

Table 1. Advantages and disadvantages of colorectal cancer screening tests.

SCREENING TEST	SCREENING TEST	DISADVANTAGES
<b>Fecal Occult Blood Test (FOBT)</b>	<ul style="list-style-type: none"> <li>No preparation of the colon is necessary.</li> <li>Samples can be collected at home.</li> <li>Low-cost compared to other tests.</li> <li>Non-invasive and does not cause bleeding or tears in the lining of the colon.</li> <li>Limited reader variability.</li> </ul>	<ul style="list-style-type: none"> <li>Fails to detect most polyps and some cancers.</li> <li>False positive results are possible. ("False positive" means the test suggests an abnormality when none is present.)</li> <li>Dietary restrictions and changes, such as avoiding meat, certain vegetables, vitamin C, iron supplements, and aspirin, and increasing fiber consumption, are often recommended for several days before a guaiac FOBT. These restrictions and changes are not required for immunochemical FOBT.</li> <li>Additional procedures, such as colonoscopy, may be necessary if the test indicates an abnormality.</li> </ul>
<b>Flexible Sigmoidoscopy</b>	<ul style="list-style-type: none"> <li>Usually a quick test with few complications.</li> <li>Discomfort is minimal.</li> <li>Doctor may be able to perform a biopsy (the removal of tissue for examination under a microscope by a pathologist) and remove polyps during the test, if necessary, in some cases.</li> <li>Less extensive preparation of the colon is necessary with this test than for an optical colonoscopy.</li> </ul>	<ul style="list-style-type: none"> <li>Only the rectum and the lower part of the colon are examined. Polyps in the upper part of the colon will be missed.</li> <li>There is a very small risk of bleeding or tears in the lining of the colon.</li> <li>Additional procedures, such as an optical colonoscopy, may be necessary if the test indicates an abnormality.</li> <li>Operator variability - experience and interpretation.</li> </ul>
<b>Double Contrast Barium Enema (DCBE)</b>	<ul style="list-style-type: none"> <li>Allows the doctor to view the rectum and the entire colon.</li> <li>Complications are rare.</li> <li>No sedation is necessary.</li> </ul>	<ul style="list-style-type: none"> <li>May not detect some small polyps and cancers.</li> <li>Thorough preparation of the colon is necessary before the test.</li> <li>False positive results are possible.</li> <li>The doctor cannot perform a biopsy or remove polyps during the test.</li> <li>Additional procedures are necessary if the test indicates an abnormality.</li> <li>Operator variability - experience and interpretation.</li> </ul>
<b>Optical Colonoscopy (conventional)</b>	<ul style="list-style-type: none"> <li>Allows the doctor to view the rectum and the entire colon.</li> <li>The doctor can perform a biopsy and remove polyps during the test, if necessary.</li> <li>Considered the gold standard.</li> </ul>	<ul style="list-style-type: none"> <li>May not detect all small polyps and cancers.</li> <li>Thorough preparation of the colon is necessary before the test.</li> <li>Sedation is usually needed.</li> <li>Although uncommon, complications such as bleeding and/or tears in the lining of the colon can occur.</li> <li>Operator variability - experience and interpretation.</li> </ul>
<b>Virtual colonoscopy</b>	<ul style="list-style-type: none"> <li>Allows the doctor to view the rectum and the entire colon.</li> <li>High detection rate for polyps.</li> <li>Less invasive than conventional optical colonoscopy, low risk of bleeding or tearing/perforation of the lining of the colon.</li> <li>Does not require sedation.</li> <li>Typically costs less than a conventional colonoscopy.</li> <li>Use of CAD reduces reader variability.</li> </ul>	<ul style="list-style-type: none"> <li>May not detect all small polyps, nonpolypoid lesions, and cancers.</li> <li>Thorough preparation of the colon is necessary before the test.</li> <li>Additional procedures, such as colonoscopy, may be necessary depending on the size and nature of any abnormality detected.</li> <li>Optical colonoscopy still needed if virtual colonoscopy finds a potential problem.</li> <li>Not possible to remove polyps or perform a biopsy during procedure.</li> <li>Operator variability - experience and interpretation.</li> </ul>

i. National Cancer Institute (U.S. National Institutes of Health): Colon and Rectal Cancer (Internet). Bethesda (MD). Estimated new cases and deaths. (cited 2007 Oct 19). Available from: <http://www.cancer.gov/cancertopics/types/colon-and-rectal>.

ii. American Cancer Society: Detailed Guide: Colon and Rectum Cancer - What Are the Key Statistics for Colorectal Cancer? (Internet). Atlanta (GA). revised 2008 Mar 5 (cited 2008 Nov 21). Available from: [http://www.cancer.org/docroot/CRI/content/CRI\\_2\\_4\\_1X\\_What\\_are\\_the\\_key\\_statistics\\_for\\_colon\\_and\\_rectum\\_cancer.asp](http://www.cancer.org/docroot/CRI/content/CRI_2_4_1X_What_are_the_key_statistics_for_colon_and_rectum_cancer.asp).

