What is the Impact on Indiana Residents?

Table 8. Burden of Invasive Colon and Rectum Cancer — Indiana, 2008–2012

	Average number of cases per year (2008–2012)	Rate per 100,000 people* (2008–2012)	Number of cases (2012)	Rate per 100,000 people* (2012)
Indiana Incidence (New cases)	3,097	44.4	2,825	39.6
Indiana Mortality (Deaths)	1,164	16.6	1,169	16.3

* Age-adjusted   Source: Indiana State Cancer Registry

COLON AND RECTUM CANCER

Bottom Line

Colorectal cancer is the third most commonly diagnosed cancer and cause of cancer-related death among both males and females in the US and Indiana. The American Cancer Society (ACS) estimated that 2,890 Indiana residents will be diagnosed with colorectal cancer and 1,080 will die because of the disease during 2015.[1] The lifetime risk of developing colorectal cancer is 1 in 22 for females and 1 in 21 for males.[1] In Indiana, African Americans have higher colorectal cancer incidence and mortality rates than whites, and males have higher rates than females.

Who Gets Colon and Rectum Cancer?

Age and sex are the two greatest risk factors for developing colorectal cancer. During 2012, 91 percent of cases diagnosed were among Indiana residents age 50 and older. In addition, during 2008-2012, colorectal cancer incidence rates were 27 percent higher among Indiana males than females (50.3 versus 39.5 cases per 100,000 people) [Figure 18].

Additional risk factors for colorectal cancer include:

- **Race.** In Indiana, during 2008–2012, African Americans had an 18 percent higher incidence rate (51.5 versus 43.7 cases per 100,000 people) and a 37 percent higher mortality rate (22.0 versus 16.1 deaths per 100,000 people) when compared with whites [Figure 18].

- **Personal or family history.** Risk is increased by having a personal or family history of colorectal cancer or polyps, a personal history of chronic inflammatory bowel disease, or certain inherited genetic conditions (*e.g.,* Lynch syndrome, also known as hereditary nonpolyposis colorectal cancer, and familial adenomatous polyposis [FAP]).[2]

- **Smoking.** According to Surgeon General's Report, *The Health Consequences of Smoking — 50 Years of Progress*, smoking is a known cause of colorectal cancer. In addition, smoking increases the failure rates of treatment for all cancers.

- **Diabetes.** Studies have found that individuals with type 2 diabetes are at higher risk.[2] Although diabetes and colorectal cancer share similar risk factors, this increased risk remains even after those are taken into consideration.[2] Studies also suggest that the relationship may be stronger in males than in females. In addition, some research indicates that some diabetic medications independently affect colorectal cancer risk. In general, colorectal cancer patients with diabetes appear to have slightly poorer survival rates than non-diabetic patients.[2]

- **Modifiable risk factors.** Overweight and obesity, physical inactivity, a diet high in red or processed meat, and alcohol consumption have been found to increase colorectal cancer risk.[2] There are some factors that may help lower risk or even prevent colorectal cancer. Moderate daily fruit and vegetable intake has been shown to decrease risk. In addition, consumption of dairy products and higher blood levels of vitamin D appear to decrease risk.[2]

Intake of dietary folate, dietary fiber, cereal fiber, and whole grains is associated with reduced risk; specifically, for every 10 grams of daily fiber consumption there is a 10 percent reduction in cancer risk.[2] Some studies suggest that long-term, regular use of non-steroidal anti-inflammatory drugs (such as aspirin), and use of postmenopausal hormones may reduce risk; however, these drugs and therapies are not recommended for the prevention of colorectal cancer because they can have serious adverse health effects.[2]

Can Colon and Rectum Cancer Be Detected Early? — *see the "Be Aware" box for additional information*

Colorectal cancer incidence rates increased from 1975 through the mid-1980s, but have been decreasing for the past two decades in the US.[2] Declines have accelerated during the past few years. From 2008 to 2010, incidence rates decreased by more than four percent per year in both males and females.[2] These declines are largely attributed to increases in the use of colorectal cancer screening tests that allow the detection and removal of colorectal polyps before they progress to cancer.[2] A similar trend has been seen in Indiana [Figure 19].

