

Louisiana Cancer Facts & Figures Colon and Rectum Cancer 2008-2012

Louisiana Tumor Registry
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Introduction to the Louisiana Tumor Registry

Mission

The mission of the Louisiana Tumor Registry (LTR) is to describe the burden of cancer in Louisiana by collecting complete and high-quality cancer data and by compiling timely statistics so that data-driven cancer prevention and control programs can be implemented in the state to reduce cancer morbidity and mortality.

History

Cancer registration in Louisiana (LTR) began in 1947 at the Charity Hospital Tumor Registry in New Orleans. In 1974, as part of its Surveillance, Epidemiology and End Results (SEER) Program, the National Cancer Institute provided funds for a population-based cancer incidence and survival registry covering Jefferson, Orleans, and St. Bernard parishes.

Five years later, the Louisiana Tumor Registry (LTR) was transferred to the state Office of Public Health, which expanded the LTR catchment area in 1983 to include all 35 parishes of South Louisiana (Regions I-V). In 1988, when the 29 parishes of North Louisiana (Regions VI-VIII) were added, statewide coverage was achieved.

Milestones in the history of the LTR include:

- 1974: The LTR became one of the original participants in the National Program of Cancer Registries, funded by the National Cancer Institute (NCI).
- 1995: The LTR was transferred from the Office of Public Health to the LSU Board of Supervisors. Since then, the LSU Health Sciences Center in New Orleans has been responsible for the cancer registry program, providing the state funding.
- 2001: The Louisiana Tumor Registry was selected as one of four new expansion registries to join the prestigious SEER Program after a rigorous competitive application process.

Statewide cancer incidence data are available for the years 1988 and after.

Visit the LTR website for more information: <http://louisianatumorregistry.lsuhs.edu>

Basic Definitions

Throughout this publication, we will use some basic epidemiological/health-related terms, which are defined here:

- **Cancer incidence:** Newly diagnosed cancer cases.
 - Generally, this includes newly diagnosed cases of any cancers in a specified area/population during a designated time period. Cancer registries abstract the primary, or the first recorded, cancer. Secondary (metastatic, or distant) cancers are not counted as incident cases.
- **Cancer mortality:** Deaths where cancer is listed as the underlying cause of death on a death certificate.
 - For example, if a person who was treated for cancer dies of a heart attack, this would not count as a cancer death.
- **Age Adjustment:** A mathematical process that weights the data to make it possible to compare two different populations by making them more similar in population age structure. This is necessary because cancer incidence correlates strongly with age.
 - Louisiana incidence and mortality rates are adjusted to the 2000 U.S. standard population.
- **Relative Survival:** A comparison of the overall survival of cancer patients during a specified period with survival in a population similar in age, race, and sex that does not have cancer. Since members of both groups may die of non-cancer related causes during that period, the difference in mortality can be attributed to cancer.
- **Average Annual Percent Change:** This quantifies trends of change in incidence or mortality during a specified period. Because it is an average, it assumes that the change is constant from one year to the next during some period of time, even though in fact the changes will fluctuate annually.
- **Surveillance, Epidemiology, End Results (SEER):** The SEER program is a division of the National Cancer Institute (NCI) that began in 1973 and now collects and publishes cancer incidence and survival data from 18 population-based cancer registries in the United States (about a fourth of the US population). More information about SEER can be found on its website:
<http://seer.cancer.gov/about/overview.html>.

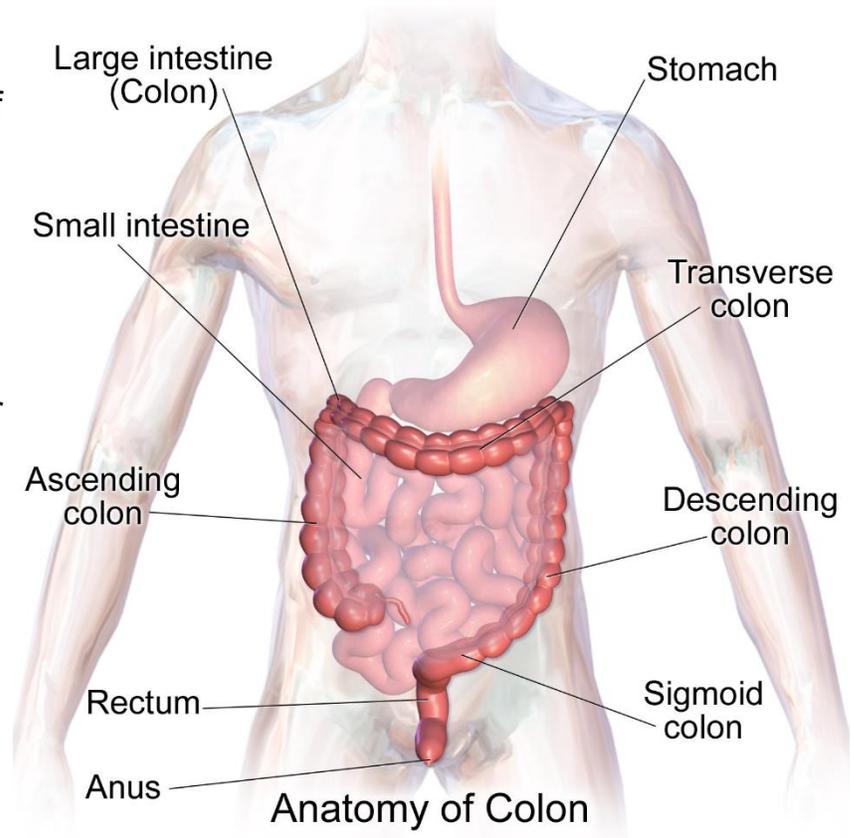
Colorectal Cancer Overview

Colorectal cancer is a general term for any kind of cancer that starts in the colon (large intestine) or rectum; anus cancer is not included. These cancers can also be referred to individually as colon cancer and rectal cancer depending on where they begin. Colon and rectal cancers have many things in common.¹

Colorectal cancers tend to develop slowly over the course of several years. It is estimated that 70%-75% of colorectal cancers develop from polyps. This process may take 5-15 years. If pre-cancerous polyps are identified and removed, cancers can be prevented.

95% of colorectal cancers are adenocarcinomas. These begin in the glands that make mucus to lubricate the inside of the colon and rectum, and are usually what doctors and other health professionals refer to when they say “colorectal cancer.”²

Some less common tumors that start in the colon and rectum are: Carcinoid Tumors, Gastrointestinal Stromal Tumors (GISTs), Lymphomas and Sarcomas.



¹ Image source: http://upload.wikimedia.org/wikipedia/commons/6/62/Blausen_0603_LargeIntestine_Anatomy.png

² <http://www.cancer.org/cancer/colonandrectumcancer/detailedguide/colorectal-cancer-what-is-colorectal-cancer>

Colorectal Cancer Overview

Before cancer develops, a growth of tissue, or tumor, usually begins as a non-cancerous *polyp* on the inner lining of the colon or rectum. A *tumor* is abnormal tissue and can be benign (not cancer) or malignant (cancer). A polyp is a benign, non-cancerous tumor. Some polyps change into cancer, but not all do. The chance of changing into a cancer depends on the kind of polyp.

The two main types of polyps are:

1. *Adenomatous polyps* (adenomas) are polyps that can change into cancer. Because of this, adenomas are called a pre-cancerous condition.
2. *Hyperplastic polyps and inflammatory polyps*, in general, are not pre-cancerous. Some doctors, however, think that hyperplastic polyps can become pre-cancerous or might be a sign of having a greater risk of developing adenomas and cancer, particularly when these polyps grow in the ascending colon.

Another condition possibly leading to colorectal cancer is *dysplasia*, where an area of the lining of the rectum or colon appears abnormal when viewed under a microscope, but polyps are not present. It is usually seen in people who have had diseases such as ulcerative colitis or Crohn's disease for many years.

