Improving Colorectal Cancer Screening

Heidi Gullett, MD, MPH
March 10, 2015
Disclosures

- Proud clinician at Neighborhood Family Practice
- Member of the ACS Colorectal Cancer Speakers’ Bureau
- No other disclosures and no vested interest
Session Objectives

1. Review the national approach to improve rates of colorectal cancer screening: 80% by 2018.

2. Provide an overview of and evidence for current colorectal cancer screening recommendations.

3. Provide an overview of the evidence for available colorectal cancer screening tests.

4. Provide examples of systems approaches and available tools to improve colorectal cancer screening rates in community health centers.
Through the Lens of *Health Equity*
Colon Cancer Awareness
Because It Matters...

March
Colon Cancer Awareness Month
Est. 2000
Colorectal Cancer (CRC): The Background

- 3rd most common cancer and the 2nd deadliest
  - 136,800 new cases expected
  - More than 50,000 deaths
- 1.2 million Americans living with CRC
- Death rates have fallen steadily past 20 years
Figure 4. Long-Term Trends in Colorectal Cancer Incidence (1975-2010) and Mortality (1930-2010) Rates* by Sex, United States.
Trends in CRC incidence and mortality

Research suggests that observed declines in incidence and mortality are due in large part to:

- CRC treatment advances
- Screening → detecting cancers at earlier, more treatable stages
- Screening and polyp removal, preventing progression of polyps to invasive cancers
  - NEJM study Feb 2012 showed polyp removal associated with 53% lower risk of CRC death
Risk Factors
Age: the largest impact

- CRC usually develops after age 50.
- The chances of diagnosis increase with age.

CRC screening should begin at age 50 for most people, earlier for those with a family history.

http://science.education.nih.gov/supplements/nih1/cancer/guide/pdfs/ACT3M.PDF.
Non-Modifiable Risk Factors

- **Age**
  - 90% of cases occur in people 50 and older

- **Gender**
  - Slight male predominance, but common in both men and women

- **Race/Ethnicity – higher rates among**
  - African Americans
  - Native Americans (esp. Northern Plains Tribes)
  - Alaska Natives
  - Ashkenazi Jews
Modifiable Risk Factors

- Lack of physical activity
  - Less active \(\rightarrow\) raises risk
- Overweight
  - Obesity \(\rightarrow\) raises risk of having and of dying from CRC
- Smoking \(\rightarrow\) raises risk
- Alcohol use \(\rightarrow\) raises risk
- Type 2 diabetes \(\rightarrow\) raises risk
Risk factor - polyps

Different types of polyps:

- Hyperplastic
  - Low risk: very small chance they will grow into cancer

- Adenomas
  - About 9 out of 10 colon and rectal cancers start as adenomas
Normal to Adenoma to Carcinoma

Human colon carcinogenesis progresses by the dysplasia/adenoma to carcinoma pathway

Usually takes 10 or more years for polyp to become cancer
Screening Impact
Why Screen?

There are two aims of screening:

1. **Prevention**
   Find and remove polyps to prevent cancer

2. **Early Detection**
   Find cancer in the early stages, when best chance for a cure
Impact of Screening

Log rank (Mantel-Cox)
\[ \chi^2 = 34.205 \]
\[ P < .001 \]

Survival, wk

Cumulative Survival

Screening
- Yes
- Yes, censored
- No
- No, censored

JAMA Surg. 2013
Benefits of Screening

Survival Rates by Disease Stage*

<table>
<thead>
<tr>
<th>Stage of Detection</th>
<th>5-yr Survival</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local</td>
<td>90.3%</td>
</tr>
<tr>
<td>Regional</td>
<td>70.4%</td>
</tr>
<tr>
<td>Distant</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

*1996 - 2003
Screening Rates
Trends in Recent* CRC Screening Prevalence (%), by Educational Attainment and Health Insurance Status, Adults 50-75 Years, US, 2000-2010

Source: Klabunde et al, *Cancer Epidemiol Biomarkers Prev* 2011;20:1611-1621

National Health Interview Survey Public Use Data File 2010, National Center for Health Statistics, Centers for Disease Control and Prevention, 2011.

American Cancer Society, Surveillance Research, 2011
Trends in Recent* CRC Screening Prevalence (%), by Educational Attainment and Health Insurance Status, Adults 50-75 Years, US, 2000-2010

Source: Klabunde et al, Cancer Epidemiol Biomarkers Prev 2011;20:1611-1621
National Health Interview Survey Public Use Data File 2010, National Center for Health Statistics, Centers for Disease Control and Prevention, 2011.
American Cancer Society, Surveillance Research, 2011
Who’s Not Screened?

