Your Thoracic Surgery: Everything You Need to Know

A breath of fresh air that gives me wings
FOURTH EDITION

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GENERAL INFORMATION

THIS GUIDE BELONGS TO: ___________________________________________________________

SCHEDULED DATE OF PROCEDURE: ________________________________________________
PROCEDURE: _____________________________________________________________________
NAME OF YOUR SURGEON: _______________________________________________________

TELEPHONE NUMBERS

THORACIC INVESTIGATION CLINIC
Appointments and thoracic surgery nurses (Monday to Friday)
418 656-8711, extension 5945 from 8 a.m. to 4 p.m. (voicemail available)

SURGICAL UNIT
418 656-4870

PHYSIOTHERAPY SERVICE
418 656-4729, extension 2

NUTRITION SERVICE
418 656-8711, extension 4840

INTERMEDIATE CARE AND THORACIC SURGERY UNIT
6th floor: 418 656-4520

INTENSIVE CARE
6th floor: 418 656-4885

VISTING HOURS
Please refer to the IUCPQ visitor policy.

INSURANCE FORM

► Please refer to the instructions in the folder you were given.
► Complete the section that concerns you.
► Give the form to your surgeon along with a self-addressed stamped envelope.
INTRODUCTION

After the medical team evaluated your pulmonary health problem, you met with the thoracic surgeon and decided to have a thoracic surgery.

You are now part of the thoracic surgery unit’s client care program.

*This means that:*

- You may meet various health professionals (surgeons, anesthesiologists, nurses, physical therapists, dietitians, pharmacists, etc.) who will provide you with the necessary support and services to ensure your surgery goes smoothly.
- You will receive comprehensive information on preparing for your surgery and what to do afterwards.
- You will receive a thorough follow-up before and after your surgery.

*This guide has four sections:*

- INFORMATION ABOUT YOUR SURGERY
- PREPARING FOR SURGERY
- IN THE HOSPITAL
- RETURN HOME AND FOLLOW-UP

There is also a glossary of medical terms at the end.
INFORMATION ABOUT YOUR SURGERY

1. Why do I need thoracic surgery?

You may need thoracic surgery for a range of problems affecting the lungs or chest.

The main diseases requiring surgery are benign or malignant tumours, emphysema, a pneumothorax (collapsed lung), bronchiectasis, serious infections, pulmonary fibrosis and thoracic outlet syndrome. Other health problems, such as thymomas and mediastinal tumours, can also require thoracic surgery.

2. How does the respiratory system work?

The lungs are organs that are located in the chest. They filter and oxygenate the blood. The rib cage is made up of 12 pairs of ribs on either side of the sternum. The sternum (or breastbone) is the flat bone that is located in the centre of your chest and connected to your ribs. The chest contains muscles necessary for posture, shoulder and arm movement and breathing.

The mediastinum is the space between your lungs. It includes the heart, the esophagus, the trachea and the two main bronchi.

Figure 1
The lungs resemble an inverted tree whose trunk is the trachea. This trunk is divided into two bronchi. Each bronchus branches around 23 times into smaller bronchi called bronchioles (the equivalent of the tree’s branches). These bronchioles carry oxygen-containing air to the alveoli (the leaves of the tree) where the oxygen is then distributed to the rest of the body.

**Each lung is divided into lobes:**

- The left lung has 2 lobes: the superior lobe and the inferior lobe.
- The right lung has 3 lobes: the superior lobe, the middle lobe and the inferior lobe.
- Inside the bronchi are small hairs called “cilia.” These are defence mechanisms since they direct bronchial secretions to the mouth to be expelled when you cough. After an anesthesia, these cilia work slower and secretions tend to build up, which is why it is important to do the breathing exercises you’re assigned.

![Diagram of the respiratory system](image)
3. **What are the surgical approaches?**

The surgeon will choose the best approach for your situation.

3.1 **Thoracoscopy** allows the chest cavity to be examined and certain parts of the lung to be removed through 3 to 5 small incisions between the ribs. A camera and surgical forceps are inserted into the chest through the incisions.

3.2 **Thoracotomy** is an incision around 15 centimetres (6 inches) long that is made between the ribs, follows the shoulder blade and transects the muscles of the chest wall.

3.3 **Sternotomy** is when the sternum is split vertically to access the mediastinum.

4. **Types of surgeries**

4.1 **Wedge resection**

This is the removal of one or more small triangle-shaped pieces of tissue from one or more lobes of the lung. This procedure is used to take lung biopsies, treat emphysema or remove benign or small metastatic tumours.

4.2 **Segmentectomy**

This is the removal of one or more segments of a lung lobe. This procedure keeps as much of the healthy lung as possible.
4.3 **Lobectomy**  
This is the removal of one or more lobes of the lung. The remaining lobes fill up the space by slightly shifting position in the chest cavity.

4.4 **Pneumonectomy**  
This is the removal of the entire lung. The space then fills up with fluid.

4.5 **Pleurectomy**  
This is the removal of part of the membrane (the pleura) that covers the chest wall to prevent air from collecting between the two pleurae and causing a pneumothorax. This procedure is performed alone or in addition to another surgery.

4.6 **Bullectomy**  
This is the removal of small parts of the lung that have developed changes resembling air bubbles. This procedure is carried out for emphysema as well as recurrent pneumothorax.

