



Colorectal Cancer Facts & Figures



Special Edition 2005

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Preface

The American Cancer Society estimates that in 2005 about 145,290 people will be diagnosed with colorectal cancer and that about 56,290 people will die of the disease. The great majority of these cancers and deaths could be prevented by applying existing knowledge about cancer prevention and by wider use of established screening tests. Yet, cancers of the colon and rectum combined are the third most common type of cancer and the second most common cause of cancer death in the US. When men and women are considered separately, colorectal cancer is the third most common cause of cancer death in each sex. Although the American Cancer Society and other health organizations recommend that colorectal cancer screening begin at age 50 for individuals at average risk, less than 50% of people aged 50 or older in the US have had a recent test.

Screening can prevent many cases of colorectal cancer because most colorectal cancers develop from adenomatous polyps. Polyps are noncancerous growths in the colon and rectum. Detecting polyps through screening and removing them can actually prevent cancer from occurring.

Furthermore, being screened at the recommended frequency improves the chance that colorectal cancers will be detected at an earlier stage, when:

- The cancer is more likely to be cured by surgery alone, and
- The surgery needed is less extensive, and the recovery from surgery much faster.

Additional colorectal cancer cases and deaths each year could be prevented if more people maintained a healthy level of physical activity and a healthy body weight and avoided smoking.

The American Cancer Society is dedicated to eliminating cancer as a major public health problem by preventing cancer, saving lives, and diminishing suffering from cancer. In 2005, the Society is reaching out to the public and the public health and medical communities to work together to prevent the tragic and unnecessary suffering caused by colorectal cancer. This special edition of *Colorectal Cancer Facts & Figures* is part of the Society's effort to accomplish this.

More information

This special edition of *Colorectal Cancer Facts & Figures* is intended to provide basic information about colorectal cancer to the general public, the media, and health professionals. More detailed information on many topics related to colorectal cancer can be found on the American Cancer Society's Web site at <http://www.cancer.org>.



What is colorectal cancer?

Colorectal cancer is cancer that develops in the colon or the rectum. The colon and rectum are parts of the digestive system, which is also called the gastrointestinal, or GI, system. The digestive system processes food for energy and rids the body of solid waste (fecal matter or stool).

After food is chewed and swallowed, it travels through the **esophagus** to the stomach. There it is partially broken down and sent to the **small intestine** where digestion continues and most of the nutrients are absorbed. The word “small” refers to the diameter of the small intestine, which is smaller than that of the large intestine. The small intestine is actually the longest part of the digestive system – about 20 feet long. Cancer almost never arises in the small intestine.

The small intestine joins the large intestine in the lower right abdomen. The first and longest part of the large intestine is the **colon**, a muscular tube about 5 feet long. Water and mineral nutrients are absorbed from the food matter in the colon. Waste (feces) left from this process passes into the **rectum**, the final 6 inches of the large intestine, and is then expelled (Figure 1). (The small and large intestine are sometimes called the small and large bowel).

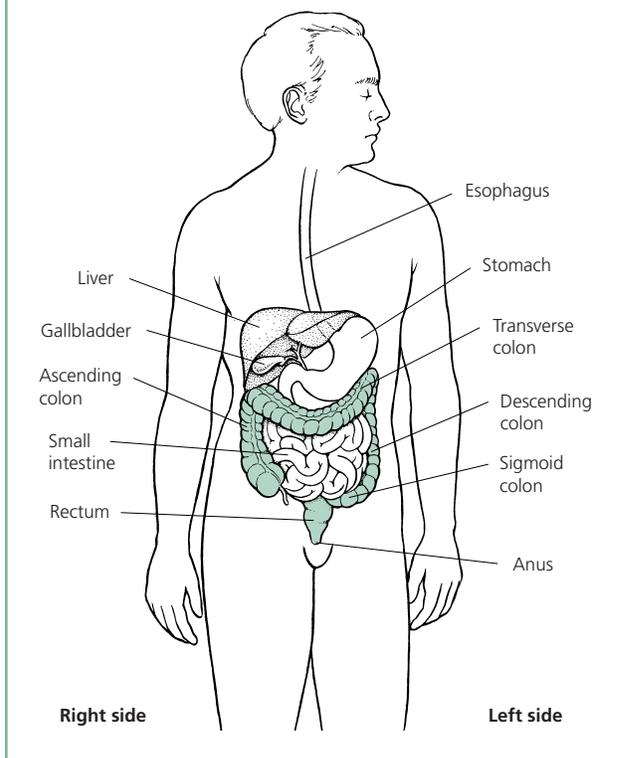
The colon has 4 sections:

- The first section is called the **ascending colon**. It begins where the small intestine attaches to the colon and extends upward on the right side of a person’s abdomen.
- The second section is called the **transverse colon** since it crosses the body from the right to the left side.
- The third section, the **descending colon**, continues downward on the left side.
- The fourth section is known as the **sigmoid colon** because of its S-shape. The sigmoid colon joins the rectum, which in turn joins the anus.

Colorectal cancer usually develops slowly over a period of many years. Before a true cancer develops, it usually begins as a noncancerous polyp which may eventually change into cancer. A polyp is a growth of tissue that develops on the lining of the colon or rectum. Certain kinds of polyps, called **adenomatous polyps** or **adenomas**, are most likely to become cancers.

More than 95% of colorectal cancers are adenocarcinomas, which evolve from glandular tissue. For approxi-

Figure 1. Diagram of Colon and Rectum



mately 85% of colon and rectum cancers, the tumor arises from an adenomatous polyp that is visible through a scope or on an x-ray. The information on early detection in this document is about this type of cancer.

Once cancer forms in the large intestine, it eventually can begin to grow through the lining and into the wall of the colon or rectum. Cancers that have invaded the wall can grow into blood vessels or lymph vessels, which are thin channels that carry away cellular waste and fluid. Cancer cells first drain into nearby lymph nodes, which are bean-shaped structures that help fight against infections. The process through which cancer cells travel to distant parts of the body through blood or lymphatic vessels is called **metastasis**.

The extent to which a colorectal cancer has spread is described as its stage. Cancers that have not yet begun to invade the wall of the colon or rectum are called carcinomas *in situ*, and are not counted in cancer statistics. More than one system is used for the clinical staging of cancer. In this document, we will describe colorectal cancer stages as:

Local: Cancers that have grown into the wall of the colon and rectum, but have not extended through the wall to invade nearby tissues

Regional: Cancers that have spread through the wall of the colon or rectum and have invaded nearby tissue, or that have spread to nearby lymph nodes

Distant: Cancers that have spread to other parts of the body, such as the liver and lung

How many cases and deaths are estimated to occur in 2005?

Colorectal cancer is the third most commonly diagnosed cancer and the second most common cause of cancer death in the US, with about 145,290 new cases and 56,290 deaths expected in 2005. When men and women are considered separately, colorectal cancer is the third most common cause of cancer death in each sex. About 72% of new colorectal cancer cases arise in the colon and about 28% in the rectum.

Who gets colorectal cancer?

Anyone can get colorectal cancer. The lifetime risk of being diagnosed with cancer of the colon or rectum is about 5.9% for men and 5.5% for women in the US. Although 20%-25% of colorectal cancer cases occur among individuals with a family history of colorectal cancer or a predisposing illness, about 75% of cases occur in people without these risk factors.¹

Age

- Incidence and death rates from colorectal cancer increase with age. Overall, 91% of new cases and 94% of deaths from colorectal cancer occur in individuals older than 50. The incidence rate of colorectal cancer is more than 50 times higher in people aged 60-79 than in those younger than 40.

Sex

Overall, colorectal cancer incidence and mortality rates are more than 35% higher in men than in women (Table 1).

