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Treating Stomach Cancer

If you've been diagnosed with stomach cancer (also known as gastric 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 Drug Therapy for Stomach Cancer
- Immunotherapy for Stomach Cancer
- Radiation Therapy for Stomach Cancer

Common treatment approaches

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

Treatment Choices Based on the Extent of Stomach Cancer

Who treats stomach cancer?

Stomach cancer is often treated by a team of doctors with different specialties. Most likely, your treatment team will include:

asking your doctor if your clinic or hospital conducts clinical trials.

Clinical Trials

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 Integrative Medicine

Help getting through cancer treatment

People with cancer need support and information, no matter what stage of illness they may be in. Knowing all of your options and finding the resources you need will help you make informed decisions about your care.

Whether you are thinking about treatment, getting treatment, or not being treated at all, you can still get supportive care to help with pain or other symptoms. Communicating with your cancer care team is important so you understand your diagnosis, what treatment is recommended, and ways to maintain or improve your quality of life.

Different types of programs and support services may be helpful, and can be 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.

Surgery for Stomach Cancer

Surgery can be done for two main reasons:

- Surgery to remove the cancer: Surgery may be done to remove the cancer and part or all of the stomach, as well as some nearby lymph nodes and other structures, depending on the location and stage¹ (extent) of the cancer. The surgeon will try to leave behind as much normal stomach as possible. Sometimes other organs will need to be removed as well.
- Palliative surgery: If the cancer is too widespread to be removed completely, surgery might still be done to help prevent bleeding from the tumor or prevent the stomach from being blocked by tumor growth. This type of surgery can prevent or relieve symptoms, but it is not expected to cure the cancer.

Surgery to remove the cancer

Different types of surgery can be used to try to remove stomach cancer. The type of operation used depends on what part of the stomach the cancer is in and how far it has grown into nearby areas.

Before your surgery, talk to your surgeon about how much of the stomach will need to be removed. Some surgeons try to leave behind as much of the stomach as they can, which might allow patients to eat more normally afterward. However, the main goal of surgery is to be sure all the cancer has been removed. The surgeon will try to achieve **negative surgical margins**, meaning that no cancer cells are seen at the edges of the removed part of the stomach, even when looking at it under a microscope.

Endoscopic resection

Endoscopic mucosal resection (EMR) and **endoscopic submucosal dissection (ESD)** are procedures that can be used to treat some very early-stage cancers, when the tumor is not thought to have grown deeply into the stomach wall and the chance of spread outside the stomach 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 some layers of the normal stomach wall below and around it. (ESD goes deeper into the stomach wall than EMR.)

These operations are not done as often in the United States as they are in some East

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complications.

Gastric bypass (gastrojejunostomy)

Tumors in the lower part of the stomach may eventually grow large enough to block

2020. Accessed at https://www.cancer.gov/types/stomach/hp/stomach-treatment-pdq on July 10, 2020.

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Last Revised: January 22, 2021

Chemotherapy for Stomach Cancer

- When is chemo used for stomach cancer?
- Which chemo drugs are used for stomach cancer?
- More information about chemotherapy

Chemotherapy (chemo) uses anti-cancer drugs that are injected into a vein (through an IV line or <u>central venous catheter</u>¹) 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.

When is chemo used for stomach cancer?

Chemo might be used at different times to help treat stomach cancer:

- Chemo can be given before surgery for stomach cancer. This is known as neoadjuvant treatment. (Sometimes chemo is given along with radiation therapy, which is known as chemoradiation.) Neoadjuvant treatment can often 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** has been done to remove the cancer. This is called **adjuvant treatment.** The goal of adjuvant chemo is to kill any areas of cancer 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 may be especially helpful for cancers that could not be removed completely by surgery.
- Chemo may be given as the primary (main) treatment if the cancer has spread (metastasized) to distant parts of the body, or if it can't be removed for some other reason. Chemo may help shrink the cancer or slow its growth, which can relieve symptoms and help people 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.

Which chemo drugs are used for stomach cancer?

Many different chemo drugs can be used to treat stomach cancer, including:

- 5-FU (fluorouracil), often given along with leucovorin (folinic acid)
- Capecitabine
- Carboplatin
- Cisplatin
- Docetaxel
- Epirubicin
- Irinotecan
- Oxaliplatin
- Paclitaxel
- Trifluridine and tipiracil (Lonsurf), a combination drug in pill form

Most often, 2 or 3 of these drugs are combined (sometimes along with a targeted drug as well). But this depends on factors such as the <u>stage of the cancer</u>², the person's overall health, and whether chemo is combined with radiation therapy. 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.

