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About Stomach Cancer

Overview and Types

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

- [What Is Stomach Cancer?](#)

Research and Statistics

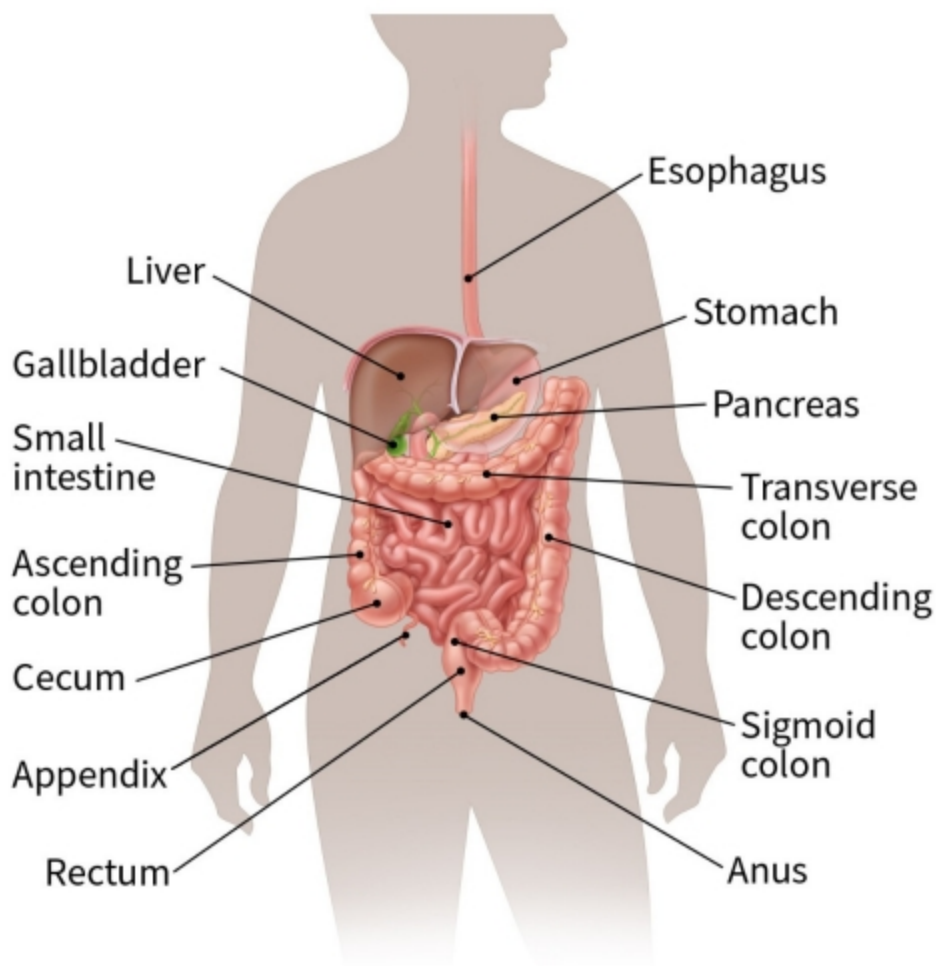
See the latest estimates for new cases of stomach cancer and deaths in the US and what research is currently being done.

- [Key Statistics About Stomach Cancer](#)
 - [What's New in Stomach Cancer Research and Treatment?](#)
-

What Is Stomach 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?](#)¹

Stomach cancer, also called **gastric cancer**, starts in the stomach. To understand stomach cancer, it helps to know about the normal structure and function of the stomach.



The stomach

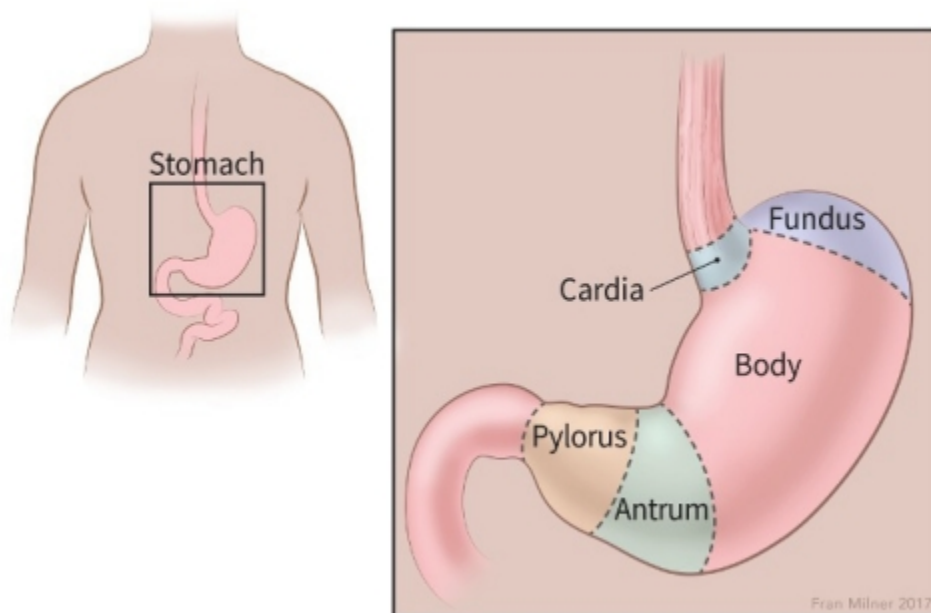
After food is chewed and swallowed, it enters the esophagus, a tube that carries food through the throat and chest to the stomach. The esophagus joins the stomach at the **gastroesophageal (GE) junction**, which is just beneath the diaphragm (the thin sheet of breathing muscle under the lungs). The stomach is a sac-like organ that holds food and starts to digest it by secreting gastric juice. The food and gastric juice are mixed and then emptied into the first part of the small intestine called the **duodenum**.

Some people use the word stomach to refer to the area of the body between the chest and the pelvic area. The medical term for this area is the abdomen. For instance, some people with pain in this area would say they have a "stomachache", when in fact the pain could be coming from the appendix, small intestine, colon (large intestine), or other organs in the area. Doctors would call this symptom abdominal pain, because the stomach is only one of many organs in the abdomen.

Stomach cancer should not be confused with other cancers that can occur in the abdomen, like cancer of the [colon \(large intestine\)](#)², [liver](#)³, [pancreas](#)⁴, or [small intestine](#)⁵ because these cancers can have different symptoms, different outlooks, and different treatments.

Parts of the stomach

The stomach has 5 parts:



- **Cardia:** The first part is closest to the esophagus
- **Fundus:** The upper part of the stomach next to the cardia
- **Body (corpus):** The main part of the stomach, between the upper and lower parts
- **Antrum:** The lower portion (near the intestine), where the food mixes with gastric juice
- **Pylorus:** The last part of the stomach, which acts as a valve to control emptying of the stomach contents into the small intestine

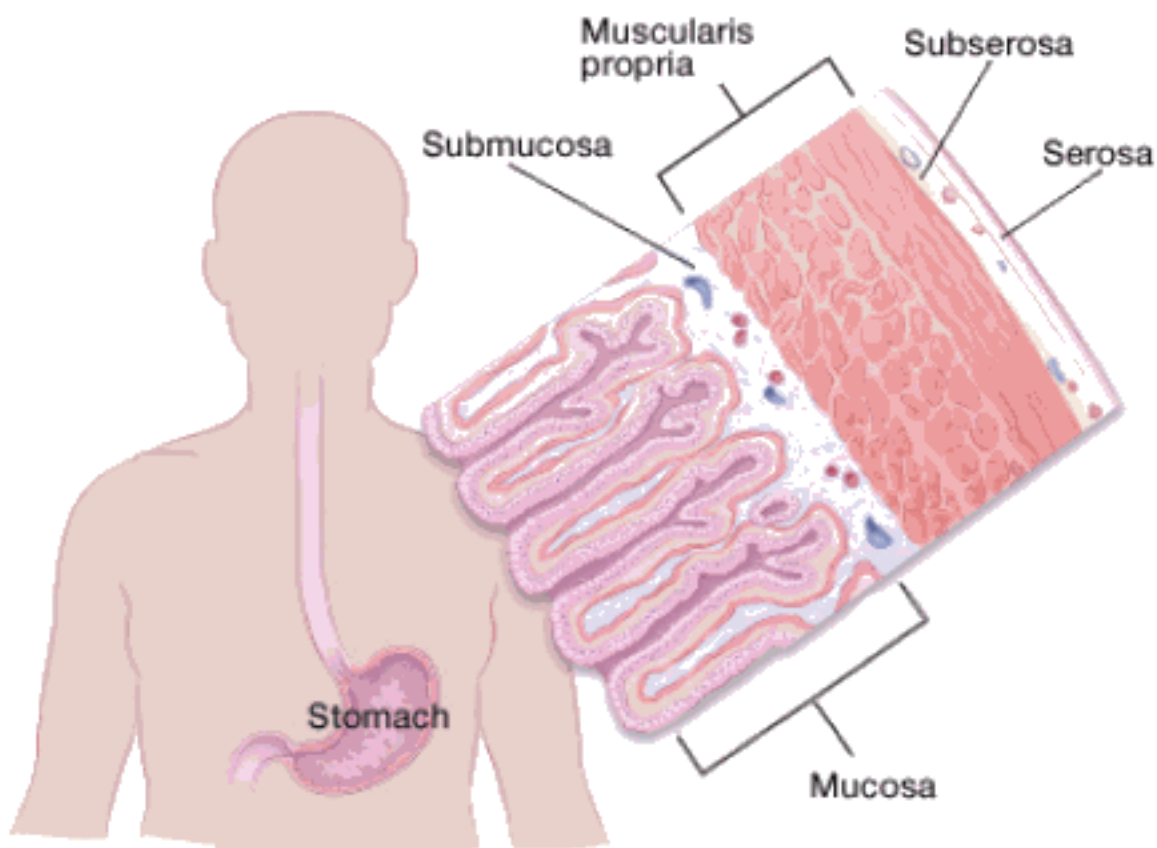
The first 3 parts of the stomach (cardia, fundus, and body) are sometimes called the **proximal stomach**. Some cells in these parts of the stomach make acid and pepsin (a digestive enzyme), the parts of the gastric juice that help digest food. They also make a protein called **intrinsic factor**, which the body needs to absorb vitamin B12.

The lower 2 parts (antrum and pylorus) are called the **distal stomach**. The stomach

has 2 curves, which form its inner and outer borders. They are called the **lesser curvature** and **greater curvature**, respectively.

Other organs next to the stomach include the colon, liver, spleen, small intestine, and pancreas.

The stomach wall has 5 layers:



- The innermost layer is the mucosa. This is where stomach acid and digestive enzymes are made. Most stomach cancers start in this layer.
- Next is a supporting layer called the submucosa.
- Outside of this is the muscularis propria, a thick layer of muscle that moves and mixes the stomach contents.
- The outer 2 layers, the subserosa and the outermostserosa, wrap the stomach.

The layers are important in determining [the stage \(extent\) of the cancer](#)⁶ and in helping

determine a person's prognosis (outlook). As a cancer grows from the mucosa into deeper layers, the stage becomes more advanced and the prognosis is not as good.

Development of stomach cancer

Stomach cancers tend to develop slowly over many years. Before a true cancer develops, pre-cancerous changes often occur in the inner lining (mucosa) of the stomach. These early changes rarely cause symptoms and therefore often go undetected.

Cancers starting in different sections of the stomach may cause different symptoms and tend to have different outcomes. The cancer's location can also affect the treatment options. For example, cancers that start at the GE junction are staged and treated the same as cancers of the esophagus. A cancer that starts in the cardia of the stomach but then grows into the GE junction is also staged and treated like a cancer of the esophagus. (For more information, see [Esophagus Cancer](#)⁷.)

Types of stomach cancers

Adenocarcinoma

Most (about 90% to 95%) cancers of the stomach are adenocarcinomas. A stomach cancer or gastric cancer almost always is an adenocarcinoma. These cancers develop from the cells that form the innermost lining of the stomach (the mucosa).

Lymphoma

These are cancers of the immune system tissue that are sometimes found in the wall of the stomach. The treatment and outlook depend on the type of lymphoma. For more detailed information, see [Non-Hodgkin Lymphoma](#)⁸.

Gastrointestinal stromal tumor (GIST)

These rare tumors start in very early forms of cells in the wall of the stomach called **interstitial cells of Cajal**. Some of these tumors are non-cancerous (benign); others are cancerous. Although GISTs can be found anywhere in the digestive tract, most are found in the stomach. For more information, see [Gastrointestinal Stromal Tumor \(GIST\)](#)⁹.

Carcinoid tumor

These tumors start in hormone-making cells of the stomach. Most of these tumors do not spread to other organs. These tumors are discussed in more detail in [Gastrointestinal Carcinoid Tumors](#)¹⁰.

Other cancers

Other types of cancer, such as squamous cell carcinoma, small cell carcinoma, and leiomyosarcoma, can also start in the stomach, but these cancers are very rare.

