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## About Small Intestine Cancer

### Overview and Types

If you have been diagnosed with small intestine cancer or are worried about it, you likely have a lot of questions. Learning some basics is a good place to start.

- [What Is a Small Intestine Cancer?](#)

### Research and Statistics

See the latest estimates for new cases of small intestine cancer and deaths in the US and what research is currently being done.

- [Key Statistics for Small Intestine Cancer](#)
  - [What's New in Small Intestine Cancer \(Adenocarcinoma\) Research?](#)
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## What Is a Small Intestine Cancer?

Cancer starts when cells in the body begin to grow out of control. Cells in nearly any part of the body can become cancer, and can spread to other areas of the body. To learn more about how cancers start and spread, see [What Is Cancer?](#)<sup>1</sup>

Small intestine cancer starts when cells in the small intestine start to grow out of control. The small intestine is part of the gastrointestinal (GI) tract, also known as the digestive tract. The GI tract processes food for energy and rids your body of solid waste.

Although the small intestine makes up the largest part of the GI tract, small intestine cancers are much less common than most other types of GI cancers (such as colon, rectal, stomach, and esophagus cancers) in the United States.

## How the small intestine works

To understand small intestine cancer, it helps to know about the small intestine and how it works.

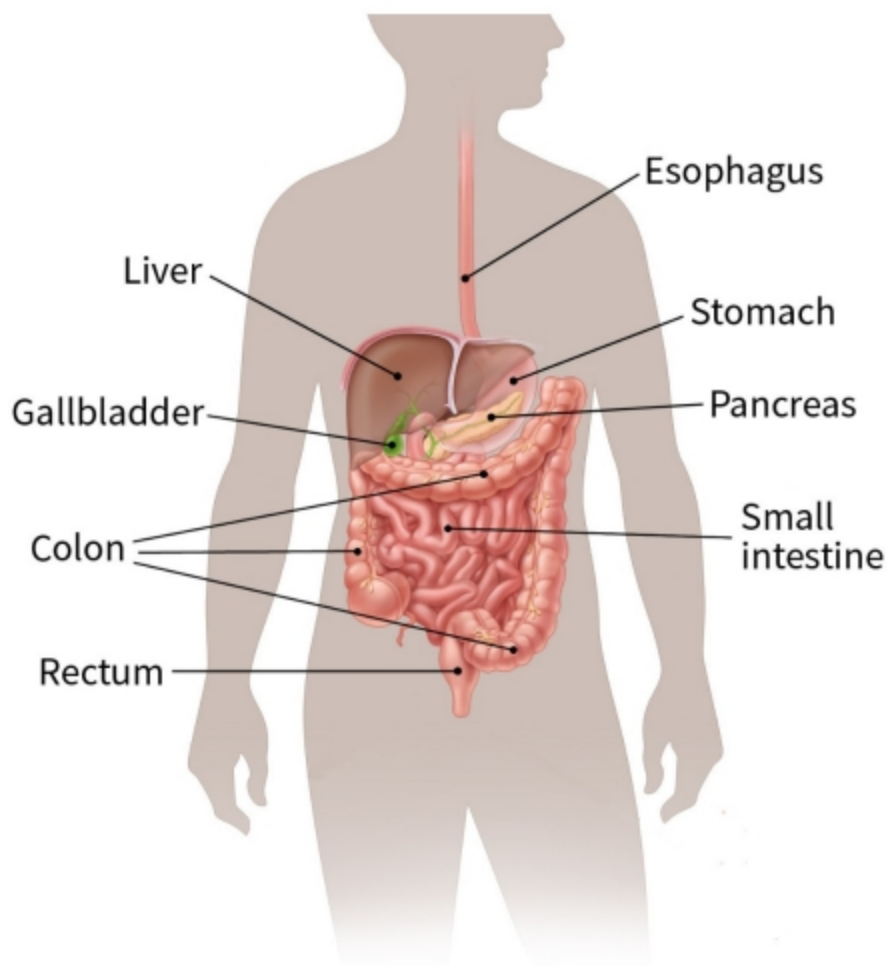
After you chew and swallow your food, it goes through the **esophagus**, a tube that carries food through the neck and chest and into the **stomach**. The stomach is a sac-like organ that helps the digestive process by mixing the food with gastric juices.

The food and gastric juices are mixed into a thick fluid, which is then emptied into the **small intestine** (also known as the **small bowel**). The small intestine continues breaking down the food and absorbs most of the nutrients. Even though it's called the small intestine, it's actually the longest section of the GI tract (about 20 feet long).

The small intestine has 3 sections.

- The **duodenum**: This is the first section and is only about a foot long. A short distance from where the duodenum attaches to the stomach, the pancreatic duct and bile duct enter the duodenum at the *ampulla of Vater*. Fluids from the pancreas and liver enter the small intestine here, helping to further digest the food.
- The **jejunum** and **ileum**: These parts make up most of the small intestine, and are where most of the nutrients in food are absorbed into the bloodstream.

The ileum empties into the **colon** (the first part of the large intestine). This muscular tube is about 4 to 5 feet long. It absorbs water and some remaining mineral nutrients from the food matter. The waste left after this process goes into the **rectum**, where it is stored until it passes out of the body through the **anus**.



## Types of small intestine cancers

The small intestine is made up of many different types of cells, so different types of cancer can start here. The 4 major types of small intestine cancers are:

- **Adenocarcinomas:** These cancers start in the gland cells that line the inside of the intestine. They account for about 1 in 3 small intestine cancers.
- **Carcinoid tumors:** These tumors are a type of neuroendocrine tumor (NET), and they tend to be slow growing. They are the most common type of small intestine tumor. To learn more, see [Gastrointestinal Carcinoid Tumors<sup>2</sup>](#).
- **Lymphomas:** These cancers start in immune cells called lymphocytes. Lymphomas can start almost anywhere in the body, including the small intestine. For more on these cancers, see [Non-Hodgkin Lymphoma<sup>3</sup>](#).
- **Sarcomas:** These are cancers that start in connective tissues, such as muscle.

The most common sarcomas in the intestine are known as [gastrointestinal stromal tumors \(GISTs\)](#)<sup>4</sup>.

Most experts think that cancer of the small intestine develops much like colorectal cancer. It first begins as a small growth on the inner lining of the intestine, called a *polyp*. Over time, the polyp can change into a cancer.

Most small intestinal cancers (especially adenocarcinomas) develop in the duodenum. Cancers that develop in the duodenum are often found at the ampulla of Vater. But because this area is closely associated with the pancreas, cancers of the ampulla of Vater (also known as ampullary cancers) are treated like [pancreatic cancer](#)<sup>5</sup>.

## Hyperlinks

1. [www.cancer.org/cancer/cancer-basics/what-is-cancer.html](http://www.cancer.org/cancer/cancer-basics/what-is-cancer.html)
2. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
3. [www.cancer.org/cancer/non-hodgkin-lymphoma.html](http://www.cancer.org/cancer/non-hodgkin-lymphoma.html)
4. [www.cancer.org/cancer/gastrointestinal-stromal-tumor.html](http://www.cancer.org/cancer/gastrointestinal-stromal-tumor.html)
5. [www.cancer.org/cancer/pancreatic-cancer.html](http://www.cancer.org/cancer/pancreatic-cancer.html)

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# Key Statistics for Small Intestine Cancer

Although the small intestine makes up the largest part of the gastrointestinal (GI) tract, small intestine cancers are rare in the United States. In fact, they account for fewer than 1 in 10 cancers of the gastrointestinal (GI) tract, and fewer than 1 in 100 cancers overall.

The American Cancer Society estimates for these cancers in the United States for 2019 are:

- About 10,590 people in the United States will be diagnosed with some [type of small intestine cancer](#).
- About 1,590 people will die of small intestine cancer.

Cancers of the small intestine tend to occur more often in older people. They are most often found in people in their 60s and 70s.

Visit the American Cancer Society's [Cancer Statistics Center](#)<sup>1</sup> for more key statistics.

## Hyperlinks

1. <https://cancerstatisticscenter.cancer.org/>

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## What's New in Small Intestine Cancer (Adenocarcinoma) Research?

*(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)<sup>1</sup>, [Gastrointestinal Stromal Tumors](#)<sup>2</sup>, or [Non-Hodgkin Lymphoma](#)<sup>3</sup>.)*

Important research on small intestine cancers is going on in many university hospitals, medical centers, and other institutions around the world. Scientists are learning more about what causes the disease and how best to treat it.

Small intestine cancer is studied less often than some of the other gastrointestinal (GI) cancers because it is much less common. Still, some studies are looking at better ways to treat this disease.

Most small intestine cancers look very similar to colon cancers under a microscope, but detailed studies of the chromosomes and DNA in their cancer cells have found some differences. Researchers hope that these findings will eventually lead to more specific and effective treatments for small intestine cancer.

