At age 58, in the midst of my role as Under Secretary of State for Arms Control and International Security, I was diagnosed with stage III esophageal cancer. In 1973 my dear grandmother, Marie O’Kane, my father’s mother, was diagnosed with stage III esophageal cancer, and the memories of her experience came flooding back. In my vulnerable state I wanted answers to take back control and to empower myself to fight back. I wanted credible information to assist with my decision making, leading to making the best choice regarding my care and the best possible outcome. I love surfing the internet, but it is completely unfiltered and not a place to get introduced to your cancer. I found a tremendous need for a credible source of information for patients with esophageal cancer that helps to guide us through diagnosis, treatment and beyond.

I want to use my experience as a cancer survivor to work to achieve better patient outcomes and to advocate for more comprehensive patient information and access to the best cancer treatments. Thanks to the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®), treatment guidelines covering 97% of cancers have been developed and are widely recognized as the standard for cancer care. With such a powerful resource in place, it is critically important to get clinicians, patients and their caregivers on the same page regarding their options for care. This is why the NCCN Foundation is working tirelessly to develop an entire library of NCCN Guidelines for Patients®.
I made a personal commitment to make available the NCCN Guidelines for Patients: Esophageal Cancer and get it into the hands of the many people affected each year by this diagnosis. This is my way to ‘pay it forward’, so to speak, and to help all cancer patients become cancer survivors.

My survival and high quality of life can be directly traced to my oncology team, Tommy D’Amico, MD, and Scott Balderson, PA-C. Their care, work with NCCN, and dedication to these guidelines are exceptional. I have also been enormously blessed in my life. I have a loving family and friends and work that has given me tremendous freedom and satisfaction. As a cancer survivor, I belong to an exclusive club whose membership I want to expand. I am here today because of the efforts of many dedicated physicians, nurses, technicians and the love and support of my family, friends and colleagues – AND the thousands of volunteer hours from some of the most distinguished and state-of-the-art clinicians who produce the NCCN Guidelines and the NCCN Guidelines for Patients. On behalf of my grandmother and myself, I hope you find this booklet helpful in dealing with a diagnosis of esophageal cancer. If so, you can always ‘pay it forward’ and make a donation to the NCCN Foundation at www.nccn.org/patients/foundation to help provide these resources to others. I survived and so can you!

The Honorable Ellen O. Tauscher
NCCN Foundation Board of Directors, Chair
Former Under Secretary of State for Arms Control & International Security and Member of Congress
Esophageal Cancer

NCCN Foundation® gratefully acknowledges support from the following individuals

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Robert W. Carlson, MD

An additional fifty-three (53) donations were received from other staff members.
Learning that you have esophageal cancer can feel overwhelming. The goal of this book is to help you get the best cancer treatment. This book presents which cancer tests and treatments are recommended by experts in esophageal cancer.

The National Comprehensive Cancer Network® (NCCN®) is a not-for-profit alliance of 26 of the world’s leading cancer centers. Experts from NCCN have written treatment guidelines for doctors who treat esophageal cancer. These treatment guidelines suggest what the best practice is for cancer care. The information in this patient book is based on the guidelines written for doctors.

This book focuses on the treatment of esophageal cancer. NCCN also offers patient books on breast, lung, and pancreatic cancers as well as other cancer types. Visit NCCN.org/patients for the full library of patient books as well as other patient and caregiver resources.
NCCN aims to improve the care given to patients with cancer. NCCN staff work with experts to create helpful programs and resources for many stakeholders. Stakeholders include health providers, patients, businesses, and others. One resource is the series of books for patients called the NCCN Guidelines for Patients®. Each book presents the best practice for a type of cancer. The patient books are based on clinical practice guidelines written for cancer doctors. These guidelines are called the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®). Clinical practice guidelines list the best health care options for groups of patients. Many doctors use them to help plan cancer treatment for their patients. Panels of experts create the NCCN Guidelines®. Most of the experts are from NCCN Member Institutions. Panelists may include surgeons, radiation oncologists, medical oncologists, and patient advocates. Recommendations in the NCCN Guidelines are based on clinical trials and the experience of the panelists. The NCCN Guidelines are updated at least once a year. When funded, the patient books are updated to reflect the most recent version of the NCCN Guidelines for doctors.

For more information about the NCCN Guidelines, visit NCCN.org/clinical.asp.

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ESOPHAGEAL CANCER AWARENESS ASSOCIATION (ECAA)

The ECAA strongly supports NCCN’s efforts to provide accurate and easy to read information to anyone affected by esophageal cancer. Patients, family and friends can better understand this disease thanks to these comprehensive guidelines and resources to help move forward with treatment. http://www.ecaware.org

Supported by NCCN Foundation®

The NCCN Foundation supports the mission of the National Comprehensive Cancer Network® (NCCN®) to improve the care of patients with cancer. One of its aims is to raise funds to create a library of books for patients. Learn more about the NCCN Foundation at NCCN.org/foundation.

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Who should read this book?

The information in this booklet is about cancer of the esophagus. Patients and those who support them—caregivers, family, and friends—may find this book helpful. It may help you discuss and decide with doctors what care is best.

The recommendations in this book are based on science and the experience of NCCN experts. However, these recommendations may not be right for you. Your doctors may suggest other tests and treatments based on your health and other factors. If other suggestions are given, feel free to ask your treatment team questions.

Where should I start reading?

Starting with Part 1 may be helpful. It explains what esophageal cancer is. Knowing more about this cancer may help you better understand its treatment. Part 2 explains cancer staging, which is used to plan treatment. Part 3 lists which health tests and other steps of care are needed before treatment. Parts 4 through 6 address esophageal cancer treatment. Part 4 describes the treatments. Part 5 is a guide to treatment options for squamous cell carcinomas and Part 6, for adenocarcinomas. Tips for making treatment decisions are presented in Part 7.

Does the whole book apply to me?

This book includes information for many situations. Your treatment team can help. They can point out what information applies to you. They can also give you more information. As you read through this book, you may find it helpful to make a list of questions to ask your doctors.

Making sense of medical terms

In this book, many medical words are included. These are words that you will likely hear from your treatment team. Most of these words may be new to you, and it may be a lot to learn.

Don’t be discouraged as you read. Keep reading and review the information. Don’t be shy to ask your treatment team to explain a word or phrase that you do not understand.

Words that you may not know are defined in the text or in the Dictionary. Words in the Dictionary are underlined when first used on a page.

Acronyms are also defined when first used and in the Glossary. Acronyms are short words formed from the first letters of several words. One example is CT for computed tomography.
1

Esophageal cancer basics
You’ve learned that you have or may have esophageal cancer. It’s common to feel shocked and confused. Part 1 reviews some basics about esophageal cancer that may help you start to cope. These basics may also help you start planning for treatment.

What is the esophagus?

The digestive system breaks down food for the body to use. The esophagus is part of this system. It is a tube-shaped organ, almost 10 inches long, that moves solids and liquids from your throat to your stomach. It is located toward the back of your chest just in front of your spine. See Figure 1.1 for a picture of the esophagus in the body.

The wall of the esophagus has four main layers. The inner layer that has contact with food is called the mucosa. It is made of three sublayers. The epithelium is tissue that helps protect the esophagus from anything swallowed. The lamina propria is a thin layer of connective tissue just behind the epithelium. It contains blood vessels and glands that make mucus. The muscularis mucosae is the third sublayer and is a thin strip of muscle.

The second layer of the esophageal wall is called the submucosa. It consists of connective tissue and blood and nerve cells. In some parts of the esophagus, the submucosa has glands that make mucus.
The third layer is called the **muscularis propria**. It is mostly made of muscle fibers. These muscles help move food down the **esophagus**.

The fourth layer is called the **adventitia**. It is mostly made of connective tissue. It covers the entire esophagus and connects the esophagus to nearby tissues.

“Just found out yesterday the mass in my esophagus is cancerous. I have an appointment this coming Wednesday ... for consultation. I’m still trying to process all of this. I’m very scared to say the least. I’m hoping for insight and encouragement during my process.”

- ECAA Facebook Follower

**How does esophageal cancer start?**

Cancer is a disease of cells—the building blocks of tissue in the body. Inside of cells are coded instructions for building new cells and controlling how cells behave. These instructions are called genes. Changes in genes, called mutations, cause normal esophageal cells to become cancer cells. It is not fully understood how and why genes change and cause cancer cells. Much remains to be learned.

Esophageal cancer most often starts in squamous and glandular cells. Squamous cells are found in the **epithelium** of the esophageal wall. Cancers of these cells are called **squamous cell carcinomas**. Cancers that start in glandular cells that make mucus are called **adenocarcinomas**.

**Figure 1.1**
The esophagus

The esophagus moves food from your throat to your stomach.
How does esophageal cancer spread?

Cancer cells don’t behave like normal cells in three key ways. First, the changes in genes cause normal esophageal cells to grow more quickly and live longer. Normal cells grow and then divide to form new cells when needed. They also die when old or damaged. In contrast, cancer cells make new cells that aren’t needed and don’t die quickly when old or damaged. Over time, cancer cells form a mass called the primary tumor.

The second way cancer cells differ from normal cells is that they can grow into (invade) other tissues. If not treated, the primary tumor will likely grow through the esophageal wall. Esophageal cancer that has grown into the esophageal wall is called invasive cancer.

Third, unlike normal cells, cancer cells don’t stay in place. They can spread to other parts of the body and form secondary tumors. This process is called metastasis. Secondary tumors can form in the lung, liver, bones, and other organs.

Cancer cells can spread through blood or lymph. Lymph is a clear fluid that gives cells water and food. It also has white blood cells that fight germs. After draining from the esophageal wall, lymph travels in vessels to lymph nodes. Lymph nodes are small disease-fighting organs that destroy the germs picked up by lymph. Lymph vessels and nodes are found all over the body.

The uncontrolled growth and spread of cancer makes it dangerous. Cancer cells replace normal cells and can cause organs to stop working. Thus, doctors are searching for better ways to find and treat cancer. The cancer tests and treatments discussed in this book are the most current standards of practice.

Review

- The esophagus moves food from the throat down into the stomach.
- The wall of the esophagus has four layers.
- Esophageal cancer often starts in cells that line the inside wall or starts in cells that make mucus.
- Cancer cells form a tumor since they don’t grow and die as normal cells do.
- Cancer cells can spread to other body parts through lymph or blood.
Cancer staging
Cancer staging is a rating by your doctors of how far the cancer has grown and spread. The rating is based on test results. Doctors plan additional tests and treatment based on how much the cancer has grown. In Part 2, the scoring system used for cancer staging is explained.

**TNM scores**

The AJCC (American Joint Committee on Cancer) staging system is used to stage esophageal cancer. In this system, the letters T, N, and M describe a different location of cancer growth. Your doctors will assign a score to each letter. TNM scores will be combined to assign the cancer a stage. The cancer stage is used to assess the prognosis of the cancer and to decide what treatments will be used.

“Once diagnosed, we were desperate for information. But it’s so difficult to find consistent information on this disease.”

- ECAA Facebook Follower
T = Tumor
The T score tells into which tissues the primary tumor has grown. Esophageal cancers first grow through the wall of the esophagus and then into other tissues next to the esophagus. See Figure 2.1. T scores for esophageal cancer include:

- **Tis** means there are abnormal cells that haven’t grown beyond the epithelium.
- **T1** tumors have invaded the lamina propria, muscularis mucosae, or submucosa.
  - **T1a** tumors have invaded the lamina propria or muscularis mucosae.
  - **T1b** tumors have invaded the submucosa.
- **T2** tumors have invaded the muscularis propria.
- **T3** tumors have invaded the adventitia.
- **T4** tumors have invaded nearby tissues.
  - **T4a** tumors have invaded the pleura, pericardium, or diaphragm and can be treated by surgery.
  - **T4b** tumors have invaded other tissues, such as the trachea, and can’t be treated with surgery.

N = Nodes
The N category reflects if the cancer has spread within nearby lymph nodes.

- **NX** means it is unknown if there is cancer in lymph nodes.
- **N0** means that there is no cancer within the nearby lymph nodes.
- **N1** means the cancer has spread to 1 or 2 lymph nodes.
- **N2** means the cancer has spread to 3 to 6 lymph nodes.
- **N3** means the cancer has spread to 7 or more lymph nodes.

M = Metastasis
The M category tells you if there are metastases to sites not in direct contact with the esophagus. Such sites include distant lymph nodes.

- **MX** means it is unknown if cancer has spread to distant sites.
- **M0** means that there is no growth to distant sites.
- **M1** means that the cancer has spread to distant sites.
Cancer grade

A pathologist is a doctor who’s an expert in making a diagnosis by looking at cells with a microscope. Samples of the mass will be removed from your body and sent to a pathologist for testing. All test results will be written in a pathology report. It’s a good idea to get a copy of your pathology report since it’s used to plan treatment.

Histology is the study of tissue with a microscope. The pattern and type of cells from the samples are studied to help determine the histologic type. The pathology report will state if the samples have cancer cells and if the cancer started in the esophagus or elsewhere. If the cancer started in the esophagus, the report will also list the type of esophageal cancer. Histologic subtypes of esophageal cancer include squamous cell carcinoma, adenocarcinoma, and other rare types.