Hyperlinks

1. www.cancer.org/cancer/cancer-basics/what-is-cancer.html
2. www.cancer.org/cancer/colon-rectal-cancer.html
3. www.cancer.org/cancer/liver-cancer.html
4. www.cancer.org/cancer/pancreatic-cancer.html
5. www.cancer.org/cancer/small-intestine-cancer.html
6. www.cancer.org/cancer/stomach-cancer/detection-diagnosis-staging/staging.html
7. www.cancer.org/cancer/esophagus-cancer.html
8. www.cancer.org/cancer/non-hodgkin-lymphoma.html
9. www.cancer.org/cancer/gastrointestinal-stromal-tumor.html
10. www.cancer.org/cancer/gastrointestinal-carcinoid-tumor.html

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Key Statistics About Stomach Cancer

The American Cancer Society's estimates for stomach cancer in the United States for

2019 are:

- About 27,510 cases of stomach cancer will be diagnosed (17,230 in men and 10,280 in women)
- About 11,140 people will die from this type of cancer (6,800 men and 4,340 women)

Stomach cancer mostly affects older people. The average age of people when they are diagnosed is 68. About 6 of every 10 people diagnosed with stomach cancer each year are 65 or older. The risk that a man will develop stomach cancer in his lifetime is about 1 in 95. For women the chance is about 1 in 154. But each person's risk can be affected by certain [other factors](#)¹.

In the US, the number of new cases of stomach cancer have decreased about 1.5% each year over the last 10 years. Stomach cancer is much more common in other parts of the world, particularly in less developed countries. It is one of the leading causes of cancer-related deaths in the world.

Until the late 1930s, stomach cancer was the leading cause of cancer death in the United States. Now, stomach cancer is well down on this list. The reasons for this decline are not completely known, but may be linked to increased use of refrigeration for food storage. This made fresh fruits and vegetables more available and decreased the use of salted and smoked foods. Some doctors think the decline may also be linked to the frequent use of antibiotics to treat infections. Antibiotics can kill the bacteria called *Helicobacter pylori* (*H pylori*), which is thought to be a [major cause](#)² of stomach cancer.

For statistics on survival for stomach cancer, see [Survival Rates for Stomach Cancer](#)³.

Visit the American Cancer Society's [Cancer Statistics Center](#)⁴ for more key statistics.

Hyperlinks

1. www.cancer.org/cancer/stomach-cancer/causes-risks-prevention/risk-factors.html
2. www.cancer.org/cancer/stomach-cancer/causes-risks-prevention/risk-factors.html
3. www.cancer.org/cancer/stomach-cancer/detection-diagnosis-staging/survival-rates.html
4. <https://cancerstatisticscenter.cancer.org/>

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Last Medical Review: May 20, 2014 Last Revised: January 9, 2019

What's New in Stomach Cancer Research?

Important research on stomach cancer is being done 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.

Risk factors

Diet

Research has clearly shown that differences in diet are an important factor in explaining variations in stomach cancer risk around the world. Recent research in countries with relatively low stomach cancer risk has provided some insight into risk factors. Diets high in preserved meats and low in fresh fruits and vegetables have been linked with higher risk.

Helicobacter pylori infection

Recent studies have shown that certain types of *H pylori* (especially the *cagA* strains) are more strongly linked to stomach cancer. Some inherited traits related to blood groups may also affect whether someone infected with *H pylori* will develop cancer. Further research is needed to help doctors determine how to use this information to test which people might be at higher risk for developing stomach cancer.

Recent research has also studied the interaction of *H pylori* infection with other risk factors. For example, they have found that a healthy diet is especially important for reducing stomach cancer risk for people infected with *H pylori*.

Chemoprevention

Chemoprevention is the use of natural or man-made chemicals to lower the risk of developing cancer. Some types of chemicals might be useful in helping prevent stomach cancer.

Antioxidants

Many carcinogenic (cancer-causing) factors cause cells to form a type of chemical called a **free radical**. Free radicals can damage important parts of cells such as genes. Depending on how severe the damage is, the cells may die or they may become cancerous.

Antioxidants are a group of nutrients and other chemicals that can destroy free radicals or prevent them from forming. These nutrients include vitamin C, beta-carotene, vitamin E, and the mineral selenium. Studies that have looked at using dietary supplements to lower stomach cancer risk have had mixed results so far. There is some evidence that combinations of antioxidant supplements may reduce the risk of stomach cancer in people with poor nutrition to begin with. Further research in this area is needed.

Antibiotics

Studies are being done to see whether antibiotic treatment of people who are chronically infected by *H pylori* will help prevent stomach cancer. Some studies have found that treating this infection may prevent pre-cancerous stomach abnormalities, but more research is needed.

Although not truly chemoprevention, antibiotics may help prevent stomach cancer from recurring in some cases. Research has shown that antibiotics may lower the risk that the cancer will come back in another part of the stomach in people who have been treated with endoscopic mucosal resection for early-stage stomach cancer.

Unfortunately, in the United States stomach cancers are more often found at a later stage, so it's not clear how useful these results might be here.

Non-steroidal anti-inflammatory drugs (including aspirin)

Some (but not all) studies have found that people who take non-steroidal anti-inflammatory drugs (NSAIDs) such as aspirin or ibuprofen might have a lower risk of stomach cancer. More research is needed to better define this possible link. In the meantime, doctors generally don't recommend taking these medicines just to try to lower your risk of cancer, as they can cause serious side effects in some people.

Staging

Sentinel lymph node mapping

Doctors are trying to identify the spread of stomach cancer to lymph nodes using this technique, which has proved very successful in [melanoma](#)¹ and [breast cancer](#)².

In sentinel lymph node mapping, the surgeon injects a blue dye and/or a radioactive tracer substance into the cancer. These concentrate in the lymph nodes that would be the first site of cancer spread. Doctors can remove these lymph nodes and look for cancer. If no cancer is found in these lymph nodes, then the cancer is unlikely to have reached others, and a full lymph node removal might not be needed. If cancer is found in the sentinel lymph node(s), then all the lymph nodes would still need to be removed.

This technique has been shown to help find more lymph nodes to remove, and to find lymph nodes that are more likely to contain cancer cells. But this technique is still being studied in stomach cancer and is not yet ready for widespread use.

Treatment

Chemotherapy drugs and combinations

Some studies are testing new ways to combine treatments already known to be active against stomach cancer or other cancers.

Several [chemotherapy](#)³ drugs are approved and used to treat stomach cancer, and some are used together in combination with each other. Newer chemotherapy (chemo) drugs are also being studied. For example, S-1 is an oral chemo drug related to 5-FU.

This drug is commonly used for stomach cancer in some other parts of the world and continues to be studied, but it is not yet available in the United States. New ways of giving chemo are also being studied. For example, some doctors are looking at infusing chemo directly into the abdomen (intraperitoneal chemotherapy) to see if it might work better with fewer side effects.

Other studies are testing the best ways to combine chemo with [radiation therapy](#)⁴, targeted therapies, or immunotherapy. A good deal of effort is being directed at improving the results of [surgery](#)⁵ by adding chemo and/or radiation therapy either before or after surgery. Some studies are also looking at benefits of giving chemo during surgery. Several clinical trials are in progress.

Targeted therapies

Chemo drugs target cells that divide rapidly, which is why they work against cancer cells. But there are other aspects of cancer cells that make them different from normal cells. In recent years, researchers have developed new [targeted drugs](#)⁶ to try to exploit these differences. Targeted drugs sometimes work when standard chemo drugs don't. They also tend to have less severe side effects than chemo drugs.

Drugs that block HER2: Some stomach cancers have too much of the HER2 protein on the surface of their cells, which helps them grow. Drugs that target this protein might help treat these cancers. Trastuzumab (Herceptin) is already approved for use against advanced stomach cancer. Other drugs that target HER2, such as lapatinib (Tykerb[®]), pertuzumab (Perjeta[®]), and trastuzumab emtansine (Kadcyla[®]) are now being studied in clinical trials.

Drugs that block EGFR: EGFR is another protein found on some stomach cancer cells that helps them grow. Panitumumab (Vectibix[®]) is a drug that targets EGFR that is being tested against stomach cancer. This drug is already FDA-approved to treat some other cancers.

Other targeted drugs: Other drugs target different parts of cancer cells. For example, another targeted drug being studied against stomach cancer is apatinib.

Most research in this area is looking at combining targeted agents with chemotherapy or with each other.

Immunotherapy

Immunotherapy is an approach that uses drugs to try and help the body's immune system fight the cancer.

In 2017, pembrolizumab (Keytruda[®]) became the first immunotherapy agent approved to treat stomach cancer in some patients whose treatment did not work or stopped working. Pembrolizumab is an immune checkpoint inhibitor and targets PD-L1, a protein found on some stomach cancer cells. For more information on this type of treatment,

see [Immunotherapy](#)⁷ and [Immune Checkpoint Inhibitors to Treat Cancer](#)⁸.

Hyperlinks

1. www.cancer.org/cancer/melanoma-skin-cancer.html
2. www.cancer.org/cancer/breast-cancer.html
3. www.cancer.org/cancer/stomach-cancer/treating/chemotherapy.html
4. www.cancer.org/cancer/stomach-cancer/treating/radiation-therapy.html
5. www.cancer.org/cancer/stomach-cancer/treating/types-of-surgery.html
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7. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy.html
8. <https://www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy/immune-checkpoint-inhibitors.html>

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Stomach 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 stomach cancer.

- [What Are the Risk Factors for Stomach Cancer?](#)
- [Do We Know What Causes Stomach Cancer?](#)

Prevention

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

- [Can Stomach Cancer Be Prevented?](#)

Stomach Cancer Risk Factors

A risk factor is anything that affects 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, having a risk factor, or even several risk factors, does not mean that you will get the

disease. And many people who get the disease may have few or no known risk factors.

Scientists have found several risk factors that make a person more likely to get stomach cancer. Some of these can be controlled, but others cannot.

Gender

Stomach cancer is more common in men than in women.

Age

There is a sharp increase in stomach cancer rates in people over age 50. Most people diagnosed with stomach cancer are between their late 60s and 80s.

Ethnicity

In the United States, stomach cancer is more common in Hispanic Americans, African Americans, Native Americans, and Asian/Pacific Islanders than it is in non-Hispanic whites.

Geography

Worldwide, stomach cancer is more common in Japan, China, Southern and Eastern Europe, and South and Central America. This disease is less common in Northern and Western Africa, South Central Asia, and North America.

Helicobacter pylori infection

Infection with *Helicobacter pylori* (*H pylori*) bacteria seems to be a major **cause of stomach cancer**, especially cancers in the lower (distal) part of the stomach. Long-term infection of the stomach with this germ may lead to inflammation (called **chronic atrophic gastritis**) and pre-cancerous changes of the inner lining of the stomach.

People with stomach cancer have a higher rate of *H pylori* infection than people without this cancer. *H pylori* infection is also linked to some types of lymphoma of the stomach. Even so, most people who carry this germ in their stomach never develop cancer.

Stomach lymphoma

People who have had a certain type of lymphoma of the stomach known as **mucosa-associated lymphoid tissue (MALT) lymphoma** have an increased risk of getting adenocarcinoma of the stomach. This is probably because MALT lymphoma of the stomach is caused by infection with *H pylori* bacteria.

Diet

An increased risk of stomach cancer is seen in people with diets that have large amounts of smoked foods, salted fish and meat, and pickled vegetables. Nitrates and nitrites are substances commonly found in cured meats. They can be converted by certain bacteria, such as *H pylori*, into compounds that have been shown to cause stomach cancer in lab animals.

On the other hand, eating lots of fresh fruits and vegetables appears to lower the risk of stomach cancer.

Tobacco use

[Smoking](#)¹ increases stomach cancer risk, particularly for cancers of the upper portion of the stomach near the esophagus. The rate of stomach cancer is about doubled in smokers.

Being overweight or obese

Being overweight or obese is a possible cause of cancers of the cardia (the upper part of the stomach nearest the esophagus), but the strength of this link is not yet clear.

Previous stomach surgery

Stomach cancers are more likely to develop in people who have had part of their stomach removed to treat non-cancerous diseases such as ulcers. This might be because the stomach makes less acid, which allows more nitrite-producing bacteria to be present. Reflux (backup) of bile from the small intestine into the stomach after surgery might also add to the increased risk. These cancers typically develop many years after the surgery.

Pernicious anemia

Certain cells in the stomach lining normally make a substance called **intrinsic factor**

(IF)that we need to absorb vitamin B12 from foods. People without enough IF may end up with a vitamin B12 deficiency, which affects the body's ability to make new red blood cells and can cause other problems as well. This condition is called pernicious anemia. Along with anemia (too few red blood cells), people with this disease have an increased risk of stomach cancer.

Menetrier disease (hypertrophic gastropathy)

In this condition, excess growth of the stomach lining causes large folds in the lining and leads to low levels of stomach acid. Because this disease is very rare, it is not known exactly how much this increases the risk of stomach cancer.

Type A blood

Blood type groups refer to certain substances that are normally present on the surface of red blood cells and some other types of cells. These groups are important in matching blood for transfusions. For unknown reasons, people with type A blood have a higher risk of getting stomach cancer.

Inherited cancer syndromes

Some inherited conditions may raise a person's risk of stomach cancer.