In the meantime, some studies are looking for better ways to treat this cancer with [chemotherapy](#)<sup>4</sup>. For example, a few small studies have explored the use of intraperitoneal chemotherapy, in which chemo is put directly into the abdomen right after surgery, to treat small intestine cancer that has spread throughout the abdomen.

Researchers are also studying whether giving treatments such as chemotherapy or radiation therapy either before surgery (neoadjuvant treatment) or after surgery

(adjuvant treatment) can help improve outcomes.

Other studies are looking to see if [targeted therapy](#)<sup>5</sup> drugs could be helpful. Unlike chemotherapy, these drugs attack specific parts of cancer cells (or nearby cells) that make them different from normal cells. Several types of targeted drugs are now being studied. One example is bevacizumab (Avastin), a drug that targets the new blood vessels that tumors need to grow. Some early research has found it might be helpful when added to chemotherapy.

A promising newer area of cancer treatment is [immunotherapy](#)<sup>6</sup>, which helps a person's own immune system attack cancer cells. Immunotherapy drugs called [checkpoint inhibitors](#)<sup>7</sup> have been found to be helpful in treating many types of cancer, and some of them are now being studied for use against small intestine cancer. These drugs might be especially useful in people whose cancers have changes in certain genes (called *mismatch repair*, or MMR genes).

Some studies of colon cancer other GI cancers may also prove useful for small intestine cancer. These studies involve early detection, drug treatment, surgical methods, and understanding the cause of these cancers.

## Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
2. [www.cancer.org/cancer/gastrointestinal-stromal-tumor.html](http://www.cancer.org/cancer/gastrointestinal-stromal-tumor.html)
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# Small Intestine Cancer Causes, Risk Factors, and Prevention

## Risk Factors

A risk factor is anything that affects your chance of getting a disease such as cancer. Learn more about the risk factors for small intestine cancer.

- [Risk Factors for Small Intestine Cancer \(Adenocarcinoma\)](#)
- [What Causes Small Intestine Cancer \(Adenocarcinoma\)?](#)

## Prevention

There is no sure way to prevent small intestine cancer. But there are things you can do that might lower your risk. Learn more.

- [Can Small Intestine Cancer \(Adenocarcinoma\) Be Prevented?](#)

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# Risk Factors for Small Intestine Cancer (Adenocarcinoma)

*(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)<sup>1</sup>, [Gastrointestinal Stromal Tumors](#)<sup>2</sup>, or [Non-Hodgkin](#)*

### [Lymphoma](#)<sup>3</sup>.)

A risk factor is anything that changes your chance of getting a disease such as cancer. Different cancers have different risk factors. Some risk factors, like smoking, can be changed. Others, like a person's age or family history, can't be changed.

But risk factors don't tell us everything. Having a risk factor, or even several, does not mean that a person will get the disease. And many people who get the disease may have few or no known risk factors.

Because small intestine adenocarcinoma is so uncommon, risk factors for this disease have been hard to study. Some of the known risk factors include:

### **Sex**

Small intestine cancer occurs slightly more often in men than in women.

### **Age**

Cancers of the small intestine tend to occur more often in older people. They are most often found in people in their 60s and 70s.

### **Race/ethnicity**

In the United States, African Americans are affected more often by these cancers than people of other races/ethnicities.

### **Smoking and alcohol use**

Some studies have found an increased risk with either [smoking](#)<sup>4</sup> or drinking [alcohol](#),<sup>5</sup> but not all studies have found this.

### **Diet**

Some research has suggested that diets high in red meat and salted or smoked foods might raise the risk of small intestine cancer.

### **Celiac disease**

For people with celiac disease, eating gluten (a protein that is found in wheat and some other types of grain) causes the body's immune system to attack the lining of the intestines. People with celiac disease have an increased risk of a certain kind of lymphoma of the intestine called *enteropathy-associated T-cell lymphoma*. They may also have an increased risk of small intestine cancer.

## Colon cancer

People who have had colon cancer have an increased risk of getting cancer of the small intestine. This could be due to shared risk factors.

## Crohn's disease

Crohn's disease is a condition in which the immune system attacks the gastrointestinal (GI) tract. This disease can affect any part of the GI tract, but it most often affects the lower part of the small intestine. People with this condition have a much higher risk of small intestine cancer (particularly adenocarcinoma). These cancers are most often seen in the ileum (the last part of the small intestine, near the colon).

## Inherited syndromes

People with certain inherited conditions have a higher risk of small intestine cancer (mainly adenocarcinoma).

### Familial adenomatous polyposis (FAP)

In this condition, many (often hundreds) of polyps develop in the colon and rectum. If the colon isn't removed, one or more of these polyps will become cancerous. Polyps can also develop in the stomach and the small intestine, and they can lead to cancers in these areas. In FAP, most small intestine cancers are found in the duodenum. This condition is caused by an abnormal change (mutation) in the *APC* gene, and is discussed more in [Colorectal Cancer](#)<sup>6</sup>.

### Lynch syndrome (hereditary nonpolyposis colorectal cancer, or HNPCC)

In most cases, this disorder is caused by a defect in one of several mismatch repair (MMR) genes, such as *MLH1*, *MSH2*, *MSH6*, *PMS1*, or *PMS2*. Having an abnormal version of any one of these genes reduces the body's ability to repair damage to its DNA. This results in an increased risk for cancer of the colon and small intestine, as well as a high risk of [endometrial](#)<sup>7</sup> and [ovarian](#)<sup>8</sup> cancer. This condition is also discussed

in [Colorectal Cancer](#)<sup>9</sup>.

### **Peutz-Jeghers syndrome (PJS)**

People with this condition develop polyps in the stomach and intestines, as well as in other areas including the nose, the airways of the lungs, and the bladder. They can also have dark freckle-like spots on the lips, inner cheeks and other areas. PJS can increase the risk of many types of cancer, including small intestine adenocarcinoma. This syndrome is caused by mutations in the *STK11 (LKB1)* gene.

### **MUTYH-associated polyposis**

People with this syndrome develop colon polyps which will almost always become cancerous if the colon is not removed. They also can get polyps in the small intestine and have an increased risk of small intestine cancer. People with this syndrome can also get cancers of the skin, ovary (in women), and bladder. This syndrome is caused by mutations in the *MUTYH* gene.

### **Cystic fibrosis (CF)**

People with this condition have severe lung problems. Often, in someone with CF, the pancreas cannot make the enzymes that break food down so that it can be absorbed. People with CF have an increased risk of small intestine cancer. A child must have 2 abnormal copies of the *CFTR* gene (one from each parent) to get this disease.

## **Hyperlinks**

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
2. [www.cancer.org/cancer/gastrointestinal-stromal-tumor.html](http://www.cancer.org/cancer/gastrointestinal-stromal-tumor.html)
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# What Causes Small Intestine Cancer (Adenocarcinoma)?

**(Note:** This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors<sup>1</sup>](#), [Gastrointestinal Stromal Tumors<sup>2</sup>](#), or [Non-Hodgkin Lymphoma<sup>3</sup>](#).)

While there are several known [risk factors](#) for small intestine adenocarcinoma, not much is known about exactly what causes these cancers. In fact, many experts wonder why it's so rare. The small intestine is the longest part of the gastrointestinal (GI) tract, yet only a very small percentage of GI adenocarcinomas start here.

Scientists have found some DNA changes inside small intestine adenocarcinoma cells that seem to help them grow and spread. DNA is the chemical in each of our cells that makes up our *genes*, which control how our cells function. We usually look like our parents because they are the source of our DNA. But DNA affects more than just how we look.

Some genes control when cells grow and divide into new cells:

- Certain genes that help cells grow and divide are called *oncogenes*.
- Genes that help keep cell division under control, cause cells to die at the right time, or help fix mistakes in DNA are called *tumor suppressor genes*.

Cancers can be caused by DNA changes that turn on oncogenes or turn off tumor suppressor genes.

For example, one cause of these cancers is thought to be problems with the tumor suppressor genes that normally help repair damaged DNA. When one of these genes isn't working, DNA mistakes aren't corrected, so gene mutations are passed on to new cells. If enough changes build up inside the cells, it can lead to cancer.

Many small intestine cancers have specific known gene changes, but often it's not clear what causes these changes. Sometimes they can be inherited from a parent, or they might be caused by things like alcohol or a diet that's high in red meats. But sometimes the gene changes that lead to small intestine cancer seem to occur for no apparent reason. Many of the changes are probably just random events that sometimes happen inside a cell, without having an outside cause.

Gene changes inside cells can build up over a person's lifetime, which might help explain why small intestine cancer largely affects older people.

## Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
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## Can Small Intestine Cancer (Adenocarcinoma) Be Prevented?

