NCCN Guidelines for Patients®

Esophageal Cancer

Presented with support from:

ECAA
Esophageal Cancer Awareness Association

Available online at NCCN.org/patients
Esophageal Cancer

Learning that you have cancer can be overwhelming. The goal of this book is to help you get the best cancer treatment. It explains which cancer tests and treatments are recommended by experts in esophageal cancer.

The National Comprehensive Cancer Network® (NCCN®) is a not-for-profit alliance of 27 of the world’s leading cancer centers. Experts from NCCN have written treatment guidelines for doctors who treat esophageal cancer. These treatment guidelines suggest what the best practice is for cancer care. The information in this patient book is based on the guidelines written for doctors.

This book focuses on the treatment of esophageal cancer. Key points of the book are summarized in the related NCCN Quick Guide™. NCCN also offers patient resources on breast, lung, and pancreatic cancers and other cancer types. Visit NCCN.org/patients for the full library of patient books, summaries, and other resources.
NCCN aims to improve the care given to patients with cancer. NCCN staff work with experts to create helpful programs and resources for many stakeholders. Stakeholders include health providers, patients, businesses, and others. One resource is the series of books for patients called the NCCN Guidelines for Patients®. Each book presents the best practice for a type of cancer. The patient books are based on clinical practice guidelines written for cancer doctors. These guidelines are called the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®). Clinical practice guidelines list the best health care options for groups of patients. Many doctors use them to help plan cancer treatment for their patients.

Panels of experts create the NCCN Guidelines®. Most of the experts are from NCCN Member Institutions. Panelists may include surgeons, radiation oncologists, medical oncologists, and patient advocates. Recommendations in the NCCN Guidelines are based on clinical trials and the experience of the panelists. The NCCN Guidelines are updated at least once a year. When funded, the patient books are updated to reflect the most recent version of the NCCN Guidelines for doctors. For more information about the NCCN Guidelines, visit NCCN.org/clinical.asp.

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Sponsored in part and endorsed by ESOPHAGEAL CANCER AWARENESS ASSOCIATION (ECAA)

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

http://www.ecaware.org

Endorsed by ESOPHAGEAL CANCER ACTION NETWORK, INC. (ECAN)

ECAN is proud to endorse the NCCN Guidelines for Patients. ECAN understands how critically important it is for patients and families to understand all of their options when facing the life and death decisions so often confronted in Esophageal Cancer. These Guidelines illuminate complex issues as they help answer the important questions that can direct patients on a path to appropriate, life-saving care.

www.ecan.org

Supported by NCCN Foundation®

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

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

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

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

The Honorable Ellen O. Tauscher
NCCN Foundation Board of Directors, Chair
Former Under Secretary of State for Arms Control & International Security and Member of Congress
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How to use this book

Who should read this book?

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

Where should I start reading?

Starting with Part 1 may be helpful. It explains what esophageal cancer is. Knowing more about this cancer may help you better understand its treatment. Part 2 explains cancer staging, which is used to plan treatment. Part 3 lists which health tests and other steps of care are needed before treatment.

Parts 4 through 6 address cancer treatment. Part 4 briefly describes the treatments. Part 5 is a guide to treatment options for squamous cell carcinomas and Part 6, for adenocarcinomas. Tips for making treatment decisions are presented in Part 7.

Does the whole book apply to me?

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

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

Making sense of medical terms

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

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

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

Acronyms are also defined when first used and in the Glossary. Acronyms are short words formed from the first letters of several words. One example is DNA for deoxyribonucleic acid.
You’ve learned that you have esophageal cancer. It’s common to feel shocked and confused. Part 1 reviews some basics that may help you learn about esophageal cancer. These basics may also help you start planning for treatment.
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, lamina propria, and muscularis mucosae.

The epithelium is tissue that helps protect the esophagus from anything swallowed. The lamina propria contains connective tissue, tiny lymph vessels, and glands. Lymph is a clear fluid that gives cells water and food and contains germ-fighting blood cells. The muscularis mucosae 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. It also contains larger lymph vessels.

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

The esophagus moves food and liquids from your throat to your stomach. It’s about 10 inches long. Its wall has four main layers—the mucosa, submucosa, muscularis propria, and adventitia.
A disease of cells

Cancer is a disease of cells. Inside of cells are coded instructions for building new cells and controlling how cells behave. These instructions are called genes. Genes are a part of DNA (deoxyribonucleic acid), which is grouped together into bundles called chromosomes. See Figure 2. Abnormal changes (mutations) in genes cause normal cells to become cancer cells. Researchers are still trying to learn what causes genes to mutate and cause cancer.

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. Squamous cell carcinomas and adenocarcinomas of the esophagus are the focus of this book. Visit NCCN.org/patients for patient guides of lymphomas and sarcomas.

Figure 2. Genetic material in cells

Most human cells contain the “blueprint of life”—the plan by which our bodies are made and work. The plan is found inside of chromosomes, which are long strands of DNA that are tightly wrapped around proteins. Genes are small pieces of DNA that contain instructions for building new cells and controlling how cells behave. Humans have about 24,000 genes.
Cancer’s threat

Cancer cells don’t behave like normal cells in three key ways. First, mutations in genes cause cells to grow more quickly and live longer. Normal cells grow and then divide to form new cells when needed. They also die when old or damaged as shown in Figure 3. In contrast, cancer cells make new cells that aren’t needed and don’t die quickly when old or damaged. Over time, cancer cells form a mass called the primary tumor.

The second way cancer cells differ from normal cells is that they can grow into nearby tissues. If not treated, the primary tumor will likely grow beyond the wall of the esophagus and into nearby structures. The nearby structures into which esophageal tumors grow are described in Part 2 Cancer staging.

Third, unlike normal cells, cancer cells don’t stay in place. They can spread to other parts of the esophagus and to distant sites. This process is called metastasis. In this process, cancer cells break away from the tumor and merge with blood or lymph. Then, the cancer cells travel in blood or lymph through vessels to other sites. In other sites, the cancer cells may form secondary tumors, replace many normal cells, and cause major health problems.

Figure 3. Normal cell growth vs. cancer cell growth

Normal cells increase in number when they are needed and die when old or damaged. In contrast, cancer cells quickly make new cells and live longer because of abnormal changes in genes.
Review

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

**TNM scores**

The AJCC (American Joint Committee on Cancer) staging system is used to stage esophageal cancer. In this system, the letters T, N, and M describe a different location of cancer growth. Your doctors will assign a score to each letter. TNM scores will be combined to assign the cancer a stage. The cancer stage is used to assess the prognosis of the cancer and to decide what treatments will be used. A prognosis is the outlook (prediction) of the pattern and outcome of a disease.
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 nearby structures. 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. See Figure 4.
  - T4a tumors have invaded the outer lining of the lungs (pleura), heart (pericardium), or abdomen (peritoneum), or the diaphragm and can be treated by surgery.
  - T4b tumors have invaded tissues, such as the trachea, that can’t be treated with surgery.

Figure 4. Areas of T4 growth

The primary tumor may grow through the esophageal wall and into nearby organs. Nearby structures include the windpipe (trachea), lining of the lungs, left bronchus, diaphragm, spine, lining of the heart, aorta and other blood vessels. Tumors that have grown into nearby structures are rated T4.
N = Node

Lymph drains from esophageal tissue into vessels that transport lymph to the bloodstream. As lymph travels, it passes through small, oval-shaped structures called lymph nodes. Lymph nodes remove germs from lymph. As shown in Figure 5, lymph nodes and vessels are found throughout the body. The N category reflects the number of lymph nodes with esophageal cancer.

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

M = Metastasis

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

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

Figure 5.
Lymph nodes near the esophagus

Throughout your body is a network of vessels that transport lymph to the bloodstream. Lymph is a clear fluid that contains germ-fighting blood cells. As lymph travels in vessels, it passes through lymph nodes, which remove germs from lymph. Esophageal cancer first spreads to lymph nodes next to the esophagus and then beyond.
Cancer grade

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

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

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

- **GX** means the grade can’t be assessed (often because there’s not enough tissue),
- **G1** means the cancer cells look similar to healthy cells,
- **G2** means the cancer cells are somewhat different than healthy cells,
- **G3** means the cancer cells barely look like healthy cells, and
- **G4** means the cancer cells don’t look anything like healthy cells.
The 5 stages

Chart 1 shows the staging groups labeled by Roman numerals 0–IV. Stage 0 is also called HGD (high-grade dysplasia). The stages are defined by the TNM scores and cancer grade. For squamous cell carcinoma, staging also depends on where the tumor is in the esophagus. The esophagus is evenly divided into three sections:

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

### Chart 1. Esophageal cancer stages

<table>
<thead>
<tr>
<th>ANATOMIC STAGE/PROGNOSTIC GROUPS</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Squamous cell carcinoma</em></td>
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<table>
<thead>
<tr>
<th>Stage</th>
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<th>N</th>
<th>M</th>
<th>Grade</th>
<th>Tumor Location</th>
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<td>M0</td>
<td>1, X</td>
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</tr>
<tr>
<td>IA</td>
<td>T1</td>
<td>N0</td>
<td>M0</td>
<td>1, X</td>
<td>Any</td>
</tr>
<tr>
<td>IB</td>
<td>T1</td>
<td>N0</td>
<td>M0</td>
<td>2–3</td>
<td>Any</td>
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<tr>
<td></td>
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<td>N0</td>
<td>M0</td>
<td>1, X</td>
<td>Lower, X</td>
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<tr>
<td>IIA</td>
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<td>N0</td>
<td>M0</td>
<td>1, X</td>
<td>Upper, middle</td>
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<tr>
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<td>N0</td>
<td>M0</td>
<td>2–3</td>
<td>Lower, X</td>
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<tr>
<td>IIB</td>
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<td>M0</td>
<td>2–3</td>
<td>Upper, middle</td>
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<td>M0</td>
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<tr>
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<tr>
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<td>N1</td>
<td>M0</td>
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<td>Any</td>
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<td></td>
<td>T4a</td>
<td>N0</td>
<td>M0</td>
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<td>Any</td>
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<tr>
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<td>T3</td>
<td>N2</td>
<td>M0</td>
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<td>Any</td>
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<tr>
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<td>M0</td>
<td>Any</td>
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</tr>
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<tr>
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<td>M0</td>
<td>Any</td>
<td>Any</td>
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<td>IV</td>
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<td>Any</td>
<td>M1</td>
<td>Any</td>
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</tbody>
</table>

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

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

### Esophageal cancer stages (continued)

**ANATOMIC STAGE/PROGNOSTIC GROUPS**

**Adenocarcinoma**

<table>
<thead>
<tr>
<th>Stage</th>
<th>T</th>
<th>N</th>
<th>M</th>
<th>Grade</th>
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</tr>
<tr>
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<td>T1</td>
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<td>M0</td>
<td>1–2, X</td>
</tr>
<tr>
<td>IB</td>
<td>T1</td>
<td>N0</td>
<td>M0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>T2</td>
<td>N0</td>
<td>M0</td>
<td>1–2, X</td>
</tr>
<tr>
<td>IIA</td>
<td>T2</td>
<td>N0</td>
<td>M0</td>
<td>3</td>
</tr>
<tr>
<td>IIB</td>
<td>T3</td>
<td>N0</td>
<td>M0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>T1–2</td>
<td>N1</td>
<td>M0</td>
<td>Any</td>
</tr>
<tr>
<td>IIIA</td>
<td>T1–2</td>
<td>N2</td>
<td>M0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>T3</td>
<td>N1</td>
<td>M0</td>
<td>Any</td>
</tr>
<tr>
<td></td>
<td>T4a</td>
<td>N0</td>
<td>M0</td>
<td>Any</td>
</tr>
<tr>
<td>IIIB</td>
<td>T3</td>
<td>N2</td>
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</tr>
<tr>
<td>IIIC</td>
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<tr>
<td></td>
<td>T4b</td>
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<tr>
<td></td>
<td>Any</td>
<td>N3</td>
<td>M0</td>
<td>Any</td>
</tr>
<tr>
<td>IV</td>
<td>Any</td>
<td>Any</td>
<td>M1</td>
<td>Any</td>
</tr>
</tbody>
</table>

Review

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

### Cancer tests

Before starting treatment, multiple cancer tests will be done. Such tests are listed in Guide 1. These tests will assess your health, clinical stage, and other features of the cancer. Read on to learn more about these tests.

