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 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 http://www.nccnfoundation.com to help provide these resources to others. I survived and so can you!

The Honorable Ellen O. Tauscher
NCCN Foundation Board of Directors, Chair
Baker, Donelson, Bearman, Caldwell & Berkowitz, PC
Former Under Secretary of State for Arms Control & International Security and Member of Congress
Its purpose
Learning that you have cancer can be overwhelming. The goal of this booklet is to help you get the best cancer treatment. It explains which cancer tests and treatments are recommended by experts of esophageal cancer.

Supported by the 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 booklets for patients. Learn more about the NCCN Foundation at www.nccn.com/nccn-foundation.

The source of the information
NCCN is a not-for-profit network of 23 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 booklet is based on these guidelines.

For more information
This booklet focuses on the treatment of esophageal cancer. NCCN also offers booklets on breast, lung, and pancreatic cancer. Visit NCCN.com for the full library of booklets.
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How to use this booklet

Who should read this booklet?
The information in this booklet is about cancer of the esophagus. This booklet may be helpful for patients, caregivers, family, and friends dealing with this cancer. Reading this booklet at home may help you absorb what your doctors have said and prepare for treatment.

Does the whole booklet apply to me?
There is important information in this booklet for many situations. Thus, you will likely not get every test and treatment listed. Your treatment team can point out what applies to you and give you more information. To help you use this booklet, each topic is described at the start of Parts 1–7. Page numbers are listed so you can flip right to the topic of interest.

As you read through this booklet, you may find it helpful to create a list of questions to ask your doctors. The recommendations in this booklet include what the NCCN doctors feel is the most useful based on science and their experience. However, these recommendations may not be right for you. Your doctors may suggest other tests or treatments based on your medical condition and other factors. This booklet does not replace the knowledge and recommendations of your doctors.

Help! I don’t know these words!
In this booklet, many medical words are included that describe cancer, tests, and treatments. These are words that you will likely hear your treatment team use in the months and years ahead. Most of the information 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.

Words that you may not know are defined in the text or the sidebar. Words with sidebar definitions are underlined when first used on a page. All definitions are listed in the Dictionary in Part 8. Acronyms are also listed in the text or the sidebar. Acronyms are words formed from the first letters of other words. One example is CT for computed tomography.
Part 1: About esophageal cancer

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.

1.1 The esophagus
Explains what the esophagus is.

1.2 How esophageal cancer starts
Describes the types of cells where esophageal cancer begins.

1.3 How esophageal cancer spreads
Explains the body systems by which esophageal cancer spreads.

1.4 Tools
Lists webpages with basics about esophageal cancer.
1.1 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 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.

Figure 1. The esophagus
Illustration Copyright © 2013 Nucleus Medical Media, All rights reserved. www.nucleusinc.com
1.2 How esophageal cancer starts

Cancer is a disease of cells—the building blocks of tissue in the body. Inside of cells are coded instructions, called genes, for building new cells and controlling how cells behave. Changes in genes 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.

1.3 How esophageal cancer spreads

The changes in genes cause cancer cells to make too many copies of themselves. Normal cells grow and then divide to form new cells when needed. They also die when old or damaged. Cancer cells don’t do this. 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 where they started to grow. This mass is called the primary tumor. If not treated, the primary tumor can grow large and invade other tissues. Cancer cells can also break away from the primary tumor, spread to other sites, and form secondary tumors. This process is called metastasis. Secondary tumors can form in the lung, liver, bones, and other organs.

Cancer cells spread through blood or lymph vessels. 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 nodes and vessels are found throughout the body as portrayed in Figure 2.
Part 1: About esophageal cancer

1.4 Tools

Webpages

American Cancer Society

Esophageal Cancer Awareness Association
www.ecaware.org/what-is-esophageal-cancer/what-is-an-esophagus
www.ecaware.org/what-is-esophageal-cancer/types-of-ec

National Cancer Institute
www.cancer.gov/cancertopics/pdq/treatment/esophageal/Patient/page1

Review of Part 1

- 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 the line the inside wall or starts in cells that make mucus.
- Cancer cells form a tumor since they don’t die as normal cells do.
- Cancer cells can spread to other body parts through lymph or blood.
Part 2: Cancer staging

If you have esophageal cancer, your doctors will want to know the extent of its growth. Cancer staging is a rating by your doctors of the extent of the cancer based on test results. Cancer staging is used by doctors to plan which additional tests may be needed or which treatments are best for you.

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. Part 2 describes the tests used for clinical staging and defines the stages of esophageal cancer.

12  2.1 Clinical staging tests
Lists the clinical staging tests for esophageal cancer.

15  2.2 Pathology review
Describes the laboratory studies of tissue samples.

16  2.3 TNM scores
Defines the scores used to rate tumor growth.

18  2.4 Stages of esophageal cancer
Presents the five stages of esophageal cancer.

20  2.5 Tools
Lists helpful webpages along with questions to ask your doctor about tests.
2.1 Clinical staging tests

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<tr>
<td>- Chest</td>
</tr>
<tr>
<td>- Abdomen, and</td>
</tr>
<tr>
<td>- Pelvic area as needed</td>
</tr>
<tr>
<td>CBC (complete blood count)</td>
</tr>
<tr>
<td>Blood chemistry test</td>
</tr>
</tbody>
</table>

Medical history and physical exam

Your medical history includes any health events in your life and any medications you’ve taken or are taking. Since some health problems run in families, 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.
Part 2: Cancer staging

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 get cancer.

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

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 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. You will likely be sedated, but sometimes anesthesia is used. At the tip of the endoscope is a light and camera that allows your doctor to see. 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 remove a sample of the tumor (or other areas with possible cancer) with the endoscope. 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.
CT scans

A CT scan 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. The amount of radiation used is often small. 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 4. 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.
Part 2: Cancer staging

CBC
Blood tests are used to look for signs of disease. A CBC 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.

2.2 Pathology review
The biopsy samples from the endoscopy are sent to a pathologist. A pathologist is a doctor who’s an expert in making a diagnosis by looking at cells with a microscope. The pathologist will include all the test results 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 biopsy are studied to help determine the histologic type. The pathology report will state if the biopsy sample has 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.

Definitions:

- **Adenocarcinoma**: Cancer of cells that make mucus to keep the esophagus moist
- **Allergic reaction**: Symptoms that appear when the body is trying to rid itself of outside agents
- **Biopsy**: Removal of small amounts of tissue or fluid to be tested for disease
- **Hives**: Itchy, swollen, and red skin caused by the body trying to rid itself of an outside agent
- **Sedative**: A drug that helps a person to relax or go to sleep
- **Squamous cell carcinoma**: Cancer of cells that line the inner wall of the esophagus

Acronyms:

- **CBC** = complete blood count
- **CT** = computed tomography
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 likely mean that the cancer will 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.

### 2.3 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 area of cancer growth. Your doctors will assign a score to each letter based on the clinical staging tests and pathology review. These scores will be combined to assign the cancer a stage.

#### 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 5. 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 pleura, pericardium or invaded the diaphragm and can be treated by surgery.
  - **T4b** tumors have invaded other tissues, such as the trachea, and can't be treated with surgery.
Definitions:

Read page 8 for information on the esophageal wall.

**Clinical staging:** Rating the extent of a tumor based on tests before treatment

**Diaphragm:** A sheet of muscles below the ribs that helps a person to breathe

**Pericardium:** The two layers of tissue lining around the heart

**Pleura:** The two layers of tissue lining around the lungs

**Trachea:** The airway between the throat and main airways into the lungs; also called the windpipe

---

**N = Nodes**

The N category reflects how far the cancer has spread within nearby lymph nodes.

- **N0** means there is no cancer in 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.

- **M0** means the cancer hasn’t spread to distant sites.
- **M1** means the cancer has spread to distant sites.
2.4 Stages of esophageal cancer

Table 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 histologic 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.

### Table 1. Esophageal cancer stages

<table>
<thead>
<tr>
<th>ANATOMIC STAGE/PROGNOSTIC GROUPS</th>
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<tbody>
<tr>
<td>Stage</td>
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</tr>
<tr>
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</tr>
<tr>
<td>IA</td>
<td>T1</td>
</tr>
<tr>
<td>IB</td>
<td>T1</td>
</tr>
<tr>
<td></td>
<td>T2–3</td>
</tr>
<tr>
<td>IIA</td>
<td>T2–3</td>
</tr>
<tr>
<td></td>
<td>T2–3</td>
</tr>
<tr>
<td>IIB</td>
<td>T2–3</td>
</tr>
<tr>
<td></td>
<td>T1–2</td>
</tr>
<tr>
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<tr>
<td></td>
<td>T3</td>
</tr>
<tr>
<td></td>
<td>T4a</td>
</tr>
<tr>
<td>IIIB</td>
<td>T3</td>
</tr>
<tr>
<td>IIIC</td>
<td>T4a</td>
</tr>
<tr>
<td></td>
<td>T4b</td>
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<td>Any</td>
</tr>
<tr>
<td>IV</td>
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*Or mixed histology including a squamous component or NOS
# Part 2: Cancer staging

## Table 1 (continued)

<table>
<thead>
<tr>
<th>Adenocarcinoma</th>
<th>Stage</th>
<th>T</th>
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<th>M</th>
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<tr>
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<td>M0</td>
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<td>M0</td>
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<td>M0</td>
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<tr>
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<td>N0</td>
<td>M0</td>
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<td>T2</td>
<td>N0</td>
<td>M0</td>
<td>3</td>
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<td>M0</td>
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<td></td>
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<td>N1</td>
<td>M0</td>
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<tr>
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<td>T1–2</td>
<td>N2</td>
<td>M0</td>
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<td>M0</td>
<td>Any</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Any</td>
<td>N3</td>
<td>M0</td>
<td>Any</td>
<td></td>
</tr>
</tbody>
</table>

**Definitions:**

- **Azygos vein:** A large vein on the right side of the spine within the chest
- **Inferior pulmonary vein:** A vein that returns blood from the lungs back to the heart
- **Thoracic inlet:** The center of a ring of bones at the top of the ribcage

Part 2: Cancer staging

2.5 Tools
Questions about testing to ask your doctor

• What tests will I have?

• Where will the tests take place? Will I be admitted to a hospital?

• How long will it take? Will I be awake?

• Will it hurt? Will I need anesthesia?

• What are the risks? What are the chances of infection or bleeding afterward?

• How do I prepare for testing? Should I not take aspirin? Should I not eat beforehand?

• Should I bring a list of my medications?

• Should I bring someone with me?

• How long will it take for me to recover? Will I be given an antibiotic or other drug afterward?