*(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)<sup>1</sup>, [Gastrointestinal Stromal Tumors](#)<sup>2</sup>, or [Non-Hodgkin Lymphoma](#)<sup>3</sup>.)*

At this time, there is no known way to prevent most small intestine adenocarcinomas. There are some [factors that might increase the risk for these cancers](#), such as smoking, drinking alcohol, and eating a diet that's high in red meats, so making healthier choices concerning these risk factors might lower your risk. Small intestine cancers are rare to begin with, but making these types of healthy choices might also lower your risk of some other types of cancer.

### For people at high risk

For some people at high risk of small intestine cancer because of certain [inherited syndromes](#), surgery might be an option to lower risk. For example, people with familial adenomatous polyposis (FAP) can have a very high risk of small intestine cancer starting in the duodenum (the first part of the small intestine). If a person has many duodenal polyps (growths), doctors may suggest surgery to remove the duodenum before cancer can develop.

The procedure most often used is called a *pancreaticoduodenectomy* (or *Whipple procedure*). This is a complex operation that removes the duodenum, part of the

pancreas, the gallbladder, the common bile duct, and part of the stomach. It can have major side effects, so it's important to understand the possible pros and cons before having this type of surgery. This procedure is discussed in more detail in [Surgery for Small Intestine Cancer \(Adenocarcinoma\)](#)<sup>4</sup>.

Research is also looking at whether medicines might help lower the risk of small intestine cancer in people with many polyps. Nonsteroidal anti-inflammatory drugs (NSAIDs), such as aspirin, are one type of medicine being studied.

## Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
2. [www.cancer.org/cancer/gastrointestinal-stromal-tumor.html](http://www.cancer.org/cancer/gastrointestinal-stromal-tumor.html)
3. [www.cancer.org/cancer/non-hodgkin-lymphoma.html](http://www.cancer.org/cancer/non-hodgkin-lymphoma.html)
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# Small Intestine 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 Small Intestine Cancer \(Adenocarcinoma\) Be Found Early?](#)
- [Signs and Symptoms of Small Intestine Cancer \(Adenocarcinoma\)](#)
- [Tests for Small Intestine Cancer \(Adenocarcinoma\)](#)

## 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.

- [Small Intestine Cancer \(Adenocarcinoma\) Stages](#)
- [Survival Rates for Small Intestine Cancer \(Adenocarcinoma\)](#)

## Questions to Ask About Small Intestine Cancer

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

- [Questions to Ask Your Doctor About Small Intestine Cancer](#)

# Can Small Intestine Cancer (Adenocarcinoma) Be Found Early?

*(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)<sup>1</sup>, [Gastrointestinal Stromal Tumors](#)<sup>2</sup>, or [Non-Hodgkin Lymphoma](#)<sup>3</sup>.)*

Screening is testing for diseases like cancer in people who do not have any symptoms. Screening tests can find some types of cancer early, when treatment is most likely to be effective. But small intestine adenocarcinomas are rare, and no effective screening tests have been found for these cancers, so routine testing for people without any [symptoms](#) is not recommended.

## For people at high risk

For people with certain [inherited genetic syndromes](#)<sup>4</sup> who are at increased risk of small intestine cancer, doctors might recommend regular tests to look for cancer early, especially in the duodenum (the first part of the small intestine). Tests that might be done include upper endoscopy (in which a long tube with a tiny video camera on the end is passed down the throat, through the stomach, and into the duodenum), CT scans, and endoscopic ultrasound (EUS). See [Tests for Small Intestine Cancer \(Adenocarcinoma\)](#) to learn more about these tests.

## Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
2. [www.cancer.org/cancer/gastrointestinal-stromal-tumor.html](http://www.cancer.org/cancer/gastrointestinal-stromal-tumor.html)
3. [www.cancer.org/cancer/non-hodgkin-lymphoma.html](http://www.cancer.org/cancer/non-hodgkin-lymphoma.html)
4. [www.cancer.org/cancer/small-intestine-cancer/causes-risks-prevention/risk-factors.html](http://www.cancer.org/cancer/small-intestine-cancer/causes-risks-prevention/risk-factors.html)

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## Signs and Symptoms of Small Intestine Cancer (Adenocarcinoma)

*(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)<sup>1</sup>, [Gastrointestinal Stromal Tumors](#)<sup>2</sup>, or [Non-Hodgkin Lymphoma](#)<sup>3</sup>.)*

The symptoms of small intestine cancers are often vague and can have other, more common causes. Unfortunately, this means that it's often at least several months from the time symptoms start until the cancer is diagnosed.

Some of the more common symptoms of small intestine cancer are:

- Pain in the belly (abdomen)
- Nausea and vomiting
- Weight loss (without trying)
- Weakness and feeling tired (fatigue)
- Dark-colored stools (from bleeding into the intestine)

- Low red blood cell counts (anemia)
- Yellowing of the skin and eyes (jaundice)

Often, the first symptom is **pain** in the stomach area. This pain is often crampy and may not be constant. For example, it may start or get worse after you eat.

As the tumor gets larger, it can slow the passage of digested food through the intestine. This can lead to increased pain. If the tumor gets large enough, it can cause an **obstruction**, in which the intestine is completely blocked and nothing can move through. This leads to pain with severe nausea and vomiting.

Rarely, a cancer will cause a **hole (perforation)** to form in the wall of the intestine. This hole lets the contents of the intestine spill into the abdomen. Symptoms of perforation can include sudden severe pain, nausea, and vomiting.

Sometimes a tumor will start **bleeding** into the intestine. If the bleeding is slow, it could lead to a low red blood cell count (anemia) over time. Symptoms of anemia include weakness and fatigue. If the bleeding is rapid, the stool can become black and tarry from digested blood, and the person may feel lightheaded or even pass out.

Less often, a tumor in the duodenum (the first part of the small intestine) can cause **jaundice**. This can happen if the tumor blocks the bile duct, which can prevent the contents from the liver from entering the intestine.

These problems are more often caused by things other than cancer. Still, if you have any of them, especially if they don't go away or are getting worse, have them checked by your doctor to find the cause so it can be treated, if needed.

## Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
2. [www.cancer.org/cancer/gastrointestinal-stromal-tumor.html](http://www.cancer.org/cancer/gastrointestinal-stromal-tumor.html)
3. [www.cancer.org/cancer/non-hodgkin-lymphoma.html](http://www.cancer.org/cancer/non-hodgkin-lymphoma.html)

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## Tests for Small Intestine Cancer (Adenocarcinoma)

*(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)<sup>1</sup>, [Gastrointestinal Stromal Tumors](#)<sup>2</sup>, or [Non-Hodgkin Lymphoma](#)<sup>3</sup>.)*

Small intestine cancers are often found because of [signs or symptoms](#) a person is having. But these symptoms aren't usually enough to know for sure if a person has a small intestine cancer or some other type of health problem. If a tumor is suspected, exams and tests will be needed to confirm the diagnosis.

### Medical history and physical exam

When a doctor takes your medical history, you will be asked about your symptoms, possible [risk factors](#)<sup>4</sup>, family history, and other medical conditions. The doctor will then examine you, focusing on your abdomen looking for any swelling or sounds of the bowel trying to overcome a blockage.

### Blood tests

If your doctor suspects a small intestine cancer, he or she will likely order some blood

tests, such as:

- A **complete blood count (CBC)**, which measures the levels of red blood cells, white blood cells, and platelets. Small intestine cancer often causes bleeding into the intestines, which can lead to a low red blood cell count (anemia).
- **Blood chemistry tests** to look for signs that a cancer might have spread to the liver, or other problems.

## Imaging tests

Imaging tests use x-rays, magnetic fields, or radioactive substances to create pictures of the inside of the body. Imaging tests might be done for a number of reasons, including:

- To help determine if symptoms are being caused by a tumor
- To learn how far cancer has spread
- To help determine if treatment is working
- To look for signs that the cancer has come back

Most patients who have or may have a small intestine tumor will have one or more of these tests.

## Barium x-ray tests

For these tests, a liquid containing barium (a chalky substance) is put into the body to coat the lining of the gastrointestinal (GI) tract, and then x-rays are taken. The barium helps outline any abnormal areas in the esophagus, stomach, and intestines, making them more visible. These x-rays are most often used to look for tumors in the upper or lower parts of the GI tract, but they are less helpful in finding small intestine tumors. Barium tests were used more often before endoscopy was available (see below).

- **Upper GI series:** For this test, you will be given a barium liquid to drink, and then x-rays are done to look at the upper part of the digestive tract (the esophagus, stomach, and first part of the small intestine). To look for problems in the rest of the small intestine, more x-rays can be taken over the next few hours as the barium passes through the intestines. This is called a **small bowel follow-through**. This test often gives good pictures of the first part of the small intestine (the duodenum), but the rest of the small intestine may be hard to see in detail.

