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PATIENT INFORMATION

# **Pulmonary Resection**

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*Please bring this book to the hospital  
on the day of your surgery*

THE OTTAWA HOSPITAL

***Disclaimer***

*This is general information developed by The Ottawa Hospital. It is not intended to replace the advice of a qualified healthcare provider. Please consult your healthcare provider who will be able to determine the appropriateness of the information for your specific situation.*

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## **Introduction**

*You* are being admitted to The Ottawa Hospital for Pulmonary Resection. This book will tell you how to prepare for surgery, your hospital stay and care at home after surgery.

The Health Care Team has put together a Clinical Pathway so you will know what will happen to you before surgery and on a day to day basis after surgery. This Clinical Pathway is a general guideline about your care. Refer to page 12 or 3 and 14 of this book. Your hospital stay will depend on the type of surgery. You will be placed on either the Thoracotomy/Pneumonectomy Clinical Pathway **or** the Thoracotomy/Lobectomy Clinical Pathway.

Please read and bring this book to the hospital. The Health Care Team members will refer to this book during your hospital stay.



## **Health Care Team**

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

### **Thoracic Surgeon**

The Thoracic Surgeon and team of surgical residents will discuss your care and answer any questions you might have. The thoracic surgeon will be in charge of your care.

### **Registered Nurse**

The Registered Nurse (RN) will care for you before and after your surgery providing emotional support, medications, nursing care, and teaching instructions.

### **Patient Care Assistant**

The Patient Care Assistant (PCA) will work with the RN to help with your care, for example, baths, getting you out of bed, going to the toilet.

### **Physiotherapist**

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

### **Social Work**

The Social Worker will meet with you and your family for counseling, community information, and discharge planning services as needed. Before and after surgery, you may feel a variety of emotions, such as fear, sadness, anger and/or loss of control. Sometimes help is needed to cope with these feelings.

### **6th Floor Observation Unit**

The Observation Unit Team includes doctors, nurses, physiotherapist, respiratory therapist, social worker, dietitian and occupational therapist. The 6th floor observation unit is a monitoring unit located on the thoracic unit.

### **6 North West Thoracic Unit**

The team includes doctors, nurses, physiotherapist, respiratory therapist, social worker, dietitian and occupational therapist.



## **Preparing For Surgery**

### **Helpful points before coming to hospital**

- **Stop Smoking!** Tobacco in any form should be avoided. This includes pipes, cigars, cigarettes, and chewing tobacco. Tobacco smoke has many harmful substances that damage cells. Over time these cells can become cancerous. Smoking also places you at risk for lung complications after surgery. Tobacco smoke destroys cilia (lining of the airway). Cilia help expel secretions. As a result you will be less able to clear secretions after surgery.

It is never too late to stop smoking. Smoking cessation programs can help you stop smoking.

Heart Health Education Center: 613-761-4753

- This six month program involves behavioural therapy; addictive disorders therapy; pharmacologic therapy (nicotine patch or gum); and relapse prevention.
- Covered by the Ontario Health Card or the Regie d'assurance maladie du Quebec
- Offered in English and in French

*The Public Health Information Line at 613-724-4179.*

- Make plans for help in the home (after surgery), before coming into hospital.
- Look at your Clinical Pathway so you and your family know what to expect on a daily basis.

### **Pre-Admission Visit**

- Blood tests, urinalysis, electrocardiogram (heart test) and a chest x-ray will be done.
- An anesthesiologist will ask you questions about your health, explain your anaesthetic and pain control.

- A physiotherapist will explain your activity and exercises for after your surgery.
- A nurse will ask you questions and tell you about leg exercises, breathing and coughing exercises, pain control and skin preparation. It is helpful if you practice deep breathing and coughing exercises before your surgery. (See page 7)

### **Day Before and Day of Surgery**

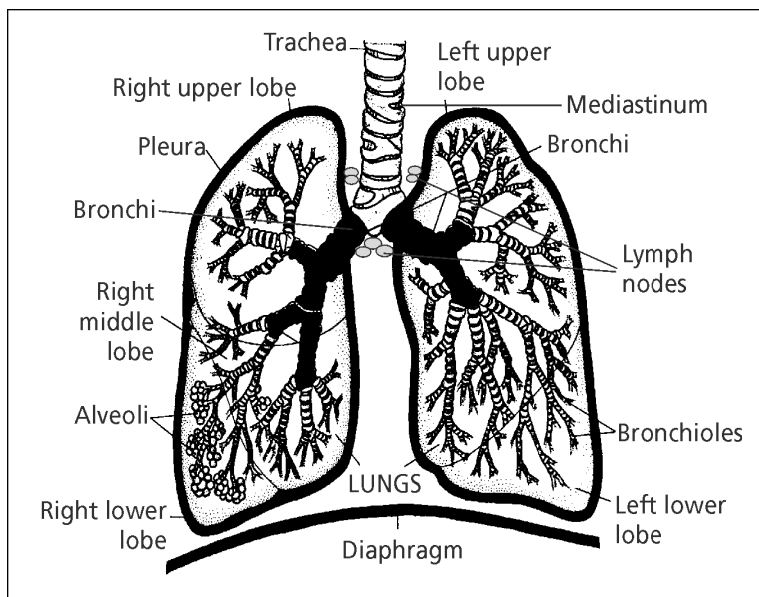
- Skin preparation:
  - 1) Buy 2 sponge brushes of Chlorhexidine soap at The Ottawa Hospital, General Campus – Desjardins Pharmacy on the main floor across from the coffee shop.
  - 2) Night before surgery:
    - a) Shower your entire body using Chlorhexidine soap.
    - b) Wash your chest (front, side and back) with the Chlorhexidine soap and a wash cloth for three (3) minutes.
    - c) Rinse off.
  - 3) Morning of surgery:
    - a) Repeat shower using Chlorhexidine soap.
    - b) Scrub your chest (front, side and back) with Chlorhexidine soap for three (3) minutes.
    - c) Rinse off.
- Do not eat or drink from midnight the night before your surgery. If you have been told to take your usual medication on the morning of surgery (for example, your blood pressure pills or heart pills), you may use only a sip of water.
- Do not smoke or drink any alcohol twenty-four (24) hours before surgery.
- Bring in both home and work telephone numbers of spouse/relative who will be helping you, so they can be contacted if needed.
- Bring your personal care items such as toothbrush, comb, shampoo and cream.

