

Esophageal Surgery

Please bring this guide to the hospital with you on the day of your surgery.

Contents

Esophageal cancer	2
Treatment.....	3
Your health care team	5
Getting ready for surgery	7
Before coming to the hospital	7
Pre-admission visit.....	8
Day before and day of surgery.....	8
After surgery: Acute phase	9
After surgery: Recovery phase	10
Exercises while in the hospital.....	16
Exercise program.....	16
Getting ready to go home	21
At home.....	22
Activity	22
Pain	24
Nutrition	25
Resources	30
Clinical Pathway: Acute Phase	32
Clinical Pathway: Recovery Phase.....	36
Glossary	42

Esophageal Surgery

You are being admitted to the Victoria General Hospital, QEII Health Sciences Centre for esophageal surgery. This guide gives information on how to get ready for surgery, your hospital stay, and care at home after surgery.

This guide includes a Clinical Pathway. A Clinical Pathway is a general guideline about your care. It will tell you what will happen each day before and after your surgery (see pages 29 to 38).

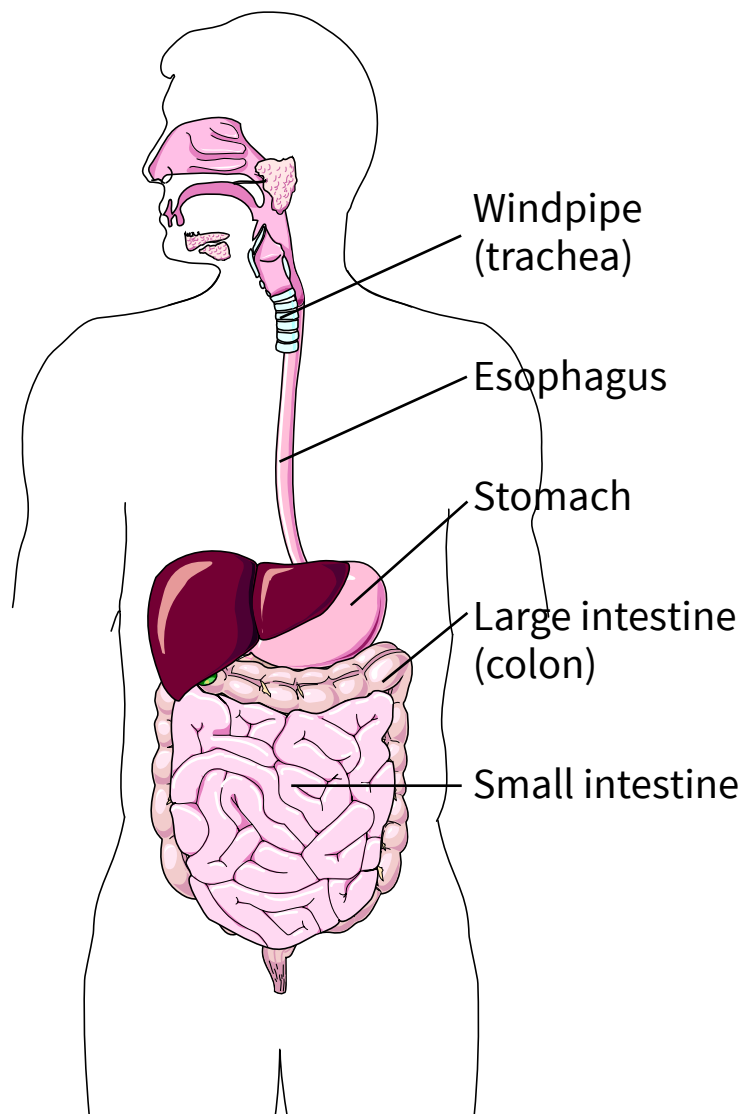
Make sure to read this guide and bring it with you to the hospital. Your health care team will refer to this guide during your hospital stay.

The Thoracic Clinic is located at the Victoria General Hospital, Dickson building, 1st and 4th floors.

- Dr. H. Henteleff: 902-473-5685
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Esophageal cancer

- The esophagus is a hollow tube that carries food and liquid from your throat to your stomach. The esophagus is located in an area called the mediastinum. This area also has the heart, trachea (windpipe), and many lymph nodes. The lungs are separated by the mediastinum.
- Cancer of the esophagus is a disease in which cancer cells are found in the tissues of the esophagus. Cancer may start at any place along the esophagus. Most often, cancer starts in the mid to lower third of the esophagus. The most common sign of cancer of the esophagus is having trouble swallowing that is getting worse. You may feel pain when swallowing, or pain behind your breastbone.



Treatment

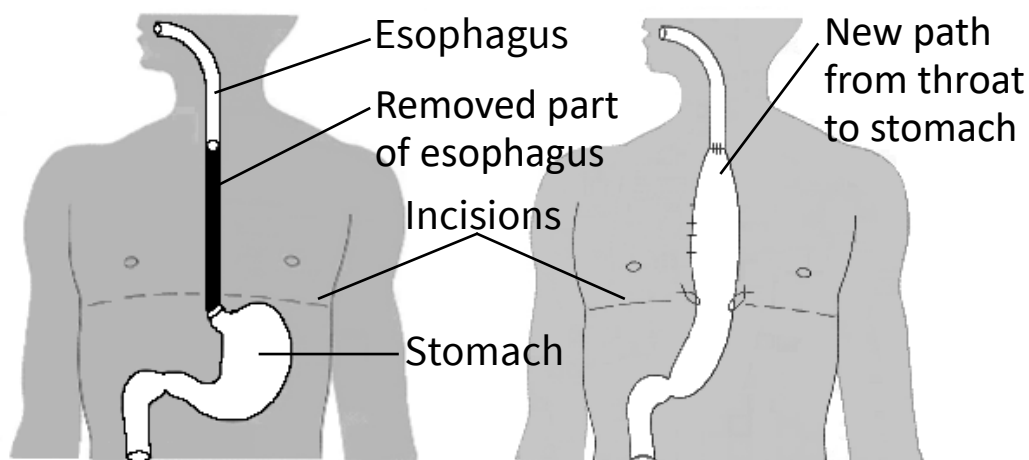
- Treatment for esophageal cancer and the chance of recovery depend on many things, including:
 - › The type and size of the cancer cells
 - › Where the cancer cells are in the esophagus
 - › Location of the tumour (whether it is just in the esophagus, or has spread to the lymph nodes or other areas)
 - › Your age, general health, and feelings about treatment
- Usually, esophageal cancer cannot be cured unless it is found in the earliest stages, before it starts to spread.
- For esophageal cancer that has spread, treatment is available to help manage symptoms.

Esophageal cancer can be treated by:

- › Surgery (taking out the cancer cells)
- › Radiation therapy (high-dose X-rays that kill cancer cells)
- › Systemic therapy (medications that kill cancer cells)
- Depending on your needs and how much the tumour has spread, you may have more than one type of treatment. You may be referred to doctors who specialize in different kinds of cancer treatments. Specialists often work as a team to plan and carry out your care. The team may include a thoracic surgeon, medical oncologist (cancer specialist), radiation oncologist, nurse, dietitian, and social worker.

Surgery

- Surgery is a common treatment for esophageal cancer. The thoracic surgeon may remove all or part of your esophagus and part of your stomach. This surgery is called an esophagectomy or esophago-gastrectomy.
- During the surgery, incisions (cuts) may be made in your chest, abdomen (stomach area), and neck. The chest incision usually goes from the mid-back around to the mid-front. The surgeon takes the tumour out, along with part of the esophagus, nearby lymph nodes, and other tissues in the area.
- It is usually possible to connect the stomach to the part of the esophagus that is left. Sometimes, the surgeon makes a new passage from the throat to the stomach, using tissue from another part of the digestive tract (like the colon or small bowel), to replace the esophagus.
- If the tumour blocks the esophagus but cannot be removed, the surgeon may make a new pathway to the stomach (a bypass). Sometimes, the surgeon can dilate (widen) the esophagus and place a stent (tube). This procedure may have to be repeated as the tumour grows.
- During surgery, a feeding tube (jejunostomy or J-tube) may be placed in your bowel for extra nutritional needs, if needed.
- The surgery is done under a general anesthetic (you will be asleep). The length of your surgery will depend on how much the tumour has spread. It may take up to 8 hours.
- After surgery, you will be taken to the Post-Anesthetic Care Unit (PACU) and then to the Intermediate Care Unit (IMCU) on the 6th floor of the Centennial Building.