**Medical history**

Your medical history includes any health events in your life and any medications you’ve taken. Health events include any symptoms that may be related to esophageal cancer. Such symptoms include heartburn, swallowing that is hard or painful, throat or back pain, and weight loss. However, these symptoms can also be caused by other health conditions.

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

Some health problems run in families. Thus, your doctor will ask about the **medical history** of your blood relatives. If some blood relatives have had esophageal or a related cancer, a risk for esophageal cancer may have been passed down from your parents to you (inherited). Other signs of hereditary esophageal cancer are onset at an early age and having multiple primary tumors.

---

### Guide 1. Cancer tests before treatment

<table>
<thead>
<tr>
<th>Test name</th>
<th>Who should get this test?</th>
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<tbody>
<tr>
<td>• Medical history including your family's</td>
<td>People with any stage of esophageal cancer</td>
</tr>
<tr>
<td>• Physical exam</td>
<td>People with any stage of esophageal cancer</td>
</tr>
<tr>
<td>• Complete blood count</td>
<td>People with any stage of esophageal cancer</td>
</tr>
<tr>
<td>• Comprehensive chemistry profile</td>
<td>People with any stage of esophageal cancer</td>
</tr>
<tr>
<td>• CT with contrast of chest, abdomen, and if needed, pelvis</td>
<td>People with any stage of esophageal cancer</td>
</tr>
<tr>
<td>• PET/CT</td>
<td>If needed, people with any stage of esophageal cancer</td>
</tr>
<tr>
<td>• Upper GI endoscopy</td>
<td>People with any stage of esophageal cancer</td>
</tr>
<tr>
<td>• Endoscopic ultrasound</td>
<td>People with stage I, II, or III esophageal cancer</td>
</tr>
<tr>
<td>• Endoscopic resection</td>
<td>People with early esophageal cancer (T1 tumors)</td>
</tr>
<tr>
<td>• Bronchoscopy</td>
<td>People with stage I, II, or III esophageal cancer at the level of the windpipe (trachea)</td>
</tr>
<tr>
<td>• Laparoscopy with biopsy</td>
<td>Optional for people with stage I, II, or III esophageal adenocarcinoma at esophagogastric junction</td>
</tr>
<tr>
<td>• Biopsy</td>
<td>If needed, people with stage IV esophageal cancer</td>
</tr>
<tr>
<td>• HER2 testing</td>
<td>People with stage IV esophageal adenocarcinoma</td>
</tr>
</tbody>
</table>
Barrett's esophagus, Bloom syndrome, tylosis, and Fanconi anemia are health conditions that are strongly linked to esophageal cancer. You should be referred to a genetic counselor if you have such conditions. A genetic counselor is an expert in changes within genes that are related to disease.

**Physical exam**
Doctors often perform a **physical exam** along with taking a **medical history**. A physical exam is a study of your body for signs of disease. During this exam, your doctor will listen to your lungs, heart, and gut.

Your doctor will also look at and feel parts of your body. This is done to see if organs are of normal size, are soft or hard, or cause pain when touched. Cancer and other health conditions can cause organs to become enlarged and hard.

**CBC**
A **CBC (complete blood count)** gives important information about the parts of blood. One example is the number of white blood cells, red blood cells, and platelets. 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.

**Comprehensive chemistry profile**
Chemicals in your blood come from your liver, bone, and other organs. A comprehensive chemistry profile 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.

**CT scan with contrast**
**CT** (computed tomography) is used to help stage the cancer. It is an imaging test that makes pictures of the insides of your body. The pictures are called images. CT takes many pictures of a body part from different angles using x-rays. A computer combines the x-rays to make detailed pictures.

A CT scan of your chest and abdomen is advised. A CT scan of your **pelvis** is advised 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.

Contrast 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.
Before the scan, 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 6.

As the machine takes pictures, you may hear buzzing, clicking, or whirring sounds. You will be alone, but a technician will operate the machine in a nearby room. He or she will be able to see, hear, and speak with you at all times. One scan is completed in about 30 seconds.

You will likely be able to resume your activities right away unless you took a sedative. You may not learn of the results for a few days since a radiologist needs to see the pictures. A radiologist is a doctor who’s an expert in reading the images.

**PET/CT scan**

Sometimes CT is combined with another imaging test called PET (positron emission tomography). When used to together, they are called a PET/CT scan. PET/CT is advised when there may be metastases but a CT scan didn’t detect any.

PET/CT may be done with one or two machines depending on the cancer center. Before PET, you must fast for 4 hours or more. There may be other limits to your diet. About an hour before the scan, you will be injected with a sugar radiotracer.

The radiotracer emits a small amount of energy that is detected by the imaging machine. Cancer appears brighter in the pictures because cancer cells use sugar more quickly than normal cells. PET can show even small amounts of cancer because the images are based on the cells’ use of sugar (cell metabolism).

---

**Figure 6. CT machine**

Pictures of the insides of your body can be made with an imaging test. No devices will be inserted into your body. However, you may be injected with and have to drink a contrast dye. During the test, you will lie on a table that will move into the tunnel of the imaging machine. The pictures will be viewed by a doctor who will look for signs of cancer.
Upper GI endoscopy

An upper GI (gastrointestinal) endoscopy allows your doctor to see inside your esophagus and stomach. It is also called an EGD (esophagastroduodenoscopy). For this test, a tool called an endoscope is used.

Part of the endoscope will be guided down your mouth or nose. This part looks like a thin, long tube. The tube is a little thicker than a pencil if guided down your mouth, and if down your nose, it’s about as thick a piece of spaghetti. See Figure 7. You will likely be sedated and thus unaware of the test while it is occurring. However, general anesthesia is sometimes used.

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

Your doctor may obtain a sample of the tumor. This is called a biopsy. Also, samples from tissue at high risk for cancer and tissue with possible cancer may be collected. The presence of Barrett’s metaplasia or dysplasia increases the likelihood of cancer.

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. Biopsy samples will be sent to a pathologist for testing. After the endoscopy, you may feel some swelling and sound hoarse.

EUS

EUS (endoscopic ultrasound) uses both imaging and an endoscope to see how deep the tumor has grown into the esophageal wall. Also, signs of cancer within lymph nodes and other nearby organs can be detected.

Like EGD, you will likely be sedated for EUS. The EUS endoscope will be guided down your esophagus.

Figure 7.
Upper GI endoscopy

“Scopes” are tools that are inserted into your body to let your doctor see live video of inside your body. An endoscope is one such tool that is guided down your mouth into your stomach. It allows your doctor to see the inner wall of your esophagus and stomach. If ultrasound is used, your doctor will be able to see the deeper wall layers and nearby organs.
Preparing for treatment

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. A needle will be inserted through the wall of your esophagus and into nearby tissue to get samples. Samples may be obtained from lymph nodes or organs next to your esophagus. An FNA may be done as long as the needle doesn’t go through the primary tumor or major blood vessels.

After the FNA, the endoscopist will provide clinical staging information. He or she will report the depth of tumor growth (T stage) and whether cancer is present in your lymph nodes (N stage). This information will help your doctor plan the best treatment for you.

Endoscopic resection

Endoscopic resection is the removal of tumors with small tools inserted through an endoscope. It is used by doctors to assess how deep the tumor has grown into the esophageal wall. It is more accurate than EUS. Endoscopic resection is essential for correctly staging tumors that appear to be T1. However, it is more often used as a treatment than as a staging tool. Read Part 4 for more details.

Bronchoscopy

The carina is supportive tissue at the base of your windpipe (trachea). 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 airways (bronchi). This test is much like an endoscopy except that the scope is guided down your trachea.

Bronchoscopy is done with one of two types of scopes. A rigid bronchoscope is straight and doesn’t bend. A flexible bronchoscope is thinner and longer. General anesthesia is needed for a rigid bronchoscopy. Local anesthesia is used for a flexible bronchoscopy.

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

Laparoscopy

This test is a type of surgery that allows your doctor to look for diseases inside your abdomen. Laparoscopy is advised for esophageal adenocarcinoma that is in the area between the esophagus and stomach. This area is called the EGJ (esophagogastric junction). Laparoscopy may detect distant metastases in the lining of the abdomen (peritoneum) or liver.

Laparoscopy is done under general anesthesia. It involves the use of a tool called a laparoscope, which is much like an endoscope. The tube-like part of the laparoscope will be inserted through a tiny cut in your abdomen. Your doctor will be able to look for signs of cancer and obtain fluid for cancer testing (peritoneal washings).

Laparoscopy is done in an operating room and takes about 30 minutes. You will be able to go home about one hour after the procedure is completed and can go back to work the next day. After the surgery, you may feel tired and may have some pain. You may also have a small scar after the cut has healed.

Biopsy of distant sites

An M1 score is defined as cancer spread to sites distant from the esophagus. If imaging suggests a rating of M1, a biopsy of the distant site may be needed to confirm there’s cancer. The type of biopsy used depends on the site and other factors.
HER2 testing
In normal esophageal cells, there are two copies of the gene that makes HER2 (human epidermal growth factor receptor 2). HER2 is a surface receptor found in the membrane of cells (Figure 8). When turned on, it sends signals within the cell telling it to grow and divide.

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

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

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. NCCN experts advise that meetings take place every week or every other week. These experts may include a:

- **Pathologist** – an expert in testing tissue to find disease,
- **Radiologist** – an expert in reading imaging tests,
- **Oncology surgeon** – an expert in cancer surgery,
- **Medical oncologist** – an expert in cancer drugs,
- **Gastroenterologist** – an expert in digestive diseases,
- **Radiation oncologist** – an expert in radiation treatment,
- **Integrative medicine doctor** – an expert in mind-body treatments,

Figure 8.
HER2
Some esophageal cancers consist of cells with many HER2 receptors. HER2 is one type of surface receptor that triggers growth signals within cells. It is important to test for HER2 status if the cancer has spread to distant sites (M1 stage). Testing will allow your doctor to plan the best treatment.
Preparing for treatment

Good nutrition

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

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

Good nutrition

You will likely 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 feeding tube. Three options are a nasogastric tube, J-tube (jejunal tube), and PEG (percutaneous endoscopic gastrostomy) tube. A nasogastric tube and J-tube are the preferred options of NCCN experts. See Figure 9. A nasogastric tube is inserted down your nose and into your stomach. A J-tube is inserted through the skin and into the small intestine. A PEG tube is inserted through the skin and into the stomach.

Figure 9. Feeding tubes

Feeding tubes may help you gain strength to undergo treatment. A nasogastric tube is inserted down your nose and into your stomach. A J-tube is inserted through your skin and into your intestine.
Quit smoking

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

Review

- Before treatment, cancer tests are given to help plan treatment.
- Treatment of esophageal cancer takes a team of experts.
- Getting good nutrition is important before starting treatment.
- If you smoke tobacco, it is important to quit to get the best treatment.
Overview of cancer treatments
In Part 4, the main treatment types for esophageal cancer are briefly described. Knowing what a treatment is will help you understand your treatment options listed in Parts 4 and 5. There is more than one treatment for esophageal cancer. Not every person will receive every treatment described in this chapter.

