ESOPHAGECTOMY SURGERY

Enhanced Recovery After Surgery (ERAS)

Your Guide to Healing

Thoracic Surgery

Dr. Linda Martin

Dr. Phillip Carrot

Dr. Christopher Scott

UVA Health

Patient Name

Surgery Date/Time to Arrive

Surgeon

We want to thank you for choosing the University of Virginia Health System for your surgery. Your care and well-being are important to us. We are committed to providing you with the best possible care using the latest technology.

This handbook should be used as a guide to help you through your recovery and answer questions that you may have. Please give us any feedback that you think would make your experience even better.

Please bring this book with you to:

- ☑ Every office visit
- ☑ Your admission to the hospital
- ☑ Follow up visits

Your Care Team

In addition to the nursing staff, the Thoracic team will care for you. This team is led by your surgeon, and includes a fellow or a chief resident along with residents, physician assistants (PAs) and 1-2 medical students. There will always be a physician in the hospital 24 hours a day to tend to your needs.

Dr. Linda Martin

Dr. Philip Carrott

Dr. Christopher Scott

Contact Information

The main hospital address:

UVA Health System
1215 Lee Street
Charlottesville VA 22908

Contact	Phone Number
Thoracic Clinic Phone Number	434.243.6443
Thoracic Clinic Central Fax#	434.244.9429
If no call for surgery time by 4:30pm the day before	434.924.5035
Preoperative Anesthesia Clinic	434.924.5035
TCV Intensive Care Unit (TCVPO)	434.982.0301
Hospital Inpatient Unit: 4W & Thoracic Intermediate Care Unit (TIMU)	434.924.5338
UVA Main Hospital	434.924.0000 (ask for the thoracic resident on call)
Lodging Arrangements/ Hospitality House	434.924.1299/434.924.2091
Parking Assistance	434.924.1122
Interpreter Services	434.982.1794
Hospital Billing Questions	800.523.4398

Table of Contents

How We Help Prepare You for Surgery

It is important that you know what to expect before, during, and after your surgery. Your care team will work closely with you to plan your care and treatment. You are the most important part of the care team.

Two important components to get ready for surgery include:

1. **Planning and preparing before surgery**– giving you plenty of information so you feel ready.

2. **A pain relief plan** that focuses on giving you the right medicine you need to keep you comfortable during and after surgery.

It is important for you to participate in your recovery and to follow our advice.

By working together, we hope to keep your hospital stay as short as possible.

Introduction to Esophagectomy

Your esophagus is a tube that begins in your mouth and travels to your stomach. There are different reasons why you may need to have part of your esophagus removed. This surgical procedure is called an *esophagectomy*.

The most common reason for an esophagectomy is esophageal cancer (cancer in your esophagus). Tumors in your esophagus can cause you to have difficulty swallowing. If you have a tumor, your surgeon will remove the tumor as well as the part of the esophagus above and below the tumor.

Another reason for an esophagectomy may be a non-cancerous complication to your esophagus like heartburn or narrowing. Gastric (stomach) acid can move from your stomach back up into your esophagus and can cause a burning feeling (heartburn). This can lead to chronic heartburn. Your esophagus can also become narrow, making swallowing liquids and food difficult and painful. Your esophagus may become so narrow it cannot be stretched.

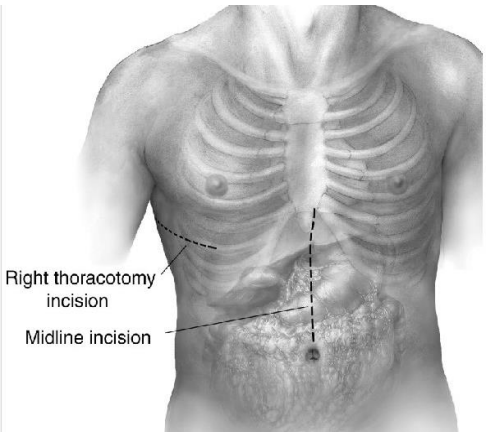
Other reasons for this surgery may be that the muscles of your esophagus may no longer function so food cannot pass from your mouth to your stomach or when a tear or rupture of the esophagus occurs.

Methods of Surgery:

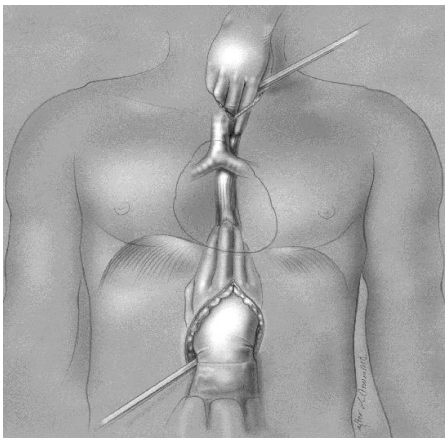
There are different ways to perform this surgery depending on the nature of your disease.

Ivor-Lewis technique

One method of surgery is known as the *Ivor-Lewis* technique. With this surgery, you will have an incision in your abdomen and an incision on the right side of your chest below your shoulder, called a thoracotomy.



Ivor-Lewis technique

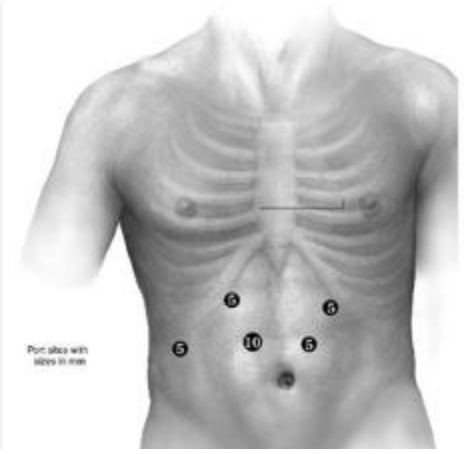

Trans-hiatal approach

Trans-hiatal surgical approach

If your surgeon decides to use the *Trans-hiatal* approach, you will have an incision in your abdomen and a small incision in the left side of your neck.