Race/ethnicity

- Colorectal cancer incidence and mortality rates are highest in African American men and women (Table 1). Incidence rates among African American men and women are about 15% higher than in white men and women, while mortality rates in African Americans are about 40% higher than in whites.
- Prior to 1987, incidence rates for white men were higher than those for African American men and approximately equal between African American and white women; since that time, incidence rates have been higher for African Americans than whites (Figure 2). This crossover may reflect historical under-diagnosis of colon cancer in African Americans; racial differences in the trends in prevalence of risk factors for colon cancer; and/or greater access and utilization of recommended screening tests by whites, resulting in detection and removal of precancerous polyps.
- Since the early 1980s, there has been increasing divergence in mortality trends between whites and African Americans (Figure 2). Before 1980, colorectal cancer mortality rates were lower in African American men than white men and approximately equal between African American women and white women. However, the gap in mortality widened over time so that in 2001 rates were about 40% higher in African American men and women than in white men and women. These trends occurred during a period of substantial improvement in early detection and treatment for colorectal cancer. Several studies documented that African American patients were more likely to be diagnosed after the disease had spread beyond the colon.

Table 1. Colorectal Cancer Incidence and Mortality Rates* by Race/Ethnicity and Sex, 1997-2001

Race/Ethnicity	Incidence		Mortality	
	Male	Female	Male	Female
African Americans	72.9	56.5	34.3	24.5
Whites	63.1	45.9	24.8	17.1
Asian Americans/Pacific Islanders	56.3	38.6	15.8	10.8
Hispanics/Latinos	49.6	32.5	18.0	11.6
American Indians/Alaska Natives	38.3	32.7	17.1	11.7
All Races/Ethnicities	63.4	46.4	25.3	17.7

*Per 100,000, age-adjusted to the 2000 US Standard Population

Source: Surveillance, Epidemiology, and End Results (SEER) Program.²

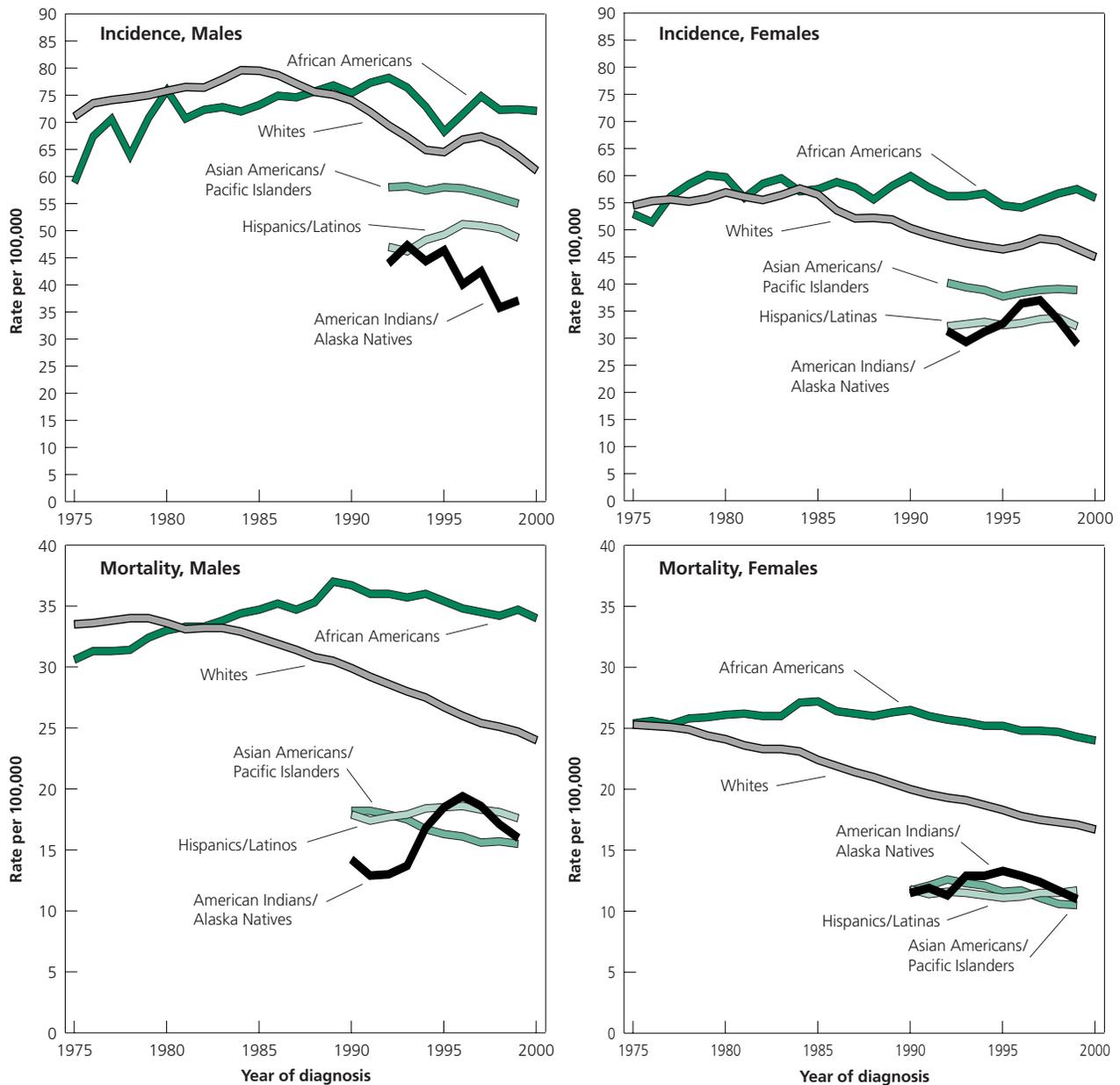
In addition, African Americans with colorectal cancer were less likely than white patients to receive recommended surgical treatment and adjuvant therapy.³⁻⁷

- Incidence rates among Asian Americans/Pacific Islanders, Hispanics/Latinos, and American Indians/Alaska Natives are lower than those among whites. Mortality rates are also lower, suggesting that differences in risk factors rather than access to screening or treatment may play an important role (Table 1).

How has the occurrence of colorectal cancer changed over time?

- Overall, colorectal cancer incidence rates have been declining in both men and women since 1998. These decreases may reflect detection and removal of precancerous polyps.^{8,9} They may also reflect the increased use of hormone replacement therapy in

Figure 2. Trends in Age-Standardized Colorectal Cancer Incidence and Mortality Rates by Race/Ethnicity and Sex, 1975-2001



*Rates are age-standardized to the 2000 US standard population. They are 2-year moving averages for whites and African Americans and 3-year moving averages for the other populations.

Source: Surveillance, Epidemiology, and End Results (SEER) Program.²

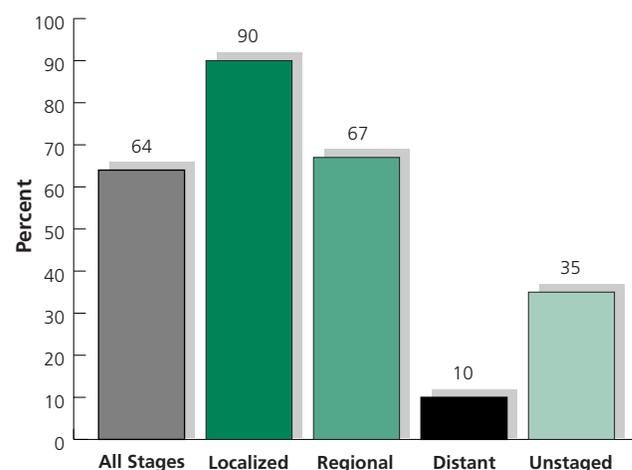
women and anti-inflammatory drugs, both of which appear to reduce the risk of colorectal cancer.^{10,11}

- Over the past 10 years, incidence rates among males are on the decline in every racial/ethnic population except Hispanics/Latinos, with significant decreases in whites and Asian Americans/Pacific Islanders. Among females, incidence rates have stabilized in every racial/ethnic population over the same time period (Figure 2).
- Mortality rates have steadily decreased among African Americans, whites, and Asian Americans/Pacific Islanders in both males and females (Figure 2).

