National Comprehensive Cancer Network®

2026

NCCN Guidelines for Patients®

Cancer care recommendations from leading experts at the National Comprehensive Cancer Network® (NCCN®)

Stomach Cancer

Presented with support from NCCN FOUNDATION® Guiding Treatment. Changing Lives.

Available online at NCCN.org/patientguidelines

NCCN Guidelines for Patients®

The essential guide for people facing cancer.

Based on care recommendations from leading cancer experts.

Explains high-quality cancer care provided at state-of-the-art cancer centers.

Reviewed and revised every year.

Did you know that top cancer centers across the United States work together to improve cancer care? This alliance of leading cancer centers is called the National Comprehensive Cancer Network® (NCCN®).

Because cancer care is always evolving, NCCN develops and frequently updates evidence-based cancer care recommendations used by health care providers worldwide. These recommendations are known as the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®).

The NCCN Guidelines for Patients plainly explain these expert recommendations, so you can talk with your care team about the best care for you.

These NCCN Guidelines for Patients are based on the NCCN Guidelines® for Gastric Cancer, Version 2.2026 — January 21, 2026.

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1
About stomach cancer

Stomach cancer happens when cells with damaged genes grow out of control in the stomach lining and form a tumor. This patient guideline provides the latest information on stomach cancer testing, staging, and treatment to help you make informed decisions with your health care team.

What is stomach cancer?

Stomach cancer (also called gastric cancer) is what happens when cells with damaged genes located in the stomach's lining multiply, grow out of control, and create a tumor.

The stomach is a large, hollow, muscular organ that's part of the digestive system. It secretes digestive juices and acid to help break down food. The stomach also stores food and moves it to the small intestine, where it is further digested and absorbed.

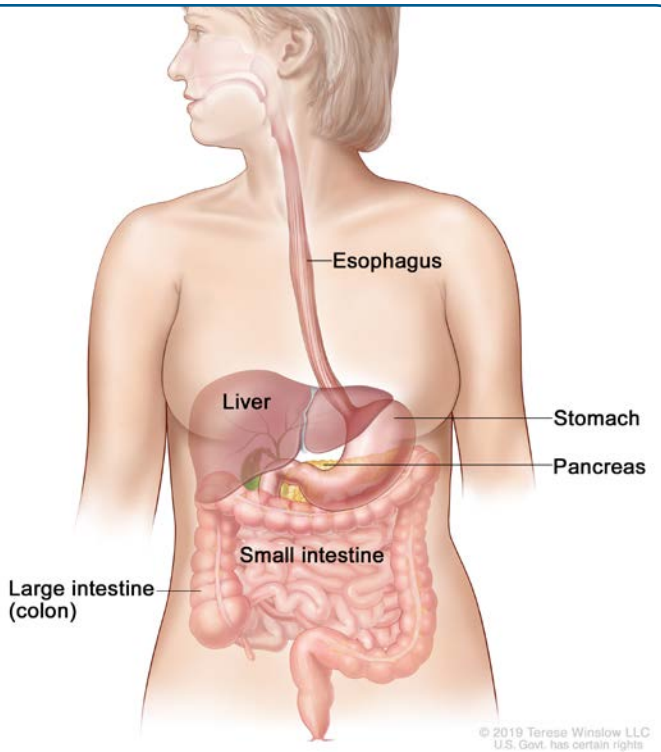
The wall surrounding this digestive dynamo is made up of many layers. And it's within these layers where stomach cancer begins. Most stomach cancers start in the cells that make mucus. These cancers are called adenocarcinomas. More than 9 in 10 stomach cancers are adenocarcinomas, and they're the focus of this book.

Adenocarcinoma of the stomach starts in the innermost layer of the stomach wall and grows outward (as well as up and down) through the layers of the wall.

For more information on the stomach, see *Chapter 2: About the stomach*.

The digestive system

The digestive system takes in and breaks down food, absorbs nutrients, and removes waste from the body. It includes organs like your liver, gallbladder, stomach, pancreas, and intestines.



What happens in stomach cancer?

Stomach cancer tends to develop slowly over many years. Before it develops, pre-cancerous changes often occur in the inner lining (mucosa) of the stomach. Because these early changes rarely cause symptoms, they often go undetected. But newer technology with endoscopes (tubes with cameras that look inside of the body) is detecting them earlier than ever before.

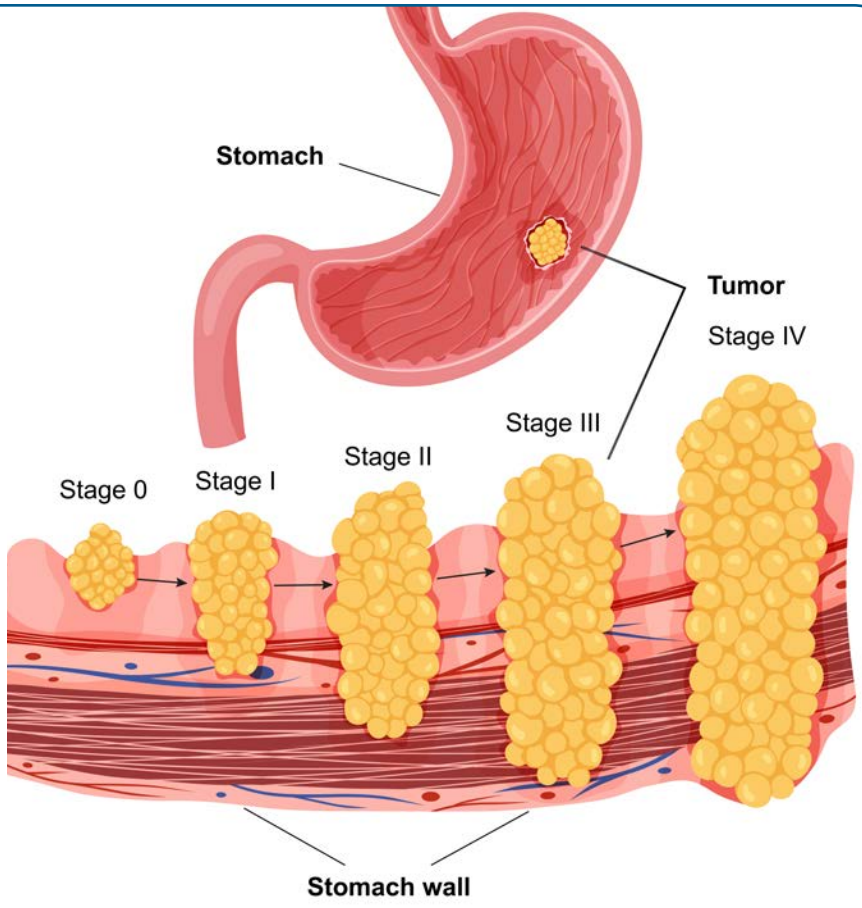
As it grows, stomach cancer can spread (metastasize) to nearby lymph nodes (small, bean-shaped, disease-fighting structures of the immune system) just outside of the stomach. It can also spread much further to lymphatic vessels, blood vessels, veins, arteries, and organs like the liver, pancreas, and spleen, as well as other parts of the body.

How is stomach cancer treated?

In general, treatment is based on the stage of stomach cancer, its location, as well as the health of the person who has cancer. A stage is a number (stage 0 through stage 4) that describes the extent of the cancer. Surgery with or without systemic therapy (chemotherapy and immunotherapy) is usually how it's treated, but it really depends on the

Stages of tumor growth

Depending on the growth of the tumor and if it has spread elsewhere, stomach cancer is classified by 5 stages: Stage 0, stage 1, stage 2, stage 3, and stage 4 (also known as metastatic cancer). This illustration shows tumor growth only—not lymph node involvement.



stage and how far the cancer has spread. For example, because stage 4 stomach cancer has spread far from the original site, surgery is not an option in the early phase of treatment, but systemic therapy might be.

As mentioned, depending on the growth of the tumor and if it has spread elsewhere, stomach cancer is classified into 5 stages:

Stage 0, stage 1, stage 2, stage 3, and stage 4 (also known as metastatic cancer). The illustration shows tumor growth only—not lymph node involvement.

Stomach cancer stages can be grouped into 3 main categories:

- **Early-stage stomach cancer** hasn't grown beyond the first layer (mucosa) of the stomach wall. The tumor is often small and isn't in any lymph nodes outside of the stomach. For more information on treatment in this stage, see *Chapter 6: Early-stage stomach cancer*.
- **Locally advanced stomach cancer** has invaded other layers of the stomach wall and/or spread to the lymph nodes or organs near the stomach. For more information, see *Chapter 7: Locally advanced stomach cancer*.
- **Metastatic stomach cancer** has spread to other parts of the body. The most common metastatic sites are the liver, abdominal lining (peritoneum), and distant lymph nodes. It may also have spread to the lungs or bones, or it is a recurrence of a previously treated stomach cancer. For more information, see *Chapter 8: Locally advanced recurrence and metastatic stomach cancer*.

What are the risk factors?

A risk factor increases the chances that you will develop a disease. Risk factors for stomach cancer are illness, infection, diet, smoking, or having a family member with stomach cancer. If you have any of these risk factors, it doesn't mean you'll develop stomach cancer—it just means you may be more likely to get it because these factors increase the chance of damage to the cells in the stomach lining.

These are the leading risk factors:

- Having *Helicobacter pylori* (*H. pylori*) infection
- History of chronic gastritis or acid reflux
- Family history of stomach cancer
- Diet low in fruits and vegetables but high in salt, smoked meats, red meat, or highly processed foods
- Drinking alcohol
- Smoking
- Having obesity
- Reduced activity level

The rates of stomach cancer in younger adults less than 50 years of age is increasing. The risk factors for early-onset stomach cancer are being investigated.

What are the symptoms?

Stomach cancer often has no symptoms until the later stages. But when it does cause symptoms, they may include:

Digestive issues

- Fullness, bloating, or pain in the belly with or without excessive burping after eating
- Nausea
- Indigestion
- Heartburn
- Regurgitation (bringing up swallowed food to the mouth)
- Vomiting blood or passing blood in stools (dark stools)
- Feeling full after eating a small amount

Other symptoms

- Difficulty swallowing that gets worse with time
- Unexplained/unintended weight loss
- Feeling weak or fatigued (tired)
- Anemia (low red blood cell count that can make you feel weak and extremely tired)

How can I get the best care?

Advocate for yourself. You have an important role to play in your care. Many people feel more satisfied when they actively take part in planning their cancer care.

The NCCN Guidelines for Patients will help you play a larger role in your care. Discuss the recommendations in this guide with your care team. Ask questions about your options and share your goals and concerns.

Don't know what to ask? You're not alone. That's why we include suggested questions to ask at the end of chapters.

Keep reading to find the best care for you.

How this guide can help you

Making decisions about cancer care is stressful. There's a lot to learn, and you don't know what the future holds.

Use this guide to get the information and support you need.

Patients, doctors, and other health care professionals trust the NCCN Guidelines for Patients. This guide uses clear, everyday language to explain current cancer care recommendations made by respected experts in the field. Their recommendations are based on the latest research and practices at leading cancer centers.

Your health is unique to you, so your cancer care should be, too. As you read this guide, you'll learn which treatments are likely to provide the best results for you. And you'll be better prepared to talk with your care team.

2
About the stomach

Knowing how the stomach and nearby lymph nodes work will help you better understand stomach cancer. This chapter explains the process.

The stomach

Located in the upper part of your belly (abdomen), just below your ribs, is your stomach. It's connected to the esophagus at the top and to the small intestine at the bottom. Food and drink enter the mouth and move through the esophagus into the stomach.

The stomach's main job is to mix the food that you eat and break it down so it can be further digested by the small intestine. The muscles of the stomach contract while it secretes enzymes and acid that convert what you eat and drink into a partially digested fluid called chyme. Since only small amounts of chyme are released into the small intestine at a time, the stomach also serves as a temporary holding place. The large intestine prepares the remaining undigested food to be moved out of the body.

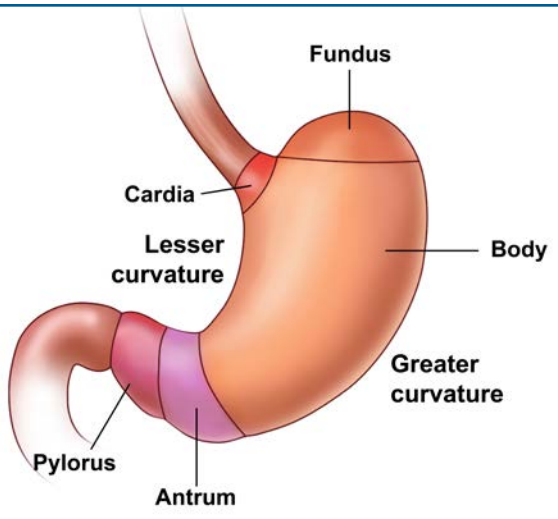
Parts of the stomach

The stomach has many parts. They include the:

- **Cardia** – The opening where the esophagus connects to the stomach. It contains the cardiac sphincter, which functions to prevent reflux
- **Fundus** – The upper part of the stomach, which forms a bulge higher than the opening of the esophagus (farthest from the pylorus). It stores undigested food and gases released from digestion.
- **Body** – The main part of the stomach
- **Antrum** – The lower part of the stomach where food mixes with enzymes and acid
- **Pylorus** – Connects the stomach to the first part of the small intestine (duodenum). The pylorus is a valve that opens and

Parts of the stomach

The parts of the stomach include the cardia, fundus, body, antrum, and pylorus. The stomach is part of the digestive system. Many lymph nodes can be found along the lesser and greater curvatures of the stomach.



closes during digestion. This allows partly digested food and other stomach contents to pass from the stomach to the small intestine.

The esophagus joins the stomach just below the diaphragm at the esophagogastric junction (EGJ). The diaphragm is the thin breathing muscle below the lungs and heart that separates the chest from the abdomen.

Tumors that start nearby in the esophagus are treated as esophageal cancers. More information on esophageal cancer is available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.

The stomach wall

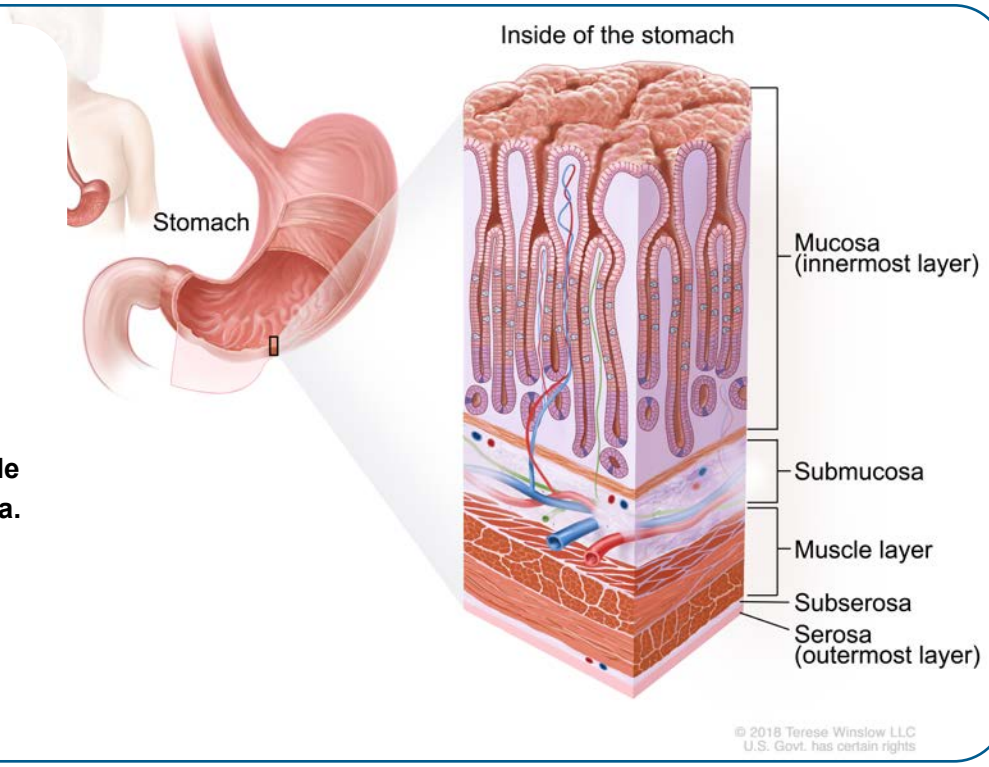
Stomach cancer starts in the innermost layer of the stomach wall and grows deeper (through it) from there, so it helps to understand its layers. The inner and outer stomach layers are membranes (thin layers of tissue that cover parts of the body). Between these membranes are layers of muscle and connective tissue.

The wall of the stomach is made of 5 main layers.

- **Mucosa** – Inner membrane that is in contact with food. It consists of 3 layers:
  - Surface epithelium – A thin, moist layer of cells that forms the interior stomach lining. This layer makes a sticky, thick liquid called mucus that protects the stomach.

Layers of the stomach wall

The wall of the stomach is made up of 5 layers: the mucosa, submucosa, muscle layer, subserosa, and serosa.



  - Lamina propria – A type of connective tissue found under the epithelium. Within and supported by the lamina propria are stomach glands formed by cells that produce enzymes, acid, mucus, and hormones.
  - Muscularis mucosae – A thin strip of muscle that separates the mucosa from the submucosa.

- **Submucosa** – A layer of connective tissue, blood vessels, and nerve cells. It also contains larger lymph vessels and channels.
- **Muscle** – A type of soft tissue that squeezes to help move food through the stomach. It's also called muscularis propria.
- **Subserosa** – A layer of connective tissue that supports the serosa.
- **Serosa** – An outer membrane that covers the stomach. The serosa is also called the serous membrane.

Nearby lymph nodes

There are hundreds of lymph nodes throughout your body. They're part of the immune system and filter out bacteria, viruses, and some cancer cells. Lymph nodes found near the stomach are called regional lymph nodes. Cancer found in a regional lymph node is called lymph node metastasis and is considered regional spread or locally advanced cancer. This is different from distant metastasis, which is found far from the main tumor in the stomach.