• How soon will I know the results and who will explain them to me?

• How can I get a copy of the pathology report?

• Who will talk with me about the next steps? When?
Part 2: Cancer staging

Webpages

American Cancer Society
www.cancer.org/cancer/esophaguscancer/detailedguide/esophagus-cancer-staging

Esophageal Cancer Action Network
www.ecan.org/site/PageServer?pagename=FactsHeartburn

Esophageal Cancer Awareness Association
www.ecaware.org/patients/staging

National Cancer Institute
www.cancer.gov/cancertopics/pdq/treatment/esophageal/Patient/page2

Review of Part 2

• Esophageal cancer is grouped into stages.
• Cancer stages are defined by the growth and spread of the tumor.
• The clinical stage is based on tests given before any treatment.
• The pathologic stage is based on the results of surgery.
Part 3: Preparing for treatment

Part 3 describes some of the important events that should take place before starting treatment. Tests to confirm the clinical stage are needed. Based on the clinical stage, your treatment team will create a treatment plan. To get the best treatment results, it is important that you receive good nutrition and stop smoking if you smoke.

23  3.1 Tests by clinical stage
    Presents the tests needed before starting treatment.

25  3.2 Treatment team meetings
    Lists some of the experts likely to be on your treatment team.

26  3.3 Getting good nutrition
    Advises meeting with a nutritionist before treatment.

26  3.4 Help to quit smoking
    Talks about quitting smoking before treatment.

27  3.5 Tools
    Lists helpful webpages.
Part 3: Preparing for treatment

3.1 Tests by clinical stage

More testing is needed after receiving the tests listed in Part 2.1. Which tests you'll receive is based on the clinical stage of the cancer. Tests to confirm the clinical stage are recommended. If the cancer is a stage IV adenocarcinoma, testing to confirm your treatment options is needed.

<table>
<thead>
<tr>
<th>Cancer stage</th>
<th>Test name</th>
</tr>
</thead>
<tbody>
<tr>
<td>I, II, and III</td>
<td>PET/CT (positron emission tomography-computed tomography)</td>
</tr>
<tr>
<td>I, II, and III</td>
<td>EUS (endoscopic ultrasound)</td>
</tr>
<tr>
<td>I, II, and III</td>
<td>EMR (endoscopic mucosal resection)</td>
</tr>
<tr>
<td>I, II, and III</td>
<td>Bronchoscopy (if needed)</td>
</tr>
<tr>
<td>I, II, and III</td>
<td>Laparoscopy if an adenocarcinoma at the esophagogastric junction (if needed)</td>
</tr>
<tr>
<td>IV</td>
<td>Biopsy of distant site (if needed)</td>
</tr>
<tr>
<td>IV</td>
<td>HER2 (human epidermal growth factor receptor 2) testing if an adenocarcinoma</td>
</tr>
</tbody>
</table>

PET/CT scan

A PET/CT scan is the use of two imaging tests to see how far the cancer has spread. These two tests are a CT scan, which is described in Part 2.1, and a PET scan. Some cancer centers have an imaging machine that does both scans. At other centers, the scans are done with two machines.

While x-rays and contrast dye are used for a CT scan, a sugar radiotracer is used for a PET scan. Before PET, you must fast for 4 hours or more. 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.

Definitions:

**Adenocarcinoma**: Cancer of cells that make mucus to keep the esophagus moist

**Biopsy**: Removal of small amounts of tissue or fluid to be tested for disease

**Esophagogastric junction**: The area where the esophagus and stomach join

**Imaging test**: A test that makes pictures of the insides of the body

**Radiotracer**: A substance that releases a small amount of radiation

Acronyms:

**CT** = computed tomography
EUS
An EUS 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 in which a needle is inserted through the esophageal wall and into tissue, such as a lymph node, to get a sample.

EMR
EMR used along with EUS can help show how far a tumor has grown into the esophageal wall. However, EMR is more often used as treatment of very small tumors as discussed in Part 4. Briefly, your doctor can remove tumors and nearby tissues with tools inserted through an endoscope.

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. Or, liquid may be sprayed into the airway and suctioned back up. After the biopsy, you may feel some swelling and sound hoarse.

Laparoscopy
You may have a laparoscopy if the tumor is an adenocarcinoma and formed at the esophagogastric junction or below it. A laparoscopy may help find cancer spread to distant sites that wasn’t found by imaging tests. Laparoscopy is a surgery done under general anesthesia. For this surgery, a very small cut will be made in your abdomen. A thin, long tool called a laparoscope will be inserted through the cut. A laparoscope works much like an endoscope allowing your doctor to see the area and take a biopsy if needed. After the surgery, you will have a small scar and some short-term pain and swelling.

Biopsy of distant sites
Stage IV cancer is defined as cancer spread to sites not in direct contact with the esophagus. If tests suggest stage IV cancer, 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. An FNA, laparoscopy, or other methods may be used.
Part 3: Preparing for treatment

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 a stage IV 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.

3.2 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. Two of these experts were discussed before. The pathologist who reviewed your biopsy samples should be on your treatment team. Also, the radiologist who reviewed your imaging test results should be involved. Other experts may include:

- 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,
Part 3: Preparing for treatment

- Nurse – an expert trained to care for the sick,
- Social worker – an expert in meeting social and emotional needs, and a
- Nutritionist – an expert in healthy foods and drinks.

At the meetings, your treatment team will create a treatment plan based on the clinical stage of the cancer. More information about treatment plans can be found in Part 7. Your treatment team will also meet while you are on treatment and afterward to discuss the treatment results and the next steps of care.

3.3 Getting 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 6. Otherwise, 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.

3.4 Help to quit smoking

If you had been smoking tobacco before you learned you had cancer, it is important to stop. 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. If you smoke, ask your doctor about counseling and drugs to help you quit.

![Feeding tubes](https://www.nucleusinc.com)

**Figure 6. Feeding tubes**
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Part 3: Preparing for treatment

3.5 Tools

Webpages

American Cancer Society
www.cancer.org/cancer/esophaguscancer/detailedguide/esophagus-cancer-treating-general-info

Esophageal Cancer Awareness Association
www.ecaware.org/patients/beyond-your-doctor

National Cancer Institute
www.cancer.gov/cancertopics/tobacco/smoking

Review of Part 3

- Before treatment, tests are given to confirm the clinical stage of the cancer.
- 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.
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.

<table>
<thead>
<tr>
<th>Page</th>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>29</td>
<td>4.1 Endoscopic treatment</td>
<td>Describes the use of small tools to remove or destroy the cancer.</td>
</tr>
<tr>
<td>30</td>
<td>4.2 Surgical treatment</td>
<td>Describes the operations used to remove esophageal cancer.</td>
</tr>
<tr>
<td>33</td>
<td>4.3 Radiation therapy</td>
<td>Describes the uses of radiation to treat esophageal cancer.</td>
</tr>
<tr>
<td>34</td>
<td>4.4 Chemotherapy</td>
<td>Describes chemotherapy drugs for esophageal cancer.</td>
</tr>
<tr>
<td>35</td>
<td>4.5 Targeted therapy</td>
<td>Describes targeted therapy drugs for esophageal cancer.</td>
</tr>
<tr>
<td>37</td>
<td>4.6 Tools</td>
<td>Lists helpful webpages along with questions to ask your doctor about treatments.</td>
</tr>
</tbody>
</table>
4.1 Endoscopic treatment

EMR

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

Injection EMRs 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 EMRs do use suction. The simple-snare EMR uses suction to raise the tumor into a stiff snare that is pressed down around the tumor. A cap EMR 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 EMR is called the “suck and cut” method. A ligation EMR 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 EMR is called the “suck-band-and-ligate” method.

EMR requires that you be sedated. You may have a reaction to the sedative and become nauseated or vomit. EMR 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.
Part 4: Overview of cancer treatments

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 ablation method kills cancer cells by freezing them with liquid nitrogen that is sprayed through an endoscope.
- Radiofrequency ablation – this ablation method kills cancer cells using heat from electrodes that are passed through an endoscope.
- Photodynamic therapy – this ablation 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 therapy may make your skin and eyes sensitive to strong light. Like EMR, ablation sometimes causes bleeding, a tear through the esophageal wall, or narrowing of the esophagus.

4.2 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, itching, and crying right after waking up.

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 7 to 14 days to recover.

Standard open esophagectomy uses large surgical cuts to remove tissue. There are two common types of open surgery. A transthoracic esophagectomy removes tissue through cuts into your chest and abdomen. A transhiatal esophagectomy removes tissue through cuts into your neck and abdomen.

Minimally invasive esophagectomy uses small tools inserted through small cuts to remove tissue. Like a laparoscopy described in Part 3.1, 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 the remaining esophagus. See Figure 7. 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 feeding tube that is inserted through your side and into your intestine.

**Figure 7. Before and after esophagectomy**
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**Definitions:**

- **Abdomen:** The belly area between the chest and pelvis
- **Electrodes:** Small devices that transmit electricity
- **General anesthesia:** A controlled loss of wakefulness from drugs
- **Intestine:** The tube-like digestive organ between the stomach and anus; also called the bowel and gut
- **Laparoscope:** A thin, long tube through which tools are inserted to do work in the abdomen
- **Liquid nitrogen:** Cooling of the chemical, nitrogen, to a liquid state
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.

Order of treatments

Most people with lung cancer will have more than one treatment. When and why treatments are given can be hard to understand. Part 7 gives full details. Here, the terms that describe the order of treatments are explained.

- **Neoadjuvant treatment**: Neoadjuvant treatment is used to shrink large tumors before surgery.
- **Primary treatment**: The main treatment used to rid your body of cancer is called the primary treatment.
- **Adjuvant treatment**: Adjuvant treatment is given to kill any cancer cells left behind after primary treatment given to cure the disease.
4.3 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 scans 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.

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.
Part 4: Overview of cancer treatments

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.

**Treatment side effects**

Side effects are unhealthy or unpleasant physical or emotional conditions caused by cancer treatment. Each treatment for esophageal cancer can cause side effects, but how your body will respond can’t be fully known. You may have different side effects than someone else.

Some side effects of treatment are listed in this booklet. Please ask your treatment team for a list of all common and rare side effects. If a side effect bothers you, tell your treatment team. There may be ways to help you feel better.

### 4.4 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 Table 2.

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, hair loss, and mouth sores.
Part 4: Overview of cancer treatments

Table 2. Cancer drugs for esophageal cancer

<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>Carboptin</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>

4.5 Targeted therapy

Targeted therapy is the use of drugs 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 3.1.