The pathologist also assigns the cancer a histologic grade. This score is a sign of how fast the cancer will likely grow and spread. Higher scores mean that the cancer will likely grow and spread fast. The grades for esophageal cancer are:

- GX – the grade can’t be assessed (often because there’s not enough tissue),
- G1 – the cancer cells look similar to healthy cells,
- G2 – the cancer cells are somewhat different than healthy cells,
- G3 – the cancer cells barely look like healthy cells, and
- G4 – the cancer cells don’t look anything like healthy cells.

Esophageal cancer stages

Chart 2.1 shows the staging groups labeled by Roman numerals 0–IV. Stage 0 is also called HGD (high-grade dysplasia). The stages are defined by the TNM scores and cancer grade. For squamous cell carcinoma, staging also depends on where the tumor is in the esophagus. The esophagus is evenly divided into three sections:

- Upper – the part between the thoracic inlet and the azygos vein,
- Middle – the part below the azygos vein and above the inferior pulmonary veins, and
- Lower – the part below the inferior pulmonary veins.

In general, earlier cancer stages have better outcomes. However, doctors define cancer stages with information from thousands of patients, so a cancer stage gives an average outcome. It may not tell the outcome for one person. Some people will do better than expected. Others will do worse. Other factors not used for staging cancer, such as your general health, are also very important.

Cancer is often staged twice. The first rating is done before treatment and is called the clinical (or baseline) stage. The second rating is done after treatment, such as surgery, and is called the pathologic stage.
# Chart 2.1 Esophageal cancer stages

**ANATOMIC STAGE/PROGNOSTIC GROUPS**

<table>
<thead>
<tr>
<th>Squamous Cell Carcinoma*</th>
<th>Adenocarcinoma</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Stage</strong></td>
<td><strong>T</strong></td>
</tr>
<tr>
<td>0</td>
<td>Tis (HGD)</td>
</tr>
<tr>
<td><strong>IA</strong></td>
<td>T1</td>
</tr>
<tr>
<td><strong>IB</strong></td>
<td>T1</td>
</tr>
<tr>
<td></td>
<td>T2–3</td>
</tr>
<tr>
<td><strong>IIA</strong></td>
<td>T2–3</td>
</tr>
<tr>
<td></td>
<td>T2–3</td>
</tr>
<tr>
<td><strong>IIB</strong></td>
<td>T2–3</td>
</tr>
<tr>
<td></td>
<td>T1–2</td>
</tr>
<tr>
<td><strong>IIIA</strong></td>
<td>T1–2</td>
</tr>
<tr>
<td></td>
<td>T3</td>
</tr>
<tr>
<td><strong>IIIB</strong></td>
<td>T3</td>
</tr>
<tr>
<td><strong>IIIC</strong></td>
<td>T4a</td>
</tr>
<tr>
<td></td>
<td>T4b</td>
</tr>
<tr>
<td><strong>IV</strong></td>
<td>Any</td>
</tr>
</tbody>
</table>

* Or mixed histology including a squamous component or NOS

Review

- Esophageal cancer is grouped into stages.
- Doctors rate the extent of cancer with T, N, and M scores.
- A pathologist assigns the cancer a grade based on how much the cancer cells look like healthy cells.
- Cancer stages are defined by the TNM scores, cancer grade, and sometimes tumor location.
- The clinical stage is based on tests given before any treatment. The pathologic stage is based on the results of surgery.
Preparing for Treatment
Part 3 describes some of the important events that should take place before starting treatment. Tests to learn about the cancer are needed. Based on test results, your treatment team will create a treatment plan. To get the best treatment results, it is important that you receive good nutrition and if you smoke, quit smoking.

### Cancer tests

Before starting treatment, multiple cancer tests will be done. Such tests are listed in Chart 3.1. These tests will assess your health, clinical cancer stage, and other features of the cancer. Read on to learn more about these tests.

#### Medical history

Your medical history includes any health events in your life and any medications you've taken. Some health problems run in families. Thus, your doctor will ask about the medical history of your blood relatives.

Health events include any symptoms that may be related to esophageal cancer. Such symptoms include heartburn, swallowing that is hard or painful, throat or back pain, and weight loss. However, these symptoms can also be caused by other health conditions.

Some people are more likely to develop esophageal cancer than others. Anything that increases your chances of esophageal cancer is called a risk factor. Risk factors can be activities that people do, things in the environment, or personal traits.
Your doctors will assess if you have any risk factors for esophageal cancer. Smoking, alcohol, and being overweight have been linked with esophageal cancer. GERD (gastroesophageal reflux disease) and Barrett's esophagus have also been linked. However, some people with these conditions don't get cancer and some people without these conditions do.

Barrett’s Esophagus, Bloom syndrome, tylosis, and Fanconi anemia are health conditions that are strongly linked to esophageal cancer. You should be referred to a genetic counselor if you have such conditions. A genetic counselor is an expert in changes within genes that are related to disease.

### Physical exam

Doctors often perform a physical exam along with taking a medical history. A physical exam is a review of your body for signs of disease. During this exam, your doctor will listen to your lungs, heart, and gut. Parts of your body will likely be felt to see if organs are of normal size, are soft or hard, or cause pain when touched. Your lymph nodes may feel large if the cancer has spread to them.

### Upper GI endoscopy and biopsy

An upper GI endoscopy allows your doctor to see inside your esophagus and stomach. For this test, a tool called an endoscope is used. The endoscope might be guided down your mouth or nose. The part of the endoscope that will be guided down your mouth looks like a thin, long tube about as thick as a pencil. See Figure 3.1. You will likely be sedated.

---

**Chart 3.1 Cancer tests**

<table>
<thead>
<tr>
<th>Test name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical history</td>
</tr>
<tr>
<td>Physical exam</td>
</tr>
<tr>
<td>Upper GI endoscopy and biopsy</td>
</tr>
<tr>
<td>CT of chest, abdomen, and (if needed) pelvis</td>
</tr>
<tr>
<td>PET/CT if no M1 disease</td>
</tr>
<tr>
<td>CBC</td>
</tr>
<tr>
<td>Blood chemistry test</td>
</tr>
<tr>
<td>EUS if no M1 disease</td>
</tr>
<tr>
<td>Bronchoscopy if no M1 disease</td>
</tr>
<tr>
<td>ER of early-stage cancers</td>
</tr>
<tr>
<td>Biopsy of M1 site (if needed)</td>
</tr>
<tr>
<td>HER2 testing if an M1 adenocarcinoma</td>
</tr>
</tbody>
</table>

---

**Figure 3.1 Upper GI endoscopy**

Doctors use an endoscope to see inside the esophagus and stomach.
but sometimes general anesthesia is used. If guided down your nose, the endoscope is about as thick as a piece of spaghetti. You will be awake and no sedation is needed. You will be given a numbing spray for your nose.

At the tip of the endoscope is a light and camera that allows your doctor to see inside your esophagus. Your doctor will record where the tumor is, its size and length, and how much it is blocking your esophagus. Any nodules and any areas with Barrett’s esophagus will also be noted.

Your doctor will obtain a sample of the tumor and other areas with possible cancer. This is called a biopsy. Biopsy samples are removed with small forceps that are inserted through the open channel of the endoscope. Six to eight biopsy samples may be removed. After the biopsy, you may feel some swelling and sound hoarse. Biopsy samples will be sent to a pathologist for testing.

**CT scan**

CT (computed tomography) is an imaging test that makes pictures (images) of the insides of your body. It takes many pictures of a body part from different angles using x-rays. A computer combines the x-rays to make detailed pictures.

A CT scan of your chest and abdomen are recommended. A CT scan of your pelvis is recommended if other tests suggest that the cancer has spread to your pelvis. A contrast dye should be used to make the pictures clearer. The dye will be injected into your vein and mixed with a liquid you drink. The dye may cause you to feel flushed or get hives. Rarely, serious allergic reactions occur. Tell your doctor and the technicians if you have had bad reactions in the past.

Getting a CT scan is often easy. Before the test, you may need to stop taking some medicines, stop eating and drinking for a few hours, and remove metal objects from your body. During the scan, you will need to lie face up on a table that moves through the machine. See Figure 3.2. As the machine takes pictures, you may hear buzzing, clicking, or whirring sounds. You will be alone, but a technician will operate the machine in a nearby room. He or she will be able to see, hear, and speak with you at all times. One scan is completed in about 30 seconds.
You will likely be able to resume your activities right away unless you took a sedative. You may not learn of the results for a few days since a radiologist needs to see the pictures. A radiologist is a doctor who’s an expert in reading the images.

**PET/CT scan**

PET/CT (positron emission tomography/computed tomography) is the use of two imaging tests to see how far the cancer has spread. These two tests are PET and CT. Some cancer centers have one imaging machine that does both scans at the same time. At other centers, the scans are done with two machines. PET/CT is recommended if there is no M1 disease.

While x-rays and contrast dye are used for CT, a sugar radiotracer is used for PET. Before PET, you must fast for 4 hours or more. There may be other limits to your diet. About an hour before the scan, you will be injected with the radiotracer. The radiotracer emits a small amount of energy that is detected by the imaging machine that takes pictures. Cancer appears brighter in the pictures because cancer cells use sugar more quickly than normal cells.

**CBC**

Blood tests are used to look for signs of disease. A CBC (complete blood count) gives important information about the components of blood. One example is the number of white blood cells, red blood cells, and platelets. It is important to know if you have enough red blood cells to carry oxygen to your tissues, white blood cells to fight infections, and platelets to clot blood in open wounds. Your blood counts may be low because the cancer has spread into your bones, the cancer is causing bleeding, or because of another health problem.

**Blood chemistry test**

Chemicals in your blood come from your liver, bone, and other organs. A blood chemistry test assesses if the chemicals in your blood are too low or high.

Abnormal levels can be caused by spread of cancer or by other diseases.

**EUS**

EUS (endoscopic ultrasound) uses both imaging and an endoscope to see how far the tumor has grown into the esophageal wall. Also, signs of cancer within lymph nodes and other nearby organs can be detected. Like an upper GI endoscopy, you will likely be sedated for EUS, but sometimes local anesthesia is used. An endoscope fitted with an ultrasound device will be guided down your esophagus. The ultrasound device bounces sound waves off organs to make pictures.

If it looks like the cancer has spread, the endoscope can be used to do an FNA (fine-needle aspiration). An FNA is a type of biopsy during which a needle is inserted through the esophageal wall and into tissue, such as a lymph node, to get a sample. An FNA of lymph nodes should be done to improve treatment decisions as long as the needle doesn’t go through the primary tumor or major blood vessels.

**Bronchoscopy**

If the tumor is at or above the carina, a bronchoscopy can be used to see if the tumor has grown into your trachea or bronchi. This test is much like an endoscopy except that the scope is guided down your trachea. There are two types of scopes used. A rigid bronchoscope is straight and doesn’t bend. A flexible bronchoscope is thinner and longer. General anesthesia is needed for a rigid bronchoscopy. Local anesthesia is used for a flexible bronchoscopy.

Like endoscopes, bronchoscopes have a light, camera, and open channel. The light and camera allow your doctor to guide the tube down your nose or mouth and see inside your body. A small brush, needle, or tongs can be inserted into the open channel to collect samples. Otherwise, liquid may be sprayed into the airway and suctioned back up. After the biopsy, you may feel some swelling and sound hoarse.
3 Preparing for treatment

Treatment team meetings

Treatment of esophageal cancer takes a team of doctors and other experts. It is important that all the experts involved in your care meet often to make joint decisions about your health care. These experts may include a:

- Pathologist – an expert in testing tissue to find disease,
- Radiologist – an expert in reading imaging tests,
- Oncology surgeon – an expert in cancer surgery,
- Medical oncologist – an expert in cancer drugs,
- Gastroenterologist – an expert in digestive diseases,
- Radiation oncologist – an expert in radiation treatment,
- Integrative medicine doctor – an expert in mind-body treatments,
- Nutritionist – an expert in healthy foods and drinks,
- Nurse – an expert trained to care for the sick, and
- Social worker – an expert in meeting social and emotional needs.

At the meetings, your treatment team will create a treatment plan based on the clinical stage of the cancer. Your treatment team will also meet while you are on treatment and afterward to discuss the treatment results and the next steps of care.

ER

ER (endoscopic resection) used along with EUS can help show how far a tumor has grown into the esophageal wall. However, ER is more often used as treatment of very small tumors. Read Part 4 for more details. Briefly, your doctor can remove tumors and nearby tissues with tools inserted through an endoscope.

Biopsy of distant sites

M1 disease is defined as cancer spread to sites not in direct contact with the esophagus. If tests suggest M1 disease, a biopsy of the distant site may be needed to confirm cancer spread. The type of biopsy used depends on the site and other factors.

HER2 testing

In normal esophageal cells, there are two copies of the gene that makes HER2. HER2 is a surface receptor found in the membrane of cells. When activated, it sends signals within the cell telling it to grow and divide.

Some esophageal cancers have cells with more than two copies of the HER2 gene, thus causing too many HER2 receptors to be made. Other esophageal cancers have cells with only two HER2 gene copies, but still too many HER2 receptors are made. With too many HER2 receptors, the cancer cells grow and divide fast. However, there is treatment if the cancer is an M1 adenocarcinoma.