Your health care team

These members of the health care team will help you during your hospital stay.

Thoracic surgeon

The thoracic surgeon and team of surgical residents will talk with you about your care and answer any questions you have. The thoracic surgeon will be in charge of your care.

Nurse Practitioner

The nurse practitioner (NP) works with the surgeon and residents. The NP will help you manage any acute (sudden, severe [bad]) or chronic (ongoing) conditions, prescribe medications, order and interpret laboratory or diagnostic tests, and perform procedures.

Registered Nurse and Licensed Practical Nurse

Registered nurses (RN) and licensed practical nurses (LPN) will care for you before and after your surgery. They give emotional support, medications, nursing care, and teaching instructions.

Physiotherapist

The physiotherapist (PT) will help you with getting out of bed, walking, deep breathing, coughing, and arm and shoulder exercises.

Respiratory Therapist

Respiratory therapists (RT) help you improve your breathing using special tools and equipment to manage your symptoms. If you need a lot of oxygen, have trouble breathing, or have trouble stopping the use of oxygen, an RT will help you get back to your usual oxygen levels.

Social Worker

You can ask to talk with a social worker at any time during your hospital stay. A social worker will meet with you and your family for counselling, community information, and discharge planning services, as needed. Before and after your surgery, you may feel many emotions, like fear, sadness, anger, and/or loss of control – this is normal. A social worker can help you cope with these feelings.

Dietitian

After your surgery, the dietitian will review your nutritional needs and teach you what to eat.

Home care

The Continuing Care Coordinator will meet with you a few days before you leave the hospital to make plans for nursing care at home.

Intensive Care Unit (ICU)

The ICU team is made up of doctors, nurses, physiotherapists, and respiratory therapists. Although your thoracic surgeon will still be responsible for your care, the ICU team will manage your care if you are in the ICU.

Intermediate Care Unit (IMCU)

The IMCU team includes doctors, nurses, physiotherapists, respiratory therapists, a social worker, a dietitian, and an occupational therapist. The IMCU is a monitoring unit located on the 6th floor of the Centennial Building.

6A Thoracic Unit

The 6A Thoracic Unit team includes doctors, nurses, physiotherapists, respiratory therapists, a social worker, a Continuing Care Coordinator, a dietitian, and an occupational therapist.

Acute Pain Service (APS)

The Acute Pain Service includes anesthesiologists (doctor who gives you sleeping medication during surgery) and nurses who are specially trained to help people with their pain. The APS team may see you once or twice a day for the first few days after your surgery, if needed.

Getting ready for surgery

Before coming to the hospital

- **Stop smoking.** Avoid tobacco in any form. This includes pipes, cigars, cigarettes, e-cigarettes, and chewing tobacco. Tobacco smoke has many harmful substances that damage cells. Over time, these cells can cause cancer.
- Smoking also puts you at risk for lung complications after surgery. Tobacco smoke destroys cilia (lining of the airway). Cilia help clear secretions (mucus). If you smoke, you will be less able to clear secretions after surgery.
- Even shortly before surgery, stopping smoking helps recovery. It is never too late to stop smoking. The following smoking cessation programs can help you stop smoking:

Getting Started Sessions

- › This free, 1-hour information session gives information about the stopping process, as well as options for follow-up support. Getting Started Sessions are offered on a regular basis throughout Nova Scotia Health.

Keeping it Going Sessions

- › This 4-week program gives participants a workbook, tips, advice, and strategies. You may also try Nicotine Replacement Therapy (NRT) to support your efforts to be tobacco-free.

If you would like to know more about Nova Scotia Health's Stop Smoking Services, call (toll-free) 1-866-340-6700.

Tobacco Free Nova Scotia

- › <https://tobaccofree.novascotia.ca/>
- › Phone (toll-free): 1-866-366-3667

Another helpful resource is The Lung Association of Nova Scotia:

- › Phone: 902-443-8141

- Before your surgery, make plans to have someone (a support person) help you when you get home from the hospital.
- Look at your Clinical Pathway on pages 29 to 38 so you and your family know what to expect each day.

Pre-admission visit

- You will have blood tests, a urinalysis (urine test), an electrocardiogram (heart test), and a chest X-ray.
- Please bring all of your medications in their original containers or a list of your current medications, including over the counter medications (like supplements).
- An anesthesiologist will ask you questions about your health, and explain your anesthetic (sleeping medication) and pain control.
- A nurse will ask you questions about your health and tell you about leg, breathing, and coughing exercises, pain control, and skin preparation. It is helpful to practice deep breathing and coughing exercises before your surgery to help prepare you for surgery (see page 14).

Day before and day of surgery

- You may have clear fluids **only**, 8 hours before surgery.
- You should drink 500 ml clear apple juice or cranberry cocktail 3 hours before your surgery (called pre-op carbohydrate loading).
- **You must stop drinking** 2 hours before your surgery.
- **If you have been told** to take your usual medication(s) on the morning of surgery (for example, blood pressure pills or heart pills), use only a sip of water.
- **Do not** smoke or drink alcohol for 24 hours (1 day) before surgery.
- Bring your support person's phone number, so we can contact them, if needed.
- Bring personal care items (like a toothbrush, toothpaste, comb, and shampoo). **Do not bring scented products.** Nova Scotia Health is scent-free.
- Leave all valuables (jewelry, money, credit cards, cheque books) at home. The hospital is not responsible for the loss of any item.
- If you have a personal directive, please bring a copy with you.
- Bring shoes with a closed toe and heel that fit well (like sneakers).

After surgery: Acute phase

- Your surgeon may have told you that you will be in the Post-Anesthetic Care Unit (PACU), then in the Intermediate Care Unit (IMCU) after your surgery. This is because you need closer observation, monitoring, and nursing care than can be given on a regular unit. This is called the acute phase.
- You will be taken to the Thoracic Unit when you no longer need close observation and monitoring in the IMCU. This is usually after 1 to 2 days.
- **Although it is rare, you may need help to breathe for a while. If so, you will be admitted to the Intensive Care Unit (ICU):**
 - › A tube will be placed through your mouth, down your windpipe, and into your lungs. The tube will be attached to a breathing machine (ventilator).
 - › You will not be able to eat, drink, or talk until the tube is taken out. Your nurses will ask questions that you can answer with a nod.
 - › You will not be able to cough to clear mucus from your lungs. The nurse will place a small suction tube through your breathing tube to remove mucus.
 - › Your throat may feel sore from the tube. The tube is usually taken out within a day. It may be kept in longer if you have trouble breathing.
- **Several monitoring devices will be used. These include:**
 - › A cardiac monitor to observe your heart function.
 - › A clip (called pulse oximetry) attached to your finger to monitor the oxygen levels in your blood.
 - › 1 to 2 intravenous (IV) lines in your arm, and 1 in your neck, if needed.
 - › A small tube placed in an artery in your wrist for blood tests and to measure your blood pressure.
- You will also have other tubes, including a chest tube, nasogastric tube, J-tube (if needed), JP drain, and urinary catheter (see pages 10 and 11).
- It is important to control your pain. Be sure to tell your nurse when you are having pain (see pages 10 and 11).

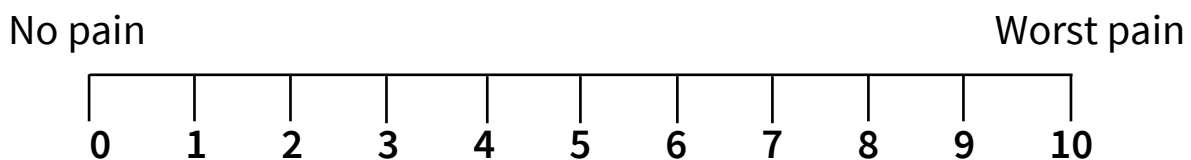
Information for family and friends

- The ICU family lounge is on the 3rd floor. **Visitors must check in at the front desk on 3A each time they wish to visit a patient in the ICU.** When they arrive, clerical staff will check with the ICU staff to make sure visitors can go in. The ICU limits visiting from 6:30 to 8 a.m. and 6:30 to 8 p.m., when nurses are changing shifts. If you do not have one, you can ask for a detailed ICU visitor's pamphlet on your first visit to the ICU.
- You can only have 2 visitors at a time in the IMCU. Visitors must check in at the nursing station when they arrive. Unit staff will check with the IMCU staff to make sure visitors can go in.