Hereditary diffuse gastric cancer

This inherited syndrome greatly increases the risk of developing stomach cancer. This condition is rare, but the lifetime stomach cancer risk among affected people is about 70% to 80%. Women with this syndrome also have an increased risk of getting a certain type of [breast cancer](#)². This condition is caused by mutations (defects) in the *CDH1* gene.

Lynch syndrome or hereditary non-polyposis colorectal cancer (HNPCC)

Lynch syndrome (formerly known as HNPCC) is an inherited genetic disorder that increases the risk of [colorectal cancer](#)³, stomach cancer, and some other cancers. In most cases, this disorder is caused by a defect in either the *MLH1* or *MSH2* gene, but other [genes](#)⁴ can cause Lynch syndrome, including *MLH3*, *MSH6*, *TGFBR2*, *PMS1*, and *PMS2*.

Familial adenomatous polyposis (FAP)

In FAP, people get many polyps in the colon, and sometimes in the stomach and intestines as well. People with this syndrome are at greatly increased risk of getting [colorectal cancer](#)⁵ and have a slightly increased risk of getting stomach cancer. It is caused by mutations in the *APC* gene.

BRCA1 and BRCA2

People who carry mutations of the inherited [breast cancer genes](#)⁶ *BRCA1* or *BRCA2* may also have a higher rate of stomach cancer.

Li-Fraumeni syndrome

People with this syndrome have an increased risk of several types of cancer, including developing stomach cancer at a relatively young age. Li-Fraumeni syndrome is caused by a mutation in the *TP53* gene.

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. The polyps in the stomach and intestines are a special type called **hamartomas**. They can cause problems like bleeding or blockage of the intestines. PJS can also cause dark freckle-like spots on the lips, inner cheeks and other areas. People with PJS have an increased risk of cancers of the breast, colon, [pancreas](#)⁷, stomach, and several other organs. This syndrome is caused by mutations in the gene *STK1*.

A family history of stomach cancer

People with first-degree relatives (parents, siblings, or children) who have had stomach cancer are more likely to develop this disease.

Some types of stomach polyps

Polyps are non-cancerous growths on the lining of the stomach. Most types of polyps (such as hyperplastic polyps or inflammatory polyps) do not seem to increase a person's risk of stomach cancer, but adenomatous polyps – also called *adenomas* – can sometimes develop into cancer.

Epstein-Barr virus (EBV) infection

Epstein-Barr virus causes infectious mononucleosis (also called mono). Almost all adults have been infected with this virus at some time in their lives, usually as children or teens.

EBV has been linked to some forms of [lymphoma](#)⁸. It is also found in the cancer cells of about 5% to 10% of people with stomach cancer. These people tend to have a slower growing, less aggressive cancer with a lower tendency to spread. EBV has been found in some stomach cancer cells, but it isn't yet clear if this virus actually causes stomach cancer.

Certain occupations

Workers in the coal, metal, and rubber industries seem to have a higher risk of getting stomach cancer.

Common variable immune deficiency (CVID)

People with CVID have an increased risk of stomach cancer. The immune system of someone with CVID can't make enough antibodies in response to germs. People with CVID have frequent infections as well as other problems, including atrophic gastritis and pernicious anemia. They are also more likely to get gastric lymphoma and stomach cancer.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/tobacco-and-cancer/smokeless-tobacco.html
2. www.cancer.org/cancer/breast-cancer.html
3. www.cancer.org/cancer/colon-rectal-cancer.html
4. www.cancer.org/cancer/cancer-causes/genetics.html
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8. www.cancer.org/cancer/lymphoma.html

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What Causes Stomach Cancer?

There are many known [risk factors](#) for stomach cancer, but it is not known exactly how these factors cause cells of the stomach lining to become cancerous. This is the subject of ongoing research.

Several changes thought to be pre-cancerous can occur in the stomach lining.

In **chronic atrophic gastritis**, the normal glands of the stomach are either decreased or absent. There is also some degree of inflammation (the stomach cells are damaged by cells of the immune system). Atrophic gastritis is often caused by *H pylori* infection. It can also be caused by an autoimmune reaction, in which a person's immune system attacks the cells lining the stomach. Some people with this condition go on to develop pernicious anemia or other stomach problems, including cancer. It is not known exactly how this condition might progress to cancer.

Another possible pre-cancerous change is **intestinal metaplasia**. In this condition, the normal lining of the stomach is replaced with cells that closely resemble the cells that usually line the intestine. People with this condition usually have chronic atrophic gastritis as well. How and why this change occurs and progresses to stomach cancer is not well understood. This might also be related to *H pylori* infection.

Recent research has provided clues on how some stomach cancers form. For instance, *H pylori* bacteria, particularly certain subtypes, can convert substances in some foods into chemicals that cause mutations (changes) in the DNA of the cells in the stomach lining. This may also explain why certain foods such as preserved meats increase a person's risk for stomach cancer. On the other hand, some of the foods that might lower stomach cancer risk, such as fruits and vegetables, contain antioxidants that can block substances that damage a cell's DNA.

Scientists have made a lot of progress in understanding how certain changes in DNA can cause normal stomach cells to grow abnormally and form cancers. DNA is the

chemical in cells that carries our genes, which control how our cells function. We look like our parents because they are the source of our DNA. But DNA affects more than how we look.

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

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

DNA changes that turn on oncogenes or turn off tumor suppressor genes can cause cancers.

Inherited mutations (abnormal changes) in some genes (as explained in [Stomach Cancer Risk Factors](#)) can increase a person's stomach cancer risk. These are thought to cause only a small percentage of stomach cancers. Still, genetic testing can be done to look for the gene mutations that can cause some inherited cancer syndromes. You can read more in [Genetics and Cancer](#)¹.

Most of the gene changes that lead to stomach cancer occur after birth. Some of these changes might be caused by risk factors such as *H pylori* infection or tobacco use. But other gene changes may just be random events that sometimes happen inside cells, without having an outside cause.

Hyperlinks

1. www.cancer.org/cancer/cancer-causes/genetics.html

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Can Stomach Cancer Be Prevented?

There is no sure way to prevent stomach cancer, but there are things you can do that could lower your risk.

Diet, nutrition, body weight, and physical activity

The dramatic decline of stomach cancer in the past several decades is thought to be a result of people reducing many of the known dietary risk factors. This includes greater use of refrigeration for food storage rather than preserving foods by salting, pickling, and smoking. To help reduce your risk, avoid a diet that is high in smoked and pickled foods and salted meats and fish.

A diet high in fresh fruits and vegetables can also lower stomach cancer risk. Citrus fruits (such as oranges, lemons, and grapefruit) may be especially helpful, but grapefruit and grapefruit juice can change the blood levels of certain drugs you take, so it's important to discuss this with your health care team before adding grapefruit to your diet.

The American Cancer Society recommends that people eat a healthy diet, with an emphasis on plant foods. This includes eating at least 2½ cups of vegetables and fruits every day. Choosing whole-grain breads, pastas, and cereals instead of refined grains, and eating fish, poultry, or beans instead of processed meat and red meat may also help lower your risk of cancer.

Studies that have looked at using dietary supplements to lower stomach cancer risk have had mixed results so far. Some studies have suggested that combinations of antioxidant supplements (vitamins A, C, and E and the mineral selenium) might reduce the risk of stomach cancer in people with poor nutrition to begin with. But most studies looking at people who have good nutrition have not found any benefit to adding vitamin pills to their diet. Further research in this area is needed.

Although some small studies suggested that drinking tea, particularly green tea, may help protect against stomach cancer, most large studies have not found such a link.

Being overweight or obese may add to the risk of stomach cancer. On the other hand, being physically active may help lower your risk.

The American Cancer Society recommends staying at a healthy weight throughout life by balancing calorie intake with physical activity. Aside from possible effects on the risk of stomach cancer, losing weight and being active may also have an effect on the risk of several other cancers and health problems. The full recommendations can be found in the [American Cancer Society Guidelines on Nutrition and Physical Activity for Cancer Prevention](#)¹.

Avoiding tobacco use

Tobacco use can increase the risk of cancers of the proximal stomach (the portion of the stomach closest to the esophagus). Tobacco use increases the risk for many other types of cancer and is responsible for about one-third of all cancer deaths in the United States. If you don't use tobacco, don't start. If you already do and [want help quitting](#)², call the American Cancer Society at 1-800-227-2345.

Treating *H pylori* infection

It is not yet clear if people whose stomach linings are chronically infected with the *H pylori* bacteria but who do not have any symptoms should be treated with antibiotics. This is a topic of current research. Some early studies have suggested that giving antibiotics to people with *H pylori* infection might lower the number of pre-cancerous lesions in the stomach and reduce the risk of developing stomach cancer. But not all studies have found this. More research is needed to be sure that this is a way to prevent stomach cancer in people with *H pylori* infection.

If your doctor thinks you might have *H pylori* infection, there are several ways to test for this:

- The simplest way is a blood test that looks for antibodies to *H pylori*. Antibodies are proteins the body's immune system makes in response to an infection. A positive *H pylori* antibody test result can mean either that you are infected with *H pylori* or that you had an infection in the past that is now cleared.
- Another approach is to have an endoscopy procedure (see [Tests for Stomach Cancer](#)³) to take a biopsy sample of the stomach lining. This sample can be used for chemical tests for this kind of bacteria. Doctors can also identify *H pylori* in biopsy samples seen with a microscope. The biopsy sample can also be cultured (placed in a substance that promotes bacterial growth) to see if *H pylori* grows out

of the sample.

- There is also a special breath test for the bacteria. For this test, you drink a liquid containing urea. If *H pylori* is present, it will chemically change the urea. A sample of your breath is then tested for these chemical changes.

Aspirin use

Using aspirin or other non-steroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen or naproxen, seems to lower the risk of stomach cancer. These medicines can also lower the risk of developing colon polyps and [colon cancer](#)⁴. But they can also cause serious (and even life-threatening) internal bleeding and other potential health risks in some people.

Most doctors consider any reduced cancer risk an added benefit for patients who take these drugs for other reasons, such as to treat arthritis. But doctors do not routinely recommend taking NSAIDs specifically to prevent stomach cancer. Studies have not yet determined for which patients the benefits of lowering cancer risk would outweigh the risks of bleeding complications.

For people at greatly increased risk

Only a small percentage of stomach cancers are known to be caused by **hereditary diffuse gastric cancer syndrome**. But it's very important to recognize it, because most people who inherit this condition eventually get stomach cancer. A personal history of invasive lobular [breast cancer](#)⁵ before age 50 as well as having close family members who have had stomach cancer suggests that they might be at risk for having this syndrome. These people can talk to a genetics professional about getting [genetic testing](#)⁶. If the testing shows the person has a mutation (abnormal change) in the *CDH1* gene, many doctors will recommend they have their stomach removed before the cancer develops. Another hereditary cancer syndrome with an increased risk for stomach cancer is **Lynch syndrome**.

Hyperlinks

1. www.cancer.org/healthy/eat-healthy-get-active/acs-guidelines-nutrition-physical-activity-cancer-prevention.html
2. www.cancer.org/healthy/stay-away-from-tobacco/guide-quitting-smoking.html
3. www.cancer.org/cancer/stomach-cancer/detection-diagnosis-staging/how-

[diagnosed.html](#)

4. www.cancer.org/cancer/colon-rectal-cancer.html
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Stomach 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 Stomach Cancer Be Found Early?](#)
- [Signs and Symptoms of Stomach Cancer](#)
- [Tests for Stomach Cancer](#)

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.

- [Stomach Cancer Stages](#)
- [Survival Rates for Stomach Cancer](#)

Questions to Ask About Stomach 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 Stomach Cancer](#)

Can Stomach Cancer Be Found Early?

Screening is testing for a disease, such as cancer, in people without symptoms. In countries such as Japan, where stomach cancer is very common, mass screening of the population has helped find many cases at an early, curable stage. This may have reduced the number of people who die of this disease, but this has not been proven.

Studies in the United States have not found that routine screening in people at average risk for stomach cancer is useful, because this disease is not that common. On the other hand, people with certain stomach cancer [risk factors](#)¹ may benefit from screening. If you have any questions about your stomach cancer risk or about the benefits of screening, please ask your doctor.

Some of the tests that could be used for screening, such as upper endoscopy, are described in [Tests for Stomach Cancer](#).

Because routine screening for stomach cancer is not done in the United States, most people with this disease are not diagnosed until they have certain [signs and symptoms](#) that point to the need for medical tests.

Hyperlinks

1. www.cancer.org/cancer/stomach-cancer/causes-risks-prevention/risk-factors.html

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Signs and Symptoms of Stomach

Cancer

Early-stage stomach cancer rarely causes symptoms. This is one of the reasons stomach cancer is so hard to detect early. The signs and symptoms of stomach cancer can include:

- Poor appetite
- Weight loss (without trying)
- Abdominal (belly) pain
- Vague discomfort in the abdomen, usually above the navel
- A sense of fullness in the upper abdomen after eating a small meal
- Heartburn or indigestion
- Nausea
- Vomiting, with or without blood
- Swelling or fluid build-up in the abdomen
- Blood in the stool
- Low red blood cell count (anemia)

Most of these symptoms are more likely to be caused by things other than cancer, such as a stomach virus or an ulcer. They may also occur with other types of cancer. But people who have any of these problems, especially if they don't go away or get worse, should check with their doctor so the cause can be found and treated.