## Thoracic Surgery

### The Lung

The lungs are part of the respiratory system. They make up most of the space in the chest and are separated from each other by the mediastinum, an area that contains the heart, trachea (windpipe), esophagus, and many lymph nodes. The right lung has three sections, called lobes and is a little larger than the left lung, which has two lobes. The lining of the lungs is called the pleura.

The lungs exchange oxygen and carbon dioxide. Oxygen is in the air we breathe. Air enters the nose and mouth, travels down the windpipe (trachea) into the large airways or tubes called bronchi. In the lungs, the bronchi divide into smaller tubes called bronchioles. The bronchioles end in tiny air sacs called alveoli. This is where oxygen passes into the blood stream and is carried to the cells. The cells need oxygen to live and carry out their normal functions. The lungs also get rid of carbon dioxide, a waste product of the body's cells. At rest, a person breathes at a rate of 12-14 breaths/min and moves about 500 mls of air with each breath.



**Lungs**

### Lung Cancer

Lung cancers are generally divided into two types: *non small cell lung cancer* and *small cell lung cancer*. Non small cell lung cancer is more common than small cell lung cancer.

The cancer cells of each type grow and spread differently. Treatment for lung cancer depends on the lung cancer cell type, size, location in the lungs, extent, individual age, general health and feelings about the treatment. Surgery, radiation, and chemotherapy can treat lung cancer. Surgery is a procedure that may cure lung cancer in its early stages and if it has not spread to other parts of the body. Your treatment includes surgical removal of part or the entire lung. This is also called *pulmonary resection*.

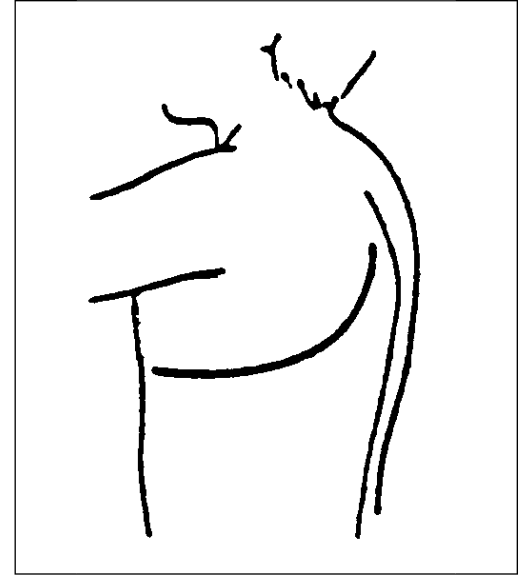
### Pulmonary Resection

Three main types of surgery are used in lung cancer treatment. The choice depends on the size and location of the tumor, the extent of the cancer, and the general health of the patient. The surgeon will remove only the diseased portion of the lung. All types of lung operations require a thoracotomy which is an incision (cut) into the chest wall. An operation to remove a small part of the lung is called a *segmental* or *wedge* resection. An operation to remove a lobe of the lung is called a *lobectomy*. A *pneumonectomy* is the removal of an entire lung. During the procedure the chest wall is opened,



ribs are spread apart and the lung is entered to remove the diseased portion, thereby causing the lung to collapse. After lung surgery, air and fluid tend to collect in the chest. The air and the fluid are drained out through a tube (chest tube) which is connected to a drainage system. An incision (cut) will usually extend from just below your underarm to around the back. The incision is closed with sutures (thread) or staples covered with a dressing.

The surgery is performed under a general anaesthetic, therefore you will not be awake. The length of surgery depends on the extent of the resection, and takes up to 4 hours. Following surgery, you will awaken in the Post-Anaesthetic Care Unit (PACU). You will remain there for 4–6 hours and then be transferred to the 6th floor Observation Unit – room 6330 for an overnight stay. When you are ready you will be transferred to a room on the 6 North West Thoracic Unit.



**Location of Incision**

Two (2) family members at a time may visit you in the Observation Unit. The Observation Unit visitor's lounge is located in room 6000 just beside the 6<sup>th</sup> floor elevator. Visiting hours are between 15:00 – 20:00, except for exceptional circumstances. You will be given a visitor's pamphlet on your first visit.

Visiting hours on the 6NW Thoracic Unit are from 15:00 – 20:00.



## **After Surgery**

### **Pain Management**

Pain is personal. The amount or types of pain you feel may not be the same as others feel, even for those who have had the same operation. The goal is well-controlled pain at rest and with activity. With good pain control at rest, you will be comfortable enough to sleep. With activity, there may be some increase in pain but the pain should not prevent you from coughing, deep breathing, and moving about as well as you like.

*Pain control can help you:*

- Enjoy greater comfort while you heal.
- Get well faster—with less pain you can start walking, do your breathing exercises and get your strength back more quickly.
- Avoid problems such as pneumonia and blood clots.
- You may even leave the hospital sooner.

With Patient Controlled Epidural Analgesia (PCEA) or intravenous analgesia (IV PCA), you will have a pump containing medication to help control your pain. The pump will be connected to your intravenous (I.V.) or a small tube placed in your lower back (epidural catheter). This method will be decided by your anesthesiologist, type of pain medication and you.

There are two types of medication used: pain killers (opioids) and freezing (local anaesthetics). Pain-killers are used with the IV and epidural catheter. Freezing is only used with an epidural catheter.

- Pain killers: If you receive pain killers only, you will be given a hand held controller. Press the button on the controller as soon as the pain starts, or if you know your pain will worsen when you start walking or doing breathing exercises. Do not permit family or friends to push the handset for you.
- Freezing: If you receive freezing you will not have a controller. The pump will work by delivering medication continuously through the epidural catheter.

Your pain will be assessed using a scale of 0–10. Zero is no pain and 10 is the worst pain possible. You will be asked to rate your pain level, both while resting and during activity. In addition, you will be asked if the pain prevents you from moving and if you are satisfied with you pain.

If you have received “freezing”, the nurse will ask you to move your legs and will also test the feeling around your epidural catheter. These assessments will help determine how effective your treatment is and whether changes in the pump or medication are needed.