Definitions:
DNA: A chain of chemicals inside cells that contains coded instructions for making and controlling cells

Acronyms:
HER2 = human epidermal growth factor receptor 2
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.

Complementary and alternative medicine

You may hear about other treatments from your family and friends. They may suggest using CAM (complementary and alternative medicine). CAM is a group of treatments that aren’t often given by doctors. There is much interest today in CAM for cancer, and many CAMs are being studied to see if they are truly helpful.

Complementary medicines are treatments given along with usual medical treatments. While CAMs aren’t known to kill cancer cells, they may improve your comfort and well-being. Two examples are acupuncture for pain management and yoga for relaxation.

Alternative medicine is used in place of usual medicine. Some alternative medicines are sold as cures even though they haven’t been proven to work. If there was good proof that CAMs or other treatments cured cancer, they would be included in this booklet.

It is important to tell your treatment team if you are using any CAMs. They can tell you which CAMs may be helpful and which CAMs may limit how well treatments work.
Part 4: Overview of cancer treatments

4.6 Tools

Questions about treatment to ask your doctor

- What are the available treatments for esophageal cancer?
- What are the risks and benefits of each treatment for esophageal cancer?
- Will my age, general health, stage of esophageal cancer, and other medical conditions limit my treatment choices?
- Do I have to get treated?
- Where will I be treated? Will I have to stay in the hospital or can I go home after each treatment?
- What can I do to prepare for treatment? Should I stop taking my medications? Should I store my blood in case I need a transfusion?
- How many esophageal surgeries have you done? How many of your patients have had complications?
- Is esophageal surgery a major part of your practice?
- How soon should I start treatment? How long does treatment take?
- How much will the treatment cost? How can I find out how much my insurance company will cover?
- How likely is it that I'll be cancer-free after treatment?
- What symptoms should I look out for while being treated for esophageal cancer?
- When will I be able to return to my normal activities?
- What is the chance that my cancer will come back and/or spread?
- What should I do after I finish treatment?
- Are there supportive services that I can get involved in? Support groups?
Part 4: Overview of cancer treatments

Webpages

American Cancer Society
www.cancer.org/Treatment/TreatmentsandSideEffects/GuidetoCancerDrugs/index
www.cancer.org/cancer/esophaguscancer/detailedguide/esophagus-cancer-treating-general-info

Esophageal Cancer Awareness Association
www.ecaware.org/patients/treatment

National Cancer Institute
www.cancer.gov/drugdictionary
www.cancer.gov/cancertopics/pdq/treatment/esophageal/Patient/page4

Review of Part 4

- 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 in a growth phase.
- Targeted therapy drugs stop cancer cells from getting signals to grow.
- All cancer treatments can cause side effects.
Part 5: Squamous cell carcinomas

Part 5 is a guide to the treatment options for people with squamous cell carcinoma of the esophagus. It shows what treatments are recommended. This information is taken from the treatment guidelines written by NCCN experts for esophageal cancer doctors. However, your doctors may suggest other treatments based on your health and personal wishes.

Much effort has been made to make Part 5 easy to read. Charts are used to list treatment options and map the steps through the treatment process. This information is also described in the text. Some words that you may not know are defined on the page and in the Dictionary in Part 8. More information about the treatments in this guide can be found in Part 4.

5.1 Local carcinomas
Treatment for esophageal cancers that haven’t grown beyond the submucosal layer.

5.2 Locally advanced carcinomas
Treatment for esophageal cancers that have spread beyond the submucosal layer but not to distant sites.

5.3 Care after carcinoma treatment
The next steps of care for when there are no signs of cancer after treatment.

5.4 Recurrence of carcinoma
Treatment for cancers that return during follow-up testing.

5.5 Supportive care for carcinomas
Treatment for cancers that have spread to distant sites.

5.6 Tools
List of helpful webpages about the timing of treatments.
5.1 Local carcinomas

These cancers haven’t grown far into the esophageal wall. 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. These cancers have not spread to nearby lymph nodes or elsewhere in the body.

Surgical options

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>Primary treatment</th>
<th>Surgical results</th>
<th>Adjuvant treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tis, N0, M0</td>
<td>EMR, or Ablation</td>
<td>No cancer in the margins</td>
<td>Start follow-up testing</td>
</tr>
<tr>
<td>T1a, N0, M0</td>
<td>EMR then ablation, or Esophagectomy</td>
<td>Cancer is in the margins</td>
<td>Chemoradiation</td>
</tr>
<tr>
<td>T1b, N0, M0</td>
<td>Esophagectomy</td>
<td>Some tumor was left behind</td>
<td>Chemoradiation, or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M1 disease was found</td>
<td>Supportive care</td>
</tr>
</tbody>
</table>

Surgery may be a treatment 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 chemotherapy and chemoradiation would do more to help than harm. Surgical and nonsurgical options are presented next.

This chart lists the treatment options for when surgery can be done. For a Tis tumor, endoscopic treatment—EMR or ablation—is recommended. A T1a tumor hasn’t grown into the submucosa, so EMR followed by ablation can remove the tumor. Ablation may not be needed if EMR fully removes the tumor. A second option for a T1a tumor is an esophagectomy. T1b tumors have invaded the submucosa, so an esophagectomy is the best option. You won’t be able to eat right after an esophagectomy, so a J-tube may be inserted into your intestine to give you food.
Part 5: Squamous cell carcinomas

After an esophagectomy, you may need adjuvant treatment. 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 of care is to start follow-up testing. 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 are options. The recommended chemotherapy regimens for chemoradiation after surgery are:

- 5-FU before, during, and after radiation,
- 5-FU before and after radiation with capecitabine,
- Capecitabine before and after radiation with 5-FU, and
- Capecitabine before, during, and after radiation.

Next steps: When you are finished with cancer treatment, read Part 5.3 for follow-up testing. If you will receive supportive care, read Part 5.5 next.
This chart lists the treatment options for when surgery can’t be done. For a Tis tumor, endoscopic treatment—EMR or ablation—is a safe option. EMR followed by ablation can remove T1a and T1b tumors. Instead of endoscopic treatment, chemoradiation may be given for a T1b tumor that may have spread beyond the reach of endoscopic treatment. The recommended chemotherapy regimens for chemoradiation are:

**Preferred regimens**

- Cisplatin and fluoropyrimidine (5-FU or capecitabine)
- Oxaliplatin and fluoropyrimidine (5-FU or capecitabine)
- Paclitaxel and carboplatin

**Other regimens**

- Paclitaxel and cisplatin
- Docetaxel and cisplatin
- Irinotecan and cisplatin
- Paclitaxel and fluoropyrimidine (5-FU or capecitabine)
- Docetaxel and fluoropyrimidine (5-FU or capecitabine)

**Next steps:** When you are finished with cancer treatment, read Part 5.3 for follow-up testing.
Part 5: Squamous cell carcinomas

5.2 Locally advanced carcinomas

These cancers have spread beyond the submucosa but not to distant sites. They include T2, T3, and T4 tumors without cancer in the nearby lymph nodes. Also included are T1b, T2, T3, or T4 tumors with cancer in the nearby lymph nodes. Below, cancer in nearby lymph nodes is represented by ‘N+’ since the number of lymph nodes with cancer can’t be known before surgery.

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 to help than harm. Surgical and nonsurgical options are presented next.

Surgical options

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>Neoadjuvant treatment</th>
<th>Treatment results</th>
<th>Primary treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2, N0, M0</td>
<td></td>
<td>No signs of cancer</td>
<td>Esophagectomy, or Start follow-up testing</td>
</tr>
<tr>
<td>T3, N0, M0</td>
<td></td>
<td></td>
<td>Esophagectomy, or Supportive care</td>
</tr>
<tr>
<td>T4a, N0, M0</td>
<td></td>
<td>Chemoradiation</td>
<td>T4b or M1 disease Supportive care</td>
</tr>
<tr>
<td>T1b, N+, M0</td>
<td></td>
<td>T1 – T4a disease</td>
<td>Supportive care</td>
</tr>
<tr>
<td>T2, N+, M0</td>
<td></td>
<td></td>
<td>Supportive care</td>
</tr>
<tr>
<td>T3, N+, M0</td>
<td></td>
<td></td>
<td>Supportive care</td>
</tr>
<tr>
<td>T4a, N+, M0</td>
<td></td>
<td></td>
<td>Supportive care</td>
</tr>
</tbody>
</table>

This chart maps one course of treatment for esophageal cancers not within the neck and that can be treated with surgery. First, neoadjuvant treatment is given to try to shrink the tumor. Concurrent chemoradiation is recommended.

Definitions:

- **Concurrent chemoradiation**: Chemotherapy and radiation therapy given at the same time
- **Lymph node**: A small group of disease-fighting cells
- **Nutritional intake**: Ingested food and drinks
- **Submucosa**: The second layer of the esophageal wall

**Acronyms**:

- **5-FU** = fluorouracil
- **EMR** = endoscopic mucosal resection
Part 5: Squamous cell carcinomas

The recommended chemotherapy regimens for chemoradiation before surgery are:

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

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

How the tumor responds to treatment will be assessed by a CT scan with contrast, PET/CT, or upper GI endoscopy. These tests are described in Parts 2.1 and 3.1. If there are no signs of cancer, you may have an esophagectomy, or instead of treatment, you could start follow-up testing. If cancer is found in or near the esophagus, an esophagectomy is strongly recommended. Otherwise, supportive care can be started. Supportive care is also recommended if tests show a T4b tumor or M1 disease.

**Next steps:** When you are finished with cancer treatment, read Part 5.3 for follow-up testing. If you will receive supportive care, read Part 5.5 next.
This chart maps another course of treatment for esophageal cancers not within the neck and that can be treated with surgery. An esophagectomy without neoadjuvant treatment is recommended when it is likely to remove all the cancer.

The results of surgery are used to decide if adjuvant 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 of care is to start follow-up testing.

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 are options. The recommended chemotherapy regimens for chemoradiation after surgery are:

- 5-FU before, during, and after radiation,
- 5-FU before and after radiation with capecitabine,
- Capecitabine before and after radiation with 5-FU, and
- Capecitabine before, during, and after radiation.