A cancer that grows into the wall of the colon or rectum greatly increases the risk of the cancer spreading throughout the body via blood or lymph vessels.

Colorectal Cancer Symptoms

Colorectal cancer signs and symptoms can include one or more of the conditions below:

- A change in bowel habits, such as diarrhea, constipation, or narrowing of the stool, that lasts for more than a few days
- A feeling that you need to have a bowel movement that is not relieved by doing so
- Rectal bleeding
- Blood in the stool, which may look dark
- Cramping or abdominal (belly) pain
- Weakness and fatigue
- Unintended weight loss

Colorectal cancers can bleed. While sometimes the blood can be seen or cause the stool to become darker, often the stool looks normal. The blood loss can build up over time, though, and lead to low red blood cell counts (anemia). Sometimes the first sign of colorectal cancer is a blood test showing a low red blood cell count.

Many of these problems are more often caused by conditions other than colorectal cancer, such as infection, hemorrhoids, irritable bowel syndrome or inflammatory bowel disease. Still, if these problems are present, it's important to see a doctor right away so the cause can be found and treated.

Colorectal Cancer Risk Factors

A *risk factor* is anything that affects the chances of getting a disease. Different cancers have different risk factors. In general, there are two types of risk factors: modifiable and non-modifiable. Modifiable risk factors are risk factors or lifestyle choices that can often be changed, usually to reduce the risk of cancers and other diseases. Non-modifiable risk factors are those that cannot be changed, usually age, gender, or genetic conditions.

The presence or absence of risk factors does not always indicate whether an individual will or will not get the disease. That said, the links between colorectal cancer and diet, weight and exercise are stronger than in any other type of cancer.

Modifiable Risk Factors:

- *Diets High in Red & Processed Meats* – Includes items such as beef, pork, lamb, liver, hot dogs and some luncheon meats. Cooking meat at very high temperatures (frying, broiling, or grilling) creates chemicals that might increase risk. Diets high in vegetables, fruits, and whole grains have been linked with a decreased risk of the disease, but fiber supplements do not seem to help.
- *Physical Inactivity* — The most physically active people have a 25% reduced risk of colon cancer diagnosis compared with the least physically active people.³
- *Obesity* – It raises the risk of colon cancer in both men and women, but the link seems to be stronger in men.⁴
- *Smoking* - Smoking is a well-known cause of lung cancer, but it is also linked to other cancers, including colorectal malignancies.
- *Heavy Alcohol Use* - Limiting alcohol use to no more than two drinks a day for men and one drink a day for women has many health benefits, including a lower risk of colorectal cancer.

³ Boyle T, Keegel T, Bull F, Heyworth J, Fritschi L. Physical activity and risks of proximal and distal colon cancers: a systematic review and meta-analysis. *J Natl Cancer Inst.* 2012;104: 1548-1561.

⁴ Renehan AG, Tyson M, Egger M, Heller RF, Zwahlen M. Body-mass index and incidence of cancer: a systematic review and meta-analysis of prospective observational studies. *Lancet.* 2008;371: 569-578.

Colorectal Cancer Risk Factors

Non-modifiable Risk Factors:

- *Age* – Younger adults can develop colorectal cancer, but chances increase markedly after 50. Nine out of ten people diagnosed are at least 50 years old.
- *Racial / Ethnic Background* – African Americans have the highest colorectal cancer incidence and mortality rates in the U.S. Jews of Eastern European descent (Ashkenazi Jews) also have one of the highest colorectal cancer rates in the world.
- *Type 2 Diabetes* – This has been established as a risk factor in adults even when controlling for waist circumference, obesity, and sedentary lifestyle.⁵
- *Personal / Family History of Polyps and Colorectal Cancer* – About 20% of all patients diagnosed with colorectal cancer have a family member who was also diagnosed with the disease.⁶
- *Personal History of Inflammatory Bowel Disease* — The risk increases the longer one has the disease, with an estimated 18% of patients with a 30-year history being diagnosed with colorectal cancer.⁷
- *Inherited Syndromes*—including: Familial Adenomatous (FAP), Hereditary Non-Polyposis Colon Cancer (HNPCC), Turcot Syndrome, Peutz-Jeghers Syndrome, and MUTYH-Associated Polyposis (MAP).

⁵ Larsson SC, Orsini N, Wolk A. Diabetes mellitus and risk of colorectal cancer: a meta-analysis. *J Natl Cancer Inst.* 2005;97: 1679-1687. & Campbell PT, Deka A, Jacobs EJ, et al. Prospective Study Reveals Associations Between Colorectal Cancer and Type 2 Diabetes Mellitus or Insulin Use in Men. *Gastroenterology.* 2010;139: 1138-46.

⁶ Lynch HT, de la Chapelle A. Hereditary colorectal cancer. *N Engl J Med.* 2003;348: 919-932.

⁷ Eaden JA, Abrams KR, Mayberry JF. The risk of colorectal cancer in ulcerative colitis: a meta-analysis. *Gut.* 2001;48: 526-535.

Colorectal Cancer Screening Overview

Considered a slow-growing cancer, colorectal cancer is highly preventable with proper screening measures.

The American Cancer Society recommends that men and women of average risk engage in both of the following screening categories starting at age 50. There are two different types of tests:

- those that detect polyps and cancer (flexible sigmoidoscopy, colonoscopy, double-contrast barium enema, or CT colonoscopy), *and*
- Those that primarily detect cancer only (Guaiac-based fecal occult blood test, fecal immunochemical test, or stool DNA test.)

Test	How often?
Colonoscopy	Every 10 years; less in the case of abnormal results from all other tests

OR one of the following:

Flexible sigmoidoscopy	Every 5 years
Double-contrast barium enema	Every 5 years
CT colonoscopy	Every 5 years

AND one of these:

Guaiac-based fecal occult blood test	Every year
Fecal Immunochemical Test (FIT test)	Every year
Stool DNA test	Every 3 years

Colorectal cancer is considered to be “highly preventable” if screening begins at age 50, as recommended.⁸

More information on the various tests follows in the next two pages.

⁸ <http://www.cdc.gov/cancer/dccp/resources/features/colorectalawareness/>

Colorectal Cancer Screening Tests

Several testing options exist for colorectal cancer early detection. Men and women aged 50 or older should discuss these with their physician:

Every year:

- **Guaiaac-based fecal occult blood test:** Performed in the home with a kit obtained from a doctor's office or clinic, it shows the presence of blood in the stool through a chemical reaction.
 - Performed at home to allow for testing of three distinct bowel movements.
 - Use kit from doctor or clinic to test the stool, then return sample to doctor or clinic within two weeks for testing.

OR

- **Fecal immunochemical test (FIT):** Another home-based test. It detects blood in the stool through a chemical reaction with human hemoglobin protein.
 - Also called an *immunochemical fecal occult blood test (iFOBT)*.
 - Sometimes preferred to the Guaiaac-based fecal occult blood test because it involves less preparation and samples are easier to collect.

Every 3 years:

- **Stool DNA test:** Cologuard™ test is used to find the presence of abnormal sections of DNA from cancer or polyp cells, or the presence of blood in the stool.
 - This is also a home-based test, shipped back to a lab for testing after samples are collected.

Every 5 years:

- **Flexible sigmoidoscopy:** a lighted sigmoidoscope (thin, flexible tube with a camera on the end) is inserted into the rectum to examine its inside and the lower parts of the colon.
 - Allows for discovery and possible removal of polyps and other abnormalities.
 - Preparation is easier than for a colonoscopy.
 - Limited to examination of the entire rectum and only half of the colon.
 - Takes 10-20 minutes, mild discomfort level.

Colorectal Cancer Screening Tests

Every 5 years, continued:

OR

- **Double-contrast barium enema:** an x-ray test where barium sulfate and air are pumped into the rectum. These line the inner walls of the colon, allowing abnormalities to show up in an x-ray examination.
 - Also called an *air-contrast barium enema*, *barium enema with air contrast*, or a *lower GI series*
 - Takes 30-45 minutes
 - Exposes patient to small amount of radiation from the x-ray procedure.

