



Colorectal Cancer Overview

The information that follows is an overview of this type of cancer. It is based on the more detailed information in our document, *Colorectal Cancer*. This document and other information can be obtained by calling 1-800-227-2345 or visiting our Web site at www.cancer.org.

What is cancer?

The body is made up of trillions of living cells. Normal body cells grow, divide, and die in an orderly way. During the early years of a person's life, normal cells divide faster to allow the person to grow. After the person becomes an adult, most cells divide only to replace worn-out, damaged, or dying cells.

Cancer begins when cells in a part of the body start to grow out of control. There are many kinds of cancer, but they all start because of this out-of-control growth of abnormal cells.

Cancer cell growth is different from normal cell growth. Instead of dying, cancer cells keep on growing and form new cancer cells. These cancer cells can grow into (invade) other tissues, something that normal cells cannot do. Being able to grow out of control and invade other tissues are what makes a cell a cancer cell.

In most cases the cancer cells form a tumor. But some cancers, like leukemia, rarely form tumors. Instead, these cancer cells are in the blood and bone marrow.

When cancer cells get into the bloodstream or lymph vessels, they can travel to other parts of the body. There they begin to grow and form new tumors that replace normal tissue. This process is called *metastasis* (muh-**tas**-tuh-sis).

No matter where a cancer may spread, it is always named for the place where it started. For instance, breast cancer that has spread to the liver is still called breast cancer, not liver cancer. Likewise, prostate cancer that has spread to the bone is called metastatic prostate cancer, not bone cancer.

Different types of cancer can behave very differently. For example, lung cancer and breast cancer are very different diseases. They grow at different rates and respond to different treatments. That is why people with cancer need treatment that is aimed at their own kind of cancer.

Not all tumors are cancerous. Tumors that aren't cancer are called *benign* (be-**nine**). Benign tumors can cause problems-- they can grow very large and press on healthy organs and tissues. But they cannot grow into other tissues. Because of this, they also can't spread to other parts of the body (metastasize). These tumors are almost never life threatening.

What is colorectal cancer?

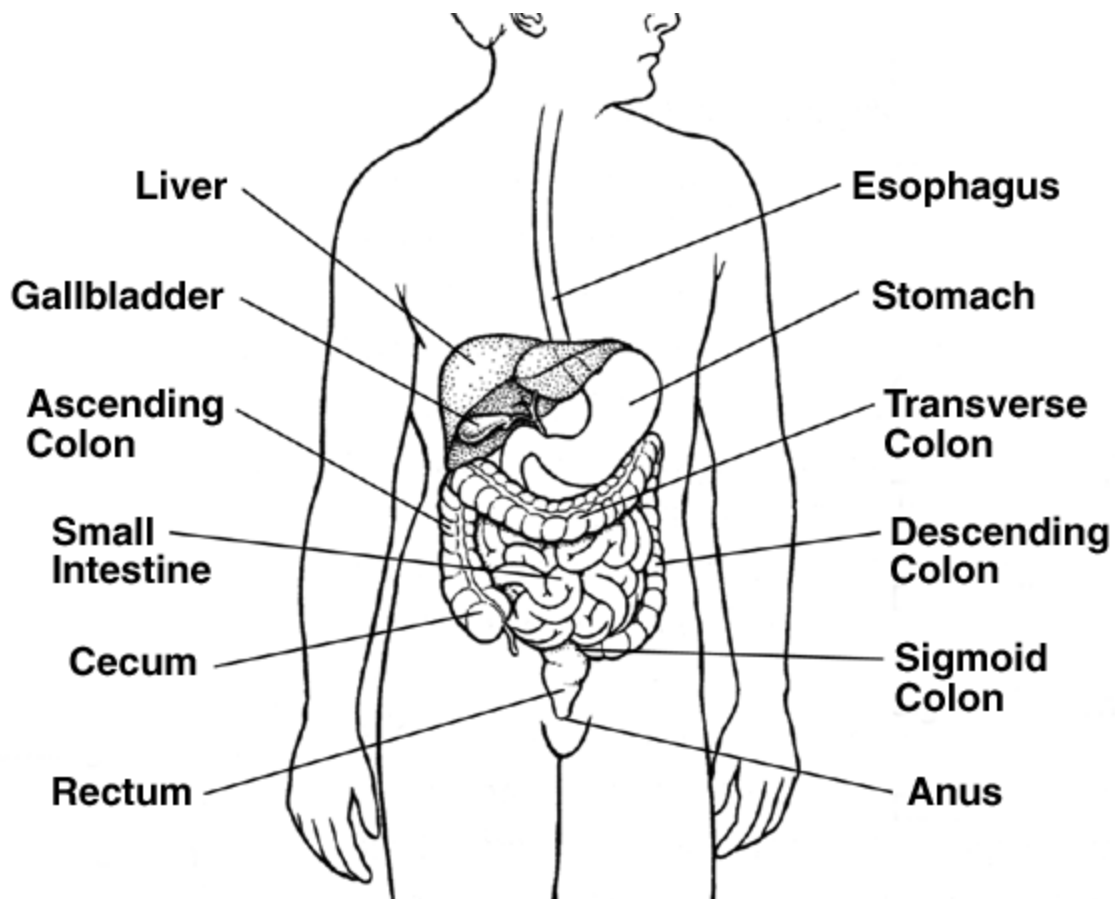
Colorectal cancer is cancer that starts in either the colon or the rectum. Colon cancer and rectal cancer have many features in common. They are discussed together here except for the section about treatment, where they are discussed separately.

The normal digestive system

Colon and rectal cancers begin in the digestive system, also called the GI (gastrointestinal) system (see the picture below). The digestive system processes food for energy, and the last part of it absorbs fluid to form solid waste (stool) that then passes from the body. In order to understand colorectal cancer, it helps to know something about the structure of the digestive system and how it works.

After food is chewed and swallowed, it travels to the stomach. There it is partly broken down and sent to the small intestine. The word "small" refers to the width of the small intestine. In fact, the small intestine is the longest part of the digestive system -- about 20 feet.

The small intestine also breaks down the food and absorbs most of the nutrients. It leads to the large intestine (also called the large bowel or colon), a muscular tube about 5 feet long. The colon absorbs water and nutrients from the food and also serves as a storage place for waste matter. The waste matter (stool) moves from the colon into the rectum, the last 6 inches of the digestive system. From there the waste passes out of the body through the opening called the anus.



The wall of the colon and rectum is made up of layers of tissues. Colorectal cancer starts in the inner layer and can grow through some or all of the other layers. The stage (extent of spread) of a cancer depends to a great degree on how deep the cancer goes into these layers.

Abnormal growths in the colon or rectum

Cancer that starts in these different areas may cause different symptoms. But colon cancer and rectal cancer have many things in common. In most cases, colorectal cancers develop slowly over many years. We now know that most of these cancers start as a polyp -- a growth of tissue that starts in the lining and grows into the center of the colon or rectum. This tissue may or may not be cancer. A type of polyp known as an *adenoma* can become cancer. Removing a polyp early may keep it from becoming cancer.

Over 95% of colon and rectal cancers are *adenocarcinomas*. These are cancers that start in the cells that line the inside of the colon and rectum. There are some other, more rare, types of tumors of the colon and rectum. The information here is only for adenocarcinomas in the colon or rectum.

How many people get colorectal cancer?

The American Cancer Society's most recent estimates for colorectal cancer in the United States are for 2012:

- About 103,170 new cases of colon cancer
- About 40,290 new cases of rectal cancer
- About 51,690 deaths from colorectal cancer

Not counting skin cancers, colorectal cancer is the third most common cancer found in men and women in this country. Overall, the lifetime risk of developing colorectal cancer is about 1 in 20.

The death rate from colorectal cancer has been going down for more than 20 years. One reason is that there are fewer cases. Thanks to colorectal cancer screening, polyps can be found and removed before they turn into cancer. And colorectal cancer can also be found earlier when it is easier to cure. Treatments have improved, too.

What are the risk factors for colorectal cancer?

While we do not know the exact cause of most colorectal cancers, there are certain known risk factors. A risk factor is something that affects a person's chance of getting a disease. Some risk factors, like smoking, can be controlled. Others, such as a person's age, can't be changed.

But risk factors don't tell us everything. Having a risk factor, or even several, does not mean that you will get the disease. And some people who get colorectal cancer may not have any known risk factors. Even if a person with colorectal cancer has a risk factor, it is often very hard to know what part that risk factor may have played in the development of the disease.