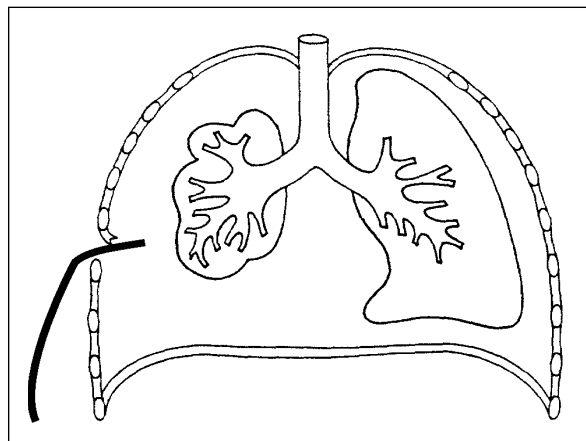
**Inform your nurse if you have any of the following:**

- itching skin
- nausea and/or vomiting
- unrelieved pain
- heaviness in your legs
- tingling or numbness
- increased sleepiness

After a few days and when you are able to take pain medication by mouth the pump will be removed.

**Chest Tubed Drainage** This section is for all pulmonary resection except pneumonectomy (removal of the entire lung).

After chest surgery, extra air and fluid tend to collect in the chest cavity. One or two chest tube(s) will be placed around the lung in the chest. The chest tube(s) is/are attached to a drainage system to help drain the fluid and air. Expect to see blood in the tube, however this will 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) is/are generally removed after a few days, however may be removed as early as the day after your surgery.



**Chest tube drainage in the chest cavity**

You should avoid lying on the chest tube(s) while in bed. Do not pull on the tube(s). You will be helped to walk in the hall while the chest tube(s) is/are in place. Tell your nurse if you find it hard to breathe.

### **Intravenous (IV)**

You will have an IV to replace your fluids 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.

### **Urinary Catheter**

You will have a urinary catheter (tube) to drain urine out of your bladder. This catheter will be removed after a few days. The nurse will clean your catheter site every 8 hours to prevent infection.

### **Wound Care**

The dressing is usually removed after a few days.

You will have a dressing at your chest tube site. It will be changed every 3 days or as needed.

### **Oxygen**

Oxygen is an important part of the air we breathe. Sometimes the body may require extra oxygen. These reasons may include lung disease, heart disease and the demands of surgery. Extra oxygen can help restore normal oxygen levels in the blood and body tissues and reduce the workload of the heart and lungs. During your hospital stay, you may receive extra oxygen. This is given through a mask placed over your nose and mouth or small tubes placed in your nostrils (nasal cannula).

The amount of oxygen in your blood is tested by placing a small clip on your finger. This is called pulse oximetry. This test is used to check that your body is getting the right amount of oxygen. When you no longer need extra oxygen, it will be removed.

### **Deep Breathing and Coughing**

The lungs exchange oxygen and carbon dioxide. Oxygen passes into the bloodstream from the tiny air sacs called alveoli and is carried to the cells. The cells need oxygen to live and carry out their normal functions. The lungs also get rid of carbon dioxide, a waste product of the body's cells. Usually, the alveoli stay open because we tend to take large breaths. Because of surgical procedures, anaesthesia, pain, or immobility, we tend to take smaller breaths which may cause the alveoli to close. Deep breathing and coughing exercises after surgery will help keep your lungs healthy.

Deep breathing exercises work best when you are sitting up in a chair or on the side of the bed.

- Support your incision with a small blanket or pillow.
- Take a deep breath in through your nose. Hold for five (5) seconds. Breathe out through your mouth slowly.
- Repeat this exercise ten (10) times each hour while you are awake and until your activity level increases.

Coughing exercises help to loosen any secretions that may be in your lungs. These can be done after your first five (5) deep breaths.

*To produce an effective cough:*

- Hold your incision with your pillow or blanket.
- Take a deep breath and cough.

### **Ankle Exercises**

These exercises help the blood circulate in your legs while you are less mobile. Do these ten (10) times each hour, while you are awake and until your activity level increases.

*With your legs flat on the bed:*

- Point your feet toward your body.
- Point your feet away from your body.
- Move your ankles in a circle clockwise and counter-clockwise.

### **TED Stockings (thigh high)**

TED stockings are long elastic stockings. These stockings help prevent blood clots from forming by improving the blood circulation. They should be removed once during the day for about thirty (30) minutes. They are to be worn until you are walking on a regular basis. Clean your TED stockings by washing them with soap and water and let dry overnight.

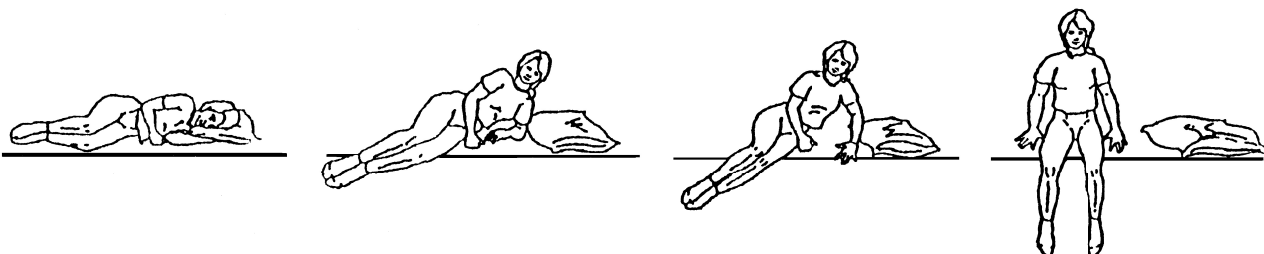
### **Moving in Bed**

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

- Support your incision with a small blanket or pillow.
- Bend your knees and roll from your non-operative side to your back.

### **Getting Out of Bed**

- 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 by pushing down on the bed with your upper hand and pushing up with your lower elbow.
- Swing your feet and legs over the edge of the bed and bring your body to a sitting position.

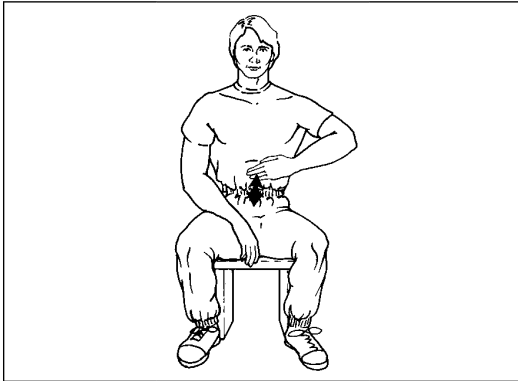


## **Post-Thoracotomy Exercises**

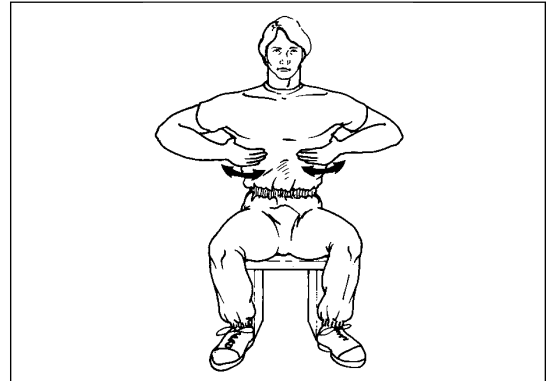
The physiotherapist will supervise and assist you in the progression of this exercise program. Each exercise should be repeated ten (10) times hourly initially unless otherwise indicated. Do them slowly and continue doing the program for a least two (2) weeks when you are at home. Some exercises will assist you with airway secretion removal and help to avoid breathing problems such as pneumonia, others will generally get you active in the recovery period.