Symptoms of advanced disease include rectal bleeding, blood in the stool, a change in bowel habits, and cramping pain in the lower abdomen. In some cases, blood loss from cancer leads to anemia (low red blood cells), causing symptoms such as weakness and fatigue.

Beginning at age 50, both males and females with average risk for colorectal cancer should follow one of these testing schedules:

- Tests that find polyps and cancer:
  - Colonoscopy every ten years; or
  - Flexible sigmoidoscopy, double-contrast barium enema, or computed tomography (CT) colonography (also referred to as a "virtual colonoscopy") every five years. If any of these three tests are positive, a colonoscopy should be done.

BE AWARE!

Common Signs and Symptoms of Colorectal Cancer

- Early Stage: No symptoms
- Late Stage:
  - Rectal bleeding
  - Blood in stool
  - Change in bowel habits
  - Cramping pain in lower abdomen
  - Weakness
  - Extreme fatigue

Figure 18. Colorectal Cancer Incidence (a) and Mortality (Death) (b) Rates by Sex and Race* — Indiana, 2008–2012

a. Incidence

b. Mortality

* *Age-adjusted*

Source: Indiana State Cancer Registry
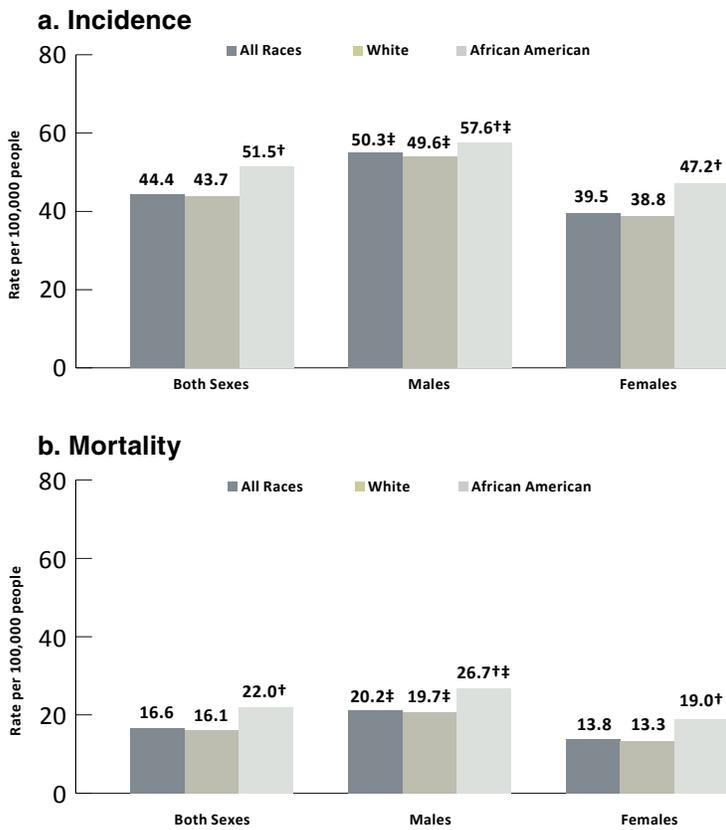
† *Rate among African Americans is significantly higher (P<.05) than rate among whites*

‡ *Rate among males is significantly higher (P<.05) than rate among females*

TAKE CHARGE!
What You Can Do to Help Prevent Colorectal Cancer
- Get screened regularly
- Maintain a healthy weight
- Adopt a physically active lifestyle
- Avoid tobacco products
- Limit consumption of alcohol
- Consume a healthy diet that:
  - Emphasizes plant sources
  - Supports a healthy weight
  - Includes at least 2 ½ cups of a variety of vegetables and fruits each day
  - Includes whole grains rather than processed (refined) grains
  - Limits processed and red meats

- Tests that primarily find cancer
  - Yearly fecal occult blood test (FOBT) or fecal immunochemical test (FIT) or a stool DNA test (undetermined interval). If any of these three tests are positive, a colonoscopy should be done.
- Individuals who have an increased risk should talk to their health care provider about whether they should be screened at a younger age, more frequently, or with colonoscopy.

