

# Screening Strategies for Colorectal Cancer in Asymptomatic Adults

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## KEYWORDS

• Colon cancer • Rectal cancer • Screening • Surveillance • Primary care

## KEY POINTS

- Early detection of colorectal cancer and preinvasive forms prevents death from this cancer.
- All adults aged 50 years and older are at risk for colorectal cancer, and should be engaged in a decision to be screened.
- For adults at average risk for colorectal cancer, there is no preferred screening method.
- Colorectal cancer screening methods include stool-based tests and imaging of the colon directly or indirectly.
- Average-risk adults need help in defining their preferred screening method.
- Family health history and personal health history can place a person at increased risk for colorectal cancer.
- Adults at increased risk for colorectal cancer should be counseled to undergo colonoscopy.
- Adenoma and other colorectal findings require surveillance to prevent early recurrence or progression to invasive colorectal cancer.
- New screening methods are under development, although whether they perform better than the currently available methods has yet to be proved.

## SEVERITY AND EPIDEMIOLOGY OF COLORECTAL CANCER

Excluding skin cancers, colorectal cancer (CRC) is the third most common cancer in the United States for both men and women, accounting for approximately 9% of all

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Conflicts of Interest: None.

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cancer deaths, and is the leading cause of cancer deaths in nonsmokers.<sup>1,2</sup> Approximately 5% of the United States population is estimated to develop CRC within their lifetime (5.2% and 4.8% for men and women, respectively).<sup>1</sup> The risk of CRC increases with age; 90% of cases are in those older than 50 years.<sup>3</sup> Mortality rates for CRC in the United States have been declining for both men and women over the last 2 decades.<sup>1</sup> Incidence rates for CRC declined 4.1% per year between 2005 and 2009 among those 50 years or older (ie, the screened population) in the United States, yet increased 1.1% per year among those younger than 50 years.<sup>3</sup> The observed decrease in mortality and incidence most likely reflects prevention (by polyp removal), early detection, and improvements in treatment. Although the total number of CRC cases among those younger than 50 years is small, the increase in incidence in this unscreened population may reflect environmental and other risk factors such as smoking, diet, obesity, and diabetes. Smoking increases the risk for CRC, and this effect may be even greater in female smokers.<sup>4</sup> The incidence and death rates for CRC are highest among African Americans regardless of gender.<sup>1</sup> Incidence and death rates in African Americans have declined in recent years, but not as much as observed in whites.<sup>1</sup> Before 1989, white men had higher CRC incidence rates in comparison with African American men; rates between white and African American women were similar. However, since 1989 incidence rates have been higher for African Americans of both genders when compared with their white counterparts.<sup>5</sup> These disparities may reflect differences in underlying risk factors or environmental exposures (eg, diet, physical activity, obesity, history of tobacco use), differences in comorbid conditions, and differences in access to and receipt of quality health care.<sup>1,3,5</sup> For example, African Americans are less likely to be diagnosed with CRC at a localized stage when treatment is most successful,<sup>5</sup> and are less likely to receive standard therapy for CRC.<sup>6</sup>

## SCREENING STRATEGIES AND SUPPORTING EVIDENCE

For early detection to reduce mortality from CRC, the disease must be found in the early stages when a cure is possible. These early stages include adenomatous polyps and noninvasive cancer. Theoretically, interruption of the adenoma-carcinoma sequence with polypectomy reduces the incidence of CRC by as much as 90%<sup>7</sup>; however, not all adenomatous polyps place patients at the same risk for polyp recurrence or progression to cancer.<sup>8</sup> Patients with advanced adenomas are at higher risk for recurrent advanced adenomas or progression to cancer.<sup>8</sup> Advanced adenoma is defined as an adenoma with significant villous features (>25%), size of 1.0 cm or more, high-grade dysplasia, or early invasive cancer.<sup>9</sup> These characteristics are often referred to as a screen-relevant neoplasia (SRN). Experts have advocated using the advanced adenoma as the principal target of screening, as its detection and removal enables the prevention of CRC.<sup>9</sup> Therefore, it is important to understand how well CRC screening strategies in patients detect advanced adenomatous polyps, noninvasive cancer, and late-stage cancer.

Several screening strategies exist for CRC, including the fecal occult blood test (FOBT), the stool DNA (sDNA) test, flexible sigmoidoscopy (FS), double-contrast barium enema (DCBE), computed tomographic colonography (CTC), and ocular colonoscopy (OC). A summary of commonly recommended CRC screening options for average-risk adults aged 50 years and older are summarized in [Table 1](#). Routine screening is recommended for average-risk individuals starting at age 50.<sup>10</sup> However, these preventive strategies reach a limited percentage of the target population, for a variety of reasons. Approximately 58% to 65% of adults at average risk for CRC and older than 50 years are current for CRC screening with any of the nationally

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