Guide to Surgery of the Esophagus

Please bring this book with you to each of your appointments and to the hospital on the day of your surgery.
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>Meet the Team</td>
<td>3</td>
</tr>
<tr>
<td>Important Phone Numbers</td>
<td>4</td>
</tr>
<tr>
<td>Your Notes and Questions</td>
<td>5</td>
</tr>
<tr>
<td>About the Esophagus</td>
<td>6</td>
</tr>
<tr>
<td>Esophageal Cancer</td>
<td>6</td>
</tr>
<tr>
<td>What Causes Cancer of the Esophagus</td>
<td>6-7</td>
</tr>
<tr>
<td>Symptoms of Cancer of the Esophagus</td>
<td>7</td>
</tr>
<tr>
<td>Diagnosis, Tests and Procedures</td>
<td>8</td>
</tr>
<tr>
<td>Staging of Esophageal Cancer</td>
<td>8-10</td>
</tr>
<tr>
<td>Metastatic Screening</td>
<td>9-10</td>
</tr>
<tr>
<td>Evaluation for Surgery</td>
<td>11-12</td>
</tr>
<tr>
<td>Surgery for Cancer of the Esophagus</td>
<td>12</td>
</tr>
<tr>
<td>Esophagectomy &amp; Esophagogastrectomy</td>
<td>12</td>
</tr>
<tr>
<td>Surgical Techniques</td>
<td>13-14</td>
</tr>
<tr>
<td>Your Evaluation</td>
<td>14-15</td>
</tr>
<tr>
<td>Preparing for Surgery</td>
<td>16</td>
</tr>
<tr>
<td>The Day of Surgery</td>
<td>17</td>
</tr>
<tr>
<td>Arriving at the Hospital</td>
<td>18</td>
</tr>
<tr>
<td>During Your Surgery</td>
<td>19</td>
</tr>
<tr>
<td>Recovering in the Hospital</td>
<td>19-23</td>
</tr>
<tr>
<td>How to Use Your Incentive Spirometer</td>
<td>22</td>
</tr>
<tr>
<td>Visitors</td>
<td>23</td>
</tr>
<tr>
<td>Planning for Discharge</td>
<td>23</td>
</tr>
<tr>
<td>Recovering at Home</td>
<td>24-29</td>
</tr>
<tr>
<td>Follow Up Appointments</td>
<td>29</td>
</tr>
<tr>
<td>When To Call Your Doctor</td>
<td>30</td>
</tr>
<tr>
<td>To Family and Friends</td>
<td>30</td>
</tr>
</tbody>
</table>
Introduction

This manual provides information that will help you prepare for your upcoming surgery of the esophagus. Please read through it before your surgery and bring the manual with you to the hospital. It is designed to give you as much information as possible so that you will be knowledgeable and informed. In addition, members of the surgery team are available to assist you with any concerns or questions that you might have. We are committed to making your stay as comfortable as possible.

Meet the Team

Your health care team is a group of highly trained experts who will work together to provide state-of-the-art care. The team that will be caring for you includes many professionals from several disciplines and specialties. Some of those who will be participating in your care are:

**Surgeon.** Dr. Reising will perform your surgery and be in charge of your care.

**Gastroenterologists.** Physicians that specialize in the diagnosis and treatment of diseases of the gastrointestinal tract, including the esophagus, will likely be part of your health care team.

**Anesthesiologists.** The anesthesiologist is the doctor that gives you the medicine or special gas that allows you to sleep during the operation. You will meet with one of the anesthesia physicians before your surgery to discuss the type of anesthesia that will be used and so s/he can ask you questions about your medical history.

**Pulmonary physicians.** Pulmonary physicians are specialists in lung disease and will be involved in your care as needed before and after surgery.

**Registered nurses.** The nurses will provide nursing care during your surgery and hospital stay. Nurses will be caring for you during all phases of your hospitalization.

**Social worker.** The care coordinators will be involved in assessing your needs for when you leave the hospital. If you need placement in a rehabilitation facility, visiting nurses at home, physical therapy, or home medical equipment, they will make the arrangements.

**Physical therapists.** The physical therapists will work with you after your surgery to assist in getting you up and walking about safely.

**Registered dietician.** Oversees nutritional status and tube feeding.
Important Telephone Numbers

Saint Alphonsus Surgery Clinic 208-302-2300

Saint Alphonsus Hospital Information 208-367-2121
Your notes and questions

*Please use this page for any questions you have. Members of the surgery team will be happy to address your questions and concerns.*
About the Esophagus

The esophagus is a hollow tube that connects the throat to the stomach. In adults, it is usually 10-13 inches long and is located behind the trachea (windpipe). When you swallow, muscles in the wall of your esophagus contract to push food down into the stomach. It is kept moist with mucus to help make swallowing easier.

Esophageal Cancer

Cancer is the abnormal growth of cells in a particular part of the body. The abnormal cells form a tumor. A tumor can be benign (not cancer) or malignant (cancer). A malignant tumor or cancer can form in the esophagus. The two most common types of esophageal cancer are squamous cell and adenocarcinoma. These two types of cancer make up more than 90% of all cases. There are some other rare types that will not be discussed.