Minimally-Invasive approach

It may be possible to perform your surgery using a minimally-invasive approach. You will have 5 small incisions in your abdomen and 3 small incisions on the right side of your back, below your shoulder. Sometimes it will be a combination of a bigger incisions on the chest and abdomen, with smaller incisions in the other areas.


Minimally-invasive approach

Tests and Diagnostic Procedures

Before and after surgery you may have a series of tests that might include:

EGD with Biopsy: During an Esophagogastroduodenoscopy (also known as an EGD), the doctor will place a long tube (scope) through your mouth and into your esophagus, stomach, and upper part of your bowel (duodenum). The doctor can remove a small tissue sample (biopsy) and send it to a lab to see if there are cancer cells. You will receive medications in your vein to help you relax during this procedure, but you will be awake.

EUS with Biopsy: For an esophageal ultrasound (EUS), a doctor will insert a tube into your esophagus and take pictures. With the tube, the physician will be able to see lymph nodes and take a small tissue sample (biopsy).

CT scan: A computed tomography (CT scan) is a special type of x-ray that shows detailed images of your chest and other parts of your body. This test will help determine whether a tumor has spread to any other areas within the chest or abdomen. A CT scan may be done with or without an injection of contrast. This is a liquid that makes blood vessels easier to see on x-ray. If you need contrast, you may be asked to stop eating or drinking 4 to 6 hours before the test. Please let your surgeon know if you have any allergies to contrast dye, shellfish, or if you have kidney problems, since the contrast can be harmful to the kidneys.

PET scan: During a PET scan (Positron Emission Tomography), you will be given an intravenous (IV) infusion of glucose, or sugar. This sugar has a small amount of radioactivity in it. Since all the cells in your body use glucose as fuel, the PET scan can detect cells in your body that are using more energy than the surrounding cells. This test can be helpful for identifying suspicious areas for cancerous cells. *The scan detects areas of cells with increased energy needs, it also detects areas of active infections or inflammation. Therefore, an area that is highlighted on this scan doesn't necessarily indicate cancer cells.* You need to wear comfortable clothing and avoid eating or drinking anything for 4 to 6 hours prior to this test. Please inform your surgeon if you are diabetic and you will be provided special instructions for controlling blood glucose levels.

Cardiac Tests: If you have a history of heart disease or any abnormalities on your electrocardiogram (ECG), you may be sent to a cardiologist, or heart

doctor before your surgery. Tests often include an ultrasound (Echocardiogram) of your heart, stress test, or cardiac catheterization to review the function of your heart and heart vessels, to make sure your heart is strong enough for the surgery.

Pulmonary Function Tests: Pulmonary Function Tests (PFTs) show how well your lungs work before surgery. You will be asked to perform several breathing exercises like taking deep breaths in 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.

Laboratory Tests: Before and after surgery, you will have blood samples drawn to test your blood cell counts, electrolytes, clotting factors, and measure how well your kidneys work.

Chest X-Ray: You will have a chest x-ray daily while you are in the hospital.

Bronchoscopy: This is the passing of a tube with a camera on the end (scope) through your nose and into your lungs. This provides a closer look at your lungs and your ability to suction out any secretions. A bronchoscopy is performed after surgery if you are having severe difficulty coughing up mucus after this surgery and all other coughing and deep breathing techniques have failed.

Additional Therapy

If you have been diagnosed with cancer, and depending on the stage of your disease, your surgeon will talk to you about the possible need for chemotherapy and/or radiation. You may need this before and/or after surgery. As these treatments can cause fatigue (tiredness) and weakness, it is important that you exercise every day and eat healthy meals with extra protein. Regular exercise and proper nutrition before surgery will also help you recover quicker from your surgery.

During surgery, your surgeon may obtain tissue samples that will be sent to the pathologist for study. After surgery, the surgeon will discuss the results of the studies and discuss further need for chemotherapy and/or radiation as needed.

Before Your Surgery

Clinic

During your clinic visit we will check to see if you need surgery and what type you will need. You will work with our entire team to prepare for surgery. This may include:

- The surgeons who may have fellows, residents, or medical students working with them
- Physicians' Assistants (PAs)
- Clinical nurse coordinators
- Administrative assistants

During your clinic visit, we will:

- ☑ Ask questions about your medical history
- ☑ Perform a physical exam
- ☑ Ask you to sign the surgical consent forms

You may also receive:

- ☑ Instructions on preparing for surgery
- ☑ Special instructions for what to do before surgery, if you are on any blood thinners
- ☑ Special body wash to be used to shower on the night before and on the morning of your surgery
- ☑ Instructions on quitting smoking if you currently smoke. Please see the next page for more information.

Important: Are you taking any blood thinning medications **like Coumadin (warfarin), Plavix (clopidogrel), Pletal (cilostazol), Catapres (clonidine), Xarelto (rivaroxaban), Eliquis (apixaban), Lovenox (enoxaparin), or others?.** If so, be sure to tell your doctor and nurse as these may need to be stopped before surgery.

If you are on any blood thinner medications, your nurse may give you specific instructions as to when to stop taking them before surgery. It is very important to follow these instructions.

We are giving you instructions on _____

- ☐ Your last dose of blood thinning medication **before surgery** should be on _____
- ☐ We are recommending a bridge of this medication. Please refer to your After Visit Summary (AVS) for specific instructions about this medication.
- ☐ Please follow up with _____

Quitting Smoking Before Surgery

If you smoke, we encourage you to stop smoking at least **2 weeks before surgery** as it will:

- Improve wound healing after surgery
- Help avoid complications during and after surgery

If you're not able to be off cigarettes **at least 2 weeks before surgery**, we ask that you cut back on your smoking and encourage you to quit smoking as soon as possible after surgery. This is very important to your health.

Please let your surgeon's nurse know if you smoke; we will give you an education packet to help you quit smoking and refer you for smoking cessation counseling.

It is Never Too Late to Quit Smoking

Quitting smoking and other tobacco products is always helpful. In many ways, there are advantages to quitting before surgery:

- You will have the support and encouragement of your health care team.
- You will feel like you are doing something positive for yourself and your life.
- You will be able to focus all your energy on getting well.