4.7 **Thymectomy**  
This is the removal of part or all of the thymus gland. The procedure is carried out via sternotomy or thoracoscopy.
5. One week before your operation

5.1 Medications

*If you are taking one of the medications listed below, notify and follow the recommendations of your surgeon since he or she knows your condition best.*

- Ibuprofen and anti-inflammatories (for example, Aspirin®, Entrophen®, Advil®, Motrin®, Voltaren®, Naprosyn®, etc.)
- Anticoagulant and antiplatelet drugs (for example, Coumadin®, Plavix®, FragminMD, etc.)
- Birth control or hormone replacement therapy (for example, Provera®, Premarine®, Estrace®, etc.);
- Any other regular medication

*If in doubt, call the nurse of the Thoracic Investigation Clinic at 418 656 8711, extension 5945.*

5.2 Smoking

Smoking decreases and even negates the effectiveness of numerous medications. After not smoking for 8 hours, your body’s oxygen level will rise and the risk of complications during and after surgery will decrease. After 48 hours, your risk of heart attack will start to drop. After 72 hours, your lungs will work better and it will be easier to breathe.

Whatever the wait time for your surgery, it’s always beneficial to stop smoking. Even stopping 12 to 24 hours before surgery is beneficial. Although cutting back is a positive step, butting out altogether gives you the greatest health benefits. Quitting six weeks prior to your procedure virtually eliminates smoking-related surgical complications. Be sure to notify your surgeon or nurse if you are still smoking because withdrawal symptoms can occur (agitation, tremors, mood swings, problems sleeping, headache, etc.). If you want to quit or are quitting, we can provide help and support.

5.3 Alcohol

Do not drink any alcohol in the 2 days before your surgery. Be sure to mention how often you consume alcohol and the actual quantity you consume so that your medication can be adjusted. Alcohol dependence can cause withdrawal symptoms (anxiety, tremors, depression, insomnia, hallucinations, etc.) after surgery.
It is important to notify the thoracic surgery nurses of any flu-like symptoms, fever or change in your health as soon as the first symptoms appear. In addition, if for a valid reason you cannot be present for your surgery, you must notify the nurses quickly so that another patient can be treated.

6. The day before your operation

- **Between 3 p.m. and 4 p.m.,** call the surgical unit at **418 656-4870** to find out when you have to be at the hospital and to ensure that the time of your surgery has not changed (**call on Friday if your procedure is on Monday**).
- Remove all nail polish, jewellery and piercings.
- For men, trim your beard and do not apply aftershave.
- **You must take a shower the day before and the morning of your surgery, using the two antiseptic sponges that you must purchase at your local pharmacy.**

6.1 From when should I fast?
You must fast from midnight on: no water, no food, no candy and no gum.

6.2 Gargling
The day before your surgery, gargle 4 times with an antiseptic such as Scope®, Listerine® or Capitol®. This reduces the risk of infection.
6.3 Preoperative shower

**PREOPERATIVE SHOWER**

<table>
<thead>
<tr>
<th>WHY?</th>
<th>You need to clean your skin thoroughly before a surgical procedure to remove any bacteria that could cause infection during the surgery.</th>
</tr>
</thead>
<tbody>
<tr>
<td>WHEN?</td>
<td>We recommend that you take 2 showers: one the evening before your surgery and the other the morning of your surgery.</td>
</tr>
<tr>
<td>WITH WHAT?</td>
<td>We will give you 2 sponges that are soaked in chlorhexidine gluconate, which is an antiseptic. You must use one in the evening and the other in the morning. This antiseptic kills more bacteria than regular soap. However, do not let it contact your face, ears and eyes.</td>
</tr>
<tr>
<td>HOW?</td>
<td>Carefully follow the steps below for each shower.</td>
</tr>
<tr>
<td>STEP 1</td>
<td>■ Wash your face, ears and hair with your usual soap or shampoo. You do not have to wash your hair twice.</td>
</tr>
<tr>
<td>STEP 2</td>
<td>■ Wet your entire body, starting from the neck, and then turn the shower head away from your body while you apply the antiseptic agent.</td>
</tr>
</tbody>
</table>
| STEP 3 | ■ Wet the antiseptic sponge and squeeze it to release the antiseptic agent. Wash your body, moving from your neck to your feet.  
■ Carefully wash the operation site, your belly button and between your toes.  
■ Finish with the genital and anal regions.  
■ Avoid direct water contact while using the antiseptic sponge so as not to decrease its effectiveness. |
| STEP 4 | ■ Rinse your body completely and discard the sponge.  
■ Use a clean towel to dry yourself completely from head to toe.  
■ Dry the genital and anal regions last.  
■ **Do not apply any skincare product.**  
■ Put on clean clothes |
7. The morning of your surgery

7.1 Preoperative shaving - Not required

7.2 Preoperative shower
   ■ Repeat the steps listed in section 6.3.

7.3 Oral hygiene
   ■ Brush your teeth but do not swallow any water.
   ■ Gargle a final time.

7.4 Medication
   The morning of your operation, you must take the medications your physician has allowed with a mouthful of water (around 30 ml) and then fast thereafter.

8. What should I bring the day of the surgery?

Bring the following items in the bag that the thoracic surgery clinic nurse gave you:

▶ **your health insurance card and your IUCPQ hospital card**
▶ this guide
▶ lung exerciser (if we gave you one during your preoperative orientation)
▶ a case for your glasses or contact lenses
▶ hearing aids with a case and batteries
▶ toothbrush and any dental prosthesis with its case (no water)
▶ hairbrush or comb
▶ mild, unscented soap (Dove® or Aveeno®)
▶ deodorant
▶ lip balm (LypsylTM)
▶ non-skid closed-toe slippers

Once you're back in your room or out of intensive care, your family can also bring you a suitcase containing the following items:

▶ clean underwear and bras
▶ a bathrobe
▶ your cane, walker, etc.
▶ comfortable clothes for your departure
IN THE HOSPITAL

9. Where do I go the morning of my surgery?

Go to the surgical unit on the second floor of the hospital.
■ You must be at the reception desk of the surgical unit at ________.