After surgery: Recovery phase

Pain management

- It is normal to have discomfort or pain after surgery. Each person's amount and type of pain is different. Your pain will get better over time as you heal.
- The goal of pain management is to have as little pain as possible while resting, and pain you can handle when you are active. With good pain control while resting, you will be comfortable enough to sleep. When you are active, there may be a bit more pain, but the pain should not stop you from coughing, deep breathing, getting into a chair for meals, and walking.
- You will be asked to describe your pain after surgery using a scale of 0 (zero) to 10. Zero is no pain and 10 is the worst pain you have ever felt.



- You will be asked:
 - › to rate your pain level during rest and activity.
 - › if the pain stops you from moving.
 - › if you are satisfied with your pain.

This will help us see how well your pain is being controlled and if your medication(s) needs to be changed.

- If you are in pain, it will be harder to get moving. It is important to tell a member of your health care team if your pain is not well managed.
- Depending on your surgery, you may get pain medication by:
 - › **Epidural catheter:** A small tube is inserted in your back. The tube is attached to a pump with a bag of pain medication. The pump gives you medication continuously. You will still be able to move around and walk.
 - › **Paravertebral nerve block (PVB):** Medication is given through a small tube inserted in your back. The medication numbs (freezes) the area where you had surgery.
 - › **IV infusion:** Medication is injected with a needle directly into your bloodstream.
 - › **Subcutaneous injection:** A needle is used to inject medication below your skin.
 - › **Orally:** Medication is taken by mouth.
- Your doctor will prescribe different types of medications that work in different ways to help control pain. These may include:
 - › Narcotic analgesics (painkillers) like codeine, hydromorphone (Dilaudid®), or morphine
 - › Anti-inflammatories like ibuprofen (Advil®)
 - › Acetaminophen (Tylenol®)
- As you heal, you will feel less pain and will not need medication as often.
- **Pain control can help you:**
 - › have greater comfort while you heal.
 - › get well faster - with less pain you can walk, do your breathing exercises, and get your strength back faster.
 - › avoid problems like pneumonia (lung infection) and blood clots.
 - › leave the hospital sooner.

- **The following side effects are common with pain medication, but may be managed well. Tell your nurse if you have any of the following symptoms:**
 - › Itchy skin
 - › Nausea (upset stomach)
 - › Vomiting (throwing up)
 - › Heaviness in your legs
 - › Tingling or numbness
 - › Drowsiness and/or tiredness
 - › Dizziness
 - › Slowed breathing
 - › Constipation (not being able to poop)

Intravenous (IV)

- You will have an IV tube in one arm. You will get medication(s) and fluids through your IV until you are able to drink well.
- **Do not pull on the IV tubing.** When you are walking, push the IV pole using your hand that does not have the IV.

Chest tube drainage

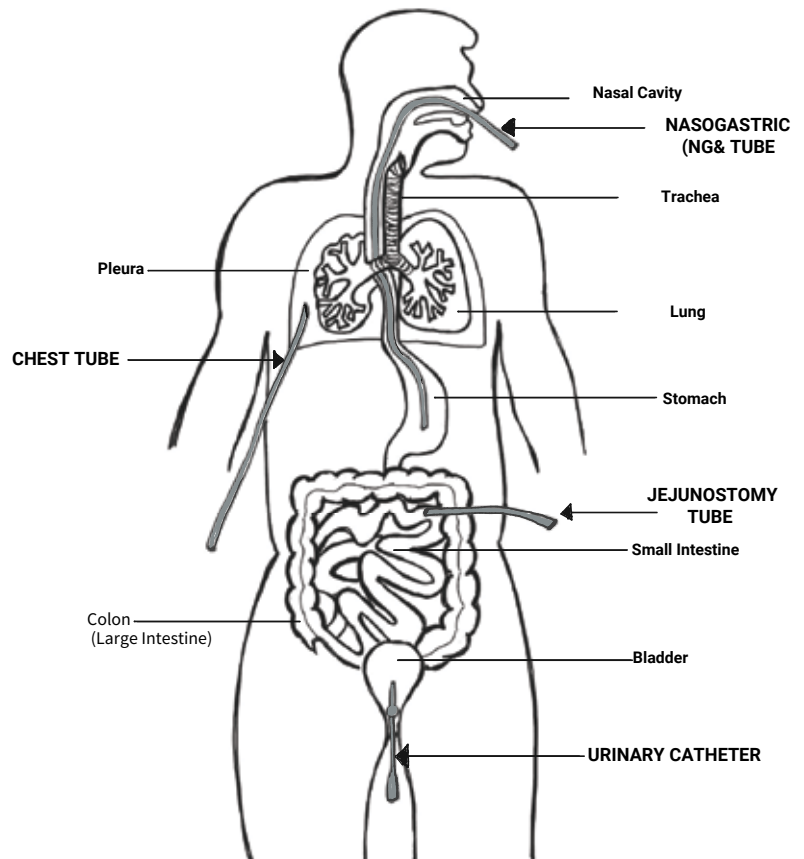
- After chest surgery, extra air and fluid may collect in the chest. You will have 1 or 2 chest tubes around your lung. The tube(s) is connected to a drainage system to help drain the air and fluid.
- It is normal to see blood-coloured fluid in the tube(s) for the first couple of days. This should clear after a couple of days.
- An X-ray of your chest will be taken to decide when the tube(s) should come out. The tube(s) will usually be removed after about 7 days (1 week).
- **Do not lie on the chest tube(s) while in bed. Do not pull on the tube(s).** You will be helped to walk while the chest tube(s) is in place. Tell your nurse if you find it hard to breathe.

Nasogastric tube

- You will have a nasogastric tube (N/G tube) placed down your nose and into your stomach. The tube is connected to wall suction. It drains fluid from your stomach while you are healing and not eating, into the tube connected to wall suction. The tube is usually removed in a few days, as directed by your health care team.

Jejunostomy tube (J-tube)

- You may have a J-tube inserted through your stomach into part of your small bowel (jejunum). This tube is used to feed you starting the day after your surgery and until you are able to eat food by mouth.
- The dietitian will review your nutritional needs and recommend a nutritionally complete formula for you. You will leave the hospital with this tube in place, in case you need it at home.
- While you are in the hospital, the nurse will flush the tube to keep it open. We will teach you and your family how to care for and flush the tube when you are at home.



Urinary catheter

- You will have a urinary catheter (thin, hollow tube) to drain urine (pee) out of your bladder for a few days. The nurse will clean your catheter site every 8 hours to prevent infection. This catheter is usually removed after 1 to 2 days.

Incision care

- Depending on the type of esophageal surgery, you may have one or more incisions. The incisions are usually closed with stitches or staples and protected with dressings (bandages). The bandages are usually removed after a few days.
- You will have a JP drain at the connection site near the new esophagus passage that the surgeon created. This drain will help to remove fluid. A small bandage will cover the drain. It will be changed each day. The drain will be removed after a few days when there is little drainage.
- You will have a dressing at your chest tube site that will be changed every 2 days, or as needed.

Oxygen

- You may need extra oxygen because of lung disease, heart disease, or the demands of surgery. Extra oxygen can help get the oxygen levels in your blood and body tissues back to normal, and make things easier on your heart and lungs. During your hospital stay, you may get extra oxygen. This is given through a mask over your nose and mouth or small tubes in your nostrils (nose).
- Pulse oximetry is used to test the amount of oxygen in your blood. When you no longer need extra oxygen, the clip will be removed.

Deep breathing and coughing while in the hospital

- We will encourage you to do deep breathing and coughing exercises after surgery. Deep breathing after surgery:
 - › keeps your lungs fully expanded (made bigger).
 - › clears mucus from your lungs and throat.
 - › lowers your chance of getting a chest infection (pneumonia).
- Deep breathing exercises work best when you are sitting up in a chair or on the side of the bed.
- You may be given a device called an incentive spirometer to help with this. An incentive spirometer helps you take deep breaths.
- While coughing, hold a pillow firmly against your incision(s). This will support your incisions and make coughing less painful.

Practice this exercise before your surgery:

- › Blow out quickly 4 times.
- › Take a deep breath in and hold it.
- › Blow the breath all the way out.
- › Take another deep breath in and cough out — **clearing your throat is not enough.**

After surgery, repeat this exercise 2 times each hour while you are awake.

