



Chest Wall Resection

UHN

Patient Education
Improving Health Through Education

Your surgery is on: _____

Your surgery time is: _____

Please come to the hospital at: _____

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University Health Network
Toronto General Hospital Toronto Western Hospital Princess Margaret Hospital

Welcome

Welcome to the Thoracic Surgical Division at University Health Network – Toronto General Hospital Division. UHN is a teaching hospital. We train approximately 6 new thoracic surgeons each year.

Your surgeon has scheduled you for a chest wall resection. This booklet gives you information about your surgery. It will help you prepare for surgery, know what to expect while in hospital and help you get ready for your discharge from hospital and recovery at home.

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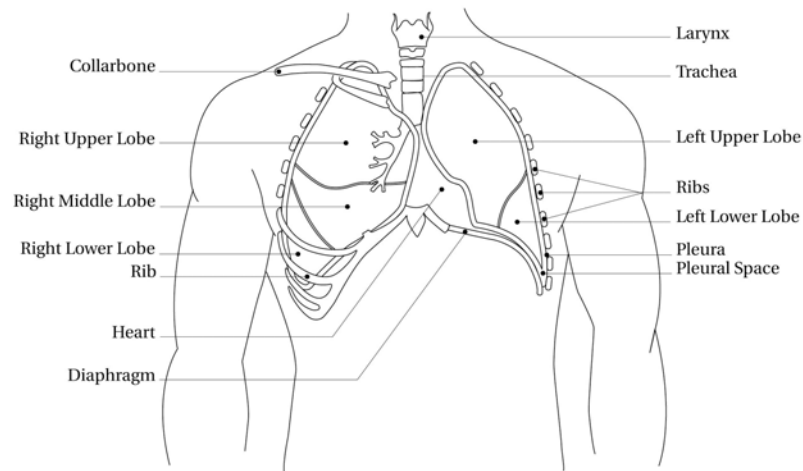
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Preparing for your Surgery

What is the surgery I am having?

In your body, you have 2 lungs. The lungs are protected by your rib cage. A **chest wall resection** is done to remove part of a rib(s). If you have several ribs removed, you may need to have something put in to replace the ribs. This is called a reconstruction. The reconstruction may be done with a special mesh type product. Your surgeon will tell you if a reconstruction will be necessary.

You may have a mass or tumour that is growing into your ribs. This can be benign or malignant. Benign means that it is not a cancer. Malignant means that it is a cancer. Your doctor will tell you what type of mass you have.



You will stay in hospital from 3 to 7 days. Your discharge from hospital depends on your recovery. You may be told during morning rounds by the team that you are well enough to go home that day. You should arrange your own ride home before coming into hospital.

Tests before your surgery

To prepare for your surgery, you will have a complete physical examination. You may also need several tests before your surgery. These tests help the surgeon to plan your surgery. These tests may be one or more of the following:

- PFT's (Pulmonary Function Test) - a breathing test
- exercise oximetry
- bone scan
- CAT scan, also called a CT scan
- ultrasound scan
- MRI brain

We will give you information about the tests that you need. We do these tests to look for any other health problems. Your risk of surgery can be decreased by managing these health problems before surgery.

Your Pre-admission Visit

For specific information about your pre-admission visit, please read the information in the "My Surgery Binder".

During your pre-admission visit, we will take you on a tour of 10 Eaton South, the inpatient ward where you will go after surgery. Our physiotherapist may show you the Step Down Unit during this tour.

***Please note:** If you do not come for your pre-admission visit, your surgery will be cancelled unless other arrangements have been made for you.

Can the time for my surgery change?

Yes. Several of our Thoracic surgeons also do lung transplants. If we need to do a transplant or another emergency comes up, we may need to reschedule your surgery for another date and time.

My Hospital Stay

In this section, we will tell you what to expect while you are in the hospital. We will help you understand the equipment that we will use to care for you and tell you how your family can help.

Where will I go after surgery?

You may stay in the Post Anaesthetic Care Unit (PACU)/recovery room from several hours to overnight. The length of time depends on your health. When you are stable, we will take you up to 10 Eaton South (10ES). You will go to the Step Down Unit (SDU).

There are 4 beds in the SDU. There are both male and female patients being cared for in this room. A Thoracic Nurse will be in the room with you at all times. You will stay in the SDU from 1 to 2 days.