Some Long-Term Benefits of Quitting May Include:

- Improved Survival
- Better quality of life
- Fewer and less serious side
- Decreased risk of secondary effects from surgery cancers
- Faster recovery from treatment
- More energy

All Hospitals in the United States are Smoke Free:

Some key things to think about before your surgery, as you begin to think about quitting:

- You will not be allowed to smoke during your hospital stay.
- Your doctor may give you medicine to help you handle withdrawal while in the hospital and after you leave.

Keys to Quitting and Staying Smoke Free:

- Continue your quit plan after your hospital stay.
- Make sure you leave the hospital with the right medications or prescriptions.
- Identify friends and family to support your quit.
- Speak with your doctor about getting a referral to meet with our tobacco treatment specialist.

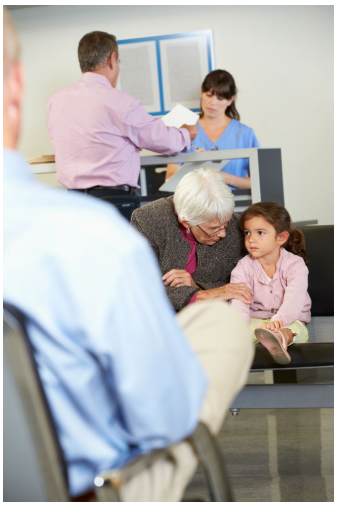
You Don't Have to Quit Alone!

To speak with our tobacco treatment specialists
CALL 434.243.0433
VISIT cancer.uvahealth.com/stopsmoking

Preoperative Anesthesia Clinic

The Preoperative Anesthesia Clinic will review your medical and surgical history to determine if you will need an evaluation prior to surgery.

If an in person anesthesia evaluation is needed the Preoperative Anesthesia Clinic will notify you.



- An appointment will be scheduled for an office visit a few weeks prior to the surgical date.
- Your medications will be reviewed
- You may have a blood test, test of the heart (EKG), and/or other tests the surgeon or anesthesiologist requests.
- For questions or if unable to keep the appointment with Preoperative Anesthesia Clinic please call **434-924-5035.** Failure to keep this visit with Preoperative Anesthesia Clinic before surgery may result in cancellation of surgery.

There may be times that you are instructed to go to the Preoperative Anesthesia Clinic after your appointment with your surgeon. If this is the case you are welcome to a same day appointment but please allow for up to 2 hours.

Do you take anticoagulant/antiplatelet (blood thinner) medication?
If so, you will need to notify the doctor that prescribed it to you and let them know you *may* receive a spinal injection for pain management.

We require you to stop some of these medications 72 hours or more before we can give you a spinal injection.

It is the prescribing provider's responsibility to provide instructions for how long you can safely be off this medication.

Remember: If you are taking any blood thinning medications be sure to tell your doctor and nurse as it may need to be stopped before surgery. See the list of some of these medications on the bottom of page 11.

Preparing for Surgery

You should expect to be in the hospital for about 7 days. When you leave the hospital after your surgery, you will need some help from family or friends. It will be important to have help with tube feeds, taking medications, etc.

You can do a few simple things before you come into the hospital to make things easier for you when you get home:

- ☐ Clean and put away laundry. Put clean sheets on the bed. Cut the grass, tend to the garden and do all house work.
- ☐ Put the things you use often between waist and shoulder height to avoid having to bend down or stretch too much to reach them.
- ☐ Bring the things you are going to use often during the day downstairs, but remember that you WILL be able to climb stairs after surgery.
- ☐ Buy things you will need since shopping may be hard when you first go home.
- ☐ Arrange for someone to get your mail and take care of pets and loved-ones, if necessary.
- ☐ Be sure you have a working digital thermometer. We will ask you to monitor your temperature once you are discharged from the hospital.
- ☐ Eat a well-balanced, healthy diet, high in protein and calories as tolerated. You have no diet restrictions until after midnight the night before your surgery. *If special instructions have been provided by your dietitian, please follow those instructions.*

- ☐ **Stop taking any vitamins, supplements, and herbs 2 weeks before your surgery.**

- ☐ **Stop taking ibuprofen (Motrin® or Advil®) and naproxen (Aleve®) 7 days before surgery.**

- ☐ **If you are taking additional medications for chronic pain, please continue those up until your surgery.**

- ☐ **If you consume alcohol daily, stop or limit consumption in the days prior to surgery. It is very important to be honest about your actual alcohol consumption, if any, since alcohol withdrawal in the hospital can be fatal.**

Pre-Surgery Checklist

What you SHOULD bring to the hospital:

- ☑ A list of your current medications
- ☑ Any paperwork given to you by your surgeon
- ☑ A copy of your Advance Directive form, if you completed one
- ☑ Your "blood" bracelet, if given one
- ☑ A book or something to do while you wait
- ☑ A change of comfortable clothes for discharge
- ☑ Any toiletries that you may need
- ☑ If you use an oxygen tank, be sure you have enough oxygen and tank supplies for the ride home after surgery.

What you SHOULD NOT bring to the hospital:

- ☒ Large sums of money
- ☒ Valuables such as jewelry or non-medical electronic equipment

*Please know that any belongings you bring will go to "safe keeping."

For your safety, you should plan to:

- ☑ Identify a Care Partner for your stay in the hospital.
- ☑ Have a responsible adult with you to hear your discharge instructions and drive you home. If you plan to take public transportation, a responsible adult should travel with you.
- ☑ If possible, identify someone to stay with you the first week after discharge to help take care of you.

Days Before Surgery

Mouth care for 7 days before surgery

You should brush your teeth 5 times a day for 7 days before your scheduled surgery. This will reduce the risk of pneumonia.

Scheduled Surgery Time

A nurse will call you the **day before your surgery** to tell you what time to arrive and where to check in at the hospital for your surgery. If your surgery is on a Monday, you will be called the Friday before.

If you do not receive a call by 4:30pm, please call 434.924.5035.

Please write the time and check in location that the nurse tells you on page 1 of this handbook in the space provided.

Body Wash

In clinic, we will give you a bottle of body wash (Hibiclens foam) to use the night before and the morning of your surgery. This helps to prevent infection after surgery.

