



# Colorectal Cancer Early Detection, Diagnosis, and Staging

## Detection and Diagnosis

Catching cancer early often allows for more treatment options. Some early cancers may have signs and symptoms that can be noticed, but that is not always the case.

- [Can Colorectal Polyps and Cancer Be Found Early?](#)
- [American Cancer Society Recommendations for Colorectal Cancer Early Detection](#)
- [Colorectal Cancer Screening Tests](#)
- [Colorectal Cancer Screening: Insurance Coverage](#)
- [Colorectal Cancer Signs and Symptoms](#)
- [Tests for Colorectal Cancer](#)
- [Understanding Your Pathology Report](#)

## Stages and Outlook (Prognosis)

After a cancer diagnosis, staging provides important information about the extent of cancer in the body and anticipated response to treatment.

- [Colorectal Cancer Stages](#)
- [What Are the Survival Rates for Colorectal Cancer, by Stage?](#)

## Questions to Ask About Colorectal Cancer

Here are some questions you can ask your cancer care team to help you better understand your cancer diagnosis and treatment options.

- [What Should You Ask Your Doctor About Colorectal Cancer?](#)
- [Questions Worksheet \[PDF\]](#)

# Can Colorectal Polyps and Cancer Be Found Early?

## Why is it important to find colorectal cancer early?

Screening is the process of looking for cancer or pre-cancer in people who have no symptoms of the disease. Regular colorectal cancer screening is one of the most powerful weapons against colorectal cancer.

It can take as many as 10 to 15 years for a polyp to develop into colorectal cancer. Regular screening can often prevent colorectal cancer by finding and removing polyps before they have the chance to turn into cancer. Screening can also often find colorectal cancer early, when it might be easier to treat.

Colorectal cancer is the second leading cause of cancer death when numbers for both men and women are combined. The death rate (the number of deaths per 100,000 people per year) of colorectal cancer has been dropping for several decades. One reason for this is that colorectal polyps are now more often found by screening and removed before they can develop into cancers.

When colorectal cancer is found at an early stage before it has spread, the 5-year relative survival rate is about 90%. But only about 4 out of 10 colorectal cancers are found at this early stage. When cancer has spread outside the colon or rectum, survival rates are lower.

Unfortunately, only a little more than half of people who should get tested for colorectal cancer get the tests that they should. This may be due to things like lack of public and health care provider awareness of screening options, costs, and health insurance coverage issues.

See [Colorectal Cancer Screening Tests](#) for more on the tests used to screen for colorectal cancer. [American Cancer Society Recommendations for Colorectal Cancer Early Detection](#) has our guidelines for using these tests to find colorectal cancer and polyps.

- [References](#)

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## Colorectal Cancer Signs and Symptoms

Colorectal cancer might not cause symptoms right away, but if it does, it may cause one or more of these symptoms:

- 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 having one
- Rectal bleeding with bright red blood
- Blood in the stool, which may make the stool look dark
- Cramping or abdominal (belly) pain
- Weakness and fatigue
- Unintended weight loss

Colorectal cancers can often bleed into the digestive tract. Sometimes the blood can be seen in the stool or make it look darker, but often the stool looks normal. But over time, the blood loss can build up and can 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 symptoms can be caused by conditions other than colorectal cancer, such as infection, hemorrhoids, or irritable bowel syndrome. Still, if you have any of these problems, it's important to see your doctor right away so the cause can be found and treated, if needed.

- [References](#)

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# American Cancer Society Recommendations for Colorectal Cancer Early Detection

## People at average risk

The American Cancer Society believes that preventing colorectal cancer (and not just finding it early) should be a major reason for getting tested. Having polyps found and removed keeps some people from getting colorectal cancer. You are encouraged to have tests that have the best chance of finding both polyps **and** cancer if these tests are available to you and you are willing to have them. But the most important thing is to get tested, no matter which test you choose.

Starting at age 50, men and women at *average risk* for developing colorectal cancer should use one of the screening tests below:

### Tests that find polyps and cancer

- Colonoscopy every 10 years
- CT colonography (virtual colonoscopy) every 5 years\*
- Flexible sigmoidoscopy every 5 years\*
- Double-contrast barium enema every 5 years\*

### Tests that mainly find cancer

- Fecal immunochemical test (FIT) every year\*,\*\*
- Guaiac-based fecal occult blood test (gFOBT) every year\*,\*\*
- Stool DNA test every 3 years\*

\*Colonoscopy should be done if test results are positive.

\*\* Highly sensitive versions of these tests should be used with the take-home multiple sample method. A gFOBT or FIT done during a digital rectal exam in the doctor's office is not enough for screening.

## Is a rectal exam enough to screen for colorectal cancer?

In a digital rectal examination (DRE), a health care provider examines your rectum with a lubricated, gloved finger. Although a DRE is often included as part of a routine physical exam, it's not recommended as a stand-alone test for colorectal cancer. This simple test, which is not usually painful, can find masses in the anal canal or lower rectum. But by itself, it's not a good test for detecting colorectal cancer because it only checks the lower rectum.

Doctors often find a small amount of stool in the rectum when doing a DRE. But testing this stool for blood with a gFOBT or FIT is not an acceptable way to screen for colorectal cancer. Research has shown that this type of stool exam will miss more than 90% of colon abnormalities, including most cancers.

## People at increased or high risk

If you are at an increased or high risk of colorectal cancer, you might need to start colorectal cancer screening before age 50 and/or be screened more often. The following conditions make your risk higher than average:

- A personal history of colorectal cancer or adenomatous polyps
- A personal history of inflammatory bowel disease (ulcerative colitis or Crohn's disease)
- A strong family history of colorectal cancer or polyps (see [Colorectal Cancer Risk Factors](#))
- A known family history of a hereditary colorectal cancer syndrome such as familial adenomatous polyposis (FAP) or Lynch syndrome (hereditary non-polyposis colon cancer or HNPCC)

The table below suggests screening guidelines for people with *increased or high risk* of colorectal cancer based on specific risk factors. Some people may have more than one

risk factor. Refer to the table below and discuss these recommendations with your health care provider. Your provider can suggest the best screening option for you, as well as any changes in the schedule based on your individual risk.

<b>American Cancer Society Guidelines on Screening and Surveillance for the Early Detection of Colorectal Adenomas and Cancer in People at Increased Risk or High Risk</b>			
<b>INCREASED RISK – People who have a history of polyps on prior colonoscopy</b>			
<b>Risk category</b>	<b>When to test</b>	<b>Recommended test(s)</b>	<b>Comment</b>
People with small rectal hyperplastic polyps	Same age as those at average risk	Colonoscopy, or other screening options at same intervals as for those at average risk	Those with hyperplastic polyposis syndrome are at increased risk for adenomatous polyps and cancer and should have more intensive follow-up.
People with 1 or 2 small (no more than 1 cm) tubular adenomas with low-grade dysplasia	5 to 10 years after the polyps are removed	Colonoscopy	Time between tests should be based on other factors such as prior colonoscopy findings, family history, and patient and doctor preferences.
People with 3 to 10 adenomas, or a large (at least 1 cm) adenoma, or any adenomas with high-grade dysplasia or villous features	3 years after the polyps are removed	Colonoscopy	Adenomas must have been completely removed. If colonoscopy is normal or shows only 1 or 2 small tubular adenomas with low-grade dysplasia, future colonoscopies can be done every 5 years.
People with more	Within 3 years after	Colonoscopy	Doctor should

than 10 adenomas on a single exam	the polyps are removed		consider possible genetic syndrome (such as FAP or Lynch syndrome).
People with sessile adenomas that are removed in pieces	2 to 6 months after adenoma removal	Colonoscopy	If entire adenoma has been removed, further testing should be based on doctor's judgment.