As your health improves, you will be moved to a regular ward room. You will stay on 10ES until you are discharged.

How will I feel after surgery?

- During your surgery, we will give you a general anesthetic. This will make you feel sleepy for some time after the operation.
- You may have nausea and be sick to your stomach. The nurse will tell you to take deep breaths. This helps to decrease your nausea and fully expand your lungs.
- During your surgery, you will also have a breathing tube in your throat. This may cause your throat to be sore afterwards. It should feel better after a couple of days. Tell your nurse and doctor if your throat is sore.

What will happen after surgery?

- Your nurse will be checking your blood pressure, pulse and temperature. The nurse will also be checking your heart, breathing and oxygen level.
- You must do deep breathing and coughing exercises. These are the exercises that the Pre-admission nurse and physiotherapist taught you. These exercises are very important. They will keep your lungs clear and well expanded. After surgery, your body will make more mucous in your lungs than usual. You must cough the mucous out because this will help to prevent pneumonia. (See the Appendix on page 18.)
- Use your incentive spirometer yourself and do the exercises at least 10 times per hour while you are awake. Instructions are also at the end of this book.
- You will walk in the halls of the unit. Walking will also help to expand your lungs. To get you back to walking, your team will help you follow these steps.
 1. First we will help you sit at the side of your bed and “dangle” your legs.
 2. You may be out of bed and sitting in the chair at your bedside on the evening of surgery.
 3. On the morning after your surgery, we will help you to sit in a chair.
 4. The first morning after surgery you will go for a short walk out in the hallway. You will have a high-wheeled walker to help support you.
 5. You will walk out in the hallway 2 to 3 times a day.
 6. Your activity will be gradually increased. The nurse and physiotherapist will continue to help you until you can walk on your own.

***Please note:** On 10ES, 23 laps around the unit equals one mile.

- A physiotherapist may treat you once or twice a day. How often you see the physiotherapist will depend on your condition during the daytime. The physiotherapist will help you with your:
 - Deep breathing and coughing exercises. These exercises help to clear your lungs of mucous.
 - Shoulder exercises on the side of your operation. These exercises help to keep your shoulder joint moving fully.Your nurse will help you with these exercises at night.
- You will usually be able to drink the evening of your surgery. You may have a light meal if you want it. Your appetite may be poor. This is normal. Try to eat a little at each meal. Your body needs nourishment to heal and recover after surgery.

What incisions, tubes or drains can I expect?

You will have:

Incisions, tubes or drains	Explanation
Incisions	<p>Your surgeon will tell you where your incision will be. He or she will tell you how big it will be.</p> <p>You will have 1 of the following incisions:</p> <ul style="list-style-type: none"> - A thoracotomy means the incision is on your side. - A sternotomy means the incision is down the middle of your chest. Your sternum (breast bone) will be opened. - A hemi-clamshell means the incision is under one of your breasts. - A clamshell means the incision is under both of your breasts right across your chest. -Your incision may be from 8-25cm (2.5-10 inches) long <p>Bandages will cover your incisions. We will remove these bandages 2 days after your surgery.</p>
Stitches / Sutures	<p>The surgeons usually use dissolvable stitches to close your incision. This means they go away on their own. If they are not dissolvable, the nurse will remove the stitches 7 to 10 days after your operation. You may need to go to your family doctor to have your stitches removed. We will let you know.</p>
Chest tube	<p>You will have 1 or 2 chest tubes coming out of the side of your chest. These tubes remove air and fluid from your chest cavity. The tubes are attached to a machine called a Pleurovac™. Depending on the surgery you are having, the Pleurovac™ is attached to a suction source either on the wall or battery operated.</p> <p>You may have a drainage tube called a Jackson Pratt (JP) drain.</p> <p>The chest tube(s) or JP drain will go into your side through small incisions or holes. Your chest tube(s) is usually removed 1 to 3 days after your surgery.</p> <p>To keep the chest tubes in place, we will use stitches to secure them. These are not dissolvable. The stitches will be removed 7 days after the tubes are taken out. You may need to go to your family doctor to have your stitches removed.</p>
Heart Monitor	<p>You will be on a heart monitor. This does not necessarily mean that there is a problem with your heart. We do this for all patients who have this surgery. You will be on the heart monitor for 1 to 2 days.</p>