Since symptoms of stomach cancer often do not appear until the disease is advanced, only about 1 in 5 stomach cancers in the United States is found at an early stage, before it has spread to other areas of the body.

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Tests for Stomach Cancer

Stomach cancers are usually found when a person goes to the doctor because of [signs or symptoms](#) they are having. The doctor will take a medical history and examine the patient. If stomach cancer is suspected, tests will be needed to confirm the diagnosis.

Medical history and physical exam

When taking your medical history, the doctor will ask you questions about your symptoms (eating problems, pain, bloating, etc.) and possible risk factors to see if they might suggest stomach cancer or another cause. The physical exam gives your doctor information about your general health, possible signs of stomach cancer, and other health problems. In particular, the doctor will feel your abdomen for any abnormal changes.

If your doctor thinks you might have stomach cancer or another type of stomach problem, he or she will refer you to a gastroenterologist, a doctor who specializes in diseases of the digestive tract, who will examine you and do further testing.

Upper endoscopy

Upper [endoscopy](#)¹ (also called **esophagogastroduodenoscopy** or **EGD**) is the main test used to find stomach cancer. It may be used when someone has certain risk factors or when signs and symptoms suggest this disease may be present.

During this test, the doctor passes an endoscope, which is a thin, flexible, lighted tube with a small video camera on the end, down your throat. This lets the doctor see the lining of your esophagus, stomach, and first part of the small intestine. If abnormal areas are seen, biopsies (tissue samples) can be taken using instruments passed through the endoscope. The tissue samples are sent to a lab, where they are looked at with a microscope to see if cancer is present.

When seen through an endoscope, stomach cancer can look like an ulcer, a mushroom-shaped or protruding mass, or diffuse, flat, thickened areas of mucosa known as **linitis**

plastica. Unfortunately, the stomach cancers in hereditary diffuse gastric cancer syndrome often cannot be seen during endoscopy.

Endoscopy can also be used as part of a special imaging test known as **endoscopic ultrasound**, which is described below.

This test is usually done after you are given medication to make you sleepy (sedation). If sedation is used, you will probably need someone to take you home.

Endoscopic ultrasound

Ultrasound uses sound waves to produce images of organs such as the stomach. During a standard ultrasound, a wand-shaped probe called a transducer is placed on the skin. It gives off sound waves and detects the echoes as they bounce off internal organs. The pattern of echoes is processed by a computer to produce a black and white image on a screen.

In endoscopic ultrasound (EUS), a small transducer is placed on the tip of an endoscope. While you are sedated, the endoscope is passed down the throat and into the stomach. This lets the transducer rest directly on the wall of the stomach where the cancer is. Doctors can look at the layers of the stomach wall, as well as the nearby lymph nodes and other structures just outside the stomach. The picture quality is better than a standard ultrasound because of the shorter distance the sound waves have to travel.

EUS is most useful in seeing how far a cancer may have spread into the wall of the stomach, to nearby tissues, and to nearby lymph nodes. It can also be used to help guide a needle into a suspicious area to get a tissue sample (EUS-guided needle biopsy).

Biopsy

Your doctor may suspect cancer if an abnormal-looking area is seen on endoscopy or an imaging test, but the only way to tell for sure if it is really cancer is by doing a [biopsy](#)². During a biopsy, the doctor removes a sample of the abnormal area.

Biopsies to check for stomach cancer are most often obtained during upper endoscopy. If the doctor sees any abnormal areas in the stomach lining during the endoscopy, instruments can be passed down the endoscope to biopsy them.

Some stomach cancers are deep within the stomach wall, which can make them hard to

biopsy with standard endoscopy. If the doctor suspects cancer might be deeper in the stomach wall, endoscopic ultrasound can be used to guide a thin, hollow needle into the wall of the stomach to get a biopsy sample.

Biopsies may also be taken from areas of possible cancer spread, such as nearby [lymph nodes](#)³ or suspicious areas in other parts of the body.

Testing biopsy samples

Biopsy samples are sent to a lab to be looked at under a microscope. The samples are checked to see if they contain cancer, and if they do, what [kind it is](#)⁴ (for example, adenocarcinoma, carcinoid, gastrointestinal stromal tumor, or lymphoma).

More testing may be done if a sample contains certain types of cancer cells. For instance, the tumor may be tested to see if it has too much of a growth-promoting protein called HER2. Tumors with increased levels of HER2 are called **HER2-positive**.

Stomach cancers that are HER2-positive can be treated with drugs that target the HER2 protein, such as trastuzumab (Herceptin[®]). See [Targeted Therapies for Stomach Cancer](#)⁵ for more information.

The biopsy sample may be tested in 2 different ways:

- Immunohistochemistry (IHC): In this test, special antibodies that stick to the HER2 protein are applied to the sample, which causes cells to change color if many copies are present. This color change can be seen under a microscope. The test results are reported as 0, 1+, 2+, or 3+.
- Fluorescent in situ hybridization (FISH): This test uses fluorescent pieces of DNA that specifically stick to copies of the *HER2* gene in cells, which can then be counted under a special microscope.

Often the IHC test is used first.

- If the results are 0 or 1+, the cancer is HER2-negative. People with HER2-negative tumors are not treated with drugs (like trastuzumab) that target HER2.
- If the test comes back 3+, the cancer is HER2-positive. Patients with HER2-positive tumors may be treated with drugs like trastuzumab.
- When the result is 2+, the HER2 status of the tumor is not clear. This often leads to testing the tumor with FISH.

It's also possible that the tumor may be tested to see if it has a certain amount of an immune checkpoint protein called *PD-L1*. If it does, the tumor may be treated with an immune checkpoint inhibitor such as pembrolizumab (Keytruda[®]). This type of treatment may be given if other treatments have stopped working. To learn more about this type of immunotherapy, see [Immune Checkpoint Inhibitors to Treat Cancer](#)⁶.

See [Testing Biopsy and Cytology Specimens for Cancer](#)⁷ to learn more about different types of biopsies and tests, how the tissue is used in the lab to diagnose cancer, and what the results will tell you.

Imaging tests

[Imaging tests](#)⁸ use x-rays, magnetic fields, sound waves, or radioactive substances to create pictures of the inside of your body. Imaging tests may be done for a number of reasons, including:

- To help find out if a suspicious area might be cancerous
- To learn how far cancer may have spread
- To help determine if treatment has been effective

Upper gastrointestinal (GI) series

This is an x-ray test to look at the inner lining of the esophagus, stomach, and first part of the small intestine. This test is used less often than endoscopy to look for stomach cancer or other stomach problems, as it can miss some abnormal areas and does not allow the doctor to take biopsy samples. But it is less invasive than endoscopy, and it might be useful in some situations.

For this test, the patient drinks a white chalky solution containing a substance called **barium**. The barium coats the lining of the esophagus, stomach, and small intestine. Several x-ray pictures are then taken. Because x-rays can't pass through the coating of barium, this will outline any abnormalities of the lining of these organs.

A double-contrast technique may be used to look for early stomach cancer. With this technique, after the barium solution is swallowed, a thin tube is passed into the stomach and air is pumped in. This makes the barium coating very thin, so even small abnormalities will show up.

Computed tomography (CT or CAT) scan

A CT scan 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 show the stomach fairly clearly and often can confirm the location of the cancer. CT scans can also show the organs near the stomach, such as the liver, as well as lymph nodes and distant organs where cancer might have spread. The CT scan can help determine the [extent \(stage\) of the cancer](#) and if [surgery](#)⁹ may be a good treatment option.

CT-guided needle biopsy: CT scans can also be used to guide a biopsy needle into a suspected area of cancer spread. The patient remains on the CT scanning table while a doctor moves a biopsy needle through the skin toward the mass. CT scans are repeated until the needle is within the mass. A fine-needle biopsy sample (tiny fragment of tissue) or a core-needle biopsy sample (a thin cylinder of tissue) is then removed and looked at under a microscope.

Magnetic resonance imaging (MRI) scan

Like CT scans, MRI scans show detailed images of soft tissues in the body. But MRI scans use radio waves and strong magnets instead of x-rays.

Positron emission tomography (PET) scan

For a PET scan, you are injected with a slightly radioactive form of sugar, which collects mainly in cancer cells. A special camera is then used to create a picture of areas of radioactivity in the body. The picture is not detailed like a CT or MRI scan, but a PET scan can look for possible areas of cancer spread in all areas of the body at once.

Some newer machines can do both a PET and CT scan at the same time (PET/CT scan). This lets the doctor see areas that “light up” on the PET scan in more detail.

PET is sometimes useful if your doctor thinks the cancer might have spread but doesn’t know where. The picture is not detailed like a CT or MRI scan, but it provides helpful information about the whole body. Although PET scans can be useful for finding areas of cancer spread, they aren’t always helpful in certain kinds of stomach cancer because these types don’t take up glucose very much.

Chest x-ray

This test can help find out if the cancer has spread to the lungs. It might also determine if there are any serious lung or heart diseases present. This test is not needed if a CT

scan of the chest has been done.

You can read more about imaging tests in [Imaging \(Radiology\) Tests for Cancer](#).¹⁰

Other tests

Laparoscopy

If this procedure is done, it is usually only after stomach cancer has already been found. Although CT or MRI scans can make detailed pictures of the inside of the body, they can miss some tumors, especially very small tumors. Doctors might do a laparoscopy before any other [surgery](#)¹¹ to help confirm the cancer is still only in the stomach and can be removed completely with surgery. It may also be done before [chemotherapy](#)¹² and/or [radiation](#)¹³ if these are planned before surgery.

This procedure is done in an operating room with the patient under general anesthesia (in a deep sleep). A laparoscope (a thin, flexible tube) is inserted through a small surgical opening in the patient's side. The laparoscope has a small video camera on its end, which sends pictures of the inside of the abdomen to a TV screen. Doctors can look closely at the surfaces of the organs and nearby lymph nodes, or even take small samples of tissue. If it doesn't look like the cancer has spread, sometimes the doctor will "wash" the abdomen with saline (salt water) this is called **peritoneal washing**. The fluid is then removed and checked to see if it contains cancer cells. If it does, the cancer has spread, even if the spread couldn't be seen.

Sometimes laparoscopy is combined with ultrasound to give a better picture of the cancer.

Lab tests

When looking for signs of stomach cancer, a doctor may order a blood test called a complete blood count (CBC) to look for anemia (which could be caused by the cancer bleeding into the stomach). A fecal occult blood test may be done to look for blood in stool (feces) that can't be seen by the naked eye.

The doctor might recommend other tests if cancer is found, especially if you are going to have surgery. For instance, blood tests will be done to make sure your liver and kidney functions are normal and that your blood clots normally. If surgery is planned or you are going to get medicines that can affect the heart, you may also have an electrocardiogram (EKG) and echocardiogram (an ultrasound of the heart) to make sure your heart is functioning well.

Hyperlinks

1. www.cancer.org/treatment/understanding-your-diagnosis/tests/endoscopy.html
2. www.cancer.org/treatment/understanding-your-diagnosis/tests/testing-biopsy-and-cytology-specimens-for-cancer.html
3. www.cancer.org/cancer/cancer-basics/lymph-nodes-and-cancer.html
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Stomach Cancer Stages

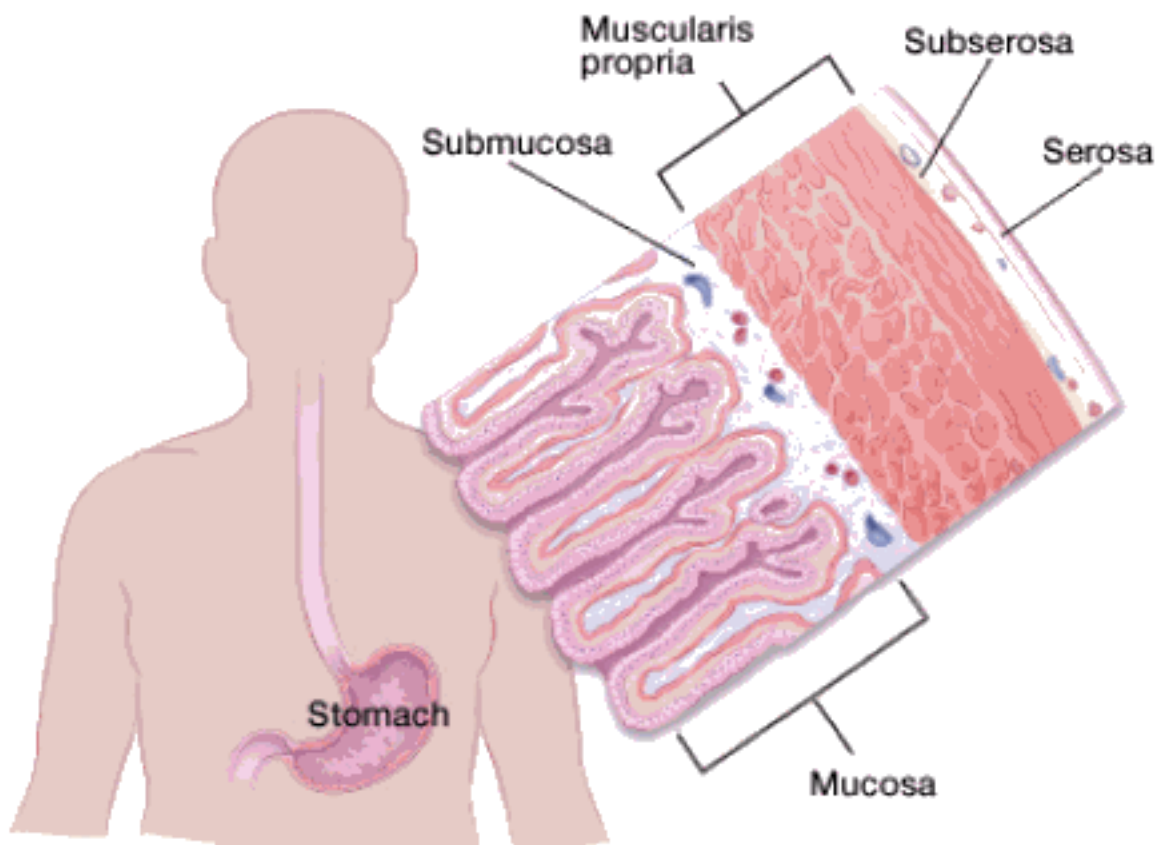
After someone is [diagnosed with stomach cancer](#), doctors will try to figure out if it has spread, and if so, how far. This process is called **staging**. The stage of a cancer describes the extent of the cancer in the body. It helps determine how serious the cancer is and how best to [treat](#)¹ it. Doctors also use a cancer's stage when talking about survival statistics.