Researchers have found some risk factors that may increase a person's chance of getting polyps or colorectal cancer.

Risk factors you cannot change

Age: The chances of having colorectal cancer go up after age 50. More than 9 out of 10 people with colorectal cancer are older than 50.

Having had polyps or colorectal cancer before

Some types of polyps increase the risk of colorectal cancer, especially if they are large or if there are many of them. If you have had colorectal cancer (even if it has been completely removed), you are more likely to have new cancers start in other areas of your

colon and rectum. The chances of this happening are greater if you had your first colorectal cancer when you were younger.

Having a history of bowel disease

Inflammatory bowel diseases, like *ulcerative colitis* and *Crohn's disease*, increase the risk of colon cancer. In these diseases, the colon is inflamed over a long time. If you have one of these diseases your doctor may want you to have colon screening testing more often. (These diseases are different than *irritable bowel syndrome* (IBS), which does not increase colorectal cancer risk.)

Family history of colorectal cancer

If you have close relatives (parents, brothers/sisters, or children) who have had this cancer, your risk might be increased. This is especially true if the family member got the cancer at a younger age. People with a family history of colorectal cancer should talk to their doctors about when and how often to have screening tests.

Certain family syndromes

A syndrome is a group of symptoms. The 2 most common inherited syndromes linked with colorectal cancers are familial adenomatous polyposis (FAP) and hereditary non-polyposis colorectal cancer (HNPCC).

Familial adenomatous polyposis (FAP): FAP is caused by changes (mutations) a gene that a person inherits from his or her parents. About 1% of all colorectal cancers are due to FAP.

People with FAP typically get hundreds or thousands of polyps in their colon and rectum, most often in their teens or as early adults. Cancer often starts in one or more of these polyps as early as age 20. By age 40, almost all people with this disorder will have cancer if surgery to remove the colon is not done.

Hereditary non-polyposis colon cancer (HNPCC): HNPCC (also known as Lynch syndrome) accounts for about 3% to 5% of all colorectal cancers. It can be caused by inherited changes in a number of different genes that normally help repair DNA damage.

The cancers that occur as a part of this syndrome also happen when people are fairly young. People with HNPCC may also have polyps, but they only have a few, not hundreds as in FAP. The lifetime risk of colorectal cancer in people with this condition may be as high as 80%. Women with this condition also have a very high risk of getting cancer of lining of the uterus. Other cancers are also linked with HNPCC.

If your doctor tells you that you have a condition that makes you or your family members more likely to get colorectal cancer, you will most likely need to begin colon cancer testing at a younger age, and you might want to think about genetic counseling.

Race or ethnic background

Some racial and ethnic groups such as African Americans and Jews of Eastern European descent (Ashkenazi Jews) have a higher colorectal cancer risk. Among Ashkenazi Jews, several gene mutations have been found that lead to an increased risk of colorectal cancer.

Risk factors linked to things you do

Some lifestyle-related factors have been linked to colorectal cancer. In fact, the links between diet, weight, and exercise and colorectal cancer risk are some of the strongest for any type of cancer.

Certain types of diets

A diet that is high in red meats (beef, lamb, or liver) and processed meats (like hot dogs, bologna, and lunch meat) can increase your colorectal cancer risk. Cooking meats at very high heat (frying, broiling, or grilling) can create chemicals that might increase cancer risk. Diets high in vegetables, fruits, and whole grains have been linked with a lower risk of colorectal cancer, but fiber supplements do not seem to help.

Lack of exercise

Getting more exercise may help reduce your risk.

Being overweight

Being very overweight (or obese) increases a person's risk of having and dying from colorectal cancer.

Smoking

Most people know that smoking causes lung cancer, but long-time smokers are more likely than non-smokers to get colorectal cancer. Smoking also increases the risk of many other cancers.

Alcohol use

Heavy use of alcohol has been linked to colorectal cancer. Men should limit their use to no more than 2 drinks a day and women no more than one.

Type 2 diabetes

People with type 2 diabetes have an increased chance of getting colorectal cancer. They also tend to have a worse outlook (prognosis).

The American Cancer Society and several other medical organizations recommend earlier testing for people with increased colorectal cancer risk. These recommendations differ from those for people at average risk. For more information, talk with your doctor.

Can colorectal cancer be prevented?

Even though we don't know exactly what causes colorectal cancer, there are some steps you can take to reduce your risk.

Screening tests

Regular colorectal cancer screening or testing is one of the best ways to help prevent colorectal cancer. Screening is the process of looking for cancer in people who don't have any symptoms of the disease. Some polyps, or growths, can be found and removed before they have the chance to turn into cancer. Screening can also help find colorectal cancer early, when it is small and more likely to be cured. People who have no known risk factors (other than age) should begin screening at age 50. Those who have a family history or other risk factors for colorectal polyps or cancer (such as inflammatory bowel disease) should talk with their doctor about starting screening at a younger age or getting screened more often.

If you have a history of colorectal cancer in your family, you should talk with your doctor about when and how often to have screening tests.

Genetic testing, screening, and treatment for those with a strong family history

If you have a strong family history of colorectal polyps or cancer, you should think about getting genetic counseling to help you decide whether genetic testing or earlier screening may be right for you. Before getting genetic testing, it's good to know ahead of time what the results may or may not tell you about your risk. These tests are not perfect, and in some cases they may not be able to give you solid answers. This is why meeting with a genetic counselor before testing is a key part of choosing whether testing is right for you.

Diet, exercise, and body weight

Most studies have found that being overweight or obese increases the risk of colorectal cancer in both men and women, but the link seems to be stronger in men. Having more belly fat (that is, a larger waistline) has also been linked to colorectal cancer.

Overall, diets that are high in vegetables, fruits, and whole grains (and low in red and processed meats) have been linked with lower colorectal cancer risk, although it's not exactly clear which factors are important. Many studies have found a link between red meat or processed meat intake and colorectal cancer risk.

Studies show a lower risk of colorectal cancer and polyps with higher levels of activity. Moderate activity on a regular basis lowers the risk, but vigorous activity may have an even greater benefit.

In recent years, some large studies have suggested that fiber intake, especially from whole grains, may lower colorectal cancer risk. Research in this area is still under way.

Several studies have found a higher risk of colorectal cancer with increased alcohol intake, especially among men.

At this time, the best advice about diet and activity to perhaps reduce your risk of colorectal cancer is to:

- Increase the intensity and amount of physical activity.
- Limit intake of red and processed meats.
- Get the recommended levels of calcium and vitamin D (see below).
- Eat more vegetables and fruits.
- Avoid obesity and weight gain around the midsection.
- Avoid too much alcohol.

To find out more about diet and physical activity, refer to our document, *American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention*.

Vitamins and minerals

Studies looking to see if taking a vitamin or mineral supplement could help lower risk have not had clear results. Some studies suggested that taking a daily multi-vitamin that contained folic acid or folate could help lower colorectal cancer risk, but other studies did not. In fact, some studies have hinted that folic acid might help existing tumors grow. More research is needed in this area.

Some studies have suggested that vitamin D, which you can get from the sun, in certain foods, or in a vitamin pill, can lower colorectal cancer risk. Because of concerns that too much sun exposure can cause skin cancer, most experts do not recommend this as a way to lower colorectal cancer risk at this time.

Other studies suggest that getting more calcium may lower colorectal cancer risk. But because of the possible increased risk of prostate cancer in men with high calcium intake, the ACS does not recommend increasing calcium intake specifically to try to lower cancer risk.

Some studies found a link between a diet high in magnesium and lower colorectal cancer risk, with the strongest link in women. But not all studies have found this lowered risk. More research is needed on this subject.

Aspirin and other drugs

Aspirin and drugs like ibuprofen (Motrin[®], Advil[®]) and naproxen (Aleve[®]), seem to lower the risk of colorectal cancer and polyps. But these medicines can have serious or even life-threatening side effects such as stomach bleeding. For this reason, experts do not advise the general public to take them to try to prevent colorectal cancer. If you are at high risk for colorectal cancer, talk to your doctor about what you should do.

Female hormones

Combined hormone replacement therapy (HRT) in women after menopause may reduce their risk of getting colorectal cancer. But HRT increases the risk of other cancers, such as breast cancer. And those women on HRT who do get colorectal cancer may have a faster growing type. The decision to use HRT should be based on a careful discussion of benefits and risks with your doctor.

Some studies have found that the use of birth control pills may lower the risk of colorectal cancer in women. More research is needed to confirm this link.

How is colorectal cancer found?