Due to high costs and the side effects of treatment, it is very important to have tests that correctly show HER2 status. IHC (immunohistochemistry) is the test used to measure the amount of HER2 receptors. Another test of HER2 status is ISH (in situ hybridization). ISH counts the number of copies of the HER2 gene.
Good nutrition

It is recommended that you meet with a nutritionist before starting treatment. The nutritionist can assess the toll of the cancer on your nutrition. For example, the cancer may have made swallowing difficult or painful. This is called dysphagia, which may have stopped you from getting good nutrition. Likewise, the cancer may also have caused you to lose too much weight.

It is important that you receive adequate and sustained nutrition before you start treatment. Surgery and other cancer treatments may be too dangerous if you are weak from a lack of nutrition. A nutritionist can advise you on ways to eat or drink better. You may be advised to receive your food through a nasogastric tube. This feeding tube is inserted down your nose and into your stomach. See Figure 3.3. However, this method is almost never used. Instead, a J-tube (jejunostomy tube) can be used. A J-tube is inserted through a cut made in your abdomen and into the small intestine. PEG (percutaneous endoscopic gastrostomy) tubes, which are inserted through a cut into the stomach, are not recommended.

Quit smoking

If you were smoking tobacco before you learned you had cancer, it is important to quit. Nicotine addiction is one of the hardest addictions to stop. The stress of esophageal cancer may make it harder to quit. Quitting is important since smoking can limit how well cancer treatment works. Smoking also greatly increases your chances of having side effects after surgery. If you smoke, ask your doctor about counseling and drugs to help you quit.
Review

• Before treatment, cancer tests are given to help plan treatment.
• Treatment of esophageal cancer takes a team of experts.
• Getting good nutrition is important before starting treatment.
• If you smoke tobacco, it is important to quit to get the best treatment results.
Overview of cancer treatments
There is more than one treatment for esophageal cancer. The main types are described on the next pages. This information may help you understand your treatment options listed in either Part 5 or 6. It may also help you know what to expect during treatment. Not every person with esophageal cancer will receive every treatment listed.

Endoscopic treatment

ER
ER is the short name for endoscopic resection. This treatment removes very small tumors and nearby tissue using tools inserted through an endoscope. There is more than one type of ER. All types find and mark the edges of the tumor and remove the tumor with a wire loop, called a snare. ER types mainly differ by whether suction is used.

Injection ERs do not use suction. Instead, a liquid is first injected underneath the tumor to raise and separate it from the submucosa. For the “inject-and-cut” method, a braided snare is then used to cut the tumor off of the esophagus. The inject-and-cut method is also called submucosal injection polypectomy. For the “inject, lift, and cut” method, small tongs are used to grasp and guide the raised tumor into the snare for removal. The inject, lift, and cut method is also called a strip biopsy.
Simple-snare, cap, and ligation ERs do use suction. The simple-snare ER uses suction to raise the tumor into a stiff snare that is pressed down around the tumor. A cap ER raises the tumor with an injection, and then uses suction to draw the tumor into a cap that is at the tip of the endoscope. A snare in the cap is used to remove the tumor. A cap ER is called the “suck and cut” method. A ligation ER uses suction to draw the tumor into a band that is tightened to tie off the tumor from the esophagus. A snare is then used to cut off the raised tumor. A ligation ER is called the “suck-band-and-ligate” method.

ER requires that you be sedated. You may have a reaction to the sedative and become nauseated or vomit. ER may cause a sore throat, pain in the chest, or gas. More serious but less common problems are bleeding, a tear through the esophageal wall, or narrowing of the esophagus. In most cases you’ll be able to go home after the sedative wears off, but you shouldn’t drive or return to work.

Ablation

Ablation destroys very small tumors with little harm to nearby tissue. There is more than one way to “ablate” a tumor. However, an endoscope is used for all methods to deliver the treatment. The recommended types of ablation are:

- **Cryoablation** – this method kills cancer cells by freezing them with liquid nitrogen that is sprayed through an endoscope.
- **Radiofrequency ablation** – this method kills cancer cells using heat from electrodes that are passed through an endoscope.
- **Photodynamic ablation** – this method kills cancer cells using a laser that activates a cancer-killing drug in the tumor that was injected into a vein days before.

Ablation may cause swelling and mild pain for a few days. Photodynamic ablation may make your skin and eyes sensitive to strong light. Like ER, ablation sometimes causes bleeding, a tear through the esophageal wall, or narrowing of the esophagus.

Not all side effects of endoscopic treatment are listed here. Please ask your treatment team for a complete list of common and rare side effects. If a side effect bothers you, tell your treatment team. There may be ways to help you feel better.
Surgical treatment

The goal of surgery is to remove all the cancer from the body. To do so, the tumor is removed along with some normal-looking tissue around its rim, called the surgical margin. An esophagectomy removes some or all of the esophagus along with nearby lymph nodes. How much of your esophagus will be removed depends on the cancer stage and where the tumor is in your esophagus. An esophagogastrectomy removes the lower esophagus, the top part of the stomach, and nearby lymph nodes.

You will be given instructions on how to prepare for your surgery. The week before your surgery you may have to stop taking some medicines. On the day of your surgery, you should not eat or drink. General anesthesia will be used. In some people, general anesthesia causes nausea with vomiting, confusion, muscle aches, and itching.

There is more than one way to remove esophageal cancer. Depending on the method, the surgery can take 3 to 6 hours to complete. Most people stay in the hospital 10 to 14 days to recover.

Standard open esophagectomy uses large surgical cuts to remove tissue. There are two common types of open surgery. An Ivor Lewis transthoracic esophagectomy removes tissue through cuts in your chest and abdomen. A McKeown esophagectomy involves cuts in the chest, abdomen, and neck.

Minimally invasive esophagectomy uses either the Ivor Lewis or McKeown approach. However, small tools are inserted through small cuts to remove tissue. Like an endoscope described in Part 3, a laparoscope will be inserted though a small cut into your abdomen. Through this cut, work on your stomach can be done. A thoracoscope, which is much like a laparoscope, will also be inserted into a small cut made between your ribs. This cut allows work to be done in the chest.

After the cancer is removed, your stomach will need to be attached to your remaining esophagus. See Figure 4.1. It may be directly attached or a piece of your intestine may be used to connect the two organs. As you heal from surgery, you will receive food from a J-tube that is inserted through your side and into your intestine.

Surgery causes pain, swelling, and scars. Pain and swelling often fade away in the weeks following surgery. Less often, food may leak from the esophagus into the chest and cause pain. Food may not quickly pass through the stomach and cause nausea and vomiting. Your esophagus may become narrow after surgery and cause problems with swallowing. As with any surgery, there is a chance of infection, heart attack, or a blood clot. Importantly, an infection of the lungs (pneumonia) can occur. Your surgical team will design care to prevent it.

Not all side effects of surgery are listed here. Please ask your treatment team for a complete list of common and rare side effects. If a side effect bothers you, tell your treatment team. There may be ways to help you feel better.
Radiation therapy

Radiation therapy uses high-energy rays to treat cancer. The rays damage the genes of a cell. This either kills the cancer cells or stops new cancer cells from being made. For esophageal cancer, radiation therapy is often given with chemotherapy. Chemotherapy may improve how well radiation works. This combined treatment is called chemoradiation.

For esophageal cancer, radiation is often given using a machine outside the body. This method is called EBRT (external beam radiation therapy). To receive radiation therapy, you first must have a simulation session. For simulation, CT or PET may be used to help target the tumor with radiation.

Using the scans, your treatment team will plan the best radiation dose, number and shape of radiation beams, and number of treatment sessions. Beams are shaped with computer software and hardware added to the radiation machine. Radiation beams are aimed at the tumor with help from ink marks on the skin or marker seeds in the tumor.

During treatment, you will lie on a table in the same position as done for simulation. Devices may be used to keep you from moving so that the radiation targets the tumor. You will be alone while the technician operates the machine from a nearby room. He or she will be able to see, hear, and speak with you at all times. As treatment is given, you may hear noises. One session can take less than 10 minutes.

There are multiple types of EBRT. For esophageal cancer, 3D-CRT (three-dimensional conformal radiation therapy) or IMRT (intensity-modulated radiation therapy) may be used. In 3D-CRT, the radiation beams match the shape of your tumor to avoid healthy tissues. IMRT is a more precise type of 3D-CRT that may be used to avoid giving radiation to your heart and lungs. The radiation beam is divided into smaller beams, and the strength of each beam can vary.

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An esophageal tumor is harder to target than some other tumors in the body. This is because breathing causes the tumor to move. IGRT (image-guided radiation therapy) is a type of EBRT that can improve how well the radiation beam targets the tumor. IGRT uses a machine that delivers radiation and also takes pictures of the tumor. Pictures can be taken right before or during treatment. These pictures are compared to the ones taken during simulation. If needed, changes will be made to your body position or the radiation beams.

Radiation therapy is likely to cause changes in your skin. Your treated skin will look and feel as if it has been sunburned. It will likely become red and may also become dry, sore, and feel painful when touched. You may have pain in your throat, stomach, or intestine. Other reactions may include trouble swallowing, extreme tiredness despite sleep, and loss of appetite.

Not all side effects of radiation therapy are listed here. Please ask your treatment team for a complete list of common and rare side effects. If a side effect bothers you, tell your treatment team. There may be ways to help you feel better.

Chemotherapy

Chemotherapy, or ‘chemo,’ is the use of drugs to treat cancer. Cell growth is stopped by damaging DNA (deoxyribonucleic acid) in cells or disrupting the making of DNA. Chemotherapy doesn’t work on cells in a resting phase. Since cancer cells grow fast, chemotherapy can stop new cancer cells from being made.

Chemotherapy is given alone or sometimes with radiation therapy to treat esophageal cancer. When only one drug is used, it is called a single agent. However, chemotherapy drugs differ in the way they work, so often more than one drug is used. A combination regimen is the use of two or more chemotherapy drugs. The chemotherapy drugs used for esophageal cancer are listed in Chart 4.1.

Most chemotherapy drugs for esophageal cancer are liquids that are slowly injected into a vein. Some are a pill that is swallowed. The drugs travel in the bloodstream to treat cancer throughout the body.

Chemotherapy is given in cycles of treatment days followed by days of rest. This allows the body to recover before the next cycle. Cycles vary in length depending on which drugs are used. Often, a cycle is 14, 21, or 28 days long.

The reactions to chemotherapy differ. Some people have many side effects. Others have few. Some side effects can be very serious, while others can be unpleasant but not serious. Side effects of chemotherapy depend on the drug type, amount taken, length of treatment, and the person.

In general, side effects are caused by the death of fast-growing cells. These cells are found in the gut, mouth, and blood. Thus, common side effects of chemotherapy include low blood cell counts, not feeling hungry, nausea, vomiting, diarrhea, and
mouth sores. You may also lose your hair and your nails may change in color, strength, dryness, and smoothness.

Not all side effects of chemotherapy are listed here. Please ask your treatment team for a complete list of common and rare side effects. If a side effect bothers you, tell your treatment team. There may be ways to help you feel better.

<table>
<thead>
<tr>
<th>Generic name</th>
<th>Brand name (sold as)</th>
<th>Type of treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capecitabine</td>
<td>Xeloda®</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Carboplatin</td>
<td>-</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Cisplatin</td>
<td>Platinol®, Platinol®-AQ</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Docetaxel</td>
<td>Taxotere®</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Epirubicin</td>
<td>Ellence®</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Etoposide</td>
<td>Etopophos® Preservative Free</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Fluorouracil (5-FU)</td>
<td>-</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Irinotecan</td>
<td>Camptosar®</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Mitomycin</td>
<td>-</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Oxaliplatin</td>
<td>Eloxatin®</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Paclitaxel</td>
<td>Taxol®</td>
<td>Chemotherapy</td>
</tr>
<tr>
<td>Trastuzumab</td>
<td>Herceptin®</td>
<td>Targeted therapy</td>
</tr>
</tbody>
</table>
Targeted therapy

Targeted therapy is a type of drug used to treat cancer. It stops the growth process that is very specific to cancer cells. It is less likely to harm normal cells than chemotherapy, which stops any cells in a growth phase.

Trastuzumab is a targeted therapy drug used to treat esophageal cancer. Trastuzumab works by attaching to HER2—like a key into a lock—to stop cell growth. More information about HER2 can be found in Part 3.

Trastuzumab is given with chemotherapy. It is given as an injection into a vein. The drug then travels in the bloodstream to treat cancer throughout the body.

You may have a mild flu-like response to the first dose of trastuzumab that includes fever, chills, headache, muscle aches, and nausea. This response is less common with the second and third doses. Rare side effects include damage to the heart or lungs.

Not all side effects of targeted therapy are listed here. Please ask your treatment team for a complete list of common and rare side effects. If a side effect bothers you, tell your treatment team. There may be ways to help you feel better.
Clinical trials

New tests and treatments aren’t offered to the public as soon as they’re made. They need to be studied. A clinical trial is a type of research that studies a test or treatment. Clinical trials study how safe and helpful tests and treatments are. When found to be safe and helpful, they may become tomorrow’s standard of care. Because of clinical trials, the tests and treatments in this book are now widely used to help people with esophageal cancer.