Squamous Cell Carcinoma

The lining of the esophagus is where cancer usually starts. Squamous cells are the type of cells that make up the length of the esophagus. If a tumor develops in this area of the esophagus, it is squamous cell carcinoma (cancer).

Adenocarcinoma

The bottom portion of the esophagus and the part of the esophagus where the esophagus and stomach join are lined with cells called columnar cells. In this area, a type of cancer called adenocarcinoma can develop.

What Causes Cancer of the Esophagus?

The following factors have been shown to increase the risk of developing esophageal cancer:

Age
Esophageal cancer occurs more frequently as people get older.

Gender
Esophageal cancer occurs in more men than women.
**Tobacco use**
Use of any kind of tobacco products (cigarettes, pipe, cigar or chewing tobacco).

**Heavy alcohol use**
Chronic, heavy drinking is a major risk factor. The risk is especially high in people who drink and smoke.

**Barrett’s Esophagus**
This condition is characterized by chronic acid reflux (backflow of acid from the stomach up to the esophagus). The esophageal cells are altered by the continual reflux and can become precancerous. People with Barrett’s esophagus can have heartburn but others have no symptoms and are not aware that they have the condition.

**Irritation or injury to the esophagus**
Swallowing caustic chemicals such as lye, household cleaners and drain cleaners increases the likelihood of developing esophageal cancer.

**Diet**
Diets that promote obesity have been linked to esophageal cancer. Also diets lacking in fruits, vegetables, and certain vitamins and minerals may raise a person’s risk.

**A history of certain diseases**
Rare conditions such as achalasia, esophageal webs, and tylosis increase the risk of developing esophageal cancer.

**A history of head or neck cancer**
Those who have had cancer in the head or neck are at increased risk of developing another cancer in that area, including in the esophagus.

---

**Symptoms of Cancer of the Esophagus**

The main symptoms of cancer of the esophagus are difficulty swallowing, the feeling that food is getting stuck or not going down, and weight loss. These problems usually get worse over time. Other symptoms may include pain with swallowing, choking, food coming back up, and bleeding either by mouth or passing old blood with bowel movements.
Diagnosis

There is no simple way to know whether you have esophageal cancer. Tests are usually necessary to determine whether there is a tumor in the esophagus causing problems with swallowing. If such a problem is found, a biopsy is needed to confirm the diagnosis. A biopsy is the removal of a sample of tissue for examination under the microscope. There are a variety of techniques for obtaining a biopsy. In addition to a biopsy, there are several diagnostic tests and procedures that may be done to make a diagnosis of esophageal cancer.

**DIAGNOSTIC TESTS AND PROCEDURES**

If cancer of the esophagus is suspected, the following are appropriate to evaluate the problem:

**Medical History and Physical Examination**

Your doctor will ask questions related to your health and medical history and perform a physical examination.

**Endoscopy (also called esophagoscopy)**

A flexible lighted tube is inserted into the esophagus to visualize and examine it. A piece of tissue may be taken for biopsy.

**Barium Swallow**

You are asked to drink a liquid that contains barium. The liquid coats your esophagus then a series of x-rays is taken. The barium will light up on x-ray showing any abnormalities.

**STAGING OF ESOPHAGEAL CANCER**

If esophageal cancer is diagnosed, it is necessary to determine the stage of the cancer. Staging uses a 3-part system known at the TNM system to clarify the extent of the cancer. The information obtained from the tests and procedures that are done will give the information needed to determine the stage of the cancer. The TNM system is also known as the American Joint Committee on Cancer or AJCC. The 3 variables used in this system include:

- **T** – refers to the depth of invasion of the tumor
- **N** – refers to the involvement of nearby lymph nodes
- **M** – indicates whether the cancer has spread (metastasized) to other organs or distant lymph nodes.
The TNM system is used to assign a stage ranging from 0 through IV (0-4) to the cancer. The higher the number, the more the cancer has spread. Staging is important because it determines what treatment is appropriate.

**TESTS FOR STAGING**

If a diagnosis of cancer of the esophagus is made, further studies will be done to determine the stage of the disease.

**Esophageal Ultrasound (EUS)**

Sound waves are used to generate images of the affected area of the esophagus. This helps to determine how much of the tissue has been invaded by the cancer.

**Bronchoscopy**

A flexible, lighted tube about the width of a pencil is inserted through your nose or mouth and passed down your trachea (windpipe). It allows your physician to look inside your lungs.

If the lymph nodes in the chest and abdomen need to be examined for cancer, additional procedures can be done.

**METASTATIC SCREEN**

If a diagnosis of esophageal cancer is made, tests will be performed to determine whether the cancer has spread (metastasized) to other parts of your body. Test may include the following:

**CT Scan of the Chest, Abdomen and Pelvis**
Computed Tomography also known as a CT scan uses a computer to create a two-dimensional scan from a series of x-ray images. A CT scan provides more detail than an x-ray. You may be advised to avoid eating or drinking for 4 to 6 hours prior to the scan, if contrast dye is to be used. You should inform your health care provider if you have an allergy to IV contrast dyes or have kidney problems.