If you choose to shower:

You will use half of the bottle each shower:

1. Thoroughly rinse your body with water from the neck down.
2. Apply Hibiclens directly on your skin or on a clean, wet washcloth and wash gently. Move away from the shower stream when applying Hibiclens to avoid rinsing off too soon.
3. Rinse thoroughly with warm water.

Morning of surgery (use the remaining half of the bottle):
Repeat steps 1-3 above, using the remaining body wash in the bottle.

If you choose to take a <u>bath:</u>

1. Wet your body with clean water in the tub.
2. Stand or sit in a bath chair and squirt Hibiclens onto a clean wet washcloth and wash gently. Since your feet and lower legs are under the bathwater, you will need to wash them after the rest of your body. Reapply body wash as needed. Wait 2 minutes before thoroughly rinsing with clean water.
3. Do this washing, waiting, and rinsing for each foot and lower leg separately.

<u>Morning of surgery:</u>

1. Repeat steps 1-3 above, using the same amount you used for the steps above.

IMPORTANT: Hibiclens is as gentle as water. However, if you feel any burning or irritation on the skin, rinse the area right away and do not put any more body wash on. Do NOT use any deodorant, lotion, powder or perfume after washing.

<u>CAUTION:</u> Do not let the special soap get into your eyes, ears or mouth. If you accidentally get some on these areas, rinse well right away. If you feel any burning or irritation on the skin, rinse the area right away and do not put any more soap on.

<u>Food and Drink the night before surgery</u>

Please stop eating solid foods after midnight before your surgery.

Day of Surgery

Before you leave home

- ☑ Remove nail polish, makeup, jewelry and all piercings.
- ☑ Remember to wash with the special chlorhexidine soap (follow instructions on previous pages).

Hospital arrival

- ☑ Arrive at the hospital on the morning of surgery at the time you wrote on page 1 **(this will be approximately 2 hours before surgery).**
- ☑ Check into the location as instructed by the call nurse.
- ☑ Your family will get a surgery guide to explain the process. They will be given a tracking number so they can monitor your progress.

Surgery

When it is time for your surgery, you will be brought up to the second floor Surgical Admissions Suite (SAS).

In SAS, you will:

- ☑ Be identified for surgery and get an ID band for your wrist
- ☑ Be checked in by a nurse and asked about your pain level
- ☑ Be given an IV and weighed by the nurse
- ☑ Meet the anesthesia and surgery team where your consent for surgery will be reviewed. Your family can be with you during this time.

In the Operating Room

From SAS, you will be taken to the operating room (OR) for surgery, and your family will be taken downstairs to the family waiting lounge.

Many patients do not recall being in the OR because of the medication we give you to relax and manage your pain.

Once you arrive in the OR:

- ☑ We will do a "check-in" to confirm your identity and the location of your surgery.
- ☑ You will lie down on the operating room bed.
- ☑ You will be hooked up to monitors.
- ☑ Boots will be placed on your legs to prevent the development of blood clots during surgery. You may also be given a blood thinner shot to prevent blood clots (usually after you are asleep).
- ☑ We will give you antibiotics, if needed, to prevent infection.
- ☑ The anesthesia doctor will put you to sleep with a medicine that works in 30 seconds.
- ☑ Just before starting your surgery, we will do a "time out" to check your identity and confirm the location of your surgery.

The anesthesia doctor will place a small catheter (epidural) into your back just before surgery. This option provides excellent pain relief with fewer side effects than other forms of pain medicine. This option also helps us to provide pain management after surgery while you are unable to take oral pain medicine right after your surgery.

Your anesthesia doctor will talk to you about your options before your surgery. It is much easier for you to have the epidural placed before your surgery when you are not having pain. Having an epidural does not mean that other pain-relieving treatments will not be used.

After this, your surgical team will perform your operation.

During your surgery, the Operating Room nurse will call your family approximately every 2 hours to update them, when possible.

After Surgery

Thoracic Cardiovascular Intensive Care Unit (TCVICU)

After surgery, you will be taken to the TCVICU. The time spent on this unit can be different for each patient.

Your surgeon will either call your family after surgery to give them an update or visit them in the Surgery Consult Room in the 1st floor Surgical Family Waiting Lounge.

You can expect the following when you arrive to the TCVICU:

Using an incentive spirometer

- ☑ A small tube in your bladder called a Foley catheter. We can measure how much urine you are making and how well your kidneys are working.
- ☑ You will have several chest tubes in place. This may cause some discomfort, but we will keep you comfortable with a pain medicine schedule.
- ☑ You may have a nasogastric tube (NG tube) inserted in your nose and ending in stomach to drain stomach fluids.
- ☑ You may have a jejunostomy (J tube) tube placed in your abdomen to help ensure we can feed you.
- ☑ You will get an incentive spirometer (a device to help see how deeply you are breathing). We will ask you to use it 10 times an hour to keep your lungs open and help prevent pneumonia.
- ☑ You will be given oxygen and have your temperature, pulse, and blood pressure checked after you arrive. You will have multiple devices monitoring your vital signs.
- ☑ You will have an IV in your arm to give you fluid.
- ☑ You will receive a blood thinner injection every day to help prevent blood clots.
- ☑ You will be placed on your home medications (with the exception of some diabetes, blood pressure, and blood thinning medications).
- ☑ You will get up and out of bed on the day of your surgery, with help from the nurse.

**Your arms may feel numb or sore because of how you were positioned during surgery. While this is normal, please report this to your care tea

For patients with Diabetes or Prediabetes:

If you are currently taking oral medications for your diabetes, you will not receive these during and after your hospital stay. Most patients having an esophagectomy will require insulin during and after their hospitalization. This is due to the type of liquid nutrition you receive in your tube until it is safe for you to take nutrition by mouth again in the weeks following surgery. Testing your blood glucose levels and maintaining a glucose range of 100-180 is important to your recovery and to your healing after surgery.

If you are already on insulin, 1 or 2 different types of insulin may be required to safely manage your diabetes as you recover. This will be discussed in more detail during your hospital stay.