New tests and treatments go through a series of clinical trials to make sure they’re safe and work. Without clinical trials, there is no way to know if a test or treatment is safe or helpful. Clinical trials have four phases. Examples of the four phases for treatment are:

- **Phase I trials** – aim to find the best dose of a new drug with the fewest side effects.
- **Phase II trials** – assess if a drug works for a specific type of cancer.
- **Phase III trials** – compare a new drug to the standard treatment.
- **Phase IV trials** – test new drugs approved by the U.S. FDA (Food and Drug Administration) in many patients with different types of cancer.

Joining a clinical trial has benefits. First, you’ll have access to the most current cancer care. Second, you will receive the best management of care. Third, the results of your treatment—both good and bad—will be carefully tracked. Fourth, you may help other patients with cancer.

Clinical trials have risks, too. Like any test or treatment, there may be side effects. Also, new tests or treatments may not help. Another downside may be that paperwork or more trips to the hospital are needed.

To join a clinical trial, you must meet the conditions of the study. Patients in a clinical trial are often alike in terms of their cancer and general health. This is to know that any progress is because of the treatment and not because of differences between patients. To join, you’ll need to review and sign a paper called an informed consent form. This form describes the study in detail, including the risks and benefits.

Ask your treatment team if there is an open clinical trial that you can join. There may be clinical trials where you’re getting treatment or at other treatment centers nearby. You can also find clinical trials through the websites listed in Part 7.
Review

- Endoscopic treatment uses small tools to remove or destroy small tumors.
- An esophagectomy removes some or all of the esophagus along with nearby lymph nodes.
- Radiation kills cancer cells or stops new cancer cells from being made.
- Drugs can be used to kill cancer cells anywhere in the body.
- Chemotherapy drugs stop the growth process of cells.
- Targeted therapy drugs stop cancer cells from getting signals to grow.
- Clinical trials give people access to new tests and treatments.
Treatment guide:
Squamous cell carcinoma
5 Treatment guide: Squamous cell carcinoma

36 5.1 Early cancers

40 5.2 Invasive cancers

46 5.3 Return of cancer

48 5.4 Advanced cancers

50 Review

Part 5 is a guide to the treatment options for people with squamous cell carcinoma of the esophagus. In Part 5.1, the options for early cancers are presented. These cancers haven’t grown far into the esophageal wall. They are rated Tis or T1 without cancer in the nearby lymph nodes (N0) or distant sites (M0). A Tis tumor consists of abnormal cells that haven’t grown beyond the epithelium. A T1 tumor consists of cancer cells that haven’t grown beyond the submucosa.

In Part 5.2, the options for invasive cancers are presented. These cancers have spread beyond the submucosa but not to distant sites. Invasive cancers include those rated T1, N+, M0 and cancers scored T2, T3 or T4 with or without cancer in nearby lymph nodes. In this section, cancer in nearby lymph nodes is represented by “N+” since the number of lymph nodes with cancer can’t be known before surgery.

Cancer may return after treatment for early and invasive cancers. In Part 5.3, treatment options are listed for recurrences. Part 5.4 lists treatment options for cancers that can’t be treated with local treatments, such as surgery. Such cancers include metastatic (M1) disease.
5 Treatment guide: Squamous cell carcinoma
### Chart 5.1.1 Initial treatment by TNM scores

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>Options if able to have surgery</th>
<th>Options if unable to have surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tis, N0, M0</td>
<td>• ER • Ablation • ER then ablation • Esophagectomy</td>
<td>• ER • Ablation • ER then ablation</td>
</tr>
<tr>
<td>T1a, N0, M0</td>
<td>• ER • ER then ablation • Esophagectomy</td>
<td>• ER • ER then ablation</td>
</tr>
<tr>
<td>T1b, N0, M0</td>
<td>• Esophagectomy</td>
<td>• ER • ER then ablation</td>
</tr>
</tbody>
</table>

### Chart 5.1.2 Treatment after esophagectomy

<table>
<thead>
<tr>
<th>Surgical results</th>
<th>Treatment options</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cancer in the margins</td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td>Cancer in the margins</td>
<td>• Chemoradiation</td>
</tr>
<tr>
<td>Some tumor remains</td>
<td>• Chemoradiation • Supportive care</td>
</tr>
<tr>
<td>Metastatic cancer found</td>
<td>• Chemoradiation • Supportive care</td>
</tr>
</tbody>
</table>
Chart 5.1.1 lists treatment options for early cancers. Surgery may be an option. Your doctors will assess if you are able to undergo surgery by testing your lungs, heart, and nutritional intake. Your doctors will also assess if chemoradiation would do more help than harm.

For Tis and T1a tumors, endoscopic treatments are preferred. These treatments include ER and ablation. If you are able to have surgery, an esophagectomy is another option. This may be the best treatment if the Tis or T1 tumor has grown over a large area.

T1b tumors have invaded the submucosa. Thus, an esophagectomy is the best option if you are able to have surgery. Otherwise, ER and ER followed by ablation are options.

Chart 5.1.2 lists treatment options following an esophagectomy. The results of surgery are used to decide if more treatment is needed. If your doctors were able to remove all the cancer that they could see and the surgical margins are cancer-free, no more treatment is needed. The next step is to start follow-up care.

If cancer is found in the surgical margins, chemoradiation is needed since some cancer may remain in your body. Likewise, if your doctors weren’t able to remove all the cancer they could see or cancer was found in distant sites, chemoradiation or supportive care is an option. The recommended chemotherapy regimen for chemoradiation is fluoropyrimidine (infusional fluorouracil or capecitabine) before and after fluoropyrimidine-based chemoradiation.
### Chart 5.1.3  Follow-up care after endoscopic treatment

<table>
<thead>
<tr>
<th>T score</th>
<th>Type of care</th>
<th>Schedule of care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>Medical history and physical exam</td>
<td>• Every 3–6 months for 1–2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 6–12 months for 3–5 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year</td>
</tr>
<tr>
<td>Tis</td>
<td>Upper GI endoscopy</td>
<td>• Every 6 months for 1–2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year for 3 years</td>
</tr>
<tr>
<td>T1</td>
<td>Upper GI endoscopy</td>
<td>• Every 3 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 4–6 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year for 3 years</td>
</tr>
<tr>
<td>Superficial T1b</td>
<td>Upper GI endoscopy</td>
<td>• Every 3 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 4–6 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year for 3 years</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT of the chest and abdomen</td>
<td>• Every 4–6 months for 2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat for 1 more year</td>
</tr>
<tr>
<td>All other T1b</td>
<td>Upper GI endoscopy</td>
<td>• Every 3 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 4–6 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year for 3 years</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT of the chest and abdomen</td>
<td>• Consider every year for 3 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then as needed</td>
</tr>
</tbody>
</table>

**Chart 5.1.3** lists the recommended care for when there are no signs of cancer after endoscopic treatment. Testing on a regular basis to look for any new tumors is recommended. Which tests are recommended is based on how far the tumor has grown into the esophageal wall.

For all early cancers, medical history, physical exam, and upper GI endoscopies are needed. Endoscopies can look for Barrett’s esophagus, HGD, or cancer. A biopsy should be done to test for cancer even when no abnormal spots are seen with the endoscope.

For T1b tumors, imaging tests of your chest and abdomen are needed. Superficial T1b tumors have only slightly grown into the submucosa. Imaging tests may reveal if cancer is growing in places other than your esophagus.
Chart 5.1.4 lists the recommended care for when there are no signs of cancer after esophagectomy. Testing on a regular basis to look for any new tumors is recommended. Which tests are recommended is based on how far the tumor had grown into the esophageal wall.

For all early cancers, medical history and physical exams should be done regularly. Blood tests and upper GI endoscopies are only done when needed. For T1b tumors, imaging tests of your chest and abdomen may reveal cancer growth.

Surgery and radiation can narrow your esophagus. Thus, you may have trouble swallowing afterward. In this case, your esophagus can be stretched using a small balloon or tube guided down your throat to the right spot.

After cancer treatment, it may also be helpful to meet with a nutritionist—an expert in healthy foods and drinks—to make sure you are getting enough food to eat and are eating enough healthy foods.

<table>
<thead>
<tr>
<th>T score</th>
<th>Type of care</th>
<th>Schedule of care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>Medical history and physical exam</td>
<td>• Every 3–6 months for 1–2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 6–12 months for 3–5 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year</td>
</tr>
<tr>
<td>Any</td>
<td>CBC and chemistry blood tests</td>
<td>• As needed</td>
</tr>
<tr>
<td>Any</td>
<td>Upper GI endoscopy</td>
<td>• As needed</td>
</tr>
<tr>
<td>T1b</td>
<td>PET/CT or CT of the chest and abdomen</td>
<td>• Consider every 6–12 months for 3 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then as needed</td>
</tr>
<tr>
<td>Any</td>
<td>Widening of esophagus</td>
<td>• As needed</td>
</tr>
<tr>
<td>Any</td>
<td>Nutritional counseling</td>
<td>• As needed</td>
</tr>
</tbody>
</table>

NCCN Guidelines for Patients®
Esophageal Cancer, Version 1.2015
5.2 Invasive cancers

Chart 5.2.1 Initial treatment by TNM scores

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>Options if able to have surgery</th>
<th>Options if unable to have surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2, N0, M0</td>
<td>Tumor isn’t in the neck area</td>
<td>But able to have chemotherapy</td>
</tr>
<tr>
<td>T3, N0, M0</td>
<td>• Esophagectomy in some cases</td>
<td>• Chemoradiation to cure cancer</td>
</tr>
<tr>
<td>T4a, N0, M0</td>
<td>• Chemoradiation to shrink cancer</td>
<td>• Chemotherapy</td>
</tr>
<tr>
<td>T1b, N+, M0</td>
<td>Tumor is in the neck area</td>
<td>• Radiation therapy</td>
</tr>
<tr>
<td>T2, N+, M0</td>
<td>• Chemoradiation to cure cancer</td>
<td>• Supportive care</td>
</tr>
<tr>
<td>T3, N+, M0</td>
<td>• Same as above</td>
<td></td>
</tr>
<tr>
<td>T4a, N+, M0</td>
<td>• Chemoradiation to cure cancer</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Chemotherapy in some cases</td>
<td></td>
</tr>
<tr>
<td>T4b, N0, M0</td>
<td>• Same as above</td>
<td></td>
</tr>
<tr>
<td>T4b, N+, M0</td>
<td>• Same as above</td>
<td></td>
</tr>
</tbody>
</table>

NCCN Guidelines for Patients®
Esophageal Cancer, Version 1.2015
Chart 5.2.1 lists treatment options for invasive cancers. Surgery may be a treatment option for these cancers. Your doctors will assess if you are able to undergo surgery by testing your lungs, heart, and nutritional intake. Your doctors will also assess if chemotherapy and chemoradiation would do more help than harm.

If you can have surgery, your treatment options likely depend on where the tumor is. There are two options if the tumor isn’t in the neck area. An esophagectomy may be done when surgery is likely to remove all the cancer. The second option is chemoradiation with the intent to have surgery afterward. The recommended chemotherapy for chemoradiation before surgery is:

**Preferred regimens**
- Paclitaxel and carboplatin
- Cisplatin and 5-FU (or capecitabine)
- Oxaliplatin and 5-FU (or capecitabine)

**Other regimens**
- Irinotecan and cisplatin
- Paclitaxel and 5-FU (or capecitabine)

Doctors call chemoradiation given to cure cancer “definitive chemoradiation.” It is an option for tumors in the neck area and T4b tumors. Even if you can have surgery, these tumors can’t be first treated with surgery. Chemotherapy is another option for T4b tumors that have invaded the trachea, heart, or major blood vessels. The recommended chemotherapy for definitive chemoradiation is:

**Preferred regimens**
- Cisplatin and 5-FU (or capecitabine)
- Oxaliplatin and 5-FU (or capecitabine)
- Paclitaxel and carboplatin

**Other regimens**
- Cisplatin with docetaxel or paclitaxel
- Irinotecan and cisplatin
- Paclitaxel and fluoropyrimidine (5-FU or capecitabine)

Chart 5.2.1 also lists options for people unable to have surgery. If chemotherapy will do more good than harm, your options include chemoradiation, chemotherapy, radiation therapy, or supportive care. If you are unable to have chemotherapy, supportive care is recommended. This includes radiation therapy to prevent or treat symptoms caused by cancer. Read Part 5.4 for more details on supportive care.
### Chart 5.2.2  Treatment after chemoradiation

<table>
<thead>
<tr>
<th>Intent of chemoradiation</th>
<th>Treatment results</th>
<th>Treatment options</th>
</tr>
</thead>
<tbody>
<tr>
<td>To shrink cancer</td>
<td>No cancer remains</td>
<td>• Esophagectomy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td></td>
<td>Cancer remains</td>
<td>• Esophagectomy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Supportive care</td>
</tr>
<tr>
<td></td>
<td>Metastatic cancer found</td>
<td>• Supportive care</td>
</tr>
<tr>
<td>To cure cancer</td>
<td>No cancer remains</td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td></td>
<td>Cancer remains</td>
<td>• Esophagectomy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Supportive care</td>
</tr>
<tr>
<td></td>
<td>Metastatic cancer found</td>
<td>• Supportive care</td>
</tr>
</tbody>
</table>

### Chart 5.2.3  Treatment after esophagectomy

<table>
<thead>
<tr>
<th>Surgical results</th>
<th>Treatment options</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cancer in the margins</td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td>Cancer in the margins</td>
<td>• Observation if you received prior chemotherapy or chemoradiation</td>
</tr>
<tr>
<td></td>
<td>• Chemoradiation if you haven’t received it before</td>
</tr>
<tr>
<td>Some tumor remains</td>
<td>• Chemoradiation if you haven’t received it before</td>
</tr>
<tr>
<td></td>
<td>• Supportive care</td>
</tr>
<tr>
<td>Metastatic cancer found</td>
<td>• Chemoradiation if you haven’t received it before</td>
</tr>
<tr>
<td></td>
<td>• Supportive care</td>
</tr>
</tbody>
</table>
Chart 5.2.2 lists treatment options following chemoradiation. How the tumor responds to chemoradiation will be assessed by a CT scan with contrast, PET/CT or PET, and sometimes upper GI endoscopy. CT is not needed if you have a PET/CT. PET/CT or PET should occur at least 5 weeks after initial treatment has ended.