To do deep breathing exercises using the incentive spirometer:

- › Put your lips tightly around the mouthpiece.
- › Breathe in deeply and try to hold the ball up as long as you can.
- › Remove the mouthpiece, breathe out, and rest for a few seconds.
- Repeat either exercise 10 times every hour while you are awake. Do these exercises until you are able to move around more.
- Coughing exercises can be done after your first 5 deep breaths.

Moving in bed

While you are in bed, it is important to move. Do not worry about the tubes you have in place, just avoid lying on your incision and chest tubes. **Move at least every 2 hours while you are awake.**

To move in bed:

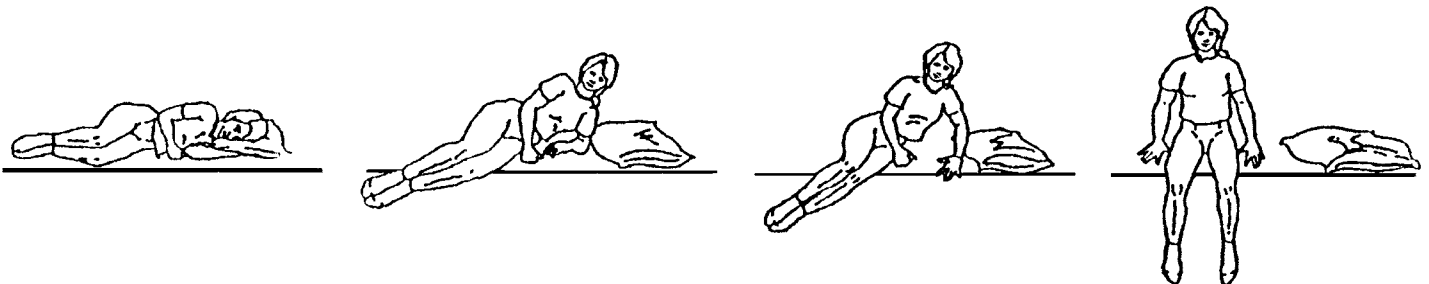
- › Hold a small blanket or pillow firmly against your incision(s).
- › Bend your knees and roll (for example, from your non-operated side to your back).

Getting out of bed

Do not get out of bed by yourself the first time. A nurse will help you.

To get out of bed:

- › Bend your knees and roll onto your side where there is no incision. Place your upper hand on the bed below your elbow.
- › Raise your upper body off the bed: push down on the bed with your upper hand and push up with your lower elbow.
- › Swing your feet and legs over the edge of the bed and sit up.
- › If you feel lightheaded, rest for a few minutes and call your nurse to help you.



Exercises while in the hospital

As you recover, you will be able to do more. Day by day, you will be asked to do a little bit more.

Evening of surgery

- A few hours after returning to the unit, we will help you to sit on the side of the bed.

Day after surgery

- Your nurse or physiotherapist will help you up to the chair at your bedside. If you are feeling comfortable, they will take you for a walk.
- When lying, sitting, or walking, try to keep good posture by keeping your spine straight and shoulders back.
- Based on your progress, your nurse or physiotherapist will help you increase your activity each day.
- The goal is to sit up in the chair and walk at least 3 times a day.

Exercise program

- Your physiotherapist will watch and help you with this exercise program.
- **Repeat each exercise 10 times every hour at first**, unless told otherwise.
- Keep doing this program 2 to 3 times a day for 2 weeks when you are at home.
- Some exercises will help to keep your airway clear and free of mucus, and help you avoid breathing problems (like pneumonia). Other exercises will get you moving as you recover. These exercises help to keep the blood in your legs moving while you are less active. Do these exercises 10 times every hour while you are awake. Do these exercises until you are able to move around more.

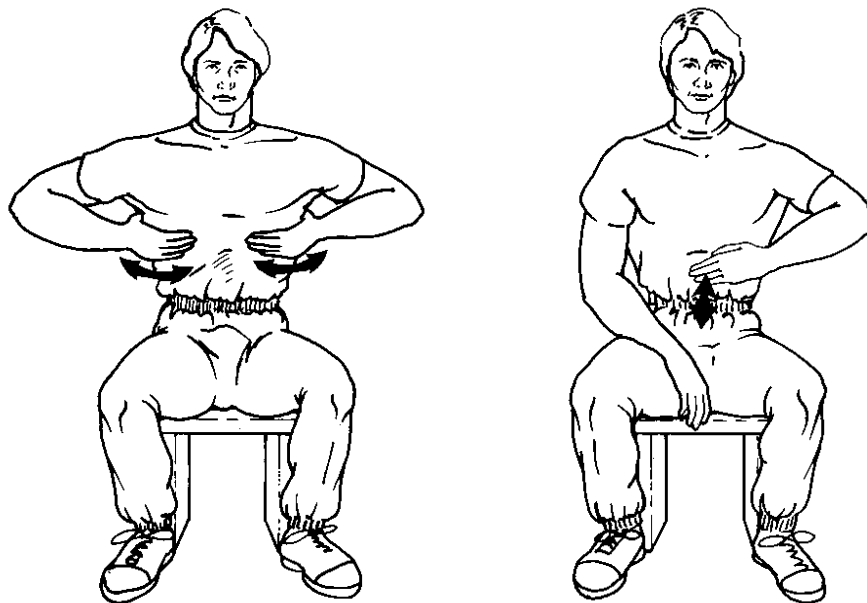
Foot and ankle pumping

- One way to help prevent complications after surgery is to pump your feet and ankles. This helps the blood flow in your legs and helps prevent swelling and blood clots.
- Foot and ankle pumping should be done every hour while you are awake.
 1. Relax your legs.
 2. Gently point your toes towards the ceiling.
 3. Then gently point your toes towards the bottom of the bed.
 4. Do this exercise for 1 to 2 minutes every hour while you are awake. Move your ankles in a circle clockwise, and then counter-clockwise.

Ankle circles

1. Move your ankles in a circle clockwise, and then counter-clockwise.

Deep breathing and coughing exercises (also called diaphragmatic breathing)

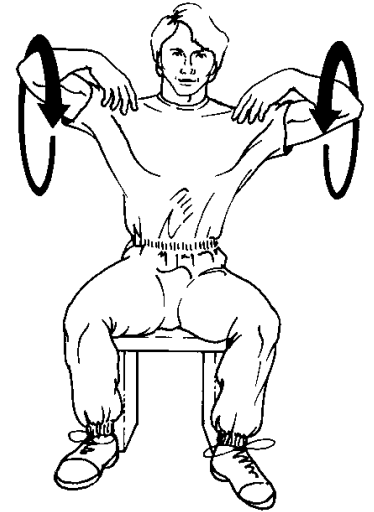


1. While sitting or lying down, place both hands high on your stomach below your rib cage.
2. Breathe in as deeply as you can. Feel your stomach push out against your hands.
3. Hold briefly for 2 to 3 seconds.
4. Breathe out slowly through your open mouth.
5. Repeat 3 to 4 times.

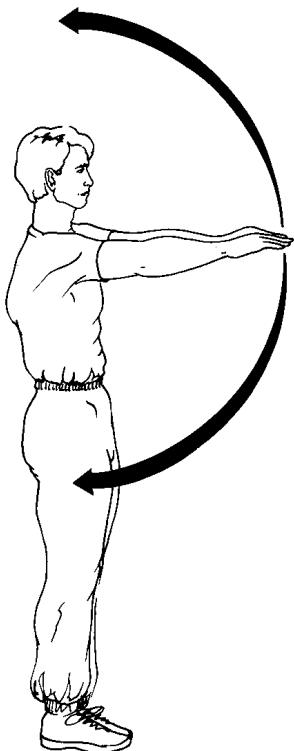
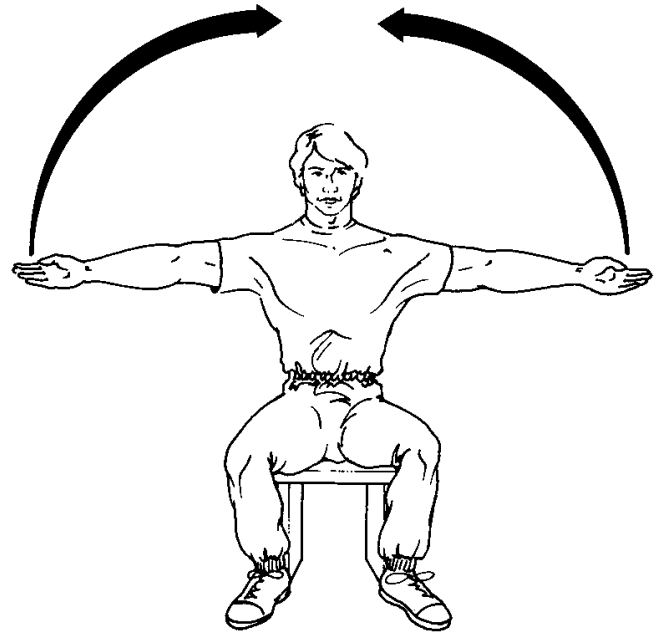
6. Give a strong cough — clearing your throat is not enough.
7. Follow this with 2 to 3 more deep breaths.
8. Do this exercise every hour while you are awake.