10. What will happen the morning of my surgery?

■ When you arrive in the surgical unit, your family will be invited to wait for you in the visiting room on the 6th floor. If family members must leave the hospital, we require their contact information so that we can contact them if necessary.
■ You will be taken to the short-stay unit where a nurse will take care of you and explain each step of the procedure.
■ You will then be taken to the operating room, where you will be wrapped in warm blankets since the room temperature is lower. A strap will be placed over your knees to stabilize your body.
■ The anesthesiologist will insert an IV to deliver medication. An arterial line will be installed in your wrist to monitor your blood pressure and take blood samples. The anesthesiologist may install a small epidural catheter to deliver sedatives after the operation, or the anesthesiologist may decide to use a patient-controlled analgesia (PCA) pump (see page 20). Once you are deeply asleep, the anesthesiologist will place a tube in your throat to help you breathe throughout the surgery.
■ The surgeon will begin the operation.
■ Depending on the type of procedure, the operation will take from 2 to 5 hours.

11. What will happen after my surgery?

■ You will be taken to the recovery room where a team of nurses will monitor you very carefully as you regain consciousness.
■ You will quickly be asked to open your eyes, take deep breaths, lift your head, look at your toes, make a fist and move your legs. The tube will be removed from your throat once you are fully awake.
■ Your throat may feel irritated for 24 to 48 hours after your surgery. This is normal and is caused by the tube.
Your lungs will be x-rayed and blood samples will be taken regularly.
The arterial line in your wrist will be removed.

The arterial line will be kept if you go to the intensive care unit.

Your surgeon will visit you after the operation.
The recovery room nurses will take you to your room when your condition allows.

Your surgeon will decide whether you should be taken to the intensive care unit, the intermediate care unit or the care unit, which are all located on the 6th floor of the main pavilion. A nurse will monitor you closely.

12. How long will I be in the hospital?

The length of your stay will vary depending on your condition and the type of surgery you had. Your stay will normally last 3 to 7 days.

13. What monitoring equipment will be used?

You will be connected to a number of devices (tubes and machines) to ensure continuous, effective monitoring. Most devices do not cause any pain and help hospital staff better monitor your health.

The main monitoring devices (see Figure 3) are described below.

13.1 Heart rate monitor (intensive care and intermediate care)
Shows your heart rate and blood pressure.

13.2 Oxygen mask
Administers oxygen to keep blood oxygen levels normal. The oxygen is humidified to thin your secretions and make them easier to expel. A nasal cannula, which is less cumbersome, may also be used.
IMMEDIATE POSTOPERATIVE MONITORING EQUIPMENT

Figure 3
13.3 **IV infusion pump**
Precisely administers fluids and medications intravenously.

13.4 **Pulse oximeter**
Monitors your blood oxygen level using a small sensor that is clipped to a fingertip.

13.5 **Arterial line (intensive care only)**
Allows your blood pressure to be monitored and blood samples taken through a catheter inserted in the wrist. To avoid damaging your artery, a board is used to immobilize your wrist. Your movements will be limited, but you will be able to move your fingers. The arterial line will be removed before you leave the intensive care.

13.6 **Patient-controlled analgesia (PCA) pump**
*depending on the anesthesiologist’s decision*
Patient-controlled analgesia (PCA) lets you control your own pain after surgery by deciding when to administer your pain-relief medications.

A tube that runs to a pump is connected to your IV bag. This pump features a button you can press to dose yourself with medication. When you feel pain, press the button and the pump will automatically inject a dose of medication that will start working in a few minutes. The pump will beep to indicate when the dose has been given. Only you should press the control button.

A PCA pump is safe and there is no risk of overdose. The pump is programmed to provide a specific dose of medication prescribed by your anesthesiologist at regular intervals. The blinking green light on the button means that a dose is available for injection.
It is very important to treat pain as soon as it occurs. You have to prevent pain and not let it take control. The recovery room nurse and the nurse of the unit where you’ll be hospitalized will monitor you and teach you how to operate the pump.

If your pain persists or increases suddenly, notify the nurse. The anesthesiologist or nurse will adjust your medication.

The main side effects are nausea and vomiting, sleepiness, suppressed breathing, headache and dizziness. Notify the nurse if you have one of these symptoms. The nurse may give you medications to alleviate these side effects.

13.7 **Epidural catheter**
*(depending on the anesthesiologist’s decision)*
The anesthesiologist inserts this catheter between the vertebrae in the operation room. It is used to administer sedatives and control pain more effectively. The nurse will adjust the infusion according to your pain level and the medical instructions.

13.8 **Urinary catheter**
A small catheter inserted in the bladder that drains urine into a bag. The catheter is installed in the operating room at the surgeon’s request. It may also be installed if you have not urinated in several hours following the operation. A urinary catheter is automatically installed if you have an epidural catheter since the sedative administered using that catheter can reduce your urge to urinate. The urinary catheter is usually removed 24 to 48 hours after your operation or when the epidural catheter is removed.

