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## **Screening for Colorectal Cancer**

**By: James L. Holly**

Colorectal cancer is the second leading cause of cancer death in North America and Western Europe. Most such cancers begin as premalignant polyps. If more patients with advanced neoplasia (pre-malignant) polyps were detected and the polyps removed, many -- if not most -- cancers could be prevented. Compelling evidence now exists that shows screening of average-risk asymptomatic individuals over 50 years of age not only reduces mortality from colorectal cancer but also reduces colorectal cancer incidence rates.

In the National Polyp Study, patients had a complete colonoscopy with removal of all polyps. The expected rates of colorectal cancer over the following six years were reduced by 76% to 90%. The Minnesota Colon Cancer Group reported that patients who were screened with a fecal (stool) occult blood test had lower rates of cancer incidence over time than did non-screened controls. The authors attributed this benefit to the discovery and removal of premalignant polyps. Screening of average-risk individuals has been advocated by many organizations and experts.

Colorectal cancer screening recommendations are (Beginning at age 50 years the following options are acceptable choices):

1. Average-risk individuals
  - Fecal occult blood test annually
  - Flexible sigmoidoscopy every 5 years
  - Combination of fecal occult blood and sigmoidoscopy
  - Colonoscopy every 10 years
  - Barium enema with air contrast every 5 years.
  
2. Individuals at increased risk
  - Colonoscopy is recommended. This includes individuals with a history of colorectal cancer in any first-degree relative at age 60 years or less. Individuals with a personal history of colorectal cancer or adenoma.

3. Individuals at High Risk - Special recommendations apply. This includes individuals with familial adenomatous polyposis, with a history of hereditary nonpolyposis
  - Colorectal cancer syndrome or with inflammatory bowel disease of the colon (ulcerative colitis or Crohn's disease).

## Risk Stratification for Colorectal Cancer

### High Risk

Familial polyposis -- represents 1% of all patients with colorectal cancer. Their lifetime risk of colon cancer is 100%. The recommended screening is sigmoidoscopy in teenage years; genetic screening can be considered and total colectomy if detected.

Hereditary nonpolyposis colorectal cancer -- represents 3% of all patients with colorectal cancer. The lifetime risk of colon cancer is greater than 80%. The recommended screening is colonoscopy in 20s or 30s at 2-year intervals; genetic screening can be considered.

Chronic ulcerative colitis/Crohn's disease -- represents less than 1% of patients with colorectal cancer. The lifetime risk of colon cancer is increased from the average. The recommendation for screening is a colonoscopy every 2 years beginning at 8 to 10 years after onset of colitis.

### Moderate Risk

Familial risk with a first-degree relative with colorectal cancer before age 60 -- represents 15-20% of patients with colorectal cancer. The lifetime risk of colon cancer is 2 to 4-fold increased. The recommendation for screening is to begin screening at an age 10 years younger than the age the first degree relative was when the cancer was detected. Colonoscopy screening should be considered.

Personal history of breast, uterine, or ovarian cancer -- represents less than 1% of patients with colon cancer. The lifetime risk of colon cancer is uncertain and there are no specific recommendations for screening.

### Average Risk

All patients over 50 years of age -- Represent 70-75% of all colorectal cancers. Lifetime risk of cancer is about 6%. Recommendation is that screening begins at age 50.

## Screening Strategies for average-risk individuals

### Fecal Occult Blood Testing

Three randomized, controlled trials have demonstrated a significant reduction of the colorectal mortality rate among patients who were screened compared with non-screened controls. The benefit is thought to be due to early cancer detection and incidental discovery and removal of adenomatous polyps, which may lead to cancer prevention. However, a one-time fecal occult blood test detects less than 25% of patients with advanced neoplasia; therefore, screening effectiveness depends on compliance with repeat annual screening. The cancer-prevention benefit of fecal occult blood depends on the rates of colonoscopy in the screening program.

### Flexible Sigmoidoscopy

Two recent studies used complete screening colonoscopy to determine how many cases of advanced neoplasia in the proximal colon would not be detected with sigmoidoscopy. The studies showed that overall 70 to 80% of all cases of advanced neoplasia in the colon would be detected with sigmoidoscopy, but that 50% of cases of advanced neoplasia in the proximal colon would not be detected. With increasing age, the prevalence of proximal neoplasia increases, and sigmoidoscopy would be a less effective screening test.

### Imaging Studies

Barium studies failed to identify up to 50% of cases of polyps greater than 1 centimeter in the National Polyp Study.

### Computed tomographic colography (CT scanning)

Patients with suspicious or positive CT studies of the colon end up with a colonoscopy greatly increasing the cost of care. The effectiveness of CT Scanning of the colon is very dependent upon the quality of bowel preparation. Further studies are needed before CT Scanning and/or Magnetic resonance (MRI) colography can be recommended to patients as screening tests.

### Colonoscopy

This is the most effective test for the detection of adenomas and likely has a greater impact on cancer incidence rates than any other form of screening.

### Summary of Screening Test Efficacy for Colorectal Cancer

Fecal Occult Blood Test alone detects about 24% of advanced neoplasia

Sigmoidoscopy alone detects about 70% of advanced neoplasia

Combined Fecal Occult Blood and sigmoidoscopy detects about 76% of advanced neoplasia

Barium enema detects about 48% of advanced neoplasia

Virtual colonoscopy detects 50-90% of advanced neoplasia

Colonoscopy detects 95% of advanced neoplasia

## Cost and Compliance of Colon Screening

All studies show that screening for colorectal cancer with any of the recommended tests is more clinically effective, leading to mortality reduction, and more cost-effective than other medical interventions and treatments. It is obvious that no program is effective if compliance is poor; therefore, physicians need to focus more attention on obstacles to compliance.

Despite compelling evidence that screening average-risk individuals over 50 years of age can save lives, the United States compliance with recommended screening tests is only 30 to 40%. These rates are much lower than rates achieved for cervical cancer and breast cancer screening. There are many obstacles to compliance, but perhaps the most important is the failure of health care providers to discuss screening with patients. A 1988 Gallup poll found that 88% of non-screened patients said their health care provider had not discussed screening.

### Obstacles to Screening Compliance

1. Public awareness -- this is improving
2. Physician awareness of screening -- this is improving
3. Public acceptance of screening tests -- poor
4. Payer coverage Medicare -- fecal occult blood tests, sigmoidoscopy and colonoscopy are covered as of July 2001
5. Private Payer -- mandated coverage in Virginia, Missouri, otherwise varies from no coverage to specific test coverage.
6. Uninsured -- no progress
7. Colorectal cancer can be prevented. It is the healthcare providers' responsibility to make screening available to patients and it is patients' responsibility to request, even to demand, such screening.

Remember, it is your life and it is your health.