Stage distribution and cancer survival

- Overall, only 39% of colorectal cancer patients diagnosed between 1995 and 2000 had localized stage disease. Among patients diagnosed with colorectal cancer from 1995 to 2000, the 5-year relative survival rate was about 90% for those diagnosed at the localized stage, 67% for the regional stage, and 10% for the distant stage (Figure 3).
- African Americans, Hispanic/Latino whites, and American Indians/Alaska Natives are less likely to be diagnosed with colorectal cancer at the localized stage, and are more likely to be diagnosed with colorectal cancer at the distant stage compared to non-Hispanic whites and Asian Americans/Pacific Islanders (Table 2).
- From the mid-1970s until 1995-2000, the 5-year relative survival rate for colorectal cancer increased from 52% to 63% in women and from 50% to 64% in men. A significant advance in colorectal cancer treatment in the late 1980s was the introduction of 5-fluoroucil-based adjuvant chemotherapy for resectable (operable), stage III colon cancer, which reduced mortality by as much as 30%.

Figure 3. Five-Year Relative Survival Rates for Colorectal Cancer by Stage at Diagnosis, 1995-2000



Source: Surveillance, Epidemiology, and End Results (SEER) Program.²

- African Americans and American Indians/Alaska Natives have a lower probability of survival and a higher risk of death once diagnosed with colorectal cancer, compared to non-Hispanic whites, after accounting for differences in age and stage of diagnosis (Table 3). Factors that may contribute to disparities in survival by race and ethnicity include differences in access to early detection, timely and high-quality treatment and supportive care, and comorbidities (other illnesses that a person has).¹² Studies have found that African Americans are less likely than whites to receive recommended surgical, adjuvant chemotherapy, and radiation treatments.¹³

What are the known risk factors for colorectal cancer?

A family history of colorectal cancer and a personal history of colorectal cancer, colorectal polyps, or chronic inflammatory bowel disease are the major risk factors

Table 2. Stage Distribution of Colorectal Cancer Diagnosed 1992-2000, Five Racial/Ethnic Populations

Race/Ethnicity	Stage Distribution			
	Local	Regional	Distant	Unstaged
Non-Hispanic whites	38.1	37.8	19.0	5.2
Hispanic/Latino whites	34.9	38.4	21.4	5.3
African Americans	34.5	34.7	23.8	7.0
American Indians/Alaska Natives	34.8	38.7	23.3	3.2
Asian Americans/Pacific Islanders	38.7	39.5	17.2	4.6

Source: Surveillance, Epidemiology, and End Results (SEER) Program.²

Table 3. Five-Year Colorectal Cancer-Specific Survival and Stage- and Age-Adjusted Relative Risk of Colorectal Cancer Deaths by Race/Ethnicity and Sex, 1992-2000

Race/Ethnicity	Cause-Specific Survival*		Adjusted Relative Risk† (95% CI‡) of Deaths	
	Male	Female	Male	Female
Non-Hispanic whites	64.0	63.4	1.00	1.00
Hispanic/Latino whites	60.9	61.3	1.05 (0.99-1.11)	1.05 (0.99-1.11)
African Americans	56.1	57.0	1.26 (1.20-1.32)	1.18 (1.13-1.23)
Asian Americans/Pacific Islanders	66.7	68.2	0.95 (0.90-1.00)	0.90 (0.85-0.96)
American Indians/Alaska Natives	62.3	58.2	1.14 (0.95-1.35)	1.38 (1.16-1.64)

*Cause-specific survival rates are the probability of not dying of colorectal cancer within 5 years after the date of diagnosis. They do not account for stage and age at diagnosis. †Relative risk estimates that controlled for age and tumor stage at diagnosis were calculated to compare probability of death from colorectal cancer within 5 years after diagnosis between racial/ethnic groups.¹³ ‡95% confidence intervals represent the range in which we are 95% confident that the true value falls. Wider confidence intervals generally reflect smaller sample sizes.

Source: Jemal et al.¹³

for colorectal cancer. The American Cancer Society and other organizations recommend that people with these risk factors begin screening at an earlier age than those without them. Several modifiable risk factors have been associated with either increased or decreased risk of colorectal cancer in epidemiologic studies. Risk factors for colorectal cancer are summarized in Table 4 and described below.

A family history of colorectal cancer

- People who have a first-degree relative (parent, sibling, or offspring) who has had colorectal cancer have an increased risk of developing this disease. People who have 2 or more close relatives with colorectal cancer make up about 20% of all people with the disease. The risk increases even further if the relatives were diagnosed before the age of 60.
- About 5%-10% of patients with colorectal cancer have an inherited genetic abnormality that causes the cancer. One such abnormality is called **familial adenomatous polyposis (FAP)**; a second is called **hereditary nonpolyposis colorectal cancer (HNPCC)**, also known as Lynch syndrome.
- Accurate identification of families with a family history of colorectal cancer and/or a genetic abnormality that causes colorectal cancer is important so they can begin testing at an early age.

A personal history of colorectal cancer, colorectal polyps, or chronic inflammatory bowel disease

- People who have had colorectal cancer are more likely to develop new cancers in other areas of the colon and rectum, even if the first cancer has been completely removed. The risks of a second cancer are much

greater if the first colorectal cancer occurred at age 60 or younger.

- People who have had one or more adenomatous polyps have an increased risk for colorectal cancer. This is especially true if the polyps were large or if there was more than one.
- People who have a chronic inflammatory bowel disease of significant duration (8-10 years) and involving the entire bowel have an increased risk of developing colorectal cancer. This includes conditions such as ulcerative colitis and Crohn's disease, in which the colon is inflamed over a long period of time.

Physical activity

Many studies report that regular physical activity is associated with lower risk of colorectal cancer.^{14,15} Based on these studies, the American Cancer Society recommends **engaging in at least moderate activity for 30 minutes or more on 5 or more days per week**. The Society also notes that **45 minutes or more of moderate to vigorous activity on 5 or more days per week** may further enhance reductions in colorectal cancer risk. Epidemiologic studies find that:

- High levels of physical activity may decrease the risk of colorectal cancer among men and women by as much as 50%.¹



- According to most studies, the more physical activity people engage in, the lower their risk of colorectal cancer is. Both recreational and occupational physical activity decrease risk.^{1,15}
- Sedentary people who become active later in life can also reduce their risk.^{1,16}
- Even moderate physical activities, such as brisk walking or stair climbing, are associated with lower risk of colorectal cancer.¹

Overweight and obesity

- Being overweight or obese is consistently associated with higher risk of colorectal cancer in men and women, with stronger associations consistently observed in men than in women. Overweight and obesity increase risk of colorectal cancer even when physical activity is accounted for.^{17,18}

Diet

Studies of the relationship between diet and colorectal cancer suggest that following the Society's recommendations – **to eat a varied diet, choose most foods from plant sources, and limit intake of foods high in saturated fat** – will help to protect people from developing colorectal cancer and other major diseases. Epidemiologic studies find that:

- People whose diets include a high amount of red meat are at increased risk of colorectal cancer.¹ A recent American Cancer Society study found that prolonged high consumption of red and/or processed meat increased the risk of cancer in the lower portion of the large intestine.¹⁹
- Consumption of other sources of animal protein – including low-fat dairy products, fish, and poultry – may decrease the risk of developing adenomatous polyps and colorectal cancer.²⁰
- The relationship between vegetable, fruit, and fiber consumption and colorectal cancer is not completely clear. Some studies find no relationship, while others suggest that consumption of fruits and vegetables may protect against colorectal cancer.^{1,21} Some studies suggest that people with very low fruit and vegetable intakes are at higher risk of developing colorectal cancer.^{22,23} There are numerous reasons to eat a diet rich in a variety of fruits and vegetables in addition to lowered risk of colorectal cancer, including decreased risk of cardiovascular disease.²⁴

Smoking

- Accumulating evidence suggests that long-term tobacco smoking increases the risk of colorectal cancer. However, smoking is not currently designated as a cause of colorectal cancer by the Surgeon General.

Alcohol intake

- Colorectal cancer has been linked to moderate use of alcohol (4 or more drinks per week).

Medications and dietary supplements

Accumulating research also suggests that aspirin-like drugs, postmenopausal hormones, multivitamins containing folic acid, and calcium supplements may help prevent colorectal cancer.