Arm and shoulder exercises

- Sit in a chair or on the side of the bed. Place your fingertips on your shoulders.
- Make circles with your elbows.

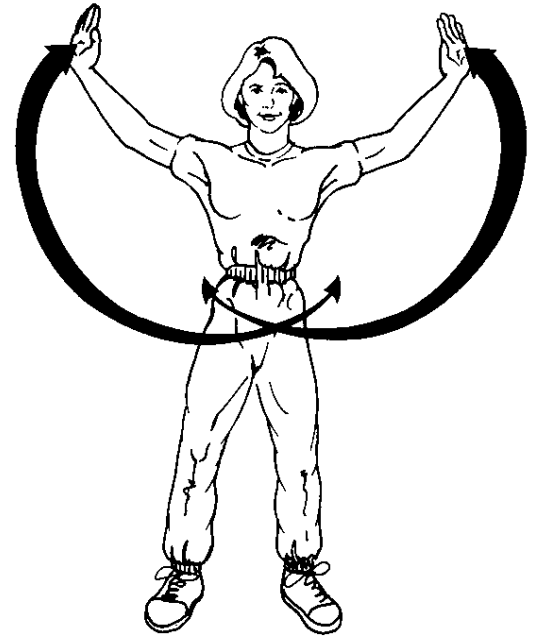


- Sit in a chair or on the side of the bed. Lift your arms out to the sides, keeping your elbows straight and palms facing the ceiling.
- Reach for the ceiling.

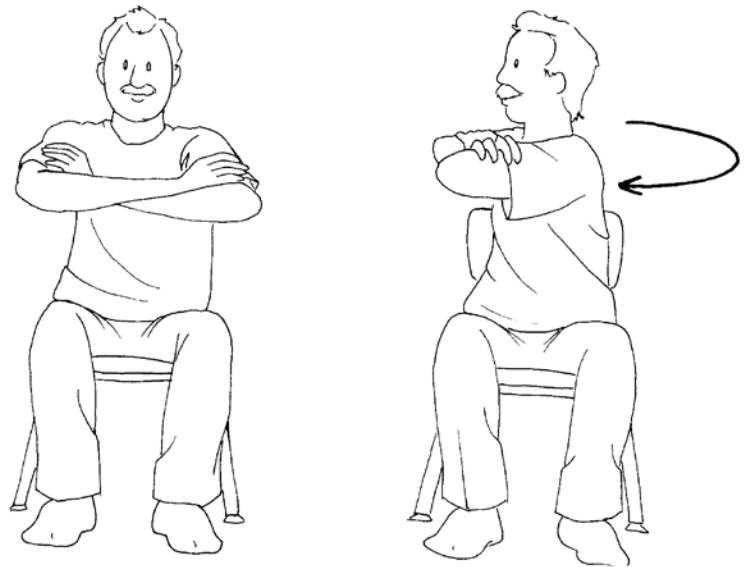


- While breathing in, lift your arms in front of you above your head, keeping your elbows straight.
- Slowly lower your arms while breathing out.

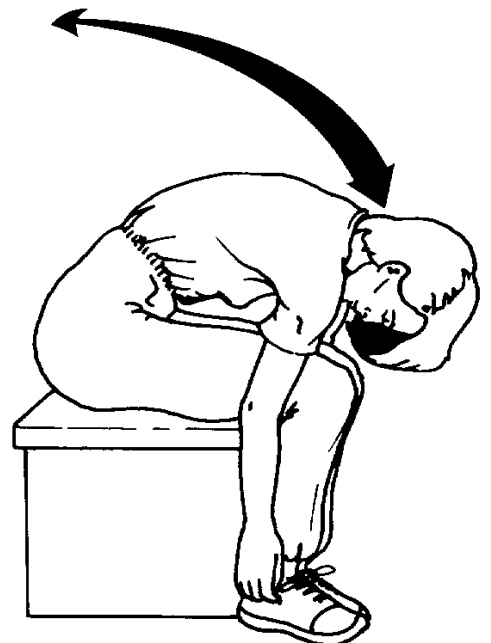
- Sit or stand with your arms loose or crossed in front of you.
- Slowly lift your arms up, out to the sides, and back.



- Sit in a chair or on the side of the bed. Cross your arms in front of you and place your hands on your shoulders.
- Turn your body to the right, then to the left while keeping your legs still.



- Sit in a chair or on the side of the bed.
- Bend forward, moving your head toward your knees.
- Return to the starting position.



Note:

- If you are concerned about using stairs at home, your health care team can help you practice before you leave the hospital.
- Keep doing these exercises 2 to 3 times a day for at least 2 weeks while your incision(s) is healing.
- Check your posture often in front of a mirror. You may lean towards your operated side, causing that shoulder to drop down and forward. Watch for this and correct it.
- Progress (make harder) all your activities **bit by bit over time**. Let pain be your guide. At your follow-up appointment, ask your surgeon when you can start to do more activities.
- **Remember:** you need to exercise in the recovery phase, but rest is also important.

Getting ready to go home

When you are discharged from the hospital, you may need help at home. **It is best to make plans for this before going to the hospital.** Start planning for home before your surgery. Talk about your discharge plans with your nurse.

- You may have concerns about how you will manage at home after your surgery. For example:
 - › I live alone. How will I manage? Who will make my meals?
 - › I am worried and scared. Who can I talk to?
 - › I have young children and I was told not to lift anything. What do I do?
 - › My partner is sick. Who will take care of them while I am in the hospital?

If you have concerns, ask to talk with a social worker before you leave the hospital.

- **Plan for someone to pick you up at 11 a.m. on the day of discharge.**
- You will get a prescription for pain medication. Try to fill this prescription on the day you go home.
- You will be given a follow-up appointment to see your surgeon in about 3 to 5 weeks. You will be given this appointment date and time by mail or phone.

Before you go home, make sure to ask your nurse if you have questions about:

- › Foods that are safe to eat (esophageal soft diet guidelines)
- › Activity
- › Follow-up visit(s)
- › Incision care
- › J-tube care (if you have one)
- › Medication(s)
- › Exercises after surgery
- › When to call your primary health care provider or surgeon

At home

Activity

- Keep doing your deep breathing exercises, arm and shoulder exercises, and walking as talked about with your physiotherapist.
- Walking helps to increase your strength, keeps your lungs clear, and lowers the risk of complications. Walk regularly, starting slow. You should not get short of breath or feel exhausted (very tired). If this happens, stop and rest. Walk slower the next time. The goal is to get at least 30 minutes of activity a day.
- Going up and down stairs should not be a problem. We will practice this with you before you go home. Stairs are encouraged and are a great exercise during recovery.
- Avoid hard exercise (including lifting heavy objects like grocery bags, shovelling snow, and pushing a lawn mower) until after you have seen your surgeon for your follow-up appointment.
- **Do not lift anything over 10 pounds for 6 weeks.**
- At your follow-up appointment, talk with your surgeon about what activities you can do.
- **Do not** drive until you feel ready. **Do not drive while taking pain medications.** You must wait 24 hours (1 day) after your last dose of pain medication before it is safe to drive.
- Rest as needed. Let your body be your guide.
- If you need to fly within 6 to 8 weeks after your surgery, talk with your health care team.
- Avoid leaning your head back quickly, as this puts extra tension (pressure) on the stitches in your neck.
- You may have sex again whenever you feel ready.

When can I shower?