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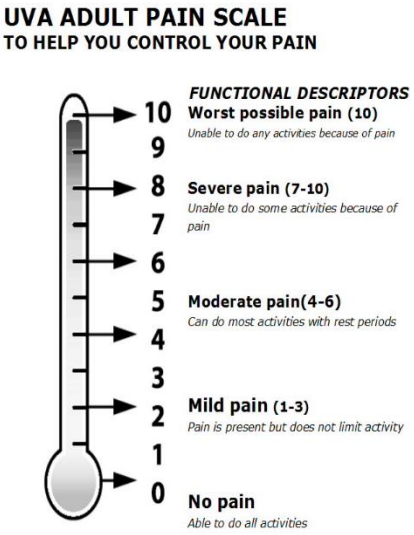
Sometimes a diabetes specialist is required to assist with diabetes care until you are back to eating normally in the weeks after surgery.

Pain control following surgery

Managing your pain is an important part of your recovery. We will use the UVA Pain Rating Scale and ask you to rate your pain on a scale from 0 to 10 - where 0 means no pain and 10 means the worst imaginable pain. We will ask you regularly about your level of comfort because it is important that you are able to take deep breaths, cough, and move.



We will encourage you to use the "Splinting Technique" (see below) to minimize pain at your surgical site. To do this, press a pillow or your hand against your incision area and support it when you take a deep breath, cough, sneeze, laugh, move, etc.

Preventing and treating your pain early is easier than trying to treat pain after it starts so we have created a specific plan to stay ahead of your pain.

Using the "splinting technique"

- ☐ We will continue to treat your pain after surgery with the epidural that was placed before surgery.
- ☐ You will get several other pain medications around-the-clock to keep you comfortable.
- ☐ Your arms can feel numb or sore after surgery because of how you were positioned in the operating room. While this is normal, please communicate this to the team.

If you are on long standing pain medication prior to surgery, you will be provided with an individualized regimen for pain control with the assistance of our pain specialists.

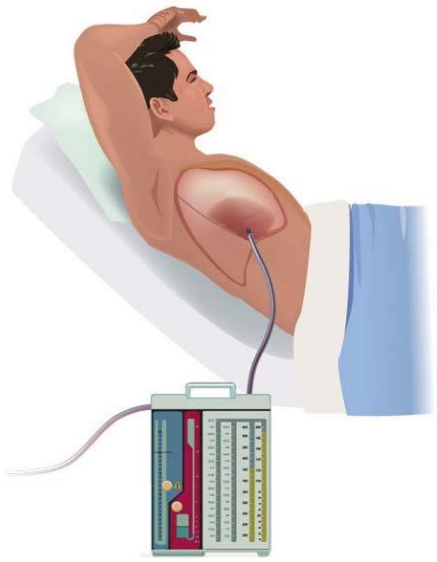
First Day After Surgery

On the day after your surgery, you will:

- ☑ Continue to have multiple devices monitoring your vital signs
- ☑ Receive IV fluids
- ☑ Not receive anything by mouth
- ☑ Receive medication via IV or J-tube
- ☑ Have supervised oral care
- ☑ Use your incentive spirometer every hour while awake
- ☑ Have your blood sugar checked every hour
- ☑ Be asked to get out of bed with help and walk

Days 2-4 after Surgery

You will <u>not</u> have anything by mouth and will continue to receive medications through your J-tube.



You most likely will:

- ☑ Transfer to the Thoracic Intermediate unit
- ☑ Begin receiving feeding through your J-tube, these feeds will be advanced as tolerated until you reach the rate needed to sustain healing and your nutritional needs
- ☑ Have IV fluids stopped when you have met your feeding goal
- ☑ Have your blood sugar checked every 6 hours
- ☑ Be asked to be out bed for the majority of the day and walk 3 times with help
- ☑ Continue to use incentive spirometer every hour while awake
- ☑ Be seen by physical and occupational therapy
- ☑ Meet with a Registered Dietitian
- ☑ Receive J-tube teaching, it is important that you participate in this hands on teaching to learn how to give yourself medication
- ☑ Have some monitoring devices removed
- ☑ Have your bladder catheter removed

Day 5 until Discharge

You most likely will:

- ☑ Have a swallow test to check the healing of the internal connections after your surgery
- ☑ Have your NG tube pulled if you passed your swallow test
- ☑ Have your chest tube removed in the next few days
- ☑ Receive nutrition teaching
- ☑ Continue to walk at least 3 times a day and stay out of bed for the majority of the day
- ☑ Continue to use your incentive spirometer every hour while awake
- ☑ Begin discussing discharge plans

You will be able to go home if you:

- ☑ Are comfortable and your pain is well controlled
- ☑ Are not nauseated or belching (burping)
- ☑ Are passing gas
- ☑ Do not have a fever
- ☑ Are able to get around on your own
- ☑ Your blood sugars are well controlled

Remember, we will not discharge you from the hospital until we are sure you are ready. For some patients this requires an additional day in the hospital.

Complications Delaying Discharge

Anastomotic Leak: A leak might develop at the "anastomotic site." This is where your new connections are sewn together inside. We closely monitor this complication as it could require additional procedures to correct.

Atrial Fibrillation (Afib): An irregular (and sometimes rapid) heart rate that can cause poor blood flow to the body. This is a common complication after lung surgery. To treat Afib, you may be placed on a medicine to help control your heart rate and a blood thinning medicine to reduce the risk of stroke. You will receive medication starting on the night of your surgery to try to prevent this problem.

Blood clots: We encourage you to get up and walk around as much as possible to prevent blood clots from forming. We will also have you on blood thinner medicine while you are in the hospital in order to help prevent this.

Bleeding: There is always a risk of bleeding after surgery. We monitor you closely to watch for any signs of bleeding.

Chyle leak: This is leak from a lymph channel that is near the esophagus. If this happens, there is usually a large volume of milky fluid draining from the chest tube. If this occurs, additional procedures will be needed, sometimes using catheters, sometimes a reoperation is needed.

Mucus Plug: Sometimes surgery can cause a build-up of mucus and congestion in the airway. A mucus plug might form and prevent you from properly clearing your airway. Sometimes a bronchoscopy (see page 11) may be required to remove the mucus if you are unable to clear it by coughing. Active smokers are more likely to develop a mucus plug.