Testing status of adults aged 50–75 years

- Up-to-date CRC testing: 65%
- Tested but not up-to-date: 28%
- Never tested: 7%

Insurance status of never tested adults aged 50–75 years

- Insured: 76%
- Uninsured: 24%

# TABLE 6. Colorectal Cancer Screening Among Adults Aged 50 Years or Older, United States, 2010

<table>
<thead>
<tr>
<th>CHARACTERISTIC</th>
<th>FOBT*</th>
<th>ENDOSCOPY†</th>
<th>EITHER FOBT or ENDOSCOPY‡</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>9.0</td>
<td>57.4</td>
<td>60.2</td>
</tr>
<tr>
<td>Women</td>
<td>8.6</td>
<td>55.6</td>
<td>58.3</td>
</tr>
<tr>
<td>Age, years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>50-64</td>
<td>8.0</td>
<td>52.3</td>
<td>55.2</td>
</tr>
<tr>
<td>65+</td>
<td>9.7</td>
<td>61.2</td>
<td>63.7</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White (non-Hispanic)</td>
<td>9.2</td>
<td>58.5</td>
<td>61.5</td>
</tr>
<tr>
<td>Black (non-Hispanic)</td>
<td>8.4</td>
<td>53.0</td>
<td>55.5</td>
</tr>
<tr>
<td>Asian§</td>
<td>6.9</td>
<td>44.5</td>
<td>45.9</td>
</tr>
<tr>
<td>American Indian/Alaska Native¶</td>
<td>6.1</td>
<td>46.5</td>
<td>48.1</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>5.6</td>
<td>45.3</td>
<td>47.0</td>
</tr>
<tr>
<td>Education, years</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≤11</td>
<td>5.8</td>
<td>42.1</td>
<td>43.9</td>
</tr>
<tr>
<td>12</td>
<td>6.8</td>
<td>51.9</td>
<td>54.2</td>
</tr>
<tr>
<td>13 to 15</td>
<td>11.0</td>
<td>59.5</td>
<td>63.1</td>
</tr>
<tr>
<td>16+</td>
<td>10.4</td>
<td>66.7</td>
<td>69.2</td>
</tr>
<tr>
<td>Health insurance coverage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>9.2</td>
<td>59.4</td>
<td>62.2</td>
</tr>
<tr>
<td>No</td>
<td>1.6</td>
<td>17.8</td>
<td>18.8</td>
</tr>
<tr>
<td>Immigration</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Born in US</td>
<td>9.2</td>
<td>58.0</td>
<td>60.9</td>
</tr>
<tr>
<td>Born in US territory</td>
<td>4.7</td>
<td>53.3</td>
<td>55.6</td>
</tr>
<tr>
<td>In US &lt;10 years</td>
<td>1.7</td>
<td>24.1</td>
<td>25.3</td>
</tr>
<tr>
<td>In US 10+ years</td>
<td>6.5</td>
<td>46.5</td>
<td>48.4</td>
</tr>
<tr>
<td>Overall</td>
<td>8.8</td>
<td>56.4</td>
<td>59.1</td>
</tr>
<tr>
<td>State</td>
<td>%</td>
<td>(95% CI)</td>
<td></td>
</tr>
<tr>
<td>-----------------------</td>
<td>-------</td>
<td>----------------</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>65.1</td>
<td>(64.7–65.5)</td>
<td></td>
</tr>
<tr>
<td><strong>Highest tertile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Massachusetts</td>
<td>76.3</td>
<td>(74.9–77.6)</td>
<td></td>
</tr>
<tr>