- You may shower 2 days after your chest tube is removed.
- **Do not** bathe until your incision is healed (looks closed like a cut on your finger, is not draining any fluid or blood, and is not painful, warm, or red).
- Avoid saunas, soaking in water (includes tub baths), hot tubs, whirlpools, and swimming pools until your incision is healed. These activities can slow the healing of your incision.

How do I care for my incision?

- While you are in the hospital, your nurse will teach you how to care for your incision at home.
- There may be a stitch at the chest tube site. **This must be removed by your primary health care provider or at a walk-in clinic 1 to 2 weeks after your surgery.**
- Clean your incision(s) with mild soapy water. Pat the incision area dry — **do not rub.**
- **Do not** use lotion or powder on your incision(s).
- You may notice swelling or bruising around the incision(s). This is normal and may last for several weeks.
- Wear loose clothing while the incision(s) are still tender.

Tell your primary health care provider if your incisions get red or painful. Signs of infection include:

- › redness around the incisions that spreads.
- › green, yellow, or smelly pus coming from the incision sites. It is common for small amounts of fluid to drain for 3 to 5 days after surgery. Then, this should stop and your incisions should stay dry.
- › increased pain or swelling around the incisions.
- › temperature over 38° C (100.4° F). Signs of a fever may include chills, sweating, and headaches.

If you notice any of these symptoms, call your surgeon's office right away.

Pain

- You should expect to have some pain for up to 2 weeks (14 days) after surgery, but it should be manageable. Your doctor may give you a prescription for pain medication. Take pain medication as needed (for example, before going to bed and before activity). As your pain gets better, you can wait longer between doses.
- Your doctor may also suggest taking acetaminophen (Tylenol®) and ibuprofen (Advil®) at the same time to help manage your pain. Many people stop taking prescription pain medications after a week (7 days). If the pain is too much to handle, call your doctor.
- If you have constipation from your pain medication, drink more liquids. Eat more of the cooked or canned fruits and vegetables suggested by your dietitian. Choose whole grain breads and cereals. If constipation continues, try a liquid form of fibre (like Metamucil®). Ask your doctor if a laxative or stool softener is needed.

J-tube care (if you have one)

- **If your J-tube falls out, go to the nearest Emergency Department right away because your incision could close.**
- A J-tube is usually removed when you no longer need it for feeding. This is usually at the first follow-up visit with your surgeon after discharge, but may be longer if needed.
- Flush with 30 ml (2 teaspoons) of tap water 2 times a day, **and** after each time medication is given through your J-tube.
- **If you have a well**, and have not recently had it checked for bacteria, **use bottled water for your flushes.**

To flush the J-tube:

1. Draw 30 ml (2 teaspoons) of tap water into a syringe.
2. Remove the cap on the end of the J-tube.
3. Insert the syringe into the J-tube.
4. Inject the tap water, then remove the syringe.
5. Replace the cap on the end of the J-tube.

- You will get the *Home Tube Feeding* pamphlet before going home. The dietitian or nurse will review it with you and/or your family.
 - › www.nshealth.ca/sites/nshealth.ca/files/patientinformation/1211.pdf
- After discharge, a home care nurse can help you and/or your family with caring for your J-tube (flushing the tube and changing the dressing around it) and getting supplies, **if needed**.

Nutrition

- When you start to eat again, you will start with a clear fluid diet for 1 day, move on to a full fluid diet the next day, and then move to the esophageal soft diet.
- You will get the *Esophageal Soft Diet* pamphlet before going home.
 - › www.nshealth.ca/sites/nshealth.ca/files/patientinformation/1440.pdf
- We recommend following the esophageal soft diet for at least 6 weeks after your surgery. The goal is to have about 2000 calories a day for females and 2500 calories a day for males.

Follow these guidelines to help manage symptoms you may have:

To manage feeling full:

- Eat 6 small meals a day instead of 3 large meals.
- Drink fluids throughout the day instead of only with meals.

To control diarrhea (loose, watery poop):

- Eat only until you feel satisfied.
- Avoid a lot of sugar (like ice cream, milkshakes, etc.).
- Avoid foods that are natural laxatives (like prunes, figs, flax, and licorice).
- Eat slowly, take smaller bites, and chew your food well.
- Drink liquids throughout the day (20 to 30 minutes after meals) instead of only with meals.
- If your diarrhea gets very bad, call your dietitian or surgeon.

To control reflux (stomach acid coming back up from your stomach and into your mouth):

- Stay sitting up for 45 minutes after eating or drinking.
- Avoid eating or drinking for 2 hours before going to bed.
- Do not lie flat when resting or sleeping. Raise the head of your bed or use pillows.
- Eat smaller amounts of food more often.
- Avoid spicy and acidic foods (like black pepper, hot peppers, citrus fruits or juices, and tomato-based products).
- Avoid alcohol.
- If you smoke, try to quit.
- Limit caffeine (like coffee, tea, chocolate).

To avoid weight loss:

Weigh yourself each week. If you are losing weight, call the dietitian you had during your hospital stay or your community dietitian to learn how to increase your calories.

Esophageal Soft Diet guidelines

- It is important to eat only soft, moist foods, and fluids that are easy to swallow for at least 6 weeks after surgery. Talk with your surgeon before going back to your usual diet.
- Cook foods well.
- Add sauces or gravies to your food.
- Take small bites and chew well to turn food into a smooth paste or purée consistency in your mouth.
- Avoid eating very hot or very cold foods.

Note: If your surgeon says to only have liquids and purées at first, follow Step 1: Puréed Foods. Your surgeon will tell you when it is safe to move to Step 2: Esophageal Soft Diet.

Step 1: Puréed Foods

- Have only liquids and **smooth** puréed foods, like:
 - › Water, juice, milk
 - › Milkshakes
 - › Smooth yogurts, puddings
 - › Broth, strained or blended soups
 - › Ice cream, sherbet, sorbet
 - › Jell-O® (soften to a liquid in your mouth before swallowing)
 - › Nutritional supplement drinks (like Carnation Breakfast Essentials®, Ensure®, or Boost®)
 - › Store-bought bottled puréed meat, vegetables, and fruit (no chunks)
 - › Campbell's® Trepuree® frozen puréed entrees, homemade strained puréed foods

Tips:

- Foods should be the consistency of smooth applesauce or pudding with no chunks or strings.
- Limit yourself to 1 cup (250 ml) per hour for the first 1 to 2 days, and eat slowly.
- Ask your dietitian for the *How to Puree Foods* pamphlet.
 - › www.nshealth.ca/sites/nshealth.ca/files/patientinformation/0624.pdf
- You can buy Campbell's® Trepuree® entrees from the VON (Victorian Order of Nurses for Canada) in some communities.
- Include 3 to 4 store-bought or homemade (see recipes on page 28) high-protein, high-calorie drinks each day (like Carnation Breakfast Essentials®, Ensure®, or Boost®). For extra calories, choose Ensure® Plus Calories or Boost Plus®.

Step 2: Esophageal Soft Diet

- You will get the *Esophageal Soft Diet* pamphlet before going home.
 - › www.nshealth.ca/sites/nshealth.ca/files/patientinformation/1440.pdf

Note: Ask your dietitian if you should take a liquid or chewable multi-vitamin and mineral supplement. **Chew tablets completely** and have a drink to help any pieces go down.

About 1 week after your surgery, the dietitian or diet technician will review the esophageal soft diet with you and answer your questions. If you still have questions, be sure to ask the dietitian to visit you again before you go home. You will get a pamphlet with the dietitian's phone number in case you have questions after you get home.

Call 911 or go to the nearest Emergency Department right away if:

- › You passed out (fainted or lost consciousness).
- › You have trouble breathing.
- › You have sudden chest pain and shortness of breath.
- › You cough up bright red blood.

Go to the nearest Emergency Department right away if the J-tube falls out.

Call your surgeon's office, primary health care provider, or 811 if:

- You cannot keep fluids down.
- Your temperature is over 38° C (100.4° F).
- You have more trouble swallowing.
- You have more nausea (upset stomach) and vomiting (throwing up).
- You have trouble flushing the J-tube or have discharge from around the J-tube.
- You have loose stitches or the edges of your incision(s) come apart.
- You have more swelling in your legs.
- Bright red blood soaks through the dressing over your incision(s).
- You have signs of infection, like:
 - › more pain, swelling, warmth, or redness that spreads
 - › a bad smell from the incision site(s)
 - › red streaks leading from the incision(s)
 - › green or yellow pus draining from the incision(s)
 - › swollen lymph nodes in your neck, armpits, or groins
 - › temperature over 38° C (100.4° F)
- You cough up a lot more mucus than normal, or your mucus changes colour.
- Watch closely for changes in your health. Call your doctor if you have any problems.