Incisions, tubes or drains	Explanation
Foley Catheter	You may have a tube draining your bladder. This is called a foley catheter. The nurse will measure how much urine you pass. This tube will usually be in for 1 to 2 days. When the tube is removed, the nurse will still measure your urine.
Intravenous (IV)	You will have an IV. We will use it to give you fluids and medicines. The IV will stay in until you are drinking well. This is usually in for 2 to 3 days. You may be able to drink the evening of your surgery. The IV must stay in as long as you are getting pain medication through a pump.
Arterial Line	You will have an arterial line. This tube looks like an IV. It is used to take blood samples without having to poke you with a needle. This is usually put in the opposite arm to the IV. The arterial line will be in for 1 to 2 days.
Oxygen	An oxygen mask will cover your nose and mouth. When you do not need the oxygen mask anymore, you may be placed onto nasal prongs. Nasal prongs sit below your nose. Both types give you extra oxygen. You may need this for a few days after surgery. When your lungs are working well enough the oxygen will be taken off.
Pain Medicine Pump	You will have a pump for the pain medicine. This will be attached to your IV, to an extra pleural catheter or to the epidural tube.

How will my pain be managed?

We will work with you to manage your pain. We encourage you to take the pain medicine regularly. This will stop the pain from getting worse. You will only be on the pain medicine for a short time, so you will not become addicted to it.

We can give you pain medicine in different ways. See the list below. We will talk more about this at your pre-admission visit.

Pain management options

There are several ways to manage your pain. These include:

Pain method	How this method works
<p>Epidural Pain Control</p>	<p>With an epidural, one of your doctors will put a small tube in your back. The tube is the same as the one used by women during childbirth. This is usually done right before your surgery.</p> <p>To put it in, you need to lie on your side in a curled up position or sit up. The doctor will clean and freeze an area of your back. A needle is placed into your back. A small tube is placed through the needle. The needle is removed and the tube is taped to your back.</p> <p>Medicine is given through the tube to provide pain relief. The epidural is left in place to give you pain medicine after your surgery. The medicine given is an opiate (pain killer) and local anesthetic (freezing). The medicine may make your legs feel numb, heavy or difficult to move. Your nurse will check to see if this is a problem.</p> <p>This tube will be attached to a pump. The pump gives you the medicine. You can give yourself more medicine if you need it. To do this you press a button on the pump. We will show you how to use your epidural pump during your pre-admission visit.</p>
<p>Extraleural Catheter</p>	<p>You may receive pain medicine through a small tube placed under your skin where your incision is located. The medicine is put in using a machine. You may get your pain medicine this way for several days after your surgery.</p>
<p>Intravenous (IV) Patient Controlled Analgesic or PCA</p>	<p>A PCA pump is connected to your IV. The pump gives you pain medicine through your IV when you push the button. You should press the button:</p> <ul style="list-style-type: none"> • when you start to feel pain • before you do something that brings on pain • before you do deep breathing and coughing exercises, and • before you start to move or turn. <p>You should feel the effects of pushing the button within 2 to 3 minutes. If you do not feel any pain relief, let your nurse know. There is a limit to how much pain medicine you can have in any 4 hours. To control how much medicine you get, the PCA pump has a safety timer called a lock out.</p> <p>The lock out time is 5 to 10 minutes after you have pressed the button. If you press the button during the lockout time, you will not receive more medicine. Only <u>you</u> should press the button.</p> <p>Do not use the PCA for gas pain.</p>

Intravenous (IV) Medicine	Your pain medicine is given through an IV. It is important to let your nurse know when you have pain. She or he can give you the pain medicine. If you do not feel any pain relief, let your nurse know.
Medicine by mouth	You will be given your pain medicine in tablet form. This will happen once you are drinking fluids and your pain is well controlled. Let your nurse know when you have pain. She or he can give you the pain medicine.

- Once you move out of the SDU, you must ask for your pain medicine. Your nurse will not be in the room with you at all times. So, you must monitor your pain and ask for medicine as you need it. Once you are on the ward, expect to continue to need the pain medicine every 3 to 4 hours for the first few days. As you heal, the pain will get less and you will not need the pain medicine as often.

Are there any side effects of pain medicine?