- **Aspirin:** Extensive evidence suggests that regular use of aspirin-like drugs is associated with lower risk of colorectal cancer.²⁵ Because of the potential side effects of stomach ulcers from traditional non-steroidal anti-inflammatory drugs (NSAIDs) or of heart attacks from selective COX-2 inhibitors, the American Cancer Society does not currently recommend use of these drugs for cancer prevention. However, people who are taking aspirin (usually one baby aspirin daily) to prevent heart attacks, or NSAIDs for chronic arthritis, may lower their risk of colorectal cancer as a side benefit. Patients should consult with their physician regarding the balance of risks and benefits in their situation.
- **Postmenopausal hormones:** There is substantial evidence that women who use postmenopausal hormones have lower rates of colorectal cancer than those who do not. This effect is seen especially in women who currently or have recently used postmenopausal hormones.²⁶ However, use of postmenopausal hormones increases risk for breast cancer and cardiovascular disease.

At present, the American Cancer Society does not recommend any medications or supplements to prevent colorectal cancer because of uncertainties about their effectiveness, appropriate dose, and potential toxicity.

Current recommendations for prevention

The current American Cancer Society recommendations for nutrition and physical activity are relevant to colorectal cancer prevention.²⁷

1. Eat a variety of healthy foods with an emphasis on plant sources.

- Eat 5 or more servings of a variety of vegetables and fruits each day.

Table 4. Summary of Selected Risk Factors for Colorectal Cancer*

	Relative Risk [†]
Family and medical history – factors that increase risk	
Family history (first-degree relative)	1.8
Inflammatory bowel disease (diagnosed ≥10 years)	1.5
Modifiable factors that increase risk	
• Obesity (Body mass index ≥30 vs. <30) [‡]	1.5-2.0
• Red meat (≥7 servings/week vs. 1 serving/month)	1.5
• Cigarette use (current vs. never)	1.5
• Alcohol (≥4 drinks/week vs. none)	1.4
Modifiable factors that decrease risk	
• Physical activity (more than 3 hours per week vs. none)	0.6
• Vegetable and fruit consumption (≥5 vs. <3 servings per day)	0.7

*Adapted from Tomeo et al. (1999), with exceptions noted.¹
[†]Relative risk compares the risk of disease among people with a particular exposure to the risk among people without that exposure. If the relative risk is more than 1.0, then risk is higher among exposed than unexposed persons. Relative risks less than 1.0 reflect an inverse association between a risk factor and a disease, or a protective effect.
[‡]IARC, 2003.²¹
 The following are Internet resources of interest on colorectal cancer risk: <http://www.yourdiseaserisk.harvard.edu/> and <http://www.cancer.org>.

- Choose whole grains in preference to processed (refined) grains and sugars.
- Limit your consumption of red meats, especially high-fat and processed meats.
- Choose foods that help maintain a healthy weight.

- 2. Adopt a physically active lifestyle.**
- 3. Achieve and maintain a healthy weight throughout your life.**
- 4. If you drink alcoholic beverages, limit consumption.**

Colorectal cancer screening

- The goal of screening for colorectal cancer is the detection and removal of adenomatous polyps, which are generally accepted as precursor lesions for invasive cancer, and detection of early-stage adenocarcinomas.
- Screening decreases the incidence of colorectal cancer by removing adenomatous polyps. Screening reduces mortality both by decreasing incidence and by detecting a higher proportion of cancers at early, more treatable stages.^{28,29}

- Both the American Cancer Society and the US Preventive Services Task Force recommend that clinicians routinely provide colorectal cancer screening to all men and women aged 50 and older (at average risk).^{28,29} Persons at higher risk (see page 10) should begin screening at a younger age and may need to be tested more frequently.²⁸ Detailed guidelines for colorectal cancer screening have been collectively developed and endorsed by a diverse group of organizations, including the American Gastroenterological Association, the American Society of Colon and Rectal Surgeons, the American College of Gastroenterology, the American College of Physicians, and the American Academy of Family Physicians.²⁸⁻³⁰

Recommended options for colorectal cancer screening

Several options for colorectal cancer screening are recommended by the American Cancer Society and other organizations. These are summarized in Table 5 and described below.

Fecal occult blood test (FOBT): Cancerous tumors and some large polyps bleed intermittently into the intestine. The FOBT can detect very small quantities of blood. The FOBT test kit is obtained from a health care provider for use at home. Six samples from three consecutive bowel movements are collected by smearing the stool sample thinly on a special card.²⁸

There are two types of FOBTs available – guaiac-based tests and immunochemical-based tests.³¹ For guaiac-based FOBT tests, individuals are instructed to avoid nonsteroidal anti-inflammatory drugs, vitamin C, citrus juices, and red meat for 3 days prior to the test. The second type of stool blood test is the fecal immunochemical test (FIT). This test may be more convenient for some individuals because it does not require special dietary restrictions and may require fewer stool samples to be collected. Upon completing either of these tests, patients return the kit to their doctor or to a laboratory for evaluation. Studies have shown that periodic use of this screening²⁸ method reduces the risk of death from colorectal cancer by 15% to 33%.^{28,29} In addition, FOBT has also been shown to decrease by 20% the incidence of colorectal cancer by detecting large polyps, resulting in their subsequent removal by colonoscopy.³²

Flexible sigmoidoscopy: A slender, flexible, hollow, lighted tube is inserted through the rectum into the colon by a trained examiner to view the inside of the rectum and the lower portion of the colon. The sigmoidoscope is about 2 feet long (60 cm) and can visualize

clearly about one-third of the colon.²⁸ If there is a polyp or tumor present, the patient is referred for a colonoscopy so that the colon can be examined further. Sigmoidoscopy, followed by colonoscopy if a polyp or tumor is found, can identify 70% to 80% of individuals with colorectal cancer.^{29,33,34} Studies have found that screening with flexible sigmoidoscopy can reduce colorectal cancer mortality by about 60% for cancers within reach of the instrument.²⁹

FOBT and flexible sigmoidoscopy: An acceptable and recommended option for colorectal cancer screening is to have both the FOBT annually and the flexible sigmoidoscopy every 5 years; the advantage of combining both of these tests rests on the assumption that one test would compensate for the limitations of the other and thus lead to improved early detection of cancer or adenomas.²⁸

Colonoscopy: Like the sigmoidoscopy, this procedure allows for direct visual examination of the colon and rectum. A colonoscope is similar to the sigmoidoscope, but it is a much longer, more complex instrument, allowing the doctor to view the entire colon and remove polyps if present. Before undergoing a colonoscopy, a patient takes special laxative agents to cleanse the colon. Sedation is provided during the examination to minimize discomfort.²⁸ If a polyp is found, the physician may remove it by passing a wire loop through the colonoscope to cut the polyp from the wall of the colon using an electric current. Findings from the National Polyp Study suggest that periodic colonoscopy could prevent 76% to 90% of colon cancers.^{30,35} Studies show that this method is the most sensitive for the detection of colorectal cancer or adenomatous polyps.³⁶ Colorectal cancer screening by colonoscopy is regarded as the gold standard because this procedure is the most highly sensitive compared to other tests; examines the entire colon; and allows for screening, diagnosis, and removal of polyps in a single visit. However, there is a small risk of complications, including bowel tears or bleeding, especially when a polyp is removed.²⁹

Barium enema with air contrast: This procedure, which allows complete radiological examination of the colon, is also called a double-contrast barium enema.²⁸ Barium sulfate enters the colon through the rectum and is allowed to spread throughout the colon to partially fill and open it. The colon is then filled with air so that it can expand and increase the quality of x-rays that are taken. This method is less sensitive than colonoscopy for visualizing small polyps or cancers. If a polyp or other

American Cancer Society Guidelines on Screening and Surveillance for the Early Detection of Colorectal Adenomas and Cancer²⁸

Beginning at age 50, both men and women at average risk for developing colorectal cancer should follow one of the screening options below:

- Fecal occult blood test (FOBT)* or fecal immunochemical test (FIT) every year
- Flexible sigmoidoscopy every 5 years
- FOBT* or FIT every year plus flexible sigmoidoscopy every 5 years**
- Double-contrast barium enema every 5 years
- Colonoscopy every 10 years

*For FOBT or FIT, a take-home, multiple-sample kit should be used. A single FOBT test done in the doctor's office following digital rectal examination is not recommended.

abnormality is seen, the patient should be referred for a colonoscopy so that the colon can be examined further.²⁸

Other screening tests: Newer screening methods, such as DNA-based fecal screening and virtual colonoscopy, are available, but the American Cancer Society does not recommend them based on lack of studies evaluating their effectiveness to reduce colorectal cancer mortality.³¹

Any of the 5 recommended options are useful in screening for colorectal cancer in average-risk adults. Each of these tests has strengths and limitations related to accuracy, potential for prevention, costs, and risks (Table 5). Positive results from any of the first 4 options should be followed with a colonoscopy for more complete diagnostic evaluation. When choosing a screening test, patients should be given information about each test and should engage in a shared decision-making process with their doctor based on the patient's health, medical history, and personal preference.

