
  – Polypectomy prevents colorectal cancers with minimal risks
Asymptomatic Significant Polyps and Lesions – Stage 1 and 2

Advanced adenoma  Malignant Polyp  Sessile adenocarcinoma
Symptomatic CRC – Stages 3 and 4

Obstructing rectal cancer

Apple-core lesion
### Figure 3. Leading Sites of New Cancer Cases and Deaths – 2019 Estimates

#### Male

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>New Cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prostate</td>
<td>174,650</td>
<td>20%</td>
</tr>
<tr>
<td>Lung &amp; bronchus</td>
<td>116,440</td>
<td>13%</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>78,500</td>
<td>9%</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>61,700</td>
<td>7%</td>
</tr>
<tr>
<td>Melanoma of the skin</td>
<td>57,220</td>
<td>7%</td>
</tr>
<tr>
<td>Kidney &amp; renal pelvis</td>
<td>44,120</td>
<td>5%</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>41,090</td>
<td>5%</td>
</tr>
<tr>
<td>Oral cavity &amp; pharynx</td>
<td>38,140</td>
<td>4%</td>
</tr>
<tr>
<td>Leukemia</td>
<td>35,920</td>
<td>4%</td>
</tr>
<tr>
<td>Pancreas</td>
<td>29,940</td>
<td>3%</td>
</tr>
<tr>
<td><strong>All sites</strong></td>
<td><strong>870,970</strong></td>
<td></td>
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</tbody>
</table>

#### Female

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>New Cases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breast</td>
<td>268,600</td>
<td>30%</td>
</tr>
<tr>
<td>Lung &amp; bronchus</td>
<td>111,710</td>
<td>13%</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>61,100</td>
<td>7%</td>
</tr>
<tr>
<td>Uterine corpus</td>
<td>61,880</td>
<td>7%</td>
</tr>
<tr>
<td>Melanoma of the skin</td>
<td>39,260</td>
<td>5%</td>
</tr>
<tr>
<td>Thyroid</td>
<td>37,810</td>
<td>4%</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>33,110</td>
<td>4%</td>
</tr>
<tr>
<td>Kidney &amp; renal pelvis</td>
<td>29,700</td>
<td>3%</td>
</tr>
<tr>
<td>Pancreas</td>
<td>26,830</td>
<td>3%</td>
</tr>
<tr>
<td>Leukemia</td>
<td>25,860</td>
<td>3%</td>
</tr>
<tr>
<td><strong>All sites</strong></td>
<td><strong>891,480</strong></td>
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</table>

#### Male

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Deaths</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung &amp; bronchus</td>
<td>76,650</td>
<td>24%</td>
</tr>
<tr>
<td>Prostate</td>
<td>31,620</td>
<td>10%</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>27,640</td>
<td>9%</td>
</tr>
<tr>
<td>Pancreas</td>
<td>23,800</td>
<td>7%</td>
</tr>
<tr>
<td>Liver &amp; intrahepatic bile duct</td>
<td>21,600</td>
<td>7%</td>
</tr>
<tr>
<td>Leukemia</td>
<td>13,150</td>
<td>4%</td>
</tr>
<tr>
<td>Esophagus</td>
<td>13,020</td>
<td>4%</td>
</tr>
<tr>
<td>Urinary bladder</td>
<td>12,870</td>
<td>4%</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>11,510</td>
<td>4%</td>
</tr>
<tr>
<td>Brain &amp; other nervous system</td>
<td>9,910</td>
<td>3%</td>
</tr>
<tr>
<td><strong>All sites</strong></td>
<td><strong>321,670</strong></td>
<td></td>
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</tbody>
</table>