Some patients may have some side effects. These can include:

- Constipation
- Nausea and vomiting
- Headaches
- Sleepiness
- Itching

Tell your nurse if you have any of these side effects.

Are there any other ways to control my pain?

There are other ways of managing pain. These include:

Other ways to control your pain	
Relaxation Breathing	This involves redirecting your attention away from your pain and onto your breathing. You begin by focusing on your breathing. Take slow deep breaths in through your nose. Blow the breaths out through your mouth.
Visualization	Visualization involves imagining yourself without pain. You begin by closing your eyes. Imagine yourself in a place or specific time that brought you happiness. It may be on a beach, at the cottage or on a mountaintop. Try to remember the sounds, the smells, and every detail of the experience.
Massage	Gently rubbing your back, shoulders or arms can relieve tension. This can help to decrease your pain. A family member can help you with this.
Therapeutic Touch	The nurse uses his or her hands to help with healing. This treatment can be used to decrease your pain. The Nurse Practitioner with the Pain Service can help arrange these treatments for you.

How can my family be involved in my care?

We encourage your family to be involved in your care. Things they can do are:

- share information
- help make decisions
- be present for tests
- help with your care.

It is really important that your family take care of themselves. Your relatives may become very tired while you are in hospital. The nurse may ask your family to take a break. This may mean going home for a rest.

We have a visitor's lounge for your family to sit. We also have specific visiting hours. They are 11:00 a.m. to 9:00 p.m. There is a rest period in the Step Down Unit from 1:00 - 2:30 p.m. daily.

Only **two** (2) people may visit at one time.

Please check with your nurse or dietician before anyone brings food in for you. You may have to eat only certain foods after your surgery.

Going Home

During your hospital stay, we will help you to prepare for going home.

What symptoms may I feel as I recover?

Your healing and recovery will not happen overnight. Each person recovers at his or her own pace. Recovery time depends on a number of things such as age, general health and mental attitude. Your family doctor can help you to manage your symptoms as needed. Here are some of the symptoms to watch for:

Appetite

Your appetite should return to normal within a few weeks. Your appetite will increase as you are able to be more active. If your appetite is poor, try smaller, more frequent meals. Make sure you drink fluids (minimum of 6 cups per day unless your doctor or dietician tells you otherwise).

Try to eat high protein and high calorie foods. Soups, plain foods and light meals are easier to digest. If a poor appetite continues to be a problem, you should see your family doctor.

Bowel Upset

Constipation is common when you take pain medicine. Drink plenty of fluids (a minimum of 6 cups per day unless your doctor or dietitian tells you otherwise). If you have no other diet requirements or special needs, add bran, high fibre breads and cereals, berries, dried fruit or prune juice to your diet.

You will be prescribed a stool softener while on the pain medicine. You may also use a mild laxative if you need one. Your normal routine should return once you stop taking the pain medicine. If you have any problems see your family doctor.

Pain

As you become more active you may have more discomfort. We will order pain medicine for you when you go home. It is important to take pain medicine as needed. This will help you to recover. Your family doctor can help you to manage side effects of the pain medicine if you have them.

Emotions

You may feel tired and discouraged for several days or weeks after surgery. As you recover and regain your strength, this should improve. If not, please see your family doctor.

What instructions do I follow once I am home after surgery?

Activity

You may gradually increase your activity. Walk at least once every day as you can tolerate it. Follow the exercise program listed in the Appendix on pages 18 and 19.

Incisions

The incisions will not need to be covered unless your clothes are rubbing on them. Do not put lotions or creams on the incisions until they are completely healed. Most of the pain should be gone by 6 to 8 weeks after your surgery. There may be a "bump" along the incisions. It will decrease in size over 4 to 6 weeks. The area around your incisions may feel numb. This numbness is normal. It may last for several months, or forever. The numbness may be worse on cold, damp days. It usually improves with time.

Showering / Bathing

You can shower everyday once you get home. Use a mild soap. Let the water run over the incisions. Pat the incisions dry with a towel.

Returning to work

You will be off work for at least 4 to 6 weeks. Depending on your job, you may need to be off for 8 to 12 weeks. Check with your surgeon when it is safe for you to return to work.

Driving

You should not drive until you are off the pain medicine. The pain medicine you are taking may make you drowsy. You must have full movement of your arm and shoulder before you drive. This is usually 2 to 3 weeks after surgery.