If you cannot reach your surgeon's office or primary health care provider, go to the nearest Emergency Department.

Call 811 for advice and general health information from a Registered Nurse 24/7.

Resources

Being diagnosed with cancer affects you physically and emotionally. You will have many questions. You may be worried about what your cancer care will include. You may wonder how you and your family will cope during your treatment. There are many resources available within the hospital, the community, and online to help you and your family.

A Cancer Patient Navigator May Help

- › www.nshealth.ca/sites/nshealth.ca/files/patientinformation/nshccp4011.pdf

Websites

Coping® With Cancer

- › www.copingmag.com/coping-with-cancer
- › Phone: 615-790-2400
- › Email: info@copingmag.com

Canadian Cancer Society

- › <https://cancer.ca/en/>
- › Phone (toll-free): 1-888-939-3333

Nova Scotia Cancer Care Program

- › www.nshealth.ca/cancer-care

Nova Scotia Health's Cancer Care Program – Supportive Care

- › <https://library.nshealth.ca/Cancer/Support>

Cancer Care Ontario

- › www.cancercare.on.ca

Cancer.Net™ (American Society of Clinical Oncology)

- › www.cancer.net

Health Canada

- › www.hc-sc.gc.ca/index-eng.php

CancerCare®

› www.cancercare.org

OncoLink® (The Abramson Cancer Center of the University of Pennsylvania)

› www.oncolink.org

Division of Thoracic Surgery: University Health Network

› www.uhn.ca/PatientsFamilies/Pages/default.aspx

Lung Cancer Canada

› www.lungcancercanada.ca

Clinical Pathway: Acute Phase

Words used in this pathway are explained in the glossary on page 42.

	Pre-admission	Day of admission/surgery PRE-op	Day of admission/surgery POST-op
Tests	<ul style="list-style-type: none"> • Blood tests • Chest X-ray • Electrocardiogram (ECG/EKG) • PFT's • Urinalysis 	<ul style="list-style-type: none"> • Blood tests (if ordered) 	<ul style="list-style-type: none"> • Chest X-ray (PACU) • Blood tests
Consults with other health care providers			<ul style="list-style-type: none"> • APS (if needed) • Respiratory therapy (if needed)
Treatments		<ul style="list-style-type: none"> • IV 	<ul style="list-style-type: none"> • Chest tube • Urinary catheter • Incision dressings • IVF • NG tube • J-tube (if needed) • Arterial catheter • JP drain • IMCU
Medication(s)		<ul style="list-style-type: none"> • Antibiotic medication(s) 	<ul style="list-style-type: none"> • Medication(s) by J-tube/NG • PPI IV • Oxygen • Pain medications

	Pre-admission	Day of admission/surgery PRE-op	Day of admission/surgery POST-op
Activity		<ul style="list-style-type: none"> Independent (on your own) 	<ul style="list-style-type: none"> Sit up on side of bed for 5 to 10 minutes at 8 p.m. and 4 a.m. Sit up in chair, if able Walk, if able Use incentive spirometer every hour while awake
Nutrition		<ul style="list-style-type: none"> You may have clear fluids only, 8 hours before surgery. You should drink 500 ml of clear apple juice or cranberry cocktail 3 hours before your surgery (called pre-op carbohydrate loading). You must stop drinking 2 hours before your surgery. 	<ul style="list-style-type: none"> NPO
Planning information to review with your health care team	<ul style="list-style-type: none"> Review this guide, including Clinical Pathway Skin and bowel prep Discharge plans, length of stay 	<ul style="list-style-type: none"> Review what will happen on day of surgery 	

	Post-op Day 1	Post-op Day 2
Tests	<ul style="list-style-type: none"> • Blood tests 	<ul style="list-style-type: none"> • Blood tests
Consults with other health care providers	<ul style="list-style-type: none"> • Physiotherapy • Dietitian 	
Treatments	<ul style="list-style-type: none"> • Chest tube • Incision dressings • IVF • Urinary catheter • NG tube • J-tube (if needed) • Arterial catheter • JP drain • IMCU 	<ul style="list-style-type: none"> • Chest tube • Incision dressings • IVF • Urinary catheter (D/C if no longer needed) • NG tube • J-tube (if needed) • Arterial catheter (D/C if no longer needed) • JP drain
Medication(s)	<ul style="list-style-type: none"> • Medication(s) by J-tube/NG • Oxygen • PPI IV • DVT prophylaxis • Pain medication 	<ul style="list-style-type: none"> • Medication(s) by J-tube/NG • Oxygen • PPI IV • DVT prophylaxis • Pain medication
Activity	<ul style="list-style-type: none"> • Raise head of bed (HOB) 30 degrees or more • Up to chair at least 3 times a day • Walk 3 times a day, or more as able • Use incentive spirometer every hour while awake 	<ul style="list-style-type: none"> • Raise HOB 30 degrees or more • Up to chair at least 3 times a day • Walk 3 times a day, do more as able • Use incentive spirometer every hour while awake
Nutrition	<ul style="list-style-type: none"> • NPO • Ice chips for comfort, as needed (if ordered) 	<ul style="list-style-type: none"> • NPO • Ice chips for comfort, as needed (if ordered)

	Post-op Day 1	Post-op Day 2
Discharge planning to review with your health care team	<ul style="list-style-type: none"> • Deep breathing and coughing • Activity • Pain control goals 	<ul style="list-style-type: none"> • Deep breathing and coughing • Activity • Pain control goals

Clinical Pathway: Recovery Phase

	Day 1	Day 2	Day 3
Tests	<ul style="list-style-type: none"> • Blood tests 	<ul style="list-style-type: none"> • Blood tests 	<ul style="list-style-type: none"> • Blood tests
Consults with other health care providers	<ul style="list-style-type: none"> • Physiotherapy • Dietitian 		
Treatments	<ul style="list-style-type: none"> • Incision dressings • Neck dressing (if you have one) • Urinary catheter • IVF • NG tube • J-tube (if you have one) • Chest tube • JP drain • Daily weight 	<ul style="list-style-type: none"> • Incision dressings • Neck dressing (if you have one) • Urinary catheter* D/C • IVF • NG tube • J-tube (if you have one) • Chest tube • JP drain • Daily weight 	<ul style="list-style-type: none"> • Incision dressings • Neck dressing (if you have one) • IVF • NG tube • J-tube (if you have one) • Chest tube • JP drain • Daily weight
Medication(s)	<ul style="list-style-type: none"> • Medication(s) by J-tube/NG • Pain medication • Oxygen • DVT prophylaxis • PPI IV • Stool softener 	<ul style="list-style-type: none"> • Medication(s) by J-tube/NG • Pain medication • Oxygen • DVT prophylaxis • PPI IV • Stool softener 	<ul style="list-style-type: none"> • Medication(s) by J-tube/NG • Pain medication • Oxygen • DVT prophylaxis • PPI IV • Stool softener

	Day 1	Day 2	Day 3
Activity	<ul style="list-style-type: none"> • Raise HOB 30 degrees or more • Up to chair at least 3 times a day • Walk 3 times a day, do more as able • Use incentive spirometer at least once every hour while awake 	<ul style="list-style-type: none"> • Raise HOB 30 degrees or more • Up to chair at least 3 times a day • Walk 3 times a day, do more as able • Use incentive spirometer at least once every hour while awake 	<ul style="list-style-type: none"> • Raise HOB 30 degrees or more • Up to chair at least 3 times a day • Walk 3 times a day, do more as able • Use incentive spirometer at least once every hour while awake
Nutrition	<ul style="list-style-type: none"> • NPO • TPN (if ordered) • Trickle J-tube feeds (if you have one) • Ice chips for comfort, as needed (if ordered) 	<ul style="list-style-type: none"> • NPO • TPN (if ordered) • J-tube feeds (if you have one) • Ice chips for comfort, as needed (if ordered) 	<ul style="list-style-type: none"> • NPO • TPN (if ordered) • J-tube feeds (if you have one) • Ice chips for comfort, as needed (if ordered)
Discharge planning to review with your health care team	<ul style="list-style-type: none"> • Deep breathing and coughing • Activity • Eating guidelines • Pain control goals • Review this guide, including Clinical Pathway. • Talk about issues that may affect discharge with your health care team. 	<ul style="list-style-type: none"> • Deep breathing and coughing • Activity • Eating guidelines • Pain control goals • Talk about issues that may affect discharge with your health care team. 	<ul style="list-style-type: none"> • Deep breathing and coughing • Activity • Eating guidelines • Pain control goals • Talk about issues that may affect discharge with your health care team.