#### Female

<table>
<thead>
<tr>
<th>Cancer Type</th>
<th>Deaths</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lung &amp; bronchus</td>
<td>66,020</td>
<td>23%</td>
</tr>
<tr>
<td>Breast</td>
<td>41,760</td>
<td>15%</td>
</tr>
<tr>
<td>Colon &amp; rectum</td>
<td>23,380</td>
<td>8%</td>
</tr>
<tr>
<td>Pancreas</td>
<td>21,950</td>
<td>8%</td>
</tr>
<tr>
<td>Ovary</td>
<td>13,980</td>
<td>5%</td>
</tr>
<tr>
<td>Uterine corpus</td>
<td>12,160</td>
<td>4%</td>
</tr>
<tr>
<td>Liver &amp; intrahepatic bile duct</td>
<td>10,180</td>
<td>4%</td>
</tr>
<tr>
<td>Leukemia</td>
<td>9,690</td>
<td>3%</td>
</tr>
<tr>
<td>Non-Hodgkin lymphoma</td>
<td>8,460</td>
<td>3%</td>
</tr>
<tr>
<td>Brain &amp; other nervous system</td>
<td>7,850</td>
<td>3%</td>
</tr>
<tr>
<td><strong>All sites</strong></td>
<td><strong>285,210</strong></td>
<td></td>
</tr>
</tbody>
</table>

Estimates are rounded to the nearest 10, and cases exclude basal cell and squamous cell skin cancers and in situ carcinoma except urinary bladder. Estimates do not include Puerto Rico or other US territories. Ranking is based on modeled projections and may differ from the most recent observed data.

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Fecal Immunochemical Testing

- FIT – detects human hemoglobin
  - Greater sensitivity than guaiac based FOBT
  - Easier collection, no diet or medication restrictions

- FIT every 2 years vs. colonoscopy (n=57,404)
  - Participation higher with FIT – 34% vs. 25% (p<.001)
  - CRC detection rates equal – 33 FIT vs. 30 colon (p=.99)
  - Advanced adenoma detection higher with colonoscopy – 514 colon vs. 231 FIT; OR 2.30; 95% CI 1.97-2.69 (p<.001)

Levin Gastroenterology 2008;134:1570-1595
Quintero NEJM 2012;366:697-706
FOBT

Shaukat NEJM
2013;369:1106-1114
Fecal DNA (Cologuard)

- Target’s human hemoglobin (FIT) plus genetic alterations
  - 2 aberrant methylation markers (NDRG4 and BMP3)
  - KRAS DNA mutation marker
- Lower sensitivity than colonoscopy so interval is more frequent
- More sensitive than FIT for serrated adenomas than (>90 %)
- First FDA/CMS dual approval
  - Age 50 – 85 years
  - Asymptomatic
  - Average risk patients only
  - Prescription only
  - UPS transports sample

Imperiale NEJM 2004;351:2704-2714
FIT vs Cologuard

Inclusions (n=9989)
- 65 CRC
- 757 Advanced Polyps
- 2893 Polyps
- 6274 Negative

Exclusions (n=1027)
- 689 failed DNA
- 304 failed colonoscopy
- 34 failed FIT

**Figure 2. Sensitivity of the Multitarget Stool DNA Test and the Commercial Fecal Immunochemical Test (FIT), According to Subgroup.**

Shown are the sensitivities of the DNA test and FIT for the detection of colorectal cancer according to tumor stage (Panel A), for the detection of colorectal cancer and advanced precancerous lesions according to the location in the colon (Panel B), and for the detection of higher-risk subtypes among participants with advanced precancerous lesions (Panel C) and according to lesion size (Panel D). The numbers in parentheses are the number of participants in each category. In Panel A, the stage of 1 of 65 colorectal cancers was not available. In Panel B, the location of 1 of 757 advanced precancerous lesions was not available.
<table>
<thead>
<tr>
<th>Colonscopy Finding</th>
<th>Persons with Finding</th>
<th>Multitarget DNA Test</th>
<th>FIT</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no.</td>
<td>Positive Results (N = 1611)</td>
<td>Negative Results (N = 8389)</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td>65</td>
<td>60 (3.7)</td>
<td>5 (0.06)</td>
</tr>
<tr>
<td>Advanced precancerous lesions</td>
<td>758</td>
<td>321 (19.9)</td>
<td>437 (5.2)</td>
</tr>
<tr>
<td>Nonadvanced adenomas</td>
<td>2896</td>
<td>498 (30.9)</td>
<td>2398 (28.6)</td>
</tr>
<tr>
<td>Negative results: no colorectal cancer, advanced precancerous lesions, or nonadvanced adenomas</td>
<td>6281</td>
<td>732 (45.4)</td>
<td>5549 (66.1)</td>
</tr>
</tbody>
</table>

5 of 65 cancers missed = 7.7%
Sessile Serrated Polyps

Prevalence 8.1% in high ADR physician (2% prior estimate)
66% were ≥ 10 mm

Abdeljawad Gastrointest Endosc 2015;81:517-524
# COLOGUARD® ORDER REQUISITION FORM

**Order Information**

It is recommended to type the Provider information on the editable PDF (available at exactlabs.com) and print copies for future orders.