The **digital rectal exam (DRE)** is used to check for the presence of rectal cancer only; the DRE is not a recommended option for colon cancer screening. During a DRE, a physician inserts a gloved finger into the rectum to feel for anything that is abnormal. Often, a single stool sample is also collected and placed on an FOBT card for further examination.²⁸ The **office-based,**

single-sample FOBT is not recommended because this test performs poorly in its ability to detect colorectal cancer.

“Toilet bowl tests” consisting of strips of paper to be dropped into the toilet water with your stool are sold in drug stores and other retail outlets, and are often promoted as a type of fecal occult blood test. These tests have not been evaluated in the types of rigorous clinical studies done on the guaiac-based FOBT and the FIT, and are not recommended for colorectal cancer screening by the American Cancer Society or by any other major medical organization.

Individuals at high risk for colorectal cancer

People who are at increased risk of colorectal cancer because of family history or medical conditions (see page 6) should begin colorectal cancer screening before

age 50 and should be screened more often. Recommendations may differ for different conditions, so individuals with these risk factors should discuss screening with their health care provider.

The signs of colorectal cancer

Early colorectal cancer often has no symptoms, which is why screening is so important. Most colorectal cancers begin as a polyp, a small growth in the wall of the colon. However, over time, some polyps grow and become malignant. As polyps grow, they can bleed or obstruct the intestine. See your doctor if you have any of these warning signs:

- Bleeding from the rectum
- Blood in the stool or in the toilet after having a bowel movement

Table 5: Considerations When Deciding with Your Doctor Which Test Is Right for You

Test	Performance & Advantages	Accuracy in Detecting Cancer and Complexity*	Characteristics/Limitations	Cost Range(a)
Fecal occult blood test	<ul style="list-style-type: none"> • No bowel preparation • Sampling is done at home • Low cost • Proven effective in clinical trials • No risk of bowel tears or infections 	<p>Intermediate for cancer</p> <p><i>Lowest complexity</i></p>	<ul style="list-style-type: none"> • Will miss most polyps and some cancers • May produce false-positive test results • Requires dietary limitations before testing • Must be done every year • For greater effectiveness, should be combined with a flexible sigmoidoscopy every 5 years • Additional procedures necessary if abnormalities are detected 	Lowest cost: less than \$20
Flexible sigmoidoscopy	<ul style="list-style-type: none"> • Fairly quick, few complications • Minimal bowel preparation • Done every 5 years • Minimal discomfort • Does not require a specialist 	<p>High for up to one-third of the colon</p> <p><i>Intermediate complexity</i></p>	<ul style="list-style-type: none"> • Visualizes clearly only about one-third of the colon • Cannot remove polyps • Can miss some small polyps and cancers • Very small risk of bowel tears or bleeding • More effective when combined with annual fecal occult blood testing • Additional procedures needed if abnormalities are detected 	Low to mid cost: \$150-\$200
Double-contrast barium enema	<ul style="list-style-type: none"> • Can usually view entire colon • Few complications • Done every 5 years • No sedation needed 	<p>High</p> <p><i>High complexity</i></p>	<ul style="list-style-type: none"> • Can miss some small polyps and cancers • Full bowel preparation needed • May produce false-positive test results • Additional procedures necessary if abnormalities are detected 	Mid to high cost: \$300-\$400
Colonoscopy	<ul style="list-style-type: none"> • Can usually view entire colon • Allows biopsy and removal of polyps • Done every 10 years • Can diagnose other diseases 	<p>Highest</p> <p><i>Highest complexity</i></p>	<ul style="list-style-type: none"> • Can miss small polyps and cancers, although more accurate than flexible sigmoidoscopy or double-contrast barium enema • Full bowel preparation needed • Can be expensive • Usually requires some sedation • Generally requires missing a day of work • Carries potential risk of bowel tears or infections 	High cost: \$400 or more

*Complexity involves patient preparation, inconvenience, facilities and equipment needed, and patient discomfort.

- A change in the shape of the stool
- Cramping pain in the lower stomach
- A feeling of discomfort or an urge to have a bowel movement when there is no need to have one

Other conditions can cause these same symptoms. You should be checked by your doctor to find the cause of your symptoms.

Use of screening for colorectal cancer

Despite the evidence supporting the effectiveness of colorectal screening and the availability of various screening tests, the proportion of the US population aged 50 and older that has been screened remains low (less than 50%).³⁷⁻³⁹ According to 2000 estimates of colorectal cancer screening from the National Health

Interview Survey, 17.3% of adults aged 50 and older used a fecal occult blood test at home in the past year; 30% had an endoscopy test (either flexible sigmoidoscopy or colonoscopy) within the past 5 years; and 39.4% had either or both an FOBT in the past year and an endoscopy procedure in the past 5 years. The prevalence rates are lower among people aged 50-64 and especially lower among individuals who are non-white, have fewer years of education, lack health care coverage, and are recent immigrants (Table 6).

The proportion of adults 50 and older who follow screening recommendations varies by state (Figures 4 and 5).

- Among non-Hispanic whites, the percentage of the population that has had a recent test (either endoscopy or FOBT) ranges from 35% in Wyoming to 68% in the District of Columbia.

Table 6. Colorectal Cancer Screening Among Adults Aged 50 and Older, NHIS 2000

	FOBT		Endoscopy		FOBT/Endoscopy	
	Total %	(95% CI)	Total %	(95% CI)	Total %	(95% CI)
Overall	17.3	(16.5-18.2)	30	(29.0-31.0)	39.4	(38.3-40.4)
Age						
50-64	15.3	(14.3-16.3)	25.8	(24.4-27.1)	34.6	(33.2-36.0)
65 and older	19.7	(18.4-21.1)	35.0	(33.4-36.6)	45.0	(43.3-46.7)
Gender						
Male	17.1	(15.9-18.4)	33.5	(31.9-35.2)	41.4	(39.8-43.0)
Female	17.6	(16.6-18.7)	27.0	(25.8-28.2)	37.7	(36.4-39.1)
Race/Ethnicity						
Non-Hispanic white	18.3	(17.3-19.2)	31.3	(30.1-32.4)	41.0	(40.0-42.2)
Non-Hispanic black	14.9	(12.9-17.2)	27.0	(24.4-29.7)	35.4	(32.5-38.3)
Hispanic/Latino	9.8	(8.0-12.1)	21.8	(19.1-24.7)	27.5	(24.4-30.9)
American Indian/Alaska Native	14.0	(7.0-26.1)	25.2	(15.3-38.7)	30.6	(20.0-43.7)
Asian American/Pacific Islander	14.5	(10.1-20.4)	19.2	(14.0-25.7)	30.3	(24.3-37.1)
Education						
11 or fewer years	12.1	(10.1-18.2)	22.0	(20.3-23.8)	29.3	(27.5-31.2)
12 years	16.4	(15.1-17.9)	28.1	(26.5-29.8)	37.7	(35.9-39.5)
13-15 years	19.4	(17.7-21.3)	31.9	(30.0-33.9)	42.0	(39.9-44.1)
16 or more years	23.0	(20.7-25.5)	40.4	(37.9-43.0)	50.4	(47.8-53.0)
Health Insurance						
Yes	18.0	(17.1-18.8)	31.0	(29.9-32.0)	40.7	(39.6-41.7)
No	13.0	(7.9-20.5)	14.4	(9.2-21.9)	20.6	(14.5-28.3)
Immigration						
Born in US	18.1	(17.2-19.0)	30.9	(29.8-32.0)	40.5	(39.4-41.6)
In US ≤10 yrs	3.3	(0.9-11.3)	14.3	(9.0-21.8)	17.4	(11.6-25.3)
In US >10 yrs	12.7	(10.6-15.2)	23.8	(21.1-26.7)	31.9	(29.1-35.0)