### **Post-Op Day #1**

- ❶
- Sitting, with shoulders dropped and leaning forward, place one hand gently on your stomach just below your rib cage.
  - You should feel your stomach expand as you breathe in and sink in as you breathe out. (This is diaphragmatic breathing.)



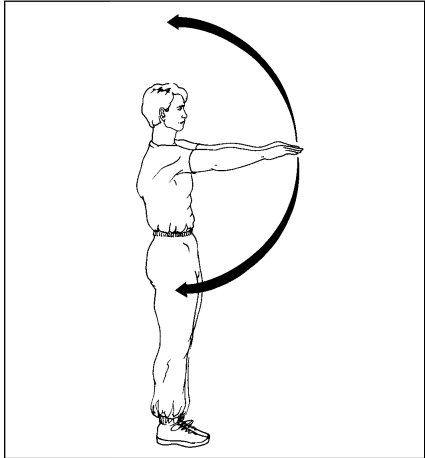
- ❷
- Sitting, place a hand on the ribs of the side of your surgery.
  - Breathe in deeply as you try to expand your rib cage sideways against your hand.
  - Breathe out of your mouth slowly.



- ❸
- Take a deep breath in through your nose, hold 3 – 5 seconds, then let the air out slowly through your mouth (pursed lips) breathing out as long as possible.
  - You should repeat this cycle 3 consecutive times prior to coughing.

- ❹
- Supported cough: use a pillow or folded blanket to splint your incision as you cough to clear secretions out of your lungs.

- 5
- In bed, sitting or standing, lift both arms up (keeping elbows straight) in front of you while breathing in.
  - Lower straight arms while blowing out.



- 6
- Feet and ankles: pumping and circling constantly until walking independently.

- 7
- Incentive spirometer: the physiotherapist or the nurse will show you how to use this to improve your breathing.

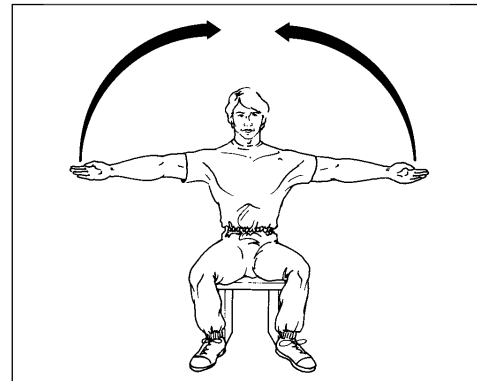
## **Post-Op Day #2**

- Continue with the post-op day #1 exercises and add the following exercises 3 – 5 times in the day.
- With minimal assistance, you should walk in your room and progress to hallway 3 – 5 times.

- 8
- Sitting or standing, roll your shoulders in both directions (make sure both shoulders are doing the same movement).



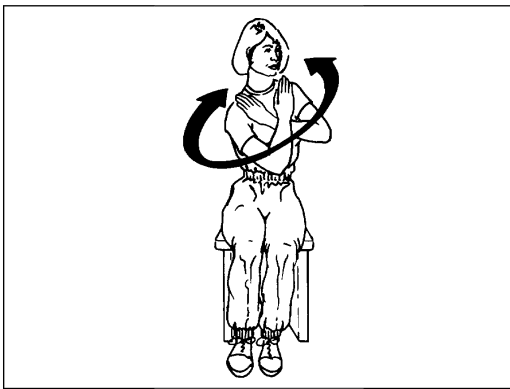
- 9
- Sitting or standing with your arms by your side, lift them sideways (with elbows straight) leading with your thumbs.



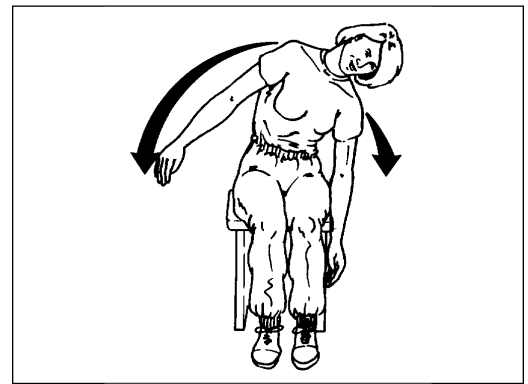
### Post-Op Day #3

- Do all the exercises (post-op day #1, 2, 3) 3 – 5 times in the day.
- You should walk in the hallway independently 3 – 5 times.

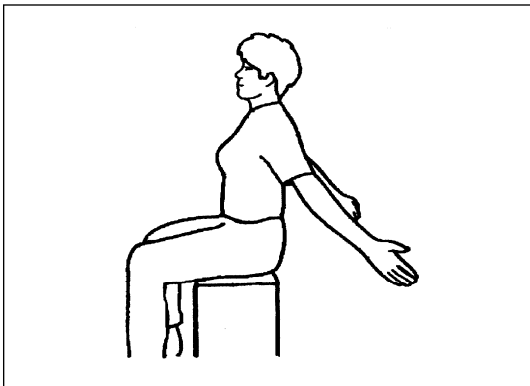
- 10**
- Sitting with your arms crossed in front of you, hands on your shoulders.
  - Turn your body to the right and repeat to the left until you feel a comfortable stretch to the incision.



- 11**
- Sitting or standing, lean over to one side to reach the floor (as your hand slides down the side of your leg).
  - Try not to lean forward or backward.
  - Bring the arm (the one not reaching for the floor) up to the side.



- 12**
- Sitting with a straight back, pull your shoulder blades together while turning your thumbs and hands outwards.
  - Then, touch your elbows together in front of you.