OR

- **CT colonoscopy:** 2-D and 3-D pictures of the colon and rectum are created using CT scan technology
 - Also called *virtual colonoscopy*
 - Takes about 10 minutes, but requires the same preparation as the above invasive evaluations
 - Has very few side effects and is far less invasive than the sigmoidoscopy, barium enema, or colonoscopy

Every 10 years:

- **Colonoscopy:** a longer version of the sigmoidoscope is inserted into the rectum, allowing for examination of the entire inner rectum and the colon.
 - Allows for detection, possible removal, and biopsy of polyps and other abnormalities
 - Allows for examination of the entire length of the colon
 - Requires extensive bowel preparation
 - Is done under sedation

Men and women should also have a colonoscopy in the case of positive test results from any of the other listed tests.

Colorectal Cancer Staging

Should one of the screening tests return an abnormal result, a biopsy will need to be performed on the area or the removed polyp to determine if the abnormality is cancer.

If the biopsy indicates that it may be cancer, the physician will use the available evidence to establish the “stage at diagnosis,” which is used to develop plans for treatment. The cancer will be staged again once a pathologist studies the tissue removed during surgery (pathologic staging).

Five basic stages are used to describe the extent of disease for colorectal cancer.⁹

Stage	Description	Also called
0	Cancer has not migrated from its point of origin. Here, the cancer is still in the innermost lining of the colon.	Carcinoma in situ, in situ ¹⁰
I	Cancer has penetrated through the protective lining to the next layer(s) in the colorectal wall and may have begun migrating, but is still in the colorectal wall.	localized
II	Cancer has grown within and possibly through the wall of the colon into nearby tissue. It has not yet spread to the lymph nodes.	regional by extension
III	Cancer has migrated to or into nearby lymph nodes, but not distant parts of the body.	regional lymph nodes
IV	Cancer has moved through the lymph system and migrated to other parts of the body, a process called metastasis. Colorectal cancer usually metastasizes to the lungs and the liver, but other organs can be affected.	distant

⁹ http://www.ccalliance.org/colorectal_cancer/staging.html

¹⁰ These terms are taken from SEER's stage classifications.

Colorectal Cancer Treatment

Generally, four treatment options are available for colorectal cancer: *surgery*, *chemotherapy*, *radiation*, and *targeted therapies*. Surgery is the main treatment, and the other therapies are used in conjunction with surgery (adjuvant therapy).

More detailed information is available at both the American Cancer Society and Colorectal Cancer Alliance websites.

Surgery for colorectal cancer:

- Surgeons use the following types of surgery to treat colorectal cancer:
 - *Non-invasive excision*: If the cancer has not spread, a doctor can sometimes remove it using a colonoscope. Removing a potentially cancerous polyp is known as a polypectomy.
 - *Resection*: The standard treatment for colorectal cancer is a resection. In this, the area with the cancer and some of the surrounding healthy tissues will need to be removed. The healthy ends of the colon or rectum are sewn back together.
 - *Colostomy*: In the case where there is not enough tissue to sew the ends back together, one end will be attached to the inner wall of the belly to form an opening for stool, which collects in a bag outside the body. Sometimes this is permanent, but on some occasions it is merely a measure to allow the colon to heal and can be reversed.
 - *Adjuvant treatment*: If the medical team determines that the cancer has spread to other organs or lymph nodes, a regimen of chemotherapy, biologically targeted therapies, and/or radiation therapy will be planned, in addition to surgery.
 - *Treatment for distant disease*: If the cancer is identified in distant organs at diagnosis, surgery may be performed to relieve discomfort or remove metastases. Radiation and systemic treatments are often recommended to relieve symptoms and prolong survival.

Colorectal Cancer Treatment

Radiation for colorectal cancer:

- Used before, after, or in place of surgery as needed
- Can shrink a tumor to make it operable, kill cancer cells left behind after surgery, and treat cancers for those not healthy enough for surgery
- Also used to manage the side effects of advanced cancer, including intestinal blockages and pain
- Performed on Stage II-IV cancers
- The three main types of radiation therapy use: (1) an outside machine, (2) a small device inserted into the anus, or (3) pellets of radioactive material imbedded as close to the cancer as possible.

Chemotherapy for colorectal cancer:

- Drugs, either put into a vein or ingested, are carried to the entire body in the bloodstream and kill all rapidly growing cells, including cancer cells
- Very effective for cancers that have spread throughout the body
- Often used before surgery to shrink tumors
- Sometimes used with radiation to enhance its effectiveness
- Has many side effects
- Used for Stage II-IV cancers.

Targeted therapies for colorectal cancer:

- Used to treat more advanced cancers or those that do not respond to traditional treatments
- Specific drugs designed to block the growth of cancer cells based on their molecular structures are administered
- Works differently from chemotherapy and often has fewer side effects.

Clinical Trials:

Another possible option that can be used in place of or in conjunction with these standard treatments, at the advice of a physician, is to enroll in a clinical trial. For a current list of clinical trials for colorectal cancer (and other cancers), visit <http://www.cancer.gov/clinicaltrials>.

What You Can Do

The American Cancer Society reports only about half of adults eligible for colorectal cancer screening are getting the screening tests they should be receiving.¹¹ The ACS, along with the National Cancer Institute, recommends that those who fall into this group should talk to a physician about what test could work best.

Those who have insurance but have never been tested should ask their doctors whether insurance will pay for the test. Many people do not realize that they do have this coverage.

Medicare covers screenings for those 65 and older. Visit http://www.cdc.gov/cancer/colorectal/basic_info/screening/insurance.htm for more details.

Everyone, no matter their age, should learn about the available tests to see what could be right for them. Knowing family history of colorectal cancer is also crucial. Friends and family members should be encouraged to get tested for colorectal cancer as well. Ninety percent of people whose colorectal cancer is found early through testing live five years or more. Talking about this uncomfortable subject is the first step towards helping more people get screened and survive.¹²

¹¹ from:

<http://www.cancer.org/cancer/colonandrectumcancer/moreinformation/colonandrectumcancerearlydetection/colorectal-cancer-early-detection-importance-of-crc-screening>

¹² <http://www.cdc.gov/vitalsigns/colorectalcancerscreening/>

Colorectal Cancer in Louisiana

- In 2008-2012, Louisiana had the 3rd highest incidence and mortality rates for colorectal cancer in the United States.¹³

<i>Colorectal Cancer</i> ¹⁴	<i>Incidence (cases per 100,000)</i>	<i>Mortality (deaths per 100,000)</i>
Louisiana	50.2	18.5
U.S.	41.9	15.5

- Colorectal cancer was the fourth most common cancer and the second leading cause of cancer death in Louisiana, for men and women combined.¹⁴
- About 2150 new colon and rectum cancers are expected to be diagnosed and about 810 patients are expected to die of colon and rectum cancers in Louisiana in 2015.¹⁵
- Of particular note is a recent study conducted by faculty from the schools of public health at Tulane and LSUHSC-NO which looked at the colorectal cancer rates in 18 parishes in the Acadian region of Louisiana:
 - The study found a much higher rate of colorectal cancer, particularly in the white population, in these parishes, than in the United States at large. White people there have a colorectal cancer incidence rate 13% higher than Louisiana rates and 23% higher than US rates.
 - Since that area has no observed higher prevalence of any major risk factor for colorectal cancer, the study hypothesized that it may be due to the French-speaking Cajun founder population (a population consisting of individuals with similar backgrounds in which genetic diversity has declined over time).¹⁶

¹³ all statistics from <http://statecancerprofiles.cancer.gov>

¹⁴ Louisiana Tumor Registry

¹⁵ American Cancer Society *Cancer Facts & Figures 2015*

¹⁶ Karlitz, J. et al. "Colorectal Cancer Incidence Rates in the Louisiana Acadian Parishes Demonstrated to be Among the Highest in the United States" *Clinical and Translational Gastroenterology* (2014) 5, e60; doi:10.1038/ctg.2014.10 Published online 2 October 2014 .

