
About Stomach Cancer

Get an overview of stomach cancer and the latest key statistics in the US.

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?

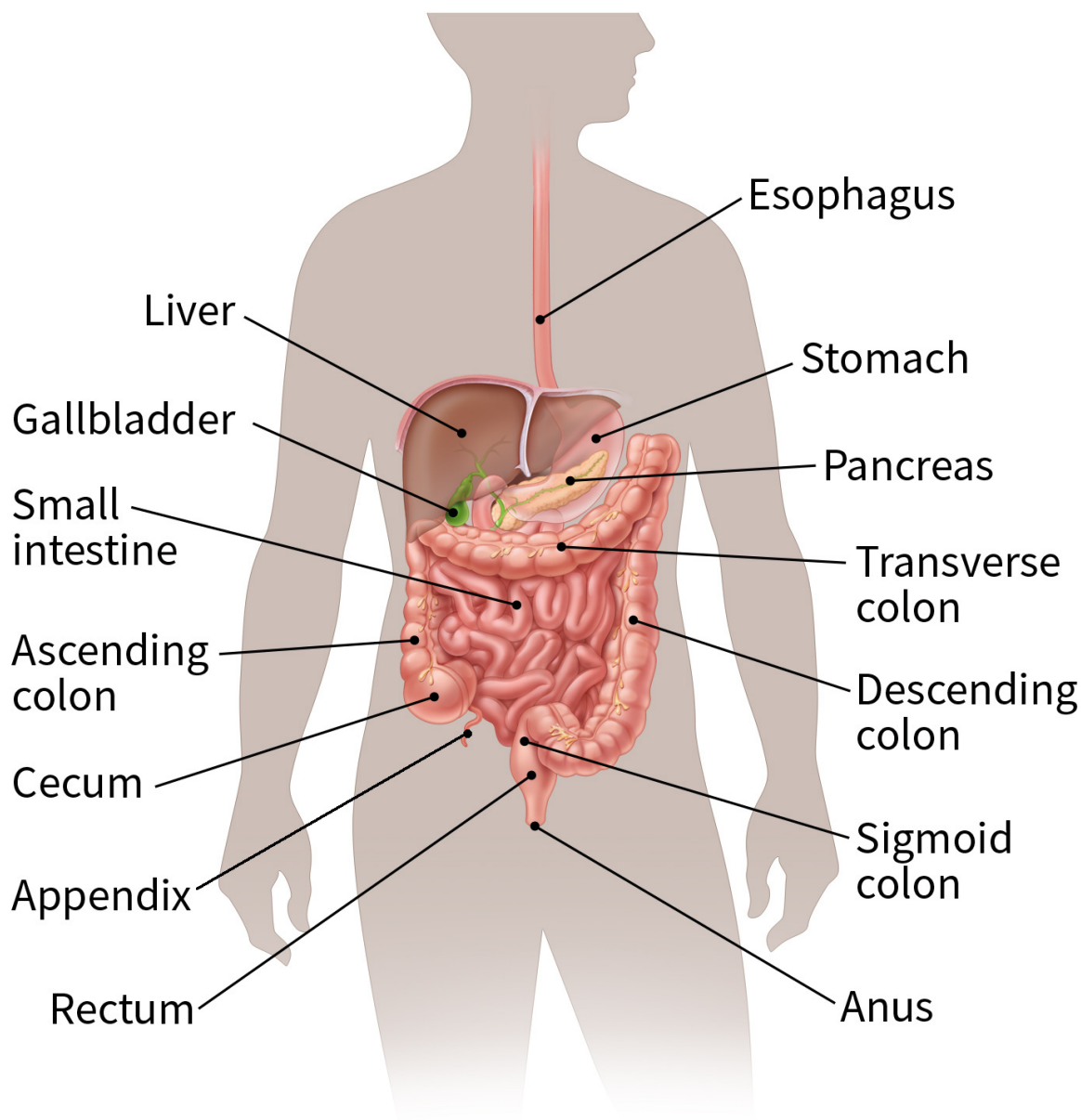
- [The stomach](#)
- [Development of stomach cancer](#)
- [Types of stomach cancer](#)
- [Other types of cancer that can start in the stomach](#)

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 then spread to other areas of the body. To learn more about cancer and how it starts and spreads, see [What Is Cancer?](#)¹

Stomach cancer, also called gastric cancer, begins when cells in the stomach start to grow out of control.

The stomach

To understand stomach cancer, it helps to know about the normal structure and function of the stomach.



The stomach is a sac-like organ that's an important part of the digestive system.