After chemoradiation to shrink the cancer, an esophagectomy or follow-up care is an option if there are no signs of cancer. If cancer is found in or near the esophagus, an esophagectomy is the preferred treatment but supportive care is also an option. Supportive care is also recommended if the cancer can’t be removed by surgery or has spread to distant sites. Read Part 5.4 for more details on supportive care.

After chemoradiation to cure the cancer, follow-up care is recommended if there are no signs of cancer. If cancer is found in or near the esophagus, then an esophagectomy and supportive care are options. Supportive care is also recommended if the cancer can’t be removed by surgery or has spread to distant sites. Read Part 5.4 for more details on supportive care.

Chart 5.2.3 lists treatment options following an esophagectomy. The results of surgery are used to decide if more treatment is needed. If your doctors were able to remove all the cancer that they could see and the surgical margins are cancer-free, no more treatment is needed. The next step is to start follow-up care.

If cancer is found in the surgical margins, chemoradiation is needed since some cancer may remain in your body. The recommended chemotherapy for chemoradiation is fluoropyrimidine (infusional fluorouracil or capecitabine) before and after fluoropyrimidine-based chemoradiation. However, chemoradiation can only be received if you haven’t had it before. Observation is another option if you have had chemotherapy or chemoradiation. Observation is a period of testing to check for any cancer growth.

If your doctors weren’t able to remove all the cancer they could see or cancer was found in distant sites, chemoradiation and supportive care are options. The recommended chemotherapy for chemoradiation is fluoropyrimidine (infusional fluorouracil or capecitabine) before and after fluoropyrimidine-based chemoradiation.
<table>
<thead>
<tr>
<th>Prior treatment</th>
<th>Type of care</th>
<th>Schedule of care</th>
</tr>
</thead>
</table>
| Any                                     | Medical history and physical exam     | • Every 3–6 months for 1–2 years  
  ◦ If normal results, then repeat every 6–12 months for 3–5 years  
  ◦ If normal results, then repeat every year |
| Any                                     | CBC and chemistry blood tests         | • As needed                                                                       |
| Initial esophagectomy                   | Upper GI endoscopy                    | • As needed                                                                       |
|                                         | PET/CT or CT of the chest and abdomen | • Consider every 6–12 months for 3 years  
  ◦ If normal results, then as needed |
| Chemoradiation only                     | Upper GI endoscopy                    | • Every 3–4 months for 2 years  
  ◦ If normal results, then repeat every 6 months for 1 year  
  ◦ If normal results, then as needed |
|                                         | PET/CT or CT of the chest and abdomen | • As needed                                                                       |
| Chemoradiation followed by esophagectomy| PET/CT or CT of the chest and abdomen | • Consider every 4–6 months for 1 year  
  ◦ If normal results, then repeat every 6–9 months for 2 years |
| Any                                     | Widening of esophagus                 | • As needed                                                                       |
| Any                                     | Nutritional counseling                | • As needed                                                                       |
Chart 5.2.4 lists the recommended care for when there are no signs of cancer after treatment. Testing on a regular basis to look for any new tumors is recommended. Which tests are recommended is based on the type of treatment you received.

For all invasive cancers, medical history and physical exams should be done regularly. Blood tests are only done when needed. An upper GI endoscopy allows your doctor to assess your upper digestive tract and take a biopsy. Imaging tests of your chest and abdomen may reveal cancer growth.

Surgery and radiation can narrow your esophagus. Thus, you may have trouble swallowing afterward. In this case, your esophagus can be stretched using a small balloon or tube guided down your throat to the right spot.

After cancer treatment, it may also be helpful to meet with a nutritionist—an expert in healthy foods and drinks—to make sure you are getting enough food to eat and are eating enough healthy foods.
5.3 Return of cancer

Chart 5.3  Treatment by cancer site

<table>
<thead>
<tr>
<th>Site of cancer</th>
<th>Prior treatment</th>
<th>Treatment options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locoregional (M0)</td>
<td>You had an esophagectomy but not chemoradiation</td>
<td>• Chemoradiation&lt;br&gt;• Surgery&lt;br&gt;• Chemotherapy&lt;br&gt;• Supportive care</td>
</tr>
<tr>
<td></td>
<td>You had chemoradiation but not an esophagectomy</td>
<td>• Esophagectomy if able to have surgery&lt;br&gt;• Supportive care if unable to have surgery</td>
</tr>
<tr>
<td>Metastatic (M1)</td>
<td>–</td>
<td>• Supportive care</td>
</tr>
</tbody>
</table>

**Chart 5.3** lists the treatment options for cancer that recurred during follow-up care. Options are based on where the cancer returned. Cancer that returns near to where the esophagus is (or was) is called locoregional cancer. The four options following esophagectomy are chemoradiation, surgery, chemotherapy, or supportive care. The recommended chemotherapy for chemoradiation is:

**Preferred regimens**
- Cisplatin and 5-FU (or capecitabine)
- Oxaliplatin and 5-FU (or capecitabine)
- Paclitaxel and carboplatin

**Other regimens**
- Cisplatin with docetaxel or paclitaxel
- Irinotecan and cisplatin
- Paclitaxel and fluoropyrimidine (5-FU or capecitabine)

Treatment of locoregional recurrence after chemoradiation depends on if you can have surgery. If you can, an esophagectomy is recommended. Otherwise, you can receive supportive care. Details of supportive care are described in Part 5.4. Supportive care is also recommended for the return of cancer at distant sites (M1).
5.4 Advanced cancers

**Chart 5.4.1 First-line treatments**

<table>
<thead>
<tr>
<th>Preferred regimens</th>
<th>Other regimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Docetaxel, cisplatin, 5-FU</td>
<td>Paclitaxel with cisplatin or carboplatin</td>
</tr>
<tr>
<td>Docetaxel, oxaliplatin, 5-FU</td>
<td>Docetaxel with cisplatin</td>
</tr>
<tr>
<td>Docetaxel, carboplatin, 5-FU</td>
<td>Docetaxel and irinotecan</td>
</tr>
<tr>
<td>Epirubicin, cisplatin, 5-FU</td>
<td>Fluoropyrimidine (5-FU or capecitabine)</td>
</tr>
<tr>
<td>Epirubicin, oxaliplatin, 5-FU</td>
<td>Docetaxel</td>
</tr>
<tr>
<td>Epirubicin, cisplatin, capecitabine</td>
<td>Paclitaxel</td>
</tr>
<tr>
<td>Epirubicin, oxaliplatin, capecitabine</td>
<td></td>
</tr>
<tr>
<td>Fluorouracil, irinotecan</td>
<td></td>
</tr>
<tr>
<td>Fluoropyrimidine (5-FU or capecitabine), cisplatin</td>
<td></td>
</tr>
<tr>
<td>Fluoropyrimidine (5-FU or capecitabine), oxaliplatin</td>
<td></td>
</tr>
</tbody>
</table>

**Chart 5.4.2 Second-line treatments**

<table>
<thead>
<tr>
<th>Preferred regimens</th>
<th>Other regimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Docetaxel</td>
<td>Irinotecan, cisplatin</td>
</tr>
<tr>
<td>Paclitaxel</td>
<td>Irinotecan, fluoropyrimidine (5-FU or capecitabine)</td>
</tr>
<tr>
<td>Irinotecan</td>
<td>Docetaxel and irinotecan</td>
</tr>
</tbody>
</table>

**Chart 5.4.3 Alternative treatments**

<table>
<thead>
<tr>
<th>Regimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitomycin, irinotecan</td>
</tr>
<tr>
<td>Mitomycin, 5-FU</td>
</tr>
</tbody>
</table>
Advanced cancer cannot be treated with local treatments. Instead, supportive care is given. The goal of supportive care is to prevent and relieve discomfort you may have. Supportive care may also extend life, improve your eating, and help you feel better overall. When used for advanced cancers, supportive care is often called palliative care.

Symptom control

Cancer or its treatment can cause unpleasant and sometimes harmful symptoms. One of the most common symptoms of esophageal cancer is dysphagia. Endoscopic treatments, stents, radiation therapy, and surgery are used by doctors to widen areas that have narrowed. Bleeding is another symptom, although not as common as dysphagia. Surgery, radiation therapy, and endoscopic treatments can help stop the bleeding. You may have pain or nausea with or without vomiting. Drugs and sometimes surgery are used to control these symptoms. You may have other symptoms that aren’t listed here. If you have a new or worse symptom, tell your treatment team. There may be ways to help you feel better.

Chemotherapy

Chemotherapy is often used for supportive care of metastatic (M1) disease. It is also used for locally advanced cancers that can’t be treated with either surgery or radiation. Since chemotherapy can cause severe side effects, it is only given if your health hasn’t seriously limited your activities.

Your ability to do activities is called performance status. Your doctor can rate your performance status by one of two scales:

**ECOG (Eastern Cooperative Oncology Group)**

**Performance Scale**

- A score of 0 means you are fully active.
- A score of 1 means you are able to do all self-care activities but are unable to do hard physical work.
- A score of 2 means you are able to do all self-care activities and spend most of waking time out of bed but you are unable to do any work.
- A score of 3 means you are unable to do all self-care activities and any work and spend most of waking time in bed.
- A score of 4 means you are fully disabled.

**KPS (Karnofsky Performance Status)**

- A score of 0 to 49 means you are unable to care for yourself.
- A score of 50 to 79 means you are unable to work and some assistance is needed.
- A score of 80 to 100 means you are able to do your normal work and activities.

You may be able to have chemotherapy if you have an ECOG score of 2 or less or a KPS score of 60 or more. Two back-to-back chemotherapy regimens are recommended. Three regimens may be given if you are healthy enough and have a good performance status. If you do have chemotherapy, it is important for your doctors to assess for side effects on a regular basis.

**Charts 5.4.1, 5.4.2, and 5.4.3** list the chemotherapy regimens used to treat advanced cancers. First-line chemotherapy regimens are given first. If you are given a 5-FU regimen, leucovorin may be added to limit side effects of the chemotherapy. If the cancer doesn’t respond to first-line regimens, your doctor may give you a second-line regimen. Alternative regimens may be used with first- or second-line regimens.
Review

• Endoscopic treatments are preferred for Tis and T1a tumors.

• For T1b tumors, an esophagectomy is recommended if you can have surgery. If not, you can receive endoscopic treatment. After an esophagectomy, you may receive chemoradiation to kill any remaining cancer cells.

• Invasive cancers are often treated with chemoradiation. An esophagectomy may follow to remove any remaining cancer.

• When there are no signs of cancer after treatment, testing to check for new cancer growth should be done. Medical history and physical exams are needed. You may also receive blood, imaging, and scoping tests.

• Cancer that returns after local treatment near to where the esophagus is (or was) may be curable with surgery or chemoradiation.

• Cancer that is unable to be cured can be treated with supportive care. Supportive care includes treatment to prevent or reduce symptoms caused by the cancer.
Treatment guide: Adenocarcinoma
Part 6 is a guide to the treatment options for people with an adenocarcinoma of the esophagus. In Part 6.1, the options for early cancers are presented. These cancers haven’t grown far into the esophageal wall. They are rated Tis or T1 without cancer in the nearby lymph nodes (N0) or distant sites (M0). A Tis tumor consists of abnormal cells that haven’t grown beyond the epithelium. A T1 tumor consists of cancer cells that haven’t grown beyond the submucosa.

In Part 6.2, the options for invasive cancers are presented. These cancers have spread beyond the submucosa but not to distant sites. Invasive cancers include those rated T1, N+, M0 and cancers rated T2, T3 or T4 with or without cancer in nearby lymph nodes. In this section, cancer in nearby lymph nodes is represented by “N+” since the number of lymph nodes with cancer can’t be known before surgery.

Cancer may return after treatment for early and invasive cancers. In Part 6.3, treatment options are listed for recurrences. Part 6.4 lists treatment options for cancers that can’t be treated with local treatments, such as surgery. Such cancers include metastatic (M1) disease.
“Supporting patients, caregivers, and loved ones is so important. Most people have never heard of esophageal cancer until diagnosed and they really need an opportunity to share their concerns and fears immediately with someone who has trodden the same path.”