**INCREASED RISK – People who have had colorectal cancer**

Risk category	When to test	Recommended test(s)	Comment
People diagnosed with colon or rectal cancer	At time of colorectal surgery, or can be 3 to 6 months later if person doesn't have cancer spread that can't be removed	Colonoscopy to look at the entire colon and remove all polyps	If the tumor presses on the colon/rectum and prevents colonoscopy, CT colonoscopy (with IV contrast) or DCBE may be done to look at the rest of the colon.
People who have had colon or rectal cancer removed by surgery	Within 1 year after cancer resection (or 1 year after colonoscopy to make sure the rest of the colon/rectum was clear)	Colonoscopy	If normal, repeat in 3 years. If normal then, repeat test every 5 years. Time between tests may be shorter if polyps are found or there's reason to suspect Lynch syndrome. After low anterior resection for rectal cancer, exams of the rectum may be done every 3 to 6 months for the first 2 to 3 years to look for signs of recurrence.

**INCREASED RISK – People with a family history**

Risk category	Age to start testing	Recommended test(s)	Comment
Colorectal cancer or	Age 40, or 10 years	Colonoscopy	Every 5 years.



adenomatous polyps in any first-degree relative before age 60, or in 2 or more first-degree relatives at any age (if not a hereditary syndrome).	before the youngest case in the immediate family, whichever is earlier		
Colorectal cancer or adenomatous polyps in any first-degree relative aged 60 or older, or in at least 2 second-degree relatives at any age	Age 40	Same test options as for those at average risk.	Same test intervals as for those at average risk.

### HIGH RISK

Risk category	Age to start testing	Recommended test(s)	Comment
Familial adenomatous polyposis (FAP) diagnosed by genetic testing, or suspected FAP without genetic testing	Age 10 to 12	Yearly flexible sigmoidoscopy to look for signs of FAP; counseling to consider genetic testing if it hasn't been done	If genetic test is positive, removal of colon (colectomy) should be considered.
Lynch syndrome (hereditary non-polyposis colon cancer or HNPCC), or at increased risk of Lynch syndrome based on family history without genetic testing	Age 20 to 25 years, or 10 years before the youngest case in the immediate family	Colonoscopy every 1 to 2 years; counseling to consider genetic testing if it hasn't been done	Genetic testing should be offered to first-degree relatives of people found to have Lynch syndrome mutations by genetic tests. It should also be offered if 1 of the first 3 of the modified Bethesda criteria is met.*
Inflammatory bowel disease: -Chronic ulcerative colitis	Cancer risk begins to be significant 8 years after the onset of pancolitis	Colonoscopy every 1 to 2 years with biopsies for dysplasia	These people are best referred to a center with experience in the

-Crohn's disease	(involvement of entire large intestine), or 12-15 years after the onset of left-sided colitis		surveillance and management of inflammatory bowel disease.
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\*The Bethesda criteria can be found in [Genetic Testing, Screening, and Prevention for People With a Strong Family History of Colorectal Cancer](#).

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## Colorectal Cancer Screening Tests

Screening is the process of looking for cancer in people who have no symptoms. Several tests can be used to screen for colorectal cancers. These tests can be divided into:

- **Tests that can find both colorectal polyps and cancer:** These tests look at the structure of the colon itself to find any abnormal areas. This is done either with a scope (a tube-like instrument with a light and camera) put into the rectum or with special imaging (x-ray) tests. Polyps found during these tests can be removed before they become cancer, so these tests may prevent colorectal cancer. Because of this, these tests are encouraged if they are available and you are willing to have them.
- **Tests that mainly find cancer:** These tests check the stool (feces) for signs of cancer. These tests are less invasive and easier to have done, but they are less likely to detect polyps.

Tests that can find both colorectal polyps and cancer are encouraged if they are available and you are willing to have them. But the most important thing is to get tested, no matter which test you choose.

These tests, as well as others, can also be used when people have symptoms of colorectal cancer and other digestive diseases such as inflammatory bowel disease.

### Tests that can find both colorectal polyps and cancer

## Flexible sigmoidoscopy

During this test, the doctor looks at part of the colon and rectum with a sigmoidoscope (a flexible, lighted tube about the thickness of a finger with a small video camera on the end). It's put in through the anus and into the rectum and moved into the lower part of the colon. Images from the scope are seen on a video screen.

Using the sigmoidoscope, your doctor can look at the inside of the rectum and part of the colon to detect (and possibly remove) any abnormality. The sigmoidoscope is only 60 centimeters (about 2 feet) long, so the doctor is able to see the entire rectum but less than half of the colon with this procedure.

This test is not widely used as a screening test for colorectal cancer in the United States.

**Before the test:** Be sure your doctor knows about any medicines you take. You might need to change how you take them before the test. Your insides must be empty and clean so your doctor can see the lining of the sigmoid colon and rectum. You will get specific instructions to follow to clean them out. You may be asked to follow a special diet (such as drinking only clear liquids) or to use enemas or strong laxatives the day before the test to clean out your colon.

**During the test:** A sigmoidoscopy usually takes about 10 to 20 minutes. Most people don't need to be sedated for this test, but this might be an option you can discuss with your doctor. Sedation may make the test less uncomfortable, but you'll need some time to recover from it and you'll need someone with you to take you home after the test.

You'll probably be asked to lie on a table on your left side with your knees pulled up near your chest. Before the test, your doctor may put a gloved, lubricated finger into your rectum to examine it. For the test itself, the sigmoidoscope is first lubricated to make it easier to insert into the rectum. The scope may feel cold as it's put in. Air will be pumped into the colon through the sigmoidoscope so the doctor can see the walls of the colon better.

If you are not sedated during the procedure, you might feel pressure and slight cramping in your lower belly. To ease discomfort and the urge to have a bowel movement, it helps to breathe deeply and slowly through your mouth. You'll feel better after the test once the air leaves your colon.

If a polyp is found during the test, the doctor may remove it with a small instrument passed through the scope. The polyp will be looked at in the lab. If a pre-cancerous polyp (an adenoma) or colorectal cancer is found, you'll need to have a colonoscopy

(see below) later to look for polyps or cancer in the rest of the colon.

**Possible complications and side effects:** This test may be uncomfortable because of the air put into the colon, but it should not be painful. Be sure to let your doctor know if you feel pain during the procedure. You might see a small amount of blood in your first bowel movement after the test. More serious bleeding and puncture of the colon are possible complications, but they are very uncommon.

## Colonoscopy

For this test, the doctor looks at the entire length of the colon and rectum with a colonoscope, a thin, flexible, lighted tube with a small video camera on the end. It's basically a longer version of a sigmoidoscope. It's put in through the anus and into the rectum and colon. Special instruments can be passed through the colonoscope to biopsy (sample) or remove any suspicious-looking areas such as polyps, if needed.

**Before the test:** Be sure your doctor knows about any medicines you are taking. You might need to change how you take them before the test. The colon and rectum must be empty and clean so your doctor can see the lining of the entire colon and rectum during the test. This process of cleaning out the colon and rectum is sometimes unpleasant and can keep people from getting this important screening test done. However, newer kits are available to clean out the bowel and may be better tolerated than previous ones. Your doctor can discuss the options with you.

Your doctor will give you specific instructions. It's important to read them carefully a few days ahead of time, since you may need to follow a special diet for at least a day before the test and to shop for supplies and laxatives. If you're not sure about any of the instructions, call the doctor's office and go over them with the nurse.

You will probably also be told not to eat or drink anything after midnight the night before your test. If you normally take prescription medicines in the mornings, talk with your doctor or nurse about how to manage them for that day.

Because a sedative is used during the test, you will need to arrange for someone you know to take you home after the test. You might need someone to help you get into your home if you are sleepy or dizzy, so many centers that do colonoscopies will not discharge people to go home in a cab or a ridesharing service. If transportation might be a problem, talk with your health care provider about the policy at your hospital or surgery center for using one of these services. There may be other resources available for getting home, depending on the situation.

**During the test:** The test itself usually takes about 30 minutes, but it may take longer if a polyp is found and removed. Before it starts, you'll be given a sedating medicine (into a vein) to make you feel relaxed and sleepy during the procedure. For most people, this medicine makes them unaware of what's going on and unable to remember the procedure afterward. You'll wake up after the test is over, but might not be fully awake until later in the day.

During the test, you'll be asked to lie on your side with your knees pulled up. A drape will cover you. Your blood pressure, heart rate, and breathing rate will be monitored during and after the test.