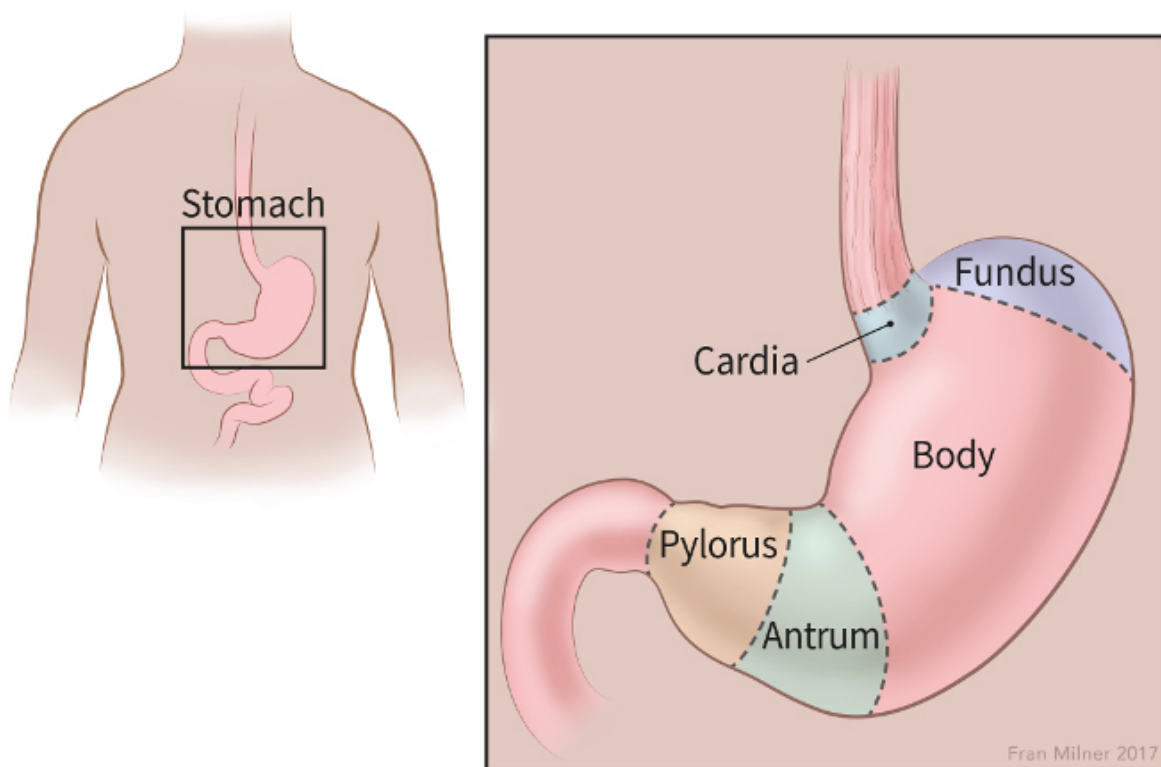
After food is chewed and swallowed, it enters the **esophagus**, a tube that carries food through the throat and chest to the stomach. The esophagus joins the stomach at the **gastroesophageal (GE) junction**, which is just beneath the diaphragm (the thin sheet of breathing muscle under the lungs). The **stomach** then starts to digest the food 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 belly area. The medical term for this area is the **abdomen**. For instance, some people with pain in this area would say they have a 'stomach ache', when in fact the pain could be coming from some other organ in the area. Doctors would call this symptom 'abdominal pain,' because the stomach is only one of many organs in the abdomen.

Stomach cancer is different from other cancers that can occur in the abdomen, like cancer of the [colon or rectum \(large intestine\)](#)², [liver](#)³, [pancreas](#)⁴, or [small intestine](#)⁵. These cancers can have different symptoms, different outlooks, and different treatments.

Parts of the stomach

The stomach has 5 parts.



The first 3 parts make up the **proximal stomach**:

- **Cardia:** the first part, which 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