- Roger Tunsley,
  ECAA Secretary and Survivor
## 6.1 Early cancer

### Chart 6.1.1 Initial treatment by TNM scores

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>Options if able to have surgery</th>
<th>Options if unable to have surgery</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tis, N0, M0</td>
<td>• ER</td>
<td>• ER</td>
</tr>
<tr>
<td></td>
<td>• Ablation</td>
<td>• Ablation</td>
</tr>
<tr>
<td></td>
<td>• ER then ablation</td>
<td>• ER then ablation</td>
</tr>
<tr>
<td></td>
<td>• Esophagectomy</td>
<td>• Esophagectomy</td>
</tr>
<tr>
<td>T1a, N0, M0</td>
<td>• ER</td>
<td>• ER</td>
</tr>
<tr>
<td></td>
<td>• ER then ablation</td>
<td>• ER then ablation</td>
</tr>
<tr>
<td></td>
<td>• Esophagectomy</td>
<td>• Esophagectomy</td>
</tr>
<tr>
<td>Superficial T1b, N0, M0</td>
<td>• ER then ablation</td>
<td>• ER</td>
</tr>
<tr>
<td></td>
<td>• Esophagectomy</td>
<td>• ER then ablation</td>
</tr>
<tr>
<td>All other T1b, N0, M0</td>
<td>• Esophagectomy</td>
<td>• ER</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ER then ablation</td>
</tr>
</tbody>
</table>

### Chart 6.1.2 Treatment after esophagectomy

<table>
<thead>
<tr>
<th>Surgical results</th>
<th>Treatment options</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cancer is found in the margins or lymph nodes</td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td>Cancer is found in the margins or lymph nodes</td>
<td>• Chemoradiation</td>
</tr>
<tr>
<td>Some tumor remains</td>
<td>• Chemoradiation</td>
</tr>
<tr>
<td>Metastatic cancer is found</td>
<td>• Chemoradiation</td>
</tr>
<tr>
<td></td>
<td>• Supportive care</td>
</tr>
</tbody>
</table>
Chart 6.1.1 lists treatment options for early cancers. Surgery may be an option. Your doctors will assess if you are able to undergo surgery by testing your lungs, heart, and nutritional intake. Your doctors will also assess if chemoradiation would do more to help than harm.

For Tis and T1a tumors, endoscopic treatments are preferred. These treatments include ER and ablation. If you are able to have surgery, an esophagectomy is another option. This may be the best treatment if the Tis or T1 tumor has grown over a large area.

T1b tumors have invaded the submucosa. Superficial T1b tumors have only slightly grown into the submucosa. For these tumors, ER followed by ablation and an esophagectomy are options if you are able to have surgery. For deeper T1b tumors, an esophagectomy is the best option. If you are unable to have surgery, ER and ER followed by ablation are recommended.

Chart 6.1.2 lists treatment options following an esophagectomy. The results of surgery are used to decide if more treatment is needed. If your doctors were able to remove all the cancer that they could see and the surgical margins are cancer-free, no more treatment is needed. The next step is to start follow-up care.

If cancer is found in the surgical margins, chemoradiation is needed since some cancer may remain in your body. Likewise, if your doctors weren’t able to remove all the cancer they could see or cancer was found in distant sites, chemoradiation or supportive care is an option. The recommended chemotherapy regimen for chemoradiation is fluoropyrimidine (infusional fluorouracil or capecitabine) before and after fluoropyrimidine-based chemoradiation.
### Chart 6.1.3 Follow-up care after endoscopic treatment

<table>
<thead>
<tr>
<th>T score</th>
<th>Type of care</th>
<th>Schedule of care</th>
</tr>
</thead>
</table>
| Any    | Medical history and physical exam| • Every 3–6 months for 1–2 years  
  ◦ If normal results, then repeat every 6–12 months for 3–5 years  
  ◦ If normal results, then repeat every year |
| Tis    | Upper GI endoscopy               | • Every 6 months for 1–2 years  
  ◦ If normal results, then repeat every year for 3 years |
| T1     | Upper GI endoscopy               | • Every 3 months for 1 year  
  ◦ If normal results, then repeat every 4–6 months for 1 year  
  ◦ If normal results, then repeat every year for 3 years |
| Superficial T1b | Upper GI endoscopy          | • Every 3 months for 1 year  
  ◦ If normal results, then repeat every 4–6 months for 1 year  
  ◦ If normal results, then repeat every year for 3 years |
|         | PET/CT or CT of the chest and abdomen | • Every 4–6 months for 2 years  
  ◦ If normal results, then repeat for 1 more year |
| All other T1b | Upper GI endoscopy               | • Every 3 months for 1 year  
  ◦ If normal results, then repeat every 4–6 months for 1 year  
  ◦ If normal results, then repeat every year for 3 years |
|         | PET/CT or CT of the chest and abdomen | • Consider every year for 3 years  
  ◦ If normal results, then as needed |

**Chart 6.1.3** lists the recommended care for when there are no signs of cancer after endoscopic treatment. Testing on a regular basis to look for any new tumors is recommended. Which tests are recommended is based on how far the tumor had grown into the esophageal wall.

For all early cancers, **medical history, physical exam,** and **upper GI endoscopies** are needed. Endoscopies can look for **Barrett’s esophagus, HGD,** or cancer. A **biopsy** should be done to test for cancer even when no abnormal spots are seen with the **endoscope.**

For T1b tumors, imaging tests of your chest and **abdomen** are needed. Superficial T1b tumors have only slightly grown into the **submucosa.** Imaging tests may reveal if cancer is growing in places other than your **esophagus.**
**Chart 6.1.4 Follow-up care after esophagectomy**

<table>
<thead>
<tr>
<th>T score</th>
<th>Type of care</th>
<th>Schedule of care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>Medical history and physical exam</td>
<td>• Every 3–6 months for 1–2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 6–12 months for 3–5 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year</td>
</tr>
<tr>
<td>Any</td>
<td>CBC and chemistry blood tests</td>
<td>• As needed</td>
</tr>
<tr>
<td>Any</td>
<td>Upper GI endoscopy</td>
<td>• As needed</td>
</tr>
<tr>
<td>T1b</td>
<td>PET/CT or CT of the chest and abdomen</td>
<td>• Consider every 6–12 months for 3 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then as needed</td>
</tr>
<tr>
<td>Any</td>
<td>Widening of esophagus</td>
<td>• As needed</td>
</tr>
<tr>
<td>Any</td>
<td>Nutritional counseling</td>
<td>• As needed</td>
</tr>
</tbody>
</table>

**Chart 6.1.4** lists the recommended care for when there are no signs of cancer after esophagectomy. Testing on a regular basis to look for any new tumors is recommended. Which tests are recommended is based on how far the tumor has grown into the esophageal wall.

For all early cancers, **medical history and physical exams** should be done regularly. **Blood tests** and **upper GI endoscopies** are only done when needed. **For T1b tumors**, imaging tests of your chest and abdomen may reveal cancer growth.

Surgery and radiation can narrow your esophagus. Thus, you may have trouble swallowing afterward. In this case, your esophagus can be stretched using a small balloon or tube guided down your throat to the right spot.

After cancer treatment, it may also be helpful to meet with a nutritionist—an expert in healthy foods and drinks—to make sure you are getting enough food to eat and are eating enough healthy foods.
6.2 Invasive cancer

Chart 6.2.1 lists treatment options for invasive cancers. Surgery may be a treatment option for these cancers. Your doctors will assess if you are able to undergo surgery by testing your lungs, heart, and nutritional intake. Your doctors will also assess if chemotherapy and chemoradiation would do more help than harm.

If you can have surgery, an esophagectomy may be an option if the operation is likely to remove all the cancer. Other options include chemoradiation or chemotherapy with the intent to have surgery afterward. The recommended chemotherapy for chemoradiation before surgery is:

**Preferred regimens**
- Paclitaxel and carboplatin
- Cisplatin and 5-FU (or capecitabine)
- Oxaliplatin and 5-FU (or capecitabine)

**Other regimens**
- Irinotecan and cisplatin
- Paclitaxel and 5-FU (or capecitabine)

The recommended chemoradiation for chemotherapy only is:

- Epirubicin, cisplatin, and 5-FU
- Epirubicin, oxaliplatin, and 5-FU
- Epirubicin, cisplatin, and capecitabine
- Epirubicin, oxaliplatin, and capecitabine
- 5-FU and cisplatin

Doctors call chemoradiation given to cure cancer “definitive chemoradiation.” It is an option if you don’t want surgery or the tumor is rated T1b.

The recommended chemotherapy for definitive chemoradiation is:
Preferred regimens
- Cisplatin and 5-FU (or capecitabine)
- Oxaliplatin and 5-FU (or capecitabine)
- Paclitaxel and carboplatin

Other regimens
- Cisplatin with docetaxel or paclitaxel
- Irinotecan and cisplatin
- Paclitaxel and fluoropyrimidine (5-FU or capecitabine)

Chart 6.2.1 also lists options for people unable to have surgery. If chemotherapy will do more good than harm, your options include chemoradiation, chemotherapy, radiation therapy, or supportive care. If you are unable to have chemotherapy, supportive care is recommended. This includes radiation therapy to prevent or treat symptoms caused by cancer. Read Part 5.4 for more details on supportive care.
### Chart 6.2.2  Treatment after chemoradiation

<table>
<thead>
<tr>
<th>Intent of chemoradiation</th>
<th>Treatment results</th>
<th>Treatment options</th>
</tr>
</thead>
<tbody>
<tr>
<td>To shrink cancer</td>
<td>No cancer remains</td>
<td>• Esophagectomy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td></td>
<td>Cancer remains</td>
<td>• Esophagectomy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Supportive care</td>
</tr>
<tr>
<td></td>
<td>Metastatic cancer found</td>
<td>• Supportive care</td>
</tr>
<tr>
<td>To cure cancer</td>
<td>No cancer remains</td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td></td>
<td>Cancer remains</td>
<td>• Esophagectomy</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Supportive care</td>
</tr>
<tr>
<td></td>
<td>Metastatic cancer found</td>
<td>• Supportive care</td>
</tr>
</tbody>
</table>

### Chart 6.2.3  Treatment after esophagectomy

<table>
<thead>
<tr>
<th>Surgical results</th>
<th>Treatment options</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cancer is found in the margins or lymph nodes</td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td></td>
<td>• Chemoradiation in some cases and if you haven’t received it before</td>
</tr>
<tr>
<td></td>
<td>• Chemotherapy if you received it before surgery</td>
</tr>
<tr>
<td>No cancer is found in the margins but is found in lymph nodes</td>
<td>• Observation if you received prior chemotherapy or chemoradiation</td>
</tr>
<tr>
<td></td>
<td>• Chemoradiation if you haven’t received it before</td>
</tr>
<tr>
<td></td>
<td>• Chemotherapy if you received it before surgery</td>
</tr>
<tr>
<td>Cancer in the margins</td>
<td>• Observation if you received prior chemotherapy or chemoradiation</td>
</tr>
<tr>
<td></td>
<td>• Chemoradiation if you haven’t received it before</td>
</tr>
<tr>
<td>Some tumor remains</td>
<td>• Chemoradiation if you haven’t received it before</td>
</tr>
<tr>
<td></td>
<td>• Supportive care</td>
</tr>
<tr>
<td>Metastatic cancer found</td>
<td>• Chemoradiation if you haven’t received it before</td>
</tr>
<tr>
<td></td>
<td>• Supportive care</td>
</tr>
</tbody>
</table>
Chart 6.2.2 lists treatment options following chemoradiation. How the tumor responds to chemoradiation will be assessed by CT with contrast, PET/CT or PET, and sometimes upper GI endoscopy. CT is not needed if you have PET/CT. PET/CT or PET should occur at least 5 weeks after initial treatment has ended.

After chemoradiation to shrink the cancer, an esophagectomy or follow-up care is an option if there are no signs of cancer. If cancer is found in or near the esophagus, an esophagectomy is the preferred treatment but supportive care is also an option. Supportive care is also recommended if the cancer can’t be removed by surgery or has spread to distant sites. Read Part 5.4 for more details on supportive care.

After chemoradiation to cure the cancer, follow-up care is recommended if there are no signs of cancer. If cancer is found in or near the esophagus, then an esophagectomy and supportive care are options. Supportive care is also recommended if the cancer can’t be removed by surgery or has spread to distant sites. Read Part 5.4 for more details on supportive care.

Chart 6.2.3 lists treatment options following an esophagectomy. The results of surgery are used to decide if more treatment is needed. Chemoradiation can only be received once. Thus, if you had it before surgery, you can’t have it again. The recommended chemotherapy regimen for chemoradiation is fluoropyrimidine (infusional fluorouracil or capecitabine) before and after fluoropyrimidine-based chemoradiation.

If the tissue removed during surgery is cancer-free, you may start follow-up care. A second option is chemoradiation if there’s a good chance that future tests may find cancer. Doctors base your risk for future cancer on cancer grade, cancer spread, and age. A third option is chemotherapy if you had chemotherapy before surgery.

Testing of the removed tissue may find cancer in the lymph nodes but not in surgical margins. In this case, options include observation, chemoradiation, and chemotherapy. Observation is a period of testing to check for cancer growth. It is an option if you had chemotherapy or chemoradiation before surgery.

If cancer is found in the margins, observation is an option if you had chemotherapy or chemoradiation before surgery. Treatment can be started if testing shows cancer growth in your body. Chemoradiation is a second option since some cancer may remain in your body.