- **Enteroclysis:** This test gives more detailed pictures of the small intestine than the upper GI series with small bowel follow-through. A thin tube is passed down the nose or mouth, through the stomach, and into the small intestine. Then barium is sent through the tube directly into the small intestine. X-rays are taken as the liquid moves through the small intestine.
- **Barium enema (lower GI series):** This is a way to look at the large intestine (colon and rectum). Before this test, the bowel needs to be cleaned out. This is done by using strong laxatives and enemas the night before and the morning of the exam. For this test, the barium solution is given into the large intestine through a flexible tube that is put into the anus (like an enema). For better pictures, air can also be injected into the intestine through a tube. This is called *air contrast*. This procedure is meant to be used to look at the large intestine, but sometimes the last part of the small intestine can be seen as well.

## Computed tomography (CT) scan

A [CT scan](#)<sup>5</sup> uses x-rays to make detailed cross-sectional images of your body. Unlike a regular x-ray, a CT scan creates detailed images of the soft tissues in the body.

CT scans are often done if you have abdominal (belly) pain to try to find the source of the problem. Although small intestine tumors may not always be seen well on a CT, these scans are good at showing some of the problems that these tumors can cause (like an [obstruction or perforation](#)). CT scans can also help find areas of cancer spread.

**CT enteroclysis:** This test is sometimes used to get a better view of the intestine than a standard CT can provide. Before the scan, a thin tube is passed down your nose or mouth and down to the small intestine. A large volume of a liquid contrast agent is then put into the tube, which helps expand the intestine and makes it easier to see on a CT scan.

**CT-guided needle biopsy:** CT scans can also be used to guide a biopsy needle precisely into an abnormal area that could be cancer spread. For this procedure, called a *CT-guided needle biopsy*, you will stay on the CT scanning table while the doctor moves a biopsy needle through the skin and toward the location of the mass/tumor. CT scans are repeated until the needle is within the mass. Small samples of tissue are then removed and looked at under a microscope.

## Magnetic resonance imaging (MRI)



Like CT scans, [MRI scans](#)<sup>6</sup> show detailed images of soft tissues in the body. But MRI scans use radio waves and strong magnets instead of x-rays.

MRI scans can sometimes be useful in people with suspected small intestine tumors, because they can show a lot of details in soft tissues. But a CT scan is often done instead, as it is typically an easier test to have done.

**MR enteroclysis:** This test is sometimes used to get a better view of the intestine than a standard MRI can provide. Before the scan, a thin tube is passed down the nose or mouth and down to the small intestine. A large volume of a liquid contrast agent is then put into the tube, which helps expand the intestine and makes it easier to see on an MRI.

## Endoscopy

For an endoscopy, the doctor puts a flexible, lighted tube (endoscope) with a tiny video camera on the end into the body to see the inner lining of the GI tract. If abnormal areas are found, small pieces can be biopsied (removed) through the endoscope.

### Upper endoscopy

Upper endoscopy (also called *esophagogastroduodenoscopy* or *EGD*) is used to look at the esophagus, stomach and duodenum (the first part of the small intestine). The endoscope is put in through the mouth, and then passes through the esophagus, into the stomach, and then into the first part of the small intestine. If the doctor sees any abnormal areas, small pieces of tissue can be removed to be looked at under a microscope to see if cancer is present.

Most people having this test are given medicine to make them sleepy. If this is the case, you will usually need someone to take you home (not just a cab or rideshare service).

This test is helpful in looking at the first part of the small intestine. Other tests, such as capsule endoscopy and double-balloon enteroscopy, are needed to look at the rest of the small intestine.

### Capsule endoscopy

This procedure does not actually use an endoscope. Instead, you will swallow a capsule (about the size of a large vitamin pill) that has a light and a very small camera. Like any other pill, the capsule goes through the stomach and into the small intestine. As it travels through the small intestine (usually over about 8 hours), it takes thousands of

pictures. The camera sends the images to a device that you wear around the waist while going about your normal daily activities. The pictures can then be downloaded onto a computer, where the doctor can look at them as a video. The capsule passes out of the body during a normal bowel movement and is flushed away.

### **Double-balloon enteroscopy (endoscopy)**

Most of the small intestine can't be viewed with an upper endoscopy because it is too long (about 20 feet) and has too many curves. Double-balloon enteroscopy gets around these problems by using a special endoscope that is made up of 2 tubes, one inside the other.

You are given intravenous (IV) medicine to help you relax, or even general anesthesia (so that you are asleep). The endoscope is then inserted either through the mouth or the anus, depending on if there is a specific part of the small intestine to be looked at.

Once in the small intestine, the inner tube, which is an endoscope, is pushed forward a small distance, and then a balloon at its end is inflated to anchor it. Then the outer tube is pushed forward to near the end of the inner tube and it is then anchored in place with a balloon. This process is repeated over and over, letting the doctor see the intestine a foot at a time.

This test can sometimes be helpful when done along with capsule endoscopy. An advantage of this test over capsule endoscopy is that the doctor can biopsy anything that looks abnormal.

Because you will be given medicine to make you sleepy for the procedure, usually someone you know will need to drive you home (not just a cab or rideshare service).

### **Biopsy**

Procedures such as endoscopy and imaging tests can find areas that look like cancer, but the only way to know for certain is to do a biopsy. In a biopsy, a piece of the abnormal area is removed and looked at under a microscope.

There are different ways to take biopsy samples of an intestinal tumor.

- A biopsy can be done during an **endoscopy**. When a tumor is found, the doctor can use biopsy forceps (pincers or tongs) through the tube to take small samples of the tumor. The samples are very small, but doctors can usually make an accurate diagnosis. Bleeding after a biopsy is a rare but potentially serious problem. If

bleeding becomes a problem, doctors can sometimes inject drugs that constrict blood vessels through the endoscope and into the tumor to stop the bleeding.

- For some patients, **surgery** is needed to biopsy a tumor in the intestines. This may be done if the tumor cannot be reached with an endoscope.
- Sometimes CT scans or other imaging tests are used to guide a thin, hollow **needle** to biopsy tumors in other organs (like the liver) to see if they are cancer.

### Lab tests of biopsy samples

Doctors can usually tell if a biopsy sample contains cancer (adenocarcinoma) cells by looking at it under a microscope. But other tests might be done on the samples as well.

For example, the cancer cells might be tested for certain gene changes that could affect treatment options. Changes in mismatch repair (MMR) genes, or another genetic change known as microsatellite instability (MSI), make it more likely that the cancer might respond to treatment with immunotherapy drugs called [checkpoint inhibitors](#)<sup>7</sup>.

### Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
2. [www.cancer.org/cancer/gastrointestinal-stromal-tumor.html](http://www.cancer.org/cancer/gastrointestinal-stromal-tumor.html)
3. [www.cancer.org/cancer/non-hodgkin-lymphoma.html](http://www.cancer.org/cancer/non-hodgkin-lymphoma.html)
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5. [www.cancer.org/treatment/understanding-your-diagnosis/tests/ct-scan-for-cancer.html](http://www.cancer.org/treatment/understanding-your-diagnosis/tests/ct-scan-for-cancer.html)
6. [www.cancer.org/treatment/understanding-your-diagnosis/tests/mri-for-cancer.html](http://www.cancer.org/treatment/understanding-your-diagnosis/tests/mri-for-cancer.html)
7. [www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy/immune-checkpoint-inhibitors.html](http://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy/immune-checkpoint-inhibitors.html)

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## Small Intestine Cancer (Adenocarcinoma) Stages

*(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)<sup>1</sup>, [Gastrointestinal Stromal Tumors](#)<sup>2</sup>, or [Non-Hodgkin Lymphoma](#)<sup>3</sup>.)*

After someone is diagnosed with small intestine cancer, doctors will try to figure out if 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](#)<sup>4</sup> it. Doctors also use a cancer's stage when talking about survival statistics.