The earliest stage stomach 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?

The staging system most often used for stomach 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 **tumor (T)**: How far has the cancer grown into the 5 layers of the stomach wall? Has the cancer reached nearby structures or organs?



The innermost layer is the **mucosa**. The mucosa has 3 parts: epithelial cells, which lie on top of a layer of connective tissue (the **lamina propria**), which is on top of a thin layer of muscle (the **muscularis mucosa**). Under the mucosa is a supporting layer called the **submucosa**. Below this is the muscularis propria, a thick layer of muscle that moves and mixes the stomach contents. The next 2 layers, the subserosa and the outermost serosa, act as wrapping layers for the stomach.

- 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 lymph nodes or distant organs such as the liver or lungs?

The system described below is the most recent AJCC system, effective January 2018. This system is for staging all stomach cancers except those starting in either the gastroesophageal junction (where the stomach and the esophagus meet) or in the cardia (the first part of the stomach) and growing into the gastroesophageal junction.

Those cancers are staged (and often treated) like cancers of the esophagus (See [Esophagus Cancer](#)²).

Numbers or letters after T, N, and M provide more details about each of these factors. Higher numbers mean the cancer is more advanced. Once a person's T, N, and M categories have been determined, this information is combined in a process called **stage grouping** to assign an overall stage. For more information see [Cancer Staging](#)³.

The staging system in the table below is the **pathologic stage** (also called the surgical stage). It is determined by examining tissue removed during an operation.

Sometimes, if surgery is not possible right away or at all, the cancer will be given a **clinical stage** instead. This is based on the results of a physical exam, biopsy, and imaging tests, not on what is found at surgery. The clinical stage will be used to help plan treatment. Sometimes, though, the cancer has spread further than the clinical stage estimates, and may not predict the patient's outlook as accurately as a pathologic stage.

Other staging systems have been created if your cancer has been clinically staged or if you have had surgery or neoadjuvant therapy. It is best to talk to your doctor about your specific stage for those situations.

Cancer staging can be complex, so ask your doctor to explain it to you in a way you understand.

AJCC Stage	Stage grouping	Stage description*
0	Tis N0 M0	There is high grade dysplasia (very abnormal looking cells) in the stomach lining OR there are cancer cells only in the top layer of cells of the mucosa (innermost layer of the stomach) and have not grown into deeper layers of tissue such as the lamina propria (Tis). This stage is also known as carcinoma in situ (Tis). It has not spread to nearby lymph nodes (N0) or distant sites (M0).
IA	T1 N0 M0	The tumor has grown from the top layer of cells of the mucosa into the next layers below such as the lamina propria, the muscularis mucosa, or submucosa (T1). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).

IB	T1 N1 M0	The cancer has grown from the top layer of cells of the mucosa into the next layers below such as the lamina propria, the muscularis mucosa, or submucosa (T1) AND it has spread to 1 to 2 nearby lymph nodes (N1). It has not spread to distant sites (M0).
	OR	
	T2 N0 M0	The cancer is growing into the muscularis propria layer (T2). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).
IIA	T1 N2 M0	The cancer has grown from the top layer of cells of the mucosa into the next layers below such as the lamina propria, the muscularis mucosa, or submucosa (T1) AND it has spread to 3 to 6 nearby lymph nodes (N2). It has not spread to distant sites (M0).
	OR	
	T2 N1 M0	The cancer is growing into the muscularis propria layer (T2) AND it has spread to 1 to 2 nearby lymph nodes (N1) but not to distant sites (M0).
	OR	
	T3 N0 M0	The cancer is growing into the subserosa layer (T3). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).
IIB	T1 N3a M0	The cancer has grown from the top layer of cells of the mucosa into the next layers below such as the lamina propria, the muscularis mucosa, or submucosa (T1) AND it has spread to 7 to 15 nearby lymph nodes (N3a). It has not spread to distant sites (M0).
	OR	

	T2 N2 M0	The cancer is growing into the muscularis propria layer (T2) AND it has spread to 3 to 6 nearby lymph nodes (N2). It has not spread to distant sites (M0).
	T3 N1 M0	The cancer is growing into the subserosa layer (T3) AND AND it has spread to 1 to 2 nearby lymph nodes (N1) but not to distant sites (M0).
	OR	
	T4a N0 M0	The tumor has grown through the stomach wall into the serosa, but the cancer hasn't grown into any of the nearby organs or structures (T4a). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).
IIIA	T2 N3a M0	The cancer is growing into the muscularis propria layer (T2) AND it has spread to 7 to 15 nearby lymph nodes (N3a). It has not spread to distant sites (M0).
	OR	
	T3 N2 M0	The cancer is growing into the subserosa layer (T3) AND it has spread to 3 to 6 nearby lymph nodes (N2). It has not spread to distant sites (M0).
	OR	
	T4a N1 M0	The cancer has grown through the stomach wall into the serosa, but it has not grown into any of the nearby organs or structures (T4a). It has spread to 1 to 2 nearby lymph nodes (N1) but not to distant sites (M0).
	OR	

	T4a N2 M0	The cancer has grown through the stomach wall into the serosa, but it has not grown into any of the nearby organs or structures (T4a). It has spread to 3 to 6 nearby lymph nodes (N1) but not to distant sites (M0).
	OR	
	T4b N0 M0	The cancer has grown through the stomach wall and into nearby organs or structures (T4b). It has not spread to nearby lymph nodes (N0) or to distant sites (M0).
IIIB	T1 N3b M0	The cancer has grown from the top layer of cells of the mucosa into the next layers below such as the lamina propria, the muscularis mucosa, or submucosa (T1) AND it has spread to 16 or more nearby lymph nodes (N3b). It has not spread to distant sites (M0).
	OR	
	T2 N3b M0	The cancer is growing into the muscularis propria layer (T2) AND it has spread to 16 or more nearby lymph nodes (N3b). It has not spread to distant sites (M0).
	OR	
	T3 N3a M0	The cancer is growing into the subserosa layer (T3) AND it has spread to 7 to 15 nearby lymph nodes (N3a). It has not spread to distant sites (M0).
	OR	
	T4a N3a M0	The cancer has grown through the stomach wall into the serosa, but it has not grown into any of the nearby organs or structures (T4a) AND it has spread to 7 to 15 nearby lymph nodes (N3a). It has not spread to distant sites (M0).
	OR	

	T4b N1 M0	The cancer has grown through the stomach wall and into nearby organs or structures (T4b). It has spread to 1 to 2 nearby lymph nodes (N1) but not to distant sites (M0).
	OR	
	T4b N2 M0	The cancer has grown through the stomach wall and into nearby organs or structures (T4b). It has spread to 3 to 6 nearby lymph nodes (N1) but not to distant sites (M0).
IIIC	T3 N3b M0	The cancer is growing into the subserosa layer (T3) AND it has spread to 16 or more nearby lymph nodes (N3b). It has not spread to distant sites (M0).
	OR	
	T4a N3b M0	The cancer has grown through the stomach wall into the serosa, but it has not grown into any of the nearby organs or structures (T4a) AND it has spread to 16 or more nearby lymph nodes (N3b). It has not spread to distant sites (M0).
	OR	
	T4b N3a M0	The cancer has grown through the stomach wall and into nearby organs or structures (T4b) AND it has spread to 7 to 15 nearby lymph nodes (N3a). It has not spread to distant sites (M0).
	OR	
	T4b N3b M0	The cancer has grown through the stomach wall and into nearby organs or structures (T4b) AND it has spread to 16 or more nearby lymph nodes (N3b). It has not spread to distant sites (M0).
IV	Any T	The cancer can grow into any layers (Any T) and might or might

	Any N M1	not have spread to nearby lymph nodes (Any N). It has spread to distant organs such as the liver, lungs, brain, or the peritoneum (the lining of the space around the digestive organs) (M1).
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* The T categories are described in the table above, except for: **TX**: Main tumor cannot be assessed due to lack of information. **T0**: No evidence of a primary tumor. The N categories are described in the table above, except for: **NX**: Regional lymph nodes cannot be assessed due to lack of information.

Hyperlinks

1. www.cancer.org/cancer/stomach-cancer/treating.html
2. www.cancer.org/cancer/esophagus-cancer.html
3. www.cancer.org/treatment/understanding-your-diagnosis/staging.html

References

American Joint Committee on Cancer. Stomach Cancer. In: *AJCC Cancer Staging Manual*. 8th ed. New York, NY: Springer; 2017: 117–121.

Last Medical Review: December 18, 2017 Last Revised: December 18, 2017

Stomach Cancer Survival Rates

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 cancer to people in the overall population. For example, if the **5-year relative survival rate** for a specific stage of stomach cancer is 70%, it means that people who have that cancer are, on average, about 70% 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 stomach 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:** There is no sign that the cancer has spread outside of the stomach.
- **Regional:** The cancer has spread outside the stomach to nearby structures or lymph nodes.
- **Distant:** The cancer has spread to distant parts of the body, such as the liver.

5-year relative survival rates for stomach cancer

(Based on people diagnosed with cancers of the stomach between 2008 and 2014.)

SEER stage	5-year relative survival rate
Localized	68%
Regional	31%
Distant	5%

All SEER stages combined	31%
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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 stomach 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

References

American Cancer Society. *Cancer Facts & Figures 2019*. Atlanta, Ga: American Cancer Society; 2019.

Noone AM, Howlader N, Krapcho M, Miller D, Brest A, Yu M, Ruhl J, Tatalovich Z, Mariotto A, Lewis DR, Chen HS, Feuer EJ, Cronin KA (eds). SEER Cancer Statistics Review, 1975-2015, National Cancer Institute. Bethesda, MD, https://seer.cancer.gov/csr/1975_2015/, based on November 2017 SEER data submission, posted to the SEER web site, April 2018.

Last Medical Review: December 18, 2017 Last Revised: February 4, 2019

Questions to Ask Your Doctor about Stomach Cancer

When you're told you have stomach cancer

- What [kind of stomach cancer](#)¹ do I have?
- Where is the cancer in my stomach?
- 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?
- Will I need to see other doctors?
- How much experience do you have treating this type of cancer?
- Based on what you've learned about my cancer, what is my prognosis (outlook)?

When deciding on a treatment plan

- What [treatment choices](#)² do I have?
- What do you recommend and why?
- What is the goal of treatment (to cure the cancer, slow its growth, ease symptoms, etc.)?
- Are there any clinical trials I should think about now?
- Should I get a second opinion? How do I do that? Can you recommend someone?
- 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 involve? Where will it be done?
- What risks or side effects are there to the treatments you suggest? How long are they likely to last?
- How will treatment affect my daily life? Will it affect the way I eat?

During treatment

- How will we know if the treatment is working?
- Is there anything I can do to help manage side effects?
- What symptoms or side effects should I tell you about right away?
- How can I reach you on nights, holidays, or weekends?
- Do I need to change what I eat during treatment?
- Are there any limits on what I can do?
- 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?

- What type of [follow-up](#)³ will I need after treatment?

After treatment

- Are there any limits on what I can do?
- What symptoms should I watch for?
- What kind of exercise should I do now?
- What type of follow-up will I need after treatment?
- How often will I need to have follow-up exams and tests?
- How will we know if the cancer has come back? What should I watch for?
- What will my options be if the cancer comes back?
- What would my options be if the treatment doesn't work or if the cancer recurs?
- Where can I find more information and support?

Along with these sample questions, be sure to write down some of your own.

Keep in mind that doctors aren't the only ones who can give you information. Other health care professionals, such as nurses and social workers, can answer some of your questions. To find more about speaking with your health care team, see [The Doctor-Patient Relationship](#)⁴.