Lymph, a clear fluid that contains infection-fighting white blood cells, flows through the lymphatic system. It drains from the stomach wall into lymphatic vessels in the mucosa and submucosa. From there it drains into lymph nodes outside of the stomach. There are several groups of regional lymph nodes that drain the wall of the stomach. They include pyloric (pylorus area of stomach), perigastric, and pericardiac at the esophagogastric junction (EGJ) lymph nodes as well as lymph nodes near arteries and organs, such as the

Cancer in regional lymph nodes

In locally advanced stomach cancer, cancer may have spread to the lymph nodes near the stomach.

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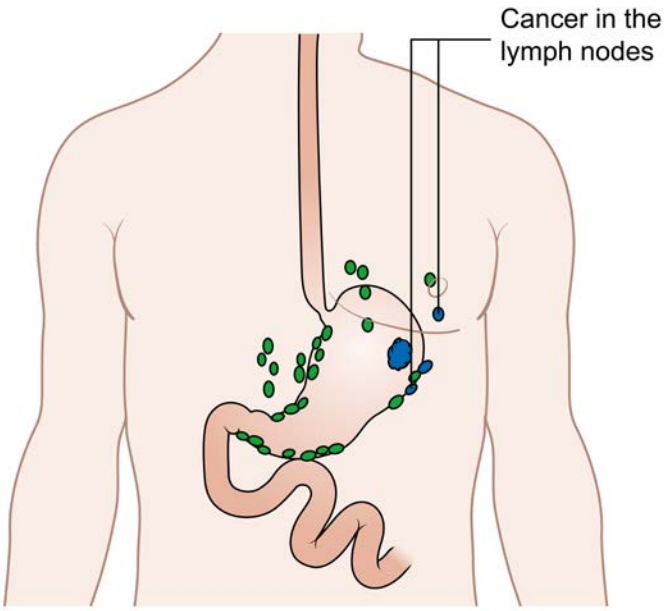


pancreas (pancreatic), spleen (splenic), and liver (hepatic).

The largest group of stomach lymph nodes are the perigastric lymph nodes found along the lesser and greater curvatures of the stomach and in the omenta. The omenta are folds of thin tissue that line the belly (called the peritoneum) and surround the stomach and other organs in the abdomen.

The removal of lymph nodes in stomach cancer is called lymph node (or nodal) dissection. At least 16 regional nodes (called a D1 dissection) should be removed and tested. However, the removal of more than 30 regional lymph nodes (called a D2 dissection) is often recommended in stomach cancer. This is to help with accuracy in staging and potential survival, especially in advanced cancer. But it should only be done at centers with expertise in this area. For more information on lymph node dissection, see *Chapter 5: Types of treatment.*

Key points

- The stomach is connected to the esophagus at the top and the small intestine at the bottom.
- Stomach contractions, along with enzymes and acid, break down food into chyme.
- Small amounts of chyme move from the stomach to the small intestine.
- The stomach wall is made of 5 main layers (see illustration on page 11).
- Cancer found in a regional lymph node is called lymph node metastasis.

Fact:

When empty, your stomach is about the size of a soda can and can hold about 2.5 ounces. But after a meal, it can stretch to hold about 1 quart (32 ounces) of food.

- The removal of lymph nodes in stomach cancer is called lymph node (or nodal) dissection.

Questions to ask

- How far into the stomach wall does the cancer go?
- What kind of surgery will I have?
- Has the cancer reached the lymph nodes outside of the stomach?
- If so, how many lymph nodes will need to be removed?
- Will I have side effects from having lymph nodes removed?

What's next?

Now that you've learned about the stomach and surrounding lymph nodes, it will help you better understand your cancer treatment. Read the next chapter for more information on what testing is needed before you start treatment.

3 Testing for stomach cancer

You'll need testing to correctly identify the type and stage of stomach cancer; to see if it has spread; and if so, how far. With that information, you and your provider will talk about treatment next steps. This chapter presents an overview of the tests you might receive and what to expect.

Results from different tests help guide stomach cancer treatment. You won't need every test listed here but you may need several tests before you start treatment. For possible tests, see **Guide 1.**

General health tests

Medical history

A medical history, sometimes called a health history, is a record of all health issues and treatments you've had in your life. Be prepared to list all of your illnesses and injuries and when they happened. If you've had *Helicobacter pylori*, or *H. pylori* (bacteria), infection and/or treatment, it's important to let your medical team know.

Bring a list of old and new medicines and any over-the-counter medicines, herbals, or supplements you take. Some supplements interact and affect medicines your care team may prescribe.

Tell your care team about any symptoms you have. Your medical history can help decide which treatment is best for you.

Guide 1
General health tests

Medical history and physical exam. Screen for family history.
Upper GI endoscopy (or EGD) and biopsy
CT of chest and abdomen with oral and IV contrast. CT of pelvis with contrast as needed
FDG-PET/CT evaluation (skull base to mid-thigh) for locally advanced or metastatic disease, or if needed
Complete blood count (CBC) and comprehensive chemistry profile
Endoscopic ultrasound (EUS) if early-stage disease is suspected, or if early vs. locally advanced disease needs to be determined (preferred)
Endoscopic resection (ER) is essential for the accurate staging of early-stage cancers.
Biopsy of metastatic disease as needed
Testing for MSI and MMR for all newly diagnosed patients
HER2 and PD-L1 testing for if advanced or metastatic disease is suspected
CLDN18.2 testing if advanced or metastatic disease is suspected
Nutritional assessment and counseling
Smoking cessation advice, counseling, and medicine as needed
Testing for *H. pylori* infection and, if positive, treat. Conduct genetic testing as needed and recommend *H. pylori* testing of close family members.
Next-generation sequencing (NGS) testing should be considered

Family history

Some cancers and other diseases run in families. Your doctor will ask about the health history of family members who are blood relatives. This information is called a family history.

Ask family members on both sides of your family about their health issues, like heart disease, cancer, and diabetes, and at what age they were diagnosed. It's important to know the specific type of cancer or where the cancer started, if it's in multiple locations, and if they had genetic testing.

Physical exam

During a physical exam, your health care provider may:

- Check your temperature, blood pressure, pulse, and breathing rate
- Check your height and weight
- Listen to your lungs and heart
- Look in your eyes, ears, nose, and throat
- Feel and apply pressure to parts of your body to see if organs are of normal size, are soft or hard, or cause pain when touched
- Feel for enlarged lymph nodes in your neck, underarm, and groin

Performance status

Performance status is an estimate of a person's general level of fitness and ability to perform daily tasks. It's one factor taken into consideration when deciding what intensity of treatment (for example, surgery and systemic therapy) you and your body can tolerate.

What is your family cancer health history?

Some cancers and other diseases run in families—in other words, they are passed down through genes from biological parent to child. This information is called a family health history. Ask blood relatives about their health issues, like heart disease, cancer, and diabetes, and at what age they were diagnosed. For relatives who were diagnosed with cancer, ask them (or other relatives if they are no longer living) what type of cancer they had, if they died from the cancer, and at what age the cancer was diagnosed.

Start by asking your parents, siblings, and children. Next, talk to half-siblings, aunts and uncles, nieces and nephews, grandparents, and grandchildren.

Write down what you learn about your family history, and share this information with your health care provider.

Some of the questions to ask include:

- How old were you when each of these diseases and health conditions were diagnosed?
- What is your family's ancestry—from what countries did your ancestors originate?

Nutrition assessment

You should meet with a nutritionist before starting treatment because they can suggest the best foods and fluids for you.

Stomach cancer can make you lose your appetite. You may also feel full after eating very little. These changes may cause you to lose too much weight or make you feel weak and tired.

It's important to receive adequate and sustained nutrition before you start treatment to help you stay strong and heal after surgery. You might need to receive food through a feeding tube, which is a soft plastic tube inserted directly into the stomach through a cut in the abdomen (called a gastrostomy tube, or G-tube) or small intestine (called a jejunostomy tube, or J-tube).

Blood tests

Blood tests check for signs of disease and how well your organs are working. They require a sample of your blood, which is removed through a needle placed into your vein. Some blood tests are described next.

Complete blood count

A complete blood count (CBC) is a test that measures the numbers of red blood cells, white blood cells, and platelets in a blood sample. Red blood cells carry oxygen throughout your body, white blood cells fight infection, and platelets control bleeding. Low or high numbers of any of these blood cells can indicate a problem.

Comprehensive metabolic panel

A comprehensive metabolic panel (CMP) measures 14 substances in your blood. It's usually done on the plasma part of your blood. A CMP provides important information about how well your kidneys and liver are working, among other things.

CA 19-9 and CEA

Cancer antigen 19-9 (CA 19-9) and carcinoembryonic antigen (CEA) are proteins occasionally made by tumors that can be detected in the blood. These tumor markers may be higher than normal in people with certain cancers. Repeating these tests over time can signal whether a treatment is working. While this test could be helpful, it's not always used, so ask your care team if it's an option for you.

Imaging tests

Imaging tests provide pictures of the inside of the body. These images can show where the cancer started (the primary tumor) and show cancer in other parts of your body.

A radiologist, a doctor who interprets imaging tests, will write a report and send it to your health care provider. The report may also be sent directly to you through your patient portal, or patient access system. You should discuss these results with your provider.

You won't have all these imaging tests—this is just an overview.

Contrast material

Regardless of the imaging you receive, contrast material is sometimes used to help make the pictures of the inside of the body

clearer. Contrast materials aren't dyes, but substances that help enhance and improve the images of organs and structures in the body. The contrast isn't permanent and leaves the body in your urine immediately after the test. The types of contrast vary and are different for CT and MRI.

Tell your care team if you've had allergic reactions to contrast in the past. This is important. You might be given medicines to avoid the effects of those allergies. Contrast might not be used if you have a serious allergy or if your kidneys aren't working well.

CT scan

A computed tomography (CT or CAT) scan combines x-rays and computer technology to take detailed pictures of the inside of the body. A CT scan of your chest, abdomen, and/or pelvis may be one of the tests to look for cancer. Oral (by mouth) and intravenous (through a vein, called IV) contrast are often used together when testing for stomach cancer.

MRI scan

A magnetic resonance imaging (MRI) scan uses strong magnets and radio waves to take digital pictures of the inside of the body. It does not use x-rays. Contrast might be used.

PET scan

A positron emission tomography (PET) scan uses a tracer. A tracer is a substance injected into a vein that makes cancer show up as bright areas on the scan. However, not all tumors appear on a PET scan, and not all bright spots are cancer. It's normal for the brain, heart, kidneys, and bladder to be bright on the PET scan. Inflammation or infection can also show up as a bright spot. When a PET scan is combined with CT, it's called a PET/CT scan.

FDG-PET/CT

There are many types of tracers, but the most common one used with a PET/CT scan is called F-18 fluorodeoxyglucose (FDG). This is a radioactive label attached to a sugar molecule. This type of scan is most helpful

CT machine

A CT machine is large and has a tunnel in the middle. During the test, you will lie on the table that moves slowly through the tunnel.

when other imaging results are unclear. An FDG-PET/CT may help find cancer in lymph nodes and distant sites. You can't eat or drink for at least 4 hours before the scan.

Ultrasound

An ultrasound uses high-energy sound waves to form pictures of the inside of the body. This is like a sonogram used for pregnancy. A wand-like probe (transducer) is moved around on your skin, which is covered in a gel. Ultrasound is painless and doesn't use x-rays. It can be useful for showing small areas of cancer near the skin. Sometimes, an ultrasound is used to guide a biopsy.

Endoscopy procedures

Some imaging tests are more invasive and use a thin, tube-shaped tool. This tool is called a scope, and it is inserted into the body to take pictures. One end of the scope has a small light and camera to see inside of your body. The scope is guided into the body through a natural opening, such as the mouth, nose, or anus. Or it may be inserted through a small surgical cut. The image is sent to a video monitor, so your doctor can view the inside of your internal organs to perform a biopsy, stent placement, or other tasks.

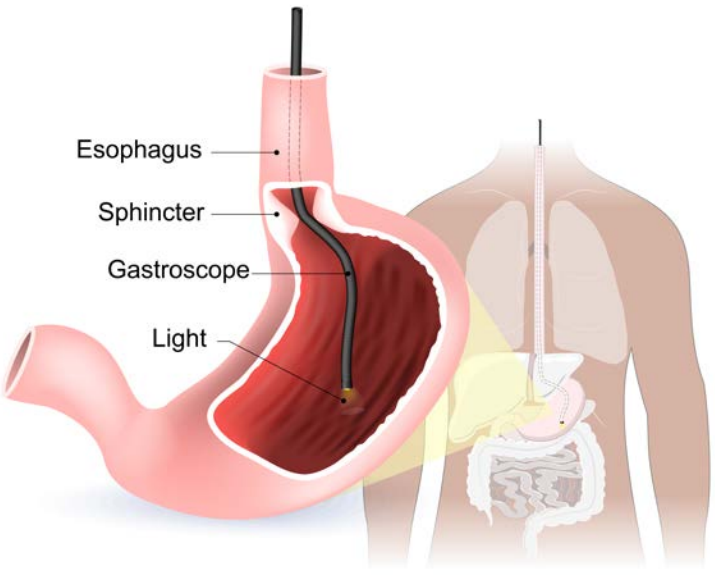
The type of scope often used for stomach cancer is called an endoscope, and the procedure itself is known as upper gastrointestinal (GI) endoscopy. Endoscopy is an important tool in the diagnosis, staging, treatment, and care of people with stomach cancer. Before an endoscopy, you'll be given medicine to help you relax or sleep during the procedure.

Upper GI endoscopy

In upper GI endoscopy (also known as esophagogastroduodenoscopy, or EGD), an endoscope is guided down the throat into the esophagus, stomach, and upper parts of the small intestine (duodenum). It's used to inspect the lining of these organs and to look for any signs of cancer or other abnormalities, such as enlarged blood vessels or ulcers. After the endoscopy, your throat may feel sore and swollen.

Upper GI endoscopy

Upper GI (gastrointestinal) endoscopy allows your doctor to see the inner wall of your stomach and esophagus. If ultrasound is used, your doctor will be able to see the deeper wall layers and nearby organs.



Endoscopic ultrasound

Endoscopic ultrasound (EUS) is an important part of cancer diagnosis and staging. It uses an endoscope with ultrasound to see how deep the tumor has grown into the stomach wall. It can also detect signs of cancer within lymph nodes and other nearby organs. Suspicious lymph nodes can be also biopsied during EUS using a small needle to take tissue samples.

You're most likely to have EUS if your care team suspects the cancer hasn't grown far into the stomach wall (early-stage cancer), or to figure out whether the cancer is early stage or locally advanced.

Laparoscopy

Laparoscopy (keyhole surgery) is a type of surgical procedure that allows your surgeon to see the inside of your abdomen. It uses a tool like an endoscope called a laparoscope that may introduce a camera or surgical instruments into the abdomen.

First, you'll be given general anesthesia to fall asleep, so you won't feel any pain. Then your surgeon will insert the laparoscope through a tiny cut in your abdomen (it's considered minimally invasive surgery).

Laparoscopy can be used to figure out the stage of disease and rule out metastasis. It can detect cancer spread inside of your abdomen that may have been missed on imaging scans. It can also be used to obtain biopsy samples. Laparoscopy is sometimes used to determine if you're a candidate for surgery.

H. pylori tests

Helicobacter pylori (*H. pylori*) are bacteria that infect the stomach lining. They put a person at risk for ulcers and stomach cancer. You'll be tested for the infection, and if you have it, your family members might also be tested because it's commonly spread among families. Testing for *H. pylori* can be done using a blood or breath test, with a stool (poop) sample, or during endoscopy.

Biopsy

A biopsy is a procedure that removes a sample of tissue or fluid that's tested for disease.

For stomach cancer, a biopsy can be done during endoscopy. Several samples may be taken from the tumor; wall of your stomach or esophagus; lymph nodes; or organs next to your stomach, such as your liver. The samples will be sent to a pathologist, a doctor who examines cells under a microscope to find cancer.

Other types of biopsies include:

- **Fine-needle aspiration (FNA) or core biopsy (CB)** uses needles of different sizes to remove a sample of tissue or fluid. Your doctor may use ultrasound to guide the needle or other instrument.
- **Brushings** involve removing tumor or cell samples with a small brush at the end of an endoscope.
- **Washings** use a sterile solution to wash the area of the belly, and then the solution is removed to check for cancer cells. This is usually done during surgery.

- **Fluid samples** from fluid in the abdominal (belly) cavity can be removed and tested for cancer cells.

Biopsy of metastases

Metastasis is the spread of stomach cancer to a different area of the body, such as the lining of the abdomen (peritoneum) or liver. A biopsy of the metastasis may be needed to confirm the presence of cancer. If there's more than one metastasis, each site may be biopsied. The type of biopsy used depends on the location of the suspected metastases and other factors.

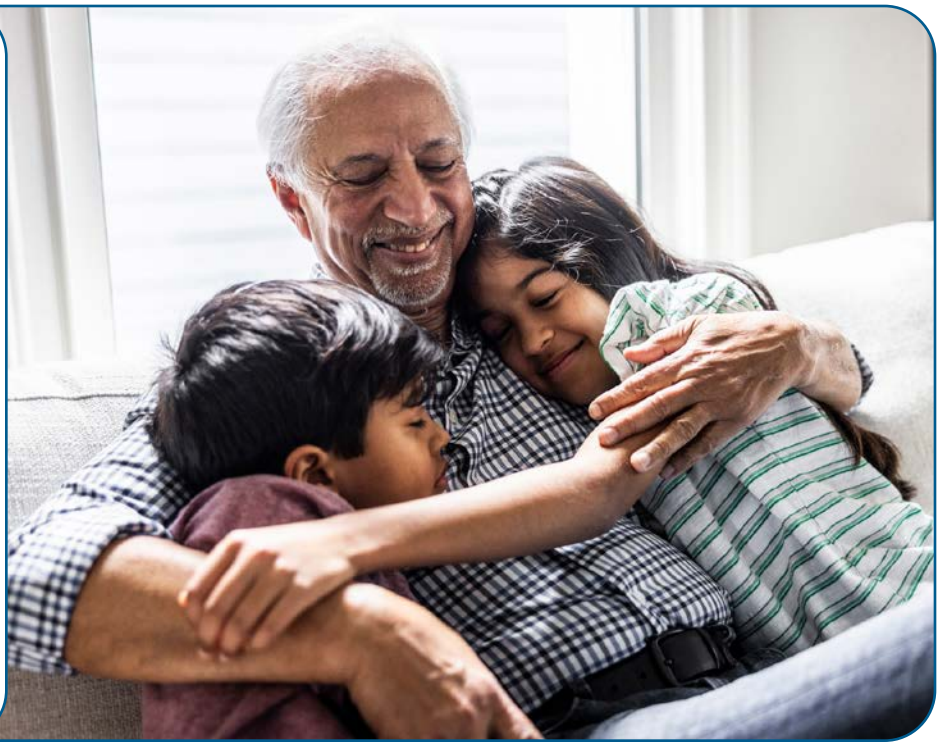
Biopsy results

Histology is the study of tissues and cytology is the study of cells under a microscope. Your pathology report will have information about the tumor's histology (how the tissue is arranged) and cytology (the appearance of its cells). You may be recommended to have an open biopsy (surgery) to remove (resect) the tumor to confirm its histology. Talk to your provider for more information on next steps.