**Endoscopic treatment**

Some esophageal tumors and high-risk tissue may be treated with endoscopic methods. Such tumors include those confined to the first layer of the esophageal wall. These tumors have a T stage of Tis or T1. Endoscopic treatments are done with tools inserted through an endoscope. Doctors who perform endoscopic resections are called endoscopists.

Endoscopic treatment for esophageal cancer includes endoscopic resection and ablation. Endoscopic resection involves injecting a liquid under a tumor then using small tools to remove it. See Figure 10. Ablation involves applying treatment directly to the tumor that will kill cancer cells. More details on the two types are discussed next.

**EMR**

EMR (endoscopic mucosal resection) removes a tumor with an endoscope that has a wire loop called a snare. There is more than one method of how to do EMR. The methods mainly differ by what devices are used with the snare to remove the tumor.
Sometimes **EMR** is all that is needed to remove a tumor. Other times, the tissue removed by EMR helps with diagnosis but more treatment is needed. Some tumors may be removed in multiple pieces with **EMR**. However, the larger and deeper a tumor is, the higher the risk of the tumor returning (recurrence). Therefore, an expert endoscopist will only perform EMR on people who are most likely to benefit.

EMR requires that you be sedated but some people do receive general anesthesia. The procedure can take about 1 hour to complete. EMR is generally an outpatient procedure. However, you may stay in the hospital for 1 or 2 days.

**ESD**

**ESD** (endoscopic submucosal dissection) is a newer type of endoscopic treatment that is more extensive than EMR. It is likely the preferred method for removing deeper, early esophageal tumors.

ESD removes a tumor in one piece with special knives. Removing the tumor in one piece reduces the chance of the tumor returning. This is a very challenging procedure to do. ESD is generally only done at centers that specialize in such procedures. Only a small group of people with esophageal cancer are able to have this treatment.

ESD is often performed under **general anesthesia**. The procedure may take 2 to 4 hours to complete. You may stay in the hospital for a few days or up to 5 days if there are major complications like a tear in the esophageal wall. After healing, your esophagus will likely work almost as well as before since only the first layer of the esophageal wall is removed.

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**Figure 10. Endoscopic resection**

Esophageal tumors that have not invaded deep into the esophageal wall may be removed with endoscopic resection. This treatment removes tumors with tools inserted through an endoscope.

Fluid is injected under the tumor  
A cutting tool removes the tumor

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

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

Side effects of endoscopic treatment
Side effects are unhealthy or unpleasant physical or emotional responses to treatment. Endoscopic treatment 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. The chances for bleeding and tears are greater for ESD than for EMR. Photodynamic ablation may make your skin and eyes sensitive to strong light.

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

Surgical treatment
Surgery is a primary treatment for early and some locoregional esophageal cancers. Primary treatment is the main treatment used to rid the body of cancer. The goal of surgery is to remove the entire tumor and some normal-looking tissue around its rim. The normal-looking tissue is called the surgical margin.

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

**Esophagectomy**
An esophagectomy removes some or the entire 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.

Surgery removes tissue from your body through cuts (incisions) made with a surgical knife. There is more than one way to remove esophageal cancer. Depending on the method, the surgery can take 3 to 6 hours to complete. Most people stay in the hospital 10 to 14 days to recover.

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

**Minimally invasive esophagectomy** removes tissue through a few small cuts. It is done with either the
Ivor Lewis or McKeown approach. A laparoscope will be inserted through a small cut into your abdomen. Through this cut, work on your stomach can be done. A thoracoscope, which is much like a laparoscope, will also be inserted into a small cut made between your ribs. This cut allows work to be done in the chest.

After the cancer is removed, your stomach will need to be attached to your remaining esophagus. See Figure 11. It may be directly attached or a piece of your intestine may be used to connect the two organs. As you heal from surgery, you will receive food from a J-tube that is inserted through your side and into your intestine.

**Side effects of surgery**

Surgery causes pain, swelling, and scars. Pain and swelling often fade away in the weeks following surgery. As with any surgery, there is a chance of infection, heart attack, or a blood clot. Importantly, an infection of the lungs (pneumonia) can occur. Your surgical team will design care to prevent it.

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.

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

**Figure 11. Before and after esophagectomy**

Surgery removes any of your esophagus that has cancer and then attaches your stomach to your remaining esophagus.
Radiation therapy

Radiation therapy uses high-energy rays to treat cancer. The rays damage DNA. 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.

**EBRT (external beam radiation therapy)** is the method used to treat esophageal cancer. This method delivers radiation from outside your body using a large machine. See Figure 12. The radiation passes through your skin and other tissue to reach the tumor.

**Simulation session**
To receive radiation therapy, you first must have a planning (simulation) session. If some of your stomach will be treated with radiation, do not eat a heavy meal 3 hours beforehand. A 3D image of the tumor will be made with a CT scan. Contrast may be used to enhance images. Images are taken after your body is moved into the position needed for treatment. It is advised that you lie on your back and be kept from moving with an immobilization device. For some people, 4D-CT planning and other methods to control movement may be used.

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.

**Receiving radiation**
If some of your stomach will be treated with radiation, do not eat a heavy meal 3 hours before treatment. 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.

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Figure 12.  
**External beam radiation therapy**

Radiation therapy is often delivered from a large machine. The rays pass through skin and travel to the tumor. Healthy tissue is protected by using modern types of treatment.
You will be alone while the technician operates the machine from a nearby room. He or she will be able to see, hear, and speak with you at all times. As treatment is given, you may hear noises. One session can take less than 10 minutes.

There are multiple types of EBRT. For esophageal cancer, 3D-CRT (three-dimensional conformal radiation therapy) is strongly advised. In 3D-CRT, the radiation beams match the shape of your tumor to avoid healthy tissues.

Sometimes vital organs may be within the field of the radiation beam even if 3D-CRT is used. Vital organs include the heart, lungs, liver, and kidneys. In these cases, IMRT (intensity-modulated radiation therapy) may be used. IMRT is a more precise type of 3D-CRT that may be used to avoid giving too much radiation to vital organs. The radiation beam is divided into smaller beams, and the strength of each beam can vary.

Side effects of radiation
Radiation therapy is likely to cause changes in your skin. Skin that was exposed to radiation 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.

Radiation therapy may also cause pain in your throat, stomach, or intestine. Other reactions may include extreme tiredness despite sleep (fatigue) and loss of appetite.

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

Complementary and alternative medicine

CAM (complementary and alternative medicine) is a group of treatments that aren’t often given by doctors. There is much interest today in CAM for cancer. 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 book.

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 medical treatments work.
Chemotherapy

Chemotherapy, or “chemo,” includes drugs that disrupt the life cycle of cancer cells. Some chemotherapy drugs kill cancer cells by damaging their DNA or by disrupting the making of DNA. Other drugs interfere with cell parts that are needed for making new cells. Thus, no new cells are made to replace dying cells. Chemotherapy can affect both cancer and normal cells.

As shown in Figure 13, some chemotherapy drugs work when cells are in an active growth phase. During the active growth phase, cells grow and divide to form a new cell. Chemotherapy drugs that disrupt the growth phase work well for cancer cells that are growing and dividing quickly. Other chemotherapy drugs work in any growth or resting phase.

Chemotherapy and other cancer drugs used for esophageal cancer are listed in Guide 2.

Sometimes, only one drug is used. Other times, more than one drug is used because drugs differ in the way they work.

Most chemotherapy drugs for esophageal cancer are liquids that are slowly injected into a vein. Only capecitabine is made as a pill. By any method, the drugs travel in your bloodstream to treat cancer throughout your body. Doctors use the term “systemic” when talking about a cancer treatment for the whole 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.

Side effects of chemotherapy

Side effects of chemotherapy depend on many factors. These factors include the drug type, amount

Figure 13. Chemotherapy and the cell cycle

A cell goes through many changes to divide into two cells. Science has grouped these changes into 7 main phases. There may be another phase of rest, too. Some chemotherapy drugs work in any phase. Other chemotherapy drugs work in one or two growth phases.
taken, length of treatment, and the person. Some people have many side effects. Others have few. Some side effects can be very serious while others can be unpleasant but not serious. Most side effects appear shortly after treatment starts and will stop after treatment. However, other side effects are long-term or may appear years later.

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

Another common side effect of some chemotherapy drugs is sensory neuropathy. Sensory neuropathy is damage to sensory nerves. It can be caused by oxaliplatin, paclitaxel, docetaxel, and 5-FU.

Symptoms of sensory neuropathy include numbness, tingling, and pain in fingers and toes. You may also have sensitivity to cold and pain to light touch. It may take months or years for symptoms to resolve. For some people, sensory neuropathy is permanent. Talk with your doctor about ways to prevent or reduce the symptoms of sensory neuropathy.

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

Guide 2. Cancer drugs for esophageal cancer

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<td>Chemotherapy</td>
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Targeted therapy

Targeted therapy is a class of drugs that stops the action of molecules that help cancer cells grow. It is less likely to harm normal cells than chemotherapy. Targeted therapy for esophageal cancer targets either VEGF (vascular endothelial growth factor) or HER2.

These treatments are briefly described next. Some side effects are listed. Ask your treatment team for a full list of common and rare side effects. In Part 5, information on who should receive these drugs is provided.

VEGF pathway
Cancer cells need the food and oxygen in blood to grow. Cancer cells get blood from blood vessels that have grown into the tumor. VEGF is one of the molecules that triggers the growth of these blood vessels.

VEGF is made by cancer cells. It travels from cancer cells to endothelial cells, which form blood vessels.

VEGF attaches to surface receptors on the outside of endothelial cells. Surface receptors are proteins within cell membranes that extend from the inside to the outside of cells. Attachment of VEGF to receptors triggers growth signals. Ramucirumab is a medicine that targets VEGF.

Ramucirumab
Ramucirumab attaches to VEGF receptors on the outside of endothelial cells. See Figure 14. This blocks VEGF from attaching. No growth signals caused by VEGF are started.

Ramucirumab is given by infusion. It takes 60 minutes to receive the full dose. Ramucirumab is always given with chemotherapy. It is given every two weeks on the first day of chemotherapy.

Common side effects of ramucirumab are high blood pressure and diarrhea. Serious side effects include bleeding; blood clots; holes in the gut; abnormal passage between body parts; and slow wound healing.

Figure 14. VEGF targeted therapy
Cancer cells need blood to grow. They send VEGF to endothelial cells to start the growth of blood vessels. Ramucirumab blocks VEGF from attaching to receptors.
HER2 pathway
Cell growth is started by growth signals. HER2 is one of the surface receptors in esophageal cancer cells that can trigger growth signals. When HER2 attaches to other receptors, the chemical pathway that sends growth signals is turned on.

Some people with esophageal cancer have too many HER2s. With too many HER2s, new cancer cells form quickly. Trastuzumab is a medicine used to stop the growth signals from HER2s.

Trastuzumab
Trastuzumab attaches to the end of HER2 that is outside of the cell. In doing so, it stops HER2 from attaching to other surface receptors. See Figure 15. No growth signals are started.

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.

Clinical trials
New tests and treatments aren’t offered to the public as soon as they’re made. They first need to be studied. A clinical trial is a type of research that studies a test or treatment.

Clinical trials study how safe and helpful tests and treatments are. When found to be safe and helpful, they may become tomorrow’s standard of care. Because of clinical trials, the tests and treatments in this book are now widely used to help people with esophageal cancer. Future tests and treatments that may have better results than today’s treatments will depend on clinical trials.