13.9 **Pneumatic leg sleeves**
These plastic sleeves compress your legs intermittently to prevent blood clots from forming because you are immobile. The sleeves will be removed the day after the operation.
13.10 Chest tube

- The chest tube is a plastic tube connected to a suction system (see Figure 4).
- A chest tube is inserted between the ribs in the operation room.
- It is fastened to the skin using external sutures and a dressing.
- It drains fluids and the air that builds up in the chest as the lungs return to their position.
- The tube is connected to a wall-mounted suction system and can also be hung on a special pole similar to an IV pole.
- The tube does not prevent you from walking or moving around.
- It is very important to always hold the tube when you stand up to prevent pain and to keep the tube from changing position.
- For as long as the tube is in place, your lungs will be x-rayed daily to ensure the tube is properly positioned.

The number of days the chest tube needs to be in varies from one person to the next. Your surgeon will decide when it’s the right time to remove the tube, depending on fluid and air drainage results and the results of your lung x-rays.

Figure 4
14. Postoperative care

- The head of your bed will always be raised to help you breathe easier.
- In the 24 hours following your operation, you will be raised on the edge of your bed or chair under the supervision of your nurse. This will be done every 4 hours and even at night.
- **NEVER GET UP ALONE for the first 24 hours.** After surgery, there is always a risk that you will experience low blood pressure or dizziness, fall and hurt yourself.
- Figure 5 shows the best way to get up with minimal effort and pain.

15. What can I do to prevent complications?

15.1 Mobility

Moving around will help you breathe better, expel secretions and prevent blood clots. Alternate short periods of activity with periods of rest. When in bed, alternate lying on your side and your back.

Increase your walking distances depending on your tolerance. Wear non-skid closed-toe slippers.
The day of surgery ➡ Make your way to the bathroom with help.

The day after ➡ Sit in the chair (at least three times per day) and walk around with the help of the care staff.

The second day ➡ If you can, walk to the hallway with help.

The third day ➡ Unless the care staff say otherwise, you should get up from the chair by yourself and walk alone in your room and in the hall.

After ➡ Gradually increase the distance, covering at least 50 metres/165 feet (half the length of the 6th floor hall).

These goals can vary depending on the procedure you had and your medical conditions. If you’re unsure, discuss your goals with your nurse. When exercising, the pursed lips breathing technique will help you control your breathing (see Figure 6).

**PURSED LIPS BREATHING**

![Pursed Lips Breathing Diagram](image)

*Adapted from [www.livingwellwithcopd.com](http://www.livingwellwithcopd.com)*

*Figure 6*
15.2 **Breathing exercises**

The purpose of these exercises is to help your lungs regain maximum function.

---

**Do 5 to 10 repetitions every hour.**

---

1. **DEEP BREATHING**

   - Take the deepest breath possible in the same way as you would fill a glass with water: from the bottom to the top. Take normal breaths between the deep breaths.

2. **BREATHING EXERCISER**

   - Turn the knob to the easiest setting.
   - Inhale slowly to raise the ball.
   - Try to keep the ball raised for 3 seconds. If you can keep the ball raised longer, turn the knob to the next setting to increase the difficulty.
   - Keep the exerciser in a bag to reduce the risk of infection.
   - If necessary, wash the blue tube and mouthpiece in running water. Reconnect to the side opposite the rear dial.

3. **MUCUS-CLEARING TECHNIQUES**

   - You must clear any secretions from your lungs, which can help prevent respiratory infections.

   **Forced expiration or “huffing”:** Take a deep breath. Exhale quickly, keeping your mouth wide open as though you were trying to **fog** a window. Repeat as needed.

   **Coughing:** Place a folded towel under your arm and hold it against your incision. Breathe in deeply and hold your breath. Cough once or twice. Repeat hourly or as needed.
15.3 Circulation exercises
These exercises are intended to ensure good blood flow in the legs during periods of bedrest.

**Do 5 to 10 repetitions every hour.**
Gradually reduce the frequency as you resume walking regularly.

**LYING ON YOUR BACK OR SITTING**

- Make circles with your feet.

- Raise/point your feet as far as possible.

- Alternate bending your knees.

- Do not cross your legs in bed or when sitting since this hinders circulation.
- These exercises are crucial for preventing blood clots and pulmonary embolisms after your surgery.
- You must do these exercises a few hours after your operation and continue doing them daily, even when wearing the pneumatic leg sleeves.
15.4 **Strength-building exercises**

The purpose of these exercises is to restore pre-surgery flexibility to your chest and shoulders.

---

**Do these exercises twice a day. Start with 3 to 5 repetitions.**

*If you can, increase the number of repetitions to 10.*

---

**STANDING UP OR SITTING DOWN**

- Start with your arms by your sides. Raise arms forward and over your head while breathing in. Return to starting position while breathing out.

![Image](image.png)

- Place your hands behind your neck. Bring your elbows forward while breathing out. Push your elbows out to the side and back while breathing in.

![Image](image.png)

- With your arms by your sides, raise your shoulders while breathing in. Lower your shoulders while breathing out.

![Image](image.png)

- Start with your arms by your sides. Raise your arms to each side and over your head while breathing in. Lower your arms while breathing out.

![Image](image.png)
With arms by your sides, raise them backwards, keeping them straight and breathing in. Lower your arms while breathing out. Keep your back straight. **Do not hold your breath.**

You may feel a slight pulling when doing certain exercises. At home, do the exercises in front of a mirror so that you can see whether you are doing them equally on both sides.