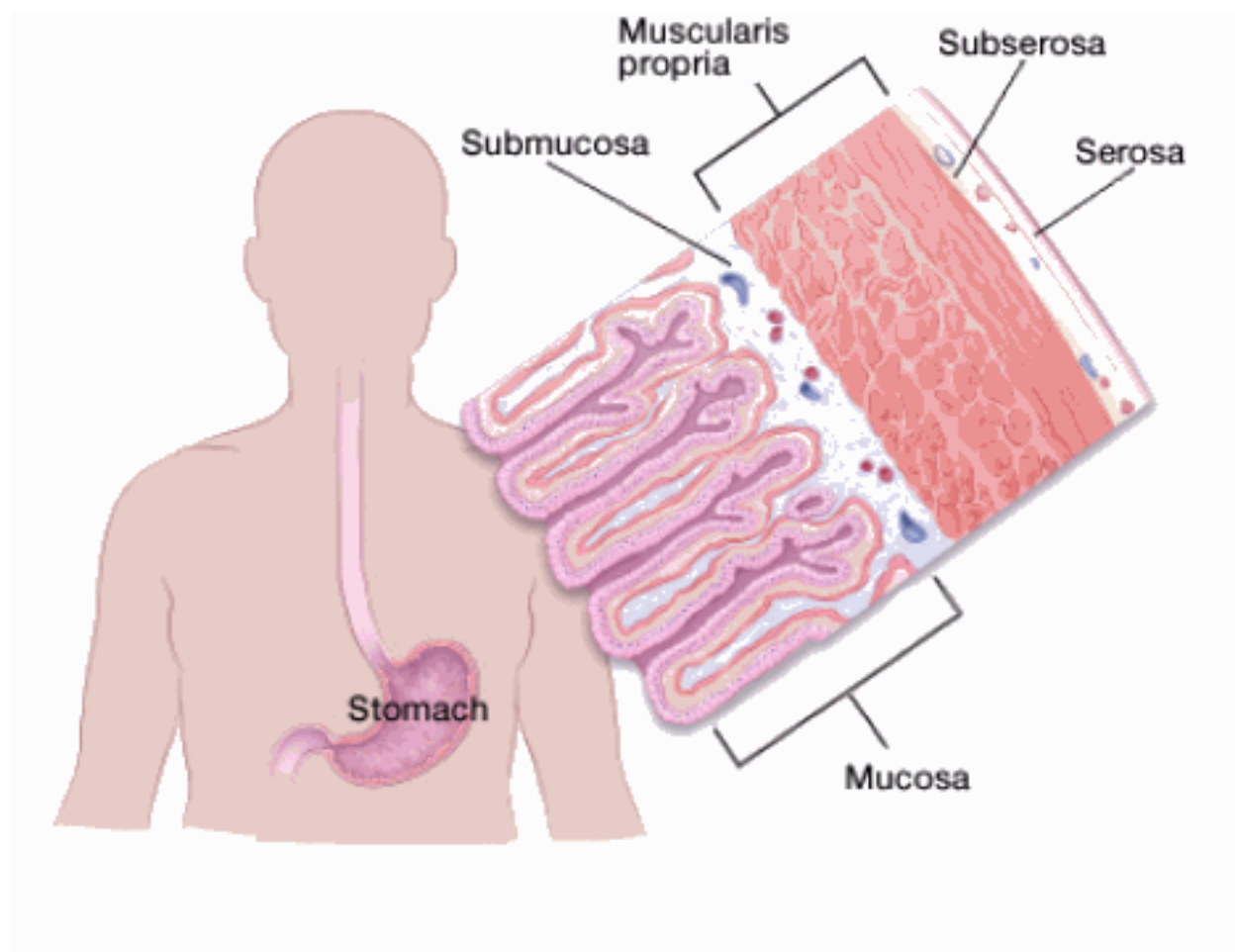
Some cells in these parts of the stomach make acid and pepsin (a digestive enzyme), which combine to make the **gastric juice** that helps digest food. They also make a protein called **intrinsic factor**, which the body needs to absorb vitamin B12.

The lower 2 parts make up the **distal stomach**:

- **Antrum**: the lower portion (near the small intestine), where the food mixes with gastric juice
- **Pylorus**: the last part of the stomach, which acts as a valve to control the emptying of the stomach contents into the small intestine

Other organs near the stomach include the small intestine, colon, liver, spleen, 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 helps move and mix the stomach contents.
- The outer 2 layers, the **subserosa** and the outermost **serosa**, wrap the stomach.

The layers are important in determining [the stage \(extent\) of the cancer](#)⁶, which can affect a person's treatment options and prognosis (outlook). As a cancer grows from the mucosa into deeper layers, the stage becomes more advanced and treatment might need to be more extensive.

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, so they often go undetected.

Cancers starting in different sections of the stomach can cause different [symptoms](#)⁷ and tend to have different outcomes. The cancer's location can also affect treatment options. For example, cancers that start at or grow into the GE junction are usually staged and treated the same as cancers of the esophagus. (For more information, see [Esophagus Cancer](#)⁸.)

Types of stomach cancer

Adenocarcinomas

Most cancers of the stomach (about 90% to 95%) are adenocarcinomas. These cancers develop from the gland cells in the innermost lining of the stomach (the mucosa).