Figure 1: Incidence Rates Colorectal Cancer Louisiana vs. U.S., 2008-2012

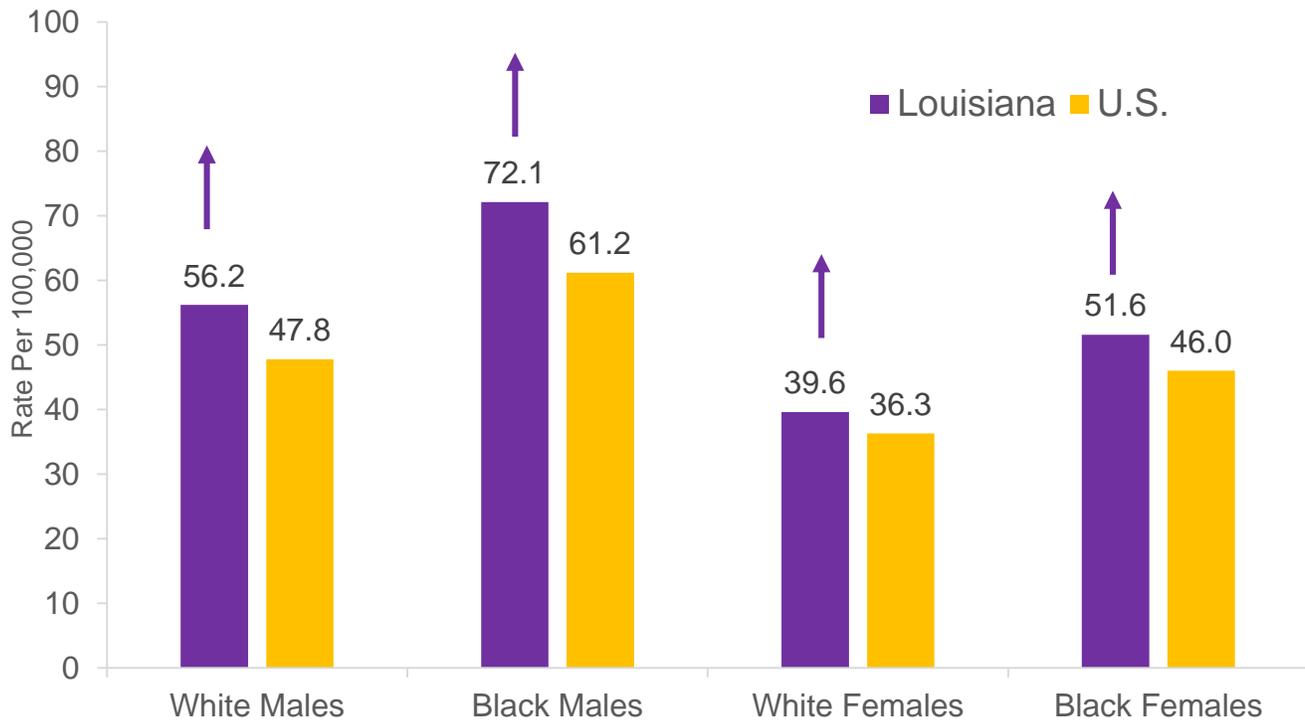


Figure 1 displays the incidence rates of newly diagnosed invasive colorectal cancer cases in Louisiana and the United States, per 100,000 population, averaged over the years from 2008 to 2012.¹⁷ The arrows indicate the difference is statistically significant ($p < 0.05$).

- Black males have the highest rate in both Louisiana and the United States; their rates are 18% higher in Louisiana than in the United States.
- In Louisiana, the rates for three of the four major race-sex groups are significantly higher than that of the United States.
- The average annual number of new cases for all of Louisiana during 2008-2012 was 2,384 cases, about the same as for 2007-2011.¹⁸

¹⁷ All information is age-adjusted to the 2000 US standard population.
Source for US incidence data:¹⁸ SEER registries.

¹⁸ <http://statecancerprofiles.cancer.gov>

Figure 2: Age-Specific Incidence Rates Colon and Rectum Cancers Louisiana, 2008-2012

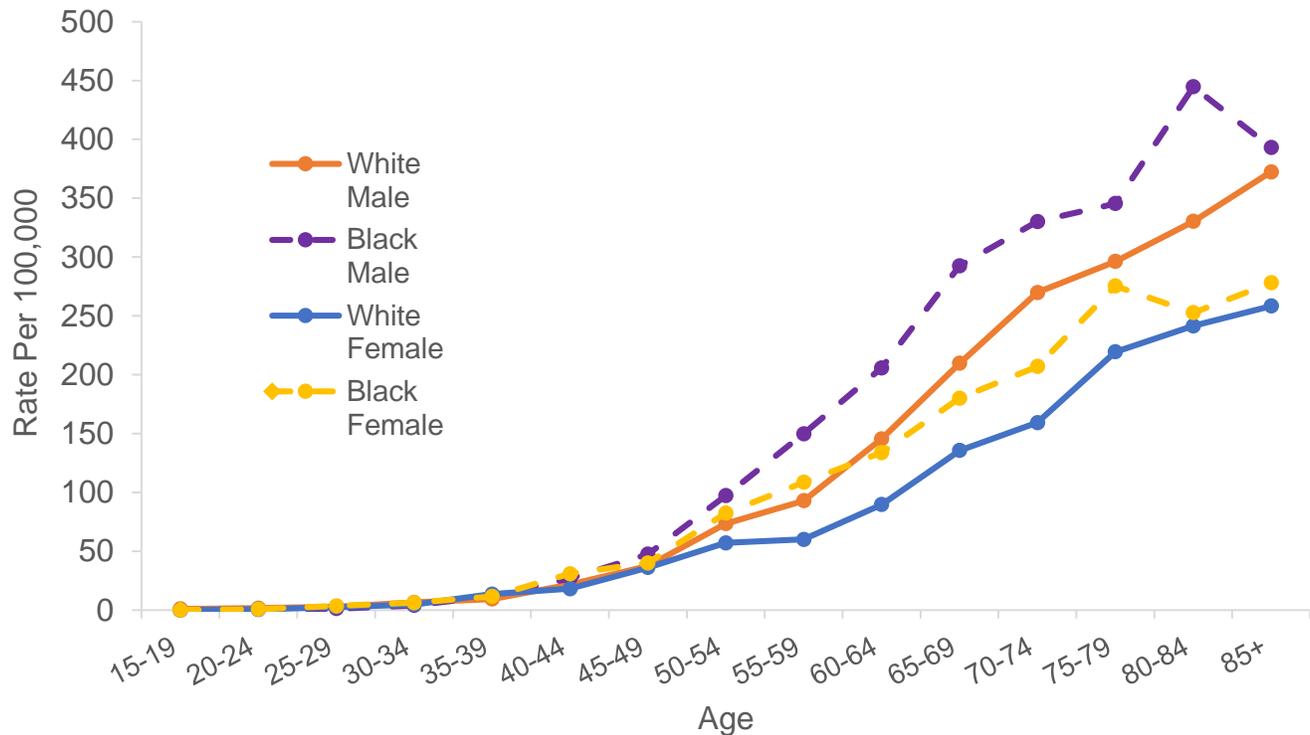


Figure 2 displays the incidence rate of newly diagnosed invasive colorectal cancer (incidence) per 100,000 Louisiana residents, by age at diagnosis.