Next steps: When you are finished with cancer treatment, read Part 5.3 for follow-up testing. If you will receive supportive care, read Part 5.5 next.
This chart maps the treatment options for people healthy enough for surgery and who have esophageal cancers within the neck. Sometimes esophageal cancers in the neck can’t be first treated with surgery or you may not want surgery. In these cases, concurrent chemoradiation to cure the cancer is recommended. The recommended chemotherapy regimens for chemoradiation are:

### Preferred regimens

- Cisplatin and fluoropyrimidine (5-FU or capecitabine)
- Oxaliplatin and fluoropyrimidine (5-FU or capecitabine)
- Paclitaxel and carboplatin

### Other regimens

- Paclitaxel and cisplatin
- Docetaxel and cisplatin
- Irinotecan and cisplatin
- Paclitaxel and fluoropyrimidine (5-FU or capecitabine)
- Docetaxel and fluoropyrimidine (5-FU or capecitabine)
How the tumor responds to treatment will be assessed by a CT scan with contrast, PET/CT, or upper GI endoscopy. These tests are described in Parts 2.1 and 3.1. If there are no signs of cancer, you can start follow-up testing. If cancer is found in or near the esophagus, then you may have an esophagectomy. Otherwise, supportive care can be started. Supportive care is also recommended if tests show a T4b tumor or M1 disease.

**Next steps:** When you are finished with cancer treatment, read Part 5.3 for follow-up testing. If you will receive supportive care, read Part 5.5 next.

**Definitions:**

- Concurrent chemoradiation: Chemotherapy and radiation therapy given at the same time
- Supportive care: Treatment for symptoms that are caused by cancer or by cancer treatment

**Acronyms:**

- 5-FU = fluorouracil
- CT = computed tomography
- GI = gastrointestinal
- PET = positron emission tomography
This chart maps the treatment options for T4b esophageal tumors. These tumors can’t be first treated with surgery even if you are able to undergo surgery. Instead, concurrent chemoradiation to cure the cancer is recommended. If the tumor has invaded the trachea, heart, or major blood vessels, chemotherapy alone may be given. Chemotherapy regimens are listed in Part 5.5. The recommended chemotherapy regimens for chemoradiation are:

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

**Other regimens**
- Paclitaxel and cisplatin
- Docetaxel and cisplatin
- Irinotecan and cisplatin

How the tumor responds to treatment will be assessed by a CT scan with contrast, PET/CT, or upper GI endoscopy. These tests are described in Parts 2.1 and 3.1. If there are no signs of cancer, you can start follow-up testing. If cancer is found in or near the esophagus, then surgery can be done. An esophagectomy is recommended. Otherwise, supportive care can be started. Supportive care is also recommended if tests show a T4b tumor or M1 disease.

**Next steps:** When you are finished with cancer treatment, read Part 5.3 for follow-up testing. If you will receive supportive care, read Part 5.5 next.
This chart lists the treatment options for when surgery can’t be done. If you are able to undergo chemoradiation, it is recommended to try to cure the cancer. The recommended chemotherapy regimens for chemoradiation are:

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

**Other regimens**
- Paclitaxel and cisplatin
- Docetaxel and cisplatin
- Irinotecan and cisplatin
- Paclitaxel and fluoropyrimidine (5-FU or capecitabine)
- Docetaxel and fluoropyrimidine (5-FU or capecitabine)
Part 5: Squamous cell carcinomas

Besides chemoradiation, your options are chemotherapy, radiation therapy, or supportive care. If you are unable to have chemoradiation or chemotherapy, supportive care is recommended. This includes radiation therapy to treat symptoms caused by cancer.

Next steps: When you are finished with cancer treatment, read Part 5.3 for follow-up testing. If you will receive chemotherapy or supportive care, read Part 5.5.

5.3 Care after carcinoma treatment

<table>
<thead>
<tr>
<th>Treatment type</th>
<th>Follow-up care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endoscopic</td>
<td>• Upper GI endoscopy every 3 months for 1 year, then every year</td>
</tr>
<tr>
<td>Non-endoscopic</td>
<td>• Health tests</td>
</tr>
<tr>
<td></td>
<td>• Medical history and physical exam every 3–6 months for 1–2 years, then every 6–12 months for 3–5 years, then every year,</td>
</tr>
<tr>
<td></td>
<td>• CBC and chemistry blood tests as needed,</td>
</tr>
<tr>
<td></td>
<td>• Imaging tests as needed, and</td>
</tr>
<tr>
<td></td>
<td>• Upper GI endoscopy as needed</td>
</tr>
<tr>
<td></td>
<td>• Widening of the esophagus if needed</td>
</tr>
<tr>
<td></td>
<td>• Nutritional counseling</td>
</tr>
</tbody>
</table>

This chart 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 cancer treatment you received.

You should have upper GI endoscopies if you had EMR or ablation. These tests 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.
Part 5: Squamous cell carcinomas

If you had an esophagectomy or chemoradiation, follow-up testing should include a medical history and physical exam. If there are signs of cancer, blood and imaging tests may be done. Likewise, an upper GI endoscopy to view the area and take a biopsy can reveal if the cancer has returned.

You may have trouble swallowing after your esophagus has healed from surgery or radiation. These treatments can narrow the esophagus. If this is the 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.

Next steps: If the cancer returns, read Part 5.4 for treatment options.

Definitions:

Read pages 12–15 for information on tests.

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

HGD: A pre-cancerous change in cells

Imaging test: A test that makes pictures of the insides of the body

Supportive care: Treatment for symptoms that are caused by cancer or by cancer treatment

Acronyms:

CBC = complete blood count
GI = gastrointestinal
HGD = high-grade dysplasia
### 5.4 Recurrence of carcinoma

<table>
<thead>
<tr>
<th>Recurrence site</th>
<th>Prior treatment</th>
<th>Recurrence treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>M0 disease</td>
<td>Chemoradiation, no chemoradiation</td>
<td>Surgery, Chemotherapy, or Supportive care</td>
</tr>
<tr>
<td>M1 disease</td>
<td>Chemoradiation, no esophagectomy</td>
<td>Esophagectomy, or Supportive care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supportive care</td>
</tr>
</tbody>
</table>

This chart maps the treatment options for cancer that returned during follow-up testing. Options are based on where the cancer returned. If there are no distant metastases (M0 disease), the cancer can be treated with concurrent chemoradiation if you didn’t have chemoradiation before. The recommended chemotherapy regimens for chemoradiation are:

**Preferred regimens**

- Cisplatin and fluoropyrimidine (5-FU or capecitabine)
- Oxaliplatin and fluoropyrimidine (5-FU or capecitabine)
- Paclitaxel and carboplatin

**Other regimens**

- Paclitaxel and cisplatin
- Docetaxel and cisplatin
- Irinotecan and cisplatin
- Paclitaxel and fluoropyrimidine (5-FU or capecitabine)
- Docetaxel and fluoropyrimidine (5-FU or capecitabine)

Other options include surgery, chemotherapy, or supportive care. If the cancer returns as M0 disease after chemoradiation with no prior esophagectomy, your doctor will assess if you can have surgery and if the tumor can be removed. If not, supportive care should be given. Supportive care is also recommended for distant metastases (M1 disease).

**Next steps:** When you are finished with cancer treatment, read Part 5.3 for follow-up testing. If you will receive chemotherapy or supportive care, read Part 5.5 next.
5.5 Supportive care for carcinomas

The goal of supportive care is to prevent and relieve discomfort you may have. Supportive care is given at any stage of cancer, but is often the main type of care when the cancer is advanced. When used for advanced cancers, supportive care is often called palliative care. It is used to relieve symptoms from the cancer or treatments. Supportive care may also extend life, improve your eating, and help you feel better overall. Relief of specific symptoms and chemotherapy are described next.

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 stage IV 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 good performance status. If you do have chemotherapy, it is important for your doctors to assess for side effects on a regular basis.

First-line chemotherapy regimens are listed next. 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.
### First-line regimens

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

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

### Notes:

- _First-line regimens_
- Preferred
- Other

**First-line regimens**

- **Preferred**
  - Docetaxel, cisplatin, and 5-FU
  - Docetaxel, carboplatin, and 5-FU
  - Docetaxel, oxaliplatin, and 5-FU
  - Epirubicin, cisplatin, and 5-FU
  - Epirubicin, oxaliplatin, and 5-FU
  - Epirubicin, cisplatin, and capecitabine
  - Epirubicin, oxaliplatin, and capecitabine
  - Fluoropyrimidine (5-FU or capecitabine) and cisplatin
  - Fluoropyrimidine (5-FU or capecitabine) and oxaliplatin
  - 5-FU and irinotecan

- **Other**
  - Paclitaxel with cisplatin or carboplatin
  - Docetaxel with cisplatin
  - Docetaxel and irinotecan
  - Fluoropyrimidine (5-FU or capecitabine)
  - Docetaxel
  - Paclitaxel
### Second-line regimens

<table>
<thead>
<tr>
<th>Preferred</th>
<th>Alternative regimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Docetaxel</td>
<td>Gemcitabine, 5-FU, and leucovorin</td>
</tr>
<tr>
<td>Paclitaxel</td>
<td>Pegylated liposomal doxorubicin, cisplatin, and 5-FU</td>
</tr>
<tr>
<td>Irinotecan</td>
<td>Mitomycin and irinotecan</td>
</tr>
<tr>
<td></td>
<td>Mitomycin, cisplatin, and 5-FU</td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>Mitomycin, and 5-FU</td>
</tr>
<tr>
<td>Irinotecan and cisplatin</td>
<td>Etoposide</td>
</tr>
<tr>
<td>Irinotecan and fluoropyrimidine (5-FU or capecitabine)</td>
<td>Erlotinib</td>
</tr>
<tr>
<td>Irinotecan and docetaxel</td>
<td></td>
</tr>
</tbody>
</table>
5.6 Tools
Webpages
American Cancer Society
www.cancer.org/cancer/esophaguscancer/detailedguide/esophagus-cancer-treating-by-stage

National Cancer Institute
www.cancer.gov/cancertopics/pdq/treatment/esophageal/Patient/page5

Review of Part 5

- Endoscopic treatment or an esophagectomy is used to cure local cancers.
- An esophagectomy or chemoradiation alone is used to cure locally advanced cancers.
- Chemoradiation may be given to shrink a tumor before an esophagectomy.
- The results of curative treatment are used to decide if adjuvant treatment is needed.
- Follow-up testing after carcinoma treatment has ended looks for signs of new tumors.
- Cancer recurrences may be cured with an esophagectomy or chemoradiation if you haven’t had these treatments before.
- Chemotherapy is used to control cancer growth of advanced cancers.
- Tell your treatment team about any symptoms you have, because there may be ways to get relief.
Part 6: Adenocarcinomas

Part 6 is a guide to the treatment options for people with an adenocarcinoma of the esophagus. It shows what treatments are recommended. This information is taken from the treatment guidelines written by NCCN experts for esophageal cancer doctors. However, your doctors may suggest other treatments based on your health and personal wishes.