Your doctor might insert a gloved finger into the rectum to examine it before putting in the colonoscope. The colonoscope is lubricated so it can be inserted easily into the rectum. Once in the rectum, the colonoscope is passed all the way to the beginning of the colon, called the cecum.

If you're awake, you may feel an urge to have a bowel movement when the colonoscope is inserted or pushed further up the colon. The doctor also puts air into the colon through the colonoscope to make it easier to see the lining of the colon and use the instruments to perform the test. To ease any discomfort, it may help to breathe deeply and slowly through your mouth.

The doctor will look at the inner walls of the colon as he or she slowly removes the colonoscope. If a small polyp is found, it may be removed and then sent to a lab to be checked if it has any areas that have changed into cancer. This is because some small polyps may become cancer over time.

If your doctor sees a larger polyp or tumor or anything else abnormal, a biopsy may be done. A small piece of tissue is taken out through the colonoscope. The tissue is checked in the lab to see if it's cancer, a benign (non-cancerous) growth, or inflammation.

**Possible side effects and complications:** The bowel preparation before the test is unpleasant. The test itself might be uncomfortable, but the sedative usually helps with this, and most people feel normal once the effects of the sedative wear off. Because air is pumped into the colon during the test, people sometimes feel bloated, have gas pains, or have cramping for a while after the test until the air passes out.

Some people may have low blood pressure or changes in heart rhythm from the sedation during the test, but these are rarely serious.

If a polyp is removed or a biopsy is done during the colonoscopy, you might notice

some blood in your stool for a day or 2 after the test. Serious bleeding is uncommon, but in rare cases, bleeding might need to be treated or can even be life-threatening.

Colonoscopy is a safe procedure, but in rare cases the colonoscope can puncture the wall of the colon or rectum. This is called a *perforation*. Symptoms can include severe abdominal (belly) pain, nausea, and vomiting. This can be a major (or even life-threatening) complication, because it can lead to a serious abdominal (belly) infection. The hole may need to be repaired with surgery. Ask your doctor about the risk of this complication.

You can read more about colonoscopy and sigmoidoscopy in [Frequently Asked Questions About Colonoscopy and Sigmoidoscopy](#).

## **Double-contrast barium enema (DCBE)**

This test is also called an *air-contrast barium enema* or a *barium enema with air contrast*. It may also be called a *lower GI series*. It's basically a type of x-ray test. Barium sulfate, which is a chalky liquid, and air are put into the colon and rectum through the anus to outline the inner lining. This can show abnormal areas on x-rays. If suspicious areas are seen on this test, a colonoscopy will need to be done to explore them further.

This test is not widely used as a screening test for colorectal cancer in the United States.

**Before the test:** It's very important that the colon and rectum are empty and clean so they can be seen during the test. You'll be given specific instructions on how to prepare for the test. For example, you may be asked to clean your bowel the night before with laxatives and/or take enemas the morning of the exam. You'll probably be asked to follow a clear liquid diet for at least a day before the test. You may also be told to avoid eating or drinking dairy products the day before the test, and to not eat or drink anything after midnight the night before the test.

**During the test:** The test takes about 30 to 45 minutes, and sedation isn't needed. You lie on a table on your side in an x-ray room. A small, flexible tube is put into your rectum, and barium sulfate is pumped in to partially fill and open up the colon and rectum. You are then turned on the x-ray table so the barium moves throughout the colon and rectum. Then air is pumped into the colon and rectum through the same tube to expand them. This might cause some cramping and discomfort, and you may feel the urge to have a bowel movement.

X-ray pictures of the lining of your colon and rectum are then taken to look for polyps or cancers. You may be asked to change positions to help move the barium and so that different views of the colon and rectum can be seen on the x-rays.

If polyps or other suspicious areas are seen on this test, you'll probably need a colonoscopy to remove them or to study them fully.

**Possible side effects and complications:** You may have bloating or cramping after the test, and will probably feel the need to empty your bowels soon after the test is done. The barium can cause constipation for a few days, and your stool may look grey or white until all the barium is out. There's a very small risk that inflating the colon with air could injure or puncture it, but this risk is thought to be much less than with colonoscopy. Like other x-ray tests, this test also exposes you to a small amount of radiation.

## **CT colonography (virtual colonoscopy)**

This test is an advanced type of computed tomography (CT or CAT) scan of the colon and rectum. A CT scan uses x-rays, but instead of taking one picture, like a regular x-ray, a CT scanner takes many pictures as it rotates around you while you lie on a table. A computer then combines these pictures into detailed images of the part of your body being studied.

For CT colonography, special computer programs create both 2-dimensional x-ray pictures and a 3-dimensional view of the inside of the colon and rectum, which lets the doctor look for polyps or cancer.

This test may be especially useful for some people who can't have or don't want to have more invasive tests such as colonoscopy. It can be done fairly quickly, and sedation isn't needed. But even though this test is not invasive like a colonoscopy, the same type of bowel prep is needed. Also, a small, flexible tube is put in the rectum to fill the colon with air. Another possible drawback is that if polyps or other suspicious areas are seen on this test, a colonoscopy will still probably be needed to remove them or to explore them fully.

**Before the test:** It's important that the colon and rectum are emptied before this test to get the best images. You'll probably be told to follow a clear liquid diet for at least a day before the test. There are a number of ways to clean out the colon before the test. Often, the evening before the procedure, you drink large amounts of a liquid laxative solution. This often results in spending a lot of time in the bathroom. The morning of the test, sometimes more laxatives or enemas may be needed to make sure the bowels are

empty. Newer kits are available to clean out the bowel and may be better tolerated than previous ones. Your doctor can discuss the options with you.

**During the test:** This test is done in a special room with a CT scanner. It takes about 10 minutes. You may be asked to drink a contrast solution before the test to help “tag” any stool left in the colon or rectum, which helps the doctor when looking at the test images. You’ll be asked to lie on a narrow table that’s part of the CT scanner, and will have a small, flexible tube put into your rectum. Air is pumped through the tube into the colon and rectum to expand them to provide better images. The table then slides into the CT scanner, and you’ll be asked to hold your breath for about 15 seconds while the scan is done. You’ll likely have 2 scans: one while you’re lying on your back and one while you’re on your stomach or side.

**Possible side effects and complications:** There are usually few side effects after this test. You may feel bloated or have cramps because of the air in the colon and rectum, but this should go away once the air passes from the body. There’s a very small risk that inflating the colon with air could injure or puncture it, but this risk is thought to be much less than with colonoscopy. Like other types of CT scans, this test also exposes you to a small amount of radiation

## Tests that mainly find colorectal cancer

These tests look at the stool (feces) for signs of cancer. Most people find these tests easier to have than tests like colonoscopy, and they can often be done at home. But these tests aren’t as good at finding polyps such as tests like colonoscopy. And if the result from one of these stool tests is positive (abnormal), you’ll probably still need a colonoscopy to see if you have cancer.

### Guaiac-based fecal occult blood test (gFOBT)

One way to test for colorectal cancer is to look for occult (hidden) blood in stool. The idea behind this test is that blood vessels in larger colorectal polyps or cancers are often fragile and easily damaged by the passage of stool. The damaged vessels usually bleed into the colon, but only rarely is there enough bleeding for blood to be seen in the stool.

The guaiac-based fecal occult blood test (gFOBT) detects blood in the stool through a chemical reaction. This test can’t tell if the blood is from the colon or from other parts of the digestive tract (such as the stomach). If this test is positive, a colonoscopy will be needed to find the reason for the bleeding. Although blood in the stool can be from cancers or polyps, it can also have other causes, such as ulcers, hemorrhoids,



diverticulosis (tiny pouches that form at weak spots in the colon wall), or inflammatory bowel disease (colitis).

Over time, this test has improved so that it's now more likely to find colorectal cancer. The American Cancer Society recommends the more modern, highly sensitive versions of this test for screening.

This test must be done every year, unlike some other tests (like colonoscopy).

This test is done with a kit that you can use in the privacy of your own home that allows you to check more than one stool sample. *A FOBT done during a digital rectal exam in the doctor's office (which only checks one stool sample) is not enough for proper screening.*

People having this test will get a kit with instructions from their doctor's office or clinic. The kit will explain how to take stool samples at home (usually samples from 3 straight bowel movements are smeared onto small squares of paper). The kit is then returned to the doctor's office or medical lab (usually within 2 weeks) for testing.