Colorectal cancer screening tests

Screening tests are used to look for disease in people who do not have any symptoms. In many cases, these tests can find colorectal cancers at an early stage and greatly improve treatment outcomes. Screening tests can also help prevent some cancers by allowing doctors to find and remove polyps that might become cancer. The tests used to screen for polyps and colorectal cancer can be divided into 2 broad groups:

- **Tests that can find both colorectal polyps and cancer:** These tests are done either by looking at the colon using a scope that is put into the rectum or with special x-ray tests. Polyps found before they become cancer can be removed, so these tests may prevent colorectal cancer. This is why these tests are preferred if they are available and you are willing to have them.
- **Tests that mainly find cancer:** These involve testing the stool (feces) for signs of cancer. These tests are easier to have done, but they are less likely to find polyps.

Tests that can find both colorectal polyps and cancer

Flexible sigmoidoscopy (flex-sig)

A sigmoidoscope is a thin, flexible, lighted tube about the thickness of a finger. It is put into the lower part of the colon through the rectum. This allows the doctor to look at the inside of the rectum and part of the colon for cancer or polyps. Because the tube is only about 2 feet long, the doctor is only able to see about half of the colon. This test may be uncomfortable because air is put into the colon, but it should not be painful.

Be sure your doctor knows about any medicines you are taking, as you may need to change how you take them before the test. You will also need to take some medicine to clean out your colon and rectum. This is so the doctor can clearly see the lining. If a small polyp is found the doctor may remove it during this test. This can be done with tools used through the scope. If an adenoma polyp or colorectal cancer is found during the flex-sig, you will need to have a colonoscopy to look for polyps or cancer in the rest of the colon.

A sigmoidoscopy usually takes 10 to 20 minutes. Most people do not need to be given drugs to sleep (sedate) them for this test, but this may be an option you can discuss with your doctor. Sedation may make the test easier, but you will need some time to recover, and someone will need to take you home after the test.

Colonoscopy

A colonoscope is a longer version of the sigmoidoscope. It is used the same way but allows the doctor to see the entire colon. If a polyp is found, the doctor may remove it. If anything else does not look normal, a biopsy might be done. To do this, a small piece of tissue is taken out through the colonoscope. The tissue is sent to the lab to see if cancer cells are present.

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

Before the test: The colon and rectum must be empty and clean. You will not be allowed to eat for a certain time and will need to take some medicine to clean out your colon. The medicine is often given the day before the test and you may need an enema that morning. You will be given exact instructions on what to do. Be sure to read these carefully a few days ahead of time since you may need to shop for special supplies and get laxatives from a drug store. If you are not sure about anything, call the doctor's office and go over things step by step with the nurse.

Be sure your doctor is aware of any medicines you are taking, as you may need to change how you take them before the test. Many people find the bowel preparation to be the worst part of the test because you will most likely be in the bathroom much of the night before the exam. You may be given other instructions, too, such as foods to avoid for a certain amount of time before the test.

During the test: The test itself usually takes about 30 minutes, but it may take longer if a polyp is found and removed. Before the test begins, you will be given medicine through a vein to make you feel comfortable and sleepy. You may be awake, but you will not be aware of what is going on and may not remember the test afterward. Most people will be fully awake by the time they get home from the test.

If a small polyp is found, the doctor may remove it. If your doctor sees a larger polyp or tumor or anything else not normal, a biopsy may be done. To do this, a small piece of tissue is taken out through the colonoscope. The tissue is looked at under a microscope to see whether it is a cancer, a benign (non-cancer) growth, or a result of inflammation.

After the test: You may need to have someone drive you home from the test because the medicine used during the test that can leave you groggy. Most doctors require that

someone you know drive you home (not a taxi). Some people may have gas pains or cramping for a while after the test, but most feel fine once the drugs wear off.

Possible problems: In some cases, people may have low blood pressure or changes in heart rhythms from the drugs used during the test, but these are rarely serious. If a polyp is removed or a biopsy is done during the colonoscopy, you may notice some blood in your stool for a day or 2 after the test.

Colonoscopy is a safe test, but rarely the colonoscope can puncture the wall of the colon or rectum. This is called a perforation. It can be a serious problem and surgery might be needed to fix it.

Double contrast barium enema

This test is also called a DCBE or a *lower GI series*. To do this test a chalky liquid substance is used to partly fill and open up the colon. Air is then pumped in to expand the colon. This allows good x-ray pictures to be taken. If an area does not look normal you will need to have a colonoscopy.

The preparation for this test is much like that for the colonoscopy (above), but for the DCBE you will not be given drugs to make you sleepy. It takes about 30 to 45 minutes to do this test. A small, flexible tube is put into the rectum, and barium sulfate is pumped in to partly fill and open up the colon. When the colon is about half-full of barium, you are turned on the x-ray table so the barium spreads throughout the colon. Then air is pumped into the colon through the same tube. This may cause discomfort and you may feel like you have to have a bowel movement. You may have bloating or cramping after the test and will likely 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.

Virtual colonoscopy

You can think of this as a super x-ray or an advanced CT scan of the colon. The CT scanner takes many pictures as it rotates around you while you lie on a table. A computer then combines these pictures into images of slices of the colon and rectum. Virtual colonoscopy (also called *CT colonography*) involves the use of special computer programs to create both 2 dimensional x-ray pictures and a 3-D "fly-through" view of the inside of the colon and rectum which allows the doctor to look for polyps or cancer.

This test may be useful for some people who can't have or don't want to have tests where a scope is put in the colon or rectum. It can be done fairly quickly and you do not need drugs to make you sleepy. But while this test does not mean a scope will be put into your colon like colonoscopy, you still need to do the same type of bowel preparation and a short tube will be put in your rectum to fill your colon with air. If polyps or other problems are seen on this test, a colonoscopy will likely be needed to remove them or to get a better look at them.

Tests that mainly find colorectal cancer

These tests are used to find small amounts of hidden (occult) blood in the stool. Most people find these tests are easier because they can often be done at home. But they are not as good at finding polyps as the tests described above, and a positive result on one of these screening tests will likely mean you will need a test like a colonoscopy.

These tests have different names such as

- FOBT (fecal occult blood test)
- FIT (fecal immunochemical test)
- iFOBT (immunochemical fecal occult blood test)

They are all alike in that you will need to collect samples of your stool (bowel movement) to be sent to a lab for testing. They differ in the exact way in which you collect the samples and in how the samples are studied in the lab.

If you are having one of these tests, the doctor or nurse will give you a kit with exact instructions on what to do ahead of time (there may be some limits on what you can eat or drink or medicines that you take) and how to collect the samples.

Some people who are given the kits never do the test or don't give it to their doctor because they worry that they might not have followed the instructions right. Be sure to talk to your doctor or nurse if you have any questions about what you should do or how to collect the samples. The most important thing is to get the test done.

Most of these tests need to be done every year, and -- as mentioned before -- if the lab spots any problems, you will need to have more tests such as a colonoscopy. For more details about these tests, please see, *Colorectal Cancer Early Detection*.

Preventing colorectal cancer or finding it early

Colon cancer begins with a growth (a polyp) that is not yet cancer. Testing can help your doctor tell whether there is a problem, and some tests can find polyps before they become cancer. Most people who have polyps removed never get colon cancer. If colon cancer is found, you have a good chance of beating it with treatment if it is found early. Testing can find it early.

The American Cancer Society believes that preventing colorectal cancer (and not just finding it early) should be a major reason for getting tested. Finding and removing polyps keeps some people from getting colorectal cancer. Tests that have the best chance of finding both polyps and cancer should be your first choice if these tests are available to you and you are willing to have them.

Doctors will take into account a number of things when they talk to you about the tests you should have, how often you should have them, and when you should begin testing. These factors include whether you are at average, increased, or high risk for colorectal cancer. If you are at increased or high risk, the type of test used and how often it is done

will depend on whether you have had polyps, cancer, or certain other diseases, as well as your family history.

In general, both men and women at average risk of colorectal cancer should begin screening tests at age 50. But you should talk with your doctor about your own health and your family history so that you can choose the best screening plan for you.

For more detailed information about the American Cancer Society's recommendations for screening, please see our document, *Colorectal Cancer Early Detection*.

Insurance coverage for colorectal cancer screening

There are good colorectal cancer screening tests, but not enough people have them done. Some of the reasons for this include not knowing about screening tests, costs, and not having health insurance.

Laws on insurance coverage for colorectal cancer screening tests vary by state. The same is true of state Medicaid programs. For people with Medicare, coverage begins at age 50 for the most common colorectal cancer screening tests.