Much effort has been made to make Part 6 easy to read. Charts are used to list treatment options and map the steps through the treatment process. This information is also described in the text. Some words that you may not know are defined on the page and in the Dictionary in Part 8. More information about the treatments in this guide can be found in Part 4.

6.1 Local adenocarcinoma
Treatment for esophageal cancers that haven’t grown beyond the submucosal layer.

6.2 Locally advanced adenocarcinoma
Treatment for esophageal cancers that have spread beyond the submucosal layer.

6.3 Care after adenocarcinoma treatment
Follow-up care for when there are no signs of cancer after treatment.

6.4 Recurrence of adenocarcinoma
Treatment for cancers that return during follow-up testing.

6.5 Supportive care for adenocarcinomas
Treatment for cancers that have spread to distant sites.

6.6 Tools
List of helpful webpages about the timing of treatments.
6.1 Local adenocarcinoma

These cancers haven’t grown far into the esophageal wall. 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. These cancers have not spread to nearby lymph nodes or elsewhere in the body.

Surgery may be a treatment 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 chemotherapy and chemoradiation would do more to help than harm. Surgical and nonsurgical options are presented next.

**Surgical options**

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>Primary treatment</th>
<th>Surgical results</th>
<th>Adjuvant treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tis, N0, M0</td>
<td>EMR, or Ablation</td>
<td>No cancer in the margins or lymph nodes</td>
<td>Start follow-up testing</td>
</tr>
<tr>
<td>T1a, N0, M0</td>
<td>EMR then ablation, or Esophagectomy</td>
<td>Cancer is in the margins or lymph nodes</td>
<td>Chemoradiation</td>
</tr>
<tr>
<td>T1b, N0, M0</td>
<td>Esophagectomy</td>
<td>Some tumor was left behind</td>
<td>Chemoradiation, or Supportive care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>M1 disease was found</td>
<td></td>
</tr>
</tbody>
</table>

This chart lists the treatment options for when surgery can be done. For a Tis tumor, endoscopic treatment—EMR or ablation—is recommended. A T1a tumor hasn’t grown into the submucosa, so EMR followed by ablation can remove the tumor. A second option for a T1a tumor is an esophagectomy. T1b tumors have invaded the submucosa,
so an esophagectomy is the best option. You won’t be able to eat right after an esophagectomy, so a J-tube may be inserted into your intestine to give you food.

After an esophagectomy, you may need adjuvant treatment. If your doctors were able to remove all the cancer that they could see and no cancer was found in the surgical margins and lymph nodes, no more treatment is needed. The next step of care is to start follow-up testing. If cancer is found in the surgical margins or lymph nodes, chemoradiation is needed. 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 are options. The recommended chemotherapy regimens for chemoradiation after surgery are:

- 5-FU before, during, and after radiation,
- 5-FU before and after radiation with capecitabine,
- Capecitabine before and after radiation with 5-FU, and
- Capecitabine before, during, and after radiation.

Next steps: When you are finished with cancer treatment, read Part 6.3 for follow-up testing. If you will receive supportive care, read Part 6.5 next

### Nonsurgical options

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>Primary treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tis, N0, M0</td>
<td>EMR, or ablation</td>
</tr>
<tr>
<td>T1a, N0, M0</td>
<td>EMR then ablation</td>
</tr>
<tr>
<td>T1b, N0, M0</td>
<td>EMR then ablation, or chemoradiation</td>
</tr>
</tbody>
</table>

This chart lists the treatment options for when surgery can’t be done. For a Tis tumor, endoscopic treatment—EMR or ablation—is a safe option. EMR followed by ablation can remove T1a and T1b tumors. Instead of endoscopic treatment, chemoradiation may be given for a T1b tumor that may have spread beyond the reach of endoscopic treatment. The recommended chemotherapy regimens for chemoradiation are:

**Preferred regimens**

- Cisplatin and fluoropyrimidine (5-FU or capecitabine)
- Oxaliplatin and fluoropyrimidine (5-FU or capecitabine)
- Paclitaxel and carboplatin
Part 6: Adenocarcinomas

Other regimens

- Paclitaxel and cisplatin
- Docetaxel and cisplatin
- Irinotecan and cisplatin
- Paclitaxel and fluoropyrimidine (5-FU or capecitabine)
- Docetaxel and fluoropyrimidine (5-FU or capecitabine)

Next steps: When you are finished with cancer treatment, read Part 6.3 for follow-up testing.

6.2 Locally advanced adenocarcinoma

These cancers have spread beyond the submucosa but not to distant sites. They include T2, T3, and T4 tumors without cancer in the nearby lymph nodes. Also included are T1b, T2, T3, or T4 tumors with cancer in the nearby lymph nodes. On the following pages, cancer in nearby lymph nodes is represented by 'N+' since the number of lymph nodes with cancer can’t be known before surgery.

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 to help than harm. Surgical and nonsurgical options are presented on the next few pages.

Definitions:

- **Intestine**: The long tube-like digestive organ
- **J-tube**: A feeding tube
- **Lymph node**: A small group of disease-fighting cells
- **Nutritional intake**: Ingested food and drinks
- **Submucosa**: The second layer of the esophageal wall
- **Supportive care**: Treatment for symptoms of a disease
- **Surgical margins**: The normal-looking tissue around the edge of a tumor

Acronyms:

- 5-FU = fluorouracil
- EMR = endoscopic mucosal resection
### Surgical options

**Option 1**

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>Neoadjuvant treatment</th>
<th>Results</th>
<th>Primary treatment</th>
<th>Surgery results</th>
<th>Adjuvant treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2, N0, M0</td>
<td>Chemoradiation, or</td>
<td>No signs of cancer</td>
<td>Esophagectomy, or Follow-up testing</td>
<td>No cancer in the margins or lymph nodes</td>
<td>Start follow-up testing</td>
</tr>
<tr>
<td>T3, N0, M0</td>
<td></td>
<td>T1 – T4a disease</td>
<td>Esophagectomy, or Supportive care</td>
<td>No cancer in margins but in lymph nodes</td>
<td>Observe until cancer grows</td>
</tr>
<tr>
<td>T4a, N0, M0</td>
<td></td>
<td>T4b or M1 disease</td>
<td>Supportive care</td>
<td>Cancer is in the margins</td>
<td>Observe until cancer grows</td>
</tr>
<tr>
<td>T1b, N+, M0</td>
<td></td>
<td></td>
<td></td>
<td>Some tumor was left behind</td>
<td>Supportive care</td>
</tr>
<tr>
<td>T2, N+, M0</td>
<td></td>
<td></td>
<td></td>
<td>M1 disease was found</td>
<td></td>
</tr>
<tr>
<td>T3, N+, M0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T4a, N+, M0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This chart maps one course of treatment for people healthy enough for surgery. First, concurrent chemoradiation is given to shrink the tumor. The recommended chemotherapy regimens for chemoradiation are:

**Preferred regimens**

- Paclitaxel and carboplatin
- Cisplatin and fluoropyrimidine (5-FU or capecitabine)

**Other regimens**

- Oxaliplatin and fluoropyrimidine (5-FU or capecitabine)
- Irinotecan and cisplatin
- Docetaxel and fluoropyrimidine (5-FU or capecitabine)
- Paclitaxel and fluoropyrimidine (5-FU or capecitabine)
Part 6: Adenocarcinomas

How the tumor responds to treatment will be assessed by a CT scan with contrast, PET/CT, or upper GI endoscopy. These tests are described in Parts 2.1 and 3.1. If there are no signs of cancer, you may have an esophagectomy, or instead of treatment, you could start follow-up testing. If cancer is found in or near the esophagus, an esophagectomy is strongly recommended. Otherwise, supportive care can be started. Supportive care is also recommended if tests show a T4b tumor or M1 disease.

After an esophagectomy, you may need adjuvant treatment. If your doctors were able to remove all the cancer that they could see and no cancer was found in the surgical margins and lymph nodes, no more treatment is needed. The next step of care is to start follow-up testing. If the surgical margins are cancer-free but there’s cancer in the lymph nodes, observation is recommended. Observation is testing on a regular basis for cancer growth. Observation is also recommended when cancer is found in the surgical margins. If your doctors weren’t able to remove all the cancer they could see or cancer was found in distant sites, supportive care is the best option.

Next steps: When you are finished with cancer treatment, read Part 6.3 for follow-up testing. If you will receive supportive care, read Part 6.5 next.

Definitions:

- Concurrent chemoradiation: Chemotherapy and radiation therapy given at the same time
- Lymph node: A small group of disease-fighting cells
- Surgical margins: The normal-looking tissue around the edge of a tumor

Acronyms:

- 5-FU = fluorouracil
- CT = computed tomography
- GI = gastrointestinal
- PET = positron emission tomography
This chart maps another course of treatment for people healthy enough for surgery. First, chemotherapy can be given to shrink the tumor before an esophagectomy. The recommended chemotherapy regimens before surgery are:

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

After the esophagectomy, you may need adjuvant treatment depending on the surgery results. If your doctors were able to remove all the cancer that they could see and no cancer was found in the surgical margins and lymph nodes, you may have chemotherapy, or instead of treatment, you could start follow-up testing. The chemotherapy regimens used after surgery are the same as those used before surgery.

If no cancer is in the surgical margins but is in the lymph nodes, you have three options. One option called observation, is testing on a regular basis for cancer growth.
Chemoradiation and chemotherapy are your other options. Observation or chemoradiation is also recommended when cancer is in the surgical margins. If your doctors weren’t able to remove all the cancer they could see or cancer was found in distant sites, your options are chemoradiation or supportive care. The recommended chemotherapy regimens for chemoradiation after surgery are:

- 5-FU before, during, and after radiation,
- 5-FU before and after radiation with capecitabine,
- Capecitabine before and after radiation with 5-FU, and
- Capecitabine before, during, and after radiation.

Next steps: When you are finished with cancer treatment, read Part 6.3 for follow-up testing. If you will receive supportive care, read Part 6.5 next.
This chart maps a possible third treatment course for people healthy enough for surgery. Instead of having surgery first, concurrent chemoradiation to cure the cancer is recommended. The recommended chemotherapy regimens for chemoradiation are:

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

**Other regimens**
- Paclitaxel and cisplatin
- Docetaxel and cisplatin
- Irinotecan and cisplatin

How the tumor responds to treatment will be assessed with a CT scan with contrast, PET/CT, or upper GI endoscopy. These tests are described in Parts 2.1 and 3.1. If there are no signs of cancer, you can start follow-up testing. If cancer is found in or near the esophagus, then surgery can be done. An esophagectomy is recommended. Otherwise, supportive care can be started. Supportive care is also recommended if tests show a T4b tumor or M1 disease.