**Before the test:** Some foods or drugs can affect the results, so you may be instructed to avoid the following before this test:

- Non-steroidal anti-inflammatory drugs (NSAIDs), such as ibuprofen (Advil), naproxen (Aleve), or aspirin (more than 1 adult aspirin per day), for 7 days before testing. (They can cause bleeding, which can lead to a false-positive result.) **Note:** People should try to avoid taking NSAIDs for minor aches. But if you take these medicines daily for heart problems or other conditions, don't stop them for this test without talking to your doctor first.
- Vitamin C in excess of 250 mg daily from either supplements or citrus fruits and juices for 3 days before testing. (This can affect the chemicals in the test and make the result negative, even if blood is present.)
- Red meats (beef, lamb, or liver) for 3 days before testing. (Components of blood in the meat may cause a positive test result.)

Some people who are given the test never do it or don't return it because they worry that something they ate may affect the test. Even if you are concerned that something you ate may alter the test, the most important thing is to get the test done.

**Collecting the samples:** Have all of your supplies ready and in one place. Supplies typically include a test kit, test cards, either a brush or wooden applicator, and a mailing envelope. The kit will give you detailed instructions on how to collect the stool samples.

**Be sure to follow the instructions that come with your kit, as different kits might**

**have different instructions.** If you have any questions about how to use your kit, contact your doctor's office or clinic. Once you have collected the samples, return them as instructed in the kit.

If this test finds blood, you will need a colonoscopy to look for the source. It's not enough to simply repeat the gFOBT or follow up with other types of tests.

## **Fecal immunochemical test (FIT)**

The fecal immunochemical test (FIT) is also called an *immunochemical fecal occult blood test* (iFOBT). It tests for occult (hidden) blood in the stool in a different way than a guaiac-based FOBT. This test reacts to part of the human hemoglobin protein, which is found in red blood cells.

The FIT is done much like the gFOBT, in that small amounts of stool are collected on cards (or in tubes). Some people may find this test easier because there are no drug or dietary restrictions (vitamins and foods do not affect the FIT), and collecting the samples may be easier. This test is also less likely to react to bleeding from other parts of digestive tract, such as the stomach.

Like the gFOBT, the FIT may not detect a tumor that's not bleeding, so multiple stool samples should be tested. This test must also be done every year. And if the results are positive for hidden blood, a colonoscopy will be needed to investigate further.

**Collecting the samples:** Have all of your supplies ready and in one place. Supplies typically include a test kit, test cards or tubes, long brushes or other collecting devices, waste bags, and a mailing envelope. The kit will give you detailed instructions on how to collect the samples. **Be sure to follow the instructions that come with your kit, as different kits might have different instructions.** If you have any questions about how to use your kit, contact your doctor's office or clinic. Once you have collected the samples, return them as instructed in the kit.

## **Stool DNA test**

A stool DNA test looks for certain abnormal sections of DNA from cancer or polyp cells. Colorectal cancer cells often have DNA mutations (changes) in certain genes. Cells from colorectal cancers or polyps with these mutations often get into the stool, where tests may be able to detect them. Cologuard<sup>®</sup>, the test currently available, also tests for blood in the stool.

**Collecting the samples:** You'll get a kit in the mail to use to collect your entire stool

sample. The kit will have a sample container, a bracket for holding the container in the toilet, a bottle of liquid preservative, a tube, labels, and a shipping box. The kit has detailed instructions on how to collect the sample. **Be sure to follow the instructions that come with your kit.** If you have any questions about how to use your kit, contact your doctor's office or clinic. Once you have collected the sample, return it as instructed in the kit.

This test should be done every 3 years. If the test is positive (if it finds DNA changes or blood), a colonoscopy will be needed.

## What are some of the pros and cons of these screening tests?

Test	Pros	Cons
Flexible sigmoidoscopy	Fairly quick and safe Usually doesn't require full bowel prep Sedation usually not used Does not require a specialist Done every 5 years	Looks at only about a third of the co Can miss small polyps Can't remove all polyps May be some discomfort Very small risk of bleeding, infection bowel tear Colonoscopy will be needed if abno
Colonoscopy	Can usually look at the entire colon Can biopsy and remove polyps Done every 10 years Can help find some other diseases	Can miss small polyps Full bowel prep needed Costs more on a one-time basis tha forms of testing Sedation is usually needed You will need someone to drive you You may miss a day of work Small risk of bleeding, bowel tears, infection
Double-contrast barium enema (DCBE)	Can usually see the entire colon Relatively safe Done every 5 years No sedation needed	Can miss small polyps Full bowel prep needed Some false positive test results Can't remove polyps during testing Colonoscopy will be needed if abno
CT colonography (virtual colonoscopy)	Fairly quick and safe Can usually see the entire colon Done every 5 years No sedation needed	Can miss small polyps Full bowel prep needed Some false positive test results Can't remove polyps during testing Colonoscopy will be needed if abno

		Still fairly new – may be insurance i
Guaiac-based fecal occult blood test (gFOBT)	No direct risk to the colon No bowel prep Sampling done at home Inexpensive	Can miss many polyps and some ca Can produce false-positive test resu Pre-test diet changes are needed Needs to be done every year Colonoscopy will be needed if abno
Fecal immunochemical test (FIT)	No direct risk to the colon No bowel prep No pre-test diet changes Sampling done at home Fairly inexpensive	Can miss many polyps and some ca Can produce false-positive test resu Needs to be done every year Colonoscopy will be needed if abno
Stool DNA test	No direct risk to the colon No bowel prep No pre-test diet changes Sampling done at home	Can miss many polyps and some ca Can produce false-positive test resu Should be done every 3 years Colonoscopy will be needed if abno Still fairly new – may be insurance i

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## Colorectal Cancer Screening: Insurance Coverage

The American Cancer Society believes that all people should have access to cancer screenings, without regard to health insurance coverage. Limitations on coverage should not keep someone from the benefits of early detection of cancer. The Society supports policies that give all people access to and coverage of early detection tests for cancer. Such policies should be age- and risk-appropriate and based on current scientific evidence as outlined in the [American Cancer Society's Early Detection Guidelines](#).

### Federal law

Coverage of colorectal cancer screening tests is required by the [Affordable Care Act](#) (ACA), but the ACA doesn't apply to health plans that were in place before it was

passed (called “grandfathered plans”). You can find out your insurance plan’s grandfathered status by contacting your health insurance company or your employer’s human resources department. If your plan started on or after September 23, 2010, it must cover colonoscopies and other colorectal cancer screening tests. If a plan started before September 23, 2010, it may still have coverage requirements from state laws, which vary, and other federal laws.

## Private health insurance coverage for colorectal cancer screening

The Affordable Care Act requires health plans that started on or after September 23, 2010 to cover colorectal cancer screening tests.

Although many private insurance plans cover the costs for colonoscopy as a screening test, you still might be charged for some services. Review your health insurance plan for specific details, including if your doctor is on your insurance company’s list of “in-network” providers. If the doctor is not in the plan’s network, you may have to pay more out-of-pocket.

Colonoscopies that are done to evaluate specific problems, such as belly (abdominal) pain, intestinal bleeding, or low red blood cell counts (anemia), are usually classified as **diagnostic** – and **not screening** – procedures. If that’s the case, you may have to pay any required deductible and co-pay. The same is true if colonoscopy is done after a positive stool test (such as the gFOBT or FIT) or an abnormal double-contrast barium enema or CT colonography. Some insurance plans also consider a colonoscopy diagnostic if something is found (like a polyp) during the procedure that needs to be removed or biopsied.

Before you get a screening colonoscopy, ask your insurance company how much (if anything) you should expect to pay for it. Find out if this amount could change based on what’s found during the test. This can help you avoid surprise costs. If you do have large bills afterward, you may be able to appeal the insurance company’s decision.

## Medicare coverage for colorectal cancer screening

[Medicare](#) covers an initial preventive physical exam for all new Medicare beneficiaries. It must be done within one year of enrolling in Medicare. The “Welcome to Medicare” physical includes referrals for preventive services already covered under Medicare, including [colon cancer screening tests](#).