In recent years, colorectal cancer incidence rates have increased among younger adults in the US. Therefore, timely evaluation of symptoms consistent with colorectal cancer in adults under age 50 is important.

What Factors Influence Colorectal Cancer Survival?

Nationally, mortality rates for colorectal cancer have declined in both males and females over the past two decades.[2] In Indiana, mortality rates decreased 31 percent from 2002 to 2012 (from 21.3 to 16.6 deaths per 100,000 people) [Figure 19]. This included a 32 percent decrease among both males (from 25.9 to 19.7 deaths per 100,000) and females (from 17.9 to 13.6 deaths per 100,000).

In the US, the five- and ten-year relative survival rates for people with colorectal cancer are 65 percent and 58 percent, respectively.[2] When colorectal cancers are detected early, at the local stage, the five-year survival rate is 90 percent. In Indiana, during 2008–2012, 44.2 percent of colorectal cancers were identified early, in the in situ or local stage [Figure 20]. If the cancer has spread regionally beyond the colon or rectum, the five-year survival rate decreases to 70 percent. The five-year survival rate for colorectal cancer that is diagnosed late, or in the distant stage, is 13 percent.

Surgery is the most common treatment for colorectal cancer. Chemotherapy alone, or in combination with radiation, is given before or after surgery to patients whose cancer has deeply penetrated the bowel wall or spread to lymph nodes. Three targeted monoclonal antibody therapies, which block growth of blood vessels to the tumor or the effects of hormone-like factors that promote cancer cell growth, are approved to treat metastatic colorectal cancer.
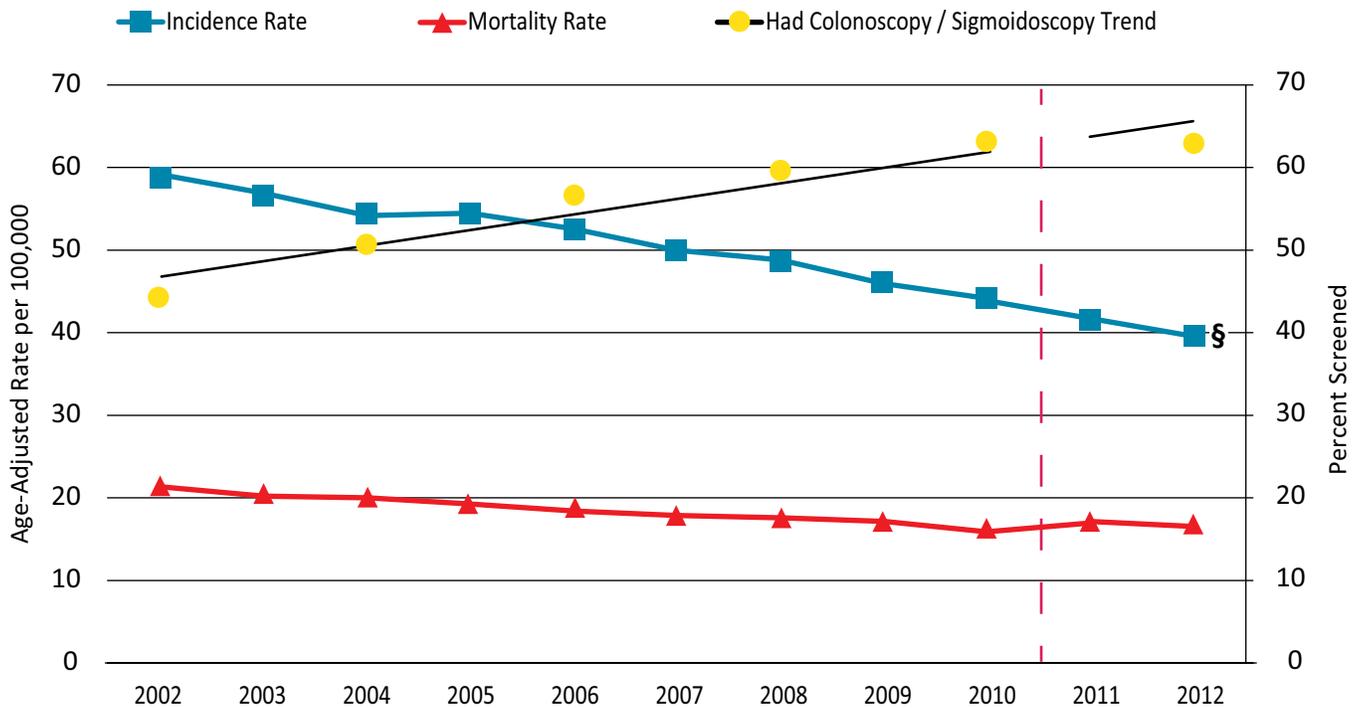
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[1] American Cancer Society. *Cancer Facts & Figures 2015*. Atlanta, GA. 2014. Accessed at www.cancer.org/Research/CancerFactsFigures/index on February 5, 2015.