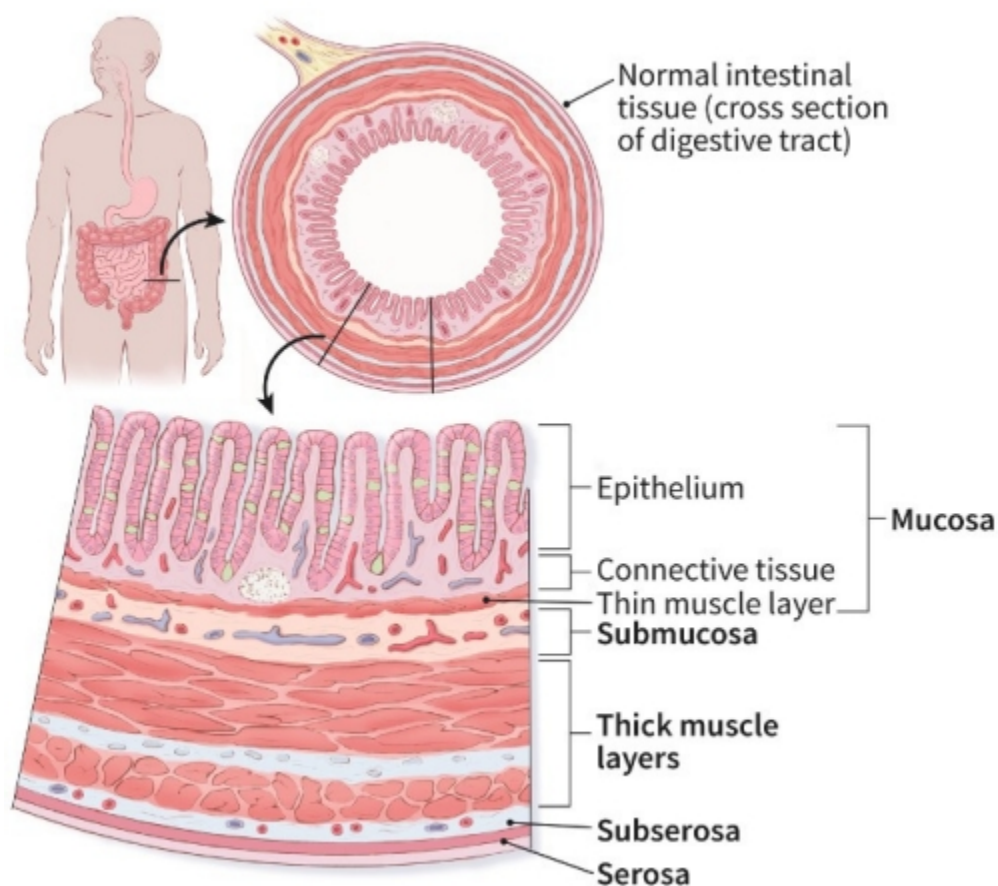
The earliest stage small intestine cancers are called stage 0 (carcinoma in situ), and then range from stages I (1) through IV (4). As a rule, the lower the number, the less the cancer has spread. A higher number, such as stage IV, means cancer has spread more. Although each person's cancer experience is unique, cancers with similar stages tend to have a similar outlook and are often treated in much the same way.

### How is the stage determined?

Small intestine cancers are typically given a **clinical stage** based on the results of any [exams, biopsies, and imaging tests](#) that might have been done. If [surgery](#)<sup>5</sup> has been done, the **pathologic stage** (also called the *surgical stage*) can also be determined.

Small intestine cancers typically start in the inner lining of the intestine. As they grow, they can spread into deeper layers. These layers include:

- **Mucosa:** This is the innermost layer. It has 3 parts: the top layer of cells (called the *epithelium*), a thin layer of connective tissue (called the *lamina propria*), and a thin layer of muscle (called the *muscularis mucosa*).
- **Submucosa:** This is the fibrous tissue that lies beneath the mucosa.
- **Thick muscle layers (muscularis propria):** This layer of muscle contracts to force the food along the GI tract.
- **Subserosa and serosa:** These are the thin outermost layers of connective tissue that cover the GI tract. The serosa is also known as the *visceral peritoneum*.



## The AJCC TNM staging system

The staging system most often used for small intestine cancer is the American Joint Committee on Cancer (AJCC) **TNM** system, which is based on 3 key pieces of

information:

- The extent (size) of the main **tumor (T)**: How far has the cancer grown into the layers of the wall of the small intestine? Has the cancer reached nearby structures or organs?
- The spread to nearby lymph **nodes (N)**: Has the cancer spread to nearby lymph nodes?
- The spread (**metastasis**) to distant sites (**M**): Has the cancer spread to distant parts of the body? The most common sites of spread are the liver and the inner lining of the abdomen (peritoneal cavity).

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 the T, N, and M categories have been determined, this information is combined in a process called **stage grouping** to assign an overall stage. For more information see [Cancer Staging<sup>6</sup>](#).

The system described below is the most recent AJCC system, effective January 2018. It is only used for staging adenocarcinoma of the small intestine.

Small intestine cancer staging can be complex. If you have any questions about the stage of your cancer or what it means, ask your doctor to explain it to you in a way you understand.

### Stages of small intestine adenocarcinoma

AJCC Stage	Stage grouping	Stage description*
0	Tis	The cancer is only in the epithelium (the top layer of cells of the mucosa). It has not grown into the deeper tissue layers (Tis).
	N0	It has not spread to nearby lymph nodes (N0) or distant parts of the body (M0).
	M0	
I	T1 or T2	The cancer has grown into deeper layers (the lamina propria or the submucosa) (T1) OR it has grown through the submucosa into the muscularis propria (T2).

	<b>N0</b> <b>M0</b>	The cancer has not spread to nearby lymph nodes (N0) or to distant parts of the body (M0).
<b>IIA</b>	<b>T3</b> <b>N0</b> <b>M0</b>	The cancer has grown through the muscularis propria and into the subserosa. It has not started to grow into any nearby organs or structures (T3). The cancer has not spread to nearby lymph nodes (N0) or to distant parts of the body (M0).
<b>IIB</b>	<b>T4</b> <b>N0</b> <b>M0</b>	The cancer has grown through the outer layer of tissue covering the intestine (the serosa or visceral peritoneum) or into nearby organs or structures (T4). The cancer has not spread to nearby lymph nodes (N0) or to distant parts of the body (M0).
<b>IIIA</b>	<b>Any T</b> <b>N1</b> <b>M0</b>	The cancer might have grown into any layers of the wall of the small intestine (Any T). It has spread to 1 or 2 nearby lymph nodes (N1) but not to distant parts of the body (M0).
<b>IIIB</b>	<b>Any T</b> <b>N2</b> <b>M0</b>	The cancer might have grown into any layers of the wall of the small intestine (Any T). It has spread to 3 or more nearby lymph nodes (N2) but not to distant parts of the body (M0).
<b>IV</b>	<b>Any T</b> <b>Any N</b> <b>M1</b>	The cancer might have grown into any layers of the wall of the small intestine (Any T). It might or might not have spread to nearby lymph nodes (Any N). It has spread to distant lymph nodes or organs such as the liver or the peritoneum (the inner lining of the abdomen) (M1).

\* The following additional categories are not listed on the table above:

- TX: Main tumor cannot be assessed due to lack of information.
- T0: No evidence of a main tumor.

- NX: Nearby lymph nodes cannot be assessed due to lack of information.

## Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
2. [www.cancer.org/cancer/gastrointestinal-stromal-tumor.html](http://www.cancer.org/cancer/gastrointestinal-stromal-tumor.html)
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# Survival Rates for Small Intestine Cancer (Adenocarcinoma)

*(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)<sup>1</sup>, [Gastrointestinal Stromal Tumors](#)<sup>2</sup>, or [Non-Hodgkin Lymphoma](#)<sup>3</sup>.)*

Survival rates can give you an idea of what percentage 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 of how likely it is that your treatment will be successful.

**Keep in mind that survival rates are estimates and are often based on previous outcomes of large numbers of people who had a specific cancer, but they can't**



**predict what will happen in any particular person's case. These statistics can be confusing and may lead you to have more questions. Talk with your doctor about how these numbers may apply to you, as he or she is familiar with your situation.**

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

A **relative survival rate** compares people with the same type and stage of small intestine cancer to people in the overall population. For example, if the **5-year relative survival rate** for a specific stage of small intestine cancer is 80%, it means that people who have that cancer are, on average, about 80% as likely as people who don't have that cancer to live for at least 5 years after being diagnosed.

### Where do these numbers come from?

The American Cancer Society relies on information from the SEER\* database, maintained by the National Cancer Institute (NCI), to provide survival statistics for different types of cancer.

The SEER database tracks 5-year relative survival rates for small intestine cancer in the United States, based on how far the cancer has spread. The SEER database, however, does not group cancers by [AJCC TNM stages](#) (stage 1, stage 2, stage 3, etc.). Instead, it groups cancers into localized, regional, and distant stages:

- **Localized:** The cancer is limited to the wall of the small intestine.
- **Regional:** The cancer has spread outside the wall of the small intestine into nearby structures or lymph nodes.
- **Distant:** The cancer has spread to distant parts of the body such as the liver or peritoneum (the inner lining of the abdomen).

### 5-year relative survival rates for small intestine cancer

(Based on people diagnosed with small intestine cancer between 2008 and 2014.)