If you've had Medicare Part B for longer than 12 months, a yearly "wellness" visit is covered without any cost. This visit is used to develop or update a personalized prevention plan to prevent disease and disability. Your provider should discuss a screening schedule (like a checklist) with you for preventive services you should have, including colon cancer screening.

## **What colorectal cancer screening tests does Medicare cover?**

**Fecal occult blood test (FOBT) or fecal immunochemical test (FIT)** every year for all Medicare beneficiaries 50 years and older.

**Stool DNA test (Cologuard)** every 3 years for Medicare beneficiaries 50 to 85 years old who do not have symptoms of colorectal cancer and who do not have an increased risk of colorectal cancer.

**Flexible sigmoidoscopy** every 4 years for those 50 years and older, but not within 10 years of a previous colonoscopy.

### **Colonoscopy**

- Every 2 years for those at high risk (regardless of age)
- Every 10 years for those who are at average risk
- 4 years after a flexible sigmoidoscopy for those who are at average risk

**Double-contrast barium enema** if a doctor determines that its screening value is equal to or better than flexible sigmoidoscopy or colonoscopy:

- Once every 2 years for those 50 years and older who are at high risk
- Once every 4 years for those 50 years and older who are at average risk

At this time, Medicare does not cover the cost of **virtual colonoscopy (CT colonography)**.

If you have questions about your costs, including deductibles or co-pays, it's best to speak with your insurance company.

## **What would someone on Medicare expect to pay for a colorectal cancer screening test?**

- **FOBT/FIT:** Covered at no cost\* for those age 50 years or older (no co-insurance or Part B deductible).
- **Stool DNA test (Cologuard):** Covered at no cost\* for those age 50 to 85 as long

as they are not at increased risk of colorectal cancer and don't have symptoms of colorectal cancer (no co-insurance or Part B deductible).

- **Flexible sigmoidoscopy:** Covered at no cost\* for those age 50 or older (no co-insurance, co-payment, or Part B deductible) when the test is done for screening. If because of the test results, you need a biopsy or removal of a growth, it's no longer a "screening" test, and you will be charged co-insurance and/or a co-pay (although your deductible is waived).
- **Colonoscopy:** Covered at no cost\* at any age (no co-insurance, co-payment, or Part B deductible) when the test is done for screening. If the test results in the biopsy or removal of a growth it's no longer a "screening" test, and you will be charged co-insurance and/or a co-pay (although you still don't have to pay the deductible).
- **Double-contrast barium enema:** Beneficiary pays 20% of the Medicare approved amount for the doctor services. If the test is done in an outpatient hospital department or ambulatory surgical center, the beneficiary also pays the hospital co-payment.

If you're getting a screening colonoscopy, be sure to find out how much you might have to pay for it. This can help you avoid surprise costs. Patients may still have to pay for the bowel prep kit, anesthesia or sedation, pathology costs, and facility fee. Patients may get one or more bills for different parts of the procedure from different practices and hospital providers.

Tests including colonoscopy are not classified by Medicare as screening procedures if they are done to evaluate specific problems, such as belly (abdominal) pain, intestinal bleeding, or low red blood cell counts (anemia). If you are getting a test for such a reason, you may have to pay the usual deductible and co-pay.

*\*This service is covered at no cost as long as the doctor accepts assignment (the amount Medicare pays as the full payment). Doctors that do not accept assignment are required to tell you up front.*

## **Medicaid coverage for colorectal cancer screening**

States are authorized to cover colorectal screening under their Medicaid programs. But unlike Medicare, there's no federal assurance that all state Medicaid programs must cover colorectal cancer screening in people without symptoms. Medicaid coverage for colorectal cancer screening varies by state. Some states cover fecal occult blood testing (FOBT), while others cover colorectal cancer screening if a doctor determines the test is medically necessary. In some states, coverage varies according to which Medicaid managed care plan a person is enrolled in.

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## Tests for Colorectal Cancer

Colorectal cancer is often found after symptoms appear, but most people with early colorectal cancer don't have symptoms of the disease. This is why it's important to get screened for colorectal cancer (see [American Cancer Society Recommendations for Colorectal Cancer Early Detection](#)) before any symptoms develop.

If your doctor finds something suspicious during a screening exam, or if you have possible [symptoms of colorectal cancer](#), your doctor will recommend exams and tests to find the cause.

### Medical history and physical exam

Your doctor will ask about your medical history to learn about possible risk factors, including your family history. You will also be asked if you're having any symptoms and, if so, when they started and how long you've had them.

As part of a physical exam, your doctor will feel your abdomen for masses or enlarged organs, and also examine the rest of your body. You may also have a digital rectal exam (DRE). During this test, the doctor inserts a lubricated, gloved finger into your rectum to feel for any abnormal areas. He or she may also test your stool to see if it contains blood that isn't visible to the naked eye (occult blood).

### Blood tests

Your doctor might also order certain blood tests to help determine if you have colorectal cancer. (These tests also can be used to help monitor your disease if you've been diagnosed with cancer.)

**Complete blood count (CBC):** This test measures the different types of cells in your blood. It can show if you have [anemia](#) (too few red blood cells). Some people with



colorectal cancer become anemic because the tumor has been bleeding for a long time.

**Liver enzymes:** You may also have a blood test to check your liver function, because colorectal cancer can spread to the liver.

**Tumor markers:** Colorectal cancer cells sometimes make substances called *tumor markers* that can be found in the blood. The most common tumor markers for colorectal cancer are carcinoembryonic antigen (CEA) and CA 19-9.

Blood tests for these tumor markers can sometimes suggest someone might have colorectal cancer, but they can't be used alone to screen for or diagnose cancer. This is because tumor marker levels can sometimes be normal in someone who has cancer and can be abnormal for reasons other than cancer.

Tumor markers are used most often along with other tests to monitor patients who already have been diagnosed with colorectal cancer. They may help show how well [treatment](#) is working or provide an early warning that a cancer has returned.

If [symptoms](#) or the results of the physical exam or blood tests suggest that you might have colorectal cancer, your doctor could recommend more tests. This most often is colonoscopy, but sometimes other tests may be done first.

## Colonoscopy

For this test, the doctor looks at the entire length of the colon and rectum with a colonoscope, a thin, flexible, lighted tube with a small video camera on the end. It is inserted through the anus and into the rectum and the colon. Special instruments can be passed through the colonoscope to biopsy or remove any suspicious-looking areas such as polyps, if needed.

Colonoscopy may be done in a hospital outpatient department, in a clinic, or in a doctor's office.

To learn more about colonoscopy, how it's done, and what to expect if you have one, see [Frequently Asked Questions About Colonoscopy and Sigmoidoscopy](#)

## Biopsy

Usually if a suspected colorectal cancer is found by any screening or diagnostic test, it is biopsied during a colonoscopy. In a biopsy, the doctor removes a small piece of

tissue with a special instrument passed through the scope. Less often, part of the colon may need to be surgically removed to make the diagnosis. See [Testing Biopsy and Cytology Specimens for Cancer](#) to learn more about the types of biopsies, how the tissue is used in the lab to diagnose cancer, and what the results may show.

## Lab tests of biopsy samples

Biopsy samples (from colonoscopy or surgery) are sent to the lab where they are looked at closely. Other tests may suggest that colorectal cancer is present, but the only way to be sure is to look at the biopsy samples under a microscope.

If cancer is found, other lab tests may also be done on the biopsy specimens to help better classify the cancer.

**Gene tests:** Doctors may look for specific gene changes in the cancer cells that might affect how the cancer is best treated especially if the cancer has spread (metastasized). For example, doctors now typically test the cells for changes in the *KRAS* and *NRAS* and *BRAF* genes. Some doctors may also test for changes in the *BRAF* gene. Patients whose cancers have mutations in these genes typically do not benefit from treatment with certain [targeted anti-cancer drugs](#).

**MSI and MMR testing:** Colorectal cancer cells are typically tested to see if they show high levels of gene changes called *microsatellite instability* (MSI). Testing might also be done to see if the cancer cells have changes in any of the mismatch repair (MMR) genes (*MLH1*, *MSH2*, *MSH6*, and *PMS2*).