<table>
<thead>
<tr>
<th>PROVIDER INFORMATION</th>
<th>TEST INFORMATION</th>
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</thead>
<tbody>
<tr>
<td>Healthcare Organization: ______________________________</td>
<td>Test Name: Colguard</td>
</tr>
<tr>
<td>Provider Name: ______________________________</td>
<td>Test Description: Stool-based DNA test with hemoglobin immunoassay component</td>
</tr>
<tr>
<td>NPI #: ______________________________</td>
<td>ICD-10 Code:</td>
</tr>
<tr>
<td></td>
<td>☐ Z12.11 and Z12.12 (Encounter for screening for malignant neoplasm of colon [Z12.11] and rectum [Z12.12])</td>
</tr>
<tr>
<td></td>
<td>☐ Other(s) ______________________________</td>
</tr>
</tbody>
</table>

The above code is listed as a convenience. Ordering practitioners should report the diagnosis code(s) that best describes the reason for performing the test, regardless of whether the code is listed above or not.

<table>
<thead>
<tr>
<th>Certification</th>
</tr>
</thead>
<tbody>
<tr>
<td>By ordering Colguard, I certify that I am a licensed medical professional authorized to order Colguard. I acknowledge that the test is medically necessary and that the patient is eligible to use Colguard. I accept responsibility for maintaining the privacy of test results and related information as required by HIPAA. I authorize Exact Sciences Laboratories to obtain reimbursement for Colguard and to directly contact and collect a second sample from the patient if reportable results are not obtained from the initial sample.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ordering Provider Signature</th>
<th>Date of Order</th>
</tr>
</thead>
</table>

**PATIENT ASSIGNMENT OF BENEFITS NOTICE (AOB)**

Authorization to assign benefits, accept financial responsibility, and disclose health records: I authorize Exact Sciences Laboratories to bill my insurance/health plan and furnish them with my Colguard order information, my test results, or other information requested for reimbursement, to appeal any reimbursement.
CT Colonography

- CTC or Virtual Colonography
  - Patients high risk for colonoscopy, incomplete colonoscopy, geographical
  - Limitations – extra-colonic findings, radiation exposure, discomfort and perforation
  - 5 year interval for normal exams or less polyps ≤5 mm
  - Colonoscopy for 1 or 2 polyps 6-9 mm or repeat CTC in 3 years
- Sensitivity age ≥ 50 years (n=2600)
  - 90% sensitivity and 86% specificity per patient of adenomas and cancers > 1 cm
- False negative ratio for CRC 3.77 (n=1,855)
  - 2 of 53 cancers were missed
  - Accuracy similar to colonoscopy only for lesions >10 mm

Pickhardt Radiology 2011;259:393-405
Johnson NEJM 2008;359:1207-1217
Simons Eur Radiol 2013;23:908-913
Issues in Colonoscopy

• Informed consent
  – Begins in the PCP office
  – Focus on prevention of cancer
  – Open access programs require relationships to be successful

• Bowel preparation choices
  – Low volume brand name preps – all split dosing
  – 4 liter PEG solution – split dosing vs same day prep
Issues in Colonoscopy

• Interval cancers are clearly related to patient and physician factors
  – Quality of bowel preparation
  – Insertion of the colonoscope to the cecum
  – Withdrawal time and second look on the right side
  – Adenoma detection rate (ADR)
• Surveillance intervals
  – Quality of the bowel preparation
  – Size, type and number of polyps found
  – Polypectomy techniques
• Management of complications
• Cost barriers
Proximal Flat Colon Polyps