For more information on insurance coverage for colorectal cancer screening tests, please see our document, *Colorectal Cancer Early Detection*.

How is colorectal cancer diagnosed?

Most people with early colon cancer don't have symptoms. Symptoms usually are seen with more advanced disease. If something of concern turns up as a result of screening or if you have symptoms, you will need more tests.

Signs and symptoms of colorectal cancer

If you have any of the following you should see a doctor:

- A change in bowel habits such as diarrhea, constipation, or narrow stool that lasts for more than a few days
- A feeling that you need to have a bowel movement that doesn't go away after doing so
- Rectal bleeding, dark stools, or blood in the stool (often, though, the stool will look normal)
- Cramping or stomach pain
- Weakness and tiredness
- Weight loss that you did not expect

Most of these symptoms are more often caused by something other than colorectal cancer. Still, if you have any of these problems, it's important to see a doctor right away so the cause can be found and treated, if needed.

If there is any reason to suspect colon or rectal cancer you will need to have more tests to find out if the disease is really present and, if so, to see how far it has spread. Some of these tests are the same ones that are used for screening people who do not have symptoms. (See "Tests that can find both colorectal polyps and cancer" in the "How is colorectal cancer found?" section.)

Medical history and physical exam

Your doctor will ask you questions about your health, talk to you about your family history, and do a complete physical exam.

Blood tests

Your doctor may do certain blood tests to help find out if you have colorectal cancer. People with colorectal cancer often have low red blood cell counts (anemia) because of bleeding from the tumor. You might also have blood tests to check your liver function because colorectal cancer can spread to the liver.

There are other substances (called tumor markers) in the blood that can help tell how well treatment is working. But these tumor markers are not used to find cancer in people who have not had cancer and who seem to be healthy. They are most often used for follow-up of people who have already been treated for colorectal cancer.

Tests to look for colorectal polyps or cancer

If symptoms or the results of the physical exam or blood tests suggest that you might have colorectal cancer, your doctor may want to do some more tests. These tests might include those described earlier in "Tests that can find both colorectal polyps and cancer" in the "How is colorectal cancer found?" section.

Biopsy and lab test of samples

In a biopsy, the doctor removes a small piece of tissue with a special tool passed through the scope. This is done during a colonoscopy. A biopsy will be done on any part of the colon or rectum that does not look normal. The tissue is sent to the lab where it is looked at under a microscope to see if cancer is present. While other tests may suggest colorectal cancer, a biopsy is the only way to know for sure.

Other lab tests may also be done on biopsy samples to reveal more details about the cancer. Doctors may look for certain gene changes in the cancer cells that might affect how the cancer is best treated.

Imaging tests

The tests described below make pictures of the inside of your body. Imaging tests may be done for many reasons. They may be done to help find out whether an area might be cancer, to learn how far cancer may have spread, or to help learn whether treatment is working.

Computed tomography (CT or CAT) scan

A CT scan uses x-rays to take many pictures of the body that are then combined by a computer to give a detailed picture. A CT scan can often show whether the cancer has spread to the liver, lungs, or other organs. CT scans take longer than regular x-rays. The patient has to lie still on a table while the CT scan is being done. A contrast dye may be put into a vein or a special drink used to help outline the area being looked at. The dye can cause some flushing (redness and warm feeling). Some people are allergic and get hives or, rarely, more serious reactions like trouble breathing and low blood pressure. Be sure to tell the doctor if you have any allergies or if you ever had a reaction to any contrast dye used for x-rays.

CT scans can also be used to guide a biopsy needle into a tumor. For this to be done, the patient stays on the CT table while a radiologist moves a biopsy needle through the skin and toward the mass. A tiny piece of tissue or a thin cylinder of tissue is then removed and looked at under a microscope.

Ultrasound

Ultrasound uses sound waves to make a picture of the inside of the body. Most people know about ultrasound because it is often used to look at a baby during pregnancy. This is an easy test to have. The patient simply lies on a table while a kind of wand is moved over the skin of the belly.

Two special types of ultrasound might be used for people with colon or rectal cancer. In one, the wand that gives off sound waves is placed into the rectum to look for cancer there and to see if it has spread to nearby organs or tissues. In the other test, used during surgery, the wand is placed against the surface of the liver to see if the cancer has spread there.

Magnetic resonance imaging (MRI) scans

Like CT scans, MRIs show a cross-section of the body. But MRI uses radio waves and strong magnets instead of radiation to take pictures. As with CT scans, a contrast dye may be used, but this is not common. MRI scans are sometimes useful in looking at places in the liver where cancer might have spread. They can also help the doctor learn whether rectal cancers have spread into nearby tissues. MRIs take longer than CT scans and the patient has to lie inside a narrow tube for the test. This can feel confining and upset people with a fear of closed spaces. The machine also makes thumping and buzzing noises, but some places give you headphones with music to block this out.

Chest X-ray

This test may be done to see whether colorectal cancer has spread to the lungs.

Positron emission tomography (PET) scan

In this test, a type of radioactive sugar is put into your vein. Over a certain amount of time the sugar moves through the body and is taken in by the cancer cells. Then you are put into the PET machine where a special camera can detect the radioactivity. Because the cancer cells absorb large amounts of the sugar they show up on the pictures as dark "hot spots." PET looks at your whole body, and is useful when the doctor thinks the cancer has spread, but doesn't know where. Special machines are able to do both a PET and CT scan at the same time (called a PET/CT scan). This allows the doctor to compare hot spots on the PET scan with the more detailed pictures from the CT scan.

Angiography

Angiography is an x-ray done to look at blood vessels. For this test, a thin tube (called a catheter) is put into a blood vessel and moved until it reaches the area to be studied. (The skin is numbed before the tube is put in.) Then a dye is pushed through the catheter and x-ray pictures are taken. When the pictures are done, the catheter is taken out. Surgeons sometimes use this test to show blood vessels next to cancer that has spread to the liver. This can help surgeons decide whether a cancer can be removed and if so, it can help in planning the operation.

Staging of colorectal cancer

Staging is the process of finding out how far the cancer has spread. This is very important because your treatment and the outlook for your recovery depend on the stage of your cancer. For early cancer, surgery may be all that is needed. For more advanced cancer, other treatments like chemotherapy or radiation therapy may be used.

There is more than one system for staging colorectal cancer. Some use numbers and others use letters. But all systems describe the spread of the cancer through the layers of the wall of the colon or rectum. They also take into account whether the cancer has spread to nearby organs or to organs farther away.

Stages are often labeled using Roman numerals I through IV (1-4). As a rule, the lower the number, the less the cancer has spread. A higher number, such as stage IV (4), means a more advanced cancer.

There are really 2 types of staging for colorectal cancer.

- The *clinical stage* is your doctor's best estimate of the extent of your disease, based on the results of the physical exam, biopsy, and any imaging tests you have had.

- If you have surgery, your doctor can also figure out the *pathologic stage*, which is based on the same factors as the clinical stage, plus what is found as a result of the surgery.

In some cases, the clinical and pathologic stages may be different. During surgery the doctor may find cancer in a place that did not show up on imaging tests. This might give the cancer a more advanced pathologic stage.

Because most patients with colorectal cancer have surgery, the pathologic stage is most often used to describe the extent of this cancer. Pathologic staging is likely to be more accurate than clinical staging.

Grade of colorectal cancer

Another factor that can affect the outlook for survival is the *grade* of the cancer. Grade is a description of how closely the cancer looks like normal colorectal tissue under a microscope.

Low-grade means the tissue looks more normal; high-grade means the tissue looks less normal. Most of the time, the outlook is not as good for high-grade cancers as it is for low-grade cancers. Doctors sometimes use the grade to help decide whether a patient should get more treatment with chemotherapy after surgery.

Survival rates for colorectal cancer

Some people with cancer may want to know the survival rates for their type of cancer. Others may not find the numbers helpful, or may even not want to know them. Whether or not you want to read about survival rates is up to you.

The 5-year survival rate is the percentage of patients who are alive 5 years after their cancer is found. The numbers here include people diagnosed with colon cancer who may have later died from other causes, such as heart disease.

People with colon cancer tend to be older and may have other serious health conditions. This means the percentage of people surviving the colon cancer itself is likely to be higher, and many of them live much longer than 5 years.

While the numbers below are among the most current we have, they are from people who were first treated many years ago. Because cancer treatment continues to improve, the survival rates for people now may be higher.