Changes in MSI or in MMR genes (or both) are often seen in people with [Lynch syndrome](#) (HNPCC). Most colorectal cancers do not have high levels of MSI or changes in MMR genes. But most colorectal cancers that are linked to Lynch syndrome do.

There are 2 possible reasons to test colorectal cancers for MSI or for MMR gene changes:

- To identify patients who should be tested for Lynch syndrome. A diagnosis of Lynch syndrome can help plan other cancer screenings for the patient (for example, women with Lynch syndrome may need to be screened for uterine cancer). Also, if a patient has Lynch syndrome, their relatives could also have it, and may want to be tested for it.
- To determine treatment options for colorectal cancer, where MSI or MMR results could change the way it is treated.

For more on lab tests that might be done on biopsy samples, see [Understanding Your](#)

## Imaging tests to look for colorectal cancer

Imaging tests use sound waves, x-rays, magnetic fields, or radioactive substances to create pictures of the inside of your body. Imaging tests may be done for a number of reasons, such as:

- To look at suspicious areas that might be cancer,
- To learn how far cancer has spread
- To help determine if treatment is working

### Computed tomography (CT or CAT) scan

A [CT scan](#) uses x-rays to make detailed cross-sectional images of your body. This test can help tell if colon cancer has spread into your liver or other organs.

### Ultrasound

[Ultrasound](#) uses sound waves and their echoes to create images of the inside of the body. A small microphone-like instrument called a *transducer* gives off sound waves and picks up the echoes as they bounce off organs. The echoes are converted by a computer into an image on a screen.

**Abdominal ultrasound:** For this exam, a technician moves the transducer along the skin over your abdomen. This test can be used to look for tumors in your liver, gallbladder, pancreas, or elsewhere in your abdomen, but it can't look for tumors of the colon.

**Endorectal ultrasound:** This test uses a special transducer that is inserted into the rectum. It is used to see how far through the rectal wall a cancer has grown and whether it has reached nearby organs or tissues such as lymph nodes.

**Intraoperative ultrasound:** This exam is done during surgery. The transducer is placed directly against the surface of the liver, making this test very useful for detecting the spread of colorectal cancer to the liver. This allows the surgeon to biopsy the tumor, if one is found, while the patient is asleep.

### Magnetic resonance imaging (MRI) scan

Like CT scans, [MRI scans](#) show detailed images of soft tissues in the body. But MRI scans use radio waves and strong magnets instead of x-rays. A contrast material called *gadolinium* may be injected into a vein before the scan to see details better.

MRI can be used to look at abnormal areas in the liver or the brain and spinal cord that could be cancer spread.

**Endorectal MRI:** MRI scans can be used in patients with rectal cancers to see if the tumor has spread into nearby structures. This can help plan surgery and other treatments. To improve the accuracy of the test, some doctors use endorectal MRI. For this test the doctor places a probe, called an *endorectal coil*, inside the rectum. This stays in place for 30 to 45 minutes during the test and can be uncomfortable.

## Chest x-ray

An [x-ray](#) may be done after colorectal cancer has been diagnosed to see if cancer has spread to the lungs.

## Positron emission tomography (PET) scan

[PET scans](#) usually use a form of radioactive sugar that is put into the blood. Body cells take in different amounts of the sugar, depending on how fast they are growing. Cancer cells, which grow quickly, are more likely to take up larger amounts of the sugar than normal cells. A special camera is used to create a picture of areas of radioactivity in the body.

The picture from a PET scan is not as detailed as a CT or MRI scan, but it provides helpful information about whether abnormal areas seen on these other tests are likely to be cancer or not.

If you have already been diagnosed with cancer, your doctor may use this test to see if the cancer has spread to lymph nodes or other parts of the body. A PET scan can also be useful if your doctor thinks the cancer may have spread but doesn't know where.

**PET/CT scan:** Some machines can do both a PET and CT scan at the same time. This lets the doctor compare areas of higher radioactivity on the PET scan with the more detailed picture of that area on the CT scan.

## Angiography

Angiography is an [x-ray test](#) for looking at blood vessels. A contrast dye is injected into an artery, and then x-rays are taken. The dye outlines the blood vessels on x-rays.

If your cancer has spread to the liver, this test can show the arteries that supply blood to those tumors. This can help surgeons decide if the liver tumors can be removed and if so, it can help plan the operation. Angiography can also help in planning other treatments for cancer spread to the liver, like [embolization](#).

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# Colorectal Cancer Stages

After someone is diagnosed with colorectal cancer, doctors will try to figure out whether it has spread, and if so, how far. This process is called *staging*. The stage of a cancer describes the extent of the cancer in the body. It helps determine how serious the cancer is and how best to treat it. **The stage is one of the most important factors in deciding how to treat the cancer and determining how successful treatment might be.**

To determine the cancer's stage after a colorectal cancer diagnosis, doctors try to answer these questions:

- How far the cancer has grown into the wall of the intestine
- Has it reached nearby structures
- Has it spread to the nearby lymph nodes or to distant organs

The stage of colorectal cancer is based on the results of physical exams, biopsies, and imaging tests (CT or MRI scan, x-rays, PET scan, etc.), which are described in [Tests for Colorectal Cancer](#) as well as the results of surgery.

## Understanding your colorectal cancer stage

After looking at your test results, your doctor will tell you the stage of your cancer. The staging system most often used for colorectal cancer is the American Joint Committee on Cancer (AJCC) **TNM** system. The TNM system is based on 3 key pieces of information:

- How far the main (primary) **tumor (T)** has grown into the wall of the intestine and whether it has grown into nearby areas.
- If the cancer has spread to nearby (regional) lymph **nodes (N)**. Lymph nodes are small bean-shaped collections of immune system cells to which cancers often spread first.
- If the cancer has spread (**metastasized**) to other organs of the body (**M**). Colorectal cancer can spread almost anywhere in the body, but the most common sites of spread are the liver and lungs.

Numbers or letters after T, N, and M provide more details about each of these factors. Higher numbers mean the cancer is more advanced. Once a person's T, N, and M categories have been determined, usually after surgery, this information is combined in a process called *stage grouping* to assign an overall stage.

The earliest stage cancers are called stage 0 (carcinoma in situ), and then range from stages I (1) through IV (4). Some of the stages have sub-stages with the letters A, B, and C.

As a rule, the lower the number, the less the cancer has spread. A higher number, such as stage IV, means a more advanced cancer. And within a stage, an earlier letter means a lower stage. Cancers with similar stages tend to have a similar outlook and are often treated in much the same way.

The staging system in the table below uses the *pathologic stage*. It is based on the results of physical exam, biopsy, imaging tests, and the results of surgery. This is likely to be more accurate than *clinical staging*, which only takes into account the tests done *before* surgery.

Colorectal cancer staging can be complex. If you have any questions about your stage, please ask your doctor to explain it to you in a way you understand. (An explanation of the TNM system also follows the stage table below.)

Stage	Stage grouping	Stage description
<b>0</b>	<b>Tis, N0, M0</b>	The cancer is in its earliest stage. This stage is also known as carcinoma in situ or intramucosal carcinoma (Tis). It has not grown beyond the inner layer (mucosa) of the colon or rectum.
<b>I</b>	<b>T1 or T2, N0, M0</b>	The cancer has grown through the muscularis mucosa into the submucosa (T1), and it may also have grown into the muscularis propria (T2). It has not spread to nearby lymph nodes (N0). It has not spread to distant sites (M0).
<b>IIA</b>	<b>T3, N0, M0</b>	The cancer has grown into the outermost layers of the colon or rectum but has not gone through them (T3). It has not reached nearby organs. It has not yet spread to nearby lymph nodes (N0) or to distant sites (M0).
<b>IIB</b>	<b>T4a, N0, M0</b>	The cancer has grown through the wall of the colon or rectum but has not grown into other nearby tissues or organs (T4a). It has not yet spread to nearby lymph nodes (N0) or to distant sites (M0).
<b>IIC</b>	<b>T4b, N0, M0</b>	The cancer has grown through the wall of the colon or rectum and is attached to or has grown into other nearby tissues or organs (T4b). It has not yet spread to nearby lymph nodes (N0) or to distant sites (M0).
<b>IIIA</b>	<b>T1 or T2, N1, M0</b>	The cancer has grown through the mucosa into the submucosa (T1), and it may also have grown into the muscularis propria (T2).