---

**Nurses and other health professionals will remind you of the importance of increasing your mobility and doing your exercises. It is your responsibility to do these things as often as possible.**

---

15.5 Pain relief

- Pain can be caused by a pulling sensation around the chest tube and incisions.
- It is normal to feel pain in the shoulder and back because of the position used during the surgery.
- If you are in pain, tell your nurse. Pain can prevent you from taking deep breaths, which can hinder your recovery.
- **NEVER TOLERATE PAIN THAT RATES 3 OR MORE ON A SCALE OF 0 TO 10.**
- Never let your pain intensify since this can increase the time and effort it takes to control it.
- The anesthesiologist will prescribe sedatives, whether pills, injections or infusions (epidural catheter or PCA pump). The nurse will check regularly to make sure the sedatives are working.
- **It will be easier for you to do your exercises and move around if your pain is under control.**
15.6 Diet and hydration

- Most of the time, you can drink water a few hours after leaving the operating room, unless the surgeon states otherwise.
- If you feel like it, you can start eating normally the day after your operation. It is important to eat well and quickly hydrate yourself after surgery to help you resume your activities, prevent constipation and ensure your wounds heal faster.

15.7 Visitors and rest

Ask your visitors to keep their visits short and not wake you if you are sleeping when they arrive. If you are in intensive care, they can head to the visiting room on the 6th floor. If you are in intermediate care or the care unit on the 6th floor of the main pavilion, your visitors can go to the cafeteria.
RETURN HOME AND FOLLOW-UP

16. Who will monitor me once I leave the hospital?

16.1 Before leaving the hospital

■ An appointment will be made with the Thoracic Investigation Clinic for you to meet with your surgeon (10 to 14 days after your surgery, unless otherwise specified). Your sutures and/or staples will be taken out at that time.
■ If you need home nursing care or special assistance, you will be referred to a liaison nurse or social worker.

**TIP:** Write down all your questions as you think of them to ensure you remember them for your appointment.

16.2 After leaving the hospital

■ You can reach the nurses of the Thoracic Investigation Clinic from Monday to Friday, from 8 a.m. to 4 p.m., at **418 656-8711, extension 5945**. Leave a message on the voicemail. A nurse will return your call as soon as possible.
■ For any emergency, go to the nearest emergency room, call your family physician or head to your local CLSC.

17. What should I watch for once home?

17.1 Wound care and monitoring

■ Your dressings will generally be removed on the third day after your operation.
■ You may notice threads at the edge of the incision. This is normal. These stitches will dissolve of their own accord. It can take up to 6 to 8 weeks for some stitches to dissolve, depending on the type of suture thread.
■ When your chest tube is removed, the hole will be closed with a few stitches and a small dressing will be applied. Keep this dressing on for 2 days and then remove it.
■ Once you’ve removed your dressing, you can start taking showers, which are not an infection risk and help your wounds heal. The wound closure strips will fall off in the shower.
Use a mild, unscented soap (Dove® or Aveeno®). Rinse your body well and pat yourself dry. Do not rub your incision.

- **Leave your wounds exposed to the air to help them heal faster.**
- Check the appearance of your wounds once a day until the skin has completely closed and all stitches or staples are gone. If both conditions are met, you can take a bath.
- If you expose a scar to the sun, it can become darker and more pronounced. Limit your sun exposure for the first 6 months following your surgery. Afterwards, protect your scar using a sunscreen that has an SPF of at least 15 and is approved by the Canadian Dermatology Association.
- Do not smoke since smoking slows the healing process.
- Your wounds may cause discomfort for up to 2 to 3 months after your surgery. It is also normal for the area around your wounds to feel numb for some time.

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**If your wound splits open or signs of infection appear,**

**call the nurses of the Thoracic Investigation Clinic at 418 656-8711, extension 5945, or go to the emergency room.**

**SIGNS OF INFECTION:**

*Redness, swelling, heat, discharge, unusual pain around the wound, oral temperature higher than 38°C or 100.4°F for more than 48 hours.*

---

17.2 **Monitoring your temperature**

- Normal body temperature is 37°C to 38°C (98.6°F to 100.4°F).
- Check your temperature regularly during the first week for any signs of infection (especially if you are shivering, coughing up coloured mucus, etc.). A fever is not normal.
- After eating or drinking, wait 20 to 30 minutes to take your temperature in order not to skew the results.
- If your oral temperature is over 38°C (100.4°F) for more than 48 hours, call the nurses of the Thoracic Investigation Clinic at **418 656-8711, extension 5945**, or see a physician as soon as possible.
17.3 Pain
- It is entirely normal to experience pain in the weeks following the operation. Your physician will prescribe analgesics in pill form to help you control the pain.
- As you did in the hospital, take your medication as prescribed during your first few days at home and never let your pain intensify.
- The pain should decrease with time.
- We recommend that you take acetaminophen (Tylenol®) for your pain between doses of your prescription medications or when the pain is less intense. Follow the instructions on the packaging. If you take Empracet® or Tramacet®, do not take acetaminophen since these drugs already contain it.

17.4 Diet
Once home, remember that eating well will help you regain your strength and is a key part of your recovery. Eating a balanced and varied diet will help your incision heal and allow you to resume your activities faster.

Your body needs protein, especially during the preoperative and recovery stages. Protein helps heal wounds, build and maintain muscle mass and fortify the immune system. Protein is mainly found in the following foods:
- Meat, poultry and fish
- Eggs
- Nuts and seeds
- Legumes and tofu
- Milk, yogurt and cheese

*See the Appendix for protein-rich recipes and ideas.*

17.5 Constipation
You may be constipated after your surgery. Drug side effects, physical inactivity, reduced consumption of high-fibre foods and decreased fluid intake can all cause constipation. You can prevent constipation by eating more fibre and drinking lots of fluids. Try the tips below.
- Eat whole grain cereals such as oatmeal, oat bran, bran flakes, shredded wheat and wholewheat bread, along with wholewheat pasta or brown rice.
- Eat two more servings of fruit per day. Try dried fruit (prunes, apricots).
- Eat two more servings of vegetables per day (ideally raw).
In the morning, drinking a glass of prune juice diluted with warm water can help restore regularity.