**Next steps:** When you are finished with cancer treatment, read Part 6.3 for follow-up testing. If you will receive supportive care, read Part 6.5 next.
### Definitions:

- **Concurrent chemoradiation:** Chemotherapy and radiation therapy given at the same time.
- **Lymph node:** A small group of disease-fighting cells.
- **Supportive care:** Treatment for symptoms that are caused by cancer or by cancer treatment.
- **Surgical margins:** The normal-looking tissue around the edge of a tumor.

### Acronyms:

- 5-FU = fluorouracil
- CT = computed tomography
- GI = gastrointestinal
- PET = positron emission tomography

---

**Part 6: Adenocarcinomas**

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>Primary treatment</th>
<th>Results</th>
<th>Adjuvant treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2, N0, M0</td>
<td></td>
<td>No cancer in the margins and lymph nodes</td>
<td>Follow-up testing, or</td>
</tr>
<tr>
<td>T3, N0, M0</td>
<td></td>
<td>Cancer is in the margins or lymph nodes</td>
<td>Chemoradiation</td>
</tr>
<tr>
<td>T4a, N0, M0</td>
<td></td>
<td>Some tumor was left behind</td>
<td>Chemoradiation, or</td>
</tr>
<tr>
<td>T1b, N+, M0</td>
<td><strong>Esophagectomy</strong></td>
<td>M1 disease was found</td>
<td>Supportive care</td>
</tr>
<tr>
<td>T2, N+, M0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T3, N+, M0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>T4a, N+, M0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This chart maps a possible fourth treatment course for people healthy enough for surgery. An esophagectomy without neoadjuvant treatment is recommended when surgery alone is likely to remove all the cancer. Adjuvant treatment is based on the results of surgery.

If your doctors were able to remove all the cancer that they could see and no cancer was found in the **surgical margins** and **lymph nodes**, you may have chemoradiation, or instead of treatment, you could start follow-up testing. Your doctor is more likely to recommend chemoradiation if you have a T3 or T4a tumor. If cancer is found in the surgical margins or lymph nodes, chemoradiation is needed. 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 are options. The recommended chemotherapy regimens for chemoradiation after surgery are:

- 5-FU before, during, and after radiation,
- 5-FU before and after radiation with capecitabine,
- Capecitabine before and after radiation with 5-FU, and
- Capecitabine before, during, and after radiation.

Next steps: When you are finished with cancer treatment, read Part 6.3 for follow-up testing. If you will receive supportive care, read Part 6.5 next.

### T4b tumors

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>Primary treatment</th>
<th>Results</th>
<th>Adjuvant treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>T4b, N+, M0</td>
<td>Chemoradiation</td>
<td>No signs of cancer</td>
<td>Start follow-up testing</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T1 – T4a disease</td>
<td>Esophagectomy, or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T4b or M1 disease</td>
<td>Supportive care</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Supportive care</td>
</tr>
</tbody>
</table>

This chart maps the course of treatment for T4b tumors. These tumors can’t be first treated with surgery even if you are able to undergo surgery. Instead, concurrent chemoradiation to cure the cancer is recommended. The recommended chemotherapy regimens for chemoradiation are:

**Preferred regimens**

- Cisplatin and fluoropyrimidine (5-FU or capecitabine)
- Oxaliplatin and fluoropyrimidine (5-FU or capecitabine)
- Paclitaxel and carboplatin

**Other regimens**

- Paclitaxel and cisplatin
- Docetaxel and cisplatin
- Irinotecan and cisplatin
- Paclitaxel and fluoropyrimidine (5-FU or capecitabine)
- Docetaxel and fluoropyrimidine (5-FU or capecitabine)

How the tumor responds to treatment will be assessed with a CT scan with contrast, PET/CT, or upper GI endoscopy. These tests are described in Parts 2.1 and 3.1.
If there are no signs of cancer, you can start follow-up testing. If cancer is found in or near the esophagus, then surgery can be done. An esophagectomy is recommended. Otherwise, supportive care can be started. Supportive care is also recommended if tests show a T4b tumor or M1 disease.

**Next steps:** When you are finished with cancer treatment, read Part 6.3 for follow-up testing. If you will receive supportive care, read Part 6.5 next.
This chart lists the treatment options for when surgery can’t be done. If you are able to undergo chemoradiation, it is recommended to try to cure the cancer. The recommended chemotherapy regimens for chemoradiation are:

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

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

Besides chemoradiation, your options are chemotherapy, radiation therapy, or supportive care. If you are unable to have chemoradiation or chemotherapy, supportive care is recommended. This includes radiation therapy to treat symptoms caused by cancer.

**Next steps:** When you are finished with cancer treatment, read Part 6.3 for follow-up care. If you will receive chemotherapy or supportive care, read Part 6.5.
6.3 Care after adenocarcinoma treatment

<table>
<thead>
<tr>
<th>Treatment type</th>
<th>Follow-up care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endoscopic</td>
<td>• Upper GI endoscopy every 3 months for 1 year, then every year</td>
</tr>
<tr>
<td>Non-endoscopic</td>
<td>• Medical tests</td>
</tr>
<tr>
<td></td>
<td>▪ Medical history and physical exam every 3–6 months for 1–2 years, then every 6–12 months for 3–5 years, then every year,</td>
</tr>
<tr>
<td></td>
<td>▪ CBC and chemistry blood tests as needed,</td>
</tr>
<tr>
<td></td>
<td>▪ Imaging tests as needed, and</td>
</tr>
<tr>
<td></td>
<td>▪ Upper GI endoscopy as needed</td>
</tr>
<tr>
<td></td>
<td>• Widening of the esophagus if needed</td>
</tr>
<tr>
<td></td>
<td>• Nutritional counseling</td>
</tr>
</tbody>
</table>

This chart 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 cancer treatment you received.

You should have upper GI endoscopies if you had EMR or ablation. These tests 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.

If you had an esophagectomy or chemoradiation, follow-up testing should include a medical history and physical exam. If there are signs of cancer, blood and imaging tests may be done. Likewise, an upper GI endoscopy to view the area and take a biopsy can reveal if the cancer has returned.

**Definitions:**

- **Read pages 12–15 for information on tests.**
- **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
- **HGD:** A pre-cancerous change in cells
- **Imaging test:** A test that makes pictures of the insides of the body
- **Supportive care:** Treatment for symptoms that are caused by cancer or by cancer treatment

**Acronyms:**

- **CBC** = complete blood count
- **GI** = gastrointestinal
- **HGD** = high-grade dysplasia
You may have trouble swallowing after your esophagus has healed from surgery or radiation. These treatments can narrow the esophagus. If this is the 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 to make sure you are getting enough food to eat and are eating enough healthy foods.

Next steps: If the cancer returns, read Part 6.4 for treatment options.

### 6.4 Recurrence of adenocarcinoma

<table>
<thead>
<tr>
<th>Recurrence site</th>
<th>Prior treatment</th>
<th>Recurrence treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>M0 disease</td>
<td>Esophagectomy, no chemoradiation</td>
<td>Chemoradiation, Surgery, Chemotherapy, or Supportive care</td>
</tr>
<tr>
<td></td>
<td>Chemoradiation, no esophagectomy</td>
<td>Esophagectomy, or Supportive care</td>
</tr>
<tr>
<td>M1 disease</td>
<td>Supportive care</td>
<td>Supportive care</td>
</tr>
</tbody>
</table>

This chart maps the treatment options for cancer that returned during follow-up testing. Options are based on where the cancer returned. If there are no distant metastases (M0 disease), the cancer can be treated with concurrent chemoradiation if you didn’t have chemoradiation before. The recommended chemotherapy regimens for chemoradiation are:

**Preferred regimens**

- Cisplatin and fluoropyrimidine (5-FU or capecitabine)
- Oxaliplatin and fluoropyrimidine (5-FU or capecitabine)
- Paclitaxel and carboplatin
Other regimens

- Paclitaxel and cisplatin
- Docetaxel and cisplatin
- Irinotecan and cisplatin
- Paclitaxel and fluoropyrimidine (5-FU or capecitabine)
- Docetaxel and fluoropyrimidine (5-FU or capecitabine)

Other options include surgery, chemotherapy, or supportive care. If the cancer returns as M0 disease after chemoradiation with no prior esophagectomy, your doctor will assess if you can have surgery and if the tumor can be removed. If not, supportive care should be given. Supportive care is also recommended for distant metastases (M1 disease).

Next steps: When you are finished with cancer treatment, read Part 6.3 for follow-up care. If you will receive chemotherapy or supportive care, read Part 6.5 next.
6.5 Supportive care for adenocarcinomas

The goal of supportive care is to prevent and relieve discomfort you may have. Supportive care is given at any stage of cancer, but is often the main type of care when the cancer is advanced. When used for advanced cancers, supportive care is often called palliative care. It is used to relieve symptoms from the cancer or treatments. Supportive care may also extend life, improve your eating, and help you feel better overall. Relief of specific symptoms and chemotherapy are described next.

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 and trastuzumab

Chemotherapy is often used for supportive care of stage IV 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.
Part 6: Adenocarcinomas

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 a 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 good performance status. If do have chemotherapy, it is important for your doctors to assess for side effects on a regular basis.