Loss of vascular pattern best clue to flat neoplasia
Resect flat polyps before washing mucus cap
Adenoma Detection Rate

- Frequency of detecting any adenoma during screening colonoscopy

\[
ADR = \frac{\# \text{ patients with adenomas}}{\# \text{ patients screened}}
\]

- Surrogate marker for doing a careful exam
- Inverse relationship to interval cancer rate
- Not a guarantee lesions were not missed
  - “One and done” approach achieve high ADR with reduce surveillance interval but fails to eliminate interval cancers
Interval Colorectal Cancer

- Frequency
  97,034 total cancers in 3 large cohorts
  5,840 interval cancers (7.2-9.0%) detected 6 – 36 months after previous colonoscopy

- Etiology
  – Missed lesions and incomplete polypectomy
  – Rapid progression of new lesions

- Recommendations
  – Slow down and retrain to see flat lesions
  – Reduce interval between exams for poor preps
  – Standardized call backs

Baxter Gastroenterol 2011;140:65-72
Singh Am J Gastroenterol 2010;105:2588-2596
Cooper Cancer 2012;118:3044-3052
Piecemeal Colonic Polypectomy
Cold Snare Large Serrated Sessile Colorectal Polyps

Rex Gastrointest Endosc 2019;89:449-452
Issues in Colonoscopy

- Pacemakers and implantable cardiac devices including stents
- Anticoagulation medications held based on risk of thrombosis – DO NOT STOP ASPIRIN – aspirin bridge when holding antiplatelet agents

<table>
<thead>
<tr>
<th>Agent</th>
<th>Brand name</th>
<th>Pre-procedure Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wafarin</td>
<td>Coumadin</td>
<td>Hold 3 – 5 days</td>
</tr>
<tr>
<td>Clopidogrel</td>
<td>Plavix</td>
<td>Hold 5 – 7 days</td>
</tr>
<tr>
<td>Prasugrel</td>
<td>Effient</td>
<td>Hold 5 – 7 days</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Agent</th>
<th>Brand name</th>
<th>&gt; 80 CrCl</th>
<th>50 - 79</th>
<th>30 - 49</th>
<th>&lt; 30</th>
</tr>
</thead>
<tbody>
<tr>
<td>Apixaban</td>
<td>Eliquis</td>
<td>2</td>
<td>3</td>
<td>3</td>
<td>4</td>
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<tr>
<td>Rivaroxaban</td>
<td>Xarelto</td>
<td>2</td>
<td>2</td>
<td>3</td>
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<tr>
<td>Dabigatran</td>
<td>Pradaxa</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Edoxaban</td>
<td>Savaysa</td>
<td>2</td>
<td>3</td>
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# NCCN Guidelines for CRC Screening 2020

<table>
<thead>
<tr>
<th>Test</th>
<th>Interval (years)</th>
<th>Sensitivity</th>
<th>Specificity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Colorectal Cancer</td>
<td>Advanced Adenoma</td>
</tr>
<tr>
<td>Colonoscopy</td>
<td>10</td>
<td>95%</td>
<td>89%–98% (≥10 mm) 75%–93% (≥6 mm)</td>
</tr>
<tr>
<td>Cologuard</td>
<td>3</td>
<td>92%</td>
<td>42%</td>
</tr>
<tr>
<td>FIT</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT Colon</td>
<td>5 (3 for findings)</td>
<td>96%</td>
<td>67%–94% (≥10 mm) 73%–98% (≥6 mm)</td>
</tr>
</tbody>
</table>

FOBT and Flexible sigmoidoscopy intentionally omitted for this presentation
NCCN Guidelines for CRC Screening 2020

- **High risk patients**
  - ≥1 first degree relative with CRC any age
    - Colonoscopy beginning age 40 or 10 years before earliest diagnosis
    - Repeat every 5 years or per findings
  - First degree relative with advanced adenoma (>1 cm), villous features, advanced SSP (>1 cm)
    - Colonoscopy beginning age 40 or 10 years before earliest diagnosis
    - Repeat every 5 – 10 years or per findings

Hereditary syndrome testing is not diagnostic or not done
NCCN Guidelines for CRC Screening 2020