<td>New Hampshire</td>
<td>75.3</td>
<td>(73.4–77.0)</td>
<td></td>
</tr>
<tr>
<td>Maine</td>
<td>73.1</td>
<td>(71.6–74.6)</td>
<td></td>
</tr>
<tr>
<td>Rhode Island</td>
<td>72.7</td>
<td>(70.5–74.9)</td>
<td></td>
</tr>
<tr>
<td>Connecticut</td>
<td>72.1</td>
<td>(70.1–74.0)</td>
<td></td>
</tr>
<tr>
<td>Vermont</td>
<td>71.4</td>
<td>(69.4–73.3)</td>
<td></td>
</tr>
<tr>
<td>Delaware</td>
<td>71.2</td>
<td>(68.6–73.6)</td>
<td></td>
</tr>
<tr>
<td>Wisconsin</td>
<td>71.2</td>
<td>(68.4–73.7)</td>
<td></td>
</tr>
<tr>
<td>Minnesota</td>
<td>70.6</td>
<td>(69.0–72.1)</td>
<td></td>
</tr>
<tr>
<td>Maryland</td>
<td>70.4</td>
<td>(68.6–72.2)</td>
<td></td>
</tr>
<tr>
<td>New York</td>
<td>69.4</td>
<td>(66.8–71.9)</td>
<td></td>
</tr>
<tr>
<td>Michigan</td>
<td>69.0</td>
<td>(67.3–70.7)</td>
<td></td>
</tr>
<tr>
<td>North Carolina</td>
<td>68.2</td>
<td>(66.5–69.8)</td>
<td></td>
</tr>
<tr>
<td>Virginia</td>
<td>68.0</td>
<td>(66.0–69.9)</td>
<td></td>
</tr>
<tr>
<td>Utah</td>
<td>68.0</td>
<td>(66.3–69.6)</td>
<td></td>
</tr>
<tr>
<td>Georgia</td>
<td>67.2</td>
<td>(64.9–69.5)</td>
<td></td>
</tr>
<tr>
<td>California</td>
<td>67.1</td>
<td>(65.2–68.8)</td>
<td></td>
</tr>
<tr>
<td><strong>Middle tertile</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Washington</td>
<td>66.8</td>
<td>(65.4–68.2)</td>
<td></td>
</tr>
<tr>
<td>District of Columbia</td>
<td>66.7</td>
<td>(62.9–70.3)</td>
<td></td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>66.5</td>
<td>(65.1–68.0)</td>
<td></td>
</tr>
<tr>
<td>Iowa</td>
<td>65.9</td>
<td>(64.0–67.7)</td>
<td></td>
</tr>
<tr>
<td>Colorado</td>
<td>65.4</td>
<td>(63.8–66.9)</td>
<td></td>
</tr>
<tr>
<td>Alabama</td>
<td>64.9</td>
<td>(63.0–66.8)</td>
<td></td>
</tr>
<tr>
<td>Oregon</td>
<td>64.7</td>
<td>(62.3–67.0)</td>
<td></td>
</tr>
<tr>
<td>Kansas</td>
<td>64.6</td>
<td>(63.0–66.1)</td>
<td></td>
</tr>
<tr>
<td>Tennessee</td>
<td>64.3</td>
<td>(62.1–66.5)</td>
<td></td>
</tr>
<tr>
<td>Florida</td>
<td>64.2</td>
<td>(61.8–66.5)</td>
<td></td>
</tr>
<tr>
<td>South Carolina</td>
<td>64.2</td>
<td>(62.4–65.9)</td>
<td></td>
</tr>
<tr>
<td>Hawaii</td>
<td>64.1</td>
<td>(61.6–66.6)</td>
<td></td>
</tr>
<tr>
<td>Missouri</td>
<td>64.0</td>
<td>(61.6–66.3)</td>
<td></td>
</tr>
<tr>
<td>Ohio</td>
<td>63.3</td>
<td>(61.7–64.9)</td>
<td></td>
</tr>
<tr>
<td>Kentucky</td>
<td>62.9</td>
<td>(61.0–64.8)</td>
<td></td>
</tr>
<tr>
<td>West Virginia</td>
<td>62.7</td>
<td>(60.6–64.8)</td>
<td></td>
</tr>
<tr>
<td>New Jersey</td>
<td>62.4</td>
<td>(60.6–64.0)</td>
<td></td>
</tr>
</tbody>
</table>
CRC screening in Community Health Centers