Sometimes surgeons aren’t able to remove all the cancer they can see. Sometimes the cancer they find is in distant sites. In either case, chemoradiation and supportive care are options.
## Chart 6.2.4 Follow-up care by prior treatment

<table>
<thead>
<tr>
<th>Prior treatment</th>
<th>Type of care</th>
<th>Schedule of care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>Medical history and physical exam</td>
<td>• Every 3–6 months for 1–2 years&lt;br&gt;◦ If normal results, then repeat every 6–12 months for 3–5 years&lt;br&gt;◦ If normal results, then repeat every year</td>
</tr>
<tr>
<td>Any</td>
<td>CBC and chemistry blood tests</td>
<td>• As needed</td>
</tr>
<tr>
<td>Initial esophagectomy</td>
<td>Upper GI endoscopy</td>
<td>• As needed</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT of the chest and abdomen</td>
<td>• Consider every 6–12 months for 3 years&lt;br&gt;◦ If normal results, then as needed</td>
</tr>
<tr>
<td>Chemoradiation only</td>
<td>Upper GI endoscopy</td>
<td>• Every 3–4 months for 2 years&lt;br&gt;◦ If normal results, then repeat every 6 months for 1 year&lt;br&gt;◦ If normal results, then as needed</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT of the chest and abdomen</td>
<td>• As needed</td>
</tr>
<tr>
<td>Chemoradiation followed by esophagectomy</td>
<td>PET/CT or CT of the chest and abdomen</td>
<td>• Consider every 4–6 months for 1 year&lt;br&gt;◦ If normal results, then repeat every 6–9 months for 2 years</td>
</tr>
<tr>
<td>Any</td>
<td>Widening of esophagus</td>
<td>• As needed</td>
</tr>
<tr>
<td>Any</td>
<td>Nutritional counseling</td>
<td>• As needed</td>
</tr>
</tbody>
</table>
Chart 6.2.4 lists the recommended care for when there are no signs of cancer after treatment. Testing on a regular basis to look for any new tumors is recommended. Which tests are recommended is based on the type of treatment you received.

For all invasive cancers, medical history and physical exams should be done regularly. Blood tests are only done when needed. An upper GI endoscopy allows your doctor to assess your upper digestive track and take a biopsy. Imaging tests of your chest and abdomen may reveal cancer growth.

Surgery and radiation can narrow your esophagus. Thus, you may have trouble swallowing afterward. In this case, your esophagus can be stretched using a small balloon or tube guided down your throat to the right spot.

After cancer treatment, it may also be helpful to meet with a nutritionist—an expert in healthy foods and drinks—to make sure you are getting enough food to eat and are eating enough healthy foods.
### 6.3 Return of cancer

Chart 6.3 lists the treatment options for cancer that recurred during follow-up care. Options are based on where the cancer returned. Cancer that returns near to where the esophagus is (or was) is called locoregional cancer. The four options following esophagectomy are chemoradiation, surgery, chemotherapy, or supportive care. The recommended chemotherapy for chemoradiation is:

- **Preferred regimens**
  - Cisplatin and 5-FU (or capecitabine)
  - Oxaliplatin and 5-FU (or capecitabine)
  - Paclitaxel and carboplatin

- **Other regimens**
  - Cisplatin with docetaxel or paclitaxel
  - Irinotecan and cisplatin
  - Paclitaxel and fluoropyrimidine (5-FU or capecitabine)

Treatment of locoregional recurrence after chemoradiation depends on if you can have surgery. If you can, an esophagectomy is recommended. Otherwise, you can receive supportive care. Details of supportive care are described in Part 6.4. Supportive care is also recommended for the return of cancer at distant sites (M1).

<table>
<thead>
<tr>
<th>Site of cancer</th>
<th>Prior treatment</th>
<th>Treatment options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locoregional (M0)</td>
<td>You had an esophagectomy but not chemoradiation</td>
<td>• Chemoradiation&lt;br&gt;• Surgery&lt;br&gt;• Chemotherapy&lt;br&gt;• Supportive care</td>
</tr>
<tr>
<td></td>
<td>You had chemoradiation but not an esophagectomy</td>
<td>• Esophagectomy if able to have surgery&lt;br&gt;• Supportive care if unable to have surgery</td>
</tr>
<tr>
<td>Metastatic (M1)</td>
<td>–</td>
<td>• Supportive care</td>
</tr>
</tbody>
</table>
### Chart 6.4.1 First-line treatments

<table>
<thead>
<tr>
<th>Preferred regimens</th>
<th>Other regimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trastuzumab and cisplatin and fluoropyrimidine (5-FU or capecitabine)</td>
<td>Paclitaxel with cisplatin or carboplatin</td>
</tr>
<tr>
<td>Trastuzumab and other chemotherapy regimens that don’t include epirubicin</td>
<td>Docetaxel with cisplatin</td>
</tr>
<tr>
<td>Docetaxel, cisplatin, 5-FU</td>
<td>Docetaxel and irinotecan</td>
</tr>
<tr>
<td>Docetaxel, oxaliplatin, 5-FU</td>
<td>Fluoropyrimidine (5-FU or capecitabine)</td>
</tr>
<tr>
<td>Docetaxel, carboplatin, 5-FU</td>
<td>Docetaxel</td>
</tr>
<tr>
<td>Epirubicin, cisplatin, 5-FU</td>
<td>Paclitaxel</td>
</tr>
<tr>
<td>Epirubicin, oxaliplatin, 5-FU</td>
<td></td>
</tr>
<tr>
<td>Epirubicin, cisplatin, capecitabine</td>
<td></td>
</tr>
<tr>
<td>Epirubicin, oxaliplatin, capecitabine</td>
<td></td>
</tr>
<tr>
<td>Fluorouracil, irinotecan</td>
<td></td>
</tr>
<tr>
<td>Fluoropyrimidine (5-FU or capecitabine), cisplatin</td>
<td></td>
</tr>
<tr>
<td>Fluoropyrimidine (5-FU or capecitabine), oxaliplatin</td>
<td></td>
</tr>
</tbody>
</table>

### Chart 6.4.2 Second-line treatments

<table>
<thead>
<tr>
<th>Preferred regimens</th>
<th>Other regimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ramucirumab and paclitaxel</td>
<td>Irinotecan, cisplatin</td>
</tr>
<tr>
<td>Docetaxel</td>
<td>Irinotecan, fluoropyrimidine (5-FU or capecitabine)</td>
</tr>
<tr>
<td>Paclitaxel</td>
<td>Docetaxel and irinotecan</td>
</tr>
<tr>
<td>Irinotecan</td>
<td></td>
</tr>
<tr>
<td>Ramucirumab</td>
<td></td>
</tr>
</tbody>
</table>
Advanced cancer cannot be treated with local treatments. Instead, supportive care is given. The goal of supportive care is to prevent and relieve discomfort you may have. Supportive care may also extend life, improve your eating, and help you feel better overall. When used for advanced cancers, supportive care is often called palliative care.

**Symptom control**

Cancer or its treatment can cause unpleasant and sometimes harmful symptoms. One of the most common symptoms of esophageal cancer is dysphagia. Endoscopic treatments, stents, radiation therapy, and surgery are used by doctors to widen areas that have narrowed. Bleeding is another symptom, although not as common as dysphagia. Surgery, radiation therapy, and endoscopic treatments can help stop the bleeding. You may have pain or nausea with or without vomiting. Drugs and sometimes surgery are used to control these symptoms. You may have other symptoms that aren’t listed here. If you have a new or worse symptom, tell your treatment team. There may be ways to help you feel better.

**Chemotherapy**

Chemotherapy is often used for supportive care of metastatic (M1) disease. It is also used for locally advanced cancers that can’t be treated with either surgery or radiation. Since chemotherapy can cause severe side effects, it is only given if your health hasn’t seriously limited your activities.

Your ability to do activities is called performance status. Your doctor can rate your performance status by one of two scales:

**ECOG (Eastern Cooperative Oncology Group) Performance Scale**

- A score of 0 means you are fully active.
- A score of 1 means you are able to do all self-care activities but are unable to do hard physical work.
- A score of 2 means you are able to do all self-care activities and spend most of waking time out of bed but you are unable to do any work.
- A score of 3 means you are unable to do all self-care activities and any work and spend most of waking time in bed.
- A score of 4 means you are fully disabled.

---

Chart 6.4.3 Alternative treatments

<table>
<thead>
<tr>
<th>Regimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mitomycin, irinotecan</td>
</tr>
<tr>
<td>Mitomycin, 5-FU</td>
</tr>
</tbody>
</table>
KPS (Karnofsky Performance Status)

- A score of 0 to 49 means you are unable to care for yourself.
- A score of 50 to 79 means you are unable to work and some assistance is needed.
- A score of 80 to 100 means you are able to do your normal work and activities.

You may be able to have chemotherapy if you have an ECOG score of 2 or less or a KPS score of 60 or more. Two back-to-back chemotherapy regimens are recommended. Three regimens may be given if you are healthy enough and have a good performance status. If you do have chemotherapy, it is important for your doctors to assess for side effects on a regular basis.

Charts 6.4.1, 6.4.2, and 6.4.3 list the chemotherapy regimens used to treat advanced adenocarcinomas. Trastuzumab is a targeted therapy drug that is added to chemotherapy if the cancer cells have too many HER2s. Read Part 2 for more information on HER2. If you are given a 5-FU regimen, leucovorin may be added to limit side effects of the chemotherapy. If the cancer doesn’t respond to first-line regimens, your doctor may give you a second-line regimen. Alternative regimens may be used with first- or second-line regimens.

Review

- Endoscopic treatments are preferred for Tis and T1a tumors.
- For T1b tumors, an esophagectomy is recommended if you can have surgery. If not, you can receive endoscopic treatment. After an esophagectomy, you may receive chemoradiation to kill any remaining cancer cells.
- Invasive cancers are often treated with chemoradiation. An esophagectomy may follow to remove any remaining cancer.
- When there are no signs of cancer after treatment, testing to check for new cancer growth should be done. Medical history and physical exams are needed. You may also receive blood, imaging, and scoping tests.
- Cancer that returns after local treatment near to where the esophagus is (or was) may be curable with surgery or chemoradiation.
- Cancer that is unable to be cured can be treated with supportive care. Supportive care includes treatment to prevent or reduce symptoms caused by the cancer.
Making treatment decisions
Having cancer is very stressful. While absorbing the fact that you have cancer, you have to learn about tests and treatments. In addition, the time you have to accept a treatment plan feels short. Parts 1 through 6 described the cancer and the test and treatment options recommended by NCCN experts. These options are based on science and agreement among NCCN experts. Part 7 aims to help you make decisions that are in line with your beliefs, wishes, and values.

It’s your choice

The role patients want in choosing their treatment differs. You may feel uneasy about making treatment decisions. It may be hard to hear or know what others are saying. This may be due to a high level of stress. Stress, pain, and drugs can limit your ability to make good decisions. You may feel uneasy because you don’t know much about cancer. You’ve never heard the words used to describe cancer, tests, or treatments. Likewise, you may think that your judgment isn’t any better than your doctors’.

Your doctors will give you the information you need to make an informed choice. In early-stage disease, there are often multiple good options. It is good news to have multiple options.

Letting others decide which option is best may make you feel more at ease. But, whom do you want to make the decisions? You may rely on your doctors alone to make the right decisions. However, your doctors may not tell you which to choose if you have multiple good options. You can also have loved
ones help. They can gather information, speak on your behalf, and share in decision-making with your doctors. Even if others decide which treatment you will receive, you still have to agree by signing a consent form.

On the other hand, you may want to take the lead or share in decision-making. Most patients do. In shared decision-making, you and your doctors share information, weigh the options, and agree on a treatment plan. Your doctors know the science behind your plan but you know your concerns and goals. By working together, you are likely to get a higher quality of care and be more satisfied. You’ll likely get the treatment you want, at the place you want, and by the doctors you want.
Questions to ask your doctors

You will likely meet with experts from different fields of medicine. Strive to have helpful talks with each person. Prepare questions before your visit and ask questions if the person isn’t clear. Bring a pad of paper to take notes. You can also record your talks and get copies of your medical records. It may be helpful to have your spouse, partner, or a friend with you at these visits. They can help to ask questions and remember what was said. Suggested questions to ask include:

What’s my diagnosis and prognosis?

It’s important to know that there are different types of cancer. Cancer can greatly differ even when people have a tumor in the same organ. Based on your test results, your doctors can tell you which type of cancer you have. He or she can also give a prognosis. A prognosis is a prediction of the pattern and outcome of a disease. Knowing the prognosis may affect what you decide about treatment.

1. Where did the cancer start? In what type of cell?
2. Is this cancer common?
3. What is the cancer stage? Does this stage mean the cancer has spread far?
4. What is the grade of the cancer? Does this grade mean the cancer will grow and spread fast?
5. What other test results are important to know?
6. How often are these tests wrong?
7. Would you give me a copy of the pathology report and other test results?
8. Can the cancer be cured? If not, how well can treatment stop the cancer from growing?
What are my options?

There is no single treatment practice that is best for all patients. There is often more than one treatment option along with clinical trial options. Your doctor will review your test results and recommend treatment options.