**PET Scan**

Positron Emission Tomography (PET) is a fairly new test that traces the way the body cells act on sugar. Tumors tend to “take up” sugar. When something “lights up” on a PET scan, it is due to this taking up of radioactive sugar. When having a PET scan, you should wear comfortable clothes. You should not eat for four hours before the scan.

*Note: Diabetic patients should discuss specific diet guidelines to control glucose levels on the day of the test.*

**Bone Scan**

Bone scans are more sensitive than x-rays and can detect abnormal processes in the bone due to infection, fracture or tumor. A radioactive substance will be injected through an intravenous line inserted into a vein in your arm. The substance will deposit in your bones. About three hours after the injection, your bones will be scanned. The radioactive substance will clear quickly from your body. No preparation is necessary before the scan. This test is used occasionally in evaluating patients with esophageal surgery.

**Treatment**

*There are several options for treatment of cancer of the esophagus that can be used alone or in combination. The treatment that is most appropriate for you will be offered. Factors that must be considered in choosing a treatment plan include the size and location of the tumor, involvement of surrounding tissue, spread to other parts of your body and your overall health.*

**Surgery**

The tumor is taken out (resected). When the cancer has not spread to other parts of the body, and is potentially curable, surgery to remove the esophagus is the treatment of choice. Before surgery can be performed, your overall condition must be evaluated.

**Chemotherapy**

Chemotherapy is the use of cancer-killing drugs. They may be given either by mouth or by intravenous (IV) injection. The drugs attack cancer cells throughout the body. Combinations of these drugs are often used and given in cycles (a period when you take
the drugs followed by a period of recovery followed by a period of taking the drugs and so on).

**Radiation Therapy**
Radiation therapy is the use of high-energy waves that are used to kill the cells. It is usually used in combination with chemotherapy and/or surgery. It may be used to shrink the tumor before surgery or to kill any remaining cancer cells after surgery.
Chemotherapy and radiation therapy may be used alone for those who cannot undergo surgery.

**Evaluation for Surgery**
If surgery is an option for treatment, your evaluation will likely include some or all of the following tests/evaluations. These tests are done to determine whether you are physically able to undergo the operation.

**Pulmonary Function Tests**
*Pulmonary Function Tests* or “PFTs” are done to assess how well your lungs work. You are asked to perform several breathing maneuvers such as taking deep breaths and blowing all your air out. These tests can tell your doctor the amount of air you breathe with each breath and how well you move air in and out of your lungs. They can also tell how well your lungs deliver oxygen to your bloodstream.

**Cardiac Tests**
*Echocardiogram:*
An echocardiogram is an ultrasound of the heart that provides a moving picture. It is useful for examining the valves of your heart as well as the function and size of your heart.

*Stress Tests:*
Cardiac stress tests are done to evaluate the blood flow and function of your heart.
A treadmill test evaluates your physical condition and heart function. You will have a continuous electrocardiogram while exercising and your blood pressure will be monitored.
A thallium stress test involves walking on a treadmill and having a substance injected through an intravenous line (IV) in your arm. The substance allows for special pictures of your heart to be taken. This test takes several hours because there is a 3 to 4 hour wait between the time that the substance is injected and when the pictures are taken.
A pharmacologic stress test (stress sestamibi) is done if you are unable to walk on a treadmill. Medicine that increases blood flow to the heart is given through an intravenous line (IV) in your arm.

*You will receive special instructions before the day of your test.*

Surgery for Cancer of the Esophagus

If surgery is planned, a thorough evaluation has already been completed. Let’s review all the factors that must be considered:

A diagnosis of esophageal cancer has been made.
The location and size of the tumor has been determined.
The stage of the cancer has been determined.

Spread (metastasis) to other parts of the body has been ruled out.
Tests and evaluations have been done to make sure you can undergo this operation.

Esophagectomy & Esophagogastrectomy

The goal of surgery is to remove the tumor as well as a margin of cancer free tissue around the tumor. The two most common operations done to accomplish this are esophagectomy and esophagogastrectomy. In an esophagectomy, most of the esophagus and nearby lymph nodes are removed and the stomach is brought up and attached to the remaining esophagus. An esophagogastrectomy involves removing the esophagus, the nearby lymph nodes and the upper part of the stomach. The remaining stomach is brought up and connected to the remaining esophagus. Sometimes a portion of the large intestine is removed and used to replace the esophagus that was removed.
Surgical Techniques

All of Dr. Reising’s esophageal surgeries are done robotically because it is the best way to perform the most precise and comprehensive operation in the least invasive way possible. That means you will have a better cancer operation and a faster recovery. He will discuss which technique he will use. Several factors will be considered. Your overall condition, size of the tumor, location of the tumor, and involvement of tissue and organs near the tumor will be important factors in determining how the operation is done. The commonly used approaches are transhiatal, transthoracic, and thoracoabdominal.