UDS measure - Colorectal Cancer Screening

• Measure – Percent of patients in universe who received appropriate screening for colorectal cancer
• Universe is adults who were age 51 through age 74 during the measurement year and seen in the measurement year
  • Variation from HEDIS measure
• Requires documentation of test performed by grantee or by another caregiver
• 2012 Nationwide Rate – 30.2%
  • Slightly increased in 2013
Colorectal Cancer Screening Rates in Health Centers

Data Source: UDS data 2012.
Adults 50-75 years of age who have received any of the following: colonoscopy during reporting year or previous 9 years, flexible sigmoidoscopy conducted during reporting year or previous 4 years, or FOBT or FIT during reporting year.
The Buckeye State Goals

- 50% by 2015 – The time is now!
- 60% by 2016
- 70% by 2017
National Colorectal Cancer Roundtable

- National coalition of public, private, and voluntary organizations whose mission is to advance colorectal cancer control efforts by improving communication, coordination, and collaboration among health agencies, medical-professional organizations, and the public.

- Co-Founded by ACS and CDC in 1997

- Goal: increase the use of recommended colorectal cancer screening tests in at-risk populations

- Community Health Center taskgroup develops strategies and tools for CHCs

www.nccrt.org
Key Step: Create Medical Neighborhoods around Federally Qualified Health Centers

- These centers provide care to more than 20 million people; more than two-thirds are uninsured or have medical assistance.
- Engaging primary care clinicians in these and other settings is critical.
- One of their greatest barriers is finding specialty networks to provide colonoscopy and treatment services.
Screening Tests
Options for Average risk adults age 50 and older:

**Tests That Detect Adenomatous Polyps and Cancer**

- **Colonoscopy** every 10 years, or
- **Flexible sigmoidoscopy** (FSIG) every 5 years, or
- **Double contrast barium enema** (DCBE) every 5 years, or
- **CT colonography** (CTC) every 5 years

**Tests That Primarily Detect Cancer**

- **Guaiac-based fecal occult blood test** (gFOBT) with high test sensitivity for cancer, or
- **Fecal immunochemical test** (FIT) with high test sensitivity for cancer, or
- **Stool DNA test** (sDNA), with high sensitivity for cancer
## Age to Begin and End Screening (ACS and USPSTF Comparison)

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>ACS/USMSTF/ACR</th>
<th>USPSTF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age to begin and end screening in average risk adults</strong></td>
<td>Begin and age 50, and end screening at a point where curative therapy would not be offered due to life-limiting co-morbidity</td>
<td>Begin screening at age 50. <strong>Routine screening between ages 76-85 is not recommended.</strong> Screening after age 85 is not recommended.</td>
</tr>
<tr>
<td><strong>Screening in high risk adults</strong></td>
<td>Detailed recommendations based on personal risk and family history</td>
<td>No specific recommendations for age to begin testing or type of testing</td>
</tr>
</tbody>
</table>
## ACS and USPSTF Guidelines Comparison

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>ACS/USMSTF/ACR</th>
<th>USPSTF</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age to begin and end screening in average risk adults</strong></td>
<td>Begin and age 50, and end screening at a point where curative therapy would not be offered due to life-limiting co-morbidity</td>
<td>Begin screening at age 50. Routine screening between ages 76-85 is not recommended. Screening after age 85 is not recommended.</td>
</tr>
<tr>
<td><strong>Screening in high risk adults</strong></td>
<td>Detailed recommendations based on personal risk and family history</td>
<td>No specific recommendations for age to begin testing or type of testing</td>
</tr>
<tr>
<td><strong>Prioritization of tests</strong></td>
<td>Tests are grouped into those that (1) primarily are effective at detecting cancer, and (2) those that are effective at detecting cancer and adenomatous polyps. Group 2 is preferred over group 1 due to the greater potential for prevention.</td>
<td>No specific prioritization of tests, though recommendations acknowledge that direct visualization techniques offer substantial benefit over fecal tests</td>
</tr>
<tr>
<td>Stool Testing, Guaiac based FOBT (gFOBT)</td>
<td>Annual screening with high sensitivity guaiac based tests</td>
<td>Annual screening with high sensitivity guaiac based tests</td>
</tr>
<tr>
<td>Stool Testing, Immunochemical-based FOBT (FIT)</td>
<td>Annual screening</td>
<td>Annual screening</td>
</tr>
<tr>
<td>Stool Testing, Stool DNA (sDNA)</td>
<td>Screening every 3 years</td>
<td>Insufficient evidence to recommend for or against sDNA</td>
</tr>
<tr>
<td>Flexible Sigmoidoscopy</td>
<td>Screening every 5 years. Screening every 5 years, with annual gFOBT or FIT is an option</td>
<td>Screening every 5 years, with gFOBT every 3 years</td>
</tr>
<tr>
<td>Colonoscopy</td>
<td>Screening every 10 years</td>
<td>Screening every 10 years</td>
</tr>
<tr>
<td>CT Colonography</td>
<td>Screening every 5 years</td>
<td>Insufficient evidence to recommend for or against CT colonography</td>
</tr>
<tr>
<td>Double Contrast Barium Enema (DCBE)</td>
<td>Screening every 5 years</td>
<td>Not addressed</td>
</tr>
</tbody>
</table>
Recommended Screening Tests
ACS and USPSTF