- For all four racial/sex stratification groups, diagnosis rises noticeably beginning in the 40s.
- There is a big jump in diagnoses beginning in 50s, which is when screening of all types is recommended.
- Nationally, the median age of diagnosis for colorectal cancer is 68 years, and the disease is most frequently diagnosed in people ages 65-74.¹⁹

¹⁹ <http://seer.cancer.gov/statfacts/html/colorect.html>

Figure 3: Trends of Cancer Incidence Colon and Rectum Cancers Whites, 1988-2012

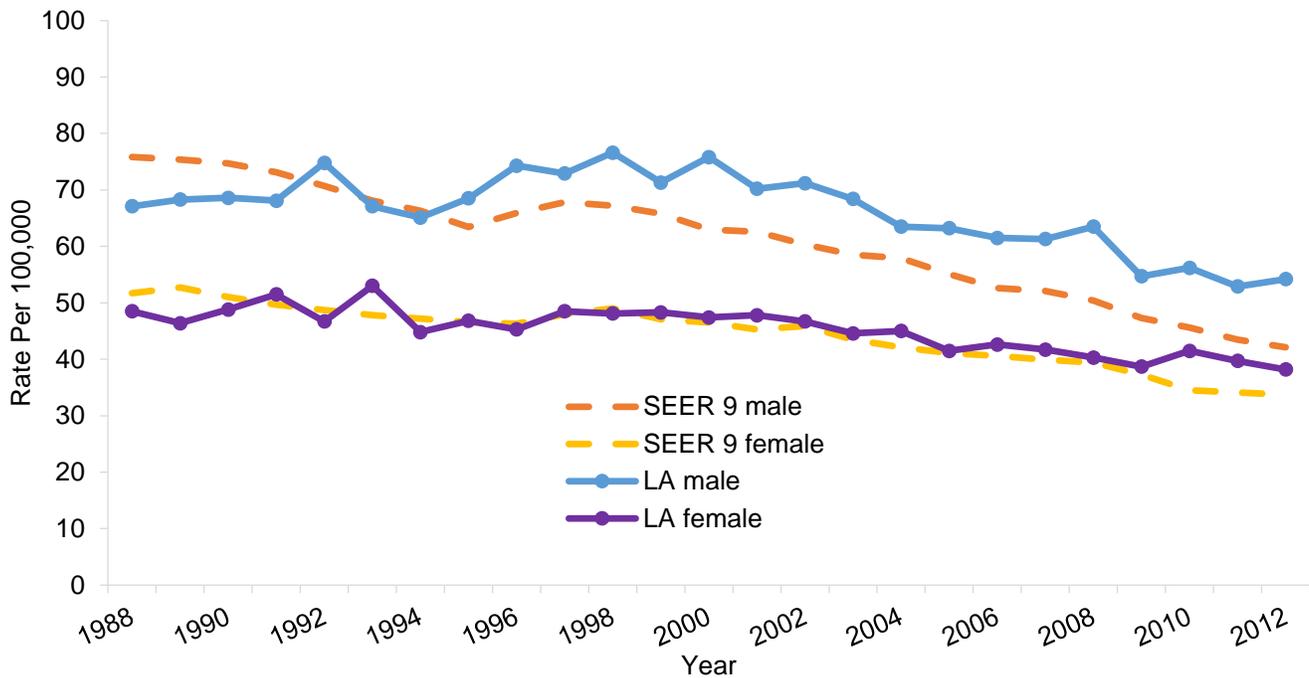


Figure 3 displays the trends of incidence for newly diagnosed invasive colorectal cancer cases per 100,000 individuals, from 1988 to 2012, for whites in Louisiana and the United States.²⁰

- Overall colorectal cancer incidence rates have been declining for over a decade in both Louisiana and the United States.
- The rates have been higher for Louisiana than the United States for white men since 1994, and for white females since 2006.

²⁰All information is age-adjusted to the 2000 US standard population.
US incidence data source: 9 SEER registries.

Figure 4: Trends of Cancer Incidence Colon and Rectum Cancers Blacks, 1988-2012

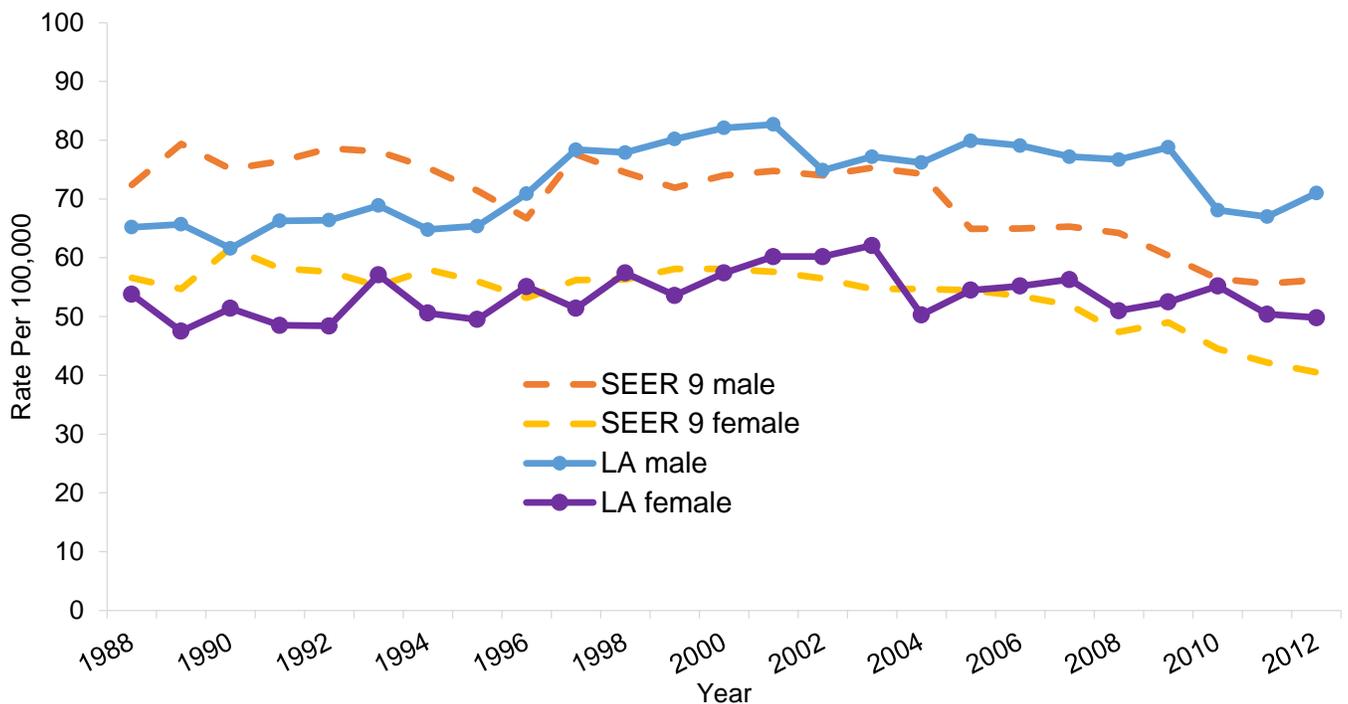


Figure 4 displays the trends of incidence of newly diagnosed invasive colorectal cancer cases per 100,000 individuals, from 1988 to 2012 for blacks.²¹

- The rates have been higher for Louisiana than the United States for black men for since 1995, and for black women since 2006.

²¹ Age-adjusted to the 2000 US standard population.
US data source: 9 SEER registries.

Figure 5: Mortality Rates Colon and Rectum Cancers Louisiana vs. U.S., 2008-2012



Figure 5 displays the mortality rates¹ of colorectal cancer in both Louisiana and the United States, per 100,000 individuals, averaged over the years 2008 - 2012.²² The arrows indicate the difference is statistically significant ($p < 0.05$).

- The mortality rates for all four demographic groups in Louisiana are significantly higher than the United States' rates, ranging from 8% to 16% higher.

²² Age-adjusted to the 2000 US standard population.
Mortality data source was National Center of Health Statistics (NCHS).