Figure 15.
HER2 targeted therapy
Some esophageal cancers consist of cancer cells with too many HER2s. HER2s trigger growth signals with cancer cells. Trastuzumab blocks HER2 from attaching to other surface receptors and starting growth signals.
New tests and treatments go through a series of clinical trials to make sure they’re safe and work. Without clinical trials, there is no way to know if a test or treatment is safe or helpful. Clinical trials have four phases. Some examples of the four phases for treatment are:

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

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

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

To join a clinical trial, you must meet the conditions of the study. Patients in a clinical trial are often alike in terms of their cancer and general health. This is to know that any progress is because of the treatment and not because of differences between patients.

To join, you’ll need to review and sign a paper called an informed consent form. This form describes the study in detail. The study’s risks and benefits should be described and may include others than those described above.

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

**Review**

- Endoscopic treatment uses small tools to remove or destroy small tumors.
- An esophagectomy removes some or the entire esophagus along with nearby lymph nodes.
- Radiation therapy uses high-energy rays to kill cancer cells or stop new cancer cells from being made.
- Chemotherapy stops cancer cells from completing their life cycle so they can’t increase in number.
- One type of targeted therapy stops the growth of new blood vessels into esophageal tumors. Without blood, cancer cells starve and die. A second type of targeted therapy for esophageal cancer stops the cancer cells from receiving certain growth signals.
- Clinical trials give people access to new tests and treatments that otherwise can’t usually be received. These new tests and treatments may, in time, be approved by the FDA.
Treatment guide:
Squamous cell carcinoma
5 Treatment guide: Squamous cell carcinoma

46 Early cancer

Treatment of cancer that has not grown beyond the second layer of the esophageal wall. There is no proof of cancer in nearby lymph nodes or distant sites. These cancers include stages 0, IA, and some IB (T1 scores).

52 Invasive cancer

Treatment of cancer that has grown beyond the first layer of the esophageal wall. There may be proof of cancer in nearby lymph nodes but there is no proof of cancer in distant sites. These cancers include stages IB (T2 and T3), II, and III.

58 Return of cancer

Treatment of cancers that return after a cancer-free period. The return of cancer is called a recurrence.

60 Advanced cancer

Treatment of esophageal cancers that can’t be treated with local treatments, such as surgery. Such cancers include metastatic disease (M1 stage).

64 Review
Part 5 is a guide to the treatment options for people with squamous cell carcinoma of the esophagus. Treatment options are grouped by the extent of the cancer. This information is taken from the treatment guidelines written by NCCN experts for doctors who treat esophageal cancer. Your doctors may suggest other treatments than those listed in Part 5 based on your health and personal wishes.
Early cancer

Guide 3. Initial treatment

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>What are the options if approved and agree to have surgery?</th>
<th>What are the options if not approved or decline surgery?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tis, N0, M0</td>
<td>• EMR or ESD, • Ablation, • EMR followed by ablation or ESD followed by ablation, or • Esophagectomy</td>
<td>• EMR or ESD, • Ablation, or • EMR followed by ablation or ESD followed by ablation</td>
</tr>
<tr>
<td>T1a, N0, M0</td>
<td>• EMR or ESD, • EMR followed by ablation or ESD followed by ablation, or • Esophagectomy</td>
<td>• EMR or ESD, or • EMR followed by ablation or ESD followed by ablation</td>
</tr>
<tr>
<td>T1b, N0, M0</td>
<td>• Esophagectomy</td>
<td>• EMR or ESD, or • EMR followed by ablation or ESD followed by ablation</td>
</tr>
</tbody>
</table>

Guide 4. Next treatment after esophagectomy

<table>
<thead>
<tr>
<th>Surgery results</th>
<th>What are the options?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cancer is in the surgical margin</td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td>Cancer is in the surgical margin</td>
<td>• Chemoradiation</td>
</tr>
<tr>
<td>Some cancer remains in or near your esophagus</td>
<td>• Chemoradiation • Supportive care</td>
</tr>
<tr>
<td>Cancer is found in distant sites</td>
<td>• Chemoradiation • Supportive care</td>
</tr>
</tbody>
</table>
This section presents the treatment options for early cancer. These cancers have not grown beyond the second layer of the esophageal wall (submucosa). The TMN scores for early cancers are Tis, N0, M0 (stage 0) and T1, N0, M0 (part of stage I). Options range from the start of treatment to follow-up care on pages 48 and 49.

Guide 3 lists options for initial treatment. Surgery may be an option. Your doctor will assess if you are able to undergo surgery by testing your lungs, heart, and nutritional intake. Your doctor will also assess if chemoradiation would do more help than harm.

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

T1b tumors have invaded the submucosa. Thus, an esophagectomy is the best option if you are able to have surgery. Otherwise, endoscopic treatments are options.

Guide 4 lists treatment options following an esophagectomy. The results of surgery are used to decide if more treatment is needed. Surgery results include: 1) no cancer is in the surgical margin; 2) cancer is in the surgical margin; 3) not all the cancer that the surgeon could see in or near the esophagus was removed; and 4) cancer was found in distant sites (M1 score).

Your surgeon may have been able to remove all the cancer and a cancer-free surgical margin. In this case, no more treatment is needed. The next step is to start follow-up care.

If cancer is found in the surgical margin, chemoradiation is advised. Chemoradiation will treat any cancer that may remain in your body. Likewise, if your surgeon wasn’t able to remove all the cancer in or near your esophagus, chemoradiation is one of two options. Chemotherapy with infusional 5-FU or capecitabine before and after fluoropyrimidine-based chemoradiation is advised.

Supportive care may be received in two cases. It is a second option when cancer remains in or near your esophagus after surgery. It is also advised if M1 cancer is found during surgery. Supportive care is addressed later in this chapter in the section Advanced cancer.
## Guide 5. Follow-up care after endoscopic treatment

<table>
<thead>
<tr>
<th>T score</th>
<th>Type of care</th>
<th>How often should this care be received?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>Medical history and physical exam</td>
<td>• Every 3–6 months for 1–2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 6–12 months for 3–5 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year</td>
</tr>
<tr>
<td>T1s</td>
<td>Upper GI endoscopy</td>
<td>• Every 6 months for 1–2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year for 3 years</td>
</tr>
<tr>
<td>T1</td>
<td>Upper GI endoscopy</td>
<td>• Every 3 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 4–6 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year for 3 years</td>
</tr>
<tr>
<td>Superficial T1b</td>
<td>Upper GI endoscopy</td>
<td>• Every 3 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 4–6 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year for 3 years</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT with contrast of the chest and abdomen</td>
<td>• Every 4–6 months for 2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat for 1 more year</td>
</tr>
<tr>
<td>Deep T1b</td>
<td>Upper GI endoscopy</td>
<td>• Every 3 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 4–6 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year for 3 years</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT with contrast of the chest and abdomen</td>
<td>• Consider every year for 3 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then as needed</td>
</tr>
</tbody>
</table>
Guide 5 lists follow-up care after endoscopic treatment. Follow-up care is started when there are no signs of cancer after treatment. Which tests are advised is based on how far the tumor has grown into the esophageal wall.

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

For T1b tumors, imaging tests are needed. Imaging tests may reveal if cancer is growing in places other than your esophagus. How often an imaging test is needed is based on how far the tumor has grown into the submucosa. Superficial T1b tumors have slightly grown into the submucosa and deep T1b tumors have grown farther.
## Guide 6. Follow-up care after esophagectomy

<table>
<thead>
<tr>
<th>T score</th>
<th>Type of care</th>
<th>How often should this care be received?</th>
</tr>
</thead>
</table>
| Any     | Medical history and physical exam         | • Every 3–6 months for 1–2 years<br>
|         |                                            | ◦ If normal results, then repeat every 6–12 months for 3–5 years<br>
|         |                                            | ◦ If normal results, then repeat every year                                                             |
| Any     | CBC and chemistry blood tests             | • As needed                                                                                             |
| Any     | Widening of esophagus                     | • As needed                                                                                             |
| Any     | Nutritional counseling                    | • As needed                                                                                             |
| Tis     | Upper GI endoscopy                        | • If all cancer and Barrett's esophagus removed, as needed<br>
|         |                                            | • If Barrett's esophagus not fully removed, every 6 months for 1–2 years                                |
| T1a or T1b | Upper GI endoscopy                  | • If all cancer and Barrett's esophagus removed, as needed<br>
|         |                                            | • If Barrett's esophagus not fully removed, every 3 months for 1 year<br>
|         |                                            | ◦ If normal results, then repeat every 4–6 months for 1 year<br>
|         |                                            | ◦ If normal results, then repeat every year for 3 years                                                |
| T1b     | PET/CT or CT with contrast of the chest and abdomen | • Consider every 6–12 months for 3 years<br>
|         |                                            | ◦ If normal results, then as needed                                                                    |
Guide 6 lists follow-up care after esophagectomy. Follow-up care is started when there are no signs of cancer after treatment. Which tests are advised is based on how far the tumor has grown into the esophageal wall.

For all early cancers, updates of your medical history and physical exams should be done regularly. Blood tests are only done when needed.

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

After cancer treatment, it may also be helpful to meet with a nutritionist. A nutritionist can make sure you are getting enough food to eat and are eating enough healthy foods.

Endoscopy and imaging tests are advised to look for any new tumors. Upper GI endoscopy may be needed on a regular basis if Barrett’s esophagus wasn’t fully removed. For T1b tumors, imaging tests may reveal cancer growth.
## Invasive cancer

### Guide 7. Initial treatment

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>What are the options if approved and agree to have surgery?</th>
<th>What are the options if not approved or decline surgery?</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2, N0, M0</td>
<td>Tumor isn’t in the neck area <em>(•)</em></td>
<td>But able to have chemoradiation <em>(•)</em></td>
</tr>
<tr>
<td>T3, N0, M0</td>
<td>• Esophagectomy in some cases, or</td>
<td></td>
</tr>
<tr>
<td>T4a, N0, M0</td>
<td>• Chemoradiation to shrink cancer</td>
<td></td>
</tr>
<tr>
<td>T1b, N+, M0</td>
<td>Tumor is in the neck area <em>(•)</em></td>
<td>And unable to have chemoradiation <em>(•)</em></td>
</tr>
<tr>
<td>T2, N+, M0</td>
<td>• Chemoradiation to cure cancer</td>
<td>• Supportive care with or without radiation therapy</td>
</tr>
<tr>
<td>T3, N+, M0</td>
<td>• Chemoradiation to cure cancer</td>
<td></td>
</tr>
<tr>
<td>T4a, N+, M0</td>
<td>• Chemoradiation to cure cancer, or</td>
<td>• Same as above</td>
</tr>
<tr>
<td>T4b, N+, M0</td>
<td>• Chemotherapy in some cases</td>
<td></td>
</tr>
</tbody>
</table>
This section presents the treatment options for invasive cancer. These cancers have grown beyond the second layer of the esophageal wall (submucosa). There may be cancer in nearby lymph nodes but not in distant sites. Options range from the start of treatment to follow-up care on pages 56 and 57.

TNM scores of invasive cancers are listed in Guide 7. Cancer in nearby lymph nodes is represented by “N+" since the number of lymph nodes with cancer can’t be known before surgery.

Guide 7 lists options for initial treatment. Surgery may be a treatment option for these cancers. Your doctor will assess if you are able to undergo surgery by testing your lungs, heart, and nutritional intake. Your doctor will also assess if chemoradiation or chemotherapy would do more help than harm.