iii. National Cancer Institute (U.S. National Institutes of Health): Colon and Rectal Cancer (Internet). Bethesda (MD). Risk Factors (cited 2008 Nov 21) Available from: <http://www.cancer.gov/cancertopics/wyntk/colon-and-rectal/page4>.

iv. U.S. Food and Drug Administration: Preventing Colon Cancer: Screening and Early Detection Save Lives (Internet). Rockville (MD). Early Detection Means Survival. 2000 Nov-Dec (cited 2008 Nov 21). Available from: [http://www.fda.gov/CDAC/features/2000/600\\_colon.html](http://www.fda.gov/CDAC/features/2000/600_colon.html).

v. Smith RA, Mettlin CJ, Eyre H. 31. Cancer Screening and Early Detection. In: D.W. Kufe et al., eds. Cancer Medicine. 6 ed. Hamilton, London: BC Decker Inc, 2003.

vi. Scholfield JH. ABC of colorectal cancer: screening. BMJ 2000;321(7267):1004-6.

vii. Pickhardt PJ, Choi JR, Hwang I, et al. Computed tomographic virtual colonoscopy to screen for colorectal neoplasia in asymptomatic adults. N Engl J Med 2003;349(23):2191-200.

viii. National Cancer Institute (U.S. National Institutes of Health): Colorectal Cancer Screening: Questions and Answers (Internet). Bethesda (MD). How can people and their health care providers decide which colorectal cancer screening test(s) to use and how often to be screened? (cited 2008 Nov 21). Available from: <http://www.cancer.gov/cancertopics/factsheet/Detection/colorectal-screening>.

ix. National Cancer Institute (U.S. National Institutes of Health): Colorectal Cancer Screening: Questions and Answers (Internet). Bethesda (MD). Do insurance companies pay for colorectal cancer screening? (cited 2008 Nov 21). Available from: <http://www.cancer.gov/cancertopics/factsheet/Detection/colorectal-screening>.

x. National Cancer Institute (U.S. National Institutes of Health): Colorectal Cancer Screening: Questions and Answers (Internet). Bethesda (MD). How can people and their health care providers decide which colorectal cancer screening test(s) to use and how often to be screened? (cited 2008 Nov 21). Available from: <http://www.cancer.gov/cancertopics/factsheet/Detection/colorectal-screening>.

xi. Pickhardt PJ, Choi JR, Hwang I, et al. Computed tomographic virtual colonoscopy to screen for colorectal neoplasia in asymptomatic adults. New England Journal of Medicine 2003; 349(23):2191-2200.

xii. Johnson CD, Chen MH, Toledano AY, et al. Accuracy of CT colonography for detection of large adenomas and cancers. New England Journal of Medicine 2008; 359(12): 1207-1217.

# COLORECTAL CANCER.

## WHAT IS COLORECTAL CANCER?

Colorectal cancer forms in the tissues of the colon (the longest part of the large intestine).<sup>1</sup> Most colon cancers are adenocarcinomas (cancers that begin in cells that make and release mucus and other fluids) and the disease is the second leading cause of cancer-related deaths in the United States. The American Cancer Society estimates that about 108,070 new cases of colon cancer (53,760 in men and 54,310 in women) and 40,740 new cases of rectal cancer (23,490 in men and 17,250 in women) will be diagnosed in 2008.<sup>2</sup> Colorectal cancer is the third leading cause of cancer-related deaths in the United States when men and women are considered separately, and the second leading cause when both sexes are combined. It is expected to cause about 49,960 deaths (24,260 men and 25,700 women) during 2008.<sup>2</sup>

The symptoms of colorectal cancer may include blood in the stool, change in bowel habit, abdominal pain and weight loss, but often these symptoms do not appear until the disease is relatively advanced.

## WHO DOES COLORECTAL CANCER AFFECT AND WHAT ARE THE RISK FACTORS?

Risk factors for developing colorectal cancer are not fully understood, but do include the following:<sup>iii</sup>

- 1. Age:** Colorectal cancer is more likely to occur as people get older. More than 90 percent of people with this disease are diagnosed after age 50. The average age at diagnosis is 72.
- 2. Personal history of polyps:** Some types of polyps increase the risk of colorectal cancer, especially if they are large, or if there are many of them.
- 3. Personal history of cancer:** A person who has already had colorectal cancer may develop colorectal cancer a second time. Also, women with a history of cancer of the ovary, uterus (endometrium), or breast are at a somewhat higher risk of developing colorectal cancer. Finally, a person who has had a condition that causes inflammation of the colon (such as ulcerative colitis or Crohn's disease) for many years is at increased risk of developing colorectal cancer.
- 4. Family history of colorectal cancer:** Close relatives (parents, brothers, sisters, or children) of a person with a history of colorectal cancer are at an increased risk to develop this disease themselves, especially if the relative was diagnosed with the cancer at a young age. If many close relatives have a history of colorectal cancer, the risk is even greater. People with a family history of colorectal cancer should talk to their doctors about how often to have screening tests.
- 5. Diet:** A diet high in fat, especially fat from animal sources, can increase the risk of colorectal cancer. Over time, eating a lot of red meats and processed meats can increase colorectal cancer risk.
- 6. Lack of exercise:** People who are not active have a higher risk of colorectal cancer.
- 7. Overweight:** Being very overweight increases a person's risk of dying from colorectal cancer.
- 8. Smoking:** Most people know that smoking causes lung cancer, but recent studies show that smokers are more likely than non-smokers to die of colorectal cancer. Smoking increases the risk of many other cancers, too.
- 9. Alcohol:** Heavy use of alcohol has been linked to colorectal cancer.