Figure 6: Trends of Cancer Mortality Colon and Rectum Cancers Whites, 1988-2012

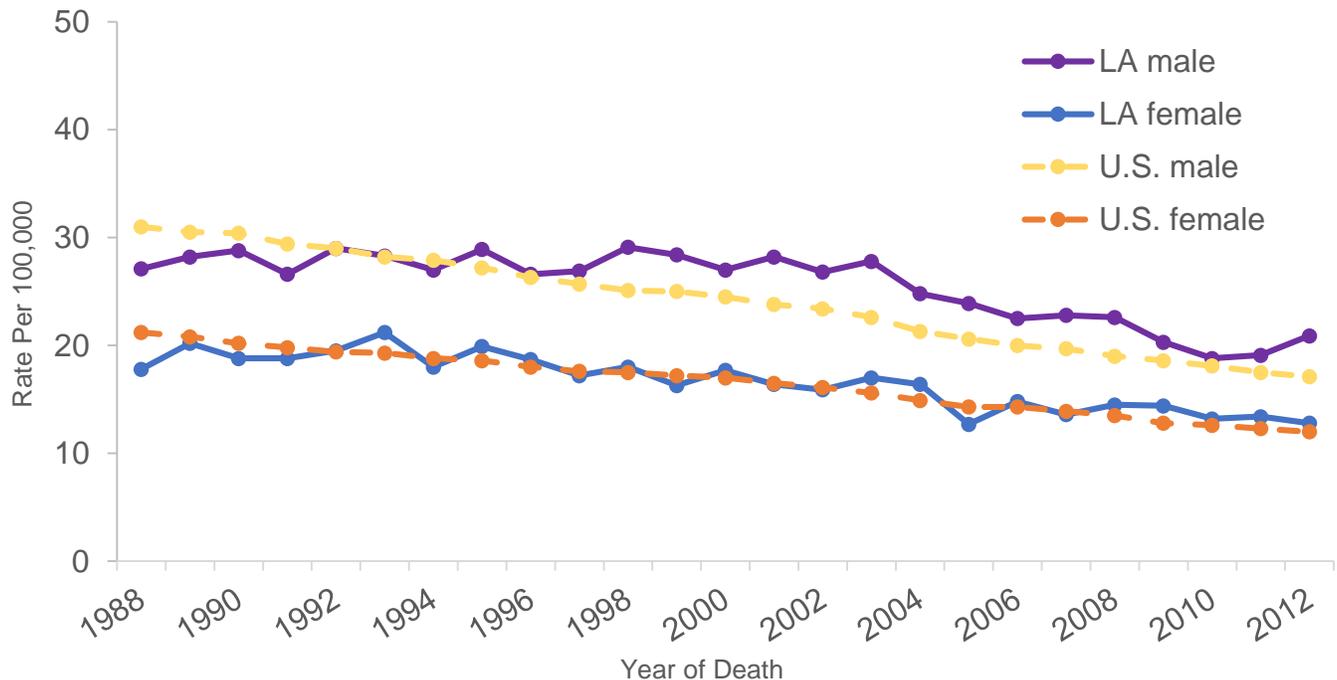


Figure 6 displays the trends of mortality rates for colorectal cancer per 100,000 individuals, from 1988 to 2012 for whites.²³

- In the late 1980s and early 1990s, the rates were lower in Louisiana than in the United States. In late 1990s and 2000s, the rates in Louisiana were much higher than in the United States for males.
- The steady downward trend in all four groups is encouraging. This reflects improvements in treatment, changes in risk factors, and successful screening efforts.²⁴

²³Age-adjusted to the 2000 US standard population.

Mortality data source: National Center of Health Statistics (NCHS).

²⁴ Edwards BK, Ward E, Kohler BA, et al. Annual report to the nation on the status of cancer, 1975-2006, featuring colorectal cancer trends and impact of interventions (risk factors, screening, and treatment) to reduce future rates. *Cancer*. 2010;116: 544-573.

Figure 7: Trends of Cancer Mortality Colon and Rectum Cancers Blacks, 1988-2012

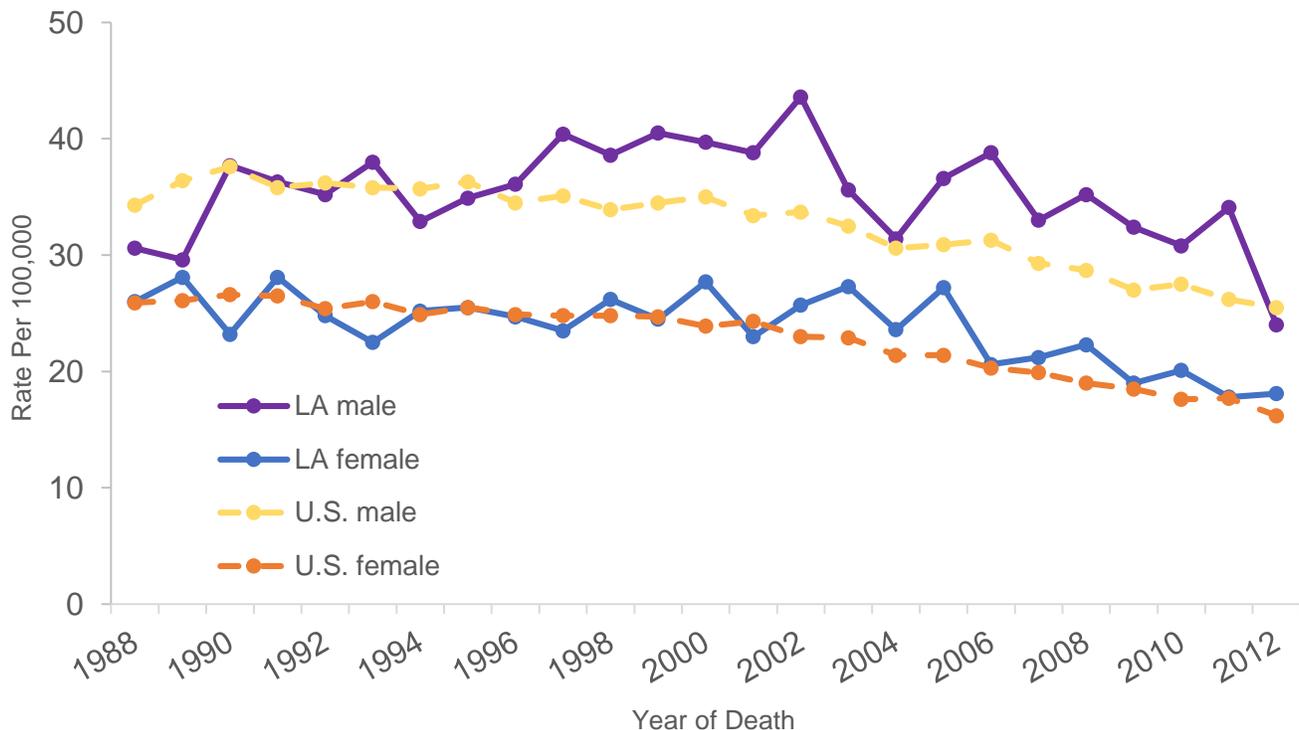


Figure 7 displays the trends mortality rates per 100,000 individuals, from 1988 to 2012 for Louisiana blacks by sex.²⁵

- Mortality from colorectal cancer among Louisiana’s black males markedly exceeded that of their US counterparts. Black women in the state also had elevated rates, but the difference was less dramatic.
- In the United States and Louisiana, black females are more likely to die of colorectal cancer than white females, and black males are even more likely to die than black females.²⁶
- Much of the current research on colorectal cancer mortality focuses on reducing race-based disparities in survival.²⁷

²⁵Age-adjusted to the 2000 US standard population.

Mortality data source: National Center of Health Statistics (NCHS).

²⁶ <http://www.cancer.net/cancer-types/colorectal-cancer/risk-factors-and-prevention>

²⁷ see Virnig, B. A., Baxter, N. N., Habermann, E., Feldman, R. D., & Bradley, C. J. (2009). A Matter Of Race: Early- Versus Late-Stage Cancer Diagnosis: African Americans receive their cancer diagnoses at more advanced stages of the disease than whites do. *Health Affairs (Project Hope)*, 28(1), 160–168. doi:10.1377/hlthaff.28.1.160, among many others.