For **earlier stage cancers**, some common drug combinations used before and/or after surgery include:

- Oxaliplatin plus 5-FU/leucovorin (FOLFOX), or oxaliplatin plus capecitabine (CAPOX)
- FLOT (5-FU/leucovorin, oxaliplatin, and docetaxel)
- Docetaxel or paclitaxel plus either 5-FU or capecitabine

- Cisplatin plus either 5-FU or capecitabine
- · Paclitaxel and carboplatin

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

For **advanced stomach cancer**, many of the same combinations of drugs can be used, although doctors often prefer combinations of 2 drugs rather than 3 to try to reduce side effects. Some of the most commonly used combinations include:

- Oxaliplatin plus 5-FU/leucovorin (FOLFOX), or oxaliplatin plus capecitabine (CAPOX)
- Cisplatin plus either 5-FU or capecitabine
- Irinotecan plus 5-FU/leucovorin (FOLFIRI)
- Paclitaxel plus either cisplatin or carboplatin
- Docetaxel plus cisplatin
- Epirubicin, either cisplatin or oxaliplatin, and either 5-FU or capecitabine
- Docetaxel, 5-FU, and either cisplatin, carboplatin, or oxaliplatin

If a person isn't healthy enough to get a combination of chemo drugs, a single drug, such as 5-FU, capecitabine, docetaxel, or paclitaxel, might be used instead.

If one of these combinations (or a single drug) is no longer helpful, another drug or combination of drugs might be tried.

Side effects of chemo

Chemo drugs attack cells in the body that are dividing quickly, which can lead to side If one of these combinations (or a single dhat6 ET Q rdrugs attack cells in/GS526 gs (Side effects of c

These side effects usually 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 help with them. For example, you can be given drugs to prevent or reduce nausea and vomiting.

Some chemo drugs have specific side effects. Your treatment team can help you know which of these you might need to look out for.

Nerve damage (neuropathy): Cisplatin, oxaliplatin, docetaxel, and paclitaxel can damage nerves. 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 people. Oxaliplatin can also affect nerves in the throat, causing throat pain that is worse when trying to eat or drink cold liquids or foods.

Heart damage: Epirubicin and some other drugs can damage the heart 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, calluses, or skin peeling can occur, sometimes leading to painful sores. The best way to prevent severe hand-foot syndrome is to tell your doctor if you have early symptoms, such as redness or sensitivity, so that steps can be taken to keep things from getting worse.

Diarrhea is a common side effect with many chemo drugs, but it can be particularly bad with irinotecan. It needs to be treated right away — at the first sign of loose stools — to prevent severe dehydration. If you are getting a chemo drug that is likely to cause diarrhea, your doctor will give you instructions on what drugs to take and how often to take them to control this symptom.

Some chemo drugs can cause other side effects. Talk with your treatment team about what types of side effects you should watch for.

More information about chemotherapy

For more general information about how chemotherapy is used to treat cancer, see <u>Chemotherapy</u>³.

To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects⁴.

Hyperlinks

- 1. <u>www.cancer.org/cancer/managing-cancer/making-treatment-decisions/tubes-lines-ports-catheters.html</u>
- 2. <u>www.cancer.org/cancer/types/stomach-cancer/detection-diagnosis-staging/staging.html</u>
- 3. www.cancer.org/cancer/managing-cancer/treatment-types/chemotherapy.html
- 4. www.cancer.org/cancer/managing-cancer/side-effects.html

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Last Revised: January 22, 2021

Targeted Drug Therapy for Stomach Cancer

- Drugs that target HER2
- Drugs that target VEGF
- TRK inhibitors
- Other targeted drugs
- More information about targeted therapy

As researchers have learned more about the changes in cells that cause cancer, they have developed newer drugs that specifically target these changes. Targeted drugs work differently from standard chemotherapy (chemo) drugs. They sometimes work when standard chemo drugs don't, and they often have different side effects.

Targeted drugs can sometimes be used to treat stomach cancer (gastric cancer), either alone or along with chemo, depending on the situation.

Drugs that target HER2

In some people with stomach cancer, the cancer cells have too much of a growth-promoting protein called HER2 on their surface. Cancers with increased levels of HER2 are called **HER2-positive**. Drugs that target the HER2 protein can often be helpful in treating these cancers.

Trastuzumab (Herceptin, others)

Trastuzumab is a <u>monoclonal antibody</u>¹, a man-made version of an immune system protein, which targets HER2. Adding trastuzumab to chemo can help some people with advanced, HER2-positive stomach cancer live longer than just chemo alone.

This drug only works if the cancer cells have too much HER2, so samples of the cancer

Trazimera, and Kanjinti.

Side effects of trastuzumab

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 cause heart damage. The risk is higher if trastuzumab is

For tumors to grow, they need to make new blood vessels to get blood and nutrients. One of the proteins that tells cells in the body to make new blood vessels is called **VEGF**. The VEGF protein does this by attaching to cell surface proteins called VEGF receptors.