• High risk patients
  – Inflammatory Bowel Disease without dysplasia
    • Low risk = left sided colitis or no evidence of colitis – colonoscopy every 2 – 3 years
    • High risk = Primary Sclerosing Cholangitis, extensive or active colitis, pseudopolyps, family history <50 years – colonoscopy every 1 year
  – Inflammatory Bowel Disease with traversable stricture
    • Low risk = left sided colitis, hyperplastic mucosa – colonoscopy every 2 – 3 years
    • High risk = Primary Sclerosing Cholangitis, extensive or active colitis, pseudopolyps, family history <50 years or dysplasia – colonoscopy every 1 year
      – High grade dysplasia or piecemeal resection – repeat colonoscopy 3 to 6 months

Non-transversable strictures referred to colorectal surgery
NCCN Guidelines for CRC Screening 2020

• **High-risk syndromes**
  – Lynch syndrome (hereditary nonpolyposis colorectal cancer [HNPCC])
  – Polyposis syndromes
    • Classical familial adenomatous polyposis
    • Attenuated familial adenomatous polyposis
    • MUTYH-associated polyposis
    • Peutz-Jeghers syndrome
    • Juvenile polyposis syndrome
    • Serrated polyposis syndrome (rarely inherited)
    • Colonic adenomatous polyposis of unknown etiology
  – Cowden syndrome/PTEN hamartoma tumor syndrome
  – Li-Fraumeni syndrome
PERSONAL HISTORY OF POLYP FOUND AT COLONOSCOPY

RISK STATUS

CLINICAL FINDINGS

Low-risk adenoma:
- ≤2 polyps
- <1 cm

Low-risk SSP:
- No dysplasia
- ≤2 polyps
- <1 cm

High risk (advanced or multiple polyps):
- TSAs or
- High-grade dysplasia or SSP-d or
- Adenoma or any SSP ≥1 cm or
- Villous or tubulovillous histology or
- Between 3 and 10 adenomatous polyps and/or SSPs or
- Large (≥1 cm) hyperplastic polyps

More than 10 cumulative adenomatous polyps

Incomplete or piecemeal polypectomy or polypectomy of large non-pedunculated polyps

Malignant polyp

FOLLOW-UP OF CLINICAL FINDINGS

Repeat colonoscopy between 5–10 y

Repeat colonoscopy in 5 y

Repeat colonoscopy in 3 y

Repeat colonoscopy in 10 y

Repeat colonoscopy according to clinical findings

Negative

Positive

See NCCN Guidelines for Genetic/Familial High-Risk Assessment: Colorectal

See CSCR-5

See NCCN Guidelines for Colon Cancer or
See NCCN Guidelines for Rectal Cancer
MANAGEMENT OF LARGE COLORECTAL POLYPS

**CLINICAL FINDINGS**

- Non-pedunculated colorectal polyps or lateral spreading lesion (LSL) ≥20 mm size

**FOLLOW-UP OF CLINICAL FINDINGS**

- En bloc → Colonoscopy within 1 y
  - With risk factors
    - LSL size ≥40 mm
    - Intraprocedural bleeding
    - High-risk histology
    - Macroscopic tissue ablation
  - Complete resection
  - No risk factors
    - Clear margins on histology
    - Colonoscopy within 1 y
  - Incomplete resection → Referral to center with experience in endoscopic management of large colorectal polyps

- Colonoscopy within 6 mo

- Recurrence
  - Repeat endoscopic therapy or referral to center with experience in endoscopic management of large colorectal polyps

- No recurrence
  - Colonoscopy within 1 y, then in 3 y

- Referral for surgical consult
Endoscopic Submucosal Dissection for Laterally Spreading Neoplasia

Large sessile tubulovillous adenoma of the distal sigmoid colon
Endoscopic Submucosal Dissection for Laterally Spreading Neoplasia

8 cm en bloc resection

Healed site at 6 months
## Advantages and Disadvantages of Colonoscopy vs Cologuard