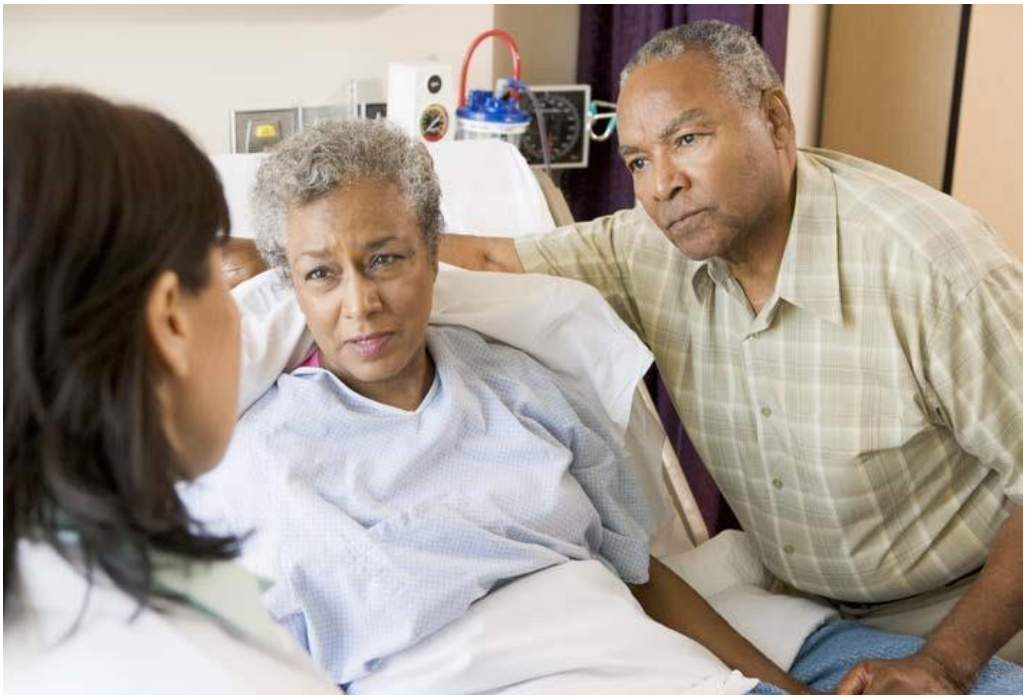
Pleural effusion: Sometimes excess fluid collects in the space that surrounds the lungs. This may require additional procedures to correct.

Pneumonia: You may have difficulty coughing after surgery because it makes your pain worse. This can allows secretions to build up in the lungs and lead to chest congestion or pneumonia. It is important that you take deep breaths and use your incentive spirometer as instructed, walk as much as possible and brush your teeth.

Post-operative nausea and vomiting: It is very common to feel sick after your surgery. We give you medication to reduce this.

Urinary Retention: The inability to completely empty the bladder. After surgery, you will have a catheter in your bladder to help monitor urine output. The catheter will be removed the day after surgery. Sometimes after the catheter is taken out, the bladder is slow to start working on its own again and urinary retention (difficulty or inability to urinate) occurs. If this happens, we may have to put a temporary catheter back in or give you special medication to treat it. Urinary retention is more common in men.

Wound Infection: This can be a complication of surgery. We do everything possible to prevent it. If you do develop a wound infection, you may have a wound that requires dressing changes at home. We will arrange this before your discharge.



Discharge

Before you are discharged, you will be given:

- ☑ A copy of your discharge instructions
- ☑ A list of any medications you may need
- ☑ A prescription for pain medicine
- ☑ Arrangement for tube-feed supplies and any assistive devices will be made
- ☑ Instructions on when to return to see your surgeon (usually 3 weeks), depending on your surgery

Before you leave the hospital

- ☑ We will ask you to identify how you will get home and who will stay with you.
- ☑ If you use oxygen, we will want to make sure you have enough oxygen in the tank for the ride home.
- ☑ Be sure to collect any belongings that may have been stored in "safe keeping."

Our Case Managers help with discharge needs. Please let us know the names, locations, and phone numbers of:

- ☑ Your home pharmacy:

_____

- ☑ Your home healthcare agency (if you have one):

_____

- ☑ Any special needs after your hospital stay:

_____

After Discharge

When to Call

Complications do not happen very often, but it is important for you to know what to look for if you start to feel bad.

After you leave the hospital, you should call us at any time if you:

- ☑ Have a fever greater than 100.5°F or chills
- ☑ Are vomiting, nauseated, or have diarrhea
- ☑ Have trouble swallowing or weight loss
- ☑ Have unrelieved pain
- ☑ Have problems with the incision, J-tube or chest tube sites, including redness, drainage, bleeding or pus
- ☑ Have increased shortness of breath
- ☑ Have swelling of the chest, neck, or face, or sudden change in voice
- ☑ Have a heart beat that feels fast, too slow, or skips
- ☑ Are feeling faint
- ☑ Have a change in your mental status
- ☑ Are feeling weaker instead of stronger
- ☑ Are unable to pass urine for more than 6 hours
- ☑ Are unable to have a bowel movement for more than 3 days

Contact Numbers

If you have trouble between 8:00am and 4:30pm, **call your surgeon's office**.

See page 3 for your surgeon's contact information

After 4:30pm and on weekends, call 434.924.0000. This is the main hospital number. Ask to speak to the **General Thoracic Surgery Fellow on call**. The fellow on call is often managing patients in the hospital so it may take a few minutes longer for your call to be returned.

Common questions about Nutrition after Esophagectomy

How will this surgery affect my eating?

This surgery affects the route your food normally takes. Part of your esophagus is removed and your stomach will be pulled into your chest. This will limit how much food you are able to tolerate at one time. Because of this, you will receive a feeding tube placed into the part of the intestine called the jejunum, below the area you had surgery. Your nutrition will be provided mainly through this tube for the first few weeks after surgery. You will then start progressing towards eating by mouth.

What special diet will I have?

