

# Lung Cancer Matepukupuku Pūkahukahu



A guide for people with lung cancer



# ANY CANCER, ANY QUESTION

## 0800 CANCER (226 237)

### Cancer Information Helpline

Your GP: phone \_\_\_\_\_

Your nurse: phone \_\_\_\_\_

Your local Cancer Society office: phone \_\_\_\_\_

24 hour Emergency: phone 111

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#### Publications statement

Our aim is to provide easy-to-understand and accurate information on cancer and its treatments. Our Living with Cancer information booklets are reviewed and updated by cancer doctors, specialist nurses and other relevant health professionals to ensure the information is reliable, evidence-based and up-to-date. The booklets are also reviewed by consumers to ensure they meet the needs of people with cancer and their carers.

Other titles from the Cancer Society of New Zealand/Te Kāhui Matepukupuku o Aotearoa

#### Booklets

Advanced Cancer/Matepukupuku Maukaha  
Cancer Clinical Trials  
Cancer in the Family: Talking to your children  
Chemotherapy/Hahau  
Coping with Cancer: A guide for people with cancer  
Eating Well During Cancer Treatment/Kia Pai te Kai te wā Maimoatanga Matepukupuku  
Emotions and Cancer  
Getting on with life after treatment/Te hoki anō ki tō toioranga whai muri i te maimoatanga  
Got Water?/He Wai?  
Radiation Treatment/Haumanu Iraruke  
Sexuality and Cancer/Hōkakatanga me te Matepukupuku  
Talking about grief and loss

#### Brochures

Being Active When You Have Cancer  
Questions You May Wish To Ask

# Cancer Society Information and Support Services

The Cancer Information Helpline is a Cancer Society service where you can talk about your concerns and needs with cancer nurses on **0800 CANCER (226 237)**.

Your local Cancer Society offers a range of services for people with cancer and their families.

These services may include:

- volunteer support including drivers providing transport to treatment
- accommodation while you