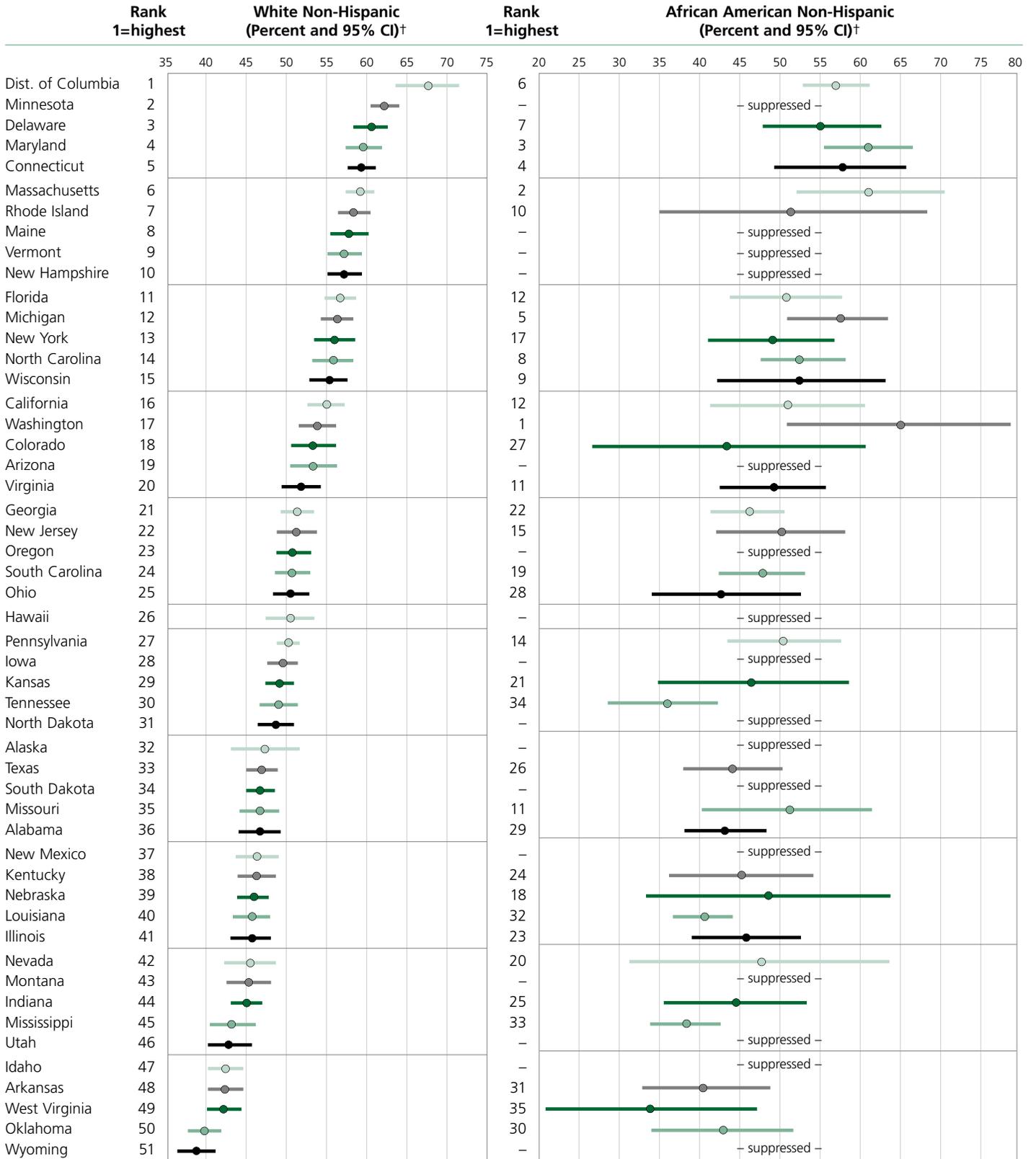
Percentages are adjusted to the 2000 US standard population.

FOBT: A fecal occult blood test (home kit) within the past year. Endoscopy: Tests include sigmoidoscopy or colonoscopy within the past 5 years.

FOBT/Endoscopy: FOBT within past year and/or endoscopy tests within 5 years. 95% CI: 95% confidence intervals of the prevalence percent.

Source: National Health Interview Survey 2000, National Center for Health Statistics, Centers for Disease Control and Prevention.

Figure 4. Percent of Adults Aged 50 and Older Who Had a Recent Colorectal Cancer Screening Test*, by Race and State, 2001 and 2002



*Either an FOBT in the preceding year or a sigmoidoscopy or colonoscopy within the preceding 5 years. †95% confidence intervals (CI) represent the range in which we are 95% that the true value falls. Wider confidence intervals generally reflect smaller sample sizes.
Source: Behavioral Risk Factor Surveillance System Public Use Data Tapes 2001-2002, National Center for Disease Prevention and Health Promotion, Centers for Disease Control and Prevention.

- Among states with adequate data on colorectal cancer screening for non-Hispanic African Americans, the lowest rate of screening was in West Virginia (35%), and the highest was in the state of Washington (65%).
- None of the states meet the American Cancer Society's 2015 goal of 75% of adults older than 50 having a recent test.

Barriers to colorectal cancer screening

A number of studies have been conducted to try to understand why rates of screening for colorectal cancer are low. Several factors have been identified in these studies:^{40,41}

- Inadequate communication between health care providers and patients about colorectal cancer screening is an important factor.⁴² Several studies show that when providers do recommend colorectal cancer screening, their patients are more likely to get screened.^{38,40,43,44}
- Factors that have been found to influence a health care provider's recommendations about colorectal cancer screening include his or her attitudes and beliefs about the effectiveness of colorectal cancer screening tests, familiarity with screening guidelines, perception of patient preferences and adherence, lack of training to perform some tests, and lack of adequate reminder systems within their practices.^{47,48,49}
- Health insurance barriers that affect colorectal cancer screening include whether individuals have health insurance and whether benefits under a health plan cover colorectal cancer screening. Many studies have demonstrated that people who are uninsured are less likely to be screened for colorectal cancer.^{40,50,51} Also, coverage of colorectal cancer screening tests by health insurance plans is highly variable, depending on the type of screening tests involved and whether a person is at high or average risk.⁴⁹
- Reasons cited by survey participants for not participating in colorectal cancer screening include being too busy, lack of a physician recommendation, inconvenience, lack of interest, cost, embarrassment, or unpleasantness of the test.^{40,45,46}
- Despite public education campaigns about colorectal cancer screening, some patients may not be aware of the benefits of screening or understand its importance.^{38,40}

Strategies to increase utilization of colorectal cancer screening

Clinicians and health care systems can play a major role in increasing the utilization and quality of screening for

colorectal cancer.⁴¹ To maximize the potential impact of interventions for improving cancer screening, a diverse set of strategies should be implemented.

- **Physician office and health systems strategies:** Optimal strategies include the implementation of centralized or office-based systems (including computer-based reminder systems) to assist clinicians in counseling eligible patients about screening, and the adoption of practice and organizational support systems to help manage referrals and follow up of cancer screening tests.
- **Coverage for colorectal cancer screening by health insurance:** Health insurance coverage is an important determinant of access to preventive clinical services including cancer screening. Colorectal cancer screening should be made available to the uninsured and medically underserved. Public and private health insurance plans should cover all recommended options for colorectal cancer screening for average and high-risk individuals. Only 9 of 29 states where colorectal cancer screening participation is under 50% have passed legislation to require such coverage (Figure 6).
- **Educational initiatives for patients and providers:** These raise awareness and understanding of the importance of colorectal cancer screening to reduce mortality from the disease.

Recent progress in policies and legislation related to colorectal cancer screening

- States have begun to address the problem of underutilization of colorectal cancer screening by passing legislation to ensure that private health insurance plans cover all of the methods available for colorectal cancer screening, including colonoscopy. To date, 16 states and the District of Columbia have passed such legislation (Figure 6).
- Since 1998, Medicare has included coverage for colorectal cancer screening, and since 2001 it has covered all recommended screening options. In January 2005, Medicare began covering an initial preventive health care visit for all Medicare beneficiaries within 6 months of enrolling in Medicare. This "Welcome to Medicare" physical provides an opportunity for education, counseling, and referrals for preventive services, including colorectal cancer screening, for US seniors.⁵²

How is colorectal cancer treated?