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

The recommended chemotherapy regimens for preoperative chemoradiation are:

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

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

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

The recommended chemotherapy regimens for definitive chemoradiation are:

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

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

Not approved or decline surgery
Guide 7 also lists options for people unable to have surgery. Chemoradiation to try to cure the cancer is an option if chemotherapy will do more good than harm. Chemotherapy regimens are listed above.

If you are unable to have chemotherapy, supportive care is advised. This may include radiation therapy to prevent or treat symptoms caused by cancer. Supportive care is addressed later in this chapter in the section Advanced cancer.
Guide 8. Next treatment after chemoradiation

<table>
<thead>
<tr>
<th>Intent of chemoradiation</th>
<th>Chemoradiation results</th>
<th>What are the options?</th>
</tr>
</thead>
<tbody>
<tr>
<td>To shrink cancer (preoperative)</td>
<td>There are no signs of cancer</td>
<td>• Esophagectomy, or • Start follow-up care</td>
</tr>
<tr>
<td></td>
<td>Some cancer remains in or near your esophagus</td>
<td>• Esophagectomy, or • Supportive care</td>
</tr>
<tr>
<td></td>
<td>Cancer is found in distant sites</td>
<td>• Supportive care</td>
</tr>
<tr>
<td>To cure cancer (definitive)</td>
<td>There are no signs of cancer</td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td></td>
<td>Some cancer remains in or near your esophagus</td>
<td>• Esophagectomy, or • Supportive care</td>
</tr>
<tr>
<td></td>
<td>Cancer is found in distant sites</td>
<td>• Supportive care</td>
</tr>
</tbody>
</table>

Guide 9. Next treatment after esophagectomy

<table>
<thead>
<tr>
<th>Surgery results</th>
<th>What are the options?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cancer is in the surgical margin</td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td>Cancer is in the surgical margin</td>
<td>• Observation if you received prior chemoradiation, or</td>
</tr>
<tr>
<td></td>
<td>• Chemoradiation if you haven’t received it before</td>
</tr>
<tr>
<td>Some cancer remains in or near your esophagus</td>
<td>• Chemoradiation if you haven’t received it before, or</td>
</tr>
<tr>
<td></td>
<td>• Supportive care</td>
</tr>
<tr>
<td>Cancer is found in distant sites</td>
<td>• Chemoradiation if you haven’t received it before, or</td>
</tr>
<tr>
<td></td>
<td>• Supportive care</td>
</tr>
</tbody>
</table>
Guide 8 lists treatment options following chemoradiation. Options are based on the intent of your treatment and how well the tumor responds to chemoradiation.

How the tumor responds to chemoradiation will be assessed by a CT scan with contrast of your chest and abdomen or PET with or without CT. CT of your chest and abdomen is not needed if you have a PET/CT. PET/CT or PET should occur at least 5 weeks after initial treatment has ended.

Sometimes an upper GI endoscopy with biopsy is needed. It is used to assess how chemoradiation is working, especially if surgery may not be needed or possible. If you want to avoid surgery, it may be best to wait 6 or more weeks to have an upper GI endoscopy. If you will have surgery, an upper GI endoscopy with biopsy is optional.

Options after preoperative chemoradiation
If there are no signs of cancer, an esophagectomy and follow-up care are options. If cancer remains in or near the esophagus, an esophagectomy is the preferred treatment but supportive care is also an option. Supportive care is also advised if the cancer has spread to distant sites. Supportive care is addressed later in this chapter in the section Advanced cancer.

Options after definitive chemoradiation
If there are no signs of cancer, follow-up care is advised. If cancer remains in or near the esophagus, an esophagectomy and supportive care are options. Supportive care is also advised if the cancer has spread to distant sites. Supportive care is addressed later in this chapter in the section Advanced cancer.

Guide 9 lists treatment options following an esophagectomy. The results of surgery are used to decide if more treatment is needed. Surgery results include: 1) no cancer is in the surgical margin; 2) cancer is in the surgical margin; 3) not all the cancer that the surgeon could see in or near the esophagus was removed; and 4) cancer was found in distant sites (M1 score).

Your surgeon may have been able to remove all the cancer and a cancer-free surgical margin. In this case, no more treatment is needed. The next step is to start follow-up care.

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

After surgery, there still may be cancer near to or far from your esophagus. In this case, chemoradiation and supportive care are options. The recommended chemotherapy for chemoradiation is fluoropyrimidine (infusional fluorouracil or capecitabine) before and after fluoropyrimidine-based chemoradiation. Supportive care is addressed later in this chapter in the section Advanced cancer.
Guide 10. Follow-up care

All tumors

<table>
<thead>
<tr>
<th>Type of care</th>
<th>How often should this care be received?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical history and physical exam</td>
<td>• Every 3–6 months for 1–2 years</td>
</tr>
<tr>
<td></td>
<td>◦ If normal results, then repeat every 6–12 months for 3–5 years</td>
</tr>
<tr>
<td></td>
<td>◦ If normal results, then repeat every year</td>
</tr>
<tr>
<td>CBC and chemistry blood tests</td>
<td>• As needed</td>
</tr>
<tr>
<td>Widening of esophagus</td>
<td>• As needed</td>
</tr>
<tr>
<td>Nutritional counseling</td>
<td>• As needed</td>
</tr>
</tbody>
</table>

Imaging for T1b, N1–N3, M0

<table>
<thead>
<tr>
<th>Prior treatment</th>
<th>Type of care</th>
<th>How often should this care be received?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esophagectomy only</td>
<td>Upper GI endoscopy</td>
<td>• If all cancer and Barrett’s esophagus removed, as needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If Barrett’s esophagus not fully removed, every 3 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 4–6 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year for 3 years</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT with contrast of the chest and abdomen</td>
<td>• Consider every 6–12 months for 3 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then as needed</td>
</tr>
<tr>
<td>Chemoradiation only or with esophagectomy</td>
<td>Upper GI endoscopy</td>
<td>• Every 6–12 months for 2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, repeat every year for 3 years.</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT with contrast of the chest and abdomen</td>
<td>• Every 6–9 months for 2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, repeat every year up to 5 years</td>
</tr>
</tbody>
</table>
Guide 10 lists follow-up care for invasive cancers. Follow-up care is started when there are no signs of cancer after treatment. Imaging tests are based on cancer staging and which treatments you’ve had.

For all invasive cancers, updates of your medical history and physical exams should be done regularly. Blood tests are only done when needed.

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

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

Endoscopy and imaging tests are advised to look for any new tumors. An upper GI endoscopy allows your doctor to look inside your esophagus and stomach and to take a biopsy. Imaging tests may reveal cancer growth.

---

**Imaging for T2, T3, T4, Any N, M0**

<table>
<thead>
<tr>
<th>Prior treatment</th>
<th>Type of care</th>
<th>How often should this care be received?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemoradiation only</td>
<td>Upper GI endoscopy</td>
<td>• Every 3–4 months for 2 years&lt;br&gt;• If normal results, then repeat every 6 months for 1 year</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT with contrast of the chest and abdomen</td>
<td>• As needed</td>
</tr>
<tr>
<td>Chemoradiation and esophagectomy</td>
<td>PET/CT or CT with contrast of the chest and abdomen</td>
<td>• Consider every 4–6 months for 1 year&lt;br&gt;• If normal results, then repeat every 6–9 months for 2 years</td>
</tr>
</tbody>
</table>
## Guide 11. Treatment by cancer site

<table>
<thead>
<tr>
<th>Site of cancer</th>
<th>Prior treatment</th>
<th>What are the options?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locoregional recurrence</td>
<td>You had an esophagectomy but not chemoradiation</td>
<td>• Chemoradiation, • Surgery, • Chemotherapy, or • Supportive care</td>
</tr>
<tr>
<td>(M0 score)</td>
<td>You had chemoradiation but not an esophagectomy</td>
<td>• Esophagectomy if able to have surgery, or • Supportive care if unable to have surgery</td>
</tr>
<tr>
<td>Metastatic recurrence</td>
<td>Any</td>
<td>• Supportive care</td>
</tr>
<tr>
<td>(M1 score)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Guide 11 lists the treatment options for cancer that returned during follow-up care. The return of cancer is called a recurrence. Options are based on where the cancer returned and prior treatment. Cancer that returns near to where the esophagus is (or was) is called a locoregional recurrence. Cancer that returns in distant sites from the esophagus is a metastatic recurrence.

Locoregional recurrence
If you had an esophagectomy only, options include chemoradiation, surgery, chemotherapy, or supportive care. The recommended chemotherapy for chemoradiation is:

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

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

If you had chemoradiation only, options depend on if you can have surgery. If you can, an esophagectomy is advised. Otherwise, you can receive supportive care.

Metastatic recurrence
Supportive care is advised for metastatic cancer. Supportive care is addressed in the next section Advanced cancer.
## Advanced cancer

### Guide 12. Supportive care

<table>
<thead>
<tr>
<th>Performance status score</th>
<th>What are the options?</th>
</tr>
</thead>
</table>
| ECOG ≤2 or KPS ≥60       | • Supportive care with systemic therapy (pages 62–64)  
                          | • Supportive care without systemic therapy (pages 63–64) |
| ECOG ≥3 or KPS <60       | • Supportive care without systemic therapy (pages 63–64) |
Supportive care

Advanced cancer cannot be treated with local treatments. Advanced cancer includes metastatic disease (M1 stage). Instead, supportive care is given. When used for advanced cancers, supportive care is often called palliative care.

The goal of supportive care is to prevent and relieve discomfort you may have since the cancer can’t be cured. Supportive care may also extend life, improve your eating, and help you feel better overall.

People without advanced cancer also receive supportive care. Some aspects of supportive care, such as symptom control, are useful for many people with any stage of esophageal cancer. Symptom control is presented on pages 63 and 64.

Guide 12 lists the options used to manage advanced cancer. Options are based on your performance status, which is your ability to do activities. Your doctor will 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.

If you have an ECOG score of 2 or less or a KPS score of 60 more, you may receive systemic therapy to slow down cancer growth. Regimens are listed on page 62.

Supportive care that excludes systemic therapy is an option if you have an ECOG score of 3 or more or a KPS score of less than 60. You may receive other types of care to improve your quality of life. Read pages 63 and 64 to learn more about symptom control.
### Guide 13. First-line systemic treatment

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

### Guide 14. Second-line systemic treatments

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

Doctors use the term “systemic” when talking about a cancer treatment for the whole body. Chemotherapy is a type of systemic treatment used for esophageal cancer. Chemotherapy can cause severe side effects. As such, it is only given if your health hasn’t seriously limited your activities.

Guide 13 lists the regimens first used to manage advanced cancers. Your doctor will choose a regimen based on your health and treatment side effects. Regimens consisting of two drugs have less severe side effects than three-drug regimens. If you are given 5-FU, leucovorin may be added to limit side effects of the chemotherapy. No matter what regimen you receive, you should be assessed for side effects on a regular basis.

Guide 14 lists the regimens that are given if the cancer doesn’t respond to first-line regimens. The regimen that is best for you depends on your prior treatment and performance status. Preferred regimens have been shown within well-designed clinical trials to control cancer growth better than other treatments.

Symptom control

Cancer or its treatment can cause unpleasant and sometimes harmful symptoms. One of the most common symptoms of esophageal cancer is trouble with food passing through the esophagus. This is called dysphagia. Your doctor will assess what you can and can’t swallow and what is causing the dysphagia.

Dysphagia is often caused by the tumor blocking the passage. However, sometimes it is caused by the tumor impairing the muscles of the esophagus or by scarring from radiation. Treatment for dysphagia depends on the cause. Treatment for a blocked esophagus is described on page 64.