- Colonoscopy
- High Sensitivity Fecal Occult Blood Testing
  - Guaiac
  - Immunochemical
- Flexible Sigmoidoscopy (FSIG)
  - Recent studies support efficacy
  - Availability extremely limited in U.S.
Colonoscopy

- Allows direct visualization of entire colon lumen
- Screening, diagnostic and therapeutic
- 10-year interval
- The most common screening test in US (>80%)
Why Colonoscopy is NOT gold standard

- Evidence does not support “best test” or “gold standard”
  - Colonoscopy misses ~ 10% of significant lesions in expert settings
  - More costly on a one-time basis
  - Dependent upon local resources
  - Higher potential for patient injury than other tests
  - Measurable outcomes vary widely (i.e. test performance is highly operator-dependent)

- Greater patient requirements for successful completion
  - Requires a bowel prep and facility visit, and often a pre-procedure specialty office visit
Quality Issues with Colonoscopy

- In the vast majority of endoscopy centers and hospitals in the US there are no requirements for reporting of endoscopic quality measures (this is gradually changing).

- There is significant variation among endoscopists relative to tracking of key quality metrics including:
  - Adenoma detection rate
  - Withdrawal time
  - Quality of bowel prep
  - Cecal intubation rate
Adenoma Detection Rate (ADR)

- ADR - detection of adenomatous polyps at least 25 percent of the time in men, and 15 percent of the time in women (20 percent composite)
- In one large series, ADR varied from 7% - 52%
  - ADR inversely associated with the interval cancer rate
  - ADR inversely associated with colorectal cancer death
ADR and Risk of Interval Cancer

Kaminski; NEJM 2010: 362: 1795-803
Patient Preferences

Inadomi, Arch Intern Med 2012
Stool Tests

- Look for hidden blood in stool
- Two major types (but multiple brands)
Stool Test: Guaiac

- Most common type in U.S.
- Solid evidence (3 RCT’s)
- 30 year f/u (NEJM Oct 2013)
- Need specimens from 3 bowel movements
- Non-specific
- Results influenced by foods and medications
- Better sensitivity with newer versions (Hemoccult Sensa)
- Older forms (Hemoccult II) not recommended!
Fecal Immunochemical Tests (FIT)

- Specific for human blood and for lower GI bleeding
- Results not influenced by foods or medications
- Some types require only 1 or 2 stool specimens
- Higher sensitivity than older forms of guaiac-based FOBT
- Costs more than guaiac tests (but higher reimbursement)
**Table 1. Sensitivity and Specificity of the Multitarget Stool DNA Test and the Fecal Immunochemical Test (FIT) for the Most Advanced Findings on Colonoscopy.**

<table>
<thead>
<tr>
<th>Most Advanced Finding</th>
<th>Colonoscopy (N=9989)</th>
<th>Multitarget DNA Test (N=9989)</th>
<th>FIT (N=9989)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no.</td>
<td>no.</td>
<td>no.</td>
</tr>
<tr>
<td></td>
<td>Positive Results</td>
<td>Sensitivity (95% CI)</td>
<td>Positive Results</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>65</td>
<td>60</td>
<td>92.3 (83.0–97.5)</td>
</tr>
<tr>
<td>Stage I to III*</td>
<td>60</td>
<td>56</td>
<td>93.3 (83.8–98.2)</td>
</tr>
<tr>
<td>Colorectal cancer and high-grade dysplasia</td>
<td>104</td>
<td>87</td>
<td>83.7 (75.1–90.2)</td>
</tr>
<tr>
<td>Advanced precancerous lesions†</td>
<td>757</td>
<td>321</td>
<td>42.4 (38.9–46.0)</td>
</tr>
<tr>
<td>Nonadvanced adenoma</td>
<td>2893</td>
<td>498</td>
<td>17.2 (15.9–18.6)</td>
</tr>
<tr>
<td>All nonadvanced adenomas, non-neoplastic findings, and negative results on colonoscopy</td>
<td>9167</td>
<td>1231</td>
<td>86.6 (85.9–87.2)</td>
</tr>
<tr>
<td>Negative results on colonoscopy</td>
<td>4457</td>
<td>455</td>
<td>89.8 (88.9–90.7)</td>
</tr>
</tbody>
</table>

* These stages of colorectal cancer, as defined by the system recommended by the American Joint Committee on Cancer, are associated with an increased rate of cure.