**Robotic Three Field (McKeown) approach**

The three field McKeown approach is performed robotically. It provides for the most thorough cancer operation. First, the chest portion of the operation is performed to mobilize the thoracic esophagus and lymph nodes robotically and divide the azygous vein. Next the abdominal portion is performed robotically to mobilize the stomach and lymph nodes in the abdomen. Next, through a neck incision. The esophagus is then removed, a tube is constructed out of the stomach that is then brought up behind the heart and attached to the remaining portion of the esophagus.
Robotic Transhiatal approach
The transhiatal approach uses an abdominal incision and a neck incision. The abdominal part of the surgery involves freeing the stomach and esophagus from adjacent structures and taking out lymph nodes in the area. The neck incision is made to visualize and free up the upper portion of the esophagus. The esophagus is then removed, a tube is constructed out of the stomach that is then brought up behind the heart and attached to the remaining portion of the esophagus.

Robotic Ivor Lewis Approach
For a robotic Ivor Lewis approach Dr. Reising uses the robot to mobilize the stomach and lower esophagus including lymph nodes through small abdominal incisions. Then through three small chest incisions, the remaining part of the esophagus is removed. The stomach is then reconfigured into a tube and pulled up and attached to the remaining portion of the upper esophagus. In this approach the stomach and esophagus may be reattached in the chest or a third incision may be made in the neck and they may be reattached there.

Your Evaluation
The basics:
Most often, another doctor referred you to the surgeon.
During your first visit, you will meet the surgeon and the surgery nurse practitioner. They will review the results of all tests and diagnostic procedures that have been done up to that point. You will bring any available x-rays, CT scans, reports, and letters from other physicians or hospitals. A medical history will be taken and a physical examination will be performed. The surgeon will discuss his/her findings and recommendations. You are welcome to include your family or those close to you in this discussion.
Together you and your surgeon will develop a plan of how to proceed based on his or her recommendations and your wishes.
The surgery administrative assistant will then schedule any other tests or procedures that are needed. Some tests will be done here at Aspirus Wausau Hospital. Whenever possible, if tests can be done close to home, they will be scheduled as such.
All necessary insurance information and referrals will be obtained. Please provide us with complete and current insurance information.

After any additional tests and/or procedures are completed, you will return for another visit with the surgeon. At this visit, s/he will summarize all the findings and make further recommendations. **If you require surgery, the type of procedure, risks, and possible complications will be discussed.**

If chemotherapy and/or radiation therapy is indicated before surgery, this will be arranged.

Your questions and/or concerns will be addressed.

Next, pre-admission testing will be scheduled at Aspirus Wausau Hospital on a day before your surgery. You should plan on being here for several hours. Please remember to eat breakfast and take all of your usual medications on that day, unless you have been told otherwise. Comfortable clothing and shoes are advised. It is helpful to bring an up-to-date list of all your medications and dosages. You will meet with one of the anesthesiologists to plan your anesthesia care during surgery. A physician’s assistant will perform a complete history and physical examination. Any necessary blood tests, electrocardiograms, or other tests that have not yet been done will be done during this pre-admission visit.

This thorough evaluation process is done to obtain all necessary information about you and your condition before surgery is performed. It helps to insure that you receive the best and most appropriate care. We make every effort possible to complete the evaluation process within a very short time frame, usually one to two weeks.

- Sometimes hospitalization is required and the initial evaluation phase described above must be bypassed or done during hospitalization. In these cases, you will meet the members of the surgery team in the hospital rather than as an outpatient.
Preparing for Surgery

*When your surgery is scheduled, there are several steps you can take to prepare:*

Walk as much as possible in the days before your surgery to maintain the best possible conditioning.

Eat a well-balanced diet. If you are having difficulty maintaining adequate nutrition due to swallowing difficulties, this will be discussed before your surgery. Sometimes nutritional supplements are recommended. Your surgeon may discuss placement of a feeding tube at the time of your surgery. This will be used in the period following your surgery to supplement your nutrition. That means you will eat by mouth when you can and you will receive additional nutrition through the tube.

**If you smoke, STOP!!** or you will disqualify yourself from having surgery.

If you drink alcohol on a regular basis, please make us aware. Stop or limit consumption as much as possible.

Please tell us about all prescribed, over the counter, supplements, and herbal remedies you are taking. If there are any medications or supplements that you should stop, we will inform you.

If you take one aspirin each day for you heart, you may continue this. Otherwise stop all aspirin or aspirin containing products and non-steroidal medications (such as ibuprofen, Advil, Naproxen) a week to 10 days before your surgery. You may take acetaminophen (Tylenol) as prescribed prior to surgery.

If you take corticosteroid medication (such as prednisone), please inform us.

In the week before your surgery, please tell us if you develop a respiratory infection, a cold, a new cough, fever or flu-like symptoms.