SEER Stage	5-Year Relative Survival Rate
Localized	85%
Regional	75%
Distant	42%

All SEER stages combined	68%
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## Understanding the numbers

- **These numbers apply only to the stage of the cancer when it is first diagnosed.** They do not apply later on if the cancer grows, spreads, or comes back after treatment.
- **These numbers don't take everything into account.** Survival rates are grouped based on how far the cancer has spread, but your age, overall health, how well the cancer responds to treatment, and other factors can also affect your outlook.
- **People now being diagnosed with small intestine cancer may have a better outlook than these numbers show.** Treatments improve over time, and these numbers are based on people who were diagnosed and treated at least five years earlier.

\*SEER= Surveillance, Epidemiology, and End Results

## Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
2. [www.cancer.org/cancer/gastrointestinal-stromal-tumor.html](http://www.cancer.org/cancer/gastrointestinal-stromal-tumor.html)
3. [www.cancer.org/cancer/non-hodgkin-lymphoma.html](http://www.cancer.org/cancer/non-hodgkin-lymphoma.html)

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# Questions to Ask Your Doctor About Small Intestine Cancer

It's important to have honest, open discussions with your cancer care team. Ask any question, no matter how minor it might seem. For instance, consider these questions:

## When you're told you have a small intestine cancer

- What [type of small intestine cancer](#)<sup>1</sup> do I have? How might this affect my treatment and outlook?
- Where is the cancer located?
- What is the [stage](#) (extent) of my cancer, and what does that mean for me?
- Will I need any other [tests](#) before we consider treatment options?
- Will I need to see any other types of doctors?
- If I'm concerned about costs and insurance coverage for my diagnosis and treatment, who can help me?

## When deciding on a treatment plan

- How much experience do you have treating this type of cancer?
- What are my [treatment options](#)<sup>2</sup>?
- What do you recommend and why?
- What is the goal of the treatment?
- Should I get a [second opinion](#)<sup>3</sup>? How do I do that? Can you recommend someone?
- Based on what you've learned about my cancer, what is my outlook?
- 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?
- Will treatment affect my daily activities?
- How likely is it that the cancer will come back after treatment? Is there anything I can do to lower this risk?

## 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 getting answers to 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 (or someone from your office) on nights, holidays, or weekends?
- Do I need to change what I eat during treatment?
- Are there any limits on what I can do?
- Should I exercise? What 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?

## After treatment

- Are there any limits on what I can do?
- What symptoms should I watch for?
- What type of [follow-up](#)<sup>4</sup> will I need after treatment?
- 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?
- Where can I find more information and support?

Along with these sample questions, be sure to write down any others you want to ask. For instance, you might want information about recovery times so that you can plan your work or activity schedule. Or you might want to ask about [clinical trials](#)<sup>5</sup> that might be right for you.

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 learn more about speaking with your health care team, see [The Doctor-patient Relationship](#)<sup>6</sup>.

## Hyperlinks

1. [www.cancer.org/cancer/small-intestine-cancer/about/what-is-small-intestine-cancer.html](http://www.cancer.org/cancer/small-intestine-cancer/about/what-is-small-intestine-cancer.html)

2. [www.cancer.org/cancer/small-intestine-cancer/treating/by-tumor-spread.html](http://www.cancer.org/cancer/small-intestine-cancer/treating/by-tumor-spread.html)
3. [www.cancer.org/treatment/finding-and-paying-for-treatment/choosing-your-treatment-team/seeking-a-second-opinion.html](http://www.cancer.org/treatment/finding-and-paying-for-treatment/choosing-your-treatment-team/seeking-a-second-opinion.html)
4. [www.cancer.org/cancer/small-intestine-cancer/after-treatment/follow-up.html](http://www.cancer.org/cancer/small-intestine-cancer/after-treatment/follow-up.html)
5. [www.cancer.org/treatment/treatments-and-side-effects/clinical-trials.html](http://www.cancer.org/treatment/treatments-and-side-effects/clinical-trials.html)
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## Treating Small Intestine Cancer (Adenocarcinoma)

*(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)<sup>1</sup>, [Gastrointestinal Stromal Tumors](#)<sup>2</sup>, or [Non-Hodgkin Lymphoma](#)<sup>3</sup>.)*

If you've been diagnosed with a small intestine cancer, your cancer care team will discuss your treatment options with you. It's important to weigh the benefits of each treatment option against the possible risks and side effects.

### How is small intestine cancer treated?

The main types of treatment used for small intestine adenocarcinoma are:

- [Surgery for Small Intestine Cancer \(Adenocarcinoma\)](#)
- [Chemotherapy for Small Intestine Cancer \(Adenocarcinoma\)](#)
- [Radiation Therapy for Small Intestine Cancer \(Adenocarcinoma\)](#)

### Common treatment approaches

Sometimes more than one type of treatment is used. Which treatment option(s) might be best for you depends on many factors, including the type, grade, and stage of the cancer, as well as your preferences and overall health.

- [Treatment Choices for Small Intestine Cancer \(Adenocarcinoma\), Based on Tumor Spread](#)

### Who treats small intestine cancer?

Based on your treatment options, you might have different types of doctors on your treatment team, including:

- A **surgical oncologist**: a doctor who treats cancer with surgery
- A **radiation oncologist**: a doctor who uses radiation to treat cancer
- A **medical oncologist**: a doctor who uses chemotherapy and other medicines to treat cancer
- A **gastroenterologist**: a doctor that specializes in diseases and problems of the digestive system

You might have many other specialists on your treatment team as well, including physician assistants (PAs), nurse practitioners (NPs), nurses, psychologists, social workers, nutrition specialists, rehabilitation specialists, and other health professionals.

- [Health Professionals Associated With Cancer Care](#)<sup>4</sup>

## Making treatment decisions

It's important to discuss all of your treatment options, including their goals and possible side effects, with your doctors to help make the decision that best fits your needs. Some important things to consider include:

- Your age and expected life span
- Any other serious health conditions you have
- The location and stage of your cancer
- The likelihood that treatment will cure your cancer, help you live longer, or help in some other way
- Your feelings about the possible side effects from treatment

You might feel that you need to decide quickly, but it's important to give yourself time to absorb the information you've learned. It's also very important to ask questions if there is anything you're not sure about.

If time permits, it is often a good idea to seek a second opinion. A second opinion can give you more information and help you feel more confident about the treatment plan you choose.

- [Questions to Ask Your Doctor About Small Intestine Cancer](#)<sup>5</sup>
- [Seeking a Second Opinion](#)<sup>6</sup>

## Thinking about taking part in a clinical trial

Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-the-art cancer treatment. In some cases they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer. Still, they're not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials.

- [Clinical Trials](#)<sup>7</sup>

## Considering complementary and alternative methods

You may hear about alternative or complementary methods that your doctor hasn't mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage, to name a few.

Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor's medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be harmful.

Be sure to talk to your cancer care team about any method you are thinking about using. They can help you learn what is known (or not known) about the method, which can help you make an informed decision.

- [Complementary and Alternative Medicine](#)<sup>8</sup>

## Help getting through cancer treatment

Your cancer care team will be your first source of information and support, but there are other resources for help when you need it. Hospital- or clinic-based support services are an important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, and more – to help you get through treatment. Call our National



Cancer Information Center at 1-800-227-2345 and speak with one of our trained specialists.

- [Find Support Programs and Services in Your Area](#)<sup>9</sup>

### **Choosing to stop treatment or choosing no treatment at all**

For some people, when treatments have been tried and are no longer controlling the cancer, it could be time to weigh the benefits and risks of continuing to try new treatments. Whether or not you continue treatment, there are still things you can do to help maintain or improve your quality of life.

Some people, especially if the cancer is advanced, might not want to be treated at all. There are many reasons you might decide not to get cancer treatment, but it's important to talk to your doctors and you make that decision. Remember that even if you choose not to treat the cancer, you can still get supportive care to help with pain or other symptoms.

- [If Cancer Treatments Stop Working](#)<sup>10</sup>
- [Palliative or Supportive Care](#)<sup>11</sup>

*The treatment information given here is not official policy of the American Cancer 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.*

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## **Surgery for Small Intestine Cancer (Adenocarcinoma)**

*(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)<sup>1</sup>, [Gastrointestinal Stromal Tumors](#)<sup>2</sup>, or [Non-Hodgkin Lymphoma](#)<sup>3</sup>.)*

Surgery is typically the main treatment for small intestine cancer. For some people, it might be the only treatment they need. At this time, surgery is the only treatment that can cure a cancer of the small intestine.

## When might surgery be used?

- For people whose cancer is only in or near the place where it started (that is, in the small intestine and perhaps nearby organs), surgery is typically done to try to remove all of the cancer.
- If the cancer has spread too far to be removed completely, surgery might be done to help prevent or relieve problems that could be caused by the tumor growing large enough to block the intestine (or other problems).

The type of operation will depend on a number of factors, including the size and location of the tumor, and whether a person has any serious health problems.