First-line chemotherapy regimens are listed next. Trastuzumab is a targeted therapy drug that is added to chemotherapy if the cancer cells have too many HER2s. Read page 25 for more information on HER2 status. 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.
## First-line regimens

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

<table>
<thead>
<tr>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paclitaxel with cisplatin or carboplatin</td>
</tr>
<tr>
<td>Docetaxel with cisplatin</td>
</tr>
<tr>
<td>Docetaxel and irinotecan</td>
</tr>
<tr>
<td>Fluoropyrimidine (5-FU or capecitabine)</td>
</tr>
<tr>
<td>Docetaxel</td>
</tr>
<tr>
<td>Paclitaxel</td>
</tr>
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</table>
### Second-line regimens

<table>
<thead>
<tr>
<th>Preferred</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trastuzumab and cisplatin and fluoropyrimidine (5-FU or capecitabine)</td>
<td></td>
</tr>
<tr>
<td>Trastuzumab and other chemotherapy regimens that don’t include epirubicin</td>
<td></td>
</tr>
<tr>
<td>Docetaxel</td>
<td></td>
</tr>
<tr>
<td>Paclitaxel</td>
<td></td>
</tr>
<tr>
<td>Irinotecan</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Irinotecan and cisplatin</td>
<td></td>
</tr>
<tr>
<td>Irinotecan and fluoropyrimidine (5-FU or capecitabine)</td>
<td></td>
</tr>
<tr>
<td>Irinotecan and docetaxel</td>
<td></td>
</tr>
</tbody>
</table>

### Alternative regimens

<table>
<thead>
<tr>
<th>Alternative regimens</th>
<th>Notes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gemcitabine, 5-FU, and leucovorin</td>
<td></td>
</tr>
<tr>
<td>Pegylated liposomal doxorubicin, cisplatin, and 5-FU</td>
<td></td>
</tr>
<tr>
<td>Mitomycin and irinotecan</td>
<td></td>
</tr>
<tr>
<td>Mitomycin, cisplatin, and 5-FU</td>
<td></td>
</tr>
<tr>
<td>Mitomycin and 5-FU</td>
<td></td>
</tr>
<tr>
<td>Etoposide</td>
<td></td>
</tr>
<tr>
<td>Erlotinib</td>
<td></td>
</tr>
</tbody>
</table>
6.6 Tools

Webpages

American Cancer Society
www.cancer.org/cancer/esophaguscancer/detailedguide/esophagus-cancer-treating-by-stage

National Cancer Institute
www.cancer.gov/cancertopics/pdq/treatment/esophageal/Patient/page5

Review of Part 6

- Endoscopic treatment or an esophagectomy is used to cure local cancers.
- An esophagectomy or chemoradiation alone is used to cure locally advanced cancers.
- Chemoradiation or chemotherapy may be given to shrink a tumor before an esophagectomy.
- The results of curative treatment are used to decide if adjuvant treatment is needed.
- Testing during follow-up testing looks for signs of new tumors.
- Cancer recurrences may be cured with an esophagectomy or chemoradiation if you haven’t had these treatments before.
- Chemotherapy is used to control cancer growth of advanced cancers.
- Tell your treatment team about any symptoms you have, because there may be ways to get relief.
Part 7: Accepting a treatment plan

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 aimed to teach you about esophageal cancer, its tests, and treatment options. Part 7 aims to help you get a treatment plan that meets all your needs.

80  7.1 Benefits of a treatment plan
     Explains how a treatment plan can help.

80  7.2 Parts of a treatment plan
     Presents the information found in a treatment plan.

84  7.3 Your role in planning
     Describes how you can take part in treatment planning.

86  7.4 Getting a 2nd opinion
     Addresses getting another treatment plan from another treatment team.

87  7.5 Tools
     Lists webpages about treatment planning.
7.1 Benefits of a treatment plan
Learning you have cancer starts an unplanned journey to an unknown place. A treatment plan is like having a roadmap for your journey. It is a written course of action through treatment and beyond. It can help you, your loved ones, and your treatment team. A treatment plan is useful for:

• Starting and guiding talks about treatment,
• Teaching what the treatment choices are,
• Informing everyone of the decisions made,
• Reminding everyone of the decisions made,
• Pinpointing who is in charge of each part of care,
• Controlling stress,
• Knowing what to expect,
• Changing from one doctor to another,
• Improving contact among your doctors, and
• Providing care for all issues.

7.2 Parts of a treatment plan
A treatment plan addresses all cancer care needs while respecting your beliefs, wishes, and values. It is likely to change and expand as you go through treatment. The plan will include the role of your doctors and how you can help yourself. A treatment plan often has the following parts:

Cancer information
Cancer can greatly differ even when people have a tumor in the same organ. Test results that describe the cancer are reported in the treatment plan. Such test results include the cancer site, cell type, and cancer stage. See Parts 2 and 3 for the tests used for esophageal cancer.

Your treatment team
Cancer care is a team effort. Who is on your team depends on the treatments you choose. Surgeons and radiation oncologists give local treatments. Medical oncologists give systemic treatments. Your primary care doctor can also be part of your team. He or she can help you express your feelings about treatments to the team. Treatment of other medical problems may be improved if your primary care doctor is informed about your cancer care. Besides doctors, you may receive care from nurses, social workers, nutritionists, and other health experts. Ask to have the names and contact information of your health care providers included in the treatment plan.

Cancer treatment
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. Clinical trials study how well a treatment works and its safety. Treatment planning takes many factors into account, such as:

• The TNM scores,
• Location of the tumor,
Part 7: Accepting a treatment plan

- Your general health,
- Treatment side effects,
- Costs of treatment,
- Changes to your life,
- What you want from treatment, and
- Your feelings about side effects.

A guide to treatment options can be found in Part 5 for squamous cell carcinomas and Part 6 for adenocarcinomas. The cancer treatment that you agree to have should be reported in the treatment plan. It is also important to note the goal of treatment and the chance of a good treatment response. In addition, all known side effects should be listed and the time required for treatment should be noted. See Part 4 for listings of the side effects of treatment.

Your treatment plan may change because of new information. You may change your mind about treatment, tests may find new results, or how well the treatment is working may change. Any of these changes may require a new plan.

Definitions:

**Adenocarcinoma**: Cancer of cells that make mucus to keep the esophagus moist

**Medical oncologist**: A doctor who’s an expert in cancer drugs

**Radiation oncologist**: A doctor who’s an expert in treating cancer with radiation

**Side effect**: An unhealthy or unpleasant physical or emotional response to treatment

**Surgeon**: A doctor who’s an expert in operations to remove or repair a part of the body

**Squamous cell carcinoma**: Cancer of cells that line the inner wall of the esophagus
Part 7: Accepting a treatment plan

Becoming a “cancer patient”

Hearing “you have cancer” is likely to be life-changing. Some challenges may include managing doctor visits, figuring out how to care for your kids, missing work, and feeling a loss of control. Some people try to keep their life as normal as they can. Others change their life a lot. However, many cancer survivors will tell you that during the active treatment period, being a patient is your job. It’s a job that requires much time and energy. This can be hard.

Use your strengths, talents, and resources to help you cope. Maintain warm relationships with family and friends. Accept the support offered to you and reach out for more help if you need it. Most people would be happy to hear what you need. Make a list for them of things that would help you. If you are a person of faith, your personal beliefs and faith community can help. There are also professionals in mental health, social work, and pastoral services who are able to assist you. You can also start attending support groups to receive help from other cancer survivors.

Stress and symptom control

For most patients with cancer, their main concern is that their treatment works. However, having cancer is complex and brings many physical and emotional challenges. Cancer or its treatment can cause bothersome symptoms. Such symptoms include trouble swallowing, pain, and nausea. The stress of having cancer can also cause symptoms. Helping you to be comfortable and stay active are key goals of the treatment plan. There are ways to treat many symptoms, so tell your treatment team about any symptoms you have. Some of the challenges you may face are addressed next.

You may have already lost some nights of sleep. This is common. The stress of learning that you have cancer and deciding a treatment plan takes its toll. You may lose more sleep while waiting to have treatment and during recovery. Getting less sleep can affect your mood, conversations, and ability to do things. If possible, allow yourself to rest, let people do things for you, and talk with your doctor about sleep medication. Behavioral sleep medicine—a type of talk therapy—may also help.

Feelings of anxiety and depression are common among patients with cancer. You may feel anxious before testing and while waiting for the results. Likewise, you may have a passing depression during a hard part of treatment. Feeling distressed may be a minor problem or it may be more serious. Serious or not, tell your treatment team so that you can get help if needed. Help can include support groups, talk therapy, or medication. Some people
also feel better by exercising, talking with loved ones, or relaxing. Your treatment team has information to help you.

Having cancer may cause you to feel helpless, fearful, alone, or overwhelmed. There are ways to manage this stress. At your cancer center, cancer navigators, social workers, and other experts can help. There may also be helpful community resources, such as support groups and wellness centers.

Some people blame themselves for getting cancer. However, what causes esophageal cancer is unknown. Smoking does increase the chances of getting esophageal cancer, but even people who don’t smoke get cancer. Even if you are a smoker, you don’t deserve cancer. Instead of blaming yourself, try to focus on getting better. Undergoing cancer treatment can be hard. You’ll have a lot to deal with without the blame.

After treatment, some people dislike their looks because of side effects. Common concerns are hair loss from chemotherapy and scars from surgery. It can be difficult to adapt to these changes. You may also be concerned with what your partner thinks. Partners may stop showing their love because they are unsure of what to do. They may also think of themselves as more of a caregiver than a partner during treatment. Sharing what you need and want can help your partner and yourself.

Financial stress is common. You may be unemployed or miss work during treatment. You may have too little or no health insurance. Talk with your treatment team about work, insurance, or money problems. They will include information in the treatment plan to help you control your finances.

**Survivorship care**

Cancer survivorship begins on the day you learn of having esophageal cancer. For many survivors, the end of active treatment signals a time of celebration but also of great anxiety. This is a very normal response. You may need support to address issues that arise from not having regular visits with your treatment
team. In addition, your treatment plan should include a schedule of follow-up tests, treatment of long-term side effects, and care of your general health.

Advance care
Talking with your doctor about your prognosis can help with treatment planning. If the cancer can’t be cured, a care plan for the end of life can be made. However, such talks often happen too late or not at all. Your doctor may delay these talks for fear that you may lose hope, become depressed, or have a shorter survival. Studies suggest that these fears are wrong. Instead, there are many benefits to advance care planning. It is useful for:

- Knowing what to expect,
- Making the most of your time,
- Lowering the stress of caregivers,
- Having your wishes followed,
- Having a better quality of life, and
- Getting good care.

Advance care planning starts with an honest talk between you and your doctors. You don’t have to know the exact details of your prognosis. Just having a general idea will help with planning. With this information, you can decide at what point you’d want to stop chemotherapy, if at all. You can also decide what treatments you’d want for symptom relief, such as surgery or drugs.

Another part of the planning involves hospice care. Hospice care doesn’t include treatment to fight the cancer but rather to reduce symptoms caused by cancer. Hospice care may be started because you aren’t interested in more cancer treatment, no other cancer treatment is available, or because you may be too sick for cancer treatment.

Hospice care allows you to have the best quality of life possible. Care is given all day, every day of the week. You can choose to have hospice care at home or at a hospice center. One study found that patients and caregivers had a better quality of life when hospice care was started early.

An advance directive describes the treatment you’d want if you weren’t able to make your wishes known. It also can name a person whom you’d want to make decisions for you. It is a legal paper that your doctors have to follow. It can reveal your wishes about life-sustaining machines, such as feeding tubes. It can also include your treatment wishes if your heart or lungs were to stop working. If you already have an advance directive, it may need to be updated to be legally valid.