[2] American Cancer Society. *Colorectal Cancer Facts & Figures 2014–2016*. Atlanta, GA. 2014. Accessed at www.cancer.org/Research/CancerFactsFigures/index on May 29, 2014.

Figure 19. Trends in Colorectal Cancer Incidence* and Screening Rates† — Indiana, 2002–2012

Legend: ■— Incidence Rate   ▲— Mortality Rate   ●— Had Colonoscopy / Sigmoidoscopy Trend

* Incidence rates are age-adjusted.

† Persons ages 50 and older who have ever had a sigmoidoscopy or colonoscopy. Starting in 2002, these data have been collected every two years. A trend line is provided. Beginning in 2011, the BRFSS methodology changed with the inclusion of cell phone respondents and a new weighting procedure; thus, 2011 and forward are not directly comparable to previous years.

§ Incidence rate in 2012 is significantly lower (P<.05) than the rate in 2002

Sources: Indiana State Cancer Registry (Incidence data); Indiana Behavioral Risk Factor Surveillance System (Screening data)

Figure 20. Percent of Colon and Rectum Cancer Cases Diagnosed During Each Stage* — Indiana, 2008–2012

In Situ 5.7%
Unknown 5.3%
Distant 18.8%
Local 38.5%
Regional 31.7%
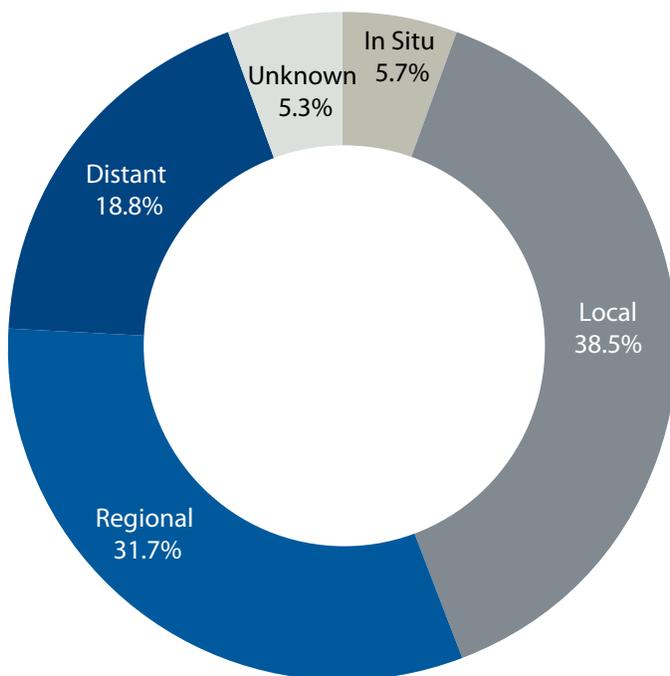
During 2008–2012, of the 16,419 Indiana residents who were diagnosed with colorectal cancer, 7,251 (44.2%) were diagnosed in the in situ or local stage, 8,290 (50.5%) were diagnosed in the regional or distant stages, and 878 (5.3%) had unknown staging.

* Includes all in situ and invasive cases

Source: Indiana State Cancer Registry