Survival rates for colon cancer by stage

Stage	5-year Survival Rate
I	74%
IIA	67%

IIB	59%
II C	37%
IIIA	73%*
IIIB	46%
IIIC	28%
IV	6%

**In this study, survival was better for some stage IIIA than for some stage IIB. The reasons for this are not clear.*

Survival rates for rectal cancer by stage

Stage	5-year Survival Rate
I	74%
IIA	65%
IIB	52%
IIIC	32%
IIIA	74%*
IIIB	45%*
IIIC	33%
IV	6%

**In this study, survival was better for some stage III cancers than for some stage II cancers. The reasons for this are not clear.*

These numbers give you an overall picture, but keep in mind that every person is different and statistics can't predict exactly what will happen in your case. Talk with your cancer care team if you have questions about your own chances of a cure or how long you might survive your cancer. They know your situation best.

How is colorectal cancer treated?

This information represents the views of the doctors and nurses serving on the American Cancer Society's Cancer Information Database Editorial Board. These views are based on their interpretation of studies published in medical journals, as well as their own professional experience.

The treatment information in this document is not official policy of the Society and is not intended as medical advice to replace the expertise and judgment of your cancer care team. It is intended to help you and your family make informed decisions, together with your doctor.

Your doctor may have reasons for suggesting a treatment plan different from these general treatment options. Don't hesitate to ask him or her questions about your treatment options.

About treatment

The 4 main types of treatment for colorectal cancer are:

- Surgery
- Radiation therapy
- Chemotherapy ("chemo")
- Targeted therapies (like monoclonal antibodies)

Depending on the stage of your cancer, 2 or more types of treatment may be used at the same time, or used one after the other.

Take your time and think about all of your treatment choices. You may want to get a second opinion. This can give you more information and help you feel better about the treatment plan you choose. Your chances of having a good outcome are highest in the hands of a medical team that has experience in treating colorectal cancer.

Surgery for colorectal cancer

The types of surgery used to treat colon and rectal cancers differ slightly so they are described separately.

Colon surgery

Surgery is often the main treatment for earlier stage colon cancer. The surgery is called a *colectomy* or a *segmental resection*. Usually the cancer and a piece of normal colon on either side of the cancer (as well as nearby lymph nodes) are removed. The 2 ends of the colon are then sewn back together. For colon cancer, a colostomy (an opening on the belly for getting rid of body wastes) is not usually needed, although sometimes a short-term colostomy may be done to let the colon heal. To learn more, please see our document, *Colostomy: A Guide*.

Most often, surgery is done through a cut (incision) in the belly (abdomen), but for some earlier stage cancers a different approach might be an option. In *laparoscopic-assisted colectomy*, instead of one long incision in the abdomen, the surgeon makes several small ones. Special long instruments are put into these small openings and used to remove part of the colon and lymph nodes. This method seems to be about as likely to cure the cancer as the standard approach for earlier stage cancers, and patients usually recover faster than they do after the usual operations. But the surgery calls for special skill. If you are

thinking about laparoscopic surgery, be sure to look for a skilled surgeon who has done a lot of these operations.

Some very early colon cancers (stage 0 and some early stage I tumors) or polyps can be removed using a colonoscope (the same thin, flexible scope used to do a colonoscopy). When this is done, the surgeon does not have to cut into the abdomen. Early stage cancers that are only on the surface of the colon lining can be removed along with a small amount of nearby tissue. For a polypectomy, the cancer is cut out across the base of the polyp's stalk, the area that looks like the stem of a mushroom.

Rectal surgery

Surgery is usually the main treatment for rectal cancer, although radiation and chemo will often be given before or after surgery. There are several types of surgery for rectal cancer.

Operations (such as polypectomy, local excision, and local transanal resection) can be done with instruments placed into the anus, without having to cut through the skin. One of these methods might be used to remove stage I cancers that are fairly small and not too far from the anus.

For some stage I, and most stage II or III rectal cancers, other types of surgery may be done. These are described here:

Low anterior resection: This approach is used for cancers near the upper part of the rectum, close to where it connects with the colon. The surgeon makes the cut in the belly. Then he removes the cancer and a small amount of normal tissue on either side of the cancer, along with nearby lymph nodes and a large amount of fatty and fibrous tissue around the rectum. The anus is not affected. After the surgery, the colon is reattached to the anus and waste leaves the body in the usual way.

Proctectomy with colo-anal anastomosis: For some stage I and most stage II and III rectal cancers in the middle and lower third of the rectum, the entire rectum and the colon attached to the anus will need to be removed. This is called a colo-anal anastomosis (*anastomosis* means "connection"). This is a harder operation to do. For a short time, an ostomy (an opening on the belly for getting rid of body wastes) is needed to allow healing after surgery. A second operation is done later to close the ostomy opening.

Abdominoperineal (AP) resection: For cancers in the lower part of the rectum, close to its outer connection to the anus, an abdominoperineal (AP) resection is done. For this the surgeon makes a cut in the belly (abdomen), and another in the area around the anus. Because the anus is removed, a colostomy is needed. A colostomy is an opening of the colon in the front of the abdomen. It is used as a way for the body to get rid of solid body waste (feces or stool). The usual hospital stay for an AP resection is 4 to 7 days, depending on your overall health.

Pelvic exenteration: If the rectal cancer is growing into nearby organs, more extensive surgery is needed. In a pelvic exenteration the surgeon removes the rectum as well as nearby organs such as the bladder, prostate, or uterus if the cancer has spread to these

organs. A colostomy is needed after this operation. If the bladder is removed, a urostomy (an opening to collect urine) is also needed.

Side effects of colorectal surgery

Side effects of surgery depend on several factors like the extent of the operation and a person's general health before surgery. Most people will have at least some pain after the operation, but it most often can be controlled with medicines if needed. Eating problems usually get better within a few days of surgery.

Other problems may include bleeding from the surgery, blood clots in the legs, and damage to nearby organs. Rarely, the new connections between the ends of the intestine may not hold together and may leak, which can lead to infection. After the surgery, you might have scar tissue forming around the bowel that can cause organs or tissues to stick together. These can later lead to the bowel becoming blocked.

Colostomy or ileostomy: Some people may need a temporary or permanent colostomy (or ileostomy) after surgery. This may take some time to get used to. If you have a colostomy or ileostomy, you will need help in learning how to manage it. Nurses with special training can do this. To learn more, please see our documents, *Colostomy: A Guide* and *Ileostomy: A Guide*.

Colorectal surgery and sex

If you are a man, an AP resection can cause you to have "dry" orgasms. That is, the feeling of pleasure will most likely still be there, but no semen comes out. In some cases an AP resection may make you unable to have erections or reach orgasm. In other cases your pleasure at orgasm may become less intense. Normal aging may cause some of these changes, but surgery can make them worse.

For some men, the surgery causes the semen to go backward into the bladder. This is not harmful. But if you still want to father a child, you should talk to your doctor about how the surgery will affect you and what might be done to achieve a pregnancy.

If you are a woman having colorectal surgery, you should not normally find any loss of sexual function. Scar tissue may sometimes cause pain or discomfort during sex. And if the uterus is removed, pregnancy will not be possible.

For men and women, a colostomy can affect your body image and your sexual comfort level. While you may need to make some adjustments, it should not keep you from having an enjoyable sex life.

For more information on dealing with the sexual impact of cancer and its treatment please see the American Cancer Society documents, *Sexuality for the Man With Cancer* and *Sexuality for the Woman With Cancer*.

Surgery for colorectal cancer that has spread

Sometimes surgery for cancer that has spread to other organs can help you to live longer or, depending on the extent of the disease, may even cure you. If the colorectal cancer has spread to a few areas in liver or lungs (and nowhere else), the cancer can sometimes be removed by surgery.

For spread to the liver, there are methods other than surgery which might be used to destroy the cancer. These include things like blocking the blood supply to the tumor or destroying the cancer by freezing it or killing it with high-energy radio waves. These methods are less likely to cure the cancer.

Since these cancers can often be hard to treat, you may also want to talk with your doctor about clinical trials of newer treatments that might be right for you.

Radiation treatment for colon and rectal cancer

Radiation treatment is the use of high-energy rays (such as x-rays) to kill cancer cells or shrink tumors. The radiation may come from outside the body (external radiation) or from radioactive materials put right in the tumor (brachytherapy or internal or implant radiation).

After surgery, radiation can kill small areas of cancer that may be missed during surgery. If the size or place of a tumor makes it hard to take it out, radiation may be used before surgery to shrink the tumor. Radiation can also be used to ease symptoms of advanced cancer, such as intestinal blockage, bleeding, or pain.