† Advanced precancerous lesions include advanced adenomas and sessile serrated polyps measuring 1 cm or more.
Evaluating Test Strategies for Colorectal Cancer Screening: A Decision Analysis for the U.S. Preventive Services Task Force

Ann G. Zauber, PhD; Iris Lansdorp-Vogelaar, MS; Amy B. Knudsen, PhD; Janneke Wilschut, MS; Marjolein van Ballegooijen, MD, PhD; and Karen M. Kuntz, ScD

### Table 4. Outcomes for the Recommendable Set of Efficient Screening Strategies

<table>
<thead>
<tr>
<th>Test, Age Begin–Age Stop, Interval*</th>
<th>Outcomes per 1000 Persons</th>
<th>Efficiency Ratio†</th>
<th>Incidence Reduction, %</th>
<th>Mortality Reduction, %</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COL</td>
<td>Non-COL Tests</td>
<td>LYG</td>
<td></td>
</tr>
<tr>
<td><strong>MISCAN</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COL, 50–75, 10</td>
<td>4136</td>
<td>0</td>
<td>230</td>
<td>29.6</td>
</tr>
<tr>
<td>Hemoccult SENSA, 50–75, 1</td>
<td>3350</td>
<td>9541</td>
<td>230</td>
<td>30.9</td>
</tr>
<tr>
<td>FIT, 50–75, 1</td>
<td>2949</td>
<td>11773</td>
<td>227</td>
<td>25.9</td>
</tr>
<tr>
<td>Hemoccult II, 50–75, 1</td>
<td>1982</td>
<td>16232</td>
<td>194</td>
<td>14.3</td>
</tr>
<tr>
<td>FSIG, 50–75, 5</td>
<td>1911</td>
<td>4139</td>
<td>203</td>
<td>9.7</td>
</tr>
<tr>
<td>FSIG + SENSA, 50–75, 5, 3</td>
<td>2870</td>
<td>5822</td>
<td>230</td>
<td>16.3</td>
</tr>
<tr>
<td><strong>SimCRC</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>COL, 50–75, 10</td>
<td>3756</td>
<td>0</td>
<td>271</td>
<td>34.7</td>
</tr>
<tr>
<td>Hemoccult SENSA, 50–75, 1</td>
<td>2654</td>
<td>9573</td>
<td>259</td>
<td>22.9</td>
</tr>
<tr>
<td>FIT, 50–75, 1</td>
<td>2295</td>
<td>11830</td>
<td>256</td>
<td>19.7</td>
</tr>
<tr>
<td>Hemoccult II, 50–75, 1</td>
<td>1456</td>
<td>16239</td>
<td>218</td>
<td>9.6</td>
</tr>
<tr>
<td>FSIG, 50–75, 5</td>
<td>995</td>
<td>4483</td>
<td>199</td>
<td>8.4</td>
</tr>
<tr>
<td>FSIG + SENSA, 50–75, 5, 3</td>
<td>1655</td>
<td>11623</td>
<td>257</td>
<td>7.0</td>
</tr>
</tbody>
</table>
Stool Testing Quality Issues

- In-office FOBT is essentially **worthless** as a screening tool for CRC and **should never** be used.
- CRC screening by FOBT should be performed with **high-sensitivity** FOBT - either FIT or a highly sensitive gFOBT (such as Hemoccult SENSA).
  - Older, less sensitive guiaic tests (such as Hemoccult II) should not be used for CRC screening.
- Annual testing
- All positive screening tests should be evaluated by colonoscopy
## FOBT Quality Issues

### Sensitivity of Take Home vs. In-Office FOBT

<table>
<thead>
<tr>
<th>FOBT method</th>
<th>Sensitivity</th>
<th>All Advanced Lesions</th>
<th>Cancer</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FOBT method</strong> (Hemoccult II)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 card, take-home</td>
<td>23.9 %</td>
<td>43.9 %</td>
<td></td>
</tr>
<tr>
<td>Single sample, in-office</td>
<td>4.9 %</td>
<td>9.5 %</td>
<td></td>
</tr>
</tbody>
</table>

Collins et al, Annals of Int Med Jan 2005
Clinicians Reference: FOBT

One page document designed to educate clinicians about important elements of colorectal cancer screening using fecal occult blood tests (FOBT).

Provides state-of-the-science information about guaiac and immunochemical FOBT, test performance and characteristics of high quality screening programs.

Available at [www.cancer.org/colonmd](http://www.cancer.org/colonmd)
Stool DNA Test
Stool DNA Test (sDNA)

- Fecal occult blood tests detect blood in the stool – which is intermittent and non-specific
- Colon cells are shed continuously
- Polyps and cancer cells contain abnormal DNA
- Stool DNA tests look for abnormal DNA from cells that are passed in the stool*

*All positive tests should be followed with colonoscopy
Table 1. Sensitivity and Specificity of the Multitarget Stool DNA Test and the Fecal Immunochemical Test (FIT) for the Most Advanced Findings on Colonoscopy.