Bleeding is another common symptom, but not as common as dysphagia. Bleeding may be caused by the cancer or the cancer treatment. Endoscopic treatment that uses heat, cold, lasers, or injections may stop bleeding from the tumor surface. EBRT may stop ongoing blood loss.

Other symptoms related to esophageal cancer include pain or nausea with or without vomiting. These symptoms may be caused by the tumor blocking the passage of the esophagus. Treatment for a blockage is described on page 64. Otherwise, pain may be controlled with radiation therapy, chemotherapy, pain medication, and other methods. Likewise, there are medicines and other methods that may help stop nausea and vomiting.

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.
**Esophageal blockage**

The cancer may block (obstruct) food and liquids from passing through your esophagus. Treatment is based on the extent of the blockage. You may get a feeding tube if you aren’t receiving enough nutrition.

A complete blockage doesn’t allow any food or liquids to pass through your esophagus. Treatment options include endoscopic methods, radiation therapy, chemotherapy, and sometimes surgery. Dilation and stents are endoscopic methods described below. **EBRT** is the common radiation method. However, internal radiation (brachytherapy) may be an option as well.

A severe blockage allows only liquids to pass through your esophagus. One treatment option is to stretch open (dilate) your esophagus. Your esophagus can be stretched using a small balloon or tube guided down your throat to the right spot.

Another option for a severe blockage is a stent. A stent is a thin metal or plastic tube. It can be placed in your esophagus with endoscopic tools while you are sedated. Placement of the stent can be done on an outpatient basis. The stent will expand in the passage and remain in your body to allow food to pass through.

Other options for a severe blockage are the same as for a complete block. EBRT and brachytherapy work well to unblock the esophagus. Symptom relief from radiation is slower but more long-lasting compared to endoscopic methods.

A moderate blockage allows liquids and semisolid food to pass through your esophagus. An example of semisolid food is applesauce. Treatment options are the same as for complete and severe blockage.

**Review**

- Endoscopic treatments are preferred for Tis and T1a tumors.
- For T1b tumors, an esophagectomy is recommended if you can have surgery. If not, you can receive endoscopic treatment. After an esophagectomy, you may receive chemoradiation to kill any remaining cancer cells.
- Invasive cancers are often treated with chemoradiation. An esophagectomy may follow to remove any remaining cancer.
- When there are no signs of cancer after treatment, testing to check for new cancer growth should be done. Medical history and physical exams are needed. You may also receive blood, scoping, and imaging tests.
- Cancer that returns after local treatment near to where the esophagus is (or was) may be curable with surgery or chemoradiation.
- Cancer that is unable to be cured can be treated with supportive care. Supportive care includes treatment to prevent or reduce symptoms caused by the cancer.
6

Treatment guide:
Adenocarcinoma
6 Treatment guide: Adenocarcinoma

68 Early cancer

Treatment of cancer that has not grown beyond the second layer of the esophageal wall. There is no proof of cancer in nearby lymph nodes or distant sites. These cancers include stages 0, IA, and some IB (T1 scores).

74 Invasive cancer

Treatment of cancer that has grown beyond the first layer of the esophageal wall. There may be proof of cancer in nearby lymph nodes but there is no proof of cancer in distant sites. These cancers include stages IB (T2 and T3), II, and III.

80 Return of cancer

Treatment of cancers that return after a cancer-free period. The return of cancer is called recurrence.

82 Advanced cancer

Treatment of esophageal cancers that can’t be treated with local treatments, such as surgery. Such cancers include metastatic disease (M1 stage).

86 Review
Part 6 is a guide to the treatment options for people with an adenocarcinoma of the esophagus. Treatment options are grouped by the extent of the cancer. This information is taken from the treatment guidelines written by NCCN experts for doctors who treat esophageal cancer. Your doctors may suggest other treatments than those listed in Part 6 based on your health and personal wishes.
## Early cancer

### Guide 15. Initial treatment

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>What are the options if approved and agree to have surgery?</th>
<th>What are the options if not approved or decline surgery?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tis, N0, M0</td>
<td>• EMR or ESD, Ablation, EMR followed by ablation or ESD followed by ablation, or Esophagectomy</td>
<td>• EMR or ESD, Ablation, or EMR followed by ablation or ESD followed by ablation</td>
</tr>
<tr>
<td>T1a, N0, M0</td>
<td>• EMR or ESD, EMR followed by ablation or ESD followed by ablation, or Esophagectomy</td>
<td>• EMR or ESD, or EMR followed by ablation or ESD followed by ablation</td>
</tr>
<tr>
<td>Superficial T1b, N0, M0</td>
<td>• EMR followed by ablation or ESD followed by ablation, or Esophagectomy</td>
<td>• EMR or ESD, or EMR followed by ablation or ESD followed by ablation</td>
</tr>
<tr>
<td>All other T1b, N0, M0</td>
<td>• Esophagectomy</td>
<td>• EMR or ESD, or EMR followed by ablation or ESD followed by ablation</td>
</tr>
</tbody>
</table>

### Guide 16. Next treatment after esophagectomy

<table>
<thead>
<tr>
<th>Surgery results</th>
<th>What are the options?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cancer is found in the surgical margin or lymph nodes</td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td>Cancer is found in the surgical margin or lymph nodes</td>
<td>• Chemoradiation</td>
</tr>
<tr>
<td>Some cancer remains in or near your esophagus</td>
<td>• Chemoradiation</td>
</tr>
<tr>
<td>Cancer is found in distant sites</td>
<td>• Chemoradiation, or Supportive care</td>
</tr>
</tbody>
</table>
This section presents the treatment options for early cancer. These cancers have not grown beyond the second layer of the esophageal wall (submucosa). The TMN scores for early cancers are Tis, N0, M0 (stage 0) and T1, N0, M0 (part of stage I). Options range from the start of treatment to follow-up care on pages 70 and 72.

Guide 15 lists options for initial treatment. Surgery may be an option. Your doctor will assess if you are able to undergo surgery by testing your lungs, heart, and nutritional intake. Your doctor will also assess if chemoradiation would do more help than harm.

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

T1b tumors have invaded the submucosa. Superficial T1b tumors have only slightly grown into the submucosa. For superficial tumors, EMR or ESD followed by ablation and an esophagectomy are options if you are able to have surgery. For deeper T1b tumors, an esophagectomy is the best option. If you are unable to have surgery, endoscopic treatments are advised.

Guide 16 lists treatment options following an esophagectomy. The results of surgery are used to decide if more treatment is needed. Surgery results include: 1) no cancer is in the surgical margin; 2) cancer is in the surgical margin; 3) not all the cancer that the surgeon could see in or near the esophagus was removed; and 4) cancer was found in distant sites (M1 score).

Your surgeon may have been able to remove all the cancer and a cancer-free surgical margin. In this case, no more treatment is needed. The next step is to start follow-up care.

If cancer is found in the surgical margin, chemoradiation is advised. Chemoradiation will treat any cancer that may remain in your body. Likewise, if your surgeon wasn’t able to remove all the cancer in or near your esophagus, chemoradiation is one of two options. Chemotherapy with infusional 5-FU or capecitabine before and after fluoropyrimidine-based chemoradiation is advised.

Supportive care may be received in two cases. It is a second option when cancer remains in or near your esophagus after surgery. It is also advised if M1 cancer is found during surgery. Supportive care is addressed later in this chapter in the section Advanced cancer.
### Guide 17. Follow-up care after endoscopic treatment

<table>
<thead>
<tr>
<th>T score</th>
<th>Type of care</th>
<th>How often should this care be received?</th>
</tr>
</thead>
</table>
| Any     | Medical history and physical exam | • Every 3–6 months for 1–2 years  
  ◦ If normal results, then repeat every 6–12 months for 3–5 years  
  ◦ If normal results, then repeat every year |
| Tis     | Upper GI endoscopy | • Every 6 months for 1–2 years  
  ◦ If normal results, then repeat every year for 3 years |
| T1      | Upper GI endoscopy | • Every 3 months for 1 year  
  ◦ If normal results, then repeat every 4–6 months for 1 year  
  ◦ If normal results, then repeat every year for 3 years |
| Superficial T1b | Upper GI endoscopy | • Every 3 months for 1 year  
  ◦ If normal results, then repeat every 4–6 months for 1 year  
  ◦ If normal results, then repeat every year for 3 years |
| PET/CT or CT with contrast of the chest and abdomen | • Every 4–6 months for 2 years  
  ◦ If normal results, then repeat for 1 more year |
| Deep T1b | Upper GI endoscopy | • Every 3 months for 1 year  
  ◦ If normal results, then repeat every 4–6 months for 1 year  
  ◦ If normal results, then repeat every year for 3 years |
| PET/CT or CT with contrast of the chest and abdomen | • Consider every year for 3 years  
  ◦ If normal results, then as needed |
Guide 17 lists follow-up care after endoscopic treatment. Follow-up care is started when there are no signs of cancer after treatment. Which tests are advised is based on how far the tumor has grown into the esophageal wall.

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

For T1b tumors, imaging tests are needed. Imaging tests may reveal if cancer is growing in places other than your esophagus. How often an imaging test is needed is based on how far the tumor has grown into the submucosa. Superficial T1b tumors have slightly grown into the submucosa and deep T1b tumors have grown farther.
## Guide 18. Follow-up care after esophagectomy

<table>
<thead>
<tr>
<th>T score</th>
<th>Type of care</th>
<th>How often should this care be received?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>Medical history and physical exam</td>
<td>• Every 3–6 months for 1–2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 6–12 months for 3–5 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year</td>
</tr>
<tr>
<td>Any</td>
<td>CBC and chemistry blood tests</td>
<td>• As needed</td>
</tr>
<tr>
<td>Any</td>
<td>Widening of esophagus</td>
<td>• As needed</td>
</tr>
<tr>
<td>Any</td>
<td>Nutritional counseling</td>
<td>• As needed</td>
</tr>
<tr>
<td>Tis</td>
<td>Upper GI endoscopy</td>
<td>• If all cancer and Barrett’s esophagus removed, as needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If Barrett’s esophagus not fully removed, every 6 months for 1–2 years</td>
</tr>
<tr>
<td>T1a or T1b</td>
<td>Upper GI endoscopy</td>
<td>• If all cancer and Barrett’s esophagus removed, as needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• If Barrett’s esophagus not fully removed, every 3 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 4–6 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year for 3 years</td>
</tr>
<tr>
<td>T1b</td>
<td>PET/CT or CT with contrast of the chest and abdomen</td>
<td>• Consider every 6–12 months for 3 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then as needed</td>
</tr>
</tbody>
</table>
Guide 18 lists follow-up care after esophagectomy. Follow-up care is started when there are no signs of cancer after treatment. Which tests are advised is based on how far the tumor has grown into the esophageal wall.

For all early cancers, updates of your medical history and physical exams should be done regularly. Blood tests are only done when needed.

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

After cancer treatment, it may also be helpful to meet with a nutritionist. A nutritionist can make sure you are getting enough food to eat and are eating enough healthy foods.