If you have asthma or emphysema and experience increased symptoms the week before your surgery, please tell us.
The Day of Surgery

In some cases, you will be admitted to the hospital the day before your surgery. This is so antibiotics can be given and so bowel preparation can be completed. Bowel preparation involves drinking a solution that will empty your bowel before the surgery.

You will be called before the scheduled day of admission and given information about where to come and what time to arrive.

Please bring a list of your current medications and dosages as well as this manual to the hospital.

While you are in the hospital, all medications are prescribed by your health care providers and given under the supervision of professionals. Please do not take any medication on your own (either prescribed or over-the-counter) while you are in the hospital. If you have any questions regarding your medications, please speak with a member of your health care team.

You will not eat or drink anything after midnight prior to your surgery. Because you will be receiving anesthesia, it is for your safety that we ask you to have an empty stomach.

Wear comfortable clothes. Please bring your insurance cards or forms, including any Medicare or Medicaid information. You may bring toiletry items, although the hospital does supply toothbrushes, toothpaste, and other toiletry items.

Do not bring valuables such as jewelry, credit cards or large amounts of cash. Your family or friends may bring additional clothing in the days after surgery.

Do not wear make-up, fingernail polish, or toenail polish.
Arriving at the Hospital

Parking for the hospital is available at the North Entrance Saint Alphonsus Regional Medical Center. When you arrive, register with the receptionist at the front desk of the hospital main entrance.

You might want to bring reading material with you, in case there is a wait.
During Your Surgery

Remember that esophageal surgery is a complex operation and will take several hours.

Family members and loved ones may wait in the “Waiting area”.

Bathrooms are located in the corridor nearby.

There are telephones and televisions are in the waiting room.

The cafeteria is on the lower level.

The gift shop is in the main lobby.

Reading materials, or music devices with ear pieces may help to pass the time. Cell phones may be used.

Your surgeon will speak with your family members and loved ones as soon as possible following your surgery. Please designate one person to be your family spokesperson. We will call that person to communicate information and that person should be the one to call us with questions and concerns.

Recovering in the Hospital

Following your surgery, you will be transferred to the Intensive Care Unit where you will be connected to several monitoring devices. Members of the team will watch your condition closely as you awaken from anesthesia. Nurses in this unit are specialists in caring for surgery patients who have had esophageal surgery.

Monitoring

While in the hospital you will be closely monitored. You may have the following procedures and equipment during your stay:

Endotracheal tube: This tube is put through your mouth and into your windpipe to control your breathing during your operation. It is connected to a ventilator (breathing machine). You will not be able to speak while the tube is in. You will be able to communicate by nodding and writing. The tube is removed as soon as you are able to breathe on your own. This is sometimes before you leave the recovery room. It may be in place longer depending on your individual condition.

Oxygen: You will be given oxygen if you need it. It is usually delivered through a small tube in your nose or through a facemask placed over your nose and mouth.

Heart monitor: Three to five sticky pads will be placed on your chest. The pads are attached to wires and to a monitor that traces your heart rate and rhythm.
Nasogastric tube: This is a soft tube that is inserted through your nose, which passes to your stomach. It is placed to relieve pressure in the stomach by draining air and fluid. The nasogastric tube helps to prevent vomiting after your surgery.

Jejunostomy tube: Some will have a jejunostomy tube inserted during surgery. This is called a feeding tube and is used to provide liquid nutrition in the time following your surgery. If your surgeon feels that you may require this, it will be discussed prior to surgery.

Epidural Catheter: This is a small tube that is inserted into your back by the anesthesiologist. It is attached to a small device that delivers pain medication. While it is in place, you should have effective pain control. Your nurse will ask you to rate your pain on a scale of 1 to 10 to access your pain control.

Patient Controlled Anesthesia (PCA): This is another method used for managing pain. It is a device attached to an intravenous line (IV) in your arm. It has a small button that you can push to give yourself pain medication when you need it. It is programmed so you receive an appropriate dose. Your nurses will explain how to use the PCA.

Incisions: Your incisions will have surgical staples in the skin. These are small pieces of metal used to close the incision. They will be removed either before you leave the hospital or when you return to see your surgeon approximately 2 weeks after you are discharged. Your nurses will be changing the dressing and checking for drainage.

Intravenous lines: A small tube is inserted into a vein (blood vessel) so that fluids or medications can be given. These tubes are referred to as IVs.

Other special lines: Similar to intravenous lines, there are several other types that may be used to obtain critical information. For example, an arterial line is inserted into an artery (blood vessel) and is used to measure blood pressure, obtain blood, and get information about the amount of oxygen in the blood. These special lines are generally used only in the first few days after your surgery.

Chest Tubes: One or more chest tubes may be inserted in your side during surgery. The tubes are used to drain fluid, blood, and air from your chest. The tube is attached to a container that is placed next to your bed. The chamber collects the fluid and removes air from your chest. The tubes are taken out when there is no longer an air leak or drainage, usually 4 to 5 days after your surgery.

Drains: You may have a small drain in your neck in the area of your incision. It is soft and does not usually cause discomfort. It helps to drain fluid from the area where your surgery was performed.