Treatment decisions are made by the patient with his or her physician after considering the best treatments available for the stage and location of the cancer, as well as the risks and benefits associated with treatment.

Colon cancer

Most people with colon cancer will have some type of surgery. **Adjuvant therapy** (additional treatments) may also be used. More detailed information on treatment, including treatment guidelines from the National Comprehensive Cancer Network (NCCN), are available through the American Cancer Society Web site (www.cancer.org).

Carcinoma *in situ*

- Surgery to take out the cancer may be accomplished by polypectomy or local excision through the colonoscope. Resection of a segment of the colon may be necessary if the tumor is too big to be removed by local excision.

Localized stage

- Surgical resection to remove the cancer, together with a length of colon on either side of the tumor and nearby lymph nodes, is the standard treatment.

Regional stage

- If the cancer has not spread to nearby lymph nodes, surgical resection of the segment of colon containing the tumor may be the only treatment needed. If the doctor thinks the cancer is likely to come back (recur) because of its appearance under the microscope or because it is growing into other tissues, radiation therapy or chemotherapy may be recommended.
- If the cancer has spread to nearby lymph nodes, surgical resection of the segment of colon containing the tumor is the first treatment. Chemotherapy is recommended. Radiation therapy may be recommended if the cancer was large enough to grow into adjacent tissues.

Distant stage

- At this stage, the cancer has spread to distant organs and tissues, such as the liver, lungs, peritoneum, or ovaries. The goal of surgery (segmental resection or diverting colostomy) in this stage is usually to relieve or prevent blockage of the colon and to prevent other local complications. Surgical resection of metastases to the liver or lungs may also be recommended. Surgery is not recommended for all patients.

- Chemotherapy or radiation therapy (or both) may be given to relieve, delay, or prevent symptoms and to prolong life.

Rectal cancer

Except for some patients with distant stage cancer, surgery to remove the rectal cancer is the first treatment. **Adjuvant therapy** (additional treatments) may also be used.

Carcinoma *in situ*

- Removing or destroying the cancer is all that is needed. The cancer can be treated with a **polypectomy, local excision, or full-thickness rectal resection**. This resection may be carried out through the anus. No further treatment is needed.

Localized stage

- At this stage, the cancer has grown through the first layer of the rectum into deeper layers but has not spread outside the rectal wall itself. Primary surgery is usually either **low anterior resection** or **abdominoperineal resection**, depending on exactly where the cancer is found within the rectum. Low anterior resection removes the cancer and a margin of uninvolved rectum through an abdominal incision. Abdominoperineal resection is used for cancers located closer to the anus and involves an abdominal incision as well as an incision around the anus. This operation removes the anus and the sphincter muscle, so a permanent colostomy is required. Some small localized rectal cancers may be treated by removing them through the anus without an abdominal incision. No further treatment is needed.
- If a person is considered too sick or old to withstand surgery, treatment with radiation therapy alone may be recommended. This may mean endocavitary radiation therapy (aiming radiation through the anus) or brachytherapy (placing radioactive pellets directly into the cancer). This has not been proven to be as effective as surgery.

Regional stage

- If the cancer has grown through the wall of the rectum into nearby tissue but has not yet spread to the lymph nodes, it is usually treated by low anterior resection or abdominoperineal resection, along with both chemotherapy and radiation therapy. Radiation can be given either before or after the surgery.
- In some cases, local full-thickness rectal resection is done after chemotherapy and radiation therapy. In some cases, this approach can prevent the need for

abdominoperineal resection and colostomy. There is, however, no way of knowing whether the cancer has spread to the lymph nodes or further into the pelvis.

- If the cancer has spread to nearby lymph nodes but not to other parts of the body, it is usually removed by low anterior resection or abdominoperineal resection. Radiation therapy will be given before or after surgery. Chemotherapy will usually be given after surgery. If the tumor is large, chemotherapy may be given before surgery to shrink it.

Distant stage

- In this stage, the cancer has spread to distant organs and tissues such as the liver or lung. Surgery, chemotherapy, and/or radiation therapy are used to relieve, delay, or prevent symptoms and to prolong life.

Colostomy

When a section of the colon or rectum is removed, the surgeon can usually connect the healthy parts, allowing the patient to eliminate waste normally. Sometimes, however, reconnection is not possible. In this case, the surgeon makes an opening (a stoma) in the abdomen for waste to leave the body. The operation to create the stoma is called a colostomy. A flat bag fits over the stoma to collect waste, and a special adhesive holds it in place.⁵³

For patients with **colon cancer**, a permanent colostomy is rarely needed. Most patients who have a **colostomy** need it only until the colon or rectum heals from surgery. After healing takes place, usually in 6 to 8 weeks, the surgeon reconnects the parts of the intestine and closes the stoma. Approximately 1 in 8 people with **rectal cancer** require a permanent colostomy.⁵³

A person with a stoma learns to care for it with help from doctors, nurses, and enterostomal therapists. Often, an enterostomal therapist will visit the patient before surgery to explain what to expect and how to care for the stoma after surgery. They will also talk about lifestyle issues, including emotional, physical, and sexual concerns. Often they can provide information about resources and support groups.⁵³

Side effects of treatment for colorectal cancer

Surgery

- The time needed to heal after surgery is different for each person. Patients are often uncomfortable for the first few days. However, medicine can usually control the pain.

Clinical trials

A clinical trial is a controlled experiment that is used to assess the safety and usefulness of treatments for human disease and health problems. Generally, patients receive either the state-of-the-art standard treatment or a new therapy that may offer improved survival and/or cause fewer side effects. Participation in clinical trials provides essential information on the effectiveness and risks of a new treatment. Patients can visit the American Cancer Society/EmergingMed Clinical Trials Matching Service at <http://clinicaltrials.cancer.org/> or call the Society's National Cancer Information Center at 1-800-ACS-2345 for help in finding a clinical trial suited to their medical situation and preferences. The Physician Data Query (PDQ) program of the National Cancer Institute (NCI) contains summaries of cancer clinical trials that are open for patient participation. Patients can obtain PDQ information from their physicians or by contacting the NCI Cancer Information Service at 1-800-4-CANCER or at <http://www.nci.nih.gov/clinicaltrials>. Patients should consult their personal doctors and cancer specialists for detailed information about appropriate treatment options.

- It is common to feel weak or tired for some time after surgery.
- Surgery for colorectal cancer sometimes causes constipation or diarrhea. The health care team monitors the patient for signs of bleeding, infection, or other problems requiring immediate treatment.

Radiation therapy

- Side effects of radiation therapy for colorectal cancer include mild skin irritation, nausea, diarrhea, rectal irritation, the urge to defecate, bladder irritation, fatigue, or sexual problems. These often go away after treatments are completed.
- Some degree of rectal and/or bladder irritation may be a permanent side effect. This can lead to diarrhea and frequent urination. If a patient has these or other side effects, they should be discussed with their doctor. There may be ways to lessen them.

Chemotherapy

- Chemotherapy drugs kill cancer cells but also damage some normal cells. Doctors and other health care providers can help patients avoid or minimize side effects, which will depend on the type of drugs, the amount taken, and the length of treatment. Side effects of chemotherapy may include fatigue, nausea and vomiting, diarrhea, loss of appetite, loss of hair,



hand and foot soreness, swelling and rashes, and mouth sores.

- Because chemotherapy can damage the blood-producing cells of the bone marrow, patients may experience low blood cell counts. This can increase the chances of infection (due to a shortage of white blood cells), bleeding, or bruising after minor cuts or injuries (due to a shortage of blood platelets).
- There are remedies for many of the temporary side effects of chemotherapy. For example, **antiemetic** drugs can prevent or reduce nausea and vomiting, and **hematopoietic** drugs can improve the levels of white and red blood cells. Persons receiving chemotherapy should talk with their doctor if they have any unrelieved side effects.
- Most side effects disappear once treatment is stopped. Hair grows back after treatment ends, though it may look different.