Endoscopy and imaging tests are advised to look for any new tumors. Upper GI endoscopy may be needed on a regular basis if Barrett’s esophagus wasn’t fully removed. For T1b tumors, imaging tests may reveal cancer growth.
Invasive cancer

Guide 19. Initial treatment

<table>
<thead>
<tr>
<th>TNM scores</th>
<th>What are the options if approved and agree to have surgery?</th>
<th>What are the options if not approved or decline surgery?</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2, N0, M0 T3, N0, M0 T4a, N0, M0 T1b, N+, M0 T2, N+, M0 T3, N+, M0 T4a, N+, M0</td>
<td>• Esophagectomy in some cases • Chemoradiation to shrink cancer • Chemotherapy to shrink cancer • Chemotherapy before and after esophagectomy (perioperative) • Chemoradiation to cure cancer if you don’t want to have surgery</td>
<td>• But able to have chemoradiation • Chemoradiation to cure cancer And unable to have chemoradiation • Supportive care with or without radiation therapy</td>
</tr>
<tr>
<td>T4b, N+, M0</td>
<td>• Chemoradiation to cure cancer</td>
<td>• Same as above</td>
</tr>
</tbody>
</table>

This section presents the treatment options for invasive cancer. These cancers have grown beyond the second layer of the esophageal wall (submucosa). There may be cancer in nearby lymph nodes but not in distant sites. Options range from the start of treatment to follow-up care on pages 78 and 79.

TNM scores of invasive cancers are listed in Guide 19. Cancer in nearby lymph nodes is represented by “N+” since the number of lymph nodes with cancer can’t be known before surgery.

Guide 19 lists options for initial treatment. Surgery may be a treatment option for these cancers. Your doctor will assess if you are able to undergo surgery by testing your lungs, heart, and nutritional intake. Your doctor will also assess if chemoradiation or chemotherapy would do more help than harm.

Approved and agree to surgery
An esophagectomy may be an option if the operation is likely to remove all the cancer. You may receive another type of treatment before or after surgery. Treatments before surgery include chemoradiation or chemotherapy with the intent to shrink the cancer. This is called preoperative treatment. Another option is to receive chemotherapy before and after surgery. This is called perioperative chemotherapy.

Chemotherapy regimens for preoperative chemoradiation are:

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

**Other regimens**
- Irinotecan and cisplatin
- Paclitaxel and 5-FU (or capecitabine).
The regimen for preoperative chemotherapy is:

- 5-FU and cisplatin.

Regimens for perioperative chemotherapy are:

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

*These perioperative regimens are not advised by most NCCN experts.

Doctors call chemoradiation given to try to cure cancer “definitive chemoradiation.” It is an option if the tumor is rated T4b. Even if you are healthy enough for surgery, these tumors can’t be first treated with surgery.

Chemotherapy regimens for definitive chemoradiation are:

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

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

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**Not approved or decline surgery**

Guide 19 also lists options for people unable to have surgery. Chemoradiation to try to cure the cancer is an option if chemotherapy will do more good than harm. Regimens for definitive chemotherapy are listed in the left column.

If you are unable to have chemotherapy, supportive care is advised. This may include radiation therapy to prevent or treat symptoms caused by cancer. Supportive care is addressed later in this chapter in the section *Advanced cancer.*
Guide 20. Next treatment after chemoradiation

<table>
<thead>
<tr>
<th>Intent of chemoradiation</th>
<th>Treatment results</th>
<th>What are the options?</th>
</tr>
</thead>
<tbody>
<tr>
<td>To shrink cancer (preoperative)</td>
<td>There are no signs of cancer</td>
<td>• Esophagectomy, or • Start follow-up care</td>
</tr>
<tr>
<td></td>
<td>Some cancer remains in or near your esophagus</td>
<td>• Esophagectomy, or • Supportive care</td>
</tr>
<tr>
<td></td>
<td>Cancer is found in distant sites</td>
<td>• Supportive care</td>
</tr>
<tr>
<td>To cure cancer (definitive)</td>
<td>There are no signs of cancer</td>
<td>• Start follow-up care</td>
</tr>
<tr>
<td></td>
<td>Some cancer remains in or near your esophagus</td>
<td>• Esophagectomy, or • Supportive care</td>
</tr>
<tr>
<td></td>
<td>Cancer is found in distant sites</td>
<td>• Supportive care</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Surgery results</th>
<th>What are the options?</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cancer is found in the surgical margin or lymph nodes</td>
<td>• Start follow-up care, • Chemoradiation in some cases and if you haven’t received it before, or • Chemotherapy if receiving perioperative treatment</td>
</tr>
<tr>
<td>No cancer is found in the surgical margin but is found in lymph nodes</td>
<td>• Observation if you received preoperative chemotherapy or chemoradiation, • Chemoradiation if you haven’t received it before, or • Chemotherapy if receiving perioperative treatment</td>
</tr>
<tr>
<td>Cancer is in the surgical margin</td>
<td>• Observation if you received preoperative chemotherapy or chemoradiation, or • Chemoradiation if you haven’t received it before</td>
</tr>
<tr>
<td>Some cancer remains in or near your esophagus</td>
<td>• Chemoradiation if you haven’t received it before, or • Supportive care</td>
</tr>
<tr>
<td>Cancer is found in distant sites</td>
<td>• Chemoradiation if you haven’t received it before, or • Supportive care</td>
</tr>
</tbody>
</table>
Guide 20 lists treatment options following chemoradiation. Options are based on the intent of your treatment and how well the tumor responds to chemoradiation.

How the tumor responds to chemoradiation will be assessed by a CT scan with contrast of your chest and abdomen or PET with or without CT. CT of your chest and abdomen is not needed if you have a PET/CT. PET/CT or PET should occur at least 5 weeks after initial treatment has ended.

Sometimes an upper GI endoscopy with biopsy is needed. It is used to assess how chemoradiation is working, especially if surgery may not be needed or possible. If you want to avoid surgery, it may be best to wait 6 or more weeks to have an upper GI endoscopy. If you will have surgery, an upper GI endoscopy with biopsy is optional.

Options after preoperative chemoradiation
If there are no signs of cancer, an esophagectomy and follow-up care are options. If cancer remains in or near the esophagus, an esophagectomy is the preferred treatment but supportive care is also an option. Supportive care is also advised if the cancer has spread to distant sites. Supportive care is addressed later in this chapter in the section Advanced cancer.

Options after definitive chemoradiation
If there are no signs of cancer, follow-up care is advised. If cancer remains in or near the esophagus, an esophagectomy and supportive care are options. Supportive care is also advised if the cancer has spread to distant sites. Supportive care is addressed later in this chapter in the section Advanced cancer.

Guide 21 lists treatment options following an esophagectomy. The results of surgery are used to decide if more treatment is needed. Surgery results include: 1) no cancer is in the surgical margin or lymph nodes; 2) cancer is in the lymph nodes; 3) cancer is in the surgical margin; 4) not all the cancer that the surgeon could see in or near the esophagus was removed; and 5) cancer was found in distant sites (M1 score).

Chemoradiation may be an option for you after esophagectomy. It is important to know that it can only be received once. Thus, if you had it before surgery, you can't have it again. The recommended chemotherapy regimen for chemoradiation is fluoropyrimidine (infusional fluorouracil or capecitabine) before and after fluoropyrimidine-based chemoradiation.

Your surgeon may have been able to remove all the cancer and a cancer-free surgical margin. Lymph nodes may also be cancer-free. In this case, options include starting follow-up care, chemoradiation, and finishing perioperative chemotherapy. A total of 6 cycles of perioperative chemotherapy is advised.

Testing may find cancer in the lymph nodes but not in the surgical margin. In this case, options include observation, chemoradiation, and finishing a total of 6 cycles of perioperative chemotherapy. Observation is a period of testing to check for changes in cancer status. If the cancer grows or spreads, treatment can be started.

If cancer is found in the surgical margin, there are two options. Observation is an option if you had preoperative chemotherapy or chemoradiation. Chemoradiation is another option since some cancer may remain in your body.

There still may be cancer near to or far from your esophagus after surgery. In this case, chemoradiation and supportive care are options. Supportive care is addressed later in this chapter in the section Advanced cancer.
Guide 22. Follow-up care

All tumors

<table>
<thead>
<tr>
<th>Type of care</th>
<th>How often should this care be received?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical history and physical exam</td>
<td>• Every 3–6 months for 1–2 years</td>
</tr>
<tr>
<td></td>
<td>◦ If normal results, then repeat every 6–12 months for 3–5 years</td>
</tr>
<tr>
<td></td>
<td>◦ If normal results, then repeat every year</td>
</tr>
<tr>
<td>CBC and chemistry blood tests</td>
<td>• As needed</td>
</tr>
<tr>
<td>Widening of esophagus</td>
<td>• As needed</td>
</tr>
<tr>
<td>Nutritional counseling</td>
<td>• As needed</td>
</tr>
</tbody>
</table>

Imaging for T1b, N1–N3, M0

<table>
<thead>
<tr>
<th>Prior treatment</th>
<th>Type of care</th>
<th>How often should this care be received?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Esophagectomy only</td>
<td>Upper GI endoscopy</td>
<td>• If all cancer and Barrett's esophagus removed, as needed</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If Barrett’s esophagus not fully removed, every 3 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every 4–6 months for 1 year</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then repeat every year for 3 years</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT with contrast of the chest and abdomen</td>
<td>• Consider every 6–12 months for 3 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, then as needed</td>
</tr>
<tr>
<td>Chemoradiation only or with esophagectomy</td>
<td>Upper GI endoscopy</td>
<td>• Every 6–12 months for 2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, repeat every year for 3 years</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT with contrast of the chest and abdomen</td>
<td>• Every 6–9 months for 2 years</td>
</tr>
<tr>
<td></td>
<td></td>
<td>◦ If normal results, repeat every year up to 5 years</td>
</tr>
</tbody>
</table>
Guide 22 lists follow-up care for invasive cancers. Follow-up care is started when there are no signs of cancer after treatment. Imaging tests are based on cancer staging and which treatments you’ve had.

For all invasive cancers, updates of your medical history and physical exams should be done regularly. Blood tests are only done when needed.

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

After cancer treatment, it may also be helpful to meet with a nutritionist. He or she can make sure you are getting enough food to eat and are eating enough healthy foods.

Endoscopy and imaging tests are advised to look for any new tumors. An upper GI endoscopy allows your doctor to look inside your esophagus and stomach and to take a biopsy. Imaging tests may reveal cancer growth.

<table>
<thead>
<tr>
<th>Prior treatment</th>
<th>Type of care</th>
<th>How often should this care be received?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemoradiation only</td>
<td>Upper GI endoscopy</td>
<td>• Every 3–4 months for 2 years ◦ If normal results, then repeat every 6 months for 1 year</td>
</tr>
<tr>
<td></td>
<td>PET/CT or CT with contrast of the chest and abdomen</td>
<td></td>
</tr>
<tr>
<td>Chemoradiation and esophagectomy</td>
<td>PET/CT or CT with contrast of the chest and abdomen</td>
<td>• Consider every 4–6 months for 1 year ◦ If normal results, then repeat every 6–9 months for 2 years</td>
</tr>
</tbody>
</table>
### Guide 23. Treatment by cancer site

<table>
<thead>
<tr>
<th>Site of cancer</th>
<th>Prior treatment</th>
<th>What are the options?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locoregional recurrence (M0 score)</td>
<td>You had an esophagectomy but not chemoradiation</td>
<td>• Chemoradiation,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Surgery,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Chemotherapy,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Supportive care</td>
</tr>
<tr>
<td></td>
<td>You had chemoradiation but not an esophagectomy</td>
<td>• Esophagectomy if able to have surgery, or</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Supportive care if unable to have surgery</td>
</tr>
<tr>
<td>Metastatic recurrence (M1 score)</td>
<td>Any</td>
<td>• Supportive care</td>
</tr>
</tbody>
</table>
Guide 23 lists the treatment options for cancer that returned during follow-up care. The return of cancer is called a recurrence. Options are based on where the cancer returned and prior treatment. Cancer that returns near to where the esophagus is (or was) is called a locoregional recurrence. Cancer that returns in distant sites from the esophagus is a metastatic recurrence.

