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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

References

Hundahl SA, Phillips JL, Menck HR. The National Cancer Data Base report on poor survival of U.S. gastric cancer patients treated with gastrectomy. *Cancer*. 2000;88:921–932.

Huscher CG, Mingoli A, Sgarzini G, et al. Laparoscopic versus open subtotal gastrectomy for distal gastric cancer: Five-year results of a randomized prospective trial. *Ann Surg*. 2005;241:232–237.

Hwang J. Resectable esophageal, gastroesophageal and gastric cancers: Therapy is distinct for gastric cancer. *ASCO Education Book* 2008:172–176.

Kappas AM, Roukos DH. Quality of surgery determinant for the outcome of patient with gastric cancer. *Ann Surg Oncol*. 2002;9:828–830.

Märkl B, Moldovan AI, Jähnig H, et al. Combination of ex vivo sentinel lymph node mapping and methylene blue-assisted lymph node dissection in gastric cancer: a prospective and randomized study. *Ann Surg Oncol*. 2011;18:1860-1868.

National Cancer Institute. Physician Data Query (PDQ). *Gastric Cancer Treatment*. 2/2/2017. Accessed at: www.cancer.gov/cancertopics/pdq/treatment/gastric/HealthProfessional on November 20, 2017.

National Comprehensive Cancer Network. *NCCN Clinical Practice Guidelines in Oncology: Gastric Cancer*. v.3.2017. Accessed at www.nccn.org/professionals/physician_gls/pdf/gastric.pdf on November 20, 2017.

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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

References

Cunningham D, Allum W, Stenning S et al. Perioperative chemotherapy vs surgery alone for resectable gastroesophageal cancer. *N Eng J Med*. 2006;355:11–20.

Jeung H, Moon Y, Rha S, et al. Phase III trial of adjuvant 5-fluorouracil and adriamycin versus 5-fluorouracil and adriamycin and polyadenylic-polyuridylic acid (poly a:u) for locally advanced gastric cancer after curative surgery: Final results of 15 year follow-up. *Annals of Oncology*. 2008;19:520–526.

Kang YK, Yook JH, Chang HM, Ryu MH, Yoo C, Zang DY, Lee JL, Kim TW, Yang DH, Jang SJ, Park YS, Lee YJ, Jung HY, Kim JH, Kim BS. Enhanced efficacy of postoperative adjuvant chemotherapy in advanced gastric cancer: results from a phase 3 randomized trial (AMC0101). *Cancer Chemother Pharmacol*. 2014 Jan;73(1):139-49. Epub 2013 Oct 27.

Kappas AM, Roukos DH. Quality of surgery determinant for the outcome of patient with gastric cancer. *Ann Surg Oncol*. 2002;9:828–830.

MacDonald JS, et al. Chemoradiotherapy after surgery compared with surgery alone for adenocarcinoma of the stomach or gastroesophageal junction. *New Engl J Med*. 2001;345:725–730.

National Cancer Institute. Physician Data Query (PDQ). *Gastric Cancer Treatment*. 2/2/2017. Accessed at: www.cancer.gov/cancertopics/pdq/treatment/gastric/HealthProfessional on November 20, 2017.

National Comprehensive Cancer Network. *NCCN Clinical Practice Guidelines in Oncology: Gastric Cancer*. v.3.2017. Accessed at www.nccn.org/professionals/physician_gls/pdf/gastric.pdf on November 20, 2017.

Pozzo C, Barone C. Is there an optimal chemotherapy regimen for the treatment of advanced gastric cancer that will provide a platform for the introduction of new biological agents? *Oncologist*. 2008;13:794–806.

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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

References

Bang YJ, Van Cutsem E, Feyereislova A, et al. Trastuzumab in combination with chemotherapy versus chemotherapy alone for treatment of HER2-positive advanced gastric or gastro-oesophageal junction cancer (ToGA): A phase 3, open-label, randomized controlled trial. *Lancet*. 2010;376:687697.

Fuchs CS, Tomasek J, Yong CJ, et al. Ramucirumab monotherapy for previously treated advanced gastric or gastro-oesophageal junction adenocarcinoma (REGARD): an international, randomised, multicentre, placebo-controlled, phase 3 trial. *Lancet*. 2014 Jan 4;383(9911):31-9. Epub 2013 Oct 3.

Muro K, Boku N, Yamada Y et al. Multicenter phase II study of RAD001 for previously treated metastatic gastric cancer: Preliminary results. *J Clin Oncol*. 2008;26 (May 20 suppl; abstr 4541).

National Cancer Institute. Physician Data Query (PDQ). *Gastric Cancer Treatment*. 2/2/2017. Accessed at: www.cancer.gov/cancertopics/pdq/treatment/gastric/HealthProfessional on November 20, 2017.

National Comprehensive Cancer Network. *NCCN Clinical Practice Guidelines in Oncology: Gastric Cancer*. v.3.2017. Accessed at www.nccn.org/professionals/physician_gls/pdf/gastric.pdf on November 20, 2017.

Song H, Zhu J, Lu D. Molecular-targeted first-line therapy for advanced gastric cancer. *Cochrane Database of Systematic Reviews*. 2016;7. Art. No.: CD011461. DOI: 10.1002/14651858.CD011461.pub2.

Wong H, Yau T. Targeted therapy in the management of advanced gastric cancer: Are we making progress in the era of personalized medicine? *Oncologist*. 2012;17:346–358.

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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

References

National Cancer Institute. Physician Data Query (PDQ). *Gastric Cancer Treatment*. 2/2/2017. Accessed at: www.cancer.gov/cancertopics/pdq/treatment/gastric/HealthProfessional on November 20, 2017.

National Comprehensive Cancer Network. *NCCN Clinical Practice Guidelines in Oncology: Gastric Cancer*. v.3.2017. Accessed at www.nccn.org/professionals/physician_gls/pdf/gastric.pdf on November 20, 2017.

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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

References

National Cancer Institute. Physician Data Query (PDQ). *Gastric Cancer Treatment*. 2/2/2017. Accessed at: www.cancer.gov/cancertopics/pdq/treatment/gastric/HealthProfessional on November 20, 2017.

National Comprehensive Cancer Network. *NCCN Clinical Practice Guidelines in Oncology: Gastric Cancer. v.3.2017*. Accessed at www.nccn.org/professionals/physician_gls/pdf/gastric.pdf on November 20, 2017.

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