If you are told you have stomach cancer (or gastric cancer), it will almost always be an adenocarcinoma. The information on the following pages that discusses stomach cancer refers to this type of cancer.

There are 2 main types of stomach adenocarcinomas:

- The **intestinal** type tends to have a slightly better prognosis (outlook). The cancer cells are more likely to have certain gene changes that might allow for treatment with [targeted drug therapy](#)⁹.
- The **diffuse** type tends to grow spread more quickly. It is less common than the intestinal type, and it tends to be harder to treat.

Other types of cancer that can start in the stomach

Gastrointestinal stromal tumors (GISTs)

These uncommon tumors start in very early forms of cells in the wall of the stomach called interstitial cells of Cajal. Some GISTs are much more likely than others to grow into other areas or spread to other parts of the body. Although GISTs can start anywhere in the digestive tract, most start in the stomach. For more information, see [Gastrointestinal Stromal Tumor \(GIST\)](#)¹⁰.

Neuroendocrine tumors (including carcinoids)

Neuroendocrine tumors (NETs) start in cells in the stomach (or other parts of the digestive tract) that act like nerve cells in some ways and like hormone-making (endocrine) cells in others. Most NETs tend to grow slowly and do not spread to other organs, but some can grow and spread quickly. NETs are discussed in more detail in [Gastrointestinal Neuroendocrine \(Carcinoid\) Tumors](#)¹¹.

Lymphomas

These cancers start in immune system cells called lymphocytes. Lymphomas usually start in other parts of the body, but some can start in the wall of the stomach. The treatment and outlook for these cancers depend on the type of lymphoma and other factors. For more information, see [Non-Hodgkin Lymphoma](#)¹².

Other cancers

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

Hyperlinks

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

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Last Revised: January 22, 2021

Key Statistics About Stomach Cancer

- [How common is stomach cancer?](#)
- [Who gets stomach cancer?](#)
- [Stomach cancer trends over time](#)

How common is stomach cancer?

The American Cancer Society's estimates for stomach cancer (also known as gastric cancer) in the United States for 2024 are:

- About 26,890 new cases of stomach cancer (16,160 in men and 10,730 in women)
- About 10,880 deaths from this type of cancer (6,490 men and 4,390 women)

Stomach cancer accounts for about 1.5% of all new cancers diagnosed in the US each year.

Who gets stomach cancer?

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 lifetime risk of developing stomach cancer is higher in men (about 1 in 101) than in women (about 1 in 155). But each person's risk can be affected by many [other factors](#)¹.

Stomach cancer trends over time

In the US, the number of new cases of stomach cancer has been dropping by about 1.5% each year over the last 10 years.

For much of the early 20th century, stomach cancer was the leading cause of cancer death in the United States, but today it is well down on this list. The reasons for this aren't completely clear, but two main factors are thought to have been important:

- The increased use of refrigeration for food storage, which has led to people eating fewer salted and smoked foods (known [risk factors](#)² for stomach cancer).
- The decline in the number of people infected with the *Helicobacter pylori* (*H pylori*) bacteria, which is thought to be a [major cause](#)³ of stomach cancer.

While stomach cancer has become less common in the US, it's still much more common in some other parts of the world, particularly in East Asia. It remains one of the leading causes of cancer-related deaths in the world.

For statistics on survival for stomach cancer, see [Survival Rates for Stomach Cancer](#)⁴.

Visit the American Cancer Society's [Cancer Statistics Center](#)⁵ for more key statistics.

Hyperlinks

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

4. www.cancer.org/cancer/types/stomach-cancer/detection-diagnosis-staging/survival-rates.html
5. cancerstatisticscenter.cancer.org/

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Last Revised: January 19, 2024

What's New in Stomach Cancer Research and Treatment?

- [Risk factors](#)

- [Chemoprevention](#)
- [Staging](#)
- [Treatment](#)

Important research on stomach cancer (also known as gastric cancer) is being done in many medical centers and other institutions around the world. Scientists are learning more about what causes the disease and how best to prevent, detect, and 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. Research in countries with relatively low stomach cancer risk has provided some insight into risk factors. For example, diets high in preserved meats and low in fresh fruits and vegetables have been linked with higher risk.

Helicobacter pylori infection

Helicobacter pylori (*H pylori*) is a common type of bacteria that has been linked with an [increased risk of stomach cancer](#)¹. Some studies have shown that certain types of *H pylori* (especially the cagA strains) are more strongly linked to stomach cancer than others. 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.

Research has also found that a healthy diet is 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.

Antioxidants

One of the ways cancer might form is by the creation of chemicals inside cells called

free radicals. Free radicals can sometimes damage the genes inside cells, which in some cases might lead to cancer.