Figure 8: Trends of Incidence and Mortality Colon and Rectum Cancers Louisiana Males, 2000-2012

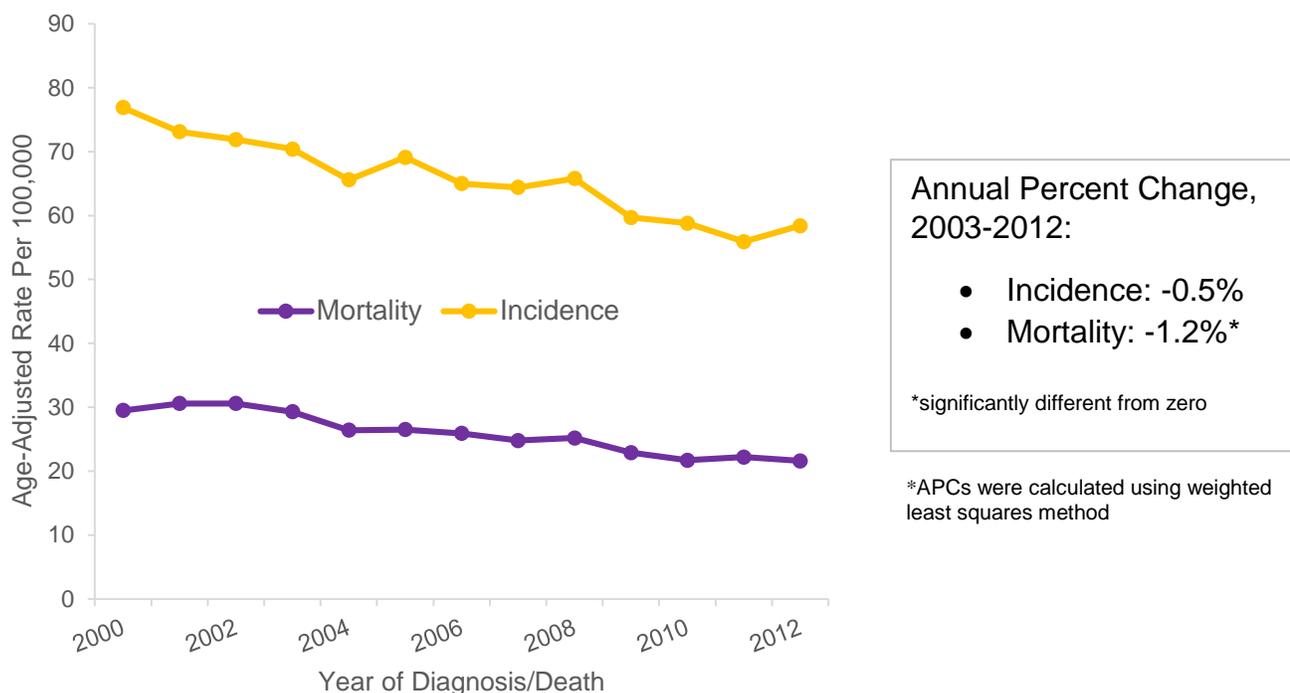


Figure 8 displays two different statistics:

- The graphs on the left show age-adjusted rate trends of newly diagnosed cases (incidence) and cancer deaths (mortality) per 100,000 Louisiana males, from 2000 to 2012.
 - o Overall, downward trends in incidence and mortality are clear, despite occasional short-term increases.
- The graphs on the right display Annual Percent Change (APC) of age-adjusted incidence and mortality trends for Louisiana, 2003-2012.
 - o Incidence has fallen by an average of 0.5% per year in the last ten years
 - o Mortality has fallen by an average of 1.2% per year in the last ten years.

Figure 9: 5-Year Relative Survival by Stage Colon and Rectum Cancers Louisiana Males, 2008-2012

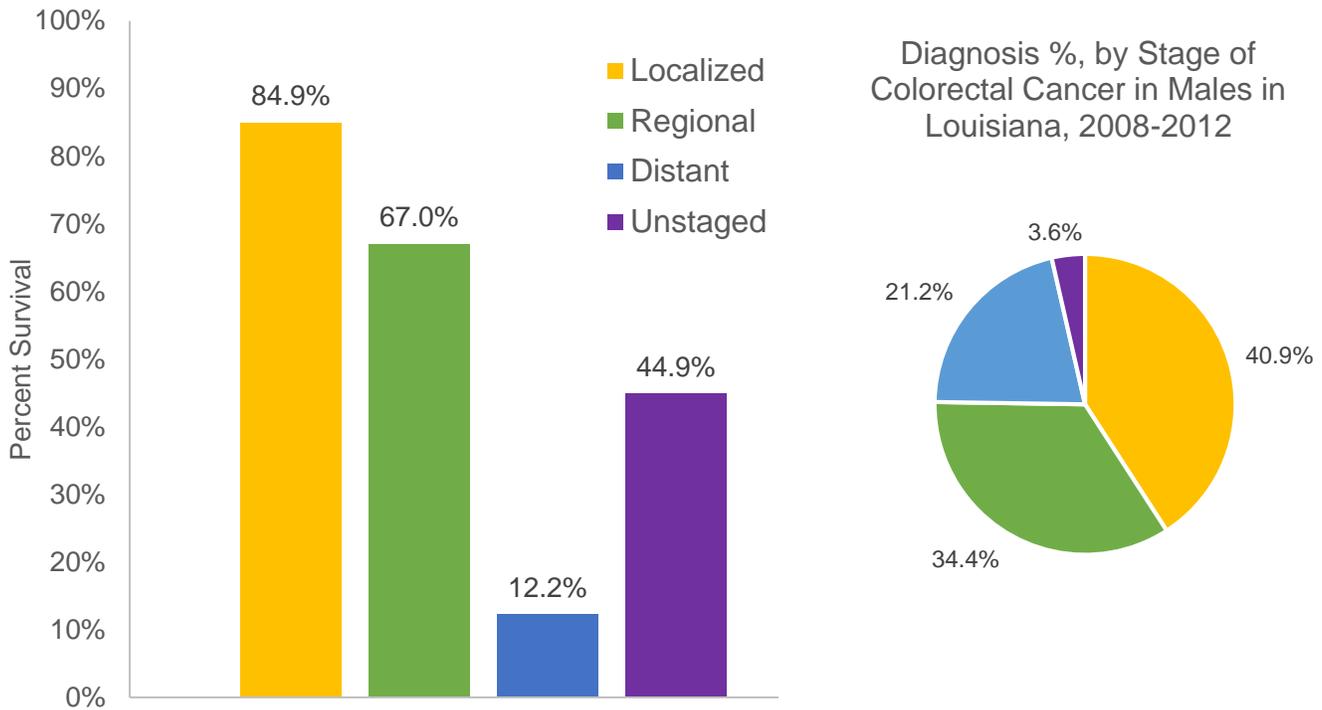


Figure 9 displays, on the left, the 5-year relative survival by stage of cancer at diagnosis for Louisiana males, and, on the right, the percent of cases diagnosed at each stage for Louisiana males, as well as the 5-year relative survival percentages, all cases combined, by race.²⁸

5-year relative survival

- All races: 61.9%
- Whites: 64.4%
- Blacks: 55.7%

- Relative survival compares the death rates of people of similar ages who do not have cancer with those who do have cancer. The difference in survival is attributed to the cancer only.
- “Unstaged” indicates that data on cancer stage was missing.
- 40.9% of colorectal cancers were localized at time of diagnosis. This group has the greatest 5-year relative survival rate, at about 85%.
- 34.4% of colorectal cancers were regional stage at time of diagnosis. This group is the second most commonly diagnosed stage, and has a 5-year relative survival rate of about 67%.
- *Distant* diagnoses reduce the prognosis of survival greatly, with a 5-year relative survival rate of about 12%. 21.2% of colorectal cancers were distant staged at diagnosis.

²⁸ The stage distribution is based on SEER Summary Stage 2000.