		It has spread to 1 to 3 nearby lymph nodes (N1a/N1b) or into areas of fat near the lymph nodes but not the nodes themselves (N1c). It has not spread to distant sites (M0).
	<b>OR</b>	
	<b>T1, N2a, M0</b>	The cancer has grown through the mucosa into the submucosa (T1). It has spread to 4 to 6 nearby lymph nodes (N2a). It has not spread to distant sites (M0).
<b>IIIB</b>	<b>T3 or T4a, N1, M0</b>	The cancer has grown into the outermost layers of the colon or rectum (T3) or through the visceral peritoneum (T4a) but has not reached nearby organs. It has spread to 1 to 3 nearby lymph nodes (N1a or N1b) or into areas of fat near the lymph nodes but not the nodes themselves (N1c). It has not spread to distant sites (M0).
	<b>OR</b>	
	<b>T2 or T3, N2a, M0</b>	The cancer has grown into the muscularis propria (T2) or into the outermost layers of the colon or rectum (T3). It has spread to 4 to 6 nearby lymph nodes (N2a). It has not spread to distant sites (M0).
	<b>OR</b>	
	<b>T1 or T2 N2b, M0</b>	The cancer has grown through the mucosa into the submucosa (T1), and it may also have grown into the muscularis propria (T2). It has spread to 7 or more nearby lymph nodes (N2b). It has not spread to distant sites (M0).
<b>IIIC</b>	<b>T4a, N2a, M0</b>	The cancer has grown through the wall of the colon or rectum (including the visceral peritoneum) but has not reached nearby organs (T4a). It has spread to 4 to 6 nearby lymph nodes (N2a). It has not spread to distant sites (M0).
	<b>OR</b>	
	<b>T3 or T4a, N2b, M0</b>	The cancer has grown into the outermost layers of the colon or rectum (T3) or through the visceral peritoneum (T4a) but has not reached nearby organs. It has spread to 7 or more nearby lymph nodes (N2b). It has not spread to distant sites (M0).
	<b>OR</b>	
	<b>T4b, N1 or N2, M0</b>	The cancer has grown through the wall of the colon or rectum and is attached to or has grown into other nearby tissues or organs (T4b). It has spread to at least one nearby lymph node or into areas of fat near the lymph nodes (N1 or N2). It has not spread to distant sites (M0).
<b>IVA</b>	<b>Any T, Any N, M1a</b>	The cancer may or may not have grown through the wall of the colon or rectum (Any T). It might or might not have spread to nearby lymph nodes. (Any N). It has spread to 1 distant organ



		(such as the liver or lung) or distant set of lymph nodes (M1a).
<b>IVB</b>	<b>Any T, Any N, M1b</b>	The cancer might or might not have grown through the wall of the colon or rectum. It might or might not have spread to nearby lymph nodes. It has spread to more than 1 distant organ (such as the liver or lung) or distant set of lymph nodes, or it has spread to distant parts of the peritoneum (the lining of the abdominal cavity) (M1b).

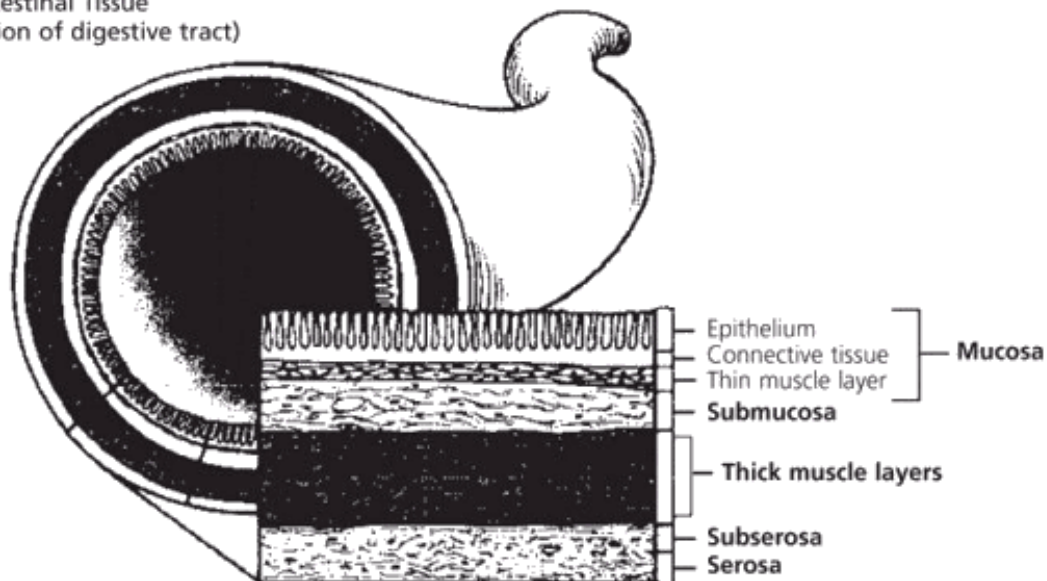
## Explaining the TNM system

### T categories for colorectal cancer

T categories of colorectal cancer describe the extent of spread through the layers that form the wall of the colon and rectum. These layers, from the inner to the outer, include:

- The inner lining (mucosa), which is the layer in which nearly all colorectal cancers start. This includes a thin muscle layer (muscularis mucosa).
- The fibrous tissue beneath this muscle layer (submucosa)
- A thick muscle layer (muscularis propria)
- The thin, outermost layers of connective tissue (subserosa and serosa) that cover most of the colon but not the rectum

Normal Intestinal Tissue  
(Cross section of digestive tract)



The layers of the colon wall

**Tx:** No description of the tumor's extent is possible because of incomplete information.

**Tis:** The cancer is in the earliest stage (in situ). It is only in the mucosa and has not grown beyond the muscularis mucosa (thin inner muscle layer).

**T1:** The tumor has grown through the muscularis mucosa and extends into the submucosa.

**T2:** The tumor has grown through the submucosa and extends into the muscularis propria (thick outer muscle layer).

**T3:** The tumor has grown through the muscularis propria and into the outermost layers of the colon or rectum but not through them. It has not reached any nearby organs or tissues.

**T4a:** The cancer has grown through the serosa (also known as the visceral peritoneum), the outermost lining of the intestines.

**T4b:** The cancer has grown through the wall of the colon or rectum and is attached to or invades into nearby tissues or organs.

## **N categories for colorectal cancer**

**N** categories indicate if the cancer has spread to nearby lymph nodes and, if so, how many lymph nodes are involved. To get an accurate idea about lymph node involvement, most doctors recommend that at least 12 lymph nodes be removed during surgery and looked at under a microscope.

**Nx:** No description of lymph node involvement is possible because of incomplete information.

**N0:** No cancer in nearby lymph nodes.

**N1:** Cancer cells are found in or near 1 to 3 nearby lymph nodes

- **N1a:** Cancer cells are found in 1 nearby lymph node.
- **N1b:** Cancer cells are found in 2 to 3 nearby lymph nodes.
- **N1c:** Small deposits of cancer cells are found in areas of fat near lymph nodes, but not in the lymph nodes themselves.

**N2:** Cancer cells are found in 4 or more nearby lymph nodes

- **N2a:** Cancer cells are found in 4 to 6 nearby lymph nodes.
- **N2b:** Cancer cells are found in 7 or more nearby lymph nodes.

## M categories for colorectal cancer

**M** categories indicate whether or not the cancer has spread (metastasized) to distant organs, such as the liver, lungs, or distant lymph nodes.

**M0:** No distant spread is seen.

**M1a:** The cancer has spread to 1 distant organ or set of distant lymph nodes.

**M1b:** The cancer has spread to more than 1 distant organ or set of distant lymph nodes, or it has spread to distant parts of the peritoneum (the lining of the abdominal cavity).

## Colorectal cancer grades

Another factor that can affect your treatment and your outlook is the grade of your cancer. The grade describes how closely the cancer looks like normal tissue when seen under a microscope.