1. What will happen if I do nothing?
2. Can I just carefully monitor the cancer?
3. Do you consult NCCN recommendations when considering options?
4. Are you suggesting options other than what NCCN recommends? If yes, why? From what source are these options based?
5. How do my age, health, and other factors affect my options?
6. Which option is proven to work best?
7. Which options lack scientific proof?
8. What are the benefits of each option? Does any option offer a cure? Are my chances any better for one option than another? Which option spares the most healthy tissue? Is any option less invasive? Less time-consuming? Less expensive?
9. What are the risks of each option? What are possible complications? What are the rare and common side effects? Short-lived and long-lasting side effects? Serious or mild side effects? Other risks?
What does each option require of me?

Many patients consider how each option will practically affect their lives. This information may be important because you have family, jobs, and other duties to take care of. You also may be concerned about getting the help you need. If you have more than one option, choosing the option that is the least taxing may be important to you:

1. Will I have to go to the hospital or elsewhere? How often? How long is each visit?
2. How do I prepare for treatment?
3. Should I bring someone with me when I get treated?
4. Will the treatment hurt?
5. How much will the treatment cost me? What does my insurance cover?
6. Is home care after treatment needed? If yes, what type?
7. How soon will I be able to manage my own health?
8. When will I be able to return to my normal activities?
What is your experience?

More and more research is finding that patients treated by more experienced doctors have better results. It is important to learn if a doctor is an expert in the cancer treatment he or she is offering.

1. Are you board certified? If yes, in what area?
2. How many patients like me have you treated?
3. How many procedures like the one you’re suggesting have you done?
4. Is this treatment a major part of your practice?
5. How many of your patients have had complications?
Weighing your options

Deciding which option is best can be hard. Doctors from different fields of medicine may have different opinions on which option is best for you. This can be very confusing. Your spouse or partner may disagree with which option you want. This can be stressful. In some cases, one option hasn’t been shown to work better than another, so science isn’t helpful. Some ways to decide on treatment are discussed next.

2nd opinion
The time around a cancer diagnosis is very stressful. People with cancer often want to get treated as soon as possible. They want to make their cancer go away before it spreads farther. While cancer can’t be ignored, there is time to think about and choose which option is best for you.

You may wish to have another doctor review your test results and suggest a treatment plan. This is called getting a 2nd opinion. You may completely trust your doctor, but a 2nd opinion on which option is best can help.

Copies of the pathology report, a DVD of the imaging tests, and other test results need to be sent to the doctor giving the 2nd opinion. Some people feel uneasy asking for copies from their doctors. However, a 2nd opinion is a normal part of cancer care.

When doctors have cancer, most will talk with more than one doctor before choosing their treatment. What’s more, some health plans require a 2nd opinion. If your health plan doesn’t cover the cost of a 2nd opinion, you have the choice of paying for it yourself.

If the two opinions are the same, you may feel more at peace about the treatment you accept to have. If the two opinions differ, think about getting a 3rd opinion. A 3rd opinion may help you decide between your options. Choosing your cancer treatment is a very important decision. It can affect your length and quality of life.

Support groups
Besides talking to health experts, it may help to talk to patients who have walked in your shoes. Support groups often consist of people at different stages of treatment. Some may be in the process of deciding while others may be finished with treatment. At support groups, you can ask questions and hear about the experiences of other people with esophageal cancer.

Compare benefits and downsides
Every option has benefits and downsides. Consider these when deciding which option is best. Talking to others can help pinpoint benefits and downsides you haven’t thought of. Scoring each factor from 0 to 10 can also help since some factors may be more important to you than others.
## Websites

<table>
<thead>
<tr>
<th>Organization</th>
<th>Website Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Cancer Society</td>
<td><a href="http://www.cancer.org/cancer/esophaguscancer/index">www.cancer.org/cancer/esophaguscancer/index</a></td>
</tr>
<tr>
<td>Esophageal Cancer Awareness Association</td>
<td><a href="http://www.ecaware.org">www.ecaware.org</a></td>
</tr>
<tr>
<td>National Coalition for Cancer Survivorship</td>
<td><a href="http://www.canceradvocacy.org/toolbox">www.canceradvocacy.org/toolbox</a></td>
</tr>
<tr>
<td>NCCN</td>
<td><a href="http://www.nccn.org/patients">www.nccn.org/patients</a></td>
</tr>
</tbody>
</table>

## Review

- Shared decision-making is a process in which you and your doctors plan treatment together.
- Asking your doctors questions is vital to getting the information you need to make informed decisions.
- Getting a 2nd opinion, attending support groups, and comparing benefits and downsides may help you decide which treatment is best for you.
abdomen
The belly area between the chest and pelvis.

ablation
Treatment that destroys very small tumors.

adenocarcinoma
Cancer of cells that make fluids or hormones.

adventitia
The fourth layer of the esophageal wall.

anesthesia
Loss of feeling with or without loss of wakefulness that is caused by drugs.

azygos vein
A large vein on the right side of the spine within the chest.

Barrett’s esophagus
The presence of stomach cells within the lining of the esophagus.

biopsy
Removal of small amounts of tissue or fluid to be tested for disease.

blood chemistry test
Measurement of the amount of chemicals in the blood.

bronchi
The two airways extending from the windpipe into the lungs.

bronchoscope
A thin, long tube fitted with tools that is guided down the throat.

bronchoscopy
Use of a thin tool guided down the throat into the lungs.

cancer stages
Ratings of the growth and spread of tumors.

carina
Firm, flexible, supportive tissue at the base of the windpipe.

chemotherapy
Drugs that stop the growth process of cells in an active growth phase.

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.

combination regimen
The use of two or more drugs.

complete blood count (CBC)
A test of the number of blood cells.

computed tomography (CT)
A test that uses x-rays to view body parts.

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

cryoablation
Treatment that kills cancer cells by freezing them.

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

diaphragm
A sheet of muscles below the ribs that helps a person to breathe.

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

dysphagia
Difficult or painful swallowing.

Eastern Cooperative Oncology Group (ECOG) Performance Scale
A rating scale of one’s ability to do daily activities.

electrodes
Small devices that transmit electricity.

endoscope
A thin, long tube fitted with tools that is guided down the throat.
endoscopic resection (ER)
Treatment that removes small tumors with tools guided down the throat.

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

epithelium
Tissue that lines the esophageal wall.

esophagectomy
Removal of all or part of the esophagus.

esophagogastrectomy
Removal of the esophagus and some of the stomach.

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

external beam radiation therapy (EBRT)
Radiation therapy received from a machine outside the body.

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

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

gastroesophageal reflux disease (GERD)
Frequent back wash of stomach contents into the esophagus.

general anesthesia
A controlled loss of wakefulness from drugs.

genes
Instructions in cells for making and controlling cells.

genetic counselor
An expert in changes within genes that are related to disease.

high-grade dysplasia (HGD)
A pre-cancerous change in cells.

histologic grade
A rating of how much cancer cells look like normal cells.

hives
Itchy, swollen, and red skin caused by the body ridding itself of an invader.

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

image-guided radiation therapy (IGRT)
Radiation therapy that uses imaging tests during treatment to better target the tumor.

immunohistochemistry (IHC)
A lab test of cancer cells to find specific cell traits involved in abnormal cell growth.

inferior pulmonary vein
A vein the returns blood from the lungs back to the heart.

in situ hybridization (ISH)
A lab test that shows the number of a specific gene.

intensity-modulated radiation therapy (IMRT)
Treatment with radiation that uses small beams of different strengths based on the thickness of the tissue.

integrative medicine doctor
An expert in mind-body treatments.

intestine
The tube-like organ between the stomach and anus.

jejunostomy tube (J-tube)
A feeding tube that is inserted though a cut into the intestine.

Karnofsky Performance Status (KPS)
A rating scale of one’s ability to do daily activities.

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

liquid nitrogen
Cooling of the chemical, nitrogen, to a liquid state.

local anesthesia
A controlled loss of feeling in a small area of the body from drugs.

lymph
A clear fluid containing white blood cells.

lymph nodes
Small groups of special immune cells located throughout the body.

medical history
All health events and medications taken to date.
medical oncologist
A doctor who’s an expert in cancer drugs.

metastasis
The spread of cancer cells from the first tumor to a far site.

microscope
A tool that uses lenses to see things the eyes can’t.

minimally invasive esophagectomy
The use of small tools inserted through small cuts to remove the esophagus.

mucosa
The first, inner layer of the esophageal wall.

muscularis mucosae
A thin layer of muscle within the mucosa of the esophageal wall.

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

nasogastric tube
A feeding tube that is inserted down the nose and into the stomach.

nodules
Small lumps of tissue.

nutritionist
An expert in healthy foods and drinks.

observation
A period of testing for cancer growth.

oncology surgeon
A doctor who’s an expert in cancer surgery.

pathologic stage
Rating the extent of a tumor based on tests after treatment.

pathologist
A doctor who’s an expert in testing cells to find disease.

pelvis
The area of the body between the hip bones.

percutaneous endoscopic gastrostomy (PEG)
A feeding tube inserted through a small cut into the stomach.

pericardium
The tissue lining around the heart.

photodynamic ablation
Treatment with a laser that activates a drug inside the tumor.

physical exam
A review of the body by a health expert for signs of disease.

pleura
The two layers of tissue lining around the lungs.

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

positron emission tomography-computed tomography (PET/CT)
The use of two tests to see the shape and function of body parts.

primary tumor
The first mass of cancer cells in the body.

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

radiation therapy
The use of radiation to treat cancer.

radiofrequency ablation
Treatment that kills cancer cells with heat.

radiologist
A doctor who’s an expert in reading imaging tests.

radiotracer
Matter with energy that is put into the body to make pictures clearer.

recurrence
The return of cancer after treatment.

sedative
A drug that helps a person to relax or go to sleep.

side effect
An unhealthy or unpleasant physical or emotional response to treatment.

simulation
The steps needed to prepare for radiation therapy.
<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<tbody>
<tr>
<td>single agent</td>
<td>The use of one drug.</td>
</tr>
<tr>
<td>small intestine</td>
<td>The digestive organ that absorbs nutrients from eaten food.</td>
</tr>
<tr>
<td>squamous cell carcinoma</td>
<td>Cancer that starts in thin and flat cells that line the surface of organs.</td>
</tr>
<tr>
<td>standard open esophagectomy</td>
<td>Removal of the esophagus through large cuts into the body.</td>
</tr>
<tr>
<td>strip biopsy</td>
<td>The use of injections, tongs, and snares to remove small tumors.</td>
</tr>
<tr>
<td>submucosa</td>
<td>The second layer of the esophageal wall made mostly of connective tissue.</td>
</tr>
<tr>
<td>submucosal injection polypectomy</td>
<td>The use of injections and snares to remove small tumors.</td>
</tr>
<tr>
<td>supportive care</td>
<td>Treatment for symptoms of a disease.</td>
</tr>
<tr>
<td>surface receptor</td>
<td>Proteins on the edge of a cell that send signals for the cell to grow.</td>
</tr>
<tr>
<td>surgical margin</td>
<td>The normal tissue around the tumor removed during surgery.</td>
</tr>
<tr>
<td>targeted therapy</td>
<td>Drugs that stop the growth process specific to cancer cells.</td>
</tr>
<tr>
<td>thoracic inlet</td>
<td>The center of a ring of bones at the top of the ribcage.</td>
</tr>
<tr>
<td>thoracoscope</td>
<td>A thin, long tube fitted with tools that is inserted through a cut into the chest.</td>
</tr>
<tr>
<td>three-dimensional conformal radiation therapy (3D-CRT)</td>
<td>Treatment with radiation that uses beams matched to the shape of the tumor.</td>
</tr>
<tr>
<td>trachea</td>
<td>The airway between the throat and bronchi; also called the windpipe.</td>
</tr>
<tr>
<td>upper gastrointestinal (GI) endoscopy</td>
<td>Use of a thin tool guided down the throat into the esophagus and stomach.</td>
</tr>
</tbody>
</table>
Acronyms

3D-CRT
three-dimensional conformal radiation therapy

AJCC
American Joint Committee on Cancer

CBC
complete blood count

CT
computed tomography

DNA
deoxyribonucleic acid

EBRT
external beam radiation therapy

ECOG
Eastern Cooperative Oncology Group

ER
endoscopic resection

EUS
esophageal ultrasound

FDA
Food and Drug Administration

FNA
fine-needle aspiration

GERD
gastroesophageal reflux disease

HGD
high-grade dysplasia

IGRT
image-guided radiation therapy

IHC
immunohistochemistry

IMRT
intensity-modulated radiation therapy

ISH
in situ hybridization

J-tube
jejunostomy tube

KPS
Karnofsky Performance Status

PEG
percutaneous endoscopic gastrostomy

PET
positron emission tomography

NCCN Abbreviations and Acronyms

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National Comprehensive Cancer Network®

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NCCN Guidelines®
NCCN Clinical Practice Guidelines in Oncology®
NCCN Guidelines for Patients®

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- Caring for Adolescents and Young Adults (AYA)
- Chronic Myelogenous Leukemia
- Colon Cancer*
- Esophageal Cancer
- Lung Cancer Screening*
- Malignant Pleural Mesothelioma*
- Melanoma*
- Multiple Myeloma*
- Non-Small Cell Lung Cancer*
- Ovarian Cancer
- Pancreatic Cancer*
- Prostate Cancer
- Soft Tissue Sarcoma*
- Stage 0 Breast Cancer*
- Stages I & II Breast Cancer*
- Stage III Breast Cancer*
- Stage IV Breast Cancer*

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