The main use for radiation treatment in people with colon cancer is when the cancer has attached to an internal organ or the lining of the belly (abdomen). If this happens, the doctor can't be sure that all the cancer has been removed, and radiation is used to kill the cancer cells left behind after surgery. Radiation is seldom used to treat metastatic colon cancer.

For rectal cancer, radiation is often given either before or after surgery to help prevent the cancer from coming back in the place where it started.

External-beam radiation therapy: In this treatment, radiation is focused on the cancer from a machine outside the body. This is the type most often used for people with colon or rectal cancer. Treatments are given 5 days a week for many weeks. Each treatment lasts only a few minutes, but the setup time -- getting you into place for treatment -- usually takes longer.

A different approach may be used for some cases of rectal cancer with small tumors. A small device can be put into the anus to deliver the radiation. This way the radiation reaches the rectum without passing through the skin and other tissues of the abdomen. This means it is less likely to damage nearby tissues and cause side effects.

Brachytherapy (internal radiation therapy): In this method, small pellets or seeds of radioactive material are placed next to or right into the cancer. The radiation travels only

a short distance, limiting the effects on nearby healthy tissues. This method is sometimes used in treating people with rectal cancer, particularly sick or older people who would not be able to go through surgery.

Some patients who have a lot of spread to the liver but little or no spread to other distant parts of the body may get treatment with infusion through the artery that goes to the liver. The doctor injects tiny glass "beads" that are coated with a radioactive atom (yttrium-90). These beads block some of the small blood vessels that feed the tumors and their radioactivity helps kill the cancer cells.

Side effects of radiation therapy

Side effects of radiation therapy for colon or rectal cancer include skin soreness, nausea, diarrhea, trouble controlling your bowels, rectal or bladder irritation, and tiredness. Sexual problems may also occur. Side effects often go away over time after treatment is over. If you have these or other side effects, talk to your doctor. There are often ways to reduce or relieve many of these problems.

Chemotherapy for colorectal cancer

Chemotherapy (chemo) is the use of drugs to fight cancer. The drugs may be put into a vein or given by mouth. These drugs enter the bloodstream and spread throughout the body, making this treatment useful for cancers that have spread to distant organs.

Chemo is sometimes used before surgery to try to shrink the cancer and make surgery easier. It may also be given after surgery because it can increase the survival rate for patients with some stages of colorectal cancer. Chemo can also help relieve symptoms of advanced cancer and help people live longer.

In some cases, chemo drugs can be put into an artery leading to the part of the body with the tumor. This approach is called *regional chemotherapy*. Since the drugs go straight to the cancer cells, there may be fewer side effects. Regional chemotherapy is sometimes used for colon cancer that has spread to the liver

Side effects of chemo

While chemo kills cancer cells, it also damages some normal cells and this can cause side effects. These side effects will depend on the type of drugs given, the amount given, and how long treatment lasts. Side effects could include:

- Hair loss
- Mouth sores
- Loss of appetite
- Nausea and vomiting
- Increased chance of infection

- Easy bleeding or bruising after minor cuts or injuries
- Severe tiredness (fatigue)

There are also some side effects that only happen with certain drugs. Most side effects go away when treatment is over. For example, hair will grow back after treatment ends, though it may look different. Anyone who has problems with side effects should talk with their doctor or nurse, as there are often ways to help.

To learn more about chemo, please see our document, *Understanding Chemotherapy: A Guide for Patients and Families*.

Targeted therapies for colorectal cancer

Targeted therapies are drugs that attack the parts of cancer cells that make them different from normal cells. These targeted drugs work differently from standard chemo drugs. They often have different (and less severe) side effects. At this time, they are most often used either along with chemo or by themselves if chemo is no longer working.

Some of these are man-made proteins called *monoclonal antibodies* that have been approved for use, along with chemo, to treat colorectal cancer.

Clinical trials for colorectal cancer

You may have had to make a lot of decisions since you've been told you have cancer. One of the most important decisions you will make is deciding which treatment is best for you. You may have heard about clinical trials being done for your type of cancer. Or maybe someone on your health care team has mentioned a clinical trial to you.

Clinical trials are carefully controlled research studies that are done with patients who volunteer for them. They are done to get a closer look at promising new treatments or procedures.

If you would like to take part in a clinical trial, you should start by asking your doctor if your clinic or hospital conducts clinical trials. You can also call our clinical trials matching service for a list of clinical trials that meet your medical needs. You can reach this service at 1-800-303-5691 or on our Web site at <http://www.cancer.org/clinicaltrials>. You can also get a list of current clinical trials by calling the National Cancer Institute's Cancer Information Service toll-free at 1-800-4-CANCER (1-800-422-6237) or by visiting the NCI clinical trials Web site at www.cancer.gov/clinicaltrials.

There are requirements you must meet to take part in any clinical trial. If you do qualify for a clinical trial, it is up to you whether or not to enter (enroll in) it.

Clinical trials are one way to get state-of-the-art cancer treatment. They are the only way for doctors to learn better methods to treat cancer. Still, they are not right for everyone.

You can get a lot more information on clinical trials, in our document called *Clinical Trials: What You Need to Know*. You can read it on our Web site or call our toll-free number and have it sent to you.

Complementary and alternative therapies for colorectal cancer

When you have cancer you are likely to hear about ways to treat your cancer or relieve symptoms that your doctor hasn't mentioned. Everyone from friends and family to Internet groups and Web sites may offer ideas for what might help you. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

What are complementary and alternative therapies?

It can be confusing because not everyone uses these terms the same way, and they are used to refer to many different methods. We use *complementary* to refer to treatments that are used *along with* your regular medical care. *Alternative* treatments are used *instead of* a doctor's medical treatment.

Complementary methods: Most complementary treatment methods are not offered as cures for cancer. Mainly, they are used to help you feel better. Some examples of methods that are used along with regular treatment are meditation to reduce stress, acupuncture to help relieve pain, or peppermint tea to relieve nausea. Some complementary methods are known to help, while others have not been tested. Some have been proven not to be helpful, and a few are even harmful.

Alternative treatments: Alternative treatments may be offered as cancer cures. These treatments have not been proven safe and effective in clinical trials. Some of these methods may be harmful, or have life-threatening side effects. But the biggest danger in most cases is that you may lose the chance to be helped by standard medical treatment. Delays or interruptions in your medical treatments may give the cancer more time to grow and make it less likely that treatment will help.

Finding out more

It is easy to see why people with cancer think about alternative methods. You want to do all you can to fight the cancer, and the idea of a treatment with few or no side effects sounds great. Sometimes medical treatments like chemotherapy can be hard to take, or they may no longer be working. But the truth is that most of these alternative methods have not been tested and proven to work in treating cancer.

As you think about your options, here are 3 important steps you can take:

- Look for "red flags" that suggest fraud. Does the method promise to cure all or most cancers? Are you told not to have regular medical treatments? Is the treatment a "secret" that requires you to visit certain providers or travel to another country?
- Talk to your doctor or nurse about any method you are thinking of using.
- Contact us at 1-800-227-2345 to learn more about complementary and alternative methods in general and to find out about the specific methods you are looking at.

The choice is yours

Decisions about how to treat or manage your cancer are always yours to make. If you want to use a non-standard treatment, learn all you can about the method and talk to your doctor about it. With good information and the support of your health care team, you may be able to safely use the methods that can help you while avoiding those that could be harmful.

What are some questions I can ask my doctor about colorectal cancer?

As you cope with cancer and cancer treatment, you need to have honest, open talks with your doctor. You should feel free to ask any question that's on your mind, no matter how small it might seem. Here are some questions you might want to ask. Be sure to add your own questions as you think of them. Nurses, social workers, and other members of the treatment team may also be able to answer many of your questions.

- Would you please write down the exact kind of cancer I have.
- Where is my cancer?
- Has it spread beyond the place where it began?
- What is the stage of my cancer, and what does that mean in my case?
- Are there other tests that need to be done before we can decide on treatment?
- What treatment choices do I have?
- What treatment do you suggest and why?
- How long will treatment last? What will it involve? Where will it be done?
- How will I pay for treatment? Will my insurance cover it?
- What is the goal of this treatment?
- What risks or side effects are there to the treatments you suggest?
- What can I do to reduce the side effects of treatment?
- Will I need a colostomy? Will it be permanent?
- What are the chances my cancer will come back with these treatment plans? What would we do if that happens?
- What should I do to be ready for treatment?
- Should I follow a special diet?

- What type of follow-up will I need after treatment?