Foley catheter: This is a tube that is inserted into your bladder to drain urine. It will be removed when you can urinate on your own. While it is in, you may have the sensation of needing to urinate. Relax and the catheter will drain the urine. Do not pull on the catheter as this could cause injury.
Taking vital signs: Your blood pressure will be taken frequently. Your heart rate, respirations (number of breaths), and temperature will be also be monitored.

Pulse oximeter: A small probe is attached to the tip of a finger, your earlobe, or toe to measure the amount of oxygen in your blood.

Chest x-rays: Following chest or esophageal surgery, chest x-rays will be done. These provide valuable information about the status of your lungs.

Measures to prevent blood clots: You may receive special medication (heparin) that helps to prevent blood clots. Special boots (pneumatic boots) will be put on your legs. The boots inflate periodically, helping to push blood to the heart so that clots do not form. You will be asked to walk as soon as it is safe for you to do so. Walking helps your circulation. When you are walking several times a day, you will no longer have to use the boots.

Important Things to Know

There is much you can do to participate in and speed your recovery. Your understanding is important so you know what to expect.

Pain Management: Esophageal surgery causes pain. Several pain control methods are used to control the pain and keep you comfortable. It is important for you to be relatively pain free so that you can cough and take deep breaths. We pay much attention to managing pain. Your nurses will closely monitor your level of pain and your need for pain medication. Several methods of pain control are available. These include the epidural catheter, the patient controlled anesthesia (PCA), medication administered by injection, and medication taken by mouth. You will receive pain medication when necessary and as your condition allows. You will be asked to rate your pain using a pain scale (see below). You will assign a number to your pain and this will help members of your health care team understand how much pain you are experiencing.

0-10 NUMERIC PAIN INTENSITY SCORE

<table>
<thead>
<tr>
<th>No Pain</th>
<th>Moderate Pain</th>
<th>Worst Pain</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>10</td>
</tr>
</tbody>
</table>

Activity: Getting out of bed and walking will help your recovery and prevent complications. Walking and activity will aid in clearing secretions from your lungs, help your circulation, and help you to regain muscle strength. You will be sitting up in bed and possibly getting out of bed soon after your surgery. You will progress to sitting in a chair and walking to the bathroom with the assistance of your nurse. A
physical therapist will take you for your first walk and you will then progress to walking several times each day.

Diet: You will not be allowed to take anything by mouth for several days after your surgery. This is to allow time for healing. When you no longer have a nasogastric tube and when your surgeon determines it is safe, you will begin to take small sips of clear liquids. Pureed foods and then soft foods will follow this. Some will go home with a jejunostomy tube to continue this form of supplemental feeding. If you are not able to take in adequate nutrition by mouth following your surgery, we will ask that you continue tube feedings at home in addition to eating what you can by mouth. Because good nutrition is vital to healing and your overall recovery, tube feedings may be necessary for a time until you are able to eat enough.

Clearing Secretions: After surgery, it is important to clear secretions from your lungs. This promotes good oxygenation, helps to prevent collapse of the lungs and helps prevent infection. Taking deep breaths and coughing helps to accomplish this.

Using your incentive spirometer: The incentive spirometer is an instrument that encourages you to take deep breaths. You will be given one after your surgery. It is important that you use it several times an hour (at least 10) for several days after your surgery. Deep breathing and coughing exercises after surgery will help keep your lungs healthy.

**How to Use Your Incentive Spirometer:**

Sit up as much as possible.

Hold the incentive spirometer upright.

Breathe out normally.

Place the mouthpiece in your mouth and seal your lips around it.

Breathe in slowly and as deeply as possible, raising the piston toward the top of the column. It is important to breathe in slowly.

Continue to breathe in and when it feels like you cannot breathe in any more, hold your breath for 3 to 5 seconds and breathe out slowly.

Breathe normally for a few breaths.

Do this at least 10 breaths per hour.

After you have taken a series of breaths, you should cough to remove secretions from your lungs. You may place a pillow or folded blanket over your incision and apply gentle pressure as you cough. You nurse can help you with this. This provides support and helps to decrease some of the pain you may feel when you cough.
Keep your incentive spirometer within reach so you remember to use it frequently. One way to remember is to do a set of 5 breaths whenever there is a commercial break on television.

**Visitors**

Your family members and loved ones are welcome to visit. However, remember to limit visits if you are feeling tired. Rest is important in the first several days after surgery.

If any family members are sick they should not come to the hospital or be in contact with you until you have recovered. Please no small children in the hospital because they have increased exposures to colds.

**Planning for Discharge**

Generally, patients who have had an esophagectomy stay in the hospital 5-8 days. A care coordinator will meet with you to evaluate your needs and options for discharge. Some patients may go home and require no services. Some may need home visits by a nurse. Others may require a longer recovery period at a rehabilitation facility. We will assist you in determining what is appropriate for you. Please speak with your care coordinator if you have any questions or concerns.
Recovering at Home

You are now ready to leave the hospital. Following these instructions will help you feel better and recover faster.