### NOTE

- Stairs can be practiced with help prior to discharge.
- Continue with exercises 2 X/day for at least 2 weeks while your incision is healing.
- Check your posture frequently in front of a mirror. You may tend to lean towards your operated side and that shoulder may drop down and forward. Watch for this and correct it.
- Progress all your activities **gradually** as pain should be your guideline!!!
- Discuss increasing your activity level with your surgeon at the follow-up appointment.
- Remember, exercises are needed in the recovery phase but rest is also important!

- 13**
- Sitting or standing, with your surgical arm, reach with your hand to touch your opposite shoulder.
  - Once achieved, reach further down your back.

Clinical Pathway – Thoracotomy / Pneumonectomy				
	Pre-Admission	Day of Admission / Surgery Pre-Op	Day of Admission / Surgery Post-Op	Post-Op Day 1
<b>Tests</b>	<ul style="list-style-type: none"> <li>• Blood work</li> <li>• ECG</li> <li>• Chest x-ray</li> <li>• Urinalysis</li> </ul>	<ul style="list-style-type: none"> <li>• Blood work (if ordered)</li> </ul>	<ul style="list-style-type: none"> <li>• Chest x-ray</li> <li>• Blood work</li> </ul>	
<b>Consults</b>	<ul style="list-style-type: none"> <li>• Physiotherapy</li> </ul>			<ul style="list-style-type: none"> <li>• Physiotherapy</li> </ul>
<b>Treatments</b>	<ul style="list-style-type: none"> <li>• Measure for TEDS thigh high</li> </ul>	<ul style="list-style-type: none"> <li>• TEDS thigh high</li> <li>• Intravenous (IV)</li> </ul>	<ul style="list-style-type: none"> <li>• Wound dressing</li> <li>• Urinary catheter</li> <li>• Epidural catheter</li> <li>• Intravenous (IV)</li> <li>• Chest tube</li> <li>• TEDS thigh high</li> </ul>	<ul style="list-style-type: none"> <li>• Wound dressing</li> <li>• Urinary catheter</li> <li>• Epidural catheter</li> <li>• Discontinue (IV) solution</li> <li>• Removal of chest tube</li> <li>• Weight</li> <li>• TEDS thigh high</li> </ul>
<b>Medications</b>		<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Antibiotic</li> </ul>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Pain medication – IV or Epidural</li> <li>• Oxygen</li> <li>• Anti-coagulant</li> <li>• Bronchodilators</li> </ul>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Pain medication – IV or Epidural</li> <li>• Laxative</li> <li>• Anti-coagulant</li> <li>• Oxygen</li> <li>• Bronchodilators</li> </ul>
<b>Activity</b>		<ul style="list-style-type: none"> <li>• Regular activity</li> </ul>	<ul style="list-style-type: none"> <li>• Head of bed up</li> <li>• Deep breathing &amp; coughing every hour while awake</li> <li>• Bedrest</li> <li>• Foot and ankle exercises</li> </ul>	<ul style="list-style-type: none"> <li>• Head of bed up</li> <li>• Deep breathing &amp; coughing every hour while awake</li> <li>• Up in chair for 1 hour 2 times per day</li> <li>• Activity as tolerated</li> <li>• Post-op Day 1 exercises as per booklet</li> </ul>
<b>Nutrition</b>		<ul style="list-style-type: none"> <li>• Nothing by mouth from midnight the night before surgery</li> </ul>	<ul style="list-style-type: none"> <li>• Sips of clear fluids after surgery</li> </ul>	<ul style="list-style-type: none"> <li>• Full fluid diet, then resume normal diet</li> </ul>
<b>Patient &amp; Family Teaching/ Discharge Planning</b>	<ul style="list-style-type: none"> <li>• Review of Clinical Pathway instructions &amp; patient booklet: <ul style="list-style-type: none"> <li>– skin prep</li> <li>– smoking cessation</li> </ul> </li> <li>• Discuss discharge plans / expected length of stay</li> </ul>	<b>Patient teaching</b> <ul style="list-style-type: none"> <li>• Review events of operative day</li> </ul>	<b>Patient teaching</b> <ul style="list-style-type: none"> <li>• Reinforce: <ul style="list-style-type: none"> <li>– deep breathing and coughing</li> <li>– foot and ankle exercises</li> <li>– pain control goals</li> <li>– positioning</li> <li>– diet</li> </ul> </li> </ul>	<b>Patient teaching</b> <ul style="list-style-type: none"> <li>• Patient has education booklet</li> <li>• Reinforce: <ul style="list-style-type: none"> <li>– deep breathing and coughing</li> <li>– smoking cessation</li> <li>– shoulder range of motion</li> <li>– activity</li> <li>– pain control goals</li> <li>– foot and ankle exercises</li> <li>– diet</li> <li>– exercises as per booklet</li> <li>– positioning</li> <li>– leg exercises</li> </ul> </li> </ul>