Once you are able to eat, you will start with liquids and progress to smaller portions of soft/moist/ easy to swallow foods. This will help protect the area where you had surgery and will help you avoid discomfort.

How will I eat after this surgery?

Week 1: You will not be allowed to have anything to eat or drink. Your nutritional needs will be met with tube feedings.
Week 2: Depending on **your specific case**, you **may** or **may not** be allowed to start sipping on clear liquids. Clear liquids include broth, jello, water, Gatorade®, apple juice, or similar items.
Week 3: Once you have tolerated clear liquids for at least a day, you will be able to have full liquids. Full liquids include nutritional supplements like Boost or Ensure, plain ice cream (no chunks), milkshakes, milk, creamy soups, etc.; as well as all clear liquids.
Week 4-5: Typically you will advance to the "esophagectomy diet," which is smaller portions of soft and easy-to-swallow foods. This is often around the time you will come in to see the surgeon for your post-operative visit. After a week of the esophagectomy diet, you can start adding in regular foods.

What are "tube feedings?"

You will have a tube that goes straight into your small intestine (jejunum) to supply you both nutrition and hydration. You will receive specialized feeding formula that will hang in a bag on a feeding pump; the formula is similar to Ensure® or Boost® you see at the store. The pump will deliver the feeding formula through your feeding tube into your small intestine. While you are in the hospital, this will occur both night and day. Before you go home, it will change to running at night only. This will allow you time off the feeding pump.

Routine Care of Your Feeding Tube:
Always wash your hands with soap and water before handling your tube.

You may have small amounts of redness and/or oozing from the tube site which is normal. It is best to keep your skin dry from this oozing as much as possible; you can use a gauze to help keep the skin dry. If you notice an increase of redness/ swelling/ drainage at the tube site, alert your home health nurse or notify your surgical team.

You can cleanse this area with soap and water daily. DO NOT use hydrogen peroxide or special cleansers. You may use a cotton tip (Q-Tip ®) or gauze to ***gently*** wipe around the site. It is good to keep the site clean and dry.

If the length of the tube is pulling, and you would like to secure it against your skin, you can use medical tape OR purchase tubular net bandage (at Wal-Mart or drug stores) in XX-Large. This will secure the tube to your skin without irritating your skin.

Avoiding tube clogging:
Flush, flush, flush!! Frequent water flushes through your tube will be the best way to prevent your tube from clogging.

ALWAYS flush your tube with 30-60mL of water <u>before</u> and <u>after</u> **anything** is put through your tube.

Understanding your Feeding Tube:
Different brands of tubes may look differently. Some tubes will only have one port for feeding, while others will have two. In either case, you will use the same port for feeding, flushing and giving yourself your medications. You will have stiches keeping your tube in the appropriate location. Over time you may lose a stitch, which is okay, as long as you have at least one stitch that remains. Your tube will look similar to this:

Balancing Diet & Tube Feedings:

The diet progression after surgery is to help you slowly transition into eating regular foods. At first, you will be completely dependent on your tube feedings in order to maintain your nutrition. This is important to continue at home to ensure you are healing and recovering from surgery.

When your diet first begins, you likely will not be able to take much food in at one time. Therefore, it is important you continue on your tube feedings. Once you are tolerating solid foods, we will slowly start decreasing your tube feedings until you are able to sustain yourself with an oral diet. The surgical nutritionist will help guide you during this process. This could take a few weeks, but could potentially take a couple months. It all depends on how much food you are able to eat after surgery.

Post-Operative Eating Guidelines:

Eat small portions, 5-6 times per day. You will not be able to eat the same amount (volume) of food in one sitting that you were able to eat before your surgery. Therefore, you need to eat smaller amounts more often.

- Eat slowly, pay attention to your body if you are feeling full.
- Prop up using pillows, or sit in a chair when you eat. Let gravity do some work!
- Take small bites and chew food well. Your food will be best tolerated if it is soft and moist by the time you swallow it.
- Limit or avoid consuming sugary food items, especially in larger portions (such sweet tea, cakes or cookies). This may lead to "dumping syndrome" and cause diarrhea.
- Avoid carbonated drinks to keep yourself from feeling overly full. They can be retried in small amounts a few months after surgery.
- Breads should be one of the last foods you try post-surgery, as these items can stick together and be more difficult to swallow.
- Nutritional supplements (such as Boost® or Ensure®) and homemade smoothies and/or milkshakes can help increase your calorie intake if you are having difficulty eating enough solid foods.

Diet and Tube Feeding Progression after Esophagectomy

Diet:	Foods Allowed:	Tube Feedings:
Nothing by Mouth (NPO) X 1 week	No food allowed	Full tube feedings
Clear liquid diet X 1-2 weeks	Popsicles, Italian ice, jello, broth (no solids), juice, Gatorade®, water (lower sugar liquids are preferable)	Full tube feedings
Full liquid diet X 1 week	Clear liquids PLUS Cream soups, milk, cream of wheat thinned with milk, pudding, yogurt, nutritional supplement drinks, smoothies, milkshakes	Full tube feedings vs slight decrease in tube feedings
Esophagectomy Diet X 1 week	Clear and Full liquids/ blenderized foods PLUS Cottage Cheese Cheese Eggs Tofu Moist fish (carefully avoid bones) Casseroles Pasta noodles Dry cereal softened in milk Cooked cereal Moist rice Mashed and baked potato, no skin Well-cooked/ canned SOFT fruits and vegetables *Tip: Use butter, oil, gravy, sauces, cream to make your foods moist. This will also help add calories.* **AVOID:** Anything requiring increased chewing Dry or sharp foods (chips) Breads/crackers Hard Fruit/veggies with skins Carbonated Beverages	Tube feedings will be decreased, and will now only provide partial nutrition.
Regular diet	You can start adding in any foods beyond the esophagectomy diet. Remember to take small bites, chew well, and eat smaller portions more frequently. Breads and hearty meats should be the last foods tried, remember to start with small bites and chew well.	As your eating improves, tube feedings will be decreased until they are completely held. If you are able to maintain your nutrition by eating (no tube feedings), your feeding tube can be removed. This can be done here (UVA) or possibly closer to home. The stiches are cut, and the tube pulled out in clinic.