**Your Diet:**

1. When starting to eat, you will begin with clear and full liquids during your hospitalization after your nasogastric tube has been removed. When you go home Dr. Reising will have you on jejunal tube feedings at night time, similar to when you were undergoing chemotherapy and radiation. This is to make sure you are getting the protein and calories you need to heal while your new stomach is adjusting. Initially we will plan that all of your calories will come from jejunal tube feeds, then as you are able to take in more liquid and solid calories Dr. Reising and the dietician will decrease the number of cans of nightly tube feeds and increase your daytime oral intake. After 4-6 weeks you will probably not need nightly tube feeds because you will be able to get enough calories and protein in by mouth. And don’t worry, eventually you will be able to order off the menu at your favorite restaurant, albeit small portion sizes for sure.

*Typical patient dietary and tube feeding progression at home*

<table>
<thead>
<tr>
<th>Week</th>
<th>Week 1</th>
<th>Week 2</th>
<th>Week 3</th>
<th>Week 4</th>
<th>Week 5</th>
<th>Week 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tube feed</td>
<td>7 cans</td>
<td>6 cans</td>
<td>5 cans</td>
<td>4 cans</td>
<td>3 cans</td>
<td>0 cans</td>
</tr>
<tr>
<td>Oral cans</td>
<td>1 can</td>
<td>2 cans</td>
<td>3 cans</td>
<td>3 cans *</td>
<td>3 cans *</td>
<td>3 cans *</td>
</tr>
</tbody>
</table>

*Supplemental foods like eggs, milk shakes, cottage cheese, yogurt, tuna salad, chicken salad etc.*
**Eating Tips once you start with foods**

**To control feeling full:**
1. Eat small, frequent meals 5-6 times a day. You do not have the capacity for large meals so smaller meals are necessary. It will be several months before you will be able to eat a full meal.
2. Drink most of your liquids between meals.

**To help with swallowing:**
1. Eat slowly and chew your food well.
2. Avoid distractions while eating such as talking or moving about.
3. Eat in an upright position and remain sitting upright for at least 30 minutes after eating.
4. Try to plan meals so you eat at least 2 hours before going to bed or lying flat. Gravity helps the food pass so that is why you need to be upright when eating.

**To avoid gas:**
1. Avoid straws and carbonated beverages
2. Be aware that foods such as beans, broccoli, cabbage, peas, and onions may cause gas. If this is a problem, you may want to avoid those foods that cause gas in you.

**To control reflux:**
1. Remain sitting or upright for at least 30-45 minutes after eating or drinking.
2. Avoid bending at the waist.
3. Avoid eating or drinking 2 hours before going to bed.
4. Eat smaller meals throughout the day to avoid over-filling your stomach.
5. Avoid foods that are spicy, acidic or high in fat.

**To optimize nutrition:**
1. Protein first. Your body needs at least 1.5 gm/hg of ideal body weight to heal properly in a stressed condition, like that after a major surgery. Always eat protein sources first before carbohydrates so you don’t fill up on carbohydrates first. Avoid foods that are high in calories but of little nutritional value such as sweets, candy, chips, etc.
2. Weigh yourself weekly. If you are losing weight, then eat more often or eat more food. You may have to plan your day around your diet and start early in the day.
3. Avoid alcohol in the first 6 weeks of recovery.
## DIETARY RECOMMENDATIONS

<table>
<thead>
<tr>
<th>Food Group</th>
<th>Recommended</th>
<th>Avoid</th>
</tr>
</thead>
</table>
| **Breads & cereal** | • Cooked cereal & dried cereal softened with milk.  
                    • Pasta, rice, soft crackers, plain cookies. | • Fresh or “doughy” breads, rolls, bagels, popcorn, and foods containing coconut, nuts, seeds, or dried fruit. |
| **Fruits**   | • Soft, canned or fresh fruit with pits and skin removed.  
                    • Applesauce, bananas, peaches, melons (no seeds).  
                    • Fruit juices. | • Crisp fruits such as green apples.  
                    • Stringy fruit such as rhubarb. |
| **Vegetables** | • Soft, cooked vegetables with seeds and skin removed (such as turnips, squash, carrots, potatoes).  
                    • Vegetable juices, tomato paste or sauce. | • Raw, tough, or stringy vegetables (such as asparagus, uncooked carrots, potato skins). |
| **Meats/alternatives** | • Minced or ground meat.  
                    • De-boned fish.  
                    • Moist casseroles and stews.  
                    • Soups prepared with soft foods.  
                    • Cooked eggs, omelets.  
                    • Soft cheeses.  
                    • Tofu. | • Overcooked meat that is tough, dry or stringy. |
| **Dairy**    | • Milk  
                    • Yogurt  
                    • Ice cream  
                    • Puddings, custards | |
ACTIVITY

1. Set the right expectations for yourself. It is normal to be very tired after this surgery for many weeks. However, exercise is very important to your recovery!

2. You should get up and get dressed each day. Wear loose and comfortable clothing.

3. You should walk daily at a pace that is comfortable for you. Begin with short distances and do a little more each day as your body tolerates. It is OK to go outside. You may climb stairs as tolerated.