<b>Clinical Pathway – Thoracotomy / Pneumonectomy</b>				
	<b>Post-Op Day 2</b>	<b>Post-Op Day 3</b>	<b>Post-Op Day 4</b>	<b>Post-Op Day 5 Discharge Day</b>
<b>Tests</b>				
<b>Consults</b>				
<b>Treatments</b>	<ul style="list-style-type: none"> <li>• Removal of wound dressing</li> <li>• Urinary catheter</li> <li>• Chest tube dressing</li> <li>• TEDS thigh high</li> <li>• Epidural catheter</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of epidural catheter</li> <li>• Removal of dressing over chest tube site</li> <li>• Weight</li> <li>• TEDS thigh high</li> <li>• Removal of urinary catheter</li> </ul>	<ul style="list-style-type: none"> <li>• Enema if needed</li> <li>• Removal of TEDS if walking independently</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of IV saline lock</li> <li>• Enema if needed</li> </ul>
<b>Medications</b>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Laxative</li> <li>• Pain medication – IV or Epidural</li> <li>• Oxygen as needed</li> <li>• Anti-coagulant</li> <li>• Bronchodilators</li> </ul>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Laxative</li> <li>• Oxygen as needed</li> <li>• Pain medication</li> <li>• Bronchodilators</li> </ul>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Laxative</li> </ul>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Laxative</li> </ul>
<b>Activity</b>	<ul style="list-style-type: none"> <li>• Head of bed up</li> <li>• Deep breathing &amp; coughing every hour while awake</li> <li>• Up in chair for 1 hour 2 times per day</li> <li>• Activity as tolerated</li> <li>• Post-op Day 2 exercises as per booklet</li> <li>• Walk in hall 2 times per day with supervision</li> </ul>	<ul style="list-style-type: none"> <li>• Head of bed up</li> <li>• Activity as tolerated</li> <li>• Post-op Day 3 exercises as per booklet</li> <li>• Walk in hall independently 3 – 5 times per day</li> </ul>	<ul style="list-style-type: none"> <li>• Head of bed up</li> <li>• Activity as tolerated</li> <li>• Post-thoracotomy exercises – full program 2 – 3 times per day</li> <li>• Walk in hall independently more than 5 times per day</li> </ul>	<ul style="list-style-type: none"> <li>• Head of bed up</li> <li>• Activity as tolerated</li> <li>• Post-thoracotomy exercises – full program</li> </ul>
<b>Nutrition</b>	<ul style="list-style-type: none"> <li>• Normal diet</li> </ul>	<ul style="list-style-type: none"> <li>• Normal diet</li> </ul>	<ul style="list-style-type: none"> <li>• Normal diet</li> </ul>	<ul style="list-style-type: none"> <li>• Normal diet</li> </ul>
<b>Patient &amp; Family Teaching/ Discharge Planning</b>	<b>Patient teaching</b> <ul style="list-style-type: none"> <li>• Reinforce: <ul style="list-style-type: none"> <li>– deep breathing and coughing</li> <li>– smoking cessation</li> <li>– shoulder range of motion</li> <li>– activity</li> <li>– pain control goals</li> <li>– diet</li> <li>– exercises as per booklet</li> <li>– leg exercises</li> </ul> </li> </ul>	<b>Patient teaching</b> <ul style="list-style-type: none"> <li>• Review discharge instructions as per education booklet</li> <li>• Pain control goals</li> </ul> <b>Discharge planning</b> <ul style="list-style-type: none"> <li>• Review discharge issues / plan with patient/family</li> </ul>	<b>Patient teaching</b> <ul style="list-style-type: none"> <li>• Review discharge instructions and post-thoracotomy exercise instructions as per education booklet</li> </ul> <b>Discharge planning</b> <ul style="list-style-type: none"> <li>• Confirm 10:00 discharge plan with patient/family</li> </ul>	<b>Patient teaching</b> <ul style="list-style-type: none"> <li>• Review discharge instructions and post-thoracotomy exercise instructions as per education booklet</li> <li>• Take education booklet home</li> </ul> <b>Discharge planning</b> <ul style="list-style-type: none"> <li>• Prescription(s) provided</li> <li>• Follow-up appointment(s) provided</li> <li>• Discharge home by 10:00 h</li> </ul>

Clinical Pathway – Thoracotomy / Lobectomy				
	Pre-Admission	Day of Admission / Surgery Pre-Op	Day of Admission / Surgery Post-Op	Post-Op Day 1
<b>Tests</b>	<ul style="list-style-type: none"> <li>• Blood work</li> <li>• ECG</li> <li>• Chest x-ray</li> <li>• Urinalysis</li> </ul>	<ul style="list-style-type: none"> <li>• Blood work (if ordered)</li> </ul>	<ul style="list-style-type: none"> <li>• Chest x-ray</li> <li>• Blood work</li> </ul>	
<b>Consults</b>	<ul style="list-style-type: none"> <li>• Physiotherapy</li> </ul>			<ul style="list-style-type: none"> <li>• Physiotherapy</li> </ul>
<b>Treatments</b>	<ul style="list-style-type: none"> <li>• Measure for TEDS thigh high</li> </ul>	<ul style="list-style-type: none"> <li>• TEDS thigh high</li> <li>• Intravenous (IV)</li> </ul>	<ul style="list-style-type: none"> <li>• Wound dressing</li> <li>• Urinary catheter</li> <li>• Epidural catheter</li> <li>• Intravenous (IV)</li> <li>• Chest tube</li> <li>• TEDS thigh high</li> </ul>	<ul style="list-style-type: none"> <li>• Wound dressing</li> <li>• Urinary catheter</li> <li>• Epidural catheter</li> <li>• Discontinue (IV) solution</li> <li>• Chest tube</li> <li>• TEDS thigh high</li> </ul>
<b>Medications</b>		<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Antibiotic</li> </ul>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Pain medication – IV or Epidural</li> <li>• Oxygen</li> <li>• Anti-coagulant</li> <li>• Bronchodilators</li> </ul>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Pain medication – IV or Epidural</li> <li>• Laxative</li> <li>• Anti-coagulant</li> <li>• Oxygen</li> <li>• Bronchodilators</li> </ul>
<b>Activity</b>		<ul style="list-style-type: none"> <li>• Regular activity</li> </ul>	<ul style="list-style-type: none"> <li>• Head of bed up</li> <li>• Deep breathing &amp; coughing every hour while awake</li> <li>• Bedrest</li> <li>• Foot and ankle exercises</li> </ul>	<ul style="list-style-type: none"> <li>• Deep breathing &amp; coughing every hour while awake</li> <li>• Dangle legs</li> <li>• Up in chair</li> <li>• Activity as tolerated</li> <li>• Post-op Day 1 exercises as per booklet</li> <li>• Ambulate as tolerated</li> </ul>
<b>Nutrition</b>		<ul style="list-style-type: none"> <li>• Nothing by mouth from midnight the night before surgery</li> </ul>	<ul style="list-style-type: none"> <li>• Sips of clear fluids after surgery</li> </ul>	<ul style="list-style-type: none"> <li>• Full fluid diet, then resume normal diet</li> </ul>
<b>Patient &amp; Family Teaching/ Discharge Planning</b>	<ul style="list-style-type: none"> <li>• Review of Clinical Pathway instructions &amp; patient booklet: <ul style="list-style-type: none"> <li>– skin prep</li> <li>– smoking cessation</li> </ul> </li> <li>• Discuss discharge plans / expected length of stay</li> </ul>	<b>Patient teaching</b> <ul style="list-style-type: none"> <li>• Review events of operative day</li> </ul>	<b>Patient teaching</b> <ul style="list-style-type: none"> <li>• Reinforce: <ul style="list-style-type: none"> <li>– deep breathing and coughing</li> <li>– foot and ankle exercises</li> <li>– pain control goals</li> <li>– positioning</li> <li>– diet</li> </ul> </li> </ul>	<b>Patient teaching</b> <ul style="list-style-type: none"> <li>• Patient has education booklet</li> <li>• Reinforce: <ul style="list-style-type: none"> <li>– deep breathing and coughing</li> <li>– smoking cessation</li> <li>– shoulder range of motion</li> <li>– activity</li> <li>– pain control goals</li> <li>– foot and ankle exercises</li> <li>– diet</li> <li>– exercises as per booklet</li> <li>– positioning</li> <li>– leg exercises</li> </ul> </li> </ul>