	Day 4	Day 5	Day 6
Tests	<ul style="list-style-type: none"> • Blood tests • Chest X-ray before NG removal 	<ul style="list-style-type: none"> • Blood tests 	<ul style="list-style-type: none"> • Blood tests
Consults with other health care providers			
Treatments	<ul style="list-style-type: none"> • Incision dressings • Neck dressing (if you have one) • IVF • NG tube* Clamp trial for 4 hours, checked using a chest X-ray • J-tube (if you have one) • Chest tube • JP drain • Daily weight 	<ul style="list-style-type: none"> • Incision dressings • Neck dressing (if you have one) • J-tube (if you have one) • Chest tube • JP drain • Daily weight 	<ul style="list-style-type: none"> • Incision dressings • Neck dressing (if you have one) • J-tube (if you have one) • Chest tube* Removal if output less than 400 ml in 24 hours (1 day) and no evidence of chyle • JP drain • Daily weight
Medication(s)	<ul style="list-style-type: none"> • Medication(s) • Pain medication • DVT prophylaxis • PPI IV • Stool softener 	<ul style="list-style-type: none"> • Medication(s) • Pain medication • DVT prophylaxis • PPI change to PO if tolerating fluids • Stool softener 	<ul style="list-style-type: none"> • Medication(s) • Pain medication • DVT prophylaxis • PPI PO • Stool softener

	Day 4	Day 5	Day 6
Activity	<ul style="list-style-type: none"> • Raise HOB 30 degrees or more • Up to chair at least 3 times a day • Walk 3 times a day, do more as able • Use incentive spirometer at least once every hour while awake 	<ul style="list-style-type: none"> • Raise HOB 30 degrees or more • Up to chair at least 3 times a day • Walk 3 times a day, do more as able • Use incentive spirometer at least once every hour while awake 	<ul style="list-style-type: none"> • Raise HOB 30 degrees or more • Up to chair at least 3 times a day • Walk 3 times a day, do more as able • Use incentive spirometer at least once every hour while awake
Nutrition	<ul style="list-style-type: none"> • *Sips of water if NG removed • TPN (if ordered) • J-tube feeds (if you have one) 	<ul style="list-style-type: none"> • *Clear fluids • TPN/J-tube feeds (if you have one) 	<ul style="list-style-type: none"> • *Full fluids • TPN/J-tube feeds (if you have one)
Discharge planning to review with your health care team	<ul style="list-style-type: none"> • Deep breathing and coughing • Activity • Eating guidelines • Pain control goals • Talk about issues that may affect discharge with your health care team. 	<ul style="list-style-type: none"> • Deep breathing and coughing • Activity • Eating guidelines • Pain control goals • Talk about issues that may affect discharge with your health care team. 	<ul style="list-style-type: none"> • Deep breathing and coughing • Activity • Eating guidelines • Pain control goals • Talk about issues that may affect discharge with your health care team.

	Day 7	Day 8	Day 9
Tests	<ul style="list-style-type: none"> • Blood tests 	<ul style="list-style-type: none"> • Blood tests 	
Consults with other health care providers			
Treatments	<ul style="list-style-type: none"> • Incision dressings *Removed • Neck dressing *Removed • J-tube (if you have one) • JP drain* Consider removal based on output • Daily weight 	<ul style="list-style-type: none"> • J-tube (if you have one) • Daily weight 	<ul style="list-style-type: none"> • J-tube (if you have one)
Medication(s)	<ul style="list-style-type: none"> • Medication(s) • Pain medication • DVT prophylaxis • PPI PO • Stool softener 	<ul style="list-style-type: none"> • Medication(s) • Pain medication • DVT prophylaxis • PPI PO • Stool softener 	<ul style="list-style-type: none"> • Medication(s) • Pain medication • DVT prophylaxis • PPI PO • Stool softener
Activity	<ul style="list-style-type: none"> • Raise HOB 30 degrees or more • Up to chair at least 3 times a day • Walk 3 times a day, do more as able • Independent (on your own) 	<ul style="list-style-type: none"> • Raise HOB 30 degrees or more • Up to chair at least 3 times a day • Walk 3 times a day, do more as able • Independent 	<ul style="list-style-type: none"> • Independent

	Day 7	Day 8	Day 9
Nutrition	<ul style="list-style-type: none"> • Full fluids 	<ul style="list-style-type: none"> • *Esophageal soft diet 	<ul style="list-style-type: none"> • Esophageal soft diet
Discharge planning to review with your health care team	<ul style="list-style-type: none"> • Deep breathing and coughing • Activity • Eating guidelines • Pain control goals • Talk about issues that may affect discharge with your health care team. • *Dietitian teaching: esophageal soft diet 	<ul style="list-style-type: none"> • Deep breathing and coughing • Activity • Eating guidelines • Pain control goals • Talk about issues that may affect discharge with your health care team. • *Confirm patient and family questions answered about esophageal soft diet 	<ul style="list-style-type: none"> • Prescriptions given • Follow-up appointments made • Discharge by 11 a.m.

Note: An * shows a change in treatment. Your health care team will go over this with you.

Glossary

APS: Acute Pain Service

Arterial catheter: this small catheter (thin hollow tube) is used only in the ICU/IMCU. It is inserted into an artery to measure blood pressure.

Bowel prep: You may need a laxative (medication to help you poop) before your surgery.

Chest tube: a tube to help you breathe placed in your chest

D/C if declassified: Once you are discharged from IMCU and move to 6A, this catheter must be removed, or “D/C’d” for short.

DVT prophylaxis: the use of medications and other methods to prevent deep venous thrombosis

ECG/EKG (electrocardiography): a test that measures the electrical activity of the heartbeat

ICU (Intensive Care Unit): This unit is on 3A at the VG site. There is usually one nurse for each patient. Patients on this unit need closer monitoring than on the main surgical unit. Your vital signs (oxygen, breathing, blood pressure, heart rate, heart rhythm, etc.) will be closely monitored.

IMCU (Intermediate Care Unit): This is also known as the stepdown unit. The IMCU is on 6A or 6B at the VG site. There is one nurse for every 2 patients. Patients on this unit need closer monitoring than on the main surgical floor unit, but not as much monitoring as on the ICU.

IV: a tube inserted (put in) to a vein in your arm or hand

IVF (intravenous fluid): a tube inserted (put in) to a vein in your arm or hand to give liquids. “D/C” means to remove the tube once you are drinking well on your own.

J-Tube (jejunostomy): a feeding tube placed in the bowel for extra nutrition, especially if you had poor nutrition before getting sick

JP drain (Jackson-Pratt drain): rubber tube put in after surgery to drain bodily fluids from your incision(s)

Medications by PO/NG: medications given orally (by mouth) or through the nose using a nasogastric (NG) tube

NG tube (nasogastric tube): a tube inserted in the nose, down the throat and esophagus, into the stomach to give medications, liquids, or liquid food. The tube can also be used to relieve pressure or to drain stomach fluids.

NPO: short for the Latin saying “nothing by mouth”. This means you must not drink or eat anything through your mouth.

PACU (Post Anesthesia Care Unit): This is also known as the “recovery room”. The PACU is on the 10th floor of the Centennial Building at the VG site. You will be taken from the OR (operating room) to the PACU to recover. This is where you will wake up after your surgery. Your vital signs (oxygen, breathing, blood pressure, heart rate, heart rhythm, etc.) will be closely monitored.

PFT (pulmonary function test): a test used to measure how well the lungs are working

PO: short for the Latin saying “by mouth”

PPI (proton pump inhibitor): a substance taken orally (by mouth) used to lower the amount of acid made in the stomach

Skin prep: Your surgeon may need to shave the surgical area.

Urinalysis: a urine (pee) test to check for diseases, infections, or kidney problems

Urinary catheter: a catheter (thin hollow tube) put into the bladder to drain or collect urine. “D/C” means to remove the tube once it is no longer needed.