4. Initially, you should alternate your activity with short rest periods.

5. For most patients, the goal is to walk at least 1-2 miles each day by 4-6 weeks after your surgery.

6. You may shower when you go home. Initially, you may need assistance.

7. Avoid lifting heavy objects (nothing heavier than a gallon of milk) or doing strenuous exercise for the next 5 weeks to give your body time to heal.

8. You may ride in a car. As always, you should wear your seatbelt.

9. You may drive a car in approximately 4 weeks. You may discuss this further at your follow up visit with your surgeon.

INCISIONS

1. It is normal to have some minimal redness and a firm ridge under the incisions.

2. Keep your incisions clean and dry. If they are still draining you may cover with a small dressing.

3. If you go home with sutures or staples, they will be removed at your follow up visit with the surgeon.

4. Do not use lotions, salves, creams or ointments on your incisions.
PAIN

1. When you are discharged, you will receive a plan for pain management. During the first couple of weeks, you may find it necessary to take pain medication fairly regularly. You will be able to gradually decrease the pain medication as your pain subsides. You may then switch to milder analgesics (pain medications) such as acetaminophen (for example-Tylenol) or ibuprofen (for example-Motrin) unless you have been instructed to avoid either of these products.

2. Be aware that narcotic pain medications (for example, Percocet, Vicodin, codeine) are addictive and can cause constipation so a plan for bowel management is often necessary (see below). In some patients, these medications can cause nausea.

3. Caution: You should not drive or drink alcohol while taking narcotic pain medication.

BOWEL MANAGEMENT

1. If you are taking narcotic pain medication (for example, Percocet, Vicodin, and codeine), you may find it constipating.

2. As you resume your normal diet, try to include fiber in your diet. Foods that are high in fiber include whole grains, beans, fruits, and vegetables.

3. Drink adequate fluids.

4. Use stool softeners. Dr Reising recommends Miralax 17 gm per day and Milk of Magnesia 30 ml per day. You may need to double the dose on these is no or limited results. These stool softeners are available over the counter.

5. If necessary, use a laxative such as Senokot or Milk of Magnesia. Use as directed on the package.

MEDICATIONS

1. You should resume your usual medications unless instructed otherwise. If you were already taking pain medication prior to your admission and you are given a prescription for a new pain medication when you are discharged, do not take both unless you have discussed it with your health care provider.

2. You will need to be on a medication like Prilosec for lifetime because your operation will cause more reflux and this will help control your symptoms and acid production.

WORK

1. Return to work when you and physician agree you are ready. This will be discussed further at your follow up visit. It will vary, depending upon the type of work you do.
FEEDING TUBES (J Tubes)

1. Tube feedings will need to be continued when you go home to supplement your nutrition.

2. The tube feedings will be decreased and eventually discontinued as your appetite improves and your intake increases.

3. When Dr. Reising feels that you are receiving adequate nutrition to maintain your weight, your tube feedings will be stopped.

4. You may have a small amount of yellowish discharge around the tube. This is not a sign of infection. Please refer to the “When to call your doctor” section for signs of infection.

5. Flush your tube with 30cc of tap water at least 3 times daily and before and after medications and feedings.

6. Clean the J-tube site daily with ½ strength hydrogen peroxide, then lightly paint with betadine.

7. Do not crush pills and give through your tube unless you have been told it is okay. Pills can clog the tube, resulting in needing to come to the hospital to have it replaced.

8. If the tube becomes dislodged or falls out, it is important that you go immediately to the nearest emergency ward to have it replaced.

9. Dr. Reising will remove your feeding tube n the office once you do not need it anymore and are able to maintain your weight with just oral intake.

Follow Up Appointments

At the time of your discharge, you will be given an appointment with your surgeon. It should be approximately 1 week after you leave the hospital.

It is important to come to this appointment. Any remaining sutures or staples will be removed. Your surgeon will discuss further treatment if indicated.

If you need to change your appointment, please call Saint Alphonsus Surgery Clinic at (208) 302-2300.
When to Call Your Doctor

*Call your doctor if you have*

- Trouble breathing.
- Trouble swallowing, choking, vomiting or increased nausea.
- A fever greater than 101 degrees.
- Increased pain, redness, swelling, or open areas in your incision.
- A rapid heartbeat or fluttering in your chest.
- Trouble flushing the feeding tube.
- Increased drainage from around the feeding tube. (note: a small amount of yellowish drainage and mild redness around the tube are expected).

*Seek immediate care if…*

- You develop sudden difficulty breathing or sharp chest pain.
- Your feeding tube falls out.

To Family and Friends

Your loved one has undergone major surgery. The recovery period for the surgery alone is usually 8 weeks. If s/he has been diagnosed with esophageal cancer, further treatment after surgery may be necessary. Please be patient and allow your loved one time to heal both physically and emotionally. You may find that they require assistance with physical activities and/or that they are sad or tearful. Please offer support and be patient. Recovery periods may vary.