<table>
<thead>
<tr>
<th>Most Advanced Finding</th>
<th>Colonoscopy (N=9989)</th>
<th>Multitarget DNA Test (N=9989)</th>
<th>FIT (N=9989)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>no.</td>
<td>Positive Results</td>
<td>Sensitivity (95% CI)</td>
</tr>
<tr>
<td>Colorectal cancer</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any</td>
<td>65</td>
<td>60</td>
<td>92.3 (83.0–97.5)</td>
</tr>
<tr>
<td>Stage I to III*</td>
<td>60</td>
<td>56</td>
<td>93.3 (83.8–98.2)</td>
</tr>
<tr>
<td>Colorectal cancer and high-grade dysplasia</td>
<td>104</td>
<td>87</td>
<td>83.7 (75.1–90.2)</td>
</tr>
<tr>
<td>Advanced precancerous lesions †</td>
<td>757</td>
<td>321</td>
<td>42.4 (38.9–46.0)</td>
</tr>
<tr>
<td>Nonadvanced adenoma</td>
<td>2893</td>
<td>498</td>
<td>17.2 (15.9–18.6)</td>
</tr>
<tr>
<td>All nonadvanced adenomas, non-neoplastic findings, and negative results on colonoscopy</td>
<td>9167</td>
<td>1231</td>
<td>86.6 (85.9–87.2)</td>
</tr>
<tr>
<td>Negative results on colonoscopy</td>
<td>4457</td>
<td>455</td>
<td>89.8 (88.9–90.7)</td>
</tr>
</tbody>
</table>

* These stages of colorectal cancer, as defined by the system recommended by the American Joint Committee on Cancer, are associated with an increased rate of cure.
† Advanced precancerous lesions include advanced adenomas and sessile serrated polyps measuring 1 cm or more.
Stool DNA - Sample Collection

Patient supplies whole stool sample; no diet or medication restrictions

Patient seals sample in outer container and freezer pack

Patient seals container and ships back to designated lab (all packing materials and labels supplied)
Stool DNA Test

- One test (Cologuard) currently available
- Combines an FIT with tests for stool DNA markers asso w/ cancers and adenomas
- Every 3 year testing interval recommended by manufacturer
- FDA has cleared it for marketing as CRC screening test
- CMS has agreed to cover Cologuard for Medicare beneficiaries age 50 – 85 yrs
  - Medicare will reimburse $502 q 3 yrs for the test
  - Private insurance coverage – tbd
- All positive tests should be evaluated by colonoscopy
Community Health Centers are Key Partners!
Steps for Increasing Colorectal Cancer Screening Rates:
A Manual for Community Health Centers
ACS and Community Health Centers

- ACS has prioritized the need to effectively partner with CHCs
- Viewed as an ACS signature program
- More than **100 staff** across the country whose primary responsibility is establishing relationships and providing support to CHCs and state Primary Care Associations
- A multitude of tools and resources have been created, and more are in development
- Grant opportunities available
Introduction
Reducing the incidence and mortality from colorectal cancer (CRC) is a high priority for addressing the toll that all cancers take on the US population. Cancer is the leading cause of death for individuals aged younger than 80 years, and the leading cause of premature mortality. CRC is the nation’s third leading cause of mortality from cancer, even though it has been shown to be preventable to a significant degree with timely screening. Screening for CRC reduces its incidence, mortality, and stage at presentation and improves survival. After a decade of progress, momentum in the direction of widespread CRC screening continued to build in 2011 and was further encouraged by the release of 2 national strategies developed as required by the Patient Protection and Affordable Care Act with broad stakeholder input: the National Prevention Strategy and the National Quality Strategy. Both emphasized the importance of preventive services as essential components of a medical care system that will improve the health of the population as a whole.6,7

However, the disparities in cancer incidence and mortality rates experienced by vulnerable populations are also evident in rates of screening for CRC.6,8 Community health centers (referred to hereafter as “health centers”) are uniquely positioned to address disparities in CRC screening as they have addressed other disparities.9 To pursue this potential, the National Colorectal Cancer Roundtable (referred to hereafter as the “Roundtable”), a national leadership group

How might a Community Health Center benefit by using this manual?