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## WHY IS SCREENING IMPORTANT IN COLORECTAL CANCER.

### WHY IS SCREENING IMPORTANT IN COLORECTAL CANCER?

Among individuals diagnosed with colorectal cancer, survival is highly dependent on how advanced the disease is at diagnosis. Patients whose tumors are entirely localized to the bowel have an 80 to 90% chance of surviving for 10 years. With tumors that have spread to the liver, however, the five-year survival rate is less than 5%.<sup>iv</sup>

Early detection means a greatly increased chance of survival. If diagnosed and treated in its early stages, colorectal cancer is highly curable. Routine screening tests that detect polyps and allow for their removal before they become cancerous can reduce the number of people who die of colorectal cancer by as much as 60%.<sup>v</sup>

## COLONCAD.

### WHAT METHODS ARE USED TO SCREEN PEOPLE FOR COLORECTAL CANCER?

Methods currently used for colorectal cancer screening include:

- Fecal occult blood tests (testing for the presence of blood in the stool).
- Flexible sigmoidoscopy (visualization of the rectum and lower part of the large intestine).
- Double-contrast barium enema (an X-ray of the large intestine).
- Optical colonoscopy (visualization of the whole of the large intestine).

Some advantages and disadvantages associated with these testing methods are shown in Table 1. Optical colonoscopy is widely considered to be the gold-standard method of examining the colon and rectum, but it is expensive, the patient must undergo sedation, and there is a small risk of perforation of the colon, making it unacceptable for population screening.<sup>vi</sup>

**Computed Tomographic (CT) colonography** (also known as *virtual colonoscopy*) is a newer, less invasive method of examining the colon and rectum in which computed tomography is used to generate two- and three-dimensional images of the colon and rectum. Virtual colonoscopy has been found to be as effective at detecting adenomatous polyps as colonoscopy, but requires no sedation or pain relief<sup>7</sup> and is minimally invasive. The largest study to date, involving 1,233 patients comparing the detection of polyps and early-stage colon cancer using both CT colonography and conventional optical colonoscopy, showed that CT colonography is at least as sensitive as conventional colonoscopy in the detection of adenomas of 1cm diameter or larger.<sup>vi</sup> The clinical effectiveness of CTC in the U.S. was demonstrated by data published in the New England Journal of Medicine in August 2008 from the National U.S. Computerized Tomography (CT) Colonography Trial (ACRIN study 6664). The study showed CT-Colonography had comparable effectiveness to optical colonoscopy in detecting colonic polyps or cancers of 10mm and larger. In addition, the American Cancer Society endorsed CTC in its 2008 updated screening guidelines, evidence that the clinical value of CTC as a screening technique for colorectal cancer is gaining further clinical relevance and acceptance.



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## HOW CAN PEOPLE AND THEIR HEALTH CARE PROVIDERS DECIDE WHICH COLORECTAL CANCER SCREENING TEST(S) TO USE AND HOW OFTEN TO BE SCREENED?

Several major organizations, including the U.S. Preventive Services Task Force (a group of experts convened by the U.S. Public Health Service), the American Cancer Society, and professional societies, have developed guidelines for colorectal cancer screening. Although some details of their recommendations vary regarding which screening tests to use and how often to be screened, all of these organizations support screening for colorectal cancer.<sup>viii</sup>

People should talk with their health care provider about when they should first be screened for colorectal cancer, what tests to have, what are the benefits and risks of each test, and how frequently screening examinations should take place.

The decision to have a certain test will take into account several factors:

- Person's age, medical history, family history, and general health.
- Accuracy of the test.
- Risks associated with the test.
- Preparation required before the test.
- Sedation necessary during the test.
- Follow-up care after the test.
- Convenience of the test.
- Cost and insurance coverage of the test.

### DO INSURANCE COMPANIES PAY FOR COLORECTAL CANCER SCREENING?

Insurance coverage in the U.S. varies. People should check with their health insurance provider to determine their colorectal cancer screening benefits. Medicare covers several colorectal cancer screening tests for its beneficiaries. Specific information about Medicare benefits is available on the Medicare Web site at <http://www.medicare.gov/health/overview.asp>.<sup>ix</sup>



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