## Segmental resection

This operation removes (resects) the segment of intestine that has the tumor, as well as some of the normal tissue on either side of the tumor. The 2 cut ends of intestine are then attached back together. Some nearby tissue containing lymph nodes is also removed. Tumors in the end of the ileum (the last part of the small intestine) may require removing the right side of the colon (the first part of the large intestine). This surgery is called a *hemicolectomy*.

Usually this surgery is done through a long cut made in the abdomen. Another option for some smaller cancers might be “keyhole” (laparoscopic) surgery, in which the operation is done through several small cuts using long, thin surgical tools.

After surgery, it can take a few days before a person can eat and drink normally. Removing a small piece of intestine usually doesn’t cause long-term problems with eating or bowel movements, but there are more likely to be issues if part of the colon is removed as well.

## Pancreaticoduodenectomy (Whipple procedure)

This extensive operation can be used to treat cancers of the duodenum (the first part of the small intestine), although it is more often used to treat [pancreatic cancer](#)<sup>4</sup>. It removes the duodenum, part of the pancreas, part of the stomach, and nearby lymph

nodes. The gallbladder and part of the common bile duct are also removed, and the remaining bile duct is then attached to the small intestine so that bile from the liver can continue to enter the small intestine.

This is a complex operation that carries a fairly high risk of complications, which can sometimes even be fatal. Because of this, it's important that it is done by a surgeon (and at a center) that has a lot of experience with it. Still, even in the best hands, many patients have side effects from the surgery. These can include:

- Leaking from the various connections that the surgeon has to make
- Infections
- Bleeding
- Trouble with the stomach emptying itself after eating
- Trouble digesting some foods
- Changes in bowel habits
- Significant weight loss

## Palliative surgery

If the cancer can't be removed completely because it has spread too far, surgery might still be a good option to help prevent or relieve some symptoms from the cancer. This is known as *palliative surgery*. Often, these operations are done to relieve a blocked intestine, to decrease pain, nausea, and vomiting, and allow the patient to eat normally.

If possible, the surgeon will remove enough of the tumor and nearby intestine to allow digested food to pass through.

**Bypass surgery:** Another option might be for the surgeon to leave the tumor in place and to reroute normal parts of the small intestine around the tumor to prevent or relieve a blockage.

**Stent or tube placement:** If major surgery isn't a good option for some reason, sometimes an endoscope can be used to pass a fairly rigid tube (called a *stent*) down the digestive tract and into the blocked part of the intestine. The stent is left in place to help keep the intestine open and allow digested food to pass.

If this can't be done, a thin, flexible tube may be placed through the skin and into the stomach to drain it. The tube can be left in place to help prevent problems with nausea and vomiting.

For more general information about surgery, see [Cancer Surgery](#)<sup>5</sup>.

## Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
2. [www.cancer.org/cancer/gastrointestinal-stromal-tumor.html](http://www.cancer.org/cancer/gastrointestinal-stromal-tumor.html)
3. [www.cancer.org/cancer/non-hodgkin-lymphoma.html](http://www.cancer.org/cancer/non-hodgkin-lymphoma.html)
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# Chemotherapy for Small Intestine Cancer (Adenocarcinoma)

**(Note:** This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors<sup>1</sup>](#), [Gastrointestinal Stromal Tumors<sup>2</sup>](#), or [Non-Hodgkin Lymphoma<sup>3</sup>](#).)

Chemotherapy (chemo) uses drugs to kill cancer cells. Often, these drugs are injected into a vein (IV) or given by mouth. They enter the bloodstream and can reach cancer cells anywhere in the body.

Unfortunately, small intestine adenocarcinoma does not seem to be very sensitive to chemo, so it is not often part of the main treatment for this cancer. Still, it may be used in some situations:

- If the cancer has spread (metastasized) to other parts of the body
- After the tumor is removed with surgery (called **adjuvant treatment**), to try to lower the chance that the cancer will come back. It's not yet clear how well this works or small intestine cancer.
- As **intraoperative chemotherapy** for cancer that has spread to the inner lining of the abdomen (called the *peritoneum*). For this treatment, chemo is put directly into the abdomen right after surgery. The chemo is often heated first to help it work better. This is known as *hyperthermic intraoperative chemotherapy (HIPEC)*.

## Which chemo drugs might be used?

Some of the chemo drugs that can be used include:

- Capecitabine
- 5-fluorouracil (5-FU)
- Oxaliplatin
- Irinotecan

5-FU is often given with a vitamin-like drug called leucovorin, which helps it work better.

Because small intestine cancer is rare, it has been hard to study which chemo drugs work best. Some of the drug combinations that seem to work in advanced small intestine cancer include:

- Capecitabine and oxaliplatin (called CAPOX)

- 5-FU and leucovorin with oxaliplatin (FOLFOX)
- 5-FU and leucovorin with irinotecan (FOLFIRI).

## Possible side effects

Chemo drugs kill cancer cells but also damage some normal cells, which can lead to [side effects](#)<sup>4</sup>. These depend on the type and dose of drugs, and the length of treatment. Common short-term side effects might include:

- Nausea and vomiting
- Loss of appetite
- Loss of hair
- Mouth sores
- Diarrhea

Chemo can also damage the blood-making cells of the bone marrow, so you may have low blood cell counts. This can lead to:

- An increased risk of infection (from a shortage of white blood cells)
- Bleeding or bruising after minor cuts or injuries (from a shortage of blood platelets)
- Fatigue (tiredness) or shortness of breath (from a shortage of red blood cells)

Along with these, some other side effects can be seen with certain medicines, for example:

- Capecitabine or 5-FU (when given as an infusion) can cause **hand-foot syndrome**. This starts out as redness in the hands and feet, which can then progress to pain and sensitivity in the palms and soles. If it worsens, blistering or skin peeling can occur, sometimes leading to open, painful sores. These symptoms gradually get better when the drug is stopped or the dose is lowered, so it's important to tell your doctor when symptoms first come up.
- Oxaliplatin can often cause **neuropathy** (nerve damage). Symptoms can include numbness, tingling, and even pain in the hands and feet. It can also make you very sensitive to hot and cold, especially in the throat and esophagus (the tube connecting the throat to the stomach), which can make swallowing liquids painful. More information about neuropathy can be found in [Peripheral Neuropathy Caused by Chemotherapy](#)<sup>5</sup>.

- Many of these drugs commonly cause **diarrhea**, but it can be particularly bad with irinotecan. If you get diarrhea while being treated with irinotecan, it needs to be treated right away – at the first loose stool – to prevent severe dehydration.

Most side effects tend to go away after treatment is finished. But some, such as hand and foot numbness, might last for a long time. Talk to your cancer care team about any side effects you have, because there are often ways to lessen chemo side effects. For example, drugs can be given to help prevent or reduce nausea and vomiting.

For more information about chemo and its side effects, see [Chemotherapy](#)<sup>6</sup>.

## Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
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## Radiation Therapy for Small Intestine Cancer (Adenocarcinoma)

(**Note:** This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors<sup>1</sup>](#), [Gastrointestinal Stromal Tumors<sup>2</sup>](#), or [Non-Hodgkin Lymphoma<sup>3</sup>](#).)

Radiation therapy uses high-energy radiation to kill cancer cells. It may be an option for those whose cancer cannot be removed completely with surgery and is causing problems such as pain or bleeding into the intestines. Radiation might also be used after surgery to try to kill any remaining cancer cells (known as *adjuvant therapy*), although it's not yet clear how helpful this is.

**External-beam radiation therapy** is the type of radiation used most often for small intestine cancer. For this treatment, radiation beams are aimed at the tumor from a machine outside the body.

Before treatment starts, the radiation team will take careful measurements to find the correct angles for aiming the radiation beams and the proper dose of radiation. This planning session, called *simulation*, usually includes getting [imaging tests<sup>4</sup>](#) such as CT or MRI scans.

Radiation therapy is much like getting an x-ray, but the radiation is much stronger. The treatment itself is painless. It lasts only a few minutes, although the setup time – getting you into place for treatment – usually takes longer. You might get radiation treatment for several days in a row.

### Possible side effects

The main [side effects<sup>5</sup>](#) of radiation therapy to the intestines include:



- Fatigue (tiredness)
- Nausea and vomiting
- Diarrhea
- Skin changes in the area where the radiation beams passed through, which can range from mild redness to blistering and peeling

For more information about radiation therapy and its side effects, see [Radiation Therapy](#)<sup>6</sup>.

## Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
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# Treatment Choices for Small Intestine Cancer (Adenocarcinoma), Based on Tumor Spread

*(Note: This information is about small intestine cancers called adenocarcinomas. To learn about other types of cancer that can start in the small intestine, see [Gastrointestinal Carcinoid Tumors](#)<sup>1</sup>, [Gastrointestinal Stromal Tumors](#)<sup>2</sup>, or [Non-Hodgkin Lymphoma](#)<sup>3</sup>.)*

The treatment of small intestine cancer depends mainly on whether or not the cancer can be removed completely with surgery. Cancers that can be removed completely are called *resectable*, while those that cannot are called *unresectable*.