Hyperlinks

1. www.cancer.org/cancer/stomach-cancer/about/what-is-stomach-cancer.html
2. www.cancer.org/cancer/stomach-cancer/treating.html
3. www.cancer.org/cancer/stomach-cancer/after-treatment/follow-up.html
4. www.cancer.org/treatment/understanding-your-diagnosis/talking-about-cancer/the-doctor-patient-relationship.html

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Treating Stomach Cancer

If you've been diagnosed with stomach 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 stomach cancer treated?

The main treatments for stomach cancer are:

- [Surgery for Stomach Cancer](#)
- [Chemotherapy for Stomach Cancer](#)
- [Targeted Therapies for Stomach Cancer](#)
- [Immunotherapy for Stomach Cancer](#)
- [Radiation Therapy for Stomach Cancer](#)

Common treatment approaches

Often the best approach uses 2 or more of these treatment methods. Your treatment options depend on many factors. The location and the stage (extent of spread) of the tumor are very important. In choosing your treatment plan, you and your cancer care team will also take your age, general state of health, and personal preferences into account.

- [Treatment Choices by Type and Stage of Stomach Cancer](#)

Who treats stomach cancer?

It is important to have a team of doctors with different specialties involved in your care before plans for treating your stomach cancer are made. Most likely, your team will

include:

- A **gastroenterologist**: a doctor who specializes in treatment of diseases of the digestive system.
- A **surgical oncologist**: a doctor who treats cancer with surgery.
- A **medical oncologist**: a doctor who treats cancer with medicines such as chemotherapy.
- A **radiation oncologist**: a doctor who treats cancer with radiation therapy.

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 Care¹](#)

Making treatment decisions

It is important that you understand the goal of your treatment — whether it is to try to cure your cancer or to keep the cancer under control or relieve symptoms — before starting treatment. If the goal of your treatment is a cure, you will also receive treatment to relieve symptoms and side effects. If a cure is not possible, treatment is aimed at keeping the cancer under control for as long as possible and relieving symptoms, such as trouble eating, pain, or bleeding.

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 Stomach Cancer²](#)
- [Seeking a Second Opinion³](#)

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](#)⁴

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](#)⁵

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](#)⁶

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](#)⁷
- [Palliative or Supportive Care](#)⁸

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.

Surgery for Stomach Cancer

Surgery is part of the treatment for many different stages of stomach cancer if it can be done. If a patient has a stage 0, I, II, or III cancer and is healthy enough, surgery (often along with other treatments) offers the only realistic chance for cure at this time.

Surgery may be done to remove the cancer and part or all of the stomach and some nearby lymph nodes, depending on the [type](#)¹ and [stage](#)² of stomach cancer. The surgeon will try to leave behind as much normal stomach as possible. Sometimes other organs will need to be removed as well.

Even when the cancer is too widespread to be removed completely, patients may be helped by surgery because it may help prevent bleeding from the tumor or prevent the stomach from being blocked by tumor growth. This type of surgery is called **palliative surgery**, meaning that it relieves or prevents symptoms but it is not expected to cure the cancer.

The type of operation usually depends on what part of the stomach the cancer is in and

how much cancer is in the surrounding tissue. Different kinds of surgery can be used to treat stomach cancer:

Endoscopic resection

Endoscopic mucosal resection and endoscopic submucosal resection can be used only to treat some very early-stage cancers, where the chance of spread to the lymph nodes is very low.

These procedures do not require a cut (incision) in the skin. Instead, the surgeon passes an endoscope (a long, flexible tube with a small video camera on the end) down the throat and into the stomach. Surgical tools can be passed through the endoscope to remove the tumor and part of the normal stomach wall around it.

These are not done as much in the United States as they are in countries (like Japan) where stomach cancer is more common and more often found at an early stage due to screening. If you are going to have this kind of surgery, it should be at a center that has experience with this technique.

Subtotal (partial) gastrectomy

This operation is often recommended if the cancer is only in the lower part of the stomach. It is also sometimes used for cancers that are only in the upper part of the stomach.

Only part of the stomach is removed, sometimes along with part of the esophagus or the first part of the small intestine (the duodenum). The remaining section of stomach is then reattached. Some of the omentum (an apron-like layer of fatty tissue that covers the stomach and intestines) is removed as well, along with nearby lymph nodes, and possibly the spleen and parts of other nearby organs.

Eating is much easier after surgery if only part of the stomach is removed instead of the entire stomach.

Total gastrectomy

This operation is done if the cancer has spread throughout the stomach. It is also often advised if the cancer is in the upper part of the stomach, near the esophagus.

The surgeon removes the entire stomach, nearby lymph nodes, and omentum, and may remove the spleen and parts of the esophagus, intestines, pancreas, or other nearby

organs. The end of the esophagus is then attached to part of the small intestine. This allows food to move down the intestinal tract. But people who have had their stomach removed can only eat a small amount of food at a time. Because of this, they must eat more often.

Most subtotal and total gastrectomies are done through a large incision (cut) in the skin of the abdomen. In some centers, they can be done using laparoscopy, which allows the stomach to be removed through several smaller cuts in the abdomen. Although this approach shows promise, many doctors feel that this needs to be studied further before it can be considered a standard treatment for stomach cancer.

Placement of a feeding tube

Some patients have trouble taking in enough nutrition after surgery for stomach cancer. Further treatment like [chemotherapy](#) with [radiation](#) can make this problem worse. To help with this, a tube can be placed into the intestine at the time of gastrectomy. The end of this tube, called a **jejunostomy** tube or **J tube**, remains outside of the skin on the abdomen. Through this, liquid nutrition can be put directly into the intestine to help prevent and treat malnutrition.

Lymph node removal

In either a subtotal or total gastrectomy, the nearby [lymph nodes](#)³ are removed. This is a very important part of the operation. Many doctors feel that the success of the surgery is directly related to how many lymph nodes the surgeon removes.

In the United States, it is recommended that at least 15 lymph nodes are removed (called a **D1 lymphadenectomy**) when a gastrectomy is done. Surgeons in Japan have had very high success rates by removing even more lymph nodes near the cancer (called a **D2 lymphadenectomy**).

Surgeons in Europe and the United States have not been able to equal the results of the Japanese surgeons. It is not clear if this is because Japanese surgeons are more experienced (stomach cancer is much more common in their country), because Japanese patients tend to have earlier stage disease (because they screen for stomach cancer) and are healthier, or if other factors play a role.

In any event, it takes a skilled surgeon who is experienced in stomach cancer surgery to remove all the lymph nodes successfully. Ask your surgeon about his or her experience in operating on stomach cancer. Studies have shown that the results are better when both the surgeon and the hospital have had extensive experience in treating patients

with stomach cancer.

Palliative surgery for unresectable cancer

For people with unresectable stomach cancer, surgery can often still be used to help control the cancer or to help prevent or relieve [symptoms](#)⁴ or complications.

Subtotal gastrectomy: For some people who are healthy enough for surgery, removing the part of the stomach with the tumor can help treat problems such as bleeding, pain, or blockage in the stomach, even if it does not cure the cancer. Because the goal of this surgery is not to cure the cancer, nearby lymph nodes and parts of other organs usually do not need to be removed.

Gastric bypass (gastrojejunostomy): Tumors in the lower part of the stomach may eventually grow large enough to block food from leaving the stomach. For people healthy enough for surgery, one option to help prevent or treat this is to bypass the lower part of the stomach. This is done by attaching part of the small intestine (the jejunum) to the upper part of the stomach, which allows food to leave the stomach through the new connection.

Endoscopic tumor ablation: In some cases, such as in people who are not healthy enough for surgery, an endoscope (a long, flexible tube passed down the throat) can be used to guide a laser beam to vaporize parts of the tumor. This can be done to stop bleeding or help relieve a blockage without surgery.

Stent placement: Another option to keep a tumor from blocking the opening at the beginning or end of the stomach is to use an endoscope to place a stent (a hollow metal tube) in the opening. This helps keep it open and allows food to pass through it. For tumors in the upper (proximal) stomach, the stent is placed where the esophagus and stomach meet. For tumors in the lower (distal) part of the stomach, the stent is placed at the junction of the stomach and the small intestine.

Feeding tube placement: Some people with stomach cancer are not able to eat or drink enough to get adequate nutrition. A minor operation can be done to place a feeding tube through the skin of the abdomen and into the distal part of the stomach (known as a **gastrostomy tube** or **G tube**) or into the small intestine (jejunostomy tube or J tube). Liquid nutrition can then be put directly into the tube.

Possible complications and side effects of surgery

Surgery for stomach cancer is difficult and can have complications. These can include

bleeding from the surgery, blood clots, and damage to nearby organs during the operation. Rarely, the new connections made between the ends of the stomach or esophagus and small intestine may leak.

Surgical techniques have improved in recent years, so only about 1% to 2% of people die from surgery for stomach cancer. This number is higher when the operation is more extensive, such as when all the lymph nodes are removed, but it is lower in the hands of highly skilled surgeons.

You will not be allowed to eat or drink anything for at least a few days after a total or subtotal gastrectomy. This is to give the digestive tract time to heal and to make sure there are no leaks in parts that have been sewn together during the operation.

You may develop side effects after you recover from surgery. These can include nausea, heartburn, abdominal pain, and diarrhea, particularly after eating. These side effects result from the fact that once part or all of the stomach is removed, food enters the intestines too quickly after eating. The side effects often get better over time, but in some people they can last for a long time. Your doctor might prescribe medicines to help with this.

Changes in your diet will be needed after a partial or total gastrectomy. The biggest change is that you will need to eat smaller, more frequent meals. The amount of stomach removed will affect how much you need to change the way you eat.

The stomach helps the body absorb some vitamins, so people who have had a subtotal or total gastrectomy may develop vitamin deficiencies. If certain parts of the stomach are removed, doctors routinely prescribe vitamin supplements, some of which can only be injected.

Before your surgery, ask your surgeon how much of the stomach is going to be removed. Some surgeons try to leave behind as much of the stomach as they can to allow patients to eat more normally afterward. The tradeoff is that the cancer might be more likely to come back. The extent of the surgery should be discussed with your doctor before it is done.

It cannot be stressed enough that you should make sure your surgeon is experienced in treating stomach cancer and able to perform the most up-to-date operations to reduce your risk of complications. To learn more, see [Cancer Surgery](#)⁵.

Hyperlinks

1. www.cancer.org/cancer/stomach-cancer/about/what-is-stomach-cancer.html

2. www.cancer.org/cancer/stomach-cancer/detection-diagnosis-staging/staging.html
3. www.cancer.org/cancer/cancer-basics/lymph-nodes-and-cancer.html
4. www.cancer.org/cancer/stomach-cancer/detection-diagnosis-staging/signs-symptoms.html
5. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/surgery.html

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Chemotherapy for Stomach Cancer

Chemotherapy (chemo) uses anti-cancer drugs that are injected into a vein or given by mouth as pills. These drugs enter the bloodstream and reach all areas of the body, making this treatment useful for cancer that has spread to organs beyond where it started.

Chemo can be used in different ways to help treat stomach cancer:

- Chemo can be given before [surgery](#) for stomach cancer. This, known as **neoadjuvant** treatment, can shrink the tumor and possibly make surgery easier. It may also help keep the cancer from coming back and help patients live longer. For some stages of stomach cancer, neoadjuvant chemo is one of the standard treatment options. Often, chemo is then given again after surgery.
- Chemo may be given after surgery to remove the cancer. This is called **adjuvant** treatment. The goal of adjuvant chemo is to kill any cancer cells that may have been left behind but are too small to see. This can help keep the cancer from coming back. Often, for stomach cancer, chemo is given with [radiation therapy](#) after surgery. This combination is called **chemoradiation**. This may be especially helpful for cancers that could not be removed completely by surgery.
- Chemo may be given as the primary (main) treatment for stomach cancer that has spread (metastasized) to distant organs. It may help shrink the cancer or slow its growth, which can relieve symptoms for some patients and help them live longer.

Doctors give chemo in cycles, with each period of treatment followed by a rest period to allow the body time to recover. Each cycle typically lasts for a few weeks.

A number of chemo drugs can be used to treat stomach cancer, including:

- 5-FU (fluorouracil), often given along with leucovorin (folinic acid)
- Capecitabine (Xeloda)
- Carboplatin
- Cisplatin
- Docetaxel (Taxotere)
- Epirubicin (Ellence)
- Irinotecan (Camptosar)
- Oxaliplatin (Eloxatin)
- Paclitaxel (Taxol)

- Trifluridine and tipiracil (Lonsurf), a combination drug in pill form

Depending on the situation (including the [stage of the cancer](#)¹, the person's overall health, and whether chemo is combined with radiation therapy), these drugs may be used alone or combined with other chemotherapy or targeted drugs.

Some common drug combinations used when surgery is planned include:

- ECF (epirubicin, cisplatin, and 5-FU), which may be given before and after surgery
- Docetaxel or paclitaxel plus either 5-FU or capecitabine, combined with radiation as treatment before surgery
- Cisplatin plus either 5-FU or capecitabine, combined with radiation as treatment before surgery
- Paclitaxel and carboplatin, combined with radiation as treatment before surgery

When chemo is given with radiation after surgery, a single drug such as 5-FU or capecitabine may be used.