Figure 10: Trends of Incidence and Mortality Colon and Rectum Cancers Louisiana Females, 2000-2012

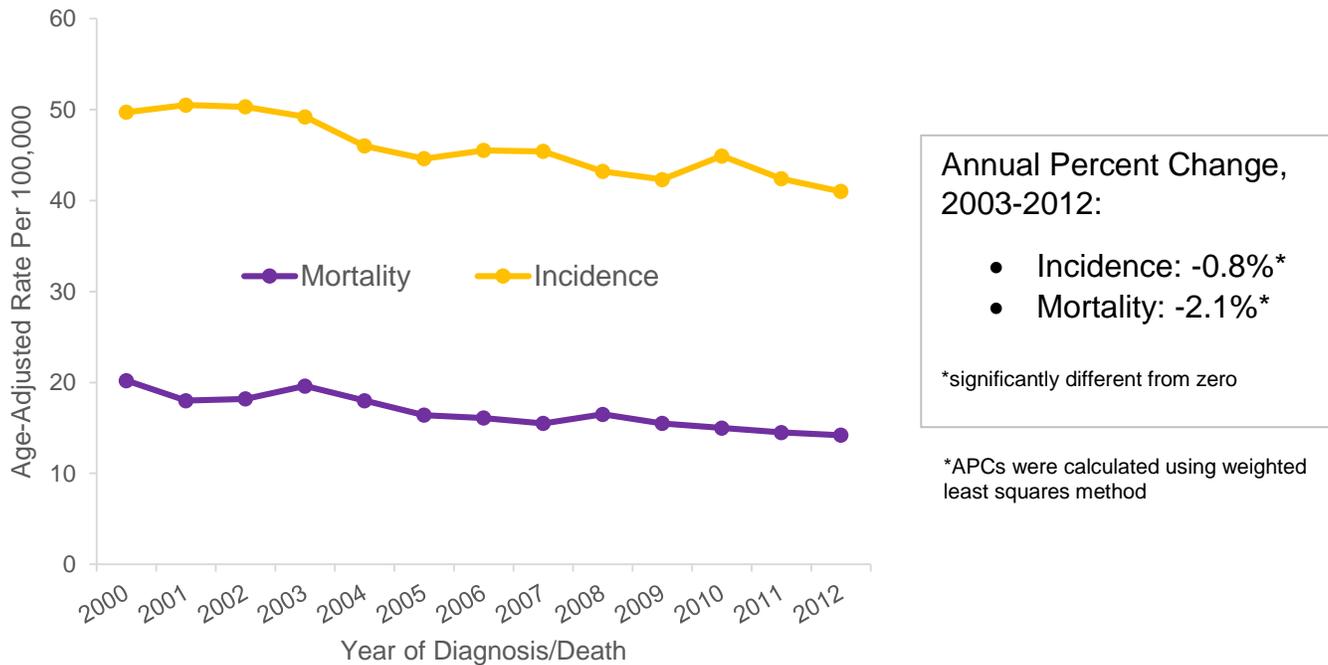


Figure 10 displays two different statistics:

- The graphs on the left show age-adjusted rate trends of newly diagnosed cases (incidence) and cancer deaths (mortality) per 100,000 Louisiana females, from 2000 to 2010.
 - o Overall, downward trends in incidence and mortality are clear, despite occasional short-term increases.
- The graphs on the right display the Annual Percent Change (APC) of age-adjusted incidence trends for Louisiana, 2003-2012.
 - o Incidence has fallen by an average of 0.8% per year for the last ten years.
 - o Mortality has fallen by an average of 2.1% per year for the last ten years.

Figure 11: 5-Year Relative Survival by Stage Colon and Rectum Cancers Louisiana Females, 2008-2012

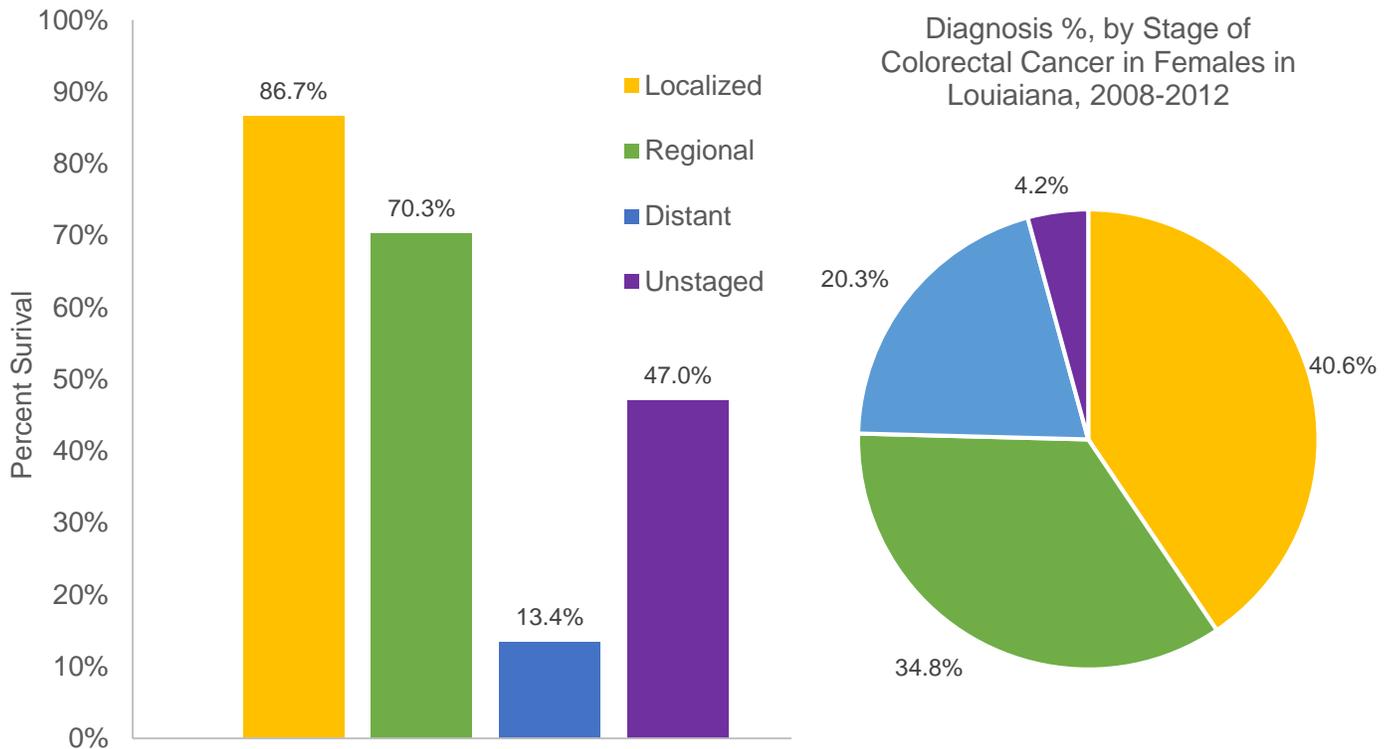


Figure 11 displays, on the left, the 5-year relative survival by stage of cancer at diagnosis for Louisiana females, and, on the right, the percent of cases diagnosed at each stage for Louisiana females, as well as the 5-year relative survival percentages, all cases combined, by race.²⁹

5-year relative survival

- All races: 64.5%
- Whites: 64.4%
- Blacks: 65.1%

- 40.6% of colorectal cancers were *localized* at time of diagnosis. This group has a 5-year relative survival rate of about 87%, and is also the most commonly diagnosed.
- 34.8% of colorectal cancers were *regional* stage at time of diagnosis. This is the second most commonly diagnosed stage, and has a 5-year relative survival rate of about 70%.
- *Distant* diagnoses reduce the prognosis of survival greatly, with 5-year relative survival rate of about 13.4%. 20.3% of colorectal cancers were staged distant at diagnosis.

²⁹ The stage distribution is based on SEER Summary Stage 2000.

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