Ramucirumab (Cyramza)

Ramucirumab is a monoclonal antibody that binds to a VEGF receptor. This keeps VEGF from binding to cells and telling them to make more blood vessels. This can help slow or stop the growth of some cancers.

Ramucirumab is used to treat advanced stomach cancer, most often after at least one chemo drug (or combination) stops working.

Common side effects of these drugs can include dizziness, fatigue, nausea, vomiting, constipation, weight gain, and diarrhea.

Less common but serious side effects can include abnormal liver tests, heart problems, and confusion.

Other targeted drugs

Other targeted therapy drugs are now being tested against stomach cancer. Some of these target 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?⁵

More information about targeted therapy

To learn more about how targeted drugs are used to treat cancer, see <u>Targeted Cancer</u> <u>Therapy</u>⁶.

To learn about some of the side effects listed here and how to manage them, see Managing Cancer-related Side Effects⁷.

Hyperlinks

- 1. <u>www.cancer.org/cancer/managing-cancer/treatment-types/immunotherapy/monoclonal-antibodies.html</u>
- 2. <u>www.cancer.org/cancer/types/stomach-cancer/detection-diagnosis-staging/how-diagnosed.html</u>
- 3. <u>www.cancer.org/cancer/managing-cancer/making-treatment-decisions/tubes-lines-ports-catheters.html</u>
- 4. <u>www.cancer.org/cancer/managing-cancer/treatment-types/biosimilar-drugs/whatare-biosimilars.html</u>
- 5. www.cancer.org/cancer/types/stomach-cancer/about/new-research.html
- $\textbf{6.} \ \underline{www.cancer.org/cancer/managing-cancer/treatment-types/targeted-therapy.html}$
- 7. www.cancer.org/cancer/managing-cancer/side-effects.html

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Immunotherapy for Stomach Cancer

- 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. These can include:

Infusion reactions: Some people might have an infusion reaction while getting one of these drugs. 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 one of these drugs.

Autoimmune reactions: These drugs work by basically removing one of the safeguards on the body's immune system. Sometimes this causes the immune system to attack other parts of the body, which can lead to 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 right away. 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.

More information about immunotherapy

To learn more about how drugs that work on the immune system are used to treat cancer, see <u>Cancer Immunotherapy</u>².

To learn about some of the side effects listed here and how to manage them, see <u>Managing Cancer-related Side Effects</u>³.

Hyperlinks

- www.cancer.org/cancer/types/stomach-cancer/detection-diagnosis-staging/howdiagnosed.html
- 2. www.cancer.org/cancer/managing-cancer/treatment-types/immunotherapy.html
- 3. www.cancer.org/cancer/managing-cancer/side-effects.html

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Last Revised: November 21, 2023

Radiation Therapy for Stomach Cancer

- When is radiation therapy used?
- How is radiation therapy given?
- Possible side effects of radiation therapy
- More information about radiation therapy

Radiation therapy uses high-energy rays or particles to kill cancer cells in a specific part of the body.

When is radiation therapy used?

Radiation can be used in different ways to help treat stomach cancer (gastric cancer):

- For some earlier stage cancers, radiation can be used along with chemo to try to shrink the cancer and make it easier to remove. (This combination is known as chemoradiation.)
- After surgery, radiation therapy can be used along with chemo to try to kill any
 cancer cells that weren't removed during the surgery. This may help delay or
 prevent recurrence of the cancer.
- For cancers that can't be removed by surgery, radiation therapy can sometimes be used to help slow the growth of the cancer and ease symptoms, such as pain, bleeding, or eating problems.

How is radiation therapy given?

When radiation therapy is used to treat stomach cancer, the radiation is focused on the cancer from a machine outside the body. Often, special types of radiation therapy, such three-dimensional conformal radiation therapy (3D-CRT) or intensity modulated radiation therapy (IMRT) are used. These approaches use computers to aim the radiation at the cancer from several angles (as well as other special techniques). This can help 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 <u>imaging</u> tests¹ 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 at least several weeks, but the length of treatment depends on the reason it's being given.

Treatment Choices Based on the Extent of Stomach Cancer

- Potentially resectable cancers. These cancers have grown deeper into the stomach wall and may have grown into nearby areas or lymph nodes. But these cancers aren't thought to have spread to distant parts of the body, so surgery might still be an option to try to remove (resect) them completely.
- Unresectable local or regional cancers. These cancers have also grown deeper into the stomach wall and may have grown into nearby areas or lymph nodes.
 While the cancer hasn't yet spread to distant parts of the body, it's unlikely it can all be removed with surgery. For example, the cancer might be too close to vital areas, or the person might not be healthy enough for major surgery.
- Metastatic cancers. These cancers have spread to distant parts of the body.