**Locoregional recurrence**
If you had an esophagectomy only, options include chemoradiation, surgery, chemotherapy, and supportive care. The recommended chemotherapy for chemoradiation is:

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

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

If you had chemoradiation only, options depend on if you can have surgery. If you can, an esophagectomy is advised. Otherwise, you can receive supportive care.

**Metastatic recurrence**
Supportive care is advised for metastatic cancer. Supportive care is addressed in the next section *Advanced cancer.*
Guide 24. Supportive care

<table>
<thead>
<tr>
<th>Performance status score</th>
<th>What are the options?</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECOG ≤2 or KPS ≥60</td>
<td>• Supportive care with systemic therapy (pages 84–86)</td>
</tr>
<tr>
<td></td>
<td>• Supportive care without systemic therapy (pages 85–86)</td>
</tr>
<tr>
<td>ECOG ≥3 or KPS &lt;60</td>
<td>• Supportive care without systemic therapy (pages 85–86)</td>
</tr>
</tbody>
</table>
Supportive care

Advanced cancer cannot be treated with local treatments. Advanced cancer includes metastatic disease (M1 stage). Instead, supportive care is given. When used for advanced cancers, supportive care is often called palliative care.

The goal of supportive care is to prevent and relieve discomfort you may have since the cancer can’t be cured. Supportive care may also extend life, improve your eating, and help you feel better overall.

People without advanced cancer also receive supportive care. Some aspects of supportive care, such as symptom control, are useful for many people with any stage of esophageal cancer. Symptom control is presented on pages 85 and 86.

Guide 24 lists the options used to manage advanced cancer. Options are based on your performance status, which is your ability to do activities. Your doctor will 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.

If you have an ECOG score of 2 or less or a KPS score of 60 more, you may receive systemic therapy to slow down cancer growth. Regimens are listed on page 84.

Supportive care that excludes systemic therapy is an option if you have an ECOG score of 3 or more or a KPS score of less than 60. You may receive other types of care to improve your quality of life. Read pages 85 and 86 to learn more about symptom control.
### Guide 25. First-line systemic treatment*

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

*Trastuzumab should be received with chemotherapy if the cancer cells have too many HER2 receptors.

### Guide 26. Second-line systemic treatments

<table>
<thead>
<tr>
<th>Preferred regimens</th>
<th>Other regimens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ramucirumab and paclitaxel</td>
<td>Irinotecan, cisplatin</td>
</tr>
<tr>
<td>Docetaxel</td>
<td>Irinotecan, fluoropyrimidine (5-FU or capecitabine)</td>
</tr>
<tr>
<td>Paclitaxel</td>
<td>Docetaxel and irinotecan</td>
</tr>
<tr>
<td>Irinotecan</td>
<td></td>
</tr>
<tr>
<td>Ramucirumab</td>
<td></td>
</tr>
</tbody>
</table>
Systemic treatment
Doctors use the term “systemic” when talking about a cancer treatment for the whole body. Chemotherapy is the type of systemic treatment most often used for esophageal cancer. Chemotherapy can cause severe side effects. As such, it is only given if your health hasn’t seriously limited your activities.

Targeted therapy is a newer drug treatment for advanced esophageal adencarcinomas. Trastuzumab is one such drug. It should be received with first-line chemotherapy if the cancer cells have too many HER2 receptors except if taking an anthracycline. Epirubicin is an anthracycline.

Guide 25 lists the regimens first used to manage advanced cancers. Your doctor will choose a regimen based on your health and treatment side effects. Regimens consisting of two drugs have less severe side effects than three-drug regimens. If you are given 5-FU, leucovorin may be added to limit side effects of the chemotherapy. No matter what regimen you receive, you should be assessed for side effects on a regular basis.

Guide 26 lists the regimens that are given if the cancer doesn’t respond to first-line regimens. The regimen that is best for you depends on your prior treatment and performance status. Most preferred regimens have been shown within well-designed clinical trials to control cancer growth better than other treatments.

Symptom control
Cancer or its treatment can cause unpleasant and sometimes harmful symptoms. One of the most common symptoms of esophageal cancer is trouble with food passing through the esophagus. This is called dysphagia. Your doctor will assess what you can and can’t swallow and what is causing the dysphagia.

Dysphagia is often caused by the tumor blocking the passage. However, sometimes it is caused by the tumor impairing the muscles of the esophagus or by scarring from radiation. Treatment for dysphagia depends on the cause. Treatment for a blocked esophagus is described on page 86.

Bleeding is another common symptom, but not as common as dysphagia. Bleeding may be caused by the cancer or the cancer treatment. Endoscopic treatment that uses heat, cold, lasers, or injections may stop bleeding from the tumor surface. EBRT may stop ongoing blood loss.

Other symptoms related to esophageal cancer include pain or nausea with or without vomiting. These symptoms may be caused by the tumor blocking the passage of the esophagus. Treatment for a blockage is described on page 86. Otherwise, pain may be controlled with radiation therapy, chemotherapy, pain medication, and other methods. Likewise, there are medicines and other methods that may help stop nausea and vomiting.

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.
Esophageal blockage
The cancer may block (obstruct) food and liquids from passing through your esophagus. Treatment is based on the extent of the blockage. You may get a feeding tube if you aren’t receiving enough nutrition.

A complete blockage doesn’t allow any food or liquids to pass through your esophagus. Treatment options include endoscopic methods, radiation therapy, chemotherapy, and sometimes surgery. Dilation and stents are endoscopic methods described below. EBRT is the common radiation method. However, internal radiation (brachytherapy) may be an option as well.

A severe blockage allows only liquids to pass through your esophagus. One treatment option is to stretch open (dilate) your esophagus. Your esophagus can be stretched using a small balloon or tube guided down your throat to the right spot.

Another option for a severe blockage is a stent. A stent is a thin metal or plastic tube. It can be placed in your esophagus with endoscopic tools while you are sedated. Placement of the stent can be done on an outpatient basis. The stent will expand in the passage and remain in your body to allow food to pass through.

Other options for a severe blockage are the same as for a complete block. EBRT and brachytherapy work well to unblock the esophagus. Symptom relief from radiation is slower but more long-lasting compared to endoscopic methods.

A moderate blockage allows liquids and semisolid food to pass through your esophagus. An example of semisolid food is applesauce. Treatment options are the same as for complete and severe blockage.

Review

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

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

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

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

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

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

What’s my diagnosis and prognosis?

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

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

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

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

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

1. Will I have to go to the hospital or elsewhere? How often? How long is each visit?
2. Do I have a choice of when to begin treatment? Can I choose the days and times of treatment?
3. How do I prepare for treatment? Do I have to stop taking any of my medicines? Are there foods I will have to avoid?
4. Should I bring someone with me when I get treated?
5. Will the treatment hurt?
6. How much will the treatment cost me? What does my insurance cover?
7. Will I miss work or school? Will I be able to drive?
8. Is home care after treatment needed? If yes, what type?
9. How soon will I be able to manage my own health?
10. When will I be able to return to my normal activities?
What is your experience?

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

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

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

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

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

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

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

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

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

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

American Cancer Society
www.cancer.org/cancer/esophaguscancer/index

Esophageal Cancer Awareness Association
www.ecaware.org

Esophageal Cancer Action Network, Inc.
www.ecan.org

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

National Cancer Institute
www.cancer.gov/types/esophageal

NCCN
www.nccn.org/patients

Review

• Shared decision-making is a process in which you and your doctors plan treatment together.

• Asking your doctors questions is vital to getting the information you need to make informed decisions.

• Getting a 2nd opinion, attending support groups, and comparing benefits and downsides may help you decide which treatment is best for you.
abdomen
The belly area between the chest and pelvis.

ablation
Treatment that destroys very small tumors.

adenocarcinoma
Cancer of cells that make fluids or hormones.

adventitia
The fourth layer of the esophageal wall.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

cryoablation
Treatment that kills cancer cells by freezing them.

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

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

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

dysphagia
Difficult or painful swallowing.

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

electrode
A small device that transmits electricity.

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

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

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

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

**epithelium**  
Tissue that lines the esophageal wall.

**esophagectomy**  
Removal of all or part of the esophagus.

**esophagogastrectomy**  
Removal of the esophagus and some of the stomach.

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

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

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

**follow-up care**  
Health care that starts once treatment has ended and there are no signs of cancer.

**gastroenterologist**  
A doctor who’s an expert in digestive diseases.

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

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

**general anesthesia**  
A controlled loss of wakefulness from drugs.

**gene**  
Instructions in cells for making and controlling cells.

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

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

**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.

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

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

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

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

**integrative medicine doctor**  
An expert in mind-body treatments.

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

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

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

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

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

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

**lymph**  
A clear fluid containing white blood cells.

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

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

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

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

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

mucosa
The first, inner layer of the esophageal wall.

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

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

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

nodule
A small lump of tissue.

nutritionist
An expert in healthy foods and drinks.

observation
A period of testing for cancer growth.

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

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

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

pelvis
The area of the body between the hip bones.

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

pericardium
The tissue lining around the heart.

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

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

pleura
The two layers of tissue lining around the lungs.

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

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

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

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

radiation therapy
The use of radiation to treat cancer.

radiofrequency ablation
Treatment that kills cancer cells with heat.

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

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

recurrence
The return of cancer after treatment.

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

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

simulation
The steps needed to prepare for radiation therapy.

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

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

**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.

**thoracic inlet**
The center of a ring of bones at the top of the ribcage.

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

**three-dimensional conformal radiation therapy (3D-CRT)**
Treatment with radiation that uses beams matched to the shape of the tumor.

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

**upper gastrointestinal (GI) endoscopy**
Use of a thin tool guided down the throat into the esophagus and stomach.

**vascular endothelial growth factor (VEGF)**
A molecule that binds to cells that form blood vessels.
Acronyms

3D-CRT  
three-dimensional conformal radiation therapy

AJCC  
American Joint Committee on Cancer

CAM  
complementary and alternative medicine

CBC  
complete blood count

CT  
computed tomography

DNA  
deoxyribonucleic acid

EBRT  
external beam radiation therapy

ECOG  
Eastern Cooperative Oncology Group

EGD  
esophagoduodenoscopy

EGJ  
esophagogastric junction

EMR  
endoscopic mucosal resection

ESD  
endoscopic submucosal dissection

EUS  
esophageal ultrasound

FDA  
Food and Drug Administration

FNA  
fine-needle aspiration

GERD  
gastroesophageal reflux disease

GI  
gastrointestinal

HER2  
human epidermal growth factor receptor 2

HGD  
high-grade dysplasia

IHC  
immunohistochemistry

IMRT  
intensity-modulated radiation therapy

ISH  
in situ hybridization

J-tube  
jejunostomy tube

KPS  
Karnofsky Performance Status

PEG  
percutaneous endoscopic gastrostomy

PET  
positron emission tomography

PET/CT  
positron emission tomography/computed tomography

VEGF  
vascular endothelial growth factor

NCCN Abbreviations and Acronyms

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  Early-Stage (Stages I and II)
  Stage III Breast Cancer
  Stage IV Breast Cancer
Chronic Lymphocytic Leukemia
Chronic Myelogenous Leukemia
Colon Cancer
Esophageal Cancer
Hodgkin Lymphoma
Kidney Cancer
Lung Cancer Screening
Malignant Pleural Mesothelioma
Melanoma
Multiple Myeloma
Myelodysplastic Syndromes
Non-Hodgkin’s Lymphomas
  Diffuse Large B-cell Lymphoma
  Follicular Lymphoma
Mantle Cell Lymphoma
Mycosis Fungoides
Peripheral T-cell Lymphoma
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