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 antioxidant supplements might reduce the risk of stomach cancer in people with poor nutrition to begin with, but it's not clear if they'd have the same effects in people who eat healthier diets. Further research in this area is needed.

Antibiotics

Some studies have found that treating chronic *H pylori* infection with antibiotics may help prevent pre-cancerous stomach abnormalities, but more research is needed.

Although not truly chemoprevention, antibiotics may help prevent stomach cancer from recurring (coming back) 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 for early-stage stomach cancer. Unfortunately, stomach cancers are more often found at a later stage in the United States, 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, because they can cause serious side effects in some people.

Staging

Sentinel lymph node biopsy

In people diagnosed with stomach cancer, it's important to find out if it has spread to nearby lymph nodes. Doctors are studying whether sentinel lymph node biopsy (SLNB) can help find the spread of stomach cancer. This technique has proved successful in

[melanoma](#)² and [breast cancer](#)³.

In this procedure, the surgeon injects a blue dye and/or a radioactive tracer substance into the cancer. These travel to the **sentinel lymph nodes**, the nearby lymph nodes that would be the first site of cancer spread. Once these nodes are found with the help of the dye or tracer, the 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 in the area would 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 it's not yet clear if this technique is ready for widespread use.

Treatment

Surgery

Doctors are constantly working to improve the surgical techniques used to treat stomach cancer.

For some very early stage stomach cancers, surgery can be done using **endoscopy**, in which long, thin instruments are passed down the throat to remove the cancer and some layers of the stomach wall (see [Surgery for Stomach Cancer](#)⁴). Surgeons are looking for ways to improve this approach. Unfortunately, most stomach cancers in the United States are not found early enough for this type of surgery.

Surgeons are also studying different approaches to removing part or all of the stomach. For example, some surgeons now do these operations laparoscopically, in which long, thin instruments are passed through small cuts in the abdomen to remove the cancer. This can be done with the surgeon holding the instruments directly, or while sitting at a control panel to move robotic arms with instruments on the ends. While **laparoscopic surgery** usually results in a shorter hospital stay and a quicker recovery, it's not yet clear how it compares to standard surgery (using a longer abdominal incision) in terms of other results.

Chemotherapy

Many [chemotherapy](#)⁵ (chemo) drugs can be used to treat stomach cancer, often in combination with each other. Newer 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, 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 other treatments such as [radiation therapy](#)⁶, targeted therapy drugs, or immunotherapy.

A good deal of effort is being directed at improving the results of surgery 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 therapy drugs

Chemo drugs affect 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 newer [targeted drugs](#)⁷ to try to exploit these differences. Targeted drugs sometimes work when standard chemo drugs don't. They also tend to have different 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, such as trastuzumab (Herceptin) and fam-trastuzumab deruxtecan (Enhertu), can be used to help treat these cancers. Many other drugs that target HER2, such as lapatinib (Tykerb), pertuzumab (Perjeta), trastuzumab emtansine (Kadcyla), and margetuximab, are now being studied for use against stomach cancer in clinical trials.

Drugs that block VEGF and its receptors: VEGF is a protein that helps tumors develop new blood vessels, which they need to grow. Drugs that target VEGF (or the VEGF receptors on the surface of cells) can help stop some stomach cancers from growing. Ramucirumab (Cyramza), a drug that blocks VEGF receptors, can be used to treat some advanced stomach cancers. Other targeted drugs that target VEGF receptors, such as apatinib, are also being studied.

Other targeted drugs: Many other drugs that target different parts of cancer cells are now being studied for use against stomach cancer as well.

Research is also looking at combining targeted drugs with chemotherapy or immunotherapy, or with other targeted drugs.

Immunotherapy

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

In recent years, drugs called **immune checkpoint inhibitors** have been shown to be helpful in treating many types of cancer. One of these drugs, pembrolizumab (Keytruda) is now approved to treat advanced stomach cancer in some people, typically after other treatments have been tried. Doctors are now studying whether this drug might be helpful earlier in the course of treatment, or if combining it with other drugs might be helpful. Several other checkpoint inhibitors are also being studied for use in stomach cancer.

Other types of immunotherapy are now being tested for use against stomach cancer as well.

For more information on this type of treatment, see [Immunotherapy](#)⁸.

Hyperlinks

1. www.cancer.org/cancer/types/stomach-cancer/causes-risks-prevention/risk-factors.html
2. www.cancer.org/cancer/types/melanoma-skin-cancer.html
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7. www.cancer.org/cancer/types/stomach-cancer/treating/targeted-therapies.html
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Last Revised: January 22, 2021

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