Pain

- Having cancer does not have to mean having pain. For patients with pain, there are many different medicines, ways to receive the medicine, and alternative methods that can relieve pain. Pain may occur during or after treatment but should not be a constant feature after healing occurs. When a person is free from pain, he or she can sleep and eat better, enjoy the company of family and friends, and continue with work and hobbies.
- There are many different medicines and methods available to control cancer pain. The method of pain control used will depend on the source of the discomfort. Doctors routinely seek information and resources necessary to make individuals who have been diagnosed with cancer as comfortable as possible. If a patient experiences persistent pain and the doctor

does not suggest treatment options, the patient should ask to see a pain specialist or ask the doctor to consult a pain specialist. Pain specialists may be oncologists, anesthesiologists, neurologists, neurosurgeons, other doctors, nurses, or pharmacists. A pain control team may also include psychologists and social workers.

- For more information about cancer pain and how it can be relieved, visit the American Cancer Society's Web site at http://www.cancer.org/docroot/MIT/content/MIT_7_2x_Pain_Control_A_Guide_for_People_with_Cancer_and_Their_Families.asp.

What research is currently being done on colorectal cancer?

Research is ongoing in the area of colorectal cancer. Scientists are looking for ways to prevent this cancer, as well as ways to improve treatments.

Prevention and early detection

- Chemoprevention is the use of natural or man-made chemicals to lower a person's risk of getting cancer. Researchers are testing whether substances such as fiber, minerals, vitamins, or drugs can lower colorectal cancer risk.
- Studies are examining how well current colorectal cancer screening methods work and are exploring new ways to encourage health care providers and the public to use these methods. Meanwhile, research is being done on new tests that may be more accurate and/or more comfortable for patients.

Treatment

- Researchers have found natural substances in the body that promote cell growth. These are known as growth factors. Some cancer cells grow especially fast because they respond to growth factors more than normal cells do. There are new drugs that can reduce the effects of these growth factors in order to prevent cancer cells from growing so quickly. Adding one of these drugs to their treatment plan has helped some patients. One of these drugs is cetuximab (Erbix[®]). Another drug, bevacizumab (Avastin[®]) interferes with the formation of blood vessels that nourish the tumor.
- Treatments that boost a person's immune reaction to fight colorectal cancer better are being tested in clinical trials. Also, many trials are testing new combinations of chemotherapy drugs and the best ways to combine chemotherapy with radiation therapy or immunotherapy.

- Scientists are learning more about some of the changes in DNA that cause cells of the colon and rectum to become cancerous. Understanding how these genes work should lead to new drugs and treatments to correct these problems. Early phases of gene therapy trials are already underway.

What is the American Cancer Society doing about colorectal cancer?

The American Cancer Society recognizes an unprecedented opportunity to prevent colorectal cancer and save lives by emphasizing the importance of screening. Of the 56,290 people expected to die of colon cancer in 2005, half could be saved if they were tested.⁵⁴ But despite the ability to reduce the risk of getting and dying from colorectal cancer, too few Americans are getting tested. General awareness of colorectal cancer is high. Screening rates, however, remain low.

To increase the number of people who get screened, the Society has created a colorectal cancer awareness campaign that strives to remove public misconceptions about the disease and testing, encourages physicians to recommend testing more aggressively, and advocates for laws that improve access to testing and that address the needs of the medically underserved. Based on research about consumer attitudes and beliefs about colorectal cancer, the Society has selected two key messages for its target audience of consumers aged 50 and older:

The National Colorectal Cancer Roundtable

In 1997, the American Cancer Society and Centers for Disease Control and Prevention convened the first meeting of the National Colorectal Cancer Roundtable (NCCRT) inviting potential partners to discuss strategies for educating medical providers and the public about the importance of colorectal cancer screening. NCCRT has grown to a national coalition with more than 50 members, including 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. NCCRT members work together to share information; identify needs and opportunities; and address gaps in research, programs, activities, and services relating to colorectal cancer.

- If you are 50 or older, you are at risk for colon cancer.
- You have the power to reduce colorectal cancer risk by getting tested.

To reach the public with these messages, the Society is:

- Conducting a nationwide advertising campaign encouraging consumers to talk to their doctors about colorectal cancer testing.
- Providing an information resource kit to help empower consumers to talk to their doctors about colorectal cancer. The kit includes a list of questions to ask a doctor and a DVD on the different testing options.

To reach physicians and policymakers, the Society is:

- Targeting physicians through nationwide print advertising and interactive online campaigns encouraging physicians to emphasize the importance of colorectal cancer testing to their patients 50 and older.
- Conducting pilot studies in several states to understand how to best reach physicians with colorectal cancer messaging.
- Strongly advocating at the state and federal levels for insurance coverage of testing.
- Sponsoring research to better understand the relative costs of colorectal cancer screening options. A recent study sponsored by the Society found that colonoscopy is at least as cost effective for colorectal cancer screening as other tests. This may encourage insurers to offer the full range of screening options to individuals at average and high risk.
- Working on legislation to authorize a Centers for Disease Control and Prevention (CDC) pilot program for colorectal cancer community screening and treatment that would reach out to medically underserved populations.
- Advocating for federal funding to strengthen and further expand the scope of the CDC's Colorectal Cancer Screening, Education & Outreach Program to promote colorectal cancer screening nationwide, identify and eliminate certain clinical and consumer barriers to screening, and slow colorectal cancer incidence and mortality rates.
- Fighting for federal funding for cancer research to improve the prevention, detection, and treatment of cancer, including colorectal cancer, and to move toward the discovery of cures.

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Sources of statistics

Cancer deaths. The estimated numbers of US cancer deaths are calculated by fitting the numbers of cancer deaths for 1969 through 2002 to a statistical model which forecasts the numbers of deaths that are expected to occur in 2005.⁹

Mortality rates. Mortality rates or death rates are defined as the number of people per 100,000 dying of a disease during a given year. Mortality rates are based on counts of cancer deaths compiled by NCHS for 1930 through 2001 and population data from the US Census Bureau. Death rates are age-adjusted to the 2000 US standard population.²

New cancer cases. The estimated numbers of new US cancer cases are calculated by estimating the numbers of cancer cases that occurred each year from 1979 through 2001 and fitting these estimates to a statistical model which forecasts the numbers of cases that are expected to occur in 2005.⁹

Incidence rates. Incidence rates are defined as the number of people per 100,000 who are diagnosed with cancers during a given time period. Incidence rates for the US were calculated using data on cancer cases collected by SEER and population data collected by the US Census Bureau.² Death rates are age-adjusted to the 2000 US standard population.²

Survival. Five-year relative survival rates are presented for cancer patients diagnosed between 1995 and 2000, followed through 2001. Relative survival rates are used to adjust for

normal life expectancy (and events such as death from heart disease, accidents, and diseases of old age).² Relative survival rates cannot be calculated for Hispanics/Latinos, Asian Americans/Pacific Islanders, and American Indians/Alaska Natives because reliable estimates of normal life expectancy are not available for these groups. Therefore, cause-specific survival rates are presented. Cause-specific survival rates are the probability of not dying of colorectal cancer within 5 years after the date of diagnosis. They do not account for stage and age at diagnosis. Relative risk estimates were calculated to compare probability of death from colorectal cancer within 5 years after diagnosis between racial/ethnic groups, taking age and tumor stage at diagnosis into account.¹³

Screening. Prevalence of colorectal cancer screening among subgroups of US adults aged 50 and older was obtained from the National Health Interview Survey 2000, National Center for Health Statistics, Centers for Disease Control and Prevention (www.cdc.gov/nchs/nhis.htm). Prevalence data for colorectal cancer screening by state are from the Behavioral Risk Factor Surveillance System (BRFSS) public use data tapes 2001 and 2002, National Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, 2001, 2003 (www.cdc.gov/nccdphp/brfss/). Prevalence rates are age-adjusted to the 2000 US standard population.

The American Cancer Society is the nationwide community-based voluntary health organization dedicated to eliminating cancer as a major health problem by preventing cancer, saving lives, and diminishing suffering from cancer, through research, education, advocacy, and service.

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