<b>Clinical Pathway – Thoracotomy / Lobectomy</b>				
	<b>Post-Op Day 2</b>	<b>Post-Op Day 3</b>	<b>Post-Op Day 4</b>	<b>Post-Op Day 5 Discharge Day</b>
<b>Tests</b>				
<b>Consults</b>				
<b>Treatments</b>	<ul style="list-style-type: none"> <li>• Removal of wound dressing</li> <li>• Urinary catheter</li> <li>• Epidural catheter</li> <li>• Chest tube</li> <li>• TEDS thigh high</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of epidural catheter</li> <li>• Removal of chest tube</li> <li>• TEDS thigh high</li> <li>• Removal of urinary catheter</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of TEDS thigh high if walking independently</li> <li>• Removal of IV saline lock</li> </ul>	<ul style="list-style-type: none"> <li>• Removal of dressing over chest tube site</li> </ul>
<b>Medications</b>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Pain medication – IV or Epidural</li> <li>• Oxygen as needed</li> <li>• Anti-coagulant</li> <li>• Bronchodilators</li> <li>• Laxative</li> </ul>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Pain medication</li> <li>• Oxygen as needed</li> <li>• Bronchodilators</li> <li>• Laxative</li> </ul>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Laxative</li> </ul>	<ul style="list-style-type: none"> <li>• Patient specific medications</li> <li>• Laxative</li> </ul>
<b>Activity</b>	<ul style="list-style-type: none"> <li>• Up in chair 2 times per day</li> <li>• Activity as tolerated</li> <li>• Post-op Day 2 exercises as per booklet</li> <li>• Walk in hall 2 times per day with supervision</li> </ul>	<ul style="list-style-type: none"> <li>• Activity as tolerated</li> <li>• Post-op Day 3 exercises as per booklet</li> <li>• Walk in hall independently 3 – 5 times per day</li> </ul>	<ul style="list-style-type: none"> <li>• Activity as tolerated</li> <li>• Post-thoracotomy exercises – full program 2 – 3 times per day</li> <li>• Walk in hall independently more than 5 times per day</li> </ul>	<ul style="list-style-type: none"> <li>• Activity as tolerated</li> <li>• Post-thoracotomy exercises – full program</li> </ul>
<b>Nutrition</b>	<ul style="list-style-type: none"> <li>• Normal diet</li> </ul>	<ul style="list-style-type: none"> <li>• Normal diet</li> </ul>	<ul style="list-style-type: none"> <li>• Normal diet</li> </ul>	<ul style="list-style-type: none"> <li>• Normal diet</li> </ul>
<b>Patient &amp; Family Teaching/ Discharge Planning</b>	<p><b>Patient teaching</b></p> <ul style="list-style-type: none"> <li>• Reinforce: <ul style="list-style-type: none"> <li>– deep breathing and coughing</li> <li>– smoking cessation</li> <li>– shoulder range of motion</li> <li>– activity</li> <li>– pain control goals</li> <li>– diet</li> <li>– exercises as per booklet</li> <li>– leg exercises</li> </ul> </li> </ul> <p><b>Discharge planning</b></p> <ul style="list-style-type: none"> <li>• Discuss expected length of stay / discharge plan with patient/family</li> </ul>	<p><b>Patient teaching</b></p> <ul style="list-style-type: none"> <li>• Review discharge instructions as per education booklet</li> <li>• Pain control goals</li> </ul> <p><b>Discharge planning</b></p> <ul style="list-style-type: none"> <li>• Review discharge issues / plan with patient/family</li> </ul>	<p><b>Patient teaching</b></p> <ul style="list-style-type: none"> <li>• Review discharge instructions and post-thoracotomy exercise instructions as per education booklet</li> <li>• Pain control goals</li> </ul> <p><b>Discharge planning</b></p> <ul style="list-style-type: none"> <li>• Confirm 10:00 discharge plan with patient/family</li> <li>• Prescription(s) written</li> <li>• Follow-up appointment(s) made</li> <li>• Received teaching booklets</li> </ul>	<p><b>Patient teaching</b></p> <ul style="list-style-type: none"> <li>• Review discharge instructions and post-thoracotomy exercise instructions as per education booklet</li> <li>• Take education booklet home</li> </ul> <p><b>Discharge planning</b></p> <ul style="list-style-type: none"> <li>• Prescription(s) provided</li> <li>• Follow-up appointment(s) provided</li> <li>• Discharge home by 10:00 h</li> </ul>

## Going Home

### **Discharge Planning**

When you are discharged from hospital, you may need general help at home. It is best to make plans before being admitted to hospital. Discuss your discharge plans with your nurse.

Also you may have a number of concerns related to how you will manage once you return home.

*These might include such issues as:*

- I live alone. How will I manage?
- I'm worried and scared. Who can I talk to?
- I have young children and I'm told I cannot lift anything. What do I do?
- My spouse is ill. Who will take care of her while I'm in the hospital.

If you do have such concerns, or any others, ask to see a social worker as part of your discharge plan.

Arrange for someone to pick you up at 10:00 a.m. on the day of discharge. You will receive a prescription for medication. You will be given a follow-up appointment to see your thoracic surgeon in about 2–3 weeks.

*Be sure you understand about:*

- Activity
- Wound care
- Medications
- When to call the doctor
- Follow-up visit
- Post-Thoracotomy Exercises



## At home

### **Activity**

- Continue with the shoulder/arm exercises, deep breathing exercises, and walking as discussed with your physiotherapist.
- Avoid strenuous exercise including lifting heavy objects, grocery bags, snow shoveling and pushing a lawn mower until after you have seen your doctor on your follow-up appointment.
- Resume your regular activities gradually over 6 weeks. Discuss any specific concerns with your doctor.
- Do not drive your car until after you have seen your doctor on your follow-up appointment.
- Take frequent rest periods as necessary. Let your body be your guide.

### **Wound Care**

- Shower or tub bath as you prefer. Avoid hot tubs, jacuzzis and saunas. Soaking in a tub for long periods may delay healing of your incision. Clean your incision with mild soapy water. Pat incision dry.
- Swelling or bruising may appear around the wound. This may continue for several weeks.
- Observe the incision for increased redness, tenderness, drainage, and open areas. Notify your doctor if any of these occur.
- There may be a stitch at the chest tube site. This will be removed by your family doctor.
- Wear loose clothing while wound is still tender.