Very early stage cancers

These cancers are still only in the inner lining layer of the stomach and have not grown into deeper layers of the stomach wall.

Very early stage cancers can typically be treated by surgery, with either subtotal gastrectomy (removal of part of the stomach) or total gastrectomy (removal of the entire stomach). Nearby lymph nodes are removed as well.

Some small stage 0 cancers can be treated by endoscopic resection. In this procedure the cancer and some layers of the stomach wall are removed through an endoscope passed down the throat. This procedure is done more often in countries like 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 often here. If it is done, it should be at a cancer center that has experience with this technique.

If the results of surgery (or endoscopic resection) show that all of the cancer has been

surgery might be an option to remove (resect) them.

It's very important that all of the needed tests are done to stage these cancers accurately before surgery is attempted, so the doctors know the true extent of the cancer in the body. Trying to remove the cancer isn't likely to be helpful if it has spread too far, and surgery can have serious side effects, so accurately staging these cancers helps ensure the potential benefits of surgery outweigh the potential downsides. Along with imaging tests like CT and PET scans, other tests such as endoscopic ultrasound (EUS) or staging laparoscopy might be done before trying to remove the cancer. (See Tests for Stomach Cancer² for more on these tests.)

Depending on the location and extent of the cancer, some people might get surgery as their first treatment, with either subtotal gastrectomy (removal of part of the stomach) or total gastrectomy (removal of the entire stomach). Nearby lymph nodes (and possibly parts of nearby organs) are removed as well. Other people might get chemotherapy alone or chemo plus radiation therapy (known as chemoradiation) first to try to shrink the cancer and make the surgery easier.

After surgery, chemo (or chemoradiation, if it wasn't used before surgery) might be given to try to kill any remaining cancer cells. This is especially true if it's not clear that all of the cancer was removed, or if too few lymph nodes were removed during surgery. Another option if not all of the cancer was removed might be a more extensive operation.

Unresectable local or regional cancers

These cancers haven't spread to distant parts of the body, but they can't be removed (resected) completely with surgery.

Options for the first line of treatment for these cancers might include chemotherapy alone, chemo plus immunotherapy, chemo plus immunotherapy plus the targeted drug trastuzumab (if the cancer tests positive for HER2 and for the PD-L1 protein³), or chemo plus radiation therapy (chemoradiation).

The stage (extent) of the cancer is then reassessed after treatment. It's very important that doctors know the true extent of the cancer at this point. Along with imaging tests like CT and PET scans, other tests such as endoscopic ultrasound (EUS) or staging laparoscopy might be done. (See <u>Tests for Stomach Cancer</u>⁴ for more on these tests.)

• If the cancer has shrunk enough with this treatment, surgery to remove the cancer might be an option at this point. This might be a subtotal gastrectomy (removal of

- part of the stomach) or total gastrectomy (removal of the entire stomach). Nearby lymph nodes (and possibly parts of nearby organs) are removed as well.
- If the cancer is still unresectable after the initial treatment, further treatment is aimed at controlling the cancer growth for as long as possible and preventing or relieving any problems it causes. This is similar to the treatment of metastatic cancer (described next).

Sometimes, even when the cancer is potentially resectable, a person might not be healthy enough for major surgery, or they might decide not to have it. Treatment for these cancers is typically aimed at controlling the cancer growth for as long as possible and preventing or relieving any problems it causes. This is similar to the treatment of metastatic cancer (described next).

Metastatic cancers

These cancers have spread to distant parts of the body, and they are very hard to cure. But treatment can often help keep the cancer under control and help prevent or relieve problems it might cause.

- 1. <u>www.cancer.org/cancer/types/stomach-cancer/detection-diagnosis-staging/staging.html</u>
- 2. www.cancer.org/cancer/types/stomach-cancer/detection-diagnosis-staging/how-diagnosed.html
- 3. <u>www.cancer.org/cancer/types/stomach-cancer/detection-diagnosis-staging/how-diagnosed.html</u>
- 4. <u>www.cancer.org/cancer/types/stomach-cancer/detection-diagnosis-staging/how-diagnosed.html</u>
- 5. <u>www.cancer.org/cancer/types/stomach-cancer/detection-diagnosis-staging/how-diagnosed.html</u>
- 6. <u>www.cancer.org/cancer/managing-cancer/making-treatment-decisions/clinical-trials.html</u>
- 7. www.cancer.org/cancer/managing-cancer/side-effects.html
- 8. www.cancer.org/cancer/survivorship/long-term-health-concerns/recurrence.html
- 9. <u>www.cancer.org/cancer/managing-cancer/making-treatment-decisions/clinical-trials.html</u>

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Last Revised: November 21, 2023

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Our team is made up of doctors and oncology certified nurses with deep knowledge of cancer care as well as journalists, editors, and translators with extensive experience in medical writing.

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