The scale used for grading colorectal cancers is from 1 to 4.

- Grade 1 (G1) means the cancer looks much like normal colorectal tissue.
- Grade 4 (G4) means the cancer looks very abnormal.
- Grades 2 and 3 (G2 and G3) fall somewhere in between.

The grade is often simplified as either low grade (G1 or G2) or high grade (G3 or G4).

Low-grade cancers tend to grow and spread more slowly than high-grade cancers. Most of the time, the outlook is better for low-grade cancers than it is for high-grade cancers of the same stage. Doctors sometimes use the grade to help decide if a patient should get additional (adjuvant) treatment with chemotherapy after surgery (discussed in more detail in [Chemotherapy for Colorectal Cancer](#)).

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## What Are the Survival Rates for Colorectal Cancer, by Stage?

Survival rates tell you what portion of people with the same type and stage of cancer are still alive a certain amount of time (usually 5 years) after they were diagnosed. They can't tell you how long you will live, but they may help give you a better understanding about how likely it is that your treatment will be successful. Some people will want to know the survival rates for their cancer type and stage, and some people won't. If you don't want to know, you don't have to.

### What is a 5-year survival rate?

Statistics on the outlook for a certain type and stage of cancer are often given as 5-year

survival rates, but many people live longer – often much longer – than 5 years. The 5-year survival rate is the percentage of people who live at least 5 years after being diagnosed with cancer. For example, a 5-year survival rate of 90% means that an estimated 90 out of 100 people who have that cancer are still alive 5 years after being diagnosed. Keep in mind, however, that many of these people live much longer than 5 years after diagnosis.

**Relative survival rates** are a more accurate way to estimate the effect of cancer on survival. These rates compare people with colorectal cancer to people in the overall population. For example, if the 5-year relative survival rate for a specific type and stage of cancer is 90%, it means that people who have that cancer are, on average, about 90% as likely as people who don't have that cancer to live for at least 5 years after being diagnosed.

But remember, the 5-year relative survival rates are estimates – your outlook can vary based on a number of factors specific to you.

## **Cancer survival rates don't tell the whole story**

Survival rates are often based on previous outcomes of large numbers of people who had the disease, but they can't predict what will happen in any particular person's case. There are a number of limitations to remember:

- The numbers below are among the most current available. But to get 5-year survival rates, doctors have to look at people who were treated at least 5 years ago. As treatments are improving over time, people who are now being diagnosed with colorectal cancer may have a better outlook than these statistics show.
- These statistics are based on the stage of the cancer when it was first diagnosed. They do not apply to cancers that later come back or spread, for example.
- The outlook for people with colorectal cancer varies by the [stage](#) (extent) of the cancer – in general, the survival rates are better for people with earlier stage cancers. But many other factors can affect a person's outlook, such as age and overall health, and how well the cancer responds to treatment. The outlook for each person is specific to his or her circumstances.

Your doctor can tell you how these numbers may apply to you, as he or she is familiar with your particular situation.

## **Colon cancer survival rates, by stage**

The numbers below come from the National Cancer Institute's SEER database, looking at people diagnosed with colon cancer between 2004 and 2010.

- The 5-year relative survival rate for people with **stage I** colon cancer is about 92%.
- For people with **stage IIA** colon cancer, the 5-year relative survival rate is about 87%. For **stage IIB** cancer, the survival rate is about 63%.
- The 5-year relative survival rate for **stage IIIA** colon cancers is about 89%. For **stage IIIB** cancers the survival rate is about 69%, and for stage **IIIC** cancers the survival rate is about 53%.
- Colon cancers that have spread to other parts of the body are often harder to treat and tend to have a poorer outlook. Metastatic, or **stage IV** colon cancers, have a 5-year relative survival rate of about 11%. Still, there are often many treatment options available for people with this stage of cancer.

These statistics are based on a previous version of the TNM staging system. In that version, there was no stage IIC (those cancers were considered stage IIB). Also, some cancers that are now considered stage IIIC were classified as stage IIIB, while some other cancers that are now considered stage IIIB were classified as stage IIIC.

Remember, these survival rates are only estimates – they can't predict what will happen to any individual person. We understand that these statistics can be confusing and may lead you to have more questions. Talk to your doctor to better understand your specific situation.

## Rectal cancer survival rates, by stage

The numbers below come from the National Cancer Institute's SEER database, looking at people diagnosed with rectal cancer between 2004 and 2010.

- The 5-year relative survival rate for people with **stage I** rectal cancer is about 87%.
- For people with **stage IIA** rectal cancer, the 5-year relative survival rate is about 80%. For stage IIB cancer, the survival rate is about 49%.
- The 5-year relative survival rate for **stage IIIA** rectal cancers is about 84%. For **stage IIIB** cancers the survival rate is about 71%, and for **stage IIIC** cancers the survival rate is about 58%.
- Rectal cancers that have spread to other parts of the body are often harder to treat and tend to have a poorer outlook. Metastatic, or **stage IV** rectal cancers, have a 5-year relative survival rate of about 12%. Still, there are often many treatment options available for people with this stage of cancer.

These statistics are based on a previous version of the TNM staging system. In that version, there was no stage IIC (those cancers were considered stage IIB). Also, some cancers that are now considered stage IIIC were classified as stage IIIB, while some other cancers that are now considered stage IIIB were classified as stage IIIC.

Remember, these survival rates are only estimates – they can't predict what will happen to any individual person. We understand that these statistics can be confusing and may lead you to have more questions. Talk to your doctor to better understand your specific situation.

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# What Should You Ask Your Doctor About Colorectal Cancer?

It's important to have frank, open discussions with your cancer care team. They want to answer all of your questions, so that you can make informed treatment and life decisions. For instance, consider these questions:

## When you're told you have colorectal cancer

- Where is the cancer located?
- Has the cancer spread beyond where it started?
- What is the cancer's [stage](#) (extent), and what does that mean?
- Will I need other [tests](#) before we can decide on treatment?
- Do I need to see any other doctors or health professionals?
- If I'm concerned about the costs and insurance coverage for my diagnosis and treatment, who can help me?

## When deciding on a treatment plan

- What are my [treatment options](#)?
- What do you recommend and why?
- How much experience do you have treating this type of cancer?
- Should I get a second opinion? How do I do that? Can you recommend someone?
- What would the goal of the treatment be?
- How quickly do we need to decide on treatment?
- What should I do to be ready for treatment?
- How long will treatment last? What will it be like? Where will it be done?
- What risks or side effects are there to the treatments you suggest? Are there things I can do to reduce these side effects?
- How might treatment affect my daily activities? Can I still work full time?
- What are the chances the cancer will recur (come back) with these treatment plans?
- What will we do if the treatment doesn't work or if the cancer recurs?
- What if I have transportation problems getting to and from treatment?



## During treatment

Once treatment begins, you'll need to know what to expect and what to look for. Not all of these questions may apply to you, but asking the ones that do may be helpful.

- How will we know if the treatment is working?
- Is there anything I can do to help manage side effects?
- What symptoms or side effects should I tell you about right away?
- How can I reach you on nights, holidays, or weekends?
- Do I need to change what I eat during treatment?
- Are there any limits on what I can do?
- Can I exercise during treatment? If so, what kind should I do, and how often?
- Can you suggest a mental health professional I can see if I start to feel overwhelmed, depressed, or distressed?
- What if I need social support during treatment because my family lives far away?

## After treatment

- Do I need a special diet after treatment?
- Are there any limits on what I can do?
- What other symptoms should I watch for?
- What kind of exercise should I do now?
- What type of follow-up will I need after treatment?
- How often will I need to have follow-up exams and imaging tests?
- Will I need any blood tests?
- How will we know if the cancer has come back? What should I watch for?
- What will my options be if the cancer comes back?

Along with these sample questions, be sure to write down some of your own. For instance, you might want more information about recovery times. Or you may want to ask about [clinical trials](#) for which you may qualify.

Keep in mind that doctors aren't the only ones who can give you information. Other health care professionals, such as nurses and social workers, can answer some of your questions. To find out more about speaking with your health care team, see [The Doctor-Patient Relationship](#).

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