Drink enough fluids for the fibre to work (7 to 8 glasses of fluids per day).

If you have nausea, vomiting or loss of appetite, call a dietitian at 418 656-8711, extension 4840.

If you have not had a bowel movement in three days, consult your pharmacist, who can recommend over-the-counter medications.

If you’ve tried everything listed above and are still constipated, talk to your doctor.

17.6 Your mood
Everyone’s recovery is different. Depending on your operation and your physical condition before surgery, it can take 2 to 3 months to recover.

Your mood can vary. It is normal for some days to be better than others. If you feel that you need psychological support, contact the nurses of the Thoracic Investigation Clinic. They can refer you to the right resource (psychologist, psycho-oncologist, social worker, etc.).

17.7 Smoking
If you did not meet with a smoking cessation specialist while hospitalized and would like help with or information about quitting smoking, the following resources are available:

- Smoking cessation helpline: 1 866 527-7383 or 1-866-jarrete
- Website: www.jarrete.qc.ca
- Quit Smoking Centre at your CSSS (CLSC);
- Your family physician or pharmacist

17.8 Rest
- Listen to your body.
- It is normal to experience some mental and physical fatigue.
- It is normal to need to take naps during the first few days at home.
- The important thing is to not spend your day in bed. This disturbs your sleeping habits, which have already been disrupted by everything surrounding your surgery.
- Stay active but don’t overdo it.
17.9 Resuming your activities

It is normal to be wary about resuming your daily activities or pastimes. That’s why it is important to go at your own pace in choosing activities.

AVOID FOR 6 TO 8 WEEKS AFTER SURGERY

- Lifting or moving objects weighing over 5 kilograms (10 pounds)
- Making quick twisting movements of the trunk
- Swimming (unless the incision has fully healed)

PERCEIVED EXERTION SCALE

The perceived exertion scale is a way to measure exertion. It can help you gauge how out of breath and tired you feel during an activity using numbers or words.

<table>
<thead>
<tr>
<th>PERCEIVED EXERTION</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Nothing at all</td>
</tr>
<tr>
<td>0.5</td>
<td>Extremely weak</td>
</tr>
<tr>
<td>1</td>
<td>Very weak</td>
</tr>
<tr>
<td>2</td>
<td>Weak</td>
</tr>
<tr>
<td>3</td>
<td>Moderate</td>
</tr>
<tr>
<td>4</td>
<td>Somewhat strong</td>
</tr>
<tr>
<td>5</td>
<td>Strong</td>
</tr>
<tr>
<td>6</td>
<td>Stronger</td>
</tr>
<tr>
<td>7</td>
<td>Very strong</td>
</tr>
<tr>
<td>8</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Very very strong</td>
</tr>
<tr>
<td>10</td>
<td>Maximum</td>
</tr>
</tbody>
</table>

Resuming walking

- Start with short, light-intensity (2 out of 10 on the perceived exertion scale) walks of 5 to 15 minutes, 2 to 4 times per day.
- Gradually increase the duration and frequency of your walks. Your perceived exertion should be fairly light to somewhat hard (3 to 4 out of 10 on the exertion scale).
- Practice pursed lips breathing if you feel increasingly winded.
Be sure you can have a conversation while exercising. If you have trouble talking normally or start wheezing, the activity is too intense. SLOW DOWN!

Resuming taking the stairs
Go at your own pace and always keep one hand on the railing. Climb the stairs slowly. Stop if you need to.

Resuming sports and physical activity
You can resume your physical activities only if your surgeon agrees. Remember that there are respiratory rehabilitation programs specific to your condition.

Respiratory rehabilitation program
The Heart Disease Prevention Pavilion (PPMC) offers a respiratory rehabilitation program tailored to your condition. The team of nurse clinicians, kinesiologists and dietitians have all the necessary expertise to help you get back in shape, take charge of your health and rediscover your wellness. The respiratory rehabilitation program includes a health evaluation, screening for risk factors, an exercise program and nutritional assessment and follow-up.

To safely resume your activities and ensure a better quality of life, call the team at 418 656-4594. A registration fee applies.

Signs and symptoms of effort intolerance
Respect your abilities and your speed of recovery. If your fatigue increases, reduce your effort for a few days. Resume your activities progressively.

Stop if you experience one of these signs or symptoms:
- Confusion / Nausea / Vision problems
- Chest pain / Heart palpitations
- Intense joint pain
- Vertigo or dizziness
- Shortness of breath that rates more than 6 out of 10 on the perceived exertion scale

See your physician if any of these signs or symptoms reoccur.
17.10 Return to work
- You can discuss your return to work with your surgeon during the post-hospitalization follow-up meeting. Your return will vary depending on the type of operation and your condition. Once you resume working, give yourself time to get reaccustomed to the pace of your working life.

17.11 Driving
- Do not drive while taking sedatives because they slow your reflexes and cause drowsiness.
- We recommend that you not drive for 2 to 3 weeks.
- Wearing your seatbelt is required and will not hurt your incision.

17.12 Resuming sexual relations
- Listen to your body and mind.
- If you are able to climb the stairs and make some physical efforts, you can slowly resume sexual relations.
CONCLUSION

This guide contains useful information for you and your family. It is intended to prepare you better for your surgery and to help you recover after your operation. You can read it at home and during your stay in the hospital to find answers to your questions.