Lifting

No heavy lifting, carrying, pushing or pulling for 4 to 6 weeks. This includes no vacuuming, carrying heavy groceries, shoveling snow, etc. You may lift up to 22kg (10 pounds). Lifting more than this may stress your incision. Your surgeon will tell you when you can begin regular activities.

Sex

You may have sex again after your surgery. Avoid positions that cause strain on your incision.

Sports

You may swim after 6 to 8 weeks.

You can golf after 3 to 4 weeks. Jogging, tennis, aerobics, and racquetball should not be done for 4 to 6 weeks. Please talk to your surgeon about sky diving and scuba diving. Scuba diving is not recommended after some lung surgery.

Travel

Please check with your surgeon about travelling. We usually recommend that you do not travel by air for 2 to 3 weeks.

Medicines

During your hospital stay, your medicines may change. You can review these with your nurse, surgeon or pharmacist before leaving the hospital. Prescriptions will be given to you before you leave the hospital. See your family doctor if you have further questions.

Problems after surgery

Your surgeon will send a letter to your family doctor about your operation. Your family doctor will provide ongoing medical care once you leave the hospital. You should see your family doctor for any problems or questions about your medicines, prescriptions, pain management, sleeping problems, appetite or constipation.

Follow up appointment

We will tell you when to see your surgeon for a follow up appointment. This is usually in 3 to 6 weeks after surgery. If you do not have an appointment for follow-up before leaving the hospital, call your surgeon's office. You should call to arrange a follow-up visit within a week of going home.

On the day of your follow-up appointment, go to the x-ray department first. You will have a chest x-ray done.

Please bring your blue hospital card and your health card to your follow-up visit.

When should I call the surgeon?

Contact your surgeon for any of the following:

- new redness or swelling around your incision(s)
- any drainage or pus from your incision(s)
- increase in pain at your incision(s)
- fever (higher than 37.5°C or 98.6°F)
- diarrhea
- nausea or vomiting
- weight loss or continuing poor appetite
- shortness of breath
- coughing out mucous that is yellow or green in colour, or has a bad smell
- coughing up fresh red blood
- anything else that concerns you about your recovery.

If you have more questions after you leave the hospital, please call your surgeon's office:

Dr. G. Darling	416 - 340 - 3121
Dr. M. De Perrot	416 - 340 - 5549
Dr. S. Keshavjee	416 - 340 - 4010
Dr. A. Pierre	416 - 340 - 5354
Dr. T. Waddell	416 - 340 - 3432
Dr. K. Yasufuku	416 - 340 - 4290

Who do I call for more information?

While you are in the hospital, you or your family can talk to your nurse or any other team members. The number is: 416 - 340 - 3166.

Before or after your surgery, you may call the Nurse Practitioner for Thoracic Surgery. Her name is Susan Walker. Her number is: 416 - 340 - 4038.

If you have an emergency, call 911 or go to your nearest Emergency Department.

If you need information about the time of your surgery, tests or appointments with your surgeon, call your surgeon's office. The number is listed above.

Appendix

To help with your recovery at home, you will work on 4 exercises:

1. deep breathing and coughing
2. walking
3. arm exercises
4. posture

If you have any questions about these exercises, call 10ES and ask for the physiotherapist, Anne Kuus. The number is: 416 - 340 - 3166.

Deep breathing and coughing exercises

1. Take a deep breath in through your nose.
2. Hold for a second or two.
3. Blow the air out through your mouth. Do not force the air out.
4. Repeat slowly several times, then...
5. Cough deeply. Not a shallow throat cough. Support your incision with a pillow or your arms.
6. Rest briefly, then...
7. Repeat steps 1–6.

Repeat these exercises 10 times every hour while awake.

Do these exercises until you are up and moving around.

Walking

Walking is the best exercise you can do after lung surgery. When, where and how long you should walk will depend on your condition when you leave the hospital. We will give you information about walking before you are discharged. This chart will help you with your walking routine.

Week #	Minutes to walk	Number of times per day	Number of blocks to walk
1			
2			
3			
4			
5			
6			

Places to walk:

1. Up and down the hallways of your apartment or condominium.
2. Outside in a park or along a sidewalk. Make sure there are benches along the way. You may need to sit down and rest.
3. In shopping malls, early in the morning. Many malls now cater to people who need to exercise indoors. Many malls open their doors as early as 7:30 am. This way you can exercise before all the crowds arrive.