To treat advanced stomach cancer, ECF may be used, but other combinations may also be helpful. Some of these include:

- DCF (docetaxel, cisplatin and 5-FU)
- Irinotecan plus cisplatin
- Irinotecan plus 5-FU or capecitabine
- Oxaliplatin plus 5-FU or capecitabine
- Trifluridine and tipiracil (Lonsurf), a combination drug in pill form

Many doctors prefer to use combinations of 2 chemo drugs to treat advanced stomach cancer. Three-drug combinations can have more side effects, so they are usually reserved for people who are in very good health and who can be followed closely by their doctor.

Side effects of chemotherapy

Chemo drugs attack cells that are dividing quickly, which is why they work against cancer cells. But other cells in the body, such as those in the bone marrow (where new blood cells are made), the lining of the mouth and intestines, and the hair follicles, also divide quickly. These cells can also be affected by chemo, which can lead to side effects. The type of side effect depends on the type of drugs, the amount taken, and the

length of treatment. Short-term [side effects](#)² common to most chemotherapy drugs can include:

- Nausea and vomiting
- Loss of appetite
- Hair loss
- Diarrhea
- Mouth sores
- Increased chance of infection (from a shortage of white blood cells)
- Bleeding or bruising after minor cuts or injuries (from a shortage of platelets)
- Fatigue and shortness of breath (from a shortage of red blood cells)

These side effects are usually short-term and go away once treatment is finished. For example, hair will usually grow back after treatment ends. Be sure to tell your cancer care team about any side effects you have because there are often ways to lessen them. For example, you can be given drugs to prevent or reduce nausea and vomiting.

Some chemotherapy drugs have specific side effects. You should be given specific information about each drug you are receiving and you should review it before you start treatment.

Neuropathy: Cisplatin, oxaliplatin, docetaxel, and paclitaxel can damage nerves outside the brain and spinal cord. This can sometimes lead to symptoms (mainly in the hands and feet) such as pain, burning or tingling sensations, sensitivity to cold or heat, or weakness. In most cases this goes away once treatment is stopped, but it may be long-lasting in some patients. Oxaliplatin can also affect nerves in the throat, causing throat pain that is worse when trying to eat or drink cold liquids or foods. This pain can lead to trouble swallowing or even breathing, and can last a few days after treatment.

Heart damage: Doxorubicin, epirubicin, and some other drugs may cause permanent heart damage if used for a long time or in high doses. For this reason, doctors carefully control the doses and use heart tests such as echocardiograms or MUGA scans to monitor heart function. Treatment with these drugs is stopped at the first sign of heart damage.

Hand-foot syndrome can occur during treatment with capecitabine or 5-FU (when given as an infusion). 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. There is no specific treatment, although some creams may help. These symptoms gradually get better when the drug is stopped or the dose is decreased. The best way to prevent severe hand-foot

syndrome is to tell your doctor when early symptoms come up, so that the drug dose can be changed.

To learn more, see [Chemotherapy](#)³.

Hyperlinks

1. www.cancer.org/cancer/stomach-cancer/detection-diagnosis-staging/staging.html
2. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html
3. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/chemotherapy.html

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Targeted Therapies for Stomach Cancer

Targeted drugs may work in some cases when standard chemo drugs don't. They also tend to have different side effects from standard chemo drugs.

Chemotherapy (chemo) drugs target cells that divide rapidly, which is why they often work against cancer cells. But there are other aspects of cancer cells that make them different from normal cells. In recent years, researchers have developed new drugs to try to target these differences.

Trastuzumab

About 1 out of 5 of stomach cancers has too much of a growth-promoting protein called HER2 on the surface of the cancer cells. Tumors with increased levels of HER2 are called **HER2-positive**.

Trastuzumab (Herceptin) is a monoclonal antibody, a man-made version of a very specific immune system protein, which targets the HER2 protein. Giving trastuzumab with chemo can help some patients with advanced, HER2-positive stomach cancer live longer than giving chemo alone.

This drug only works if the cancer cells have too much HER2, so samples of your tumor must be tested to look for HER2 before starting treatment (see [Tests for Stomach Cancer](#)¹). It is not used in people whose cancer is HER2-negative.

Trastuzumab is injected into a vein (IV). For stomach cancer, it is given once every 2 or 3 weeks along with chemo. The best length of time to give it is not yet known.

The side effects of trastuzumab tend to be relatively mild. They can include fever and chills, weakness, nausea, vomiting, cough, diarrhea, and headache. These side effects occur less often after the first dose. This drug can also rarely lead to heart damage. The risk of heart damage is increased if trastuzumab is given with certain chemo drugs called anthracyclines, such as epirubicin (Ellence) or doxorubicin (Adriamycin).

Ramucirumab

For cancers to grow and spread, they need to create new blood vessels so that the tumors get blood and nutrients. One of the proteins that tells the body to make new blood vessels is called **VEGF**. VEGF binds to cell surface proteins called receptors to act. Ramucirumab (Cyramza[®]) is a monoclonal antibody that binds to a receptor for VEGF. This keeps VEGF from binding to the receptor and signaling the body to make more blood vessels. This can help slow or stop the growth and spread of cancer.

Ramucirumab is used to treat advanced stomach cancer, most often after another drug stops working.

This drug is given as infusion into a vein (IV) every 2 weeks.

The most common side effects of this drug are high blood pressure, headache, and diarrhea. Rare but possibly serious side effects include blood clots, severe bleeding, holes forming in the stomach or intestines (perforations), and problems with wound healing. If a hole forms in the stomach or intestine it can lead to severe infection and may require surgery to correct.

Other targeted drugs

Other targeted therapy drugs are being tested against stomach cancer. Some of these also focus on the HER2 protein, while others have different targets. Some of these drugs are discussed in more detail in [What's New in Stomach Cancer Research?](#)²

You can read more in [Targeted Therapy](#)³.

Hyperlinks

1. www.cancer.org/cancer/stomach-cancer/detection-diagnosis-staging/how-diagnosed.html
2. www.cancer.org/cancer/stomach-cancer/about/new-research.html
3. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/targeted-therapy.html

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Immunotherapy for Stomach Cancer

Immunotherapy is the use of medicines that help a person's own immune system find and destroy cancer cells. It can be used to treat some people with stomach cancer.

Immune checkpoint inhibitors

An important part of the immune system is its ability to keep itself from attacking normal cells in the body. To do this, it uses “checkpoints” – molecules on immune cells that need to be turned on (or off) to start an immune response. Cancer cells sometimes use these checkpoints to avoid being attacked by the immune system. But newer drugs that target these checkpoints hold a lot of promise as cancer treatments.

Pembrolizumab (Keytruda) targets PD-1, a protein on immune system cells called T cells that normally helps keep these cells from attacking other cells in the body. By blocking PD-1, this drug boosts the immune response against cancer cells. This can shrink some tumors or slow their growth.

This drug can be used in some people with advanced stomach cancer who have already had at least 2 treatments, including [chemotherapy](#).

Pembrolizumab is given as an intravenous (IV) infusion, typically every 3 weeks.

Possible side effects

Side effects of this drug can include:

- Feeling tired or weak
- Fever
- Cough
- Nausea
- Itching
- Skin rash
- Loss of appetite
- Muscle or joint pain
- Shortness of breath
- Constipation or diarrhea

Other, more serious side effects occur less often:

Infusion reactions: Some people might have an infusion reaction while getting this drug. This is like an allergic reaction, and can include fever, chills, flushing of the face,

rash, itchy skin, feeling dizzy, wheezing, and trouble breathing. It's important to tell your doctor or nurse right away if you have any of these symptoms while getting this drug.

Autoimmune reactions: This drug works by basically removing the brakes on the body's immune system. Sometimes the immune system starts attacking other parts of the body, which can cause serious or even life-threatening problems in the lungs, intestines, liver, hormone-making glands, kidneys, skin, or other organs.

It's very important to report any new side effects to your health care team promptly. If serious side effects do occur, treatment may need to be stopped and you may get high doses of corticosteroids to suppress your immune system.

To learn more about how these drugs are used to treat cancer, see [Cancer Immunotherapy](#)¹.

To learn about some of the side effects listed here and how to manage them, see [Managing Cancer-related Side Effects](#)².

Hyperlinks

1. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/immunotherapy.html
2. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html

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Radiation Therapy for Stomach Cancer

Radiation therapy uses high-energy rays or particles to kill cancer cells in a specific body area . Radiation can be used in different ways to help treat stomach cancer:

- Before surgery for some cancers, radiation can be used along with [chemotherapy](#) (chemo) to try to shrink the tumor to make [surgery](#) easier.
- After surgery, radiation therapy can be used to kill very small remnants of the cancer that cannot be seen and removed during surgery. Radiation therapy — especially when combined with chemo drugs such as 5-FU — may delay or prevent cancer recurrence after surgery and may help patients live longer.

- Radiation therapy can be used to slow the growth and ease the symptoms of advanced stomach cancer, such as pain, bleeding, and eating problems.

External beam radiation therapy is often used to treat stomach cancer. This treatment focuses radiation on the cancer from a machine outside the body. Often, special types of external beam radiation, such **three-dimensional conformal radiation therapy** (3D-CRT) and **intensity modulated radiation therapy** (IMRT) are used. These use computers and special techniques to focus the radiation on the cancer and limit the damage to nearby normal tissues.

Before your treatments start, the radiation team will take careful measurements to determine the correct angles for aiming the radiation beams and the proper dose of radiation. This planning session, called **simulation**, usually includes getting imaging tests 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. Each treatment lasts only a few minutes, although the setup time — getting you into place for treatment — usually takes longer. Treatments are usually given 5 days a week over several weeks or months. [Side effects](#)¹ from radiation therapy for stomach cancer can include:

- Skin problems, ranging from redness to blistering and peeling, in the area the radiation passed through
- Nausea and vomiting
- Diarrhea
- Fatigue
- Low blood cell counts

These usually go away within several weeks after the treatment is finished.

When radiation is given with chemotherapy, side effects are often worse. Patients may have problems eating and getting enough fluids. Some need to have fluids given into a vein (IV) or have a feeding tube placed to get nutrition during treatment.

Please be sure to tell your doctor about any side effects you have, because there are often ways to relieve them.

Radiation might also damage nearby organs. This could lead to problems such as heart or lung damage, or even an increased [risk of another cancer later on](#)². Doctors do everything they can to prevent this by using only the needed dose of radiation, carefully controlling where the beams are aimed, and shielding certain parts of the body from the radiation during treatment.

It is very important that you get treated at a center that has extensive experience in treating stomach cancer.

More information can be found in [Radiation Therapy](#)³.

Hyperlinks

1. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html
2. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/second-cancers-in-adults.html
3. www.cancer.org/treatment/treatments-and-side-effects/treatment-types/radiation.html

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Treatment Choices by Type and Stage of Stomach Cancer

Treatment of stomach cancer depends to a large degree on where the cancer started in the stomach and [how far it has spread](#)¹.

Stomach cancers can grow and spread in different ways. They can grow through the wall of the stomach and invade nearby organs. They can also spread to the lymph

vessels and nearby lymph nodes (bean-sized structures that help fight infections). The stomach has a very rich network of lymph vessels and nodes. As the stomach cancer becomes more advanced, it can travel through the bloodstream and spread (metastasize) to organs such as the liver, lungs, and bones, which can make it harder to treat.

Stage 0

Because stage 0 cancers are limited to the inner lining layer of the stomach and have not grown into deeper layers, they can be treated by [surgery](#) alone. No chemotherapy or radiation therapy is needed.

Surgery with either subtotal gastrectomy (removal of part of the stomach) or total gastrectomy (removal of the entire stomach) is often the main treatment for these cancers. Nearby [lymph nodes](#)² are removed as well.

Some small stage 0 cancers can be treated by endoscopic resection. In this procedure the cancer is removed through an endoscope passed down the throat. This is done more often in Japan, where stomach cancer is often detected early during screening. It is rare to find stomach cancer so early in the United States, so this treatment has not been used as much here. If it is done, it should be at a cancer center that has a great deal of experience with this technique.

Stage I

Stage IA: People with stage IA stomach cancer typically have their cancer removed by total or subtotal gastrectomy. The nearby lymph nodes are also removed. Endoscopic resection may rarely be an option for some small T1a cancers. No further treatment is usually needed after [surgery](#).

Stage IB: The main treatment for this stage of stomach cancer is surgery (total or subtotal gastrectomy). [Chemotherapy](#) (chemo) or chemoradiation (chemo plus [radiation](#) therapy) may be given before surgery to try to shrink the cancer and make it easier to remove.

After surgery, patients whose lymph nodes (removed at surgery) show no signs of cancer spread are sometimes observed without further treatment, but often doctors will recommend treatment with either chemoradiation or chemo alone after surgery (especially if the patient didn't get one of these before surgery). Patients who were treated with chemo before surgery may get the same chemo (without radiation) after surgery.

If cancer is found in the lymph nodes, treatment with either chemoradiation, chemo alone, or a combination of the two is often recommended.

If a person is too sick (from other illnesses) to have surgery, they may be treated with chemoradiation if they can tolerate it. Other options include radiation therapy or chemo alone.

Stage II

The main treatment for stage II stomach cancer is [surgery](#) to remove all or part of the stomach, the omentum, and nearby lymph nodes. Many patients are treated with [chemo](#) or chemoradiation before surgery to try to shrink the cancer and make it easier to remove. Treatment after surgery may include chemo alone or chemoradiation.