If you’re worried or unsure about something, feel free to contact us! We’re always there to help.

We also invite you to share your comments and suggestions with us since it helps us improve care quality for everyone.
Alveoli: Tiny air sacs in the lungs that allow oxygen and carbon dioxide to move between the lungs and bloodstream.

Anesthesia: A medical intervention that produces a temporary loss of feeling and consciousness. It is necessary for surgery.

Benign tumour: Abnormal cells that grow slowly and remain localized in a part of your body. A benign tumour is generally not life-threatening.

Biopsy: The removal of a piece of tissue for examination under a microscope.

Bronchiectasis: A chronic and irreversible enlargement of the bronchi and bronchioles.

Bronchus: A tube that allows air and oxygen to pass. It is located between the trachea and the pulmonary alveoli.

Chest: The part of the body delineated by the diaphragm, ribs and sternum.

Constipation: Difficulty passing stools. This occurs when the stools transit slowly through the large intestine.

Diaphragm: The main muscle used in breathing. It separates the thoracic and abdominal cavities.

Emphysema: A lung disease characterized by the loss of elasticity of the alveoli and the destruction of their lining.

Esophagus: The digestive tube by which foods transit to the stomach.

Lobe: A subdivision of a body organ or part bounded by a fissure or groove (e.g., lungs, brain, thyroid).

Malignant tumour: Abnormal cells that spread to, invade and destroy other cells. This type of tumour can cause metastases.

Metastases: Cells that detach from the primary tumour and spread throughout the body to invade other cells.

Mobility: The action of moving, moving around or being mobile.

Overdose: A larger-than-normal dose of a substance that can have harmful, undesirable effects.

Parietal pleura: The membrane that covers the internal surface of the thoracic cavity.
Pleural cavity: The space between the visceral pleura and the parietal pleura.

Pneumothorax: An accumulation of air in the pleural cavity further to a tear of the visceral or parietal pleura.

Pulmonary embolism: A condition where one or more branches of the pulmonary artery are blocked by blood clots.

Pulmonary fibrosis: A disease that reduces the elasticity of lung tissue, making it harder to breathe.

Segments (lungs): These are the parts of the lungs. They function individually but are interconnected.

Shoulder blade: The flat and triangular bone that forms the shoulder. It is located in the back.

Thrombophlebitis: An inflammation of a vein causing a blood clot.

Thymomas: Tumours of the thymus, whether benign or malignant.

Thymus: A gland associated with the immune system that releases white blood cells. It starts to shrink from age 2 and has virtually disappeared by adulthood.

Trachea: The tube by which air travels to the lungs.

Vertebrae: The bones of the spinal column. They serve a number of functions, including protecting the spinal cord.

Visceral pleura: The membrane that covers an organ (e.g., the lung).

Withdrawal: The condition that results from denying someone a substance or drug on which they are physically dependent.
REFERENCES


Therrien, V. (2009). *Cesser de fumer, on peut y arriver!* Feuillet d’accompagnement et aide à la cessation tabagique pour la clientèle hospitalisée, Institut universitaire de cardiologie et de pneumologie de Québec.

## WAYS TO UP YOUR PROTEIN INTAKE

<table>
<thead>
<tr>
<th>Add this...</th>
<th>...to that</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Powdered skim milk</strong></td>
<td>Milk or milk-based drinks, cooked cereals, mashed potatoes, scrambled eggs, omelettes, cream soups, sauces, breads, muffins, casseroles, milk-based desserts, flans</td>
</tr>
<tr>
<td>(30-60 ml or 2-4 tbsp. per cup)</td>
<td></td>
</tr>
<tr>
<td><strong>Cheese</strong></td>
<td>Pasta, cream soups, soups, sauces, casseroles, scrambled eggs, mashed potatoes, sandwiches, crackers, bagels, muffins, fruits and vegetables</td>
</tr>
<tr>
<td>(all kinds)</td>
<td></td>
</tr>
<tr>
<td><strong>Whole milk</strong></td>
<td>Use it to replace water in hot cereals, soups, casseroles and hot chocolate.</td>
</tr>
<tr>
<td>(3.25% M.F.)</td>
<td></td>
</tr>
<tr>
<td><strong>Yogurt</strong></td>
<td>Fresh or canned fruit, milkshakes/smoothies, pancakes/crepes, soups, potatoes, casseroles, dips</td>
</tr>
<tr>
<td><strong>Eggs</strong></td>
<td>Sandwiches, salads, sauces, soups (e.g., beat an egg into soup), potatoes, vegetables</td>
</tr>
<tr>
<td><strong>Peanut butter</strong></td>
<td>Cookies, milkshakes/smoothies, bread, crackers, muffins, sandwiches, sliced fruit, ice cream</td>
</tr>
<tr>
<td><strong>Nuts and seeds</strong></td>
<td>Vegetables, fruits, salads, cereals, cakes, muffins, cookies, yogurt, ice cream</td>
</tr>
<tr>
<td>(and nut/seed butter)</td>
<td></td>
</tr>
<tr>
<td><strong>Legumes</strong></td>
<td>Casseroles, soups, sandwiches, stews, salads, dips, pasta, rice</td>
</tr>
<tr>
<td>(lentils, chickpeas, beans)</td>
<td></td>
</tr>
<tr>
<td><strong>Tofu and soy drinks</strong></td>
<td>Milkshakes/smoothies, soups, salads, sandwiches, braised dishes, casseroles, stir-fries</td>
</tr>
<tr>
<td><strong>Chopped meat and fish</strong></td>
<td>Salads, soups, scrambled eggs, quiches, omelettes, baked potatoes, pasta</td>
</tr>
</tbody>
</table>
**RECIPES PACKED WITH ENERGY AND PROTEIN**

**Fortified milk (1 serving)**

- 250 ml (1 cup) whole milk
- 60 ml (4 tbsp.) powdered skim milk

Add powdered skim milk to whole milk and mix well. Refrigerate.
You can use this fortified milk in all recipes that call for milk.
It will boost both your protein intake and the food energy in your diet.