### **Medication**

- Take pain medication as you need to, for example, before going to bed, prior to activity. You should expect pain for a length of time after discharge.
- Add fibre to your diet to avoid constipation from the pain medication e.g. bran, whole grains, fruit. A laxative or stool softener may be necessary until your bowels are regular.

### **When to Call the Doctor**

*Call your doctor if you have any of the following:*

- Chills or fever (temperature greater than 38.5°C)
- Increased pain, redness, swelling or drainage or open areas in the incision.
- Persistent cough
- Difficulty breathing
- Blood in sputum
- Swelling in your leg(s)



## **Follow-Up**

On the day of discharge you will be given a requisition for a chest x-ray and an appointment to see your thoracic surgeon in 2–3 weeks at the Thoracic Clinic. You will need to have the chest x-ray before your appointment with the surgeon. Please go to the x-ray department fifteen minutes before your appointment, the requisition will be there. During this visit, your thoracic surgeon will listen to your lungs, check your incision, and review your chest x-ray. Discuss any specific concerns you may have at this time, with your thoracic surgeon. If you are unable to keep your appointment, please telephone in advance.

The Thoracic Clinic is located at the General Campus, 6<sup>th</sup> floor, Room 6310.

Phone number: 613-737-8100

Dr. D.E. Maziak . . . . . Clinic Number: 613-737-8100 . . . . . Clinic Room 6310

Dr. A.J.E. Seely . . . . . Clinic Number: 613-737-8100 . . . . . Clinic Room 6310

Dr. F.M. Shamji . . . . . Clinic Number: 613-737-8100 . . . . . Clinic Room 6310

Dr. R.S. Sundaresan . . . . . Clinic Number: 613-737-8100 . . . . . Clinic Room 6310



## Resources

*The diagnosis and treatment of lung cancer may have a major impact upon you and the people close to you. The disease may affect your physical, emotional, social, spiritual and practical needs. As a result, you may experience many issues. There are many resources available within the hospital, community and internet to help you and your family.*

### **Health Information for Patients and Their Family Patient and Family Libraries at The Ottawa Hospital**

The Ottawa Hospital's two patient and family libraries provide onsite access to:

- Reliable information on a variety of health, wellness and medical topics;
- Information about local associations and support groups;
- Books, videos and DVDs for loan;
- Computers with Internet connections.

**Our Collection:** The collection has over 2000 books, videotapes, audiotapes and DVDs. The collection includes medical dictionaries, home medical encyclopedias, reference texts, as well as books on a variety of health topics, such as medical tests, specific diseases and conditions, and caregiving.

**Loaning materials:** Patients and family can borrow items from the library for three weeks (21 days) and renew for a further three weeks if the material has not been reserved.

If you cannot visit us in person, please contact us by telephone or email – or visit us on the web at <http://www.ottawahospital.on.ca/patient/visit/chlib/index-e.asp>.

**Come Visit Us!**

**Patient and Family Library – Civic Campus**

Main Building, Room D100A (take the “C” elevators to the 1<sup>st</sup> floor)

1053 Carling Ave., Ottawa ON K1Y 4E9

**Hours:** Mon. - Fri.: 8:30 a.m. – 12:30 p.m. & 1:00 - 3:30 p.m.

**Tel.:** 613-798-5555 ext. 13315

**Fax:** 613-761-5292

**Email:** patientlibrary@ottawahospital.on.ca

**Ninon Bourque Patient Resource Library – General Campus**

Specializing in cancer-related information

Cancer Centre, Main Floor

503 Smyth Rd., Ottawa ON K1H 1C4

**Hours:** Mon. - Fri.: 8:30 a.m. – 12:30 p.m. & 1:00 - 3:30 p.m.

**Tel.:** 613-737-8899 ext. 70107

**Fax:** 613-761-5292

**Email:** patientlibrary@ottawahospital.on.ca

**The Patient and Family Library service at TOH provides information only, not medical advice.** Your healthcare professional is the only person qualified to give you a medical opinion

**Publications**

Living with Lung Cancer: A Guide For Patients and their Families, 4th Edition.

Available in the Consumer Health Library or

Trial Publishing Co.,

P.O. Box 13355

Gainesville, Florida 32604

What You Really Need to Know About Cancer: A Comprehensive Guide for Patients and Their Families. R. Buckman, Key Porter, 1995.

Everybody's Guide to Cancer Therapy: How Cancer is Diagnosed, Treated, and Managed Day to Day. M. Dollinger, E.H. Rosenbaum, G. Cable. Sommerville House, 1995.

Coping With Cancer Magazine

Published bi-monthly phone: 615-790-2400

E-mail: Copingmag@aol.com

**Telephone**

Canadian Cancer Society 1-888-939-3333

## **Cancer Web Resources**

Alliance for Lung Cancer Advocacy, Support, and Education (ALCASE): [www.alcase.org](http://www.alcase.org)

Canadian Cancer Society/National Cancer Institute: [www.cancer.ca](http://www.cancer.ca)

Cancer Care Ontario: [www.cancercare.on.ca](http://www.cancercare.on.ca)

CancerNet (U.S. National Cancer Institute): [www.icic.nci.nih.gov](http://www.icic.nci.nih.gov)

Health Canada: Cancer Bureau: [www.hc-sc/hpb/lcdc/bc](http://www.hc-sc/hpb/lcdc/bc)

Cancer Care Inc.: [www.cancercare.org](http://www.cancercare.org)

OncoLink (University of Pennsylvania Cancer Centre): [www.OncoLink.upenn.edu](http://www.OncoLink.upenn.edu)

Wellspring (cancer support group): [www.wellspring.ca](http://www.wellspring.ca)

The Ottawa Hospital – Thoracic surgery web site: [www.ottawahospital.on.ca](http://www.ottawahospital.on.ca)

Click on: Health Professionals, Surgery, Thoracic Surgery, Patient Information

We hope this book has helped to guide & support you at this time. The information comes from team members and patients like yourself. Your suggestions are important.

The Division of Thoracic Surgery asks for your support in attaining Excellence in Patient Care, Research and Education. The Division of Thoracic Surgery has research accounts. Please consider a donation. All donations are tax receiptable. Your gift is greatly appreciated.

**The Ottawa Hospital, The Division of Thoracic Surgery,  
General Campus  
501 Smyth Road, Room 6350  
Ottawa, Ontario K1H 8L6  
c/o Thoracic Surgery Research Account or  
Thoracic Surgery Epidemiology Research Account**