Add your own questions below:

Moving on after treatment for colorectal cancer

For some people with colorectal cancer, treatment may remove or destroy the cancer. It can feel good to be done with treatment, but it can also be stressful. You may find that you now worry about the cancer coming back. This is a very common concern among those who have had cancer. (When cancer comes back, it is called a *recurrence*.)

It may take a while before your recovery begins to feel real and your fears are somewhat relieved. You can learn more about what to look for and how to learn to live with the chance of cancer coming back in *Living With Uncertainty: The Fear of Cancer Recurrence*.

For other people, the cancer may never go away completely. These people may get regular treatments to try to help keep the cancer in check. Learning to live with cancer that does not go away can be hard and stressful. It has its own type of uncertainty.

Follow-up care

Even if your treatment ends, your doctors will still want to watch you closely. During these visits, your doctors will ask about symptoms, do physical exams, and order blood tests or imaging studies (like CT scans or MRIs). Follow-up is needed to watch for treatment side effects and to check for cancer that has come back or spread.

Almost any cancer treatment can have side effects. Some may last for a few weeks or months, but others can be permanent. To some extent, how often you have follow up visits and tests will depend on the stage of your cancer and the chance of it coming back. Please tell your cancer care team about any symptoms or side effects that bother you so they can help you manage them. Use this time to ask your health care team questions and discuss any concerns you might have.

It is also important to keep health insurance. While you hope your cancer won't come back, it could happen. If it does, you don't want to have to worry about paying for treatment. Should your cancer come back, our document *When Your Cancer Comes Back: Cancer Recurrence* helps you manage and cope with this phase of your treatment.

Medical history and physical exam

Your doctor will likely recommend getting a history and physical exam every 3 to 6 months for the first 2 years after treatment, then every 6 months or so for the next few years. People who were treated for early stage cancers may need less frequent exams.

Colonoscopy

In most cases, your doctor will recommend a colonoscopy within a year after surgery. If this is normal, it should be done again in 3 years. If that exam is normal, then future exams should be done about every 5 years.

Imaging tests

Whether or not your doctor recommends imaging tests will depend on the stage of your disease and other factors. CT scans may be done regularly, such as once a year, for those at higher risk of recurrence, in the first 3 years after treatment. Testing may be even more frequent in people who had tumors in the liver or lungs removed.

Blood tests for tumor markers

Carcinoembryonic antigen (CEA) and CA 19-9 are substances found in the blood of some people with colorectal cancer. Tests for one or both of these are helpful for some patients. Doctors often check levels of these markers before treatment begins. If they are high at first and then go down to normal after surgery, they can be checked again when you come in for follow-up. If the tumor marker level goes up again, it can be a sign that the cancer has come back, and tests may be done to try to locate the site of cancer. Tumor markers tend to be most useful in the first 2 years after treatment, when the cancer is most likely to come back.

If the cancer does recur at some point, further treatment will depend on where the cancer is found, what treatments you've had before, and your health. For more information on how recurrent cancer is treated, see the sections "Treatment by stage of colon cancer" and "Treatment by stage of rectal cancer." To learn more about dealing with a recurrence, you may also want to see our document, *When Your Cancer Comes Back: Cancer Recurrence*.

For patients with a colostomy

If you have a colostomy, you may feel worried or isolated from normal activities. Whether your colostomy is temporary or permanent, an enterostomal therapist (a health care professional trained to help people with ostomies) can teach you about the care of your colostomy. You can also ask the American Cancer Society about programs offering information and support in your area. For more information, see our document called *Colostomy: A Guide*.

Seeing a new doctor

At some point after your cancer is found and treated, you may find yourself in the office of a new doctor. It is important that you be able to give your new doctor the exact details of your diagnosis and treatment. Make sure you have this information handy and always keep copies for yourself:

- A copy of your pathology report from any biopsy or surgery
- If you had surgery, a copy of your operative report
- If you were in the hospital, a copy of the discharge summary that the doctor wrote when you were sent home from the hospital
- If you had radiation treatment, a copy of your treatment summary.
- If you had chemo or targeted therapies, a list of your drugs, drug doses, and when you took them
- Copies of imaging studies such as CT scans, MRI scans, or PET scans. Often these can be placed on a DVD

The doctor may want copies of this information for his records, but always keep copies for yourself.

Changes to think about during and after treatment for colorectal cancer

Having cancer and dealing with treatment can take a lot of time and energy, but it can also be a time to look at your life in new ways. Maybe you are thinking about how to improve your health over the long term.

Make healthier choices

Think about your life before you learned you had cancer. Were there things you did that might have made you less healthy? Maybe you drank too much alcohol, ate more than you needed, used tobacco, or didn't exercise very often.

For many people, finding out they have cancer helps them focus on their health in ways they may not have thought much about in the past. Are there things you could do that might make you healthier? Maybe you could try to eat better or get more exercise. Maybe you could cut down on the alcohol, or give up tobacco. Even things like keeping your stress level under control may help. Now is a good time to think about making changes that can have good effects for the rest of your life. You will feel better and you will also be healthier.

You can start by working on those things that worry you most. Get help with those that are harder for you. For instance, if you are thinking about quitting smoking and need help, call the American Cancer Society for information and support.

Eating better

Eating right can be hard for anyone, but it can get even tougher during and after cancer treatment. Treatment may change your sense of taste. Nausea can be a problem. You may not feel like eating and lose weight when you don't want to. Or you may have gained weight that you can't seem to lose. All of these things can be very frustrating.

If treatment caused weight changes or eating or taste problems, do the best you can and keep in mind that these problems usually get better over time. You may find it helps to eat small portions every 2 to 3 hours until you feel better. You may also want to ask your cancer team about seeing a dietitian, an expert in nutrition who can give you ideas on how to deal with these treatment side effects.

One of the best things you can do after cancer treatment is put healthy eating habits into place. You may be surprised at the long-term benefits of some simple changes, like increasing the variety of healthy foods you eat. Try to eat 5 or more servings of vegetables and fruits each day. Choose whole grain foods instead of those made with white flour and sugars. Try to limit meats that are high in fat. Cut back on processed meats like hot dogs, bologna, and bacon. Better yet, don't eat any of these, if you can. If you drink alcohol, limit yourself to 1 or 2 drinks a day at the most.

Rest, fatigue, and exercise

Feeling tired (fatigue) is a very common problem during and after cancer treatment. This is not a normal type of tiredness but a "bone-weary" exhaustion that doesn't get better with rest. For some people, fatigue lasts a long time after treatment and can keep them from staying active. But exercise can actually help reduce fatigue and the sense of depression that sometimes comes with feeling so tired.

If you are very tired, though, you will need to balance activity with rest. It is OK to rest when you need to. To learn more about fatigue, please see our document, *Fatigue in People With Cancer* and *Anemia in People With Cancer*.

If you were very ill or weren't able to do much during treatment, it is normal that your fitness, staying power, and muscle strength declined. You need to find an exercise plan that fits your own needs. Talk with your health care team before starting. Get their input on your exercise plans. Then try to get an exercise buddy so that you're not doing it alone.

Exercise can improve your physical and emotional health.

- It improves your cardiovascular (heart and circulation) fitness.
- It makes your muscles stronger.
- It reduces fatigue.
- It lowers anxiety and depression.
- It can make you feel generally happier.

- It helps you feel better about yourself.

Long term, we know that exercise plays a role in preventing some cancers. The American Cancer Society recommends that adults be physically active for at least 30 minutes a day on 5 or more days of the week.

Can you reduce your risk for colorectal cancer recurrence?

Most people want to know if there are things they can do to reduce their risk of getting cancer again (either a recurrence or a new cancer). For most cancers there is little solid evidence that can guide people in this direction. This doesn't mean that nothing will help -- it's just that for the most part this is an area that hasn't been well-studied. Most studies have looked at ways of preventing cancer in the first place.

One thing that can help is going for follow-up exams, especially colonoscopy. We know that colonoscopy can find polyps before they become cancers. Having this test on schedule can help prevent any new colon cancers.

However, some studies have pointed to things people can do that *might* help reduce the risk of colorectal cancer returning.

Physical activity: Recent studies of people with earlier stage (I, II, or III) colorectal cancers showed that increasing physical activity after diagnosis reduced the risk of death from colorectal cancer by as much as half. The level of activity needed to reduce risk was about 4 to 5 hours of brisk walking per week. More studies are needed to further define this possible benefit.