If a person is too sick (from other illnesses) to have surgery, they may be treated with chemoradiation if they can tolerate it. Other options include [radiation therapy](#) or chemo alone.

Stage III

[Surgery](#) is the main treatment for patients with this stage disease (unless they have other medical conditions that make them too ill for it). Some patients may be cured by surgery (along with other treatments), while for others the surgery may be able to help control the cancer or help relieve symptoms.

Some people may get [chemo](#) or chemoradiation before surgery to try to shrink the cancer and make it easier to remove. Patients who get chemo before surgery will probably get chemo after, as well. For patients who don't get chemo before surgery and for those who have surgery but have some cancer left behind, treatment after surgery is usually chemoradiation.

If a person is too sick (from other illnesses) to have surgery, they may be treated with chemoradiation if they can tolerate it. Other options include [radiation therapy](#) or chemo alone.

Stage IV

Because stage IV stomach cancer has spread to distant organs, a cure is usually not possible. But treatment can often help keep the cancer under control and help relieve symptoms. This might include [surgery](#), such as a gastric bypass or even a subtotal gastrectomy in some cases, to keep the stomach and/or intestines from becoming

blocked (obstructed) or to control bleeding.

In some cases, a laser beam directed through an endoscope (a long, flexible tube passed down the throat) can destroy most of the tumor and relieve obstruction without surgery. If needed, a stent (a hollow metal tube) may be placed where the esophagus and stomach meet to help keep it open and allow food to pass through it. This can also be done at the junction of the stomach and the small intestine.

[Chemo](#) and/or [radiation therapy](#) can often help shrink the cancer and relieve some symptoms as well as help patients live longer, but is usually not expected to cure the cancer. Combinations of chemo drugs are most commonly used, but which combination is best is not clear.

[Targeted therapy](#) can also be helpful in treating advanced stomach cancers. Trastuzumab (Herceptin) can be added to chemotherapy for patients whose tumors are HER2-positive. Ramucirumab (Cyramza) may also be an option at some point. It can be given by itself or added to chemo. The [immunotherapy](#) drug pembrolizumab (Keytruda) might also be an option at some point.

Because these cancers can be hard to treat, new treatments being tested in clinical trials may benefit some patients.

Even if treatments do not destroy or shrink the cancer, there are ways to relieve [pain](#)³ and symptoms from the disease. Patients should tell their cancer care team about any symptoms or pain they have right way, so they can be managed effectively.

Nutrition is another concern for many patients with stomach cancer. Help is available ranging from nutritional counseling to placement of a tube into the small intestine to help provide nutrition for those who have trouble eating, if needed.

Recurrent cancer

Cancer that comes back after initial treatment is known as [recurrent cancer](#)⁴. Treatment options for recurrent disease are generally the same as they are for stage IV cancers. But they also depend on where the cancer recurs, what treatments a person has already had, and the person's general health.

[Clinical trials](#)⁵ or newer treatments may be an option and should always be considered.

Hyperlinks

1. www.cancer.org/cancer/stomach-cancer/detection-diagnosis-staging/staging.html
2. www.cancer.org/cancer/cancer-basics/lymph-nodes-and-cancer.html
3. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/pain.html
4. www.cancer.org/treatment/survivorship-during-and-after-treatment/understanding-recurrence.html
5. www.cancer.org/treatment/treatments-and-side-effects/clinical-trials.html

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After Stomach Cancer Treatment

Living as a Cancer Survivor

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

- [Living as a Stomach Cancer Survivor](#)

Cancer Concerns After Treatment

Treatment may remove or destroy the cancer, but it is very common to have questions about cancer coming back or treatment no longer working.

- [Second Cancers After Stomach Cancer](#)

Living as a Stomach Cancer Survivor

For some people with stomach cancer, treatment can remove or destroy the cancer. The end of treatment can be both stressful and exciting. You may be relieved to finish treatment, but it's hard not to worry about cancer coming back. This is very common if you've had cancer.

For other people, the cancer might never go away completely. Some people may get chemotherapy, targeted therapy or other treatments to try and help keep the cancer in check. Learning to live with cancer that does not go away can be difficult and very

stressful.

Life after stomach cancer means returning to some familiar things and making some new choices.

Follow-up care

If you have completed treatment, your doctors will still want to watch you closely. It is very important to go to all of your follow-up appointments. During these visits, your doctors will ask questions about any problems you are having and may do [exams](#)¹ and lab or [imaging tests](#)² to look for [signs](#)³ of stomach cancer or treatment side effects. Almost any cancer treatment can have [side effects](#)⁴. Some last for a few weeks to months, but others can last the rest of your life. This is the time for you to talk to your cancer care team about any changes or problems you notice and any questions or concerns you have.

Most doctors recommend careful follow-up, with a physical exam and review of symptoms every 3 to 6 months for the first few years, then at least yearly after that. Lab tests might also be done. Scans are not usually needed at each visit, but should be done if there are any suspicious symptoms or physical findings.

If you have had [surgery](#)⁵, your health care team may suggest that you meet with a nutritionist, who can help you adjust to changes in your eating habits.

People who have had surgery — especially if they had the upper part of their stomach removed (in either a subtotal or total gastrectomy) — will probably need to have their vitamin blood levels tested regularly and might need vitamin supplements, which could include B12 injections. (The pill form of vitamin B12 isn't absorbed if the upper part of the stomach has been removed.)

Ask your doctor for a survivorship care plan

Talk with your doctor about developing a [survivorship care plan](#)⁶ for you. This plan might include:

- 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
- Reminders to keep your appointments with your primary care provider (PCP), who will monitor your general health care

Nutrition

Eating right can be hard for anyone, and may have gotten tougher during cancer treatment. This is especially true for cancers that affect the digestive tract, such as stomach cancer. The cancer or its treatment can affect how you eat and absorb nutrition. [Nausea](#)⁷ can be a problem during and after some treatments, and you may have lost your appetite and some weight.

If you have lost or are losing weight, or if you are having trouble eating, do the best you can. Eat what appeals to you. Eat what you can, when you can. You might find it helps to eat small portions every 2 to 3 hours until you feel better. Now is not the time to restrict your diet. Try to keep in mind that these problems usually improve over time. Your cancer team may refer you to a dietitian, an expert in nutrition who can give you ideas on how to fight some of the side effects of your treatment.

If part or all of your stomach has been removed, you might need to eat smaller amounts of food more often. Your doctor or nutritionist may also recommend that you stay upright for some time after eating. Your health care team can help you adjust your diet if you are having problems eating.

Some patients with stomach cancer have problems with nausea, diarrhea, sweating, and flushing after eating. This is called **dumping syndrome**. When part or all of the stomach is removed, the food that is swallowed quickly passes into the intestine, leading to these symptoms after eating. These symptoms often get better over time.

Some people may need nutritional supplements to help make sure they get the nutrition they need. Some people may even need a feeding tube, usually called a **jejunostomy tube** (or **J-tube**), put into the small intestine. This is done through a small hole in the skin over the abdomen during a minor operation. A J-tube allows liquid nutrition to be put directly into the small intestine to help prevent weight loss and improve nutrition. Less often, the tube may be placed into the lower part of the stomach instead. This is known as a **gastrostomy tube** or **G-tube**.

Keeping health insurance and copies of your medical records

Even after treatment, it's very important to keep health insurance. 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 cancer 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](#)⁸.

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

If you have (or have had) stomach 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.

Eating a diet rich in fruits and vegetables and staying at a healthy weight are linked with a lower risk of stomach cancer, but we don't know if these types of changes affect the risk of cancer progressing or coming back. However, we do know that they can have positive effects on your health that can extend beyond your risk of cancer.

Tobacco use has clearly been linked to stomach cancer, so not smoking might help reduce your risk. We don't know for certain if this will help, but we do know that it can help improve your appetite and overall health. It can also reduce the chance of developing other types of cancer. If you want to quit smoking and need help, call the American Cancer Society at 1-800-227-2345. You can also learn more in our [Guide to Quitting Smoking](#)⁹.

About dietary supplements

So far, no [dietary supplements](#)¹⁰ (including vitamins, minerals, and herbal products) have been shown to clearly help lower the risk of 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 the cancer does recur at some point, your treatment options will depend on where the cancer is located, what treatments you've had before, and your health. For more information on how recurrent cancer is treated, see [Treatment Choices by Type and Stage of Stomach Cancer](#)¹¹.

For more general information on recurrence, you may also want to see [Understanding Recurrence](#)¹².

Could I get a second cancer after treatment?

People who've had stomach cancer can still get other cancers. In fact, stomach cancer survivors are at higher risk for getting some other types of cancer. Learn more in [Second Cancers After Stomach Cancer](#)¹³.

Hyperlinks

1. www.cancer.org/treatment/understanding-your-diagnosis/tests.html
2. www.cancer.org/treatment/understanding-your-diagnosis/tests/imaging-radiology-tests-for-cancer.html
3. www.cancer.org/cancer/stomach-cancer/detection-diagnosis-staging/signs-symptoms.html
4. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects.html
5. www.cancer.org/cancer/stomach-cancer/treating/types-of-surgery.html
6. www.cancer.org/treatment/survivorship-during-and-after-treatment/survivorship-care-plans.html
7. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/nausea-and-vomiting.html
8. www.cancer.org/healthy/stay-away-from-tobacco/guide-quitting-smoking.html
9. <https://author-prod.cancer.org/content/cancer/en/treatment/treatments-and-side-effects/complementary-and-alternative-medicine/dietary-supplements.html>
10. www.cancer.org/cancer/stomach-cancer/treating.html
11. <https://author-prod.cancer.org/content/cancer/en/cancer/non-hodgkin-lymphoma/after-treatment/second-cancers.html>

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Kushi LH, Doyle C, McCullough M, Rock CL, Demark-Wahnefried W, Bandera EV, Gapstur S, Patel AV, Andrews K, Gansler T; American Cancer Society 2010 Nutrition and Physical Activity Guidelines Advisory Committee. American Cancer Society Guidelines on nutrition and physical activity for cancer prevention: reducing the risk of cancer with healthy food choices and physical activity. *CA: A Cancer Journal for Clinicians*. 2012 Jan-Feb;62(1):30-67.

Rock CL, Doyle C, Demark-Wahnefried W, Meyerhardt J, Courneya K S, Schwartz AL, Bandera E V, Hamilton KK, Grant B, McCullough M, Byers T, Gansler T. Nutrition and physical activity guidelines for cancer survivors. *CA: A Cancer Journal for Clinicians*. 2012 Jul-Aug;62(4):242–274.

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Second Cancers After Stomach Cancer

Cancer survivors can be affected by a number of health problems, but often their greatest concern is facing cancer again. If a cancer comes back after treatment it is called a [recurrence](#)¹. But some cancer survivors may develop a new, unrelated cancer later. This is called a second cancer. No matter what type of cancer you have had, it is still possible to get another (new) cancer, even after surviving the first.

Unfortunately, being treated for cancer doesn't mean you can't get another cancer. People who have had cancer can still get the same types of cancers that other people get. In fact, certain types of cancer and cancer treatments can be linked to a higher risk of certain second cancers.

Survivors of stomach cancer can get any type of second cancer. They do not get second cancers at an increased rate overall, but they do have an increased risk of cancers of the [thyroid](#)² and [small intestine](#)³.

Follow-up after treatment

After completing treatment for stomach cancer, you should still see your doctor regularly and may have tests to look for signs the cancer has come back or spread. Experts do not recommend any additional testing to look for second cancers in patients without symptoms. Let your doctor know about any new symptoms or problems, because they

could be caused by the cancer coming back or by a new disease or second cancer.

Survivors of stomach cancer should follow the [American Cancer Society guidelines for the early detection of cancer](#)⁴ and [stay away from tobacco products](#)⁵. Smoking increases the risk of many cancers.

To help maintain good health, survivors should also:

- Get ot and stay at a [healthy weight](#)⁶
- Adopt a [physically active lifestyle](#)⁷
- Eat a [healthy diet](#)⁸, with an emphasis on plant foods
- Limit [alcohol](#)⁹ to no more than 1 drink per day for women or 2 per day for men

These steps may also lower the risk of some cancers.

See [Second Cancers in Adults](#)¹⁰ for more information about causes of second cancers.

Hyperlinks

1. www.cancer.org/treatment/survivorship-during-and-after-treatment/understanding-recurrence.html
2. www.cancer.org/cancer/thyroid-cancer.html
3. www.cancer.org/cancer/small-intestine-cancer.html
4. www.cancer.org/healthy/find-cancer-early/cancer-screening-guidelines.html
5. www.cancer.org/healthy/stay-away-from-tobacco.html
6. www.cancer.org/cancer/cancer-causes/diet-physical-activity/body-weight-and-cancer-risk.html
7. www.cancer.org/cancer/cancer-causes/diet-physical-activity.html
8. www.cancer.org/cancer/cancer-causes/diet-physical-activity.html
9. www.cancer.org/cancer/cancer-causes/diet-physical-activity/alcohol-use-and-cancer.html
10. www.cancer.org/treatment/treatments-and-side-effects/physical-side-effects/second-cancers-in-adults.html

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