Shoulder exercises

The shoulder on the side of your operation may become stiff. This is because of the location of your incision. Continue these exercises until your joint stiffness is gone. Do these exercises 2-3 times a day in front of a mirror. Watching yourself in the mirror helps you to keep good posture. Make sure that your shoulders are level.

What to do:

1. Clasp your hands together. Lift your arms up over your head. Lower to the starting position. Repeat 5 times.
2. Clasp your hands together. Lift your arms up over your head. Continue until you touch the back of your neck. Lower to the starting position. Repeat 5 times.
3. Place one hand behind your back. With the tip of your thumb, try to touch your shoulder blade. Lower your hand to the starting position. Repeat 5 times.

Posture

After you have surgery with a chest incision, it is easy to develop bad posture. It is important that you keep good posture after your surgery. When you are sitting, standing or walking, make sure your shoulders are level and your back is straight.

Definitions

In the “My Surgery Binder” that you received, there are many general medical terms listed. The definitions below are other terms that are related to thoracic surgery. You may hear these terms used by the health care team members who are looking after you.

Bone scan: A special xray is taken of your bones. A dye will be injected into your vein. You must drink a lot of fluid once the dye is injected. You must wait about 90 minutes after you have had the injection before the test can be started. There is no pain with this test other than the needle prick to inject the dye.

Bronchoscopy: also called a bronch for short. A procedure when the doctor looks down your wind pipe and into your lungs. It is done with a special telescope. You will be drowsy or asleep for this procedure.

Chest x-ray: a special picture of your lungs and other structures in your chest. Sometimes they will bring the machine to your room and take the x-ray there. When you are well enough, you will be taken downstairs to the x-ray department.

CT scan: A CT or CAT scan is a special xray that takes pictures of your body in thin slices. You may have a scan of your chest and / or abdomen. For a chest scan, a dye will be injected into your vein. The scan will take about 30 minutes to complete. If you are having an abdominal scan, you will need to drink a contrast / dye which will be given to you at the hospital before your scan. The scan will take about 30 minutes to complete. There is no pain with a CT scan other than the needle prick to inject the dye for the chest scan.

Dressing: a bandage on your incision.

Endo Suite or Endoscopy:

The unit where you may have a bronchoscopy done. The location is:

2nd floor

North Building

Toronto General Hospital

Exercise Oximetry: a test done by the physiotherapist (PT) to measure the level of oxygen in your blood. A small probe (like a clothes pin) is clipped onto your finger. There is no pain with this test. If you are able to, you will walk with the PT for 6 minutes. You may also go up some stairs. This test takes 15-20 minutes to do.

MRI brain: A picture / scan of your brain is taken by a large magnetic machine. There is no pain with this scan. This test can take up to 1 hour.

Pulmonary function test (PFT): a special breathing test to assess your lungs. You may have this done before surgery. This test takes about 1 hour.

Thoracic: a term that we use when we talk about anything to do with the chest.

Key Points

The following are key points that you must remember:

- ❑ You must attend your preadmission visit.
- ❑ Do not eat anything after midnight, the night before surgery. You may have clear fluids to drink up to 5 hours before surgery.
- ❑ On the morning of surgery, take your medicines with a small sip of water as instructed by the anesthetist.
- ❑ On the morning of surgery, arrive at the Surgical Admission Unit at the designated time.
- ❑ Arrange for someone to help you after surgery once you return home.
- ❑ Arrange a drive home.
- ❑ You must not drive until you are off the pain medicine. This is usually 2 to 7 days after surgery.

If you have ideas to improve this booklet, please let us know.
Call Susan Walker at: 416 - 340 - 4038.

Websites

Cancer Care Ontario

<http://www.cancercareontario.com/>

Canadian Cancer Society

http://www.cancer.ca/ccs/internet/frontdoor/0,,3543____langId-en,00.html

The Society of Thoracic Surgeons (STS)

<http://www.sts.org/sections/patientinformation/>

Up-To-Date Patient Information

http://patients.uptodate.com/toc.asp?toc=lung_disease&title=Lung%20disease

Questions and notes