<table>
<thead>
<tr>
<th>Test</th>
<th>Advantages</th>
<th>Disadvantages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonoscopy</td>
<td>Best sensitivity</td>
<td>Complication risks</td>
</tr>
<tr>
<td></td>
<td>Preventive</td>
<td>Interval cancers</td>
</tr>
<tr>
<td></td>
<td>Cost covered by insurance</td>
<td>Lacks universal acceptance</td>
</tr>
<tr>
<td>Cologuard</td>
<td>Noninvasive</td>
<td>Cost of diagnostic colonoscopy for positive results</td>
</tr>
<tr>
<td></td>
<td>More sensitive than FIT</td>
<td>False positive results</td>
</tr>
<tr>
<td></td>
<td>Cost covered by insurance</td>
<td></td>
</tr>
</tbody>
</table>
Describe the Characteristics of a High Quality Colonoscopy Based Screening Program

1. Ease of access
2. Bowel preparation effect good or excellent > 85%
3. High adenoma detection rates > 25%
4. Low complication rates
5. Recall program
Dealing with a False Positive Cologuard

- Rates range from 7% to 13%
  - Age related change in methylation of DNA
- Face to face patient clinic visit
  - Document in Problem List
  - Review quality of colonoscopy
    - Bowel prep and images from the procedure
- Discuss options
  - Repeat colonoscopy in 1, 3 or 5 years
  - Discourage repeat stool DNA or FIT

Cooper  Dig Dis Sci 2018;63:1449-1453
Berger  Clin Gastro Hepatology 2019 epub
The American Cancer Society 2019 recommendation for colorectal cancer screening changed by which of the following:

1. Start screening all average risk individuals at age 40
2. Start screening all average risk individuals at age 45
3. Avoid stool DNA tests for patients unmotivated to undergo colonoscopy
4. Address the rising incidence of interval cancers in patients undergoing colonoscopy
The American Cancer Society 2019 recommendation for colorectal cancer screening changed by which of the following:

1. Start screening all average risk individuals at age 40
2. Start screening all average risk individuals at age 45
3. Avoid stool DNA tests for patients unmotivated to undergo colonoscopy
4. Address the rising incidence of interval cancers in patients undergoing colonoscopy
Multi-target stool DNA tests:

1. Increase screening rates among previously noncompliant Medicare patients
2. Have a low sensitivity for serrated polyps compared to fecal immunochemical tests (FIT)
3. Have a false positive rate of 35%
4. Prevent interval colorectal cancers
Multi-target stool DNA tests:

1. Increase screening rates among previously noncompliant Medicare patients
2. Have a low sensitivity for serrated polyps compared to fecal immunochemical tests (FIT)
3. Have a false positive rate of 35%
4. Prevent interval colorectal cancers

Data demonstrates that there is a significant improvement in patient compliance when patients are offered a choice between a noninvasive screening option (67%) versus invasive colonoscopy (38%) (p < 0.001)

Gellad Am J Gastroenterol 2011;106:1125-34
Inadomi Arch Intern Med 2012;172:575-82
Colon adenoma size correlates with:

1. Risk of subsequent advanced lesions
2. Risk of colorectal cancer death
3. High quality colonoscopy
4. Gender
Colon adenoma size correlates with:

1. Risk of subsequent advanced lesions
2. Risk of colorectal cancer death
3. High quality colonoscopy
4. Gender
Colorectal cancer is considered:

1. One of the most preventable cancers
2. Third most common and lethal cancer in men and women combined
3. Fatal even in early stage disease
4. To have a declining mortality among all age groups
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Falling CRC Mortality

Cost-effectiveness of screening for colorectal cancer is the highest for:

1. Average risk individuals age 45 - 50 years
2. Unscreened average risk individuals 50 - 75 years
3. Individuals with multiple rectal hyperplastic polyps
4. Individuals with several diminutive colon adenomas
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**Colorectal Cancer Risk Factors**

**Things you can change:**
- Physical activity
- What you eat
- Smoking
- Obesity
- Getting screened

**Things you can’t change:**
- Age
- Race
- Family and personal history
- IBD
- Genetics
Asymptomatic Significant Polyps and Lesions

Advanced adenoma

Malignant polyp

Sessile adenocarcinoma
Only you can prevent colon cancer!

Please share your thoughts and questions....