Diet: Eating a healthy diet may also lower the risk of colorectal cancer coming back. In a large study of patients with stage III colon cancer, those with the highest intakes of meat, fat, refined grains (sugars), and desserts were about 3 times more likely to have a recurrence than those who ate the lowest levels. More research is needed to confirm these results and to figure out which of these factors are most strongly linked to cancer recurrence.

How about your emotional health after colorectal cancer?

Once your treatment ends, you may be surprised by the flood of emotions you go through. This happens to a lot of people. You may find that you think about the effect of your cancer on things like your family, friends, and career. Money may be a concern as the medical bills pile up. Or you may begin to think about the changes that cancer has brought to your relationship with your spouse or partner. Unexpected issues may also cause concern -- for instance, as you get better and need fewer doctor visits, you will see your health care team less often. This can be hard for some people.

This is a good time to look for emotional and social support. You need people you can turn to. Support can come in many forms: family, friends, cancer support groups, church or spiritual groups, online support communities, or private counselors.

The cancer journey can feel very lonely. You don't need to go it alone. Your friends and family may feel shut out if you decide not to include them. Let them in -- and let in anyone else who you feel may help. If you aren't sure who can help, call your American Cancer Society at 1-800-227-2345 and we can put you in touch with a group or resource that may work for you.

You can't change the fact that you have had cancer. What you can change is how you live the rest of your life -- making healthy choices and helping your body and mind feel well.

If treatment for colorectal cancer stops working

When a person has had many different treatments and the cancer has not been cured, over time the cancer tends to resist all treatment. At this time you may have to weigh the possible benefits of a new treatment against the downsides, like treatment side effects and clinic visits.

This is likely to be the hardest time in your battle with cancer -- when you have tried everything within reason and it's just not working anymore. Your doctor may offer you new treatment, but you will need to talk about whether the treatment is likely to improve your health or change your outlook for survival.

No matter what you decide to do, it is important for you to feel as good as possible. Make sure you are asking for and getting treatment for pain, nausea, or any other problems you may have. This type of treatment is called "palliative" treatment. It helps relieve symptoms but is not meant to cure the cancer.

At some point you may want to think about hospice care. Most of the time it is given at home. Your cancer may be causing symptoms or problems that need to be treated. Hospice focuses on your comfort. You should know that having hospice care doesn't mean you can't have treatment for the problems caused by your cancer or other health issues. It just means that the purpose of your care is to help you live life as fully as possible and to feel as well as you can.

You can learn more about this in our document, *Hospice Care*.

What's new in colorectal cancer research?

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

Genetics

Scientists are learning more about some of the changes in DNA that cause cells of the colon and rectum to become cancer. This knowledge is already being used in genetic tests to inform people most at risk. At some point, this knowledge could also lead to new drug treatments to fix these gene problems.

Doctors have also found that some gene changes affect whether or not certain treatments will work. Doctors can now test for these gene changes, which may help spare some people from getting treatments that are not likely to help.

Chemoprevention

Chemoprevention is the use of natural or man-made chemicals to lower a person's risk of getting cancer. Researchers are testing whether certain substances such as fiber, minerals, vitamins, or drugs can lower colorectal cancer risk. Some studies have found that people who take multivitamins with folic acid (folate), vitamin D supplements, or calcium *may* have a lower colorectal cancer risk. Research into this question is now being done. Most experts say that people should not take large doses of vitamins or minerals unless they are part of a study or are under the care of a doctor.

Taking aspirin or some drugs much like it (called "non-steroidal anti-inflammatory drugs" or NSAIDs) is linked to a lower risk of colorectal cancer. But these drugs can cause stomach ulcers and other side effects. For this reason, taking NSAIDs just for this purpose is not recommended for people at average colorectal cancer risk. If you are at higher risk for colorectal cancer, you should talk to your doctor about whether to take these drugs as prevention measure.

Most studies have found that a diet high in fruits and vegetables seems to lower colorectal cancer risk, as well as the risk of some other diseases. This hasn't been completely proven by all studies. But it is important that you eat enough servings -- at least 5 a day-- for many health reasons.

Earlier detection

Studies are going on to look at how well current colorectal cancer screening methods work and to explore new ways to tell the public about the importance of using these methods. Only about half of Americans over 50 have had any colorectal cancer testing at all. If everyone were tested, thousands of lives could be saved each year. Meanwhile, new tests are also being developed.

Treatment

Surgery

Surgeons are finding better ways to operate on colorectal cancers. They now know more about what makes colorectal surgery successful, such as making sure enough lymph nodes are removed during the operation.

Laparoscopic surgery, which is done through several small cuts (incisions) instead of one large one, is becoming more widely used for some colon cancers. This allows patients to recover faster, with less pain after the operation. This surgery is also being studied for treating some rectal cancers. More research is needed.

Robotic surgery, in which the surgeon sits at a control panel and operates very precise robotic arms to do the surgery, is also being studied.

Chemotherapy

Many new chemotherapy (chemo) drugs or drugs that are now used against other cancers are being tested to treat colorectal cancer. Also under study are ways to combine and improve drugs already in use against colorectal cancer. Still other studies are testing the best ways to combine chemo with other treatments.

Targeted therapy

Some targeted therapies are already used to treat colorectal cancer. Doctors are looking at the best way to give these drugs. They are also looking at dozens of new ones to increase the treatment choices for people with colorectal cancer. And newer studies are looking at using them with chemo in earlier stage cancers to reduce the risk of recurrence.

Immunotherapy

Vaccines that could treat colorectal cancer or keep it from coming back after treatment are being studied. Unlike vaccines that prevent other diseases, these vaccines are meant to boost the patient's immune reaction to better fight colorectal cancer. At this time, such vaccines are only available in clinical trials.

More information about colorectal cancer

From your American Cancer Society

The following related information may also be helpful to you. These materials may be ordered from our toll-free number, 1-800-227-2345.

Colorectal Cancer Detailed Guide (also in Spanish)

After Diagnosis: A Guide for Patients and Families (also in Spanish)

American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention

Clinical Trials: What You Need to Know

Colostomy: A Guide (also in Spanish)

Ileostomy (also in Spanish)

Nutrition for the Person With Cancer During Treatment (also in Spanish)

Sexuality for the Man With Cancer (also in Spanish)

Sexuality for The Woman With Cancer (also in Spanish)

Surgery (also in Spanish)

Understanding Chemotherapy: A Guide for Patients and Families (also in Spanish)

Understanding Radiation Therapy (also in Spanish)

Living With Uncertainty: The Fear of Cancer Recurrence

When Your Cancer Comes Back: Cancer Recurrence

Books

These books are available from the American Cancer Society. Call us at 1-800-227-2345 to ask about costs or to place your order.

The American Cancer Society's Complete Guide to Colorectal Cancer

Cancer in the Family: Helping Children Cope With a Parent's Illness

American Cancer Society Complete Guide to Family Caregiving

Couples Confronting Cancer: Keeping Your Relationship Strong

What Helped Get Me Through: Cancer Survivors Share Wisdom and Hope

What to Eat During Cancer Treatment

When the Focus Is on Care: Palliative Care and Cancer

National organizations and Web sites*

Along with the American Cancer Society, other sources of information and support include:

American College of Gastroenterology

Web site: www.acg.gi.org

American Gastroenterological Association

Web site: www.gastro.org

American Society of Colon and Rectal Surgeons

Web site: www.fascrs.org

C3: Colorectal Cancer Coalition

Toll-free number: 1-877-4CRC-111 (1-877-427-2111)

Web site: www.fightcolorectalcancer.org

Colon Cancer Alliance

Toll-free number: 1-877-422-2030

Web site: www.ccalliance.org

National Cancer Institute

Toll-free number 1-800-4-CANCER (1-800-422-6237)

Web site: www.cancer.gov

National Colorectal Cancer Research Alliance

Web site: www.eifoundation.org/programs/eifs-national-colorectal-cancer-research-alliance

Other resources*

The following book describes one woman's experience with colon cancer and the health care system. The book provides lessons about how to deal with unexpected life-threatening illnesses; how to identify and assess treatment options; how to talk with health care providers; and how to find your way through the health care system.

Kingson, Eric R. *Lessons from Joan: Living and Loving with Cancer, a Husband's Story*. Syracuse University Press. Syracuse, NY. www.SyracuseUniversityPress.syr.edu.

**Inclusion on this list does not imply endorsement by the American Cancer Society.*

No matter who you are, we can help. Contact us anytime, day or night, for information and support. Call us at 1-800-227-2345 or visit www.cancer.org.

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For additional assistance please contact your American Cancer Society
1 · 800 · ACS-2345 or www.cancer.org