1. Helps practices increase CRC screening rates through a team-based, systematic approach
2. Helps increase rates for UDS measure
3. Trains staff on a quality improvement processes that apply to other preventive services
4. Implements field-tested processes created by experts
5. Strengthens relationships with other community partners
Make a Recommendation
The primary reason patients say they are not screened is because a doctor did not advise it. A recommendation from you is vital.

Develop a Screening Policy
Create a standardized course of action. Engage your team in creating, supporting, and following the policy.

Measure Practice Progress
Establish a baseline screening rate, and set an ambitious practice goal. Seeing screening rates improve can be rewarding for your team.

Be Persistent With Reminders
Track test results, and follow up with providers and patients. You may need to remind patients several times before they follow through.
Step #1 Make A Plan

Determine Baseline Screening Rates
- Identify your patients due for screening
- Identify patients who received screening
- Calculate the baseline screening rate
- Improve the accuracy of the baseline screening rate

Design Your Practice's Screening Strategy
- Choose a screening method
- Use a high sensitivity stool-based test
- Understand insurance complexities.
- Calculate the clinic's need for colonoscopy
- Consider a direct endoscopy referral system

Step #2 Assemble A Team

Form An Internal CHC Leadership Team
- Identify an internal champion
- Define roles of internal champions
- Utilize patient navigators
- Define roles of patient navigators
- Agree on team tasks

Partner with Colonoscopists
- Identify a physician champion

Step #3 Get Patients Screened

Prepare The Clinic
- Conduct a risk assessment

Prepare The Patient
- Provide patient education materials

Make A Recommendation
- Convince reluctant patients to get screened

Ensure Quality Screening for Stool-Based Screening Program

Track Return Rates and Follow-Up

Measure and Improve Performance

Step #4 Coordinate Care Across The Continuum

Coordinate Follow-Up After Colonoscopy
- Establish a medical neighborhood
Step #1: Baseline Screening Rates

- CHCs need to determine where they are before they can determine where to go
- Encourage all CHCs to assess or re-assess their baseline screening rate
Step #2: Create a Team

- Find your internal and external champions!
- Your champions can help you establish links of care.
Why patients aren’t getting screened
...in their own words...

“My doctor never talked to me about it!”
Step #3: Get Patients Screened

A recommendation from the provider is the most influential factor on patient screening behavior.
Assess Risk
Personal + Family

Average Risk = No personal/family history of CRC or adenomatous polyp

< 50 years
Do not screen

50 - 75 years
H5gFOBT/FIT

If positive, colonoscopy
If negative, screening schedule:*
• Colonoscopy every 10 years
• Annual H5gFOBT/FIT
• Flexible sigmoidoscopy every 5 years with H5gFOBT/FIT every 3 years

Colonoscopy (or flexible sigmoidoscopy)

CRC = colorectal cancer
H5gFOBT = high-sensitivity fecal occult blood test
FIT = fecal immunohistochemical test

*Note: Additional recommendations for screening exist by ACS, which are available at:
www.cancer.org/Healthy/FindCancerEarly/CancerScreeningGuidelines
Assess Risk
Personal + Family

Increased Risk
- Adenoma
- CRC
- Family History
  - Surveillance Colonoscopy

High Risk
- HNPCC
- FAP
- IBD
  - Colonoscopy, genetic testing, other cancer screening if appropriate
  - Colonoscopy, specialty referral

CRC = colorectal cancer
HNPCC = Hereditary non-polyposis colorectal cancer
FAP = Familial adenomatous polyposis
IBD = Inflammatory bowel disease

*Note: Additional recommendations for screening exist by ACS, which are available at: www.cancer.org/Healthy/FindCancerEarly/CancerScreeningGuidelines
Goal = Recommendation to each eligible patient

- Requires an opportunistic/global approach
  - Don’t limit efforts to “check-ups”

- Requires a system that does not depend on the clinician alone

- Requires consistent messaging from clinicians and staff, taking into account patient knowledge and concerns
Step #4: Coordinate Care

The **creation of a medical neighborhood** will be critical in coordinating the care of patients.

Includes the facility, pathology, anesthesia, back up surgery, radiology, hospital, and possibly oncology.
Tools, Templates and Resources

- Appendix A
  - Work Sheets for Completing the Action Steps

- Appendix B
  - Electronic Health Record Screen Shots

- Appendix C
  - Program Tools and Materials

- Appendix D
  - Resources
100 organizations have pledged to deliver coordinated, quality CRC screening and follow-up care to all people.
www.cancer.org/colonmd
www.cancer.org/professionals
Free PDF of CHC Toolkit for CRC Screening available at cancer.org
Questions?

- Contact Info: heidi.gullelt@case.edu