7.3 Your role in planning
The role patients want in treatment planning differs. Some patients want to be involved as little as possible. Others want to know everything and share decision making with their doctors. These two roles are described as passive and active. Tell your treatment team which role you want or if you want a role in the middle.
Part 7: Accepting a treatment plan

Passive role
In a passive role, a person often doesn't seek out information, speak up for him/herself, or think through treatment options. This may be due to a high level of stress. It may be hard to hear or know what others are saying. Stress, pain, and drugs can limit your ability to make good decisions. You may also want a passive role because you don’t know much about cancer. You've never heard the words used to describe esophageal cancer, tests, or treatments. Likewise, you may think that your judgement isn’t any better than your doctors’.

Letting others decide your treatment may make you feel more at ease. But, who do you want to make the decisions? You may rely on your doctors alone to make the right decisions. You can also have loved ones help. They can gather information, speak on your behalf, and share decision making with your doctors. Even if others decide your treatment, you still have to agree to treatment by signing a consent form.

Active role
In an active role, a person often searches for all information, prepares for all outcomes, and speaks up for him/herself. He or she may take the lead or share in decision making. Taking this role may make you feel more certain and hopeful. You’ll likely get the treatment you want, at the place you want, and by the doctors you want.

There are four key steps to shared decision making. First, know what you want from treatment. Do you want a cure or symptom relief? What hardships are you willing to accept to meet your goal? Second, know your test results. This information can pinpoint what's important for you on websites and in books and brochures. Test results can also clarify which treatments are needed.

Third, strive to have helpful talks with your doctor. Prepare questions before your visit and ask questions if your doctor isn’t clear. You can also record your talks and get copies of your medical records. Fourth, accept help from others.
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An active role doesn’t mean going through it alone. Others can help you be active by finding information, taking notes, asking questions, and helping you talk through your options.

Caring for caregivers

No one experiences cancer alone. Having cancer can affect your loved ones, especially those who provide care. This care can take many forms. It can range from giving emotional support to giving medical services in the home. Caregivers often take on extra duties to keep life normal for the family. They also play a central role in explaining what is happening to you to others, like friends and doctors.

It is natural for caregivers to focus on you. Don’t feel guilty. However, caregivers need to meet their own needs as well. Cancer treatment can last from months to years. Caregivers often get too tired from the physical and mental challenges related to the cancer. It isn’t easy, but caregivers need to take care of themselves. If they don’t, they won’t be able to take good care of anyone.

7.4 Getting a 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 treatment plan is best for you.

You may wish to have another doctor review your test results and the treatment plan your doctor has recommended. This is called getting a 2nd opinion. Esophageal cancer is a serious disease, and new information may have been published about which treatments are most effective and safe. You may completely trust your doctor, but a 2nd opinion on which treatment is right for you 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. Choosing your cancer treatment is a very important decision. It can affect your length and quality of life.
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7.5 Tools

Webpages

American Cancer Society
www.cancer.org/Treatment/FindingandPayingforTreatment/index

National Cancer Institute
www.cancer.gov/cancertopics/factsheet/Therapy/doctor-facility

National Coalition for Cancer Survivorship
www.canceradvocacy.org/toolbox

Review of Part 7

- A treatment plan can help you through treatment and beyond.
- It covers many issues—test results, treatments, and supportive programs.
- You can choose how active a role to have in planning your treatment.
- You may wish to get a 2nd opinion on your treatment plan.
## Part 8: Dictionary

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<thead>
<tr>
<th>Term</th>
<th>Definition</th>
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<td>Abdomen</td>
<td>The belly area between the chest and pelvis.</td>
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<tr>
<td>Ablation</td>
<td>Treatment that destroys very small tumors.</td>
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<tr>
<td>Adenocarcinoma</td>
<td>Cancer of cells that make fluids or hormones.</td>
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<tr>
<td>Adjuvant treatment</td>
<td>A treatment given after the main treatment used to cure disease.</td>
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<tr>
<td>Adventitia</td>
<td>The fourth layer of the esophageal wall.</td>
</tr>
<tr>
<td>Alternative medicine</td>
<td>Treatments used in place of standard treatments.</td>
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<tr>
<td>Anesthesia</td>
<td>Loss of feeling with or without loss of wakefulness that is caused by drugs.</td>
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<tr>
<td>Azygous vein</td>
<td>A large vein on the right side of the spine within the chest.</td>
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<tr>
<td>Barrett’s esophagus</td>
<td>The presence of stomach cells within the lining of the esophagus.</td>
</tr>
<tr>
<td>Biopsy</td>
<td>Removal of small amounts of tissue or fluid to be tested for disease.</td>
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<tr>
<td>Blood chemistry test</td>
<td>Measurement of the amount of chemicals in the blood.</td>
</tr>
<tr>
<td>Bronchi</td>
<td>The two airways extending from the windpipe into the lungs.</td>
</tr>
<tr>
<td>Bronchoscope</td>
<td>A thin, long tube fitted with tools that is guided down the mouth.</td>
</tr>
<tr>
<td>Bronchoscopy</td>
<td>Use of a thin tool guided down the throat into the lungs.</td>
</tr>
<tr>
<td>Cells</td>
<td>The “building blocks” of tissues in the body.</td>
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<tr>
<td>Chemotherapy</td>
<td>Drugs that stop the growth process of cells in an active growth phase.</td>
</tr>
<tr>
<td>Clinical stage</td>
<td>Rating the extent of a tumor based on tests before treatment.</td>
</tr>
<tr>
<td>Clinical trial</td>
<td>Research on a test or treatment to assess its safety or how well it works.</td>
</tr>
<tr>
<td>Combination regimen</td>
<td>The use of two or more drugs.</td>
</tr>
<tr>
<td>Complementary medicines</td>
<td>Treatment given along with standard treatment.</td>
</tr>
<tr>
<td>Complete blood count (CBC)</td>
<td>A test of the number of blood cells.</td>
</tr>
<tr>
<td>Computed tomography (CT)</td>
<td>A test that uses x-rays to view body parts.</td>
</tr>
</tbody>
</table>
Part 8: Dictionary

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

Cryoablation
Treatment that kills cancer cells by freezing them.

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.

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

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 mouth.

Endoscopic mucosal resection (EMR)
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.

Epidermal growth factor receptor (EGFR)
A protein on the edge of a cell that send signals for the cell to grow.

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.

Esophagogastric junction
The area where the esophagus and stomach join.

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.
Glandular cells
Cells that make fluids or hormones.

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

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

Histologic typing
Study of cells to classify the disease.

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.

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 scale of 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.

Laparoscopy
Use of a thin tool inserted into the belly area.

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.

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.

Neoadjuvant treatment
The treatment given before the main treatment used to cure disease.

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.

Photodynamic therapy
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.

Positron emission tomography-computed tomography (PET-CT)
A test that uses radioactive material and x-rays to see the shape and function of body parts.

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

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.
Part 8: Dictionary

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.

Single agent
The use of one drug.

Squamous cell carcinoma
Cancer that starts in thin and flat cells that line the surface of organs.

Standard open esophagectomy
Removal of the esophagus through large cuts into the body.

Strip biopsy
The use of injections, tongs, and snares to remove small tumors.

Submucosa
The second layer of the esophageal wall made mostly of connective tissue.

Submucosal injection polypectomy
The use of injections and snares to remove small tumors.

Supportive care
Treatment for symptoms of a disease.

Surface receptor
Proteins on the edge of a cell that send signals for the cell to grow.

Surgical margin
The normal tissue around the tumor removed during surgery.

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

Thoracoscope
A thin, long tube fitted with tools that is inserted through a cut into the chest.

Trachea
The airway between the throat and bronchi; also called the windpipe.

Transhiatal esophagectomy
Removal of the esophagus through cuts in the belly area and chest.

Transthoracic esophagectomy
Removal of the esophagus through cuts in the belly area and chest.

Upper gastrointestinal (GI) endoscopy
Use of a thin tool guided down the throat into the esophagus and stomach.
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 booklets for patients called the NCCN Patient Guidelines. Each booklet presents the standard of care for a type of cancer.

The people involved in the making of the guidelines for patients and doctors are listed next, starting with NCCN staff:

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cityofhope.org

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Massachusetts General Hospital Cancer Center
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800.320.0022
dfbwcc.org
massgeneral.org/cancer

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dukecancerinstitute.org

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Robert H. Lurie Comprehensive Cancer Center of Northwestern University
Chicago, Illinois
866.587.4322
cancer.northwestern.edu

Memorial Sloan-Kettering Cancer Center
New York, New York
800.525.2225
mskcc.org

Moffitt Cancer Center
Tampa, Florida
800.456.3434
moffitt.org

The Ohio State University Comprehensive Cancer Center - James Cancer Hospital and Solove Research Institute
Columbus, Ohio
800.293.5066
cancer.osu.edu

Roswell Park Cancer Institute
Buffalo, New York
877.275.7724
roswellpark.org

Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine
St. Louis, Missouri
800.600.3606
siteman.wustl.edu
NCCN Member Institutions

St. Jude Children’s Research Hospital/
The University of Tennessee Health Science Center
Memphis, Tennessee
888.226.4343 • stjude.org
877.988.3627 • utcancer.org

Stanford Cancer Institute
Stanford, California
877.668.7535
cancer.stanfordhospital.com

University of Alabama at Birmingham Comprehensive Cancer Center
Birmingham, Alabama
800.822.0933
ccc.uab.edu

UC San Diego Moores Cancer Center
La Jolla, California
858.657.7000
cancer.ucsd.edu

UCSF Helen Diller Family Comprehensive Cancer Center
San Francisco, California
800.888.8664
cancer.ucsf.edu

University of Colorado Cancer Center
Aurora, Colorado
720.848.0300
coloradocancercenter.org

University of Michigan Comprehensive Cancer Center
Ann Arbor, Michigan
800.865.1125
mcancer.org

UNMC Eppley Cancer Center at The Nebraska Medical Center
Omaha, Nebraska
800.999.5465
unmc.edu/cancercenter

The University of Texas MD Anderson Cancer Center
Houston, Texas
877.632.6789
mdanderson.org

Vanderbilt-Ingram Cancer Center
Nashville, Tennessee
800.811.8480
vicc.org
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NCCN Guidelines for Patients®

Breast, Colon, Lung, Ovarian, Pancreatic, and Prostate Cancers, Chronic Myelogenous Leukemia, Lung Cancer Screening, Melanoma, Mesothelioma, and Multiple Myeloma

The same authoritative source referenced by physicians and other health care professionals is available for patients.

To request a printed copy: patientguidelines@NCCN.org

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