## Resectable cancers

Resectable cancers are treated with [surgery](#) to remove the cancer and some healthy surrounding tissue. The type of surgery will depend on where the cancer is:

- If the cancer is in the duodenum (the first part of the small intestine), an extensive operation called a Whipple procedure (or pancreaticoduodenectomy) is typically done.
- If the cancer is in another part of the small intestine, a segmental resection (removing the part of the intestine containing the tumor) is more likely to be done.
- If the cancer is near the end of the small intestine, part of the large intestine (colon) might need to be removed as well.

If the cancer has grown through the wall of the intestine or spread to nearby lymph nodes, the doctor may recommend adjuvant [chemotherapy](#) (chemo) or [radiation therapy](#) after surgery to try to kill any cancer cells that may have been left behind but were too small to see. The hope is that this treatment will help keep the cancer from coming back (recurring). It's not yet clear if adjuvant treatment can help people with small intestine

cancer live longer.

Some doctors are also testing if giving chemo or radiation *before* surgery (known as *neoadjuvant therapy*) might be helpful. The hope is that this might shrink the tumor and make surgery easier, but so far it's not clear how helpful this treatment might be.

## Unresectable cancers

A small intestine cancer may be unresectable if it has grown into nearby tissues or if it has spread to other organs and tissues (or if a person isn't healthy enough for major surgery).

Some people with unresectable cancers still have [surgery](#) to treat blocked intestines. This might include removing a large part of the tumor, or bypassing the tumor in some way. This type of **palliative surgery** can often help prevent or relieve symptoms like nausea, vomiting, and abdominal pain.

Whether or not surgery is done, [chemotherapy](#) is typically part of treatment. If the cancer is in the lining of the abdomen, chemo might be given right into the abdominal space just after surgery (known as *intraperitoneal chemotherapy*). [Radiation therapy](#) can also be used to treat cancer that has spread, especially to the brain or bones (such as the spine).

Another treatment option for some people might be immunotherapy, which uses medicines to boost the body's own immune response against the cancer. For people whose cancer cells have certain gene changes, such as mismatch repair (MMR) gene mutations or microsatellite instability (MSI), treatment with medicines called [checkpoint inhibitors](#)<sup>4</sup>, such as pembrolizumab (Keytruda), might be helpful.

Because there is no generally accepted standard treatment for these advanced cancers, taking part in a [clinical trial](#)<sup>5</sup> is also a good option.

*The treatment information given here is not official policy of the American Cancer 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.*

## Hyperlinks

1. [www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html](http://www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html)
2. [www.cancer.org/cancer/gastrointestinal-stromal-tumor.html](http://www.cancer.org/cancer/gastrointestinal-stromal-tumor.html)
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# After Small Intestine Cancer Treatment

## Living as a Cancer Survivor

For many people, cancer treatment often raises questions about next steps as a survivor.

- [Living as a Small Intestine Cancer Survivor](#)

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# Living as a Small Intestine Cancer Survivor

For some people with small intestine cancer, treatment can remove or destroy the cancer. Completing treatment can be both stressful and exciting. You may be relieved to finish treatment, but find it hard not to worry about cancer coming back. When cancer comes back after treatment, it is called a *recurrence*. This is a very common concern if you've had cancer.

For some people, the cancer may never go away completely. They may get regular [treatments](#)<sup>1</sup>, such as chemotherapy, radiation therapy, or other therapies to try to help keep the cancer in check and to help relieve symptoms. Learning to live with cancer that doesn't go away can be difficult and very stressful. It has its own type of uncertainty.

## Follow-up care

Whether you have completed treatment or are still being treated, your doctors will still want to watch you closely. It's very important to go to all follow-up appointments, as small intestine cancers can sometimes come back after treatment.

Some treatment side effects might last a long time or might not even show up until years after you have finished treatment. Your doctor visits are a good time to ask questions and talk about any changes or problems you notice or concerns you have.

## **Exams and tests**

During your follow-up visits, your doctor will ask about symptoms, examine you, and may order blood tests or imaging tests like CT scans. Your visits will likely be at least once every few months at first. The time between visits might then be extended over time if there are no signs that the cancer has returned.

## **Ask your doctor for a survivorship care plan**

Talk with your doctor about developing a survivorship care plan for you. This plan might include:

- A summary of your treatment
- A suggested schedule for follow-up exams and tests
- A schedule for other tests you might need in the future, such as early detection (screening) tests for other types of cancer, or tests to look for long-term health effects from your cancer or its treatment
- A list of possible late- or long-term side effects from your treatment, including what to watch for and when you should contact your doctor
- Diet and physical activity suggestions

## **Keeping health insurance and copies of your medical records**

Even after treatment, it's very important to keep [health insurance](#)<sup>2</sup>. Tests and doctor visits cost a lot, and even though no one wants to think of their cancer coming back, this could happen.

At some point after your treatment, you might find yourself seeing a new doctor who doesn't know about your medical history. It's important to keep copies of your medical records to give your new doctor the details of your diagnosis and treatment. Learn more in [Keeping Copies of Important Medical Records](#)<sup>3</sup>.

## Can I lower my risk of the cancer progressing or coming back?

If you have (or have had) a small intestine cancer, you probably want to know if there are things you can do that might lower your risk of the cancer growing or coming back, such as exercising, eating a certain type of diet, or taking nutritional supplements. Unfortunately, it's not yet clear if there are things you can do that will help.

Adopting healthy behaviors such as [not smoking](#)<sup>4</sup>, [eating well, getting regular physical activity, and staying at a healthy weight might](#)<sup>5</sup> help, but no one knows for sure. However, we do know that these types of changes can have positive effects on your health that can extend beyond your risk of small intestine cancer or other cancers.

### About dietary supplements

So far, no [dietary supplements](#)<sup>6</sup> (including vitamins, minerals, and herbal products) have been shown to clearly help lower the risk of small intestine cancer progressing or coming back. This doesn't mean that no supplements will help, but it's important to know that none have been proven to do so.

Dietary supplements are not regulated like medicines in the United States – they do not have to be proven effective (or even safe) before being sold, although there are limits on what they're allowed to claim they can do. If you're thinking about taking any type of nutritional supplement, talk to your health care team. They can help you decide which ones you can use safely while avoiding those that might be harmful.

### If the cancer comes back

If cancer does recur, your treatment options will depend on the location of the cancer, what treatments you've had before, and your current health and preferences. For more information on how small intestine cancer is treated, see [Treatment Choices for Small Intestine Cancer \(Adenocarcinoma\), Based on Tumor Spread](#)<sup>7</sup>.

For more general information on dealing with a recurrence, see [Understanding Recurrence](#)<sup>8</sup>.

## Can I still get another type of cancer?

Unfortunately, being treated for cancer doesn't mean you can't get another cancer. People who have had small intestine cancer can still get the same types of cancers that other people get. In fact, they are at higher risk for certain types of cancer. For example, they have an increased risk of other digestive tract cancers, especially colon cancer.



Because of this, it's important to do what you can to lower your cancer risk, such as not smoking, staying at a healthy weight, staying active, and eating a healthy diet. And be sure to talk to your doctor about which cancer screening tests are right for you.

## Getting emotional support

Some amount of feeling depressed, anxious, or worried is normal when cancer is a part of your life. Some people are affected more than others. But everyone can benefit from help and support from other people, whether friends and family, religious groups, support groups, professional counselors, or others. To learn more about this, see [Coping With Cancer](#)<sup>9</sup>.

## Hyperlinks

1. [www.cancer.org/cancer/small-intestine-cancer/treating.html](http://www.cancer.org/cancer/small-intestine-cancer/treating.html)
2. [www.cancer.org/treatment/finding-and-paying-for-treatment/understanding-health-insurance.html](http://www.cancer.org/treatment/finding-and-paying-for-treatment/understanding-health-insurance.html)
3. [www.cancer.org/treatment/survivorship-during-and-after-treatment/be-healthy-after-treatment/keeping-copies-of-important-medical-records.html](http://www.cancer.org/treatment/survivorship-during-and-after-treatment/be-healthy-after-treatment/keeping-copies-of-important-medical-records.html)
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7. [www.cancer.org/cancer/small-intestine-cancer/treating/by-tumor-spread.html](http://www.cancer.org/cancer/small-intestine-cancer/treating/by-tumor-spread.html)
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9. [www.cancer.org/treatment/treatments-and-side-effects/emotional-side-effects.html](http://www.cancer.org/treatment/treatments-and-side-effects/emotional-side-effects.html)

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