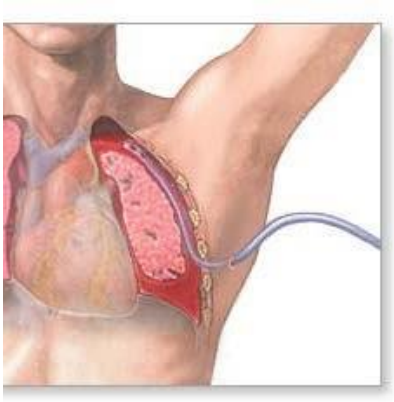
Troubleshooting Nutritional Tips after Esophagectomy

Nutritional Concerns	Common Challenges	Diet & Nutrition Planning
Dehydration	Your urine output will start to darken, you may feel thirsty, and you may feel weak or tired.	Increase the amount of water you are flushing through your jejunal tube. You can increase by 1-2 cups per day. See if this improves your symptoms. Let your surgery team and/or surgical nutritionist know if these symptoms persist.
Loss of Appetite	This can be common due to your new anatomy. Your stomach is in a new location, and you may need to "retrain" it to get your appetite back. This will happen over time.	Eat small portions of food multiple times a day (expect at least 6 times per day initially) You need to remember to eat, even if you are not hungry Eat high calorie and protein food items You may need to use nutritional supplements (Ensure®, Boost®, Carnation Instant Breakfast®, or Glucerna®) to take in adequate calories
Changes in Taste	Taste changes are common. Some foods may have a metallic taste or no taste at all.	Focus on foods that you like and avoid unappealing foods. Use plastic silverware in place of metal silverware. Try sweeteners with salty foods and vice versa. Avoid acidic foods (such as tomato sauce or citrus fruits) if mouth sores are present

Diarrhea	Frequent loose stools can result for a variety of reasons including: dumping syndrome, chemotherapy, radiation, certain medications, certain infections and use of antibiotics.	<u>Dumping Syndrome:</u> If after eating or drinking sugary foods or beverages you become flushed, sweaty, or start cramping with loose stools, this may be due to dumping syndrome. Limiting foods or beverages high in sugar may improve these symptoms. Slowing down how fast you are eating may also help. You may need to use gut slowing medications such as lomotil, change certain medications, or even adjust your tube feeding to resolve these symptoms. It is important to work with your surgery team and/ or surgical nutritionist to determine the cause, as this will determine the treatment.
Constipation	You will be receiving pain medication after your surgery. This can cause your gut to slow down and can cause constipation.	You will likely need to use stool softeners and even a gentle laxative (such as Miralax) to help you have regular bowel movements. You only need to use them as needed.

Chest Tube Sites

Please leave your dressing on for 48 hours after your chest tube is removed. If draining, reinforce with dry gauze.



After 48 hours, you may remove the dressing and clean the site daily with soap and water. Leave the dressing open to air unless it is draining. If draining, apply new dry gauze and change daily or as needed.

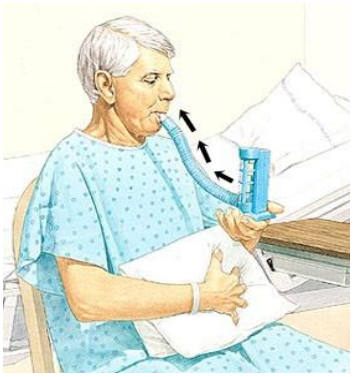
If you have a suture/stitch, it should be removed seven to ten days after the chest tube was removed, the chest tube suture should be removed by your Primary Care Physician (PCP), home health or our office.

Occasionally, you may experience clear pink or clear golden colored fluid draining from your chest tube site. This is perfectly normal. Cover the area with absorbent dressing and tape it in place. Call your surgeon's office if you notice air moving in and out of the chest tube site.

Low Grade Fever

If you develop a low fever (99.0° – 99.5°) this may mean that you need to work on deep breathing.

You should use your incentive spirometer (lung exerciser) 10 times per hour while awake and walk at least 3 times per day to help prevent pneumonia after surgery.



Hobbies and Activities

Walking is encouraged from the day following your surgery. Plan to walk three or four times daily.

You should NOT:

- ☒ Do any heavy lifting for 6weeks.
  (no more than a gallon of milk = 10 lbs)
- ☒ Play contact sports until 6 weeks following your surgery

You SHOULD:

- ☑ Be able to climb stairs from the time you are discharged
- ☑ Return to hobbies and activities soon after your surgery. This will help you recover.

Remember, it can take up to 2-3 months to fully recover. It is not unusual to be tired and need an afternoon nap 6-8 weeks following surgery. Your body is using its energy to heal your wounds in the inside and out.

Resuming Sexual Relationships

You should be able to resume a normal, loving relationship after you have recovered from your surgery and you are not feeling any discomfort.

Please talk to your doctor if you are having problems resuming sexual activity or if you have any questions concerning your activity level.

Work

You should be able to return to work 6–8 weeks after your surgery. This might be longer or shorter depending on your recovery rate and how you are feeling. If your job is a heavy manual job, you should not perform heavy work until 6 weeks after your operation. You should check with your employer on the rules and policies of your workplace, which may be important for returning to work.

If you need a "Return to Work" form for your employer or disability papers, ask your employer to fax them to our office at 434.244.9429.

Driving

You may drive when you are off narcotics for 24 hours and pain-free enough to react quickly with your braking foot. For most patients this occurs at 4-6 weeks following surgery. For our minimally-invasive surgery patients, this may occur earlier.

Cancer Support Information

You will be provided a Cancer Resource Guide in clinic that will give you tools to help cope with you cancer diagnosis. You can also go to the Esophageal Cancer Education Foundation website at http://fightec.org/ for support and information. There are no fees or donations required to use the resources provided on this website.

Write any questions you have here:

_____

_____

_____

_____

_____

We pride ourselves in providing each of our patients with our absolute best. It is a pleasure to care for you and your family in your time of need. If you have any suggestions about how to improve your care or the care of others, please let us know.