**Super milkshake (2 servings)**

- 500 ml (2 cups) fortified milk (see recipe above)
- 250 ml (1 cup) ice cream
- 125 ml (1/2 cup) pasteurized liquid eggs (Œuf à tout or Omega Pro)
- 60 ml (4 tbsp.) vegetable oil
- 90 ml (1/3 cup) wheat germ

Puree all ingredients in a blender or food processor. Refrigerate.

**Choco-banana nutritional drink (1 serving)**

- 250 ml (1 cup) 2% M.F. evaporated milk (Carnation or other brand)
- 30 ml (2 tbsp.) chocolate milk powder (Quick)
- 50 ml (1/4 cup) powdered skim milk
- 15 ml (1 tbsp.) canola oil
- 125 ml (1/2 cup) plain yogurt
- 1/2 banana

Puree all ingredients in a blender or food processor.
Refrigerate.
**Enriched crepes (4 servings)**

- 3 eggs, beaten
- 125 ml (1/2 cup) all-purpose flour
- 125 ml (1/2 cup) powdered skim milk
- 375 ml (1 1/2 cups) whole milk
- 15 ml (1 tbsp.) canola oil

Add powdered skim milk to whole milk and mix well.
Incorporate the other liquid ingredients.
Add the flour and mix well.
Cook in a skillet or on a griddle.
Serve with the topping of your choice.

**Special French toast (4 servings)**

- 4 eggs, beaten
- 15 ml (1 tbsp.) granulated sugar
- 125 ml (1/2 cup) powdered skim milk
- 125 ml (1/2 cup) whole milk
- 4 slices of bread

Mix the powdered skim milk and whole milk together.
Incorporate the eggs and sugar.
Dip the slices of bread into the mixture until well moistened.
Cook in an oiled skillet or on a griddle.
Serve with the topping of your choice.
Cream soup plus (2 portions)

- 1 packet or can of the cream soup of your choice
- 250 ml (1 cup) of fortified milk (see recipe on the previous page)
- 90 g (3 ounces) of pureed meat, chicken or fish, or 2 jars of equivalent baby food
- 125 ml (1/2 cup) of pureed vegetables or 2 jars of equivalent baby food

Mix all ingredients together. Heat and serve.

Béchamel sauce (2 servings)

- 30 ml (2 tbsp.) margarine
- 30 ml (2 tbsp.) flour
- 250 ml (1 cup) fortified milk (see recipe on the previous page)
- 5 ml (1 tsp.) concentrated beef, chicken or vegetable stock

Melt margarine in pan. Add flour, mix and cook for 2 minutes.
Add milk slowly and stir on low heat until thickened.
Season and serve on pasta or rice, or with fish or chicken.
The IUCPQ Foundation’s role is to promote and support the work of the Institute, whose primary mission is to foster the health of individuals with cardiorespiratory and obesity-related diseases. The Foundation raises and administers funds to support specialized equipment purchases and to fund research and teaching efforts for the benefit of the 2.2 million people living in central and eastern Quebec.

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Fonds Alphonse l’Espérance

Enclosed is my contribution:  ○ $25  ○ $50  ○ $75  ○ $100  ○ Other: $________

First name:__________________________________________
Last name:___________________________________________
Address:______________________________________________
City: __________________________ Province: ______________
Postal code:__________________________________________
Email:_______________________________________________
Telephone: (_____)__________________

I authorize the IUCPQ Foundation to charge the donation amount to my credit card.

Signature:___________________________________________

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### EXERCISES TO DO IN THE HOSPITAL

<table>
<thead>
<tr>
<th>Type of exercise</th>
<th>Breathing exercises</th>
<th>Circulation exercises</th>
<th>Strength-building exercises</th>
<th>Chair sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency</td>
<td>5 to 10 repetitions every hour</td>
<td>5 to 10 repetitions every hour</td>
<td>Twice a day. Do 3 to 10 repetitions each time.</td>
<td>Minimum 3 times a day</td>
</tr>
</tbody>
</table>

### EXERCISES TO DO AT HOME

<table>
<thead>
<tr>
<th>Type of exercise</th>
<th>Breathing exercises</th>
<th>Strength-building exercises</th>
<th>Walking</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Abdominal</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Thoracic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Clavicular</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency</td>
<td>5 to 6 times a day. Do 5 to 10 repetitions each time.</td>
<td>1 to 2 times a day. Do 5 to 10 repetitions each time.</td>
<td>Every day</td>
</tr>
<tr>
<td>Duration</td>
<td>For 6 weeks after your surgery</td>
<td>For 6 weeks after your surgery</td>
<td>Up to 30 minutes. Increase as your body allows.</td>
</tr>
<tr>
<td>Tips</td>
<td>Do the mucus-clearing techniques as needed.</td>
<td>It is normal to feel stretching. You should not feel any pain after doing the exercises. If you have not regained your pre-operation flexibility after 6 weeks, continue doing the exercises.</td>
<td>Be sure you are comfortable. Stop or decrease the intensity if you experience shortness of breath or joint pain.</td>
</tr>
</tbody>
</table>