Genetic risk testing

You might be thinking, "Why did I get cancer?" Most of the time, the answer is that one cell made a mistake when dividing and then a cancer formed. Some cells, however, have a predisposition (tendency) due to mutations (changes) in their DNA that makes them more likely to develop cancer. A genetic risk assessment will find if you have a cancer risk and if you could benefit from genetic testing, more screening, or preventive measures. Depending on the genetic risk assessment, you might undergo genetic testing and genetic counseling.

Be sure to tell your care team if you have a family history of cancer, which could affect your treatment.



Genetic testing using blood or saliva (spitting into a cup) can show gene mutations inherited from your biological parents called germline mutations. Some mutations can put you at risk for more than one type of cancer and can be passed down to children. Also, family members might carry these mutations. Tell your care team if there is a family history of cancer.

Hereditary cancer predisposition syndromes

A syndrome is a set of symptoms or conditions that occur together and suggest the presence of a certain disease or an increased risk for the disease. Someone who has a genetic (inherited) cancer predisposition syndrome may have a greater risk for stomach cancer.

Hereditary syndromes most closely related to stomach cancer include:

- Hereditary diffuse gastric cancer
- Lynch syndrome
- Juvenile polyposis syndrome
- Peutz-Jeghers syndrome
- Familial adenomatous polyposis (FAP) or attenuated FAP

Biomarker testing

A sample from a tumor biopsy may be tested to look for specific proteins and/or gene alterations (changes) or other molecular alterations. This information may be used to choose a more specific treatment for you.

Primary biomarkers are associated with the drugs that can be used. Additional information can be found through next-generation sequencing (NGS) on tumor tissue and/or blood. Also, genetic testing (mentioned above) can be done for inherited genetic mutations.

Biomarker testing is sometimes called molecular testing, tumor profiling, or genomic testing.

Biomarker testing includes tests of genes or their products (proteins). It shows the presence or absence of mutations (changes) as well as the presence of overexpression of certain proteins, both of which might suggest which treatment is needed.

Important biomarkers and tests to detect them for the treatment and management of metastatic stomach cancer are explained next. Biomarker testing continues to expand, so ask your care team if other tests are needed.

Specific biomarkers

HER2

Human epidermal growth factor receptor 2 (HER2) is a protein involved in normal cell growth. It's found on the surface of all epithelial cells. High amounts of HER2 cause cells to grow and divide. This is called HER2 positive (HER2+) overexpression or amplification.

There might be higher amounts of HER2 in your stomach cancer. If the tumor makes too much HER2, you might receive a targeted therapy called trastuzumab (Herceptin) or fam-trastuzumab deruxtecan (Enhertu). These drugs target the HER2 protein and can help slow or stop the tumor from growing.

MSI-H/dMMR mutation

Microsatellites are short, repeated strings of DNA. Sometimes errors or defects occur in these microsatellites. When this happens,

they're usually fixed by mismatch repair (MMR) proteins.

But some cancer cells have DNA mutations that prevent MMR proteins from fixing these errors. This is called microsatellite instability (MSI) or mismatch repair deficiency (dMMR).

When cancer cells have a high number of mutations in microsatellites, it's called MSI-H (microsatellite instability-high). MSI-H is often due to dMMR.

People with newly diagnosed stomach cancer should be tested for MMR or MSI.

PD-L1

Programmed death ligand 1 (PD-L1) is one of the proteins that helps the body's immune system to function. But if this protein is present (expressed) on the surface of cancer cells, it can cause your immune cells to ignore the cancer and suppress the immune system's anti-tumor response.

If your cancer has this protein, you might have treatment that combines chemotherapy and an immune checkpoint inhibitor (ICI). This is designed to activate your immune system to better fight off the cancer cells.

Claudin 18 isoform 2

Claudin 18 isoform 2 (CLDN18.2) is a protein found on the surface of gastroesophageal (stomach and esophagus) cancer cells in advanced stages. If your cancer has a high level of CLDN18.2 (known as CLDN18.2 positive), you might be able to receive a type of immunotherapy called zolbetuximab-clzb (Vyloy).

What is the difference between genetic testing and biomarker testing?

Genetic testing looks for inherited gene changes (mutations) to determine your risk for a certain cancer.

Biomarker testing looks for tumor markers like genes and proteins in cancer cells to guide treatment.

Tumor mutational burden

Tumor mutational burden (TMB) is the total number of mutations (changes) found in the DNA of cancer cells. TMB is important because if a tumor has a high number of mutations (or errors), it's more visible to the immune system. As a result, the tumor might be more likely to respond to an ICI treatment. In stomach cancer, ICIs target proteins called programmed cell death protein 1 (PD-1) and programmed death ligand 1 (PD-L1).

NTRK gene fusions

An *NTRK* gene fusion occurs when a piece of the *NTRK* gene merges (fuses) with a piece of another gene, which causes uncontrolled cell growth. Larotrectinib (Vitrakvi) and entrectinib (Rozlytrek) might be used to target advanced or metastatic cancer that's due to an *NTRK* gene fusion.

RET gene fusions

Rearranged during transfection (*RET*) gene mutation is related to cell growth (proliferation). Selpercatinib (Retevmo) might be used to

target unresectable (not removable with surgery) or metastatic tumors with a *RET* fusion.

BRAF V600E mutations

Mutations in the *BRAF* gene can cause normal cells to become cancerous. Dabrafenib (Tafinlar) and trametinib (Mekinist) might be used to treat tumors with *BRAF* V600E mutations.

Types of biomarker tests

NGS

Next-generation sequencing (NGS), also known as tumor mutation testing, uses a sample of your tumor or blood to see if the cancer cells have any specific DNA mutations (or changes). (It is a different type of DNA testing from the testing for mutations you may have inherited from your biological parents.)

Finding these changes can help guide the choice of therapies most likely to be effective. For example, certain tumor mutations, such as *NTRK* fusion, *RET* fusion, and *BRAF* V600E mutation, can be targeted with specific therapies. NGS also helps to determine if more biomarker testing is needed.

This method can only be used if enough tumor tissue remains after other biomarker testing has been completed. Tumor mutation testing is often done if the cancer is unresectable (not removable with surgery) or metastatic.

FISH

Fluorescence in situ hybridization (FISH) is a testing method that involves special dyes called probes that attach to pieces of DNA, the genetic material in a person's cells. The cells are then studied using a fluorescence microscope.

PCR

Polymerase chain reaction (PCR) is a lab process that can make millions or billions of copies of your DNA (genetic information). This test is very sensitive. It can find 1 abnormal cell among more than 100,000 normal cells. These copies, called PCR product, might be used for NGS.

Tumor marker tests

Tumor marker tests evaluate blood or biopsy tissue for proteins or DNA to look for signs of cancer. Examples of tumor markers in stomach cancer include cancer antigen 19-9 (CA 19-9) and carcinoembryonic antigen (CEA). An increase in the level of certain tumor markers could mean that the cancer has grown or spread (progressed). However, not everyone has elevated levels of these markers, and tumor markers alone are not reliable for detecting stomach cancer.

Liquid biopsy

Some mutations can be found by testing circulating tumor DNA (ctDNA) in the blood. In a liquid biopsy, a sample of blood is taken to look for cancer cells or pieces of DNA from tumor cells. People who have metastatic or advanced stomach cancer and are unable to undergo a traditional biopsy might have a liquid biopsy. Sometimes, traditional testing can quickly use up a tumor sample. In this case, a liquid biopsy might be a possibility.

Immunohistochemistry

Immunohistochemistry (IHC) is a special staining process that involves adding a chemical marker to cancer or immune cells. The cells are then studied under a microscope.

Key points

- Tests are used to find cancer, figure out the extent of cancer (staging), plan treatment, and check how well treatment is working.
- A medical history and physical exam inform your doctor about your overall health.
- Getting enough nutrition is important. You should meet with a nutritionist before starting treatment.
- Blood tests check for signs of disease and how well organs are working.
- Imaging tests look inside of the body through pictures. Images can be made with scanning machines or scoping tools.
- A biopsy removes a sample of tissue or fluid to be tested for cancer. One example is by using an upper gastrointestinal (GI) endoscopy (or EGD).
- Genetic testing might be done to look for gene mutations inherited from your biological parents.

Questions to ask

- What tests will I have? How often will they be repeated?
- How soon will I know the results, and who will explain them to me?
- How will my biopsy be performed? What else might be done at that time?
- What biomarker or genetic tests will I have?

What's next?

Now that you understand the many tests that help guide your treatment, read the following chapter to learn about staging, which is what happens after testing. That chapter will help you learn how stomach cancer is staged and how it affects your treatment.

"Knowledge is power. Do not settle if your questions and concerns are not properly addressed. Advocate for yourself and your needs."

4
Stomach cancer staging

Staging is used to predict the cancer's outlook and guide treatment decisions. It describes the size and location of the tumor; if the tumor has grown through the layers of the stomach wall; and if cancer has spread to lymph nodes, organs, or other parts of the body.

A cancer stage is a way to describe the extent of the cancer when you're diagnosed.

How stomach cancer is staged

Based on testing, your cancer will be assigned a stage. Staging signifies how much cancer is in your body, where it's located, and what subtype you have. Knowing the cancer stage helps to predict the cancer's outlook (prognosis) and is needed to make treatment decisions.

Following is the information gathered during staging:

- **Extent (size) of the tumor (T):** Has it grown into nearby areas? How deep does it extend into the stomach layers?
- **Spread to nearby lymph nodes (N):** Has the cancer spread to nearby lymph nodes? If so, how many? Where?
- **Spread (metastasis) to distant sites (M):** Has the cancer spread to distant organs, such as distant nodes, lungs, bones, or liver?
- **Grade of the cancer (G):** How much do the cancer cells look like normal cells under the microscope?
- **Biomarker testing:** Does the cancer have any genes, proteins, markers, or mutations where one kind of treatment might work better?

Staging is based on a combination of information to reach a final numbered stage. For an illustration of stages, see *Chapter 1: About stomach cancer.*

Stages range from stage 0 to stage 4, with 4 being the most advanced. They might be written by your care team with Roman numerals like stage 0, stage I, stage II, stage III, and stage IV.

Anatomical staging

The tumor, node, metastasis (TNM) system is part of what's used to stage stomach cancer and is called the anatomical stage. In this system, the letters T, N, and M describe different areas of cancer growth. Based on cancer test results, your provider will assign a score or number to each letter. The higher the number, the larger the tumor or the more the cancer has spread. These scores will be combined to assign the cancer a stage.

- **T (tumor)** – Depth and spread of the main (primary) tumor in the stomach wall
- **N (node)** – If cancer has spread to nearby (regional) lymph nodes
- **M (metastasis)** – If cancer has spread to distant parts of the body, or metastasized

An example of this is T1, N2, M0, which is translated as stage 2A—in both clinical and pathological stages (described ahead).

Ask your provider to explain any part of the staging that's unclear to you.

Often, not all information is available at the first evaluation. More information can be gathered as treatment begins.

Tumor grade

Grade is the way tumor cells appear under a microscope, and this information helps determine the stage. The lower the grade, the better the prognosis. Well differentiated (grade 1, or G1) means the cancer cells look similar to normal tissues in the stomach. Poorly differentiated (grade 3, or G3) means the cancer cells look very different from normal stomach tissues. G3 is the highest grade for stomach (gastric) cancers.

Biomarker testing

Biomarkers may affect how some cancer treatments work. Results of biomarker testing help figure out if a treatment might work for a specific gene, protein, or mutation. Biomarkers that are tested for stomach cancers include human epidermal growth factor receptor 2 (HER2), PD-L1, MSI/MMR status, CLDN18.2, TMB, *NTRK* gene fusion, *RET* gene fusion, and *BRAF* V600 mutation.

Prognosis based on staging

Part of staging also includes what's known as prognostic information. This is the anatomical TNM plus tumor grade and the status of the biomarkers. A prognosis means the outlook for your cancer.

Stages are divided into clinical and pathological. Stomach cancer staging is often done twice: once before surgery (clinical stage) and once after surgery (pathological stage). Staging after surgery provides more specific and accurate details about the size of the cancer and status of the lymph nodes (if it's spread to the lymph nodes) and if it's metastasized (spread to distant sites).

Clinical stage

The clinical stage is the rating given before any treatment. It happens after you've had a physical exam, biopsy, and imaging tests. In stomach cancer, the clinical (before surgery) stage is based on the endoscopic ultrasound, imaging like CT or PET, and biopsy results. The possible clinical stages are 0, 1, 2A, 2B, 3, 4A, and 4B. Ask your provider to explain the clinical stage in a way you can understand.

Pathological stage

The pathological stage is determined by examining tissue removed during surgery (and after preoperative therapy, if given). It's based on information gathered after surgery to remove all or part of the stomach and nearby lymph nodes. This gives a more accurate picture of how far the cancer has spread and is used to determine your treatment options after surgery. The pathological stages are 0, 1A, 1B, 2A, 2B, 3A, 3B, 3C, and 4.

Cancer stages explained

The stages of stomach cancer may change after surgery—from the clinical stage to the pathological stage—because of the extra information from the stomach tumor and tissue samples. The pathological stages are as follows.

Stage 0

Stage 0 is also called carcinoma in situ. This is pre-cancer with abnormal cells, and it's found in the mucosa. These cells could become cancer and spread to nearby tissue.

Stage 1

A stage 1 tumor hasn't spread to organs but has grown into other stomach wall layers and may involve the lymph nodes. It has 2 substages: 1A and 1B.

Stage 1A (early) means the cancer formed in the mucosa and may have spread to the submucosa but is not in the lymph nodes.

Stage 1B has formed in the mucosa and:

- May have spread to the submucosa and has spread to 1 or 2 nearby lymph nodes.
- Has spread to the muscle layer (muscularis propria) but not the lymph nodes.

For more information on stage 0 and stage 1A (early), read *Chapter 6: Early-stage stomach cancer.* For more information on stage 1B, see *Chapter 7: Locally advanced stomach cancer.*

Stage 2

A stage 2 tumor has grown into deeper stomach wall layers and may involve the lymph nodes but hasn't spread to any organs. It has 2 substages: 2A and 2B.

Stage 2A means the cancer:

- May have spread to the submucosa and has spread to 3 to 6 nearby lymph nodes.
- Has spread to the muscle layer as well as to 3 to 6 nearby lymph nodes.
- Has spread to the subserosa.

Stage 2B means the cancer:

- May have spread to the submucosa and has spread to 7 to 15 nearby lymph nodes.
- Has spread to the muscle layer as well as to 3 to 6 nearby lymph nodes.
- Has spread to the subserosa and to 1 or 2 nearby lymph nodes.
- Has spread to the serosa.

For more information on how stage 2 is treated, see *Chapter 7: Locally advanced cancer.*

Stage 3

A stage 3 tumor has spread into deeper stomach wall layers, may have spread into nearby organs and lymph nodes, but hasn't spread to distant organs. It has 3 substages: 3A, 3B, and 3C.

Stage 3A could mean the cancer has spread to the:

- Muscle layer and to 7 to 15 nearby lymph nodes.
- Subserosa as well as to 3 to 6 nearby lymph nodes.
- Serosa and to 1 to 6 nearby lymph nodes.
- Nearby organs, like the spleen, colon, liver, diaphragm, pancreas, kidney, or small intestine.

Stage 3B could mean the cancer has spread to the:

- Submucosa or to the muscle layer and has spread to 16 or more nearby lymph nodes.
- Subserosa or to the serosa and has spread to 7 to 16 nearby lymph nodes.
- Nearby organs, like the spleen, colon, liver, diaphragm, pancreas, kidney, or small intestine. It has also spread to 1 to 6 nearby lymph nodes.

Stage 3C could mean the cancer has spread to the:

- Subserosa or to the serosa as well as to 16 or more nearby lymph nodes.
- Nearby organs, like the spleen, colon, liver, diaphragm, pancreas, kidney, or small intestine. It has also spread to 7 or more nearby lymph nodes.

For more information on how stage 3 is treated, see *Chapter 7: Locally advanced cancer.*

Stage 4

Called metastatic cancer, stage 4 is when the original tumor spreads to distant parts of the body through the lymphatic system or blood. It may have spread to distant lymph nodes, lungs, liver, brain, and tissues that line the abdomen wall called the peritoneum, as well as other organs.

For more information on how stage 4 is treated, see *Chapter 8: Locally advanced recurrence and metastatic stomach cancer.*

For more information on peritoneal carcinoma as only disease (when stomach cancer spreads to the peritoneum), see *Chapter 9: Peritoneal carcinoma as only disease.*

Your cancer stage is used to help guide your treatment. Be sure to ask your care team questions about your stage and any specifics about how your stomach cancer will be treated.

Frequently used terms

Other terms might be used along with numbered cancer stages. This guide will use the following terms to describe stomach cancer:

- **Resectable** – Tumor can be removed completely with surgery.
- **Unresectable** – Tumor cannot be removed with surgery. The reasons a tumor cannot be removed with surgery are because it might involve nearby blood vessels, the liver, the diaphragm, the heart, the airways, and arteries, making it unsafe to remove.
- **Locally advanced** – Tumor might be any size and could be in any layer of the stomach. Cancer might be in the nearby lymph nodes, organs, and tissues.
- **Metastatic** – Stomach cancer has spread to other parts of the body, including distant lymph nodes. The most common sites are the liver, abdominal lining (peritoneum), and distant lymph nodes. It may also spread to the lung or bone.
- **Peritoneal carcinoma as only disease** – Stomach cancer has spread to the peritoneum, which is the tissue that lines the abdomen and covers the organs.

Key points

- Staging helps to predict prognosis (outlook) and is needed to make treatment decisions. A prognosis is the course your cancer will likely take.
- The tumor, node, metastasis (TNM) system is used to stage stomach cancer.
- Stomach cancer staging is often done twice: before and after surgery.
- Grade describes how abnormal tumor cells look under a microscope.
- Biomarker testing helps give more specific information on genes and proteins to help guide treatment.
- The clinical stage of stomach cancer is based on the results of testing before any treatment.
- The pathological stage of stomach cancer is based on the results of tissue examined during surgery.

Questions to ask

- What biomarker or genetic tests will I have?
- If biomarker testing is complete, what are the results?
- What stage is my cancer? What does that mean for treatment?
- How often does the clinical stage move to a higher pathological stage?
- Is my cancer resectable or unresectable? What does that mean?

What's next?

Now you know how cancer is staged, which is key to understanding the next steps of cancer care. Read the next chapter to learn all about the potential treatments for stomach cancer.

5
Types of treatment

There is more than one treatment for stomach cancer. This chapter describes treatment options and what to expect.

Treating stomach cancer takes a team approach. Treatment decisions should involve a multidisciplinary care team. This is a team of health care providers from different professional backgrounds who have knowledge and experience in your type of cancer. This team is united with you in planning and implementing your treatment.

Care team

Some members of your care team will be with you throughout cancer treatment, while others will be there for parts of it. Get to know your care team and help them get to know you.

Depending on your diagnosis, your team might include the following specialists, just to name a few.

Doctors who treat cancer

- **Gastroenterologists** are experts in diseases of the digestive tract.
- **Surgical oncologists** perform operations to remove cancer.
- **Medical oncologists** treat cancer in adults using systemic therapy.
- **Radiation oncologists** prescribe and deliver radiation therapy (RT) to treat cancer.
- **Diagnostic radiologists** interpret the results of imaging tests.
- **Interventional radiologists** perform needle biopsies and endoscopies, and place intravenous (IV) ports for treatment.
- **Pathologists** analyze the cells, tissues, and organs removed during a biopsy or surgery and provide cancer diagnosis, staging, and information about biomarker testing.

Other health care providers

- **Palliative care specialists** are doctors, nurses, or other health care providers trained in palliative medicine, which aims to reduce pain and suffering of serious illness.
- **Nurse practitioners (NPs) and physician assistants (PAs)** are called advanced practice providers, or APPs. Some of your clinic visits may be done by a nurse practitioner or physician assistant.
- **Oncology nurses** provide hands-on care, like giving systemic therapy, managing your care, answering questions, and helping you cope with side effects. Sometimes these experts are called nurse navigators.
- **Nutritionists and dietitians** provide guidance on what foods are most suitable for your condition.
- **Social workers** help people prevent and solve problems in their lives. They can also help navigate the complexities of financial and insurance stresses. People who are clinical social workers provide counseling and help for emotional issues.

Treatment for stomach cancer often involves more than one therapy. For example, you may have surgery, then systemic therapy, and possibly palliative care. See **Guide 2**

and read on for more information about each treatment.

Surgery

Surgery is an operation or procedure to remove cancer from the body. It is often the main or primary treatment to remove the cancer from the stomach. This is only one part of a treatment plan.

When preparing for surgery, seek the opinion of an experienced surgeon. Ask your primary care doctor and your friends for recommendations. The surgeon should be an expert in performing your type of surgery. Surgery for stomach cancer should be done at a high-volume center that does at least 15 to 20 stomach surgeries each year. Hospitals that perform many surgeries have better results. You can ask for a referral to a hospital or cancer center that has experience in treating stomach cancer.

Cancer removal through surgery can be done in different ways depending on the specific circumstances, such as the size and location of the tumor and if there is cancer in any surrounding organs and tissues. Your surgeon will choose an approach based on the safest and best way to remove the cancer.

Surgery can also ease pain or discomfort. This is called palliative surgery.

Guide 2
Possible treatments for stomach cancer

Surgery
Endoscopic resection
Gastrectomy
Lymph node dissection
Systemic therapy
Chemotherapy
Chemoradiation
Targeted therapy
Immunotherapy
Radiation therapy
Clinical trials
Supportive care

Open surgery

Open surgery or laparotomy removes tissue through one large surgical cut below your ribs. The large cut lets your surgeon directly view and access the tumor in your stomach to remove it. Open surgery may take several hours or longer. After the surgery, you'll need to stay in the hospital for at least several days to recover.

Minimally invasive surgery (laparoscopy and robotic surgery)

Minimally invasive surgery (keyhole surgery) uses a few small incisions. Small tools are inserted through each incision to perform the surgery. One of the tools, called a laparoscope, is a long tube with a video camera at the end. The camera lets your surgeon see your stomach and other tissues inside of your abdomen. Other tools are used to remove the tumor.

Laparoscopic surgery can also be done using robotic arms to control the surgical tools. This is called robot-assisted (or robotic) surgery and is becoming increasingly more common. Through a computerized console with a high-definition camera at the end of the scope, the surgeon operates the robot that performs the surgery. Robotic surgery also uses small incisions, which helps with recovery times.

Both types of minimally invasive surgery have the advantages of fewer complications and less pain than traditional, open surgery.

Tumor resection

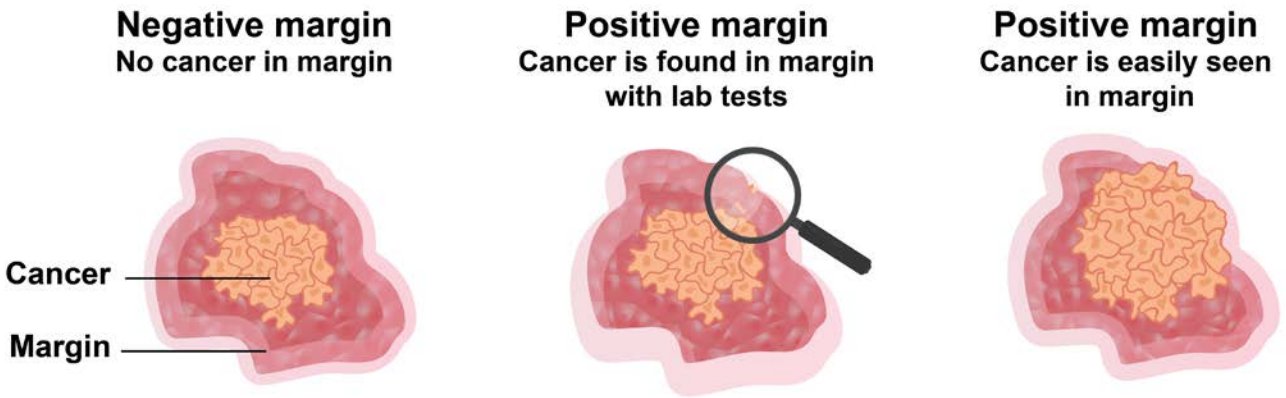
Surgical removal of the tumor is called tumor resection. Imaging tests will be ordered to see if your cancer is resectable (can be removed by surgery) or unresectable (cannot be removed completely by surgery) before the procedure.

Goal of surgery

The goal of surgery, or tumor resection, is to remove all of the cancer. Sometimes a tumor cannot be resected because not all of it can be removed, even if it's locally advanced. But the ultimate goal is to remove the tumor along with a rim of normal-looking tissue around its edge, called the surgical margin. The surgical margin may look normal during surgery, but cancerous cells may be found when viewed under a microscope by a pathologist.

Surgical margin

The tumor will be removed, along with some normal-looking tissue around its rim. The normal-looking tissue is called the surgical margin. The surgical margin will be tested for cancer. Postoperative therapy is based on if there is cancer in the margins.



A clear or negative margin is when no cancer cells are found in the tissue around the edge of the tumor. (A negative margin is a good thing.)

In a positive margin, cancer cells are found in the normal-looking tissue around the tumor. (A positive margin may not be a good thing.) If there's a positive margin, you may require another surgery to try to remove the remaining tumor cells. Surgery also includes removal of lymph nodes.

- **In a clear, or negative, margin (known as R0),** no cancerous cells are found in the tissue around the edge of the tumor.
- **In an R1 resection,** the surgeon removes all of the visible tumor, but the microscopic margins are still positive for tumor cells. This can happen despite best efforts.
- **In an R2 resection,** the surgeon is unable to remove all the visible tumor, or there is metastatic disease.

Your surgeon will look carefully for cancer not only along the surgical margin but also in other nearby areas. It's not always possible to find all the cancer. Sometimes, surgeons can't safely remove the tumor with a cancer-free margin.

An intraoperative pathology consultation is when a pathologist inspects the resected stomach for cancer location and distance to surgical margins during the surgery. The pathologist will use a microscope to examine frozen sections of margins and possible other metastases, such as liver or peritoneal metastases (spread to the peritoneum). An intraoperative pathology consultation with the surgeon plays a key role in guiding the surgery. Sometimes the surgeon may stop the procedure if the consultation with the pathologist determines that the margins can't be made R0. For more information about these results, ask your care team.

After surgery, you may receive treatment such as systemic therapy to destroy any remaining cancer cells. You might have more than one procedure. You might also have a wound drain to prevent fluid from collecting in the body after surgery. It will be removed a few days after the procedure.

You may receive treatment before surgery called neoadjuvant or preoperative therapy. Neoadjuvant therapy will help reduce or control the size of the tumor and the amount of cancer in the body.

Endoscopic resection

Early-stage stomach cancer hasn't grown beyond the first layer (mucosa) of the stomach wall. Also, the tumor is often very small (2 centimeters or less) and isn't in any lymph nodes. For this type of stomach cancer, either endoscopic mucosal resection (EMR) or endoscopic submucosal dissection (ESD) might be options.

Endoscopic mucosal resection (EMR) is a procedure to remove pre-cancerous, or early-stage cancer, or other abnormal tissues (lesions) from the stomach. During EMR, the endoscope is passed down your throat to reach the lesion or tumor in your stomach. The lesion can be removed through suction or by cutting it away. Talk to your doctor to learn more.

Endoscopic submucosal dissection (ESD) uses an endoscope to resect (remove) the tumor that is deeper in the stomach wall. The endoscope is inserted through the mouth. A tool is inserted through the endoscope that injects fluid between the tumor and layer of the stomach wall to help the tumor separate. Then a tool lifts and cuts away the tumor from the stomach wall.

Order of treatments

Neoadjuvant treatment

Neoadjuvant (before) treatment is given to control the tumor before primary treatment (surgery). This might make surgery possible for some challenging tumors.

Primary treatment

Primary treatment is the main treatment given to rid the body of cancer. Surgery is usually the main treatment when the tumor can be removed.

First-line treatment is the first set of cancer drugs given.

Second-line treatment is the next set of cancer drugs given if the first-line treatment hasn't worked.

Adjuvant treatment

Adjuvant (after) treatment is given after primary treatment to rid the body of any cancer cells left behind from surgery. It is also used when the risk of cancer returning (recurrence) is felt to be high.

Gastrectomy

Gastrectomy removes all or part of the stomach. Gastrectomy should also include the removal of regional lymph nodes. A nutritionist or dietician can provide guidance on what foods are best for you before and after surgery.

There are different types of gastrectomy.

Total gastrectomy

In total gastrectomy, the whole stomach, nearby lymph nodes, and parts of your esophagus and small intestine are removed. The esophagus is reconnected to the small intestine. You'll have a working digestive system that allows swallowing, eating, and digesting food but in a much different way.

Partial gastrectomy

In partial gastrectomy, the part of the stomach with cancer is removed along with nearby lymph nodes and possibly parts of other organs near the tumor.

In proximal gastrectomy, the top half of the stomach is removed. In distal gastrectomy, the bottom half of the stomach is removed.

Esophagogastrectomy

In esophagogastrectomy, the top part of the stomach and lower part of the esophagus are removed.

Gastrectomy

In total gastrectomy (below left), the whole stomach and surrounding lymph nodes are removed. The esophagus is reattached to the middle part of the small intestine (jejunum). In proximal partial gastrectomy (below center), the top half of the stomach is removed. In distal partial gastrectomy (below right), the bottom half of the stomach is removed.

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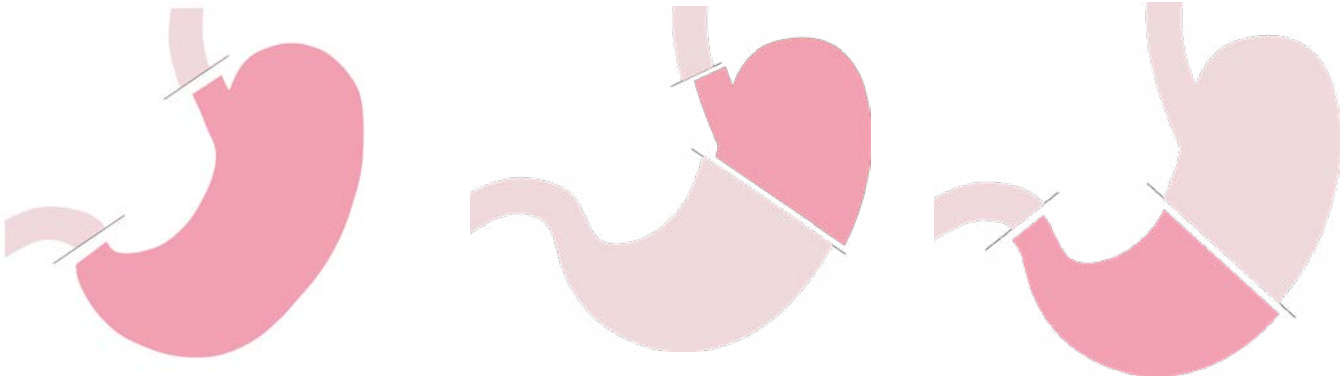

Total **Proximal** **Distal**

Lymph node dissection

Removal of lymph nodes or groups of lymph nodes is called lymph node dissection.

Lymph node dissection may be classified as D0, D1, or D2, depending on the location of the tumor and the number of lymph nodes removed at the time of gastrectomy.

At least 16 regional nodes should be removed and tested for cancer. However, the removal of more than 30 regional lymph nodes is recommended.

- **D0** is an incomplete resection of lymph nodes along the lesser and greater curvatures of the stomach. This means some lymph nodes were removed, but not the minimum of 16.
- **D1** is the removal of at least 16 lymph nodes along with the greater and lesser omenta. The omenta are folds of the thin lining of the abdomen (the peritoneum). The omenta surround the stomach and other organs in the abdomen. Several regional lymph nodes are found within the omenta.
- **D2** is the removal of at least 30 lymph nodes. This involves D1 dissection plus removal of all the lymph nodes along the left gastric (stomach) artery, common hepatic (liver) artery, celiac artery, and splenic (spleen) artery. This requires an experienced surgeon. D2 dissections should be performed in centers experienced with this technique.

If you smoke or vape, seek help to quit

A history of smoking or vaping nicotine increases your chances of developing stomach cancer. **Smoking and vaping can limit how well cancer treatment works and prevent wound healing. They also greatly increase your chances of having side effects during and after surgery.** Cannabis use might also affect the amount of anesthesia used during surgery.

Nicotine is the chemical in tobacco that makes you want to keep smoking and vaping. Nicotine withdrawal is challenging for most people who smoke or vape. The stress of having cancer may make it even harder to quit. If you smoke or vape, ask your care team about counseling and medicines to help you quit.

For online support, try these websites:

- SmokeFree.gov
- CDC.gov/tobacco

Other procedures

Gastrojejunostomy

Gastrojejunostomy is a surgery to reroute the path food takes from the stomach into the small intestine. The new path from the stomach will avoid (bypass) the blocked part of the duodenum. Gastrojejunostomy can be an open surgery or a laparoscopic surgery.

You might have a gastrostomy tube or a jejunostomy tube placement at the time of gastrojejunostomy.

G-tube

A gastrostomy tube (G-tube) is a soft plastic tube inserted through the skin of the abdomen directly into the stomach. It allows air and fluid to leave the stomach and can be used to give medicines and fluids, including liquid food.

Giving food through a gastrostomy tube is what is known as enteral nutrition.

J-tube

A jejunostomy tube (J-tube) is a soft plastic tube inserted through the skin of the abdomen into the midsection of the small intestine. The tube delivers food and medicine until you're healthy enough to eat by mouth. A J-tube may be inserted during a gastrojejunostomy. You'll learn how to care for the J-tube and the skin where the tube enters the body.

Gastrojejunostomy

A tumor can block the esophagus or small intestine. Surgery that reroutes the path food takes from the stomach to the small intestine is called gastrojejunostomy.

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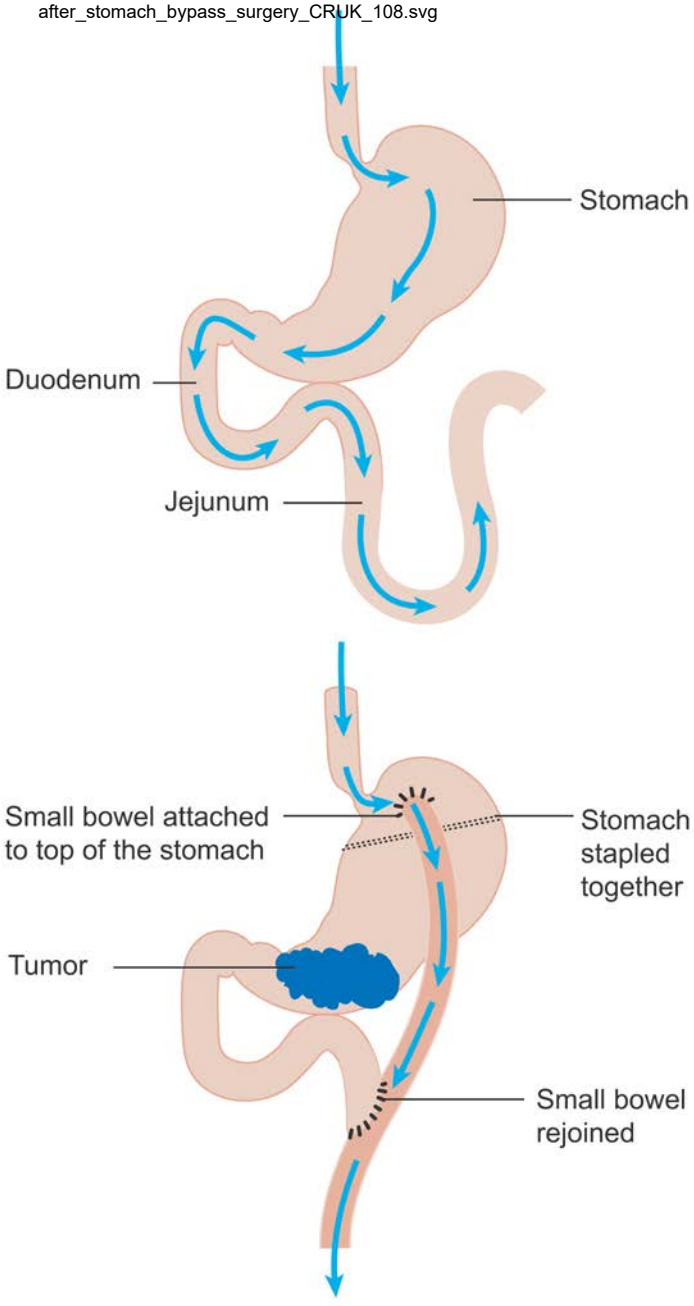


Systemic therapy

Systemic therapy is treatment that works throughout the body. Systemic therapy might be used alone or with other therapies. Types of systemic therapy include chemotherapy, chemoradiation, targeted therapy, and immunotherapy.

- Systemic therapy or chemoradiation given before surgery is called **neoadjuvant or preoperative therapy**.
- Systemic therapy given before, during, and after surgery is called **perioperative therapy.**
- Systemic therapy given after surgery is called **adjuvant or postoperative therapy.**
- Systemic therapy given for advanced disease may be a part of **palliative management.**

Why some therapies are preferred

All treatments listed in this guide are recommended and appropriate. When helpful, NCCN experts also assign a level of preference to their recommendations for systemic therapies:

- **Preferred therapies** have the most evidence they may work better and be safer than other therapies.
- **Other recommended therapies** can provide effective results but may have less evidence, more side effects, or may not work quite as well as preferred therapies.
- **Therapies used in certain cases** work best for individuals with specific cancer features or health circumstances.

Chemotherapy

Chemotherapy is a type of systemic therapy that kills fast-dividing cells throughout the body, including cancer cells and some normal cells. More than one chemotherapy may be used to treat stomach cancer.

Some chemotherapy drugs are liquids infused into a vein or injected under the skin with a needle. Other chemotherapy drugs may be given as a pill that's swallowed, and some are given directly into the abdomen.

Some examples of chemotherapy drugs for stomach cancer include:

- Capecitabine (Xeloda) or fluorouracil
- Oxaliplatin (Eloxatin)
- Irinotecan (Camptosar)
- Docetaxel (Taxotere)
- Paclitaxel
- Carboplatin
- Cisplatin

Antibody-drug conjugates

Antibody-drug conjugates (ADCs) deliver cell-specific chemotherapy. They attach to a particular protein found on the outside of the cancer cell, then enter the cell. Once inside of the cell, chemotherapy is released. An example is fam-trastuzumab deruxtecan-nxki (Enhertu), which attaches to HER2.

Chemoradiation

Chemotherapy may improve how well radiation therapy (RT) works, so they're sometimes used together. This combination therapy is

called chemoradiation. It's not used often but it can be an option for some people.

Targeted therapy

Targeted therapy focuses on specific or unique features of cancer cells. These therapies figure out how cancer cells grow, divide, and move in the body. They then stop or block the action of molecules that help cancer cells grow and/or survive.

Targeted therapies for stomach cancer include:

- Trastuzumab (Herceptin)
- Ramucirumab (Cyramza)
- Zolbetuximab-clzb (Vyloy)
- Fam-trastuzumab deruxtecan-nxki (Enhertu)

In certain cases, the following targeted therapies might be used:

- Entrectinib (Rozlytrek)
- Dabrafenib (Tafinlar)
- Larotrectinib (Vitrakvi)
- Selpercatinib (Retevmo)
- Trametinib (Mekinist)
- Ipilumumab (Yervoy)

Immunotherapy

The immune system has many on and off switches. Tumors take advantage of off switches, such as PD-1 and CTLA-4. Immunotherapy is a type of systemic treatment that tries to turn the immune system back on to destroy tumor cells. Immune checkpoint inhibitors (ICIs) are one type of immunotherapy.

Immunotherapy can be given alone or with other types of treatment. Some examples of immunotherapy for stomach cancer are:

- Nivolumab (Opdivo)
- Pembrolizumab (Keytruda)
- Tislelizumab (Tevimbra)
- Dostarlimab-gxly (Jemperli)

More information on ICIs and immunotherapy side effects is available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.

Radiation therapy

Radiation therapy (RT) uses high-energy x-rays, photons, protons, electrons, and other sources to destroy cancer cells and shrink tumors. RT can be given alone or with other treatments. It's used less frequently when treating stomach cancer but can be used for some people.

RT is a local therapy, which means it treats tumors in targeted areas. It may focus on individual tumors; a small area/region of the body; specific lymph nodes; or areas where there may be small, undetectable tumor deposits. However, RT cannot safely be used to treat very large areas, so it can't replace systemic therapy that circulates everywhere in the body.

Types of RT

RT is most commonly used as palliative care to help ease pain or discomfort caused by cancer, or to control bleeding caused by a tumor. RT can also be given before or after surgery to treat or slow the growth of cancer, especially if the surgical margins have cancer cells.

Most types of RT include short treatment sessions given in small doses, once a day, over a few days to weeks. This keeps your internal organs safe while still killing tumor cells in the targeted area. For this reason, RT can treat areas that may not be able to be removed with surgery. Most of the time you won't feel the RT each day, but side effects might develop over the weeks of treatment. Ask your care team which radiation option(s) are best for you and what side effects and long-term effects to expect.

A 4-dimensional (4D) CT scan might be used to plan RT. A 4D-CT records multiple images over time. It allows playback of the scan as a video, so that internal movement of your organs can be tracked and accounted for in targeting the RT.

Clinical trials

Another treatment option at any stage of disease is participating in a clinical trial. A clinical trial is a type of medical research study. After being developed and tested in a lab, potential new ways of fighting cancer need to be studied in people.

If found to be safe and effective in a clinical trial, a drug, device, or treatment approach may be approved by the U.S. FDA.

Finding a clinical trial

In the United States

NCCN Cancer Centers
NCCN.org/cancercenters

The National Cancer Institute (NCI)
cancer.gov/about-cancer/treatment/clinical-trials/search

Worldwide

The U.S. National Library of Medicine (NLM)
clinicaltrials.gov

Need help finding a clinical trial?

NCI's Cancer Information Service (CIS)
1.800.4.CANCER (1.800.422.6237)
cancer.gov/contact

Everyone with cancer should carefully consider all of the treatment options available for their cancer type, including standard treatments and clinical trials. Talk to your doctor about whether a clinical trial may make sense for you.

Phases

Most cancer clinical trials focus on treatment and are done in phases.

- **Phase 1 trials** study the safety and side effects of an investigational drug or treatment approach.
- **Phase 2 trials** study how well the drug or approach works against a specific type of cancer.
- **Phase 3 trials** test the drug or approach against a standard treatment. If the results are good, it may be approved by the FDA.
- **Phase 4 trials** study the safety and benefit of an FDA-approved treatment.

Who can enroll?

It depends on the clinical trial's rules, called eligibility criteria. The rules may be about age, cancer type and stage, treatment history, or general health. They ensure that participants are alike in specific ways and that the trial is as safe as possible for the participants.

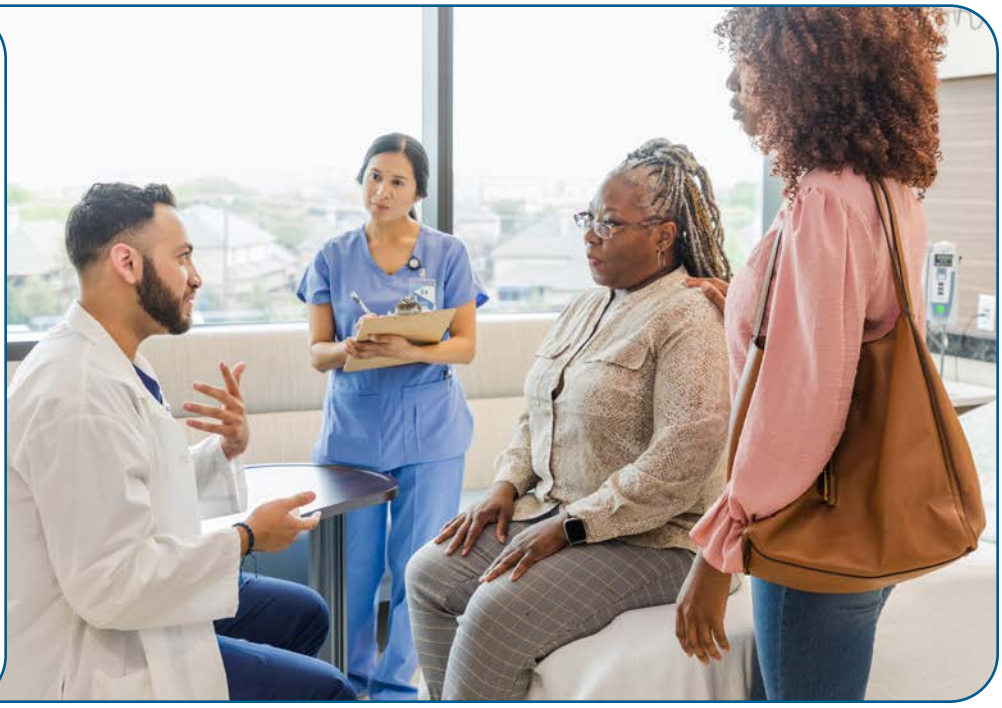
Informed consent

Clinical trials are managed by a research team. This group of experts will review the study with you in detail, including its purpose and the risks and benefits of joining. All of this information is also provided in an informed consent form. Read the form carefully and ask questions before signing it. Take time to discuss it with people you trust. Keep in mind that you can leave and seek treatment outside of the clinical trial at any time.

Will I get a placebo?

Placebos (inactive versions of real medicines) are almost never used alone in cancer clinical trials. It is common to receive either a placebo with a standard treatment, or a new drug with a standard treatment. You will be informed, verbally and in writing, if a placebo is part of a clinical trial before you enroll.

Ask your care team what treatment options are available and if a clinical trial might be right for you.



Are clinical trials free?

There is no fee to enroll in a clinical trial. The study sponsor pays for research-related costs, including the study drug. But you may need to pay for other services, like transportation or childcare, due to extra appointments. During the trial, you will continue to receive standard cancer care. This care is often covered by insurance.

Supportive care

Supportive care will be specific to your needs and is available at any time in your cancer treatment. Supportive care is health care given to prevent, reduce, and relieve symptoms and side effects and to improve your quality of life. It might include pain relief, emotional or spiritual support, home care, medical equipment, financial aid, or family counseling. Tell your care team how you're feeling and about any treatment side effects, so they can be managed.

It's very important to take care of yourself by eating well, drinking plenty of fluids, exercising, and doing things that make you feel energized.

Strength is needed to sustain you during treatment. For more information on supportive care, see *Chapter 10: Supportive care.*

Side effects

All cancer treatments can cause unwanted health issues called side effects. Supportive care helps you manage them in a variety of ways. Side effects depend on many factors, like the drug type and dose, length of treatment, and the person. Some side effects may be harmful to your health and very serious, while others may just be unpleasant.

Ask for a complete list of side effects that your treatments may cause. Also, tell your care team about any new or worsening symptoms. There may be ways to prevent some side effects and help you feel better.

Late side effects

Late side effects (also called late effects) are those that occur or persist for months or years after a disease is diagnosed or after treatment has ended. Late effects may be caused by

Supportive care and palliative care: Are they the same?

You might hear the terms supportive care and palliative care and think they mean the same thing. While they both aim to improve your quality of life, they have slightly different meanings.

Supportive care is more of a broad type of care that is available at any time in your cancer journey. It is intended to support you and your family to help you better tolerate treatment. For more information, see *Chapter 10: Supportive care*.

Palliative care (also called palliative management) can be a part of supportive care. Palliative care aims to relieve major symptoms like pain, bleeding, blockages, or nausea and vomiting, in advanced cancer.

cancer or cancer treatment and could include physical, mental, and social problems as well as second cancers. The sooner late effects are treated, the better. Ask your care team about what late effects could occur and for approaches to prevent and treat them. This will help you know what to look for.

For more information about late effects, see *Chapter 11: After treatment.*

Survivorship

A person is a cancer survivor from the time of diagnosis until the end of life. When treatment leads to remission (or no evidence of disease), you'll need follow-up or survivorship care for late effects. During survivorship care, you'll still have a care team, but it will be different.

For more information on survivorship, see *Chapter 11: After treatment.*

Key points

- Surgery is the main, or primary, treatment for stomach cancer. Gastrectomy is surgery that removes all or part of the stomach.
- A resectable tumor can be removed with surgery. An unresectable tumor cannot be removed with surgery.
- You can live without a stomach. You'll have a working digestive system that allows swallowing, eating, and digesting food, but in a different way. Your care team can prepare you and help you manage this.
- Systemic therapy works throughout the body. It includes chemotherapy, chemoradiation, targeted therapy, and immunotherapy.
- Radiation therapy (RT) uses high-energy x-rays, protons, photons, and other sources to kill cancer cells and shrink tumors. It's used less frequently in treating stomach cancer but can be used for some people.
- A clinical trial is a type of research that studies how well a treatment works and if it's safe.
- Supportive care relieves symptoms caused by cancer and its treatment and improves quality of life.

Questions to ask

- Who will coordinate my care?
- In what situations should I call my care team? Do side effects have to be bad to let them know?
- If I need chemotherapy, what type will I have?
- Am I a candidate for a clinical trial? Can I join a clinical trial at any time?

What's next?

Now that you've read about all the treatment possibilities, you can find more specific treatment information for your specific cancer stage: early-stage stomach cancer (Chapter 6), locally advanced stomach cancer (Chapter 7), locally advanced recurrence and metastatic stomach cancer (Chapter 8), and peritoneal carcinoma as only disease (Chapter 9).

6
Early-stage stomach cancer

Early-stage stomach cancer hasn't grown beyond the first layer of the stomach wall. Treatment is endoscopic resection or surgery.

Early-stage stomach cancer includes stage 0 (also called carcinoma in situ), which is considered pre-cancer, and stage 1 tumors that haven't grown beyond the first layer of the stomach wall and do not involve the lymph nodes. For more information, see the description and illustration of the stomach's layers in *Chapter 2: About the stomach.*

When cancer is in its early stages (stage 0 or early stage 1), it's easier to treat because it hasn't had a chance to spread too far from where it started.

Treatment

Before treatment, your care team will review your test results. They'll decide with you if endoscopic resection (ER) or surgery (gastrectomy) is a better choice, or if you're not a candidate for surgery.

Guide 3
Possible treatment for early-stage stomach cancer

Endoscopic resection
Surgery (total or partial gastrectomy)

Being a candidate for surgery means you must be healthy enough for it and not have other serious health issues. The type of surgery for early-stage stomach cancer is commonly partial gastrectomy (part of the stomach removed). Less often at this stage, treatment involves total gastrectomy (complete stomach removal).

Even if you're a candidate for surgery, you may not want to have it, and that's okay.

Endoscopic resection or surgery

If surgery isn't an option for you, ER can be done. In this procedure, an endoscope is passed down your throat to remove the tumor in your stomach. After ER, you'll start follow-up visits where you'll be checked for the return of cancer (recurrence). See "Follow-up care."

Otherwise, if you're healthy enough to tolerate surgery, that will come next. For more information on some of the aftereffects from your surgery, see Chapter 11: After treatment.

A sample of your tumor removed during surgery will be tested and re-staged. If tests confirm the cancer is in the early pathological stages (stage 0 or stage 1A), then you'll have follow-up visits to watch for the return of cancer. See "Follow-up care."

But if the cancer has been re-staged as pathological stage 1B through stage 3C, it's considered locally advanced cancer. This type of cancer is detailed in the next chapter.

Follow-up care

After treatment, you'll receive follow-up care. It's important to keep all of your follow-up visits and imaging test appointments.

Stage 0

If you have stage 0 (carcinoma in situ) stomach cancer that was successfully treated with ER, then your follow-up care might include:

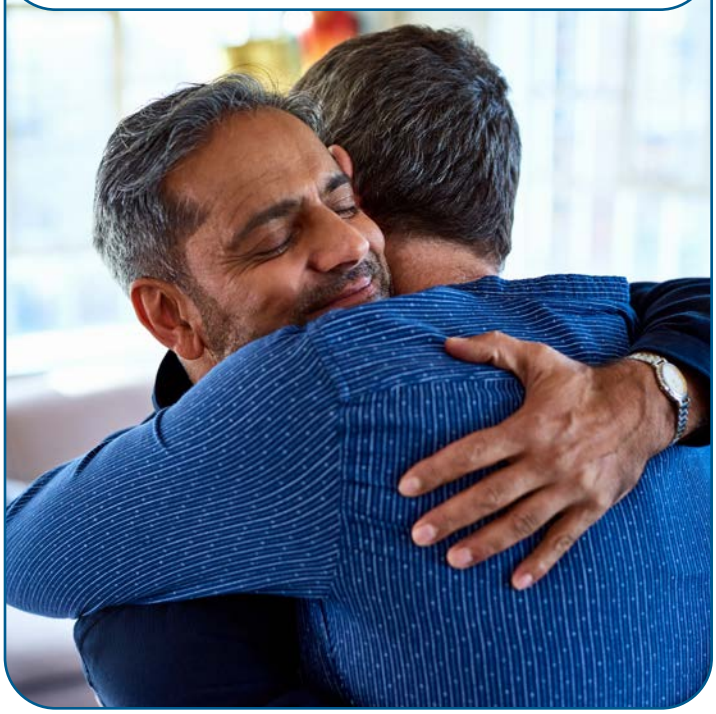
- Medical history and physical exam every 3 to 6 months for 1 to 2 years, then every 6 to 12 months for 3 to 5 years
- Complete blood count (CBC) and chemistry profile, as needed
- Upper GI endoscopy (EGD) every 6 months for 1 year, then annually for 3 years
- Imaging (CT scan of chest/abdomen/pelvis with oral and IV contrast), as needed based on symptoms and concern for recurrence

Stage 1 (early)

A tumor that hasn't grown further than the first layer of the stomach wall (the mucosa) is early stage 1 stomach cancer. If it's successfully treated with ER or surgery, then follow-up care might include:

- Medical history and physical exam every 3 to 6 months for 1 to 2 years, then every 6 to 12 months for 3 to 5 years
- CBC and chemistry profile, as needed
- CT scan of chest/abdomen/pelvis with oral and IV contrast, as needed
- Checking for nutritional deficiency (such as low levels of B12 and iron), especially after total gastrectomy, as needed
- After ER – Upper GI endoscopy every 6 months for 1 year, then once a year for up to 5 years, and then as needed based on symptoms and/or test results
- After surgery – Upper GI endoscopy as needed

If you need support while dealing with your diagnosis, ask about a nearby in-person or online cancer support group.



Key points

- Early-stage stomach cancer is easier to treat than later stages.
- An early stage 1 tumor hasn't grown beyond the mucosa, the first layer of the stomach wall.
- Surgery is not for everyone. You must be healthy enough for surgery and not have other serious health issues.
- You have the option of not having surgery if you don't want it.
- You may be able to have an endoscopic resection (ER) instead of surgery.
- After treatment with ER or surgery, you'll receive follow-up care. It's important to keep any follow-up visits and imaging test appointments.

Questions to ask

- What are the chances that my cancer will return after treatment?
- What decisions must be made today?
- How many procedures like the one you're suggesting have you done?
- What are the possible complications of treatment?
- Who will manage my day-to-day care?

What's next?

After your treatment, you'll continue to receive regular exams and imaging. See *Chapter 10: Supportive care* and *Chapter 11: After treatment* to find out what else to expect.

7

Locally advanced stomach cancer

In locally advanced stomach cancer, the tumor has grown into the second layer of the stomach wall and may or may not have spread to nearby lymph nodes. This chapter describes the different types of treatment based on the stage of locally advanced cancer.

Locally advanced cancer has grown beyond the inner layer of the stomach wall (the submucosa). It may have also spread to the lymph nodes or organs near the stomach. But it's called locally advanced because it hasn't spread to distant sites in the body.

After you've had the workup that involves endoscopic ultrasound and biopsies (see **Guide 1** in *Chapter 3: Testing for stomach cancer*) and it's been determined you have locally advanced cancer (it could be clinical stage 1 and up to stage 3), your doctor might recommend laparoscopy with cytology to get more information.

In this minimally invasive procedure, the surgeon will insert a laparoscope (a type of endoscope tube with a camera on the end) into your belly to look for cancer in the abdominal lining (the peritoneum). Fluid or tissue samples will be removed from the area. The samples will be sent to the lab where a pathologist will examine the cells for cancer (called cytology) to help further guide treatment.

The point of laparoscopy and cytology is to find out whether your cancer is potentially resectable (removable with surgery) or unresectable (not removable with surgery). Once this result is in, your care team will discuss treatment options with you. See **Guide 4.**

Guide 4
Possible treatment for locally advanced stomach cancer

Surgery
Perioperative systemic therapy
Neoadjuvant or perioperative immune checkpoint inhibitors, only for MSI-H/ dMMR-positive tumors
Chemotherapy
Chemoradiation

Potentially resectable

If the tumor is considered by your care team to be potentially resectable, it means it has a good chance of being completely removed with surgery.

If you have a clinical stage 1 tumor that has grown into the second layer of the stomach wall (the submucosa) and you're healthy enough for surgery, your care team will likely recommend surgery to remove the tumor. See "Surgery without systemic therapy" for what treatment you might expect.

If you have a tumor that has grown into the third layer of the stomach wall (the muscle layer) or deeper and cancer may or may not be in the lymph nodes (this means it could be a clinical stage 1 or stage 2A, 2B, 3, 4A, or 4B), you'll likely have 1 of the following 3 options.

- Surgery (only). If you have only surgery, see "Surgery without systemic therapy."
- Perioperative systemic therapy (around the time of surgery)
- Neoadjuvant (before surgery or preoperative) or perioperative immune checkpoint inhibitor (ICI) treatment only if the tumor is microsatellite instability-high and mismatch repair deficient (MSI-H/dMMR)

Surgery without systemic therapy

Most patients with stomach cancer will need surgery (gastrectomy). During surgery, a sample of your tumor and at least 16 lymph nodes will be removed (D1 lymph node dissection) and tested, and your cancer will be re-staged. (This is called the pathological stage.) What treatment you'll have next is based on this stage.

R0

In a clear or negative resection margin (R0), no cancer cells are found in the tissue around the edge of the tumor. But cancer may still be in regional lymph nodes. The next steps depend on how far the tumor has grown into the wall of the stomach and if there was any cancer in regional lymph nodes.

If the cancer is stage 0 or stage 1A, you'll begin observation. See "Follow-up care" for more details.

If the cancer is stage 1B with no cancer in the lymph nodes, you'll receive either:

- Observation
- Chemotherapy using fluoropyrimidine (fluorouracil or capecitabine), then fluoropyrimidine-based chemoradiation, then some patients will receive more fluoropyrimidine

If after surgery, and you didn't receive preoperative systemic therapy, your cancer is now stage 2A or 2B with or without cancer in your lymph nodes, or stage 1B or higher (2A, 2B, 3A, 3B, or 3C) with cancer in your lymph nodes, you'll receive one of the following:

- Chemotherapy using fluoropyrimidine (fluorouracil or capecitabine), then fluoropyrimidine-based chemoradiation, then more fluoropyrimidine if fewer than 30 lymph nodes were removed
- Chemotherapy for people who've had 30 or more lymph nodes removed (D2 lymph node dissection)

R1

An R1-positive margin means the surgeon removed all the visible tumor, but microscopic cancer remains in the margin. This cancer can't be seen with the human eye, but it can be seen under a microscope.

For treatment, you'll receive chemoradiation with fluoropyrimidine. See "Follow-up care" for what comes next.

R2

An R2 resection means that the surgeon was unable to remove all of the visible tumor, or there's cancer in the surgical margin that can be seen with the human eye. The remaining cancer after surgery may be near where the primary tumor was and in the lymph nodes or at distant sites (metastatic). Your treatment will be either chemoradiation with fluoropyrimidine or palliative management (see "Palliative management").

Metastatic cancer

If the surgeon found that the cancer has spread to distant parts of the body (metastasized), you will not have another surgery.

Sometimes you might receive radiation, chemotherapy, or both. Or you may have palliative management. You also have the option of not having any treatment.

Perioperative systemic therapy

If you have perioperative systemic therapy, it means it will be given before and after surgery. For systemic therapy options, see **Guide 5**.

After the systemic therapy, you'll need a chest/abdomen/pelvis CT with oral and IV contrast afterward to see if the treatment helped control the tumor. If needed, you might also have an FDG-PET/CT.

At that point, your cancer will be classified again as resectable, unresectable, or metastatic (has spread to distant sites). If it's considered resectable, then you'll have another surgery (which is preferred). At the time of the surgery, the cancer might be determined to be unresectable, and peritoneal spread might be found. See "Surgery after systemic therapy" for what comes next.

But if you have resectable cancer and decide not to have surgery, you'll receive palliative management. Palliative management is available to you as a way to manage symptoms, improve quality of life, and extend life. Systemic therapy with or without radiation therapy may be an option as part of palliative management.

If your cancer is considered unresectable or is metastatic, then you'll receive palliative care.

Neoadjuvant or perioperative ICI for MSI-H/dMMR tumor

If biomarker testing shows your tumor is MSI-H/dMMR, your doctor might suggest neoadjuvant (preoperative) or perioperative immune checkpoint inhibitors (ICI) treatment (without chemotherapy). For treatment options, see **Guide 5.**

After that treatment, you'll have imaging or upper GI endoscopy and biopsy. This testing will show 1 of 3 outcomes:

- **No evidence of disease:** No stomach cancer was found after your treatment. You'll have either observation (see "Follow-up care") or surgery (see "Surgery after systemic therapy") that will likely involve a feeding tube (jejunostomy). Even though there's no evidence of cancer, surgery is often the best, most definitive way to make sure the cancer hasn't spread.
- **Persistent local disease:** The local disease is still there. The preferred treatment is surgery that will likely involve a feeding tube (jejunostomy), or you might have palliative care.
- **New metastatic disease:** This means that there are signs of the cancer's spread that weren't present before, and you'll receive palliative care. It's important to note that sometimes unresectable disease will be found during surgery.

Surgery after systemic therapy

Systemic therapy is given to control the tumor before surgery. For systemic therapy options, see **Guide 5**. The goal of surgery (gastrectomy) is to remove the tumor and any remaining cancer. Your treatment after surgery depends on whether, during surgery, the cancer is found to be R0 (no cancerous cells around the edge of the tumor), R1

Guide 5
Systemic therapy options

Perioperative chemotherapy (around the time of surgery)	Preferred: • FLOT (fluorouracil, leucovorin, oxaliplatin, and docetaxel) - For PD-L1 positive tumors, FLOT plus durvalumab - For clinically node-positive tumors, FLOT plus durvalumab - For non-diffuse-type tumors, FLOT plus durvalumab • Fluoropyrimidine and oxaliplatin Other recommended: • Fluorouracil and cisplatin
Neoadjuvant (before surgery) or perioperative immune checkpoint inhibitors for MSI-H/dMMR tumors	Used in some cases: • Dostarlimab-gxly • Nivolumab and ipilimumab followed by nivolumab • Pembrolizumab • Tremelimumab and durvalumab for neoadjuvant therapy only
Chemoradiation (after surgery)	• Fluoropyrimidine (fluorouracil or capecitabine) before and after fluoropyrimidine-based chemoradiation
Chemotherapy (after surgery) for patients with D2 lymph node dissection	Preferred: • Capecitabine and oxaliplatin • Fluorouracil and oxaliplatin
Chemoradiation for unresectable disease	Preferred: • Fluoropyrimidine • Fluorouracil and oxaliplatin • Fluorouracil and cisplatin Other recommended: • Fluoropyrimidine (fluorouracil or capecitabine) and paclitaxel

(microscopic cancer is found in the surgical margin), or R2 (the surgeon was unable to remove all the visible tumor, or there is metastatic disease).

R0
You'll receive more systemic therapy, and then you'll begin observation in follow-up care (see "Follow-up care").

R1
You'll receive either chemoradiation (with a fluoropyrimidine chemotherapy) or have another surgery to remove the remaining cancer. After that, you'll begin observation in follow-up care (see "Follow-up care").

R2
You'll receive chemoradiation (with a fluoropyrimidine chemotherapy) or palliative management.

Metastatic cancer

If you received systemic therapy before your surgery and the cancer was found to have spread to distant areas (metastasized), has become unresectable, or involves the peritoneum, then you'll receive palliative management.

No surgery

Surgery is not for everyone. Your body may not be strong or healthy enough for surgery, or you may simply choose not to have it. (Your wishes about treatment are always important).

If you're not having surgery or you have cancer that has spread (metastasized), has become unresectable, or involves the peritoneum, then treatment will focus on palliative management. This is care that helps manage symptoms, improve your quality of life, and extend life.

Unresectable

Not all tumors can be removed with surgery. This might be due to size or location, the way it has spread, or the person not being healthy enough for major surgery. In other words, the tumor can't be cut out safely and completely, which is called an unresectable tumor.

Instead of surgery, unresectable cancer might be treated with the following options:

- Chemoradiation
- Systemic therapy

See **Guide 5** for systemic therapy options.

After perioperative treatment, you'll have imaging tests and blood tests. With that information, your cancer will be classified again as resectable or unresectable. If it's resectable, then you will have surgery, which is preferred. Less commonly, you might be observed in follow-up care (see "Follow-up care").

If the tumor is considered unresectable and/or there is disease that has spread (metastasized), then treatment will focus on palliative management (see below).

Palliative management

With stomach cancer, the term palliative management refers to ways to reduce pain and suffering. It means you have different options. These options can include treatments like chemoradiation, systemic therapy, or simply palliative care (which is any of the other treatments available to reduce bleeding, pain, blockages, as well as nausea and vomiting). According to NCCN experts, relieving major

symptoms of stomach cancer may extend life, which is why they encourage many approaches.

Follow-up care

If your cancer is pathological stage 1 and your tumor was treated with surgery or endoscopic resection (ER), then follow-up care might include:

- Medical history and physical exam every 3 to 6 months for 1 to 2 years, then every 6 to 12 months for 3 to 5 years
- Complete blood count (CBC) and chemistry profile, as needed
- For patients treated by ER, upper gastrointestinal (GI) endoscopy every 6 months for 1 year, then yearly for up to 5 years or longer based on symptoms and imaging findings
- For patients who had surgery, upper GI endoscopy, as needed. CT scan of chest/abdomen/pelvis with contrast, as needed
- Checks for nutritional deficiency (such as low levels of B12 and iron), as needed

If your cancer is pathological stage 2 or 3 and you didn't have systemic therapy or if it's pathological stage 1, 2, or 3 and you were treated with systemic therapy before or after surgery, then follow-up care might include:

- Medical history and physical exam every 3 to 6 months for 1 to 2 years, then every 6 to 12 months for 3 to 5 years
- CBC and chemistry profile, as needed
- For patients who had partial gastrectomy, upper GI endoscopy, as needed
- CT scan of chest/abdomen/pelvis with contrast every 6 months for the first 2 years, then annually for up to 5 years
- Checks for nutritional deficiency (such as low levels of B12 and iron), as needed

Keep a positive outlook and accept the love of those around you who are concerned. Always believe that you are going to be okay.

Key points

- In locally advanced stomach cancer, the tumor has grown beyond the first layer of the stomach wall and may have spread to nearby lymph nodes or organs.
- Locally advanced stomach cancer isn't metastatic disease. It has not spread to distant sites.
- Surgery is not for everyone. If surgery isn't an option, then treatment will focus on palliative management. Your wishes are always important.
- Palliative care is given to manage symptoms, improve quality of life, and extend life.
- Not all tumors can be removed with surgery. Tumors that can't be removed with surgery are called unresectable.
- Unresectable cancer might be treated with chemoradiation or systemic therapy. If the tumor shrinks, then surgery might be possible.
- You'll have follow-up care after surgery to check for cancer recurrence.

Questions to ask

- How do my age, overall health, and other factors affect my options?
- What will happen if I do nothing?
- How do I get a second opinion?
- Which option is proven to work best for my cancer, age, overall health, and other factors?

What's next?

After your treatment and as mentioned above, you'll receive regular exams and imaging. See *Chapter 10: Supportive care* and *Chapter 11: After treatment* for what you might expect.

"Be your own advocate. Talk to someone who has gone through the same thing as you. Ask a lot of questions, even the ones you are afraid to ask. You have to protect yourself and ensure you make the best decisions for you, and get the best care for your particular situation."

8

Locally advanced recurrence and metastatic stomach cancer

This chapter discusses treatment options for locally advanced recurrence and metastatic cancer. Locally advanced recurrence is the return of stomach cancer near the original tumor. Metastatic cancer means it has spread to distant sites in the body.

When cancer returns at or near the original tumor in the stomach, it's called locally advanced recurrence. Locally advanced recurrence can appear in nearby lymph nodes; tissues in the abdomen; and the location of the original surgery, if you had one.

Sometimes locally advanced recurrence is also unresectable, which means it can't be removed with surgery. Locally advanced recurrence could also have spread to distant sites in the body. This is called metastatic disease, also known as stage 4 cancer. It might have been previously unresectable and spread as well.

Guide 6
Possible treatment for locally advanced recurrence and metastatic disease

Surgery
Palliative management
Systemic therapy
Chemoradiation

If you have a cancer recurrence or it's metastatic and you're feeling overwhelmed, don't hesitate to reach out to your care team to let them know. They may be able to direct you to extra support or programs that can help you manage your feelings. You're not alone.

Palliative management

In recurrent and metastatic stomach cancer, the term palliative management refers to ways to reduce pain and suffering. It means you have different options. These options can include treatments like chemoradiation, systemic therapy, or simply palliative care (which is any of the other treatments available to reduce bleeding, pain, blockages, as well as nausea and vomiting). According to NCCN experts, relieving major symptoms of stomach cancer may extend life, which is why they encourage many approaches.

Treatment options

If the recurrent locally advanced tumor can be removed (is resectable), surgery might be an option. But palliative management is also an option.

If the recurrent locally advanced tumor can't be removed with surgery (is unresectable) or if there's metastatic disease, the goal of treatment is to manage symptoms and increase survival. Palliative management can help with this.

Your performance status helps determine the type of palliative management. If you're active enough to walk around and take care of yourself, you'll be able to have biomarker

testing (for HER2, CLDN18.2, PD-L1 or MSI), if you haven't already. For more information on performance status, see *Chapter 3: Testing for stomach cancer.*

Possible palliative management steps could include the following:

- Chemoradiation (chemotherapy and radiation given together, if not done before and for unresectable tumors)
- Systemic therapy
- Palliative care (other comfort and pain-relieving treatments)
- Treatment for peritoneal carcinoma as only disease (stomach cancer limited to peritoneum). See the next chapter for those treatment options.

But if your performance status is lower, meaning you're not very active and not able to take care of yourself on your own, then palliative care is probably the best treatment for you.

Chemoradiation

If the locally advanced tumor is unresectable and you haven't yet received chemoradiation (chemotherapy and radiation given together), you might have chemoradiation as a treatment option. The goal is to help shrink tumors to help with pain and keep the cancer from spreading.

Systemic therapy

At this stage of the disease, systemic therapy, like chemotherapy and targeted therapies, are used to shrink tumors and can help ease pain, nausea, or bleeding.

When it comes to unresectable or metastatic cancer recurrence, therapies are categorized into first-line and next-line options, based on how effective they might be for your type of cancer. First-line options are considered more effective than next-line options and, because of that, should be tried first. Options are based on the systemic therapy you had before and your performance status.

First-line systemic therapy options can be found in **Guide 7.**

Next-line systemic therapy options can be found in **Guide 8.**

Your preferences about treatment are always important. Talk to your care team, and make your wishes known.

Guide 7
First-line systemic therapy options

Preferred options	For HER2-positive tumors: • Fluoropyrimidine (fluorouracil or capecitabine), oxaliplatin, and trastuzumab • Fluoropyrimidine (fluorouracil or capecitabine), oxaliplatin, trastuzumab, and pembrolizumab for PD-L1 positive • Fluoropyrimidine (fluorouracil or capecitabine), cisplatin, and trastuzumab • Fluoropyrimidine (fluorouracil or capecitabine), cisplatin, trastuzumab, and pembrolizumab for PD-L1 positive
	For HER2-negative tumors: • Fluoropyrimidine (fluorouracil or capecitabine), oxaliplatin, and nivolumab for PD-L1 positive • Fluoropyrimidine (fluorouracil or capecitabine), oxaliplatin, and pembrolizumab for PD-L1 positive • Fluoropyrimidine (fluorouracil or capecitabine), oxaliplatin, and tislelizumab-jsgr for PD-L1 positive • Fluoropyrimidine (fluorouracil or capecitabine), oxaliplatin, and zolbetuximab-clzb for CLDN18.2 positive • Fluoropyrimidine (fluorouracil or capecitabine) and oxaliplatin • Fluoropyrimidine (fluorouracil or capecitabine), cisplatin, and pembrolizumab for PD-L1 positive • Fluoropyrimidine (fluorouracil or capecitabine), cisplatin, and tislelizumab-jsgr for PD-L1 positive • Fluoropyrimidine (fluorouracil or capecitabine) and cisplatin
	For MSI-H/dMMR-positive tumors (independent of PD-L1 status): • Pembrolizumab • Dostarlimab-gxly • Nivolumab and ipilimumab • Fluoropyrimidine (fluorouracil or capecitabine), oxaliplatin, and nivolumab • Fluoropyrimidine (fluorouracil or capecitabine), oxaliplatin, and pembrolizumab
Other recommended	• Fluorouracil and irinotecan • Paclitaxel with or without carboplatin or cisplatin • Docetaxel with or without cisplatin • Fluoropyrimidine (fluorouracil or capecitabine) • Docetaxel, cisplatin or oxaliplatin, and fluorouracil

Guide 8
Next-line systemic therapy options

Preferred options	• Ramucirumab and paclitaxel • Fam-trastuzumab deruxtecan-nxki for HER2-positive tumors • Docetaxel • Paclitaxel • Irinotecan • Fluorouracil and irinotecan • Trifluridine and tipiracil for third-line or later therapy
Other recommended	• Ramucirumab • Irinotecan and cisplatin • Fluorouracil, irinotecan, and ramucirumab • Irinotecan and ramucirumab • Docetaxel and irinotecan
Used in some cases	• Entrectinib, larotrectinib, or repotrectinib for *NTRK* gene fusion-positive tumors • Pembrolizumab for MSI-H or dMMR tumors • Nivolumab and ipilimumab for MSI-H or dMMR tumors • Pembrolizumab for TMB-H tumors (10 or more mutations per megabase) • Dostarlimab-gxly for MSI-H or dMMR tumors • Dabrafenib and trametinib for *BRAF* V600E mutated tumors • Selpercatinib for *RET* gene fusion-positive tumors
Notes	• Leucovorin might be added to fluorouracil-based regimens depending on availability.

Palliative care

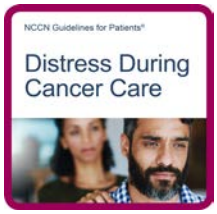
The goal of palliative care is to prevent and relieve pain and discomfort and provide the best quality of life for you. It's part of palliative management and can include treatments like systemic therapy and chemoradiation, as well as other therapies for bleeding, blockages, pain, nausea, and vomiting.

Receiving palliative care is still treatment. You're actively choosing care to help you feel better. While the goal is different (relieving pain and discomfort), your wishes and opinions are just as important as they are with other treatment options.

If you have any questions about what your palliative care options are, don't hesitate to ask your care team. For more information, see *Chapter 10: Supportive care*. More on the topic can be found in *NCCN Guidelines for Patients: Palliative Care.* For more information on

dealing with feelings and emotions that come with cancer care, see *NCCN Guidelines for Patients: Distress During Cancer Care.*

Both are available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.



Key points

- When stomach cancer comes back in the same (or almost the same) place, it's called locally advanced recurrence.
- Stomach cancer that has spread to distant sites in the body is called metastatic disease.
- Unresectable cancer is cancer that can't be completely or safely removed by surgery.
- Surgery may be an option for people with a locally advanced resectable tumor.
- For people with unresectable locally advanced cancer, with metastatic disease, or who aren't having surgery, treatment will focus on palliative management. This is care to manage symptoms, improve quality of life, and extend life.
- Options for managing unresectable and metastatic cancer are based on your performance status. This is an estimate of a person's general level of fitness and ability to perform daily tasks.
- Palliative care is an option for anyone with locally advanced recurrence or metastatic disease.
- First-line therapies are considered best to start with. Options are based on the systemic therapy you had before and your performance status.

Questions to ask

- What should I expect from treatment this time? What are the side effects?
- How much pain will I be in? What will be done to manage it?
- Should I bring someone with me for all my treatments?
- Can you help direct me to emotional support resources?

It helps to ask questions to learn all you can. It will give you a more active role in your care and may help you feel a sense of control.

9

Peritoneal carcinoma as only disease

Peritoneal carcinoma as only disease is when stomach cancer spreads to the peritoneum. This isn't common, but if it occurs newer treatments might be helpful.

Sometimes stomach cancer spreads (metastasizes) to the peritoneum and may or may not spread from there. The peritoneum lines the abdomen and covers most of your organs. When stomach cancer spreads there, the medical term is called peritoneal carcinoma as only disease. This means the cancer has spread only to the abdominal lining (peritoneum). This might be found at laparoscopy or after neoadjuvant (preoperative) therapy. While this type of metastasis is serious and is stage 4 stomach cancer, newer ways of treating it have become available for some people.

Treatment options

One of those treatments is called intraperitoneal chemotherapy (IC)/ hyperthermic intraperitoneal chemotherapy (HIPEC). It's performed with gastrectomy as part of cytoreduction surgery (reducing the amount of cancer in the belly). Keep in mind that HIPEC isn't considered standard of care at this time. It should only be used if recommended by a multidisciplinary tumor board. This is a team of experts, including medical and radiation oncologists as well as surgeons, pathologists, and radiologists, who gather to discuss and recommend treatment in complex cancer cases.

Guide 9
Possible treatment for peritoneal carcinoma as only disease

IC/HIPEC
Systemic therapy
Clinical trial
Palliative care

A complete cytoreduction surgery means removing all the cancerous tissue. An incomplete cytoreduction means some of the cancerous tissue remains after surgery. More information can be found in the next section, "Low PCI."

If you have the diagnosis of peritoneal carcinoma as only disease and have already had a workup with physical exam, staging with imaging, and a diagnostic laparoscopy, you'll receive systemic therapy for at least 3 months. See **Guides 7** and **8** in *Chapter 8: Locally advanced recurrence and metastatic stomach cancer* for the types of systemic therapy.

If you haven't had the workup yet (**Guide 1** in *Chapter 3: Testing for stomach cancer*), you'll have it before moving to systemic therapy.

After you've had systemic therapy for at least 3 months, the cancer will be re-staged and include the following tests:

- CT scan
- Diagnostic laparoscopy with washings that document the peritoneal cancer index (PCI) with or without a biopsy
- FDG-PET/CT scan, if needed

- Upper gastrointestinal (GI) endoscopy, if needed

After re-staging, your cancer will either be considered low PCI (which means stable or improved disease with no evidence of further spread) or high PCI (disease progression and spread outside of the peritoneum).

Low PCI

If you're diagnosed with low PCI, your care team will meet to discuss next steps. If they think complete cytoreduction (removal of all cancerous tissue) might be possible, then you'll have the following options:

- Participation in a clinical trial
- Gastrectomy with cytoreductive surgery and IC/HIPEC
- Continuation of systemic therapy

What is IC/HIPEC?

IC/HIPEC is a procedure that happens right after cytoreductive surgery. It circulates high doses of a heated chemotherapy solution throughout the belly (to get to the peritoneum). It can get to places where traditional chemotherapy can't. But it's important to know that IC/HIPEC is still under investigation in clinical trials. So the experts at NCCN recommend that IC/HIPEC should only be used in rare cases and that you and your care team have a discussion to decide whether it is a good option for you.

But if your care team thinks the cytoreduction is incomplete (some of the cancerous tissue has remained), then IC/HIPEC isn't recommended. If this is the case, you'll have one of these treatments:

- Participation in a clinical trial
- Continuation of systemic therapy

High PCI

If the stomach cancer is considered high PCI (cancer progression that has spread outside of the peritoneum), your options include:

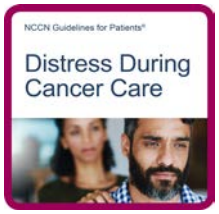
- Continuation of systemic therapy
- Participation in a clinical trial
- Palliative care

Palliative care

Palliative care is care that can help you feel better. It can include surgery; medications; and therapies for bleeding, blockages, pain, nausea, and vomiting, among other health issues.

Whatever treatment you decide on with your care team—or maybe you choose not to have further treatment and opt for palliative care—you are not alone. There is help and support available for you. For more information on palliative care, see *Chapter 10: Supportive care.*

More on the topic can be found in *NCCN Guidelines for Patients: Palliative Care*. For more information on dealing with feelings and emotions that come with cancer care, see *NCCN Guidelines for Patients: Distress During Cancer Care.* Both are available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.



Key points

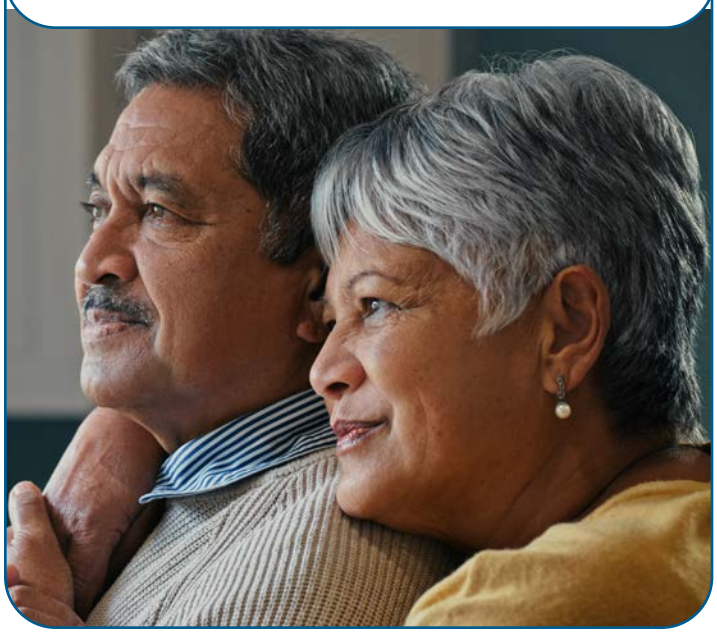
- Peritoneal carcinoma as only disease is when stomach cancer spreads to the peritoneum.
- Intraperitoneal chemotherapy (IC)/ hyperthermic intraperitoneal chemotherapy (HIPEC) is given with gastrectomy as part of cytoreduction surgery.
- A complete cytoreduction surgery means all cancerous tissue has been removed.
- If you have a low peritoneal cancer index (PCI), you might receive IC/HIPEC as a treatment.
- Participation in a clinical trial and continuation of systemic therapy are always options with peritoneal carcinoma as only disease.
- Palliative care is an option for peritoneal carcinoma as only disease.

Questions to ask

- If I'm a candidate for IC/HIPEC, where can I get it done? Do I have to travel far?
- Will my insurance pay for IC/HIPEC?
- What are the chances that my cancer will return after having IC/HIPEC?
- How do I join a clinical trial?
- Will I be able to get other treatments if IC/HIPEC doesn't work for me?

"From a patient's perspective, having a combination of a supportive team of medical professionals and the experiences from other patients gives one a sense of confidence and control that is invaluable when it comes to making decisions about their treatment options."

Participating in a clinical trial may be an option. Be sure to ask your care team about it.



10
Supportive care

You can receive supportive care at any point during your treatment for stomach cancer. The goal of supportive care is to help lessen symptoms and promote your comfort.

Supportive care is an important part of cancer care. The goal is to improve your quality of life during and after cancer treatment. It's for everyone with cancer and their families, not just for those at the end of life.

Supportive care includes a wide range of services. Supportive care prevents or manages the symptoms of cancer and the side effects of cancer treatment, like pain and cancer-related fatigue. It also addresses the mental, social, emotional, and spiritual concerns faced by people with cancer

Supportive care provides help with additional needs, such as:

- Making treatment decisions
- Coordinating your care
- Paying for care
- Planning for advance care and end of life

See the related supportive care *NCCN Guidelines for Patients* at the end of this chapter.

Help with physical symptoms

When it comes to stomach cancer, part of supportive care is palliative care, which can relieve major symptoms and side effects and may even extend life. This is especially true when a multidisciplinary care team is involved throughout your cancer care. It's also why NCCN experts encourage supportive care.

Below are some signs and symptoms of stomach cancer and side effects of treatment that palliative care can help prevent, reduce, and/or relieve.

Supportive care is available at any stage of cancer treatment. It can involve help with physical, emotional, financial, and end-of-life planning. Your care team is there to help you through it all.

Bleeding

Bleeding is common in patients with stomach cancer. It can result from surgery, treatment, or both. Stopping it can help people with cancer feel better. Bleeding is considered either acute (sudden bleeding that lasts a short time) or chronic (bleeding that lasts a long time). Bleeding can be stopped through the following ways:

- **Endoscopic treatment:** Treatment that uses an endoscope for injection therapy (injecting medicines to the area), mechanical therapy (moving small metal clips to close off the bleeding), ablation (using heat to seal a bleeding vessel), or a combination of these methods.
- **Interventional radiology:** Minimally invasive treatment that uses imaging tests to find bleeding and small tools to treat it. Interventional radiology can sometimes help stop bleeding when endoscopy isn't helpful or causes more bleeding. One example is angiography. In angiography, a catheter (thin plastic tube) is inserted into a blood vessel through a small incision in the skin and guided to the area with the use of x-rays. Contrast dye is then injected through the tube for a clearer picture of the bleeding on the x-ray, which is called an angiogram. Once the bleeding is found, the interventional radiologist can perform embolization techniques (blocking blood flow) to stop the bleeding.
- **Palliative gastrectomy:** Gastrectomy that isn't meant to cure the cancer but to relieve symptoms (like bleeding or a blockage) and improve quality of life for some patients.
- **External beam radiation therapy (EBRT):** Radiation treatment targeted at the bleeding area that has been proven to help both acute and chronic bleeding.

Blockage

When there is a blockage (obstruction) in the stomach, palliative care can be in the form of surgery, endoscopy, EBRT, or chemotherapy. These methods can also reduce nausea and vomiting and help people get back to a normal diet.

Blocked esophagus

A tumor may block the esophagus, the esophagogastric junction (EGJ), or the stomach cardia. An esophageal stent is a tube that widens the esophagus so food can pass into the stomach.

Blocked stomach

A tumor may block food from passing out of your stomach and into the first part of the small intestine (duodenum). This blockage can cause pain, vomiting, weight loss, and other problems. Treatments for a blocked stomach include systemic therapy and radiation therapy, as well as the following:

- **Stent** – A metal or plastic tube that expands to keep the stomach open, allowing food to pass through.
- **Gastrostomy tube (G-tube)** – A tube placed into the stomach through a cut in the abdomen. Food is given through this tube.
- **Stomach-duodenum bypass (gastrojejunostomy)** – Surgery to re-route the path food takes from the stomach into the small intestine. The new path from the stomach avoids (bypasses) the blocked part of the duodenum. This surgery may

also be done as a preventive measure if there's a high risk that your stomach may become blocked.

Pain

Pain is often a result of stomach cancer due to surgery or side effects of cancer treatment.

Pain is also common in people with locally advanced and metastatic stomach cancer and in those who have a tumor causing a blockage. Severe abdominal (belly) pain can occur when the tumor grows into nearby nerves or presses against other organs. This pain is treated with around-the-clock medicine, such as morphine or other opioids (narcotics). Sometimes, non-narcotic medicines are used to treat pain.

Some people may benefit from palliative radiation therapy (EBRT), with or without systemic therapy, to help relieve pain. During this treatment, a radiation beam is focused on the tumor, not to cure it but to try to shrink it and lessen any pain.

Pain can also be helped with certain chemotherapy treatments or even by removing a gastric stent if one was used. Tell your care team about any pain or discomfort. You might meet with a palliative care specialist or with a pain specialist to manage pain.

Integrative medicine programs at hospitals and cancer centers can be personalized to help with your specific pain problems. The programs use complementary therapies, like massage, to help with pain. Ask your care team about them.

Nausea and vomiting

Nausea and vomiting are very common side effects of cancer treatment but can be controlled by using anti-nausea and anti-vomiting (anti-emetic) medicines. Be sure to work closely with your care team if you're vomiting or feeling nauseated on a regular basis.

Poor appetite

Sometimes side effects from cancer or its treatment (such as surgery) might cause you to feel not hungry or sick to your stomach (nauseated). You might have a sore mouth. Healthy eating is important during treatment. It includes a balanced diet, eating the right amount of food, drinking enough fluids, or altering the types of food you eat. A registered dietitian, who's an expert in nutrition and food, can help give you strategies to manage it. Speak to your care team if you have trouble eating or maintaining weight.

Diarrhea

Diarrhea is frequent and watery bowel movements. It can be a symptom of stomach cancer and a side effect of treatment. Your care team will tell you how to manage diarrhea. It's important to drink lots of fluids to prevent dehydration (when your body lacks enough water to function normally), which can be caused by diarrhea.

Fatigue

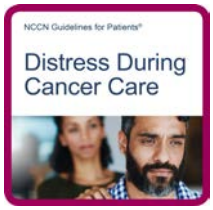
Fatigue is a feeling of extreme tiredness. It's common in stomach cancer and could be caused by the cancer or as a side effect of treatment. Let your care team know how you're feeling and if fatigue is getting in the way of doing the things you enjoy. Eating a balanced diet, exercise, yoga, acupuncture, massage therapy, and some medications can help. You might be referred to a nutritionist or dietitian to help you manage your fatigue.

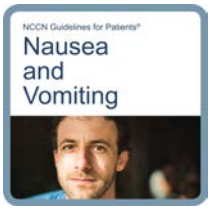
Neuropathy

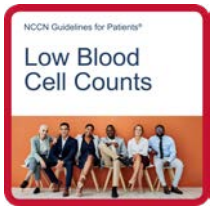
Neuropathy is damage to the nerves that causes pain, numbness, tingling, swelling, or muscle weakness in different parts of the body. Peripheral neuropathy (neuropathy in the hands and feet) may be caused by cancer or cancer treatment. Neuropathy may lessen or go away after treatment is completed, but sometimes the condition can last for weeks to years. Your care team can help you manage neuropathy with medicines and refer you to occupational therapy or physical therapy, if needed.

Help with other supportive care areas

More information on the physical, emotional, financial, and end-of-life aspects of supportive care can be found in related *NCCN Guidelines for Patients* at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.







Key points

- Palliative care is part of supportive care and can help with physical symptoms like bleeding, blockages, pain, as well as nausea and vomiting.
- Emotional support is also part of supportive care. All you need to do is ask your care team about it.
- Cancer and its treatment can be expensive. Supportive care can also help you find programs that might be able to pay for some of these costs.

Questions to ask

- Can you tell me about all of my supportive care options (both physical and emotional)?
- Is there one care team member whom I should call first about supportive care?
- If I need transportation to and from appointments, can you suggest any programs that might help?
- What supportive care resources can you suggest that might help me at my health care facility?
- What online resources can you recommend?

What's next?

Understanding that supportive care is there for you throughout your cancer care, and asking for it, could make a big difference. But after you finish your treatment, there might be other health issues to consider. Read the next chapter for more information on what you might expect after treatment.

11
After treatment

After your treatment, you'll be checked for any new or ongoing health concerns. This is a time when it's especially helpful to speak up about any symptoms you're experiencing.

Stomach cancer treatment can cause long-term side effects (those that occur during or shortly after treatment and last for months or years) and late effects (side effects that occur months or years after a disease is diagnosed or after treatment has ended). Still, it's encouraging to know that these side effects can be managed with a variety of medicines and strategies.

After your care is completed, you'll have regular visits with your provider to check on your health. Don't hesitate to let your provider know of any ongoing and new issues at each visit.

Monitoring

In addition to monitoring for the possible return of cancer (recurrence), seek routine medical care with a primary care provider you trust. This includes regular visits for preventive care.

Routine stomach cancer-specific tests, such as imaging, endoscopy, or tumor tests, are recommended up until 5 years after treatment ends. It's important to keep all of your follow-up care team visits and imaging test appointments.

Cancer screenings

Schedule cancer screenings and vaccinations as recommended by your provider based on your age, risk, and other factors. See your provider regularly for checkups and cancer screenings, which may include screenings for skin, breast, prostate, colorectal, and other types of cancer.

Long-term and late side effects

Stomach cancer survivors are checked for long-term and late side effects. The good news is there is help for side effects, but you have to let your care team know about them.

Blind loop syndrome

Blind loop syndrome happens when food doesn't move normally through a section of your intestines, often as a result of having gastrectomy. This can create a blind loop where food gets stuck and can cause bacteria to build up, resulting in diarrhea, nausea, and weight loss. Talk to your care team if you're feeling these symptoms. Blind loop syndrome is usually treated with antibiotics. But a high-protein, low-carbohydrate diet might help.

Bone health

You'll be screened regularly for low bone density (osteopenia/osteoporosis). You may receive medicine to manage low bone density. In addition, your provider may consider vitamin D testing as needed. Talk to your provider before taking any over-the-counter (OTC) supplements, vitamins, or medicines.

Diarrhea

Diarrhea is frequent and watery bowel movements. Your care team will tell you how to manage diarrhea and may recommend medicines to stop the diarrhea. It's important to drink lots of fluids to prevent dehydration (losing too much fluid or water from your body). Changes to your diet might help, too.

Dumping syndrome

Dumping syndrome is when food travels from the stomach and empties too fast in the small intestine. It's a common side effect of stomach surgery. It may happen within 30 minutes after eating a meal (early dumping syndrome) or within 2 to 3 hours of eating (late dumping syndrome).

Symptoms of early dumping syndrome include heart racing/pounding, diarrhea, nausea, and cramps. Late dumping syndrome tends to cause dizziness, hunger, cold sweats, and feeling faint.

To help manage the symptoms of dumping syndrome:

- Eat often throughout the day
- Avoid drinking fluids with meals
- Eat a diet high in protein and fiber and low in simple carbohydrates and sugars

Fatigue

Fatigue is feeling extremely tired and having no energy to do things you'd like to do. Let your care team know if fatigue is affecting your quality of life. Eating a balanced diet, exercise, yoga, acupuncture, and massage therapy can help. You might be referred to a nutritionist or dietitian to help manage your fatigue.

Fullness after meals

Eat small portions and eat more often to cope with feeling full after meals. Also avoid drinking fluids with meals as it can make you feel fuller. Continue to drink fluids between meals.

Indigestion

Indigestion is feeling pain or discomfort in the upper abdomen (belly) after eating. It can feel like fullness, bloating, gassiness, heartburn, or nausea.

To prevent indigestion:

- Avoid foods that increase acid production, such as citrus juices, tomato sauces, and spicy foods.
- Avoid foods like caffeine, peppermint, and chocolate that decrease gastroesophageal sphincter tone (the muscular tension or pressure of the area).

Low iron

Low iron can reduce the number of red blood cells in the body to an unhealthy level. This is called anemia. You'll be checked for low levels of iron, called an iron deficiency. A complete blood count (CBC) and iron levels should be done at least once a year. You may be given iron supplements, if needed. But certain iron supplements might need to be avoided. Ask your provider for more information.

Low vitamin B12

B12 is a vitamin that helps your body make red blood cells. If you had gastrectomy, you may not be getting enough vitamin B12 from food that you eat. So you'll be checked for low levels of vitamin B12, which is called vitamin B12 deficiency. A CBC and B12 levels should

be done every 3 months for up to 3 years, then every 6 months for up to 5 years, and once a year after 5 years. You may be given vitamin B12 supplements, if needed.

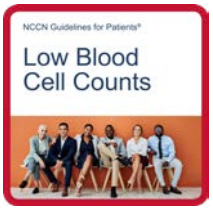
Neuropathy

Neuropathy results from damage to the nerves. It feels like prickling, tingling, numbness, and pain. Neuropathy caused by chemotherapy is called chemotherapy-induced neuropathy. Peripheral neuropathy is nerve damage in the hands and feet. You might be given medicines or referred to occupational therapy and/or physical therapy to help with it.

Weight loss/lack of appetite

After gastrectomy, your weight will be checked for changes. Healthy eating is important after treatment. It includes eating a balanced diet, eating the right amount of food, and drinking enough fluids. Eat often, and avoid fluids with meals. A registered dietitian, who's an expert in nutrition and food, can help if you have trouble eating or maintaining weight.

More information on fatigue and anemia is available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.



Survivorship

A person is a cancer survivor from the time of diagnosis until the end of life. When treatment leads to remission (also called no evidence of disease), you'll need follow-up or survivorship care for long-term side effects and late effects.

Seek out peer support groups, either online or in person, to help manage your feelings and emotions. Ask your cancer center about a patient-to-patient peer support program.

- In general, keep a healthy weight for your body throughout life.
- Adopt a physically active lifestyle and avoid inactivity. Aim for at least 30 minutes of exercise (that boosts your heart rate) most days of the week.
- Eat a mostly plant-based diet.
- Limit alcohol use.
- If you smoke or vape, seek help to quit.

More information on survivorship is available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.

For more information on quitting smoking, read *NCCN Guidelines for Patients: Quitting Smoking* at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.

Key points

- Surgery to remove all or part of your stomach can cause health problems.
- Your health will be monitored on a regular basis.
- There are treatments for long-term side effects.
- A nutritionist or dietician provides guidance on what foods are best for your condition.
- Continue to see your primary health care provider on a regular basis and have preventive cancer screenings as recommended by your provider.
- Keep a healthy body weight and active lifestyle, eat a plant-based diet, and avoid smoking and alcohol.

Questions to ask

- What changes will I need to make to my diet after surgery? How can I prepare?
- What changes should I make to my diet now?
- Who can help me with meal planning?
- Should I keep a food diary?
- I often do not feel well enough to cook or prepare meals. What do you recommend?

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Other resources

Want to learn more? Here's how you can get additional help.

What else to know

This guide helps you know your options so you can make informed decisions and improve your cancer care. It plainly explains expert recommendations and suggests questions to ask your care team. But it's not the only resource that you have.

Ask for as much information and help as you need. Many people are interested in learning more about:

- The details of their stomach cancer treatment and its side effects
- Being a part of a care team
- Getting financial help
- Finding a cancer care professional who's an expert in their field related to stomach cancer
- Coping with other health problems

What else to do

Your health care center can help you with next steps. It often has on-site resources to help meet your needs and find answers to your questions. Health care centers can also inform you of resources in your community.

In addition to help from your providers, the resources listed in the next section provide support for many people like yourself.

Where to get help

Look through the list below and visit the provided websites to learn more about these organizations.

Bag It
bagitcancer.org

Cancer*Care*
cancercare.org

Cancer Survivor Care
cancersurvivorcare.org

Debbie's Dream Foundation: Curing Stomach Cancer
debbiesdream.org

GRACE
cancergrace.org

Hope for Stomach Cancer
stocan.org

Imerman Angels
imermanangels.org

My Faulty Gene
myfaultygene.org

No Stomach for Cancer
nostomachforcancer.org

TargetCancer Foundation
targetcancer.org

Triage Cancer
triagecancer.org

Questions to ask

- Who can I talk to about help with housing, food, and other basic needs?
- What assistance is available for transportation, childcare, and home care?
- How much will I have to pay for treatment?
- What help is available to pay for medicines and other treatment?
- What other services are available to me and my caregivers?

Let us know what you think!

Please take a moment to complete an online survey about the NCCN Guidelines for Patients.
NCCN.org/patients/response

Words to know

abdomen
The belly area between the chest and pelvis.

adenocarcinoma
Cancer that starts in the mucus-making cells of the body.

biopsy
A procedure that removes fluid or tissue samples to be tested for a disease.

brushing
Removal of tumor or cell samples with a small brush at the end of an endoscope.

cancer stage
A rating of the growth and spread of cancer.

chemoradiation
Treatment that combines chemotherapy with radiation therapy.

chemotherapy
Drugs that kill fast-dividing cells throughout the body, including cancer cells and some normal cells.

clinical stage
Rating the extent of a tumor based on tests before treatment.

clinical trial
Research on a test or treatment to assess its safety or how well it works.

computed tomography (CT)
A test that combines many x-rays to make pictures of the inside of the body.

contrast
A substance put into your body to make clearer pictures during imaging tests.

deoxyribonucleic acid (DNA)
A chain of chemicals in cells that contains coded instructions for making and controlling cells.

diagnostic radiologist
A doctor who interprets the results of imaging tests.

digestive system
A set of organs that breaks down food for the body to use.

digestive tract
A set of tube-shaped organs that breaks down food for the body to use. Part of the digestive system.

duodenum
First part of the small intestine.

early-stage cancer
Cancer that has had little or no growth into nearby tissues.

endoscope
A thin, long tube fitted with tools that is guided down the mouth.

endoscopic mucosal resection (EMR)
Removal of early tumors with a snare that has been guided down the throat.

endoscopic resection (ER)
Treatment that removes early tumors with a tool guided down the throat.

endoscopic submucosal dissection (ESD)
Removal of early tumors with a special knife that has been guided down the throat.

endoscopic ultrasound (EUS)
A device guided down your throat to make pictures using sound waves.

epithelium
Cells that line the stomach wall.

esophagogastric junction (EGJ)
The area where the esophagus and stomach join.

esophagus
The tube-shaped organ between the throat and stomach.

fine-needle aspiration (FNA)
Removal of a tissue sample with a thin needle.

gastrectomy
A surgery that removes part or all of the stomach.

gastroenterologist
A doctor who's an expert in digestive diseases.

gastrointestinal (GI) tract
The group of organs through which food passes after being eaten. Also called digestive tract.

gastrostomy tube (G-tube)
A tube inserted through the wall of the abdomen directly into the stomach that can be used to give drugs and liquids, including liquid food.

gene
Coded instructions in cells for making new cells and controlling how cells behave.

genetic counseling
Expert guidance on the chance for a disease that is passed down in families.

hereditary
Passed down from biological parent to child through coded information in cells.

histology
The structure of cells, tissue, and organs as viewed under a microscope.

human epidermal growth factor receptor 2 (HER2)
A protein on the surface of a cell that sends signals for the cell to grow.

imaging
A test that makes pictures (images) of the insides of the body.

immune system
The body's natural defense against infection and disease.

immunotherapy
A treatment with drugs that help the body find and destroy cancer cells.

infection
An illness caused by germs.

interventional radiologist
A doctor who is an expert in imaging tests and using image-guided tools to perform minimally invasive techniques to diagnose or treat disease.

intestine
The organ that food passes through after leaving the stomach.

intravenous (IV)
A method of giving drugs by a needle or tube inserted into a vein.

jejunostomy tube (J-tube)
A feeding tube that is inserted through a cut into the intestine as part of jejunostomy.

lamina propria
Connective tissue within the mucosa of the stomach wall.

laparoscopy
Use of a thin tool inserted through a cut made into the belly area.

lymph
A clear fluid containing white blood cells.

lymph node
A small group of disease-fighting cells located throughout the body.

lymph node dissection
A type of surgery that removes some disease-fighting structures called lymph nodes.

magnetic resonance imaging (MRI)
A test that uses radio waves and powerful magnets to make pictures of the insides of the body.

medical oncologist
A doctor who's an expert in treating cancer with drugs.

metastasis
The spread of cancer cells from the first (primary) tumor to a new site.

microsatellite instability (MSI)
Errors made in small, repeated DNA parts during the copy process because of an abnormal repair system.

microsatellite instability-high (MSI-H)
Mutations in 30% or more microsatellites.

minimally invasive procedure
A procedure that uses small incisions or a tool placed into the opening of the body to reduce damage to body tissue.

mucosa
The first, inner layer of the stomach wall.

mucus
A sticky, thick liquid that moisturizes or lubricates.

muscularis mucosae
A thin layer of muscle separating the mucosa from the submucosa of the stomach wall.

muscularis propria
The third layer of the stomach wall made mostly of muscle.

mutation
An abnormal change.

pathological stage
A rating of the extent of cancer based on microscopic review after treatment.

pathologist
A doctor who's an expert in examining tissue and cells to find disease.

pelvis
The area of the body between the hip bones.

peritoneum
The membrane that lines the abdominal wall and covers most of the organs in the abdomen.

positron emission tomography (PET)
A test that uses radioactive material to see the shape and function of body parts.

pulmonologist
A doctor who performs biopsies and uses ultrasound to determine staging if the lungs and airway are involved.

primary treatment
The main treatment used to rid the body of cancer.

prognosis
The likely course and outcome of a disease based on tests.

radiation oncologist
A doctor who's an expert in radiation treatment.

radiation therapy (RT)
A treatment that uses high-energy rays to kill cancer cells or shrink tumors.

radiologist
A doctor who is an expert in imaging tests.

recurrence
The return of cancer after a cancer-free period.

resectable
Cancer that can be removed with surgery.

risk factor
Something that increases the chance of getting a disease.

serosa
The outer lining of organs within the abdominal cavity, including the stomach. Also called the serous membrane.

side effect
An outcome of a treatment that is unwanted or unpleasant.

small intestine
The digestive organ that absorbs nutrients from eaten food.

submucosa
The second layer of the stomach wall made mostly of connective tissue.

subserosa
A thin layer of connective tissue within the wall of the stomach.

subtype
A smaller group within a type of cancer that is based on certain cell features.

supportive care
Health care that includes symptom relief but not cancer treatment. It's available at any time in cancer care.

surface epithelium
A thin, moist layer of cells that forms the interior stomach lining.

surgical margin
The normal-looking tissue around the edge of a tumor that is removed during surgery.

surgical oncologist
A surgeon who's an expert in performing surgical procedures in patients with cancer.

targeted therapy
Drugs that stop the growth process specific to cancer cells.

tumor
An abnormal mass of cells.

tumor, node, metastasis (TNM)
The system used to stage stomach cancer, called the anatomical stage.

tumor marker
A substance found in body tissue or fluid that may be a sign of cancer.

ultrasound
A test that uses sound waves to take pictures of the insides of the body.

unresectable
Cancer that can't be removed by surgery.

upper GI endoscopy
Use of a thin tool guided down the throat into the esophagus and stomach. Also called esophagogastroduodenoscopy (or EGD).

washing
Usually done during surgery, use of a sterile solution to wash the belly area, after which the solution is checked for cancer cells.

NCCN Contributors

This patient guide is based on the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Gastric Cancer, Version 2.2026. It was adapted, reviewed, and published with help from the following people:

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Notes

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Cancer care recommendations from leading experts at the
National Comprehensive Cancer Network® (NCCN®)

Stomach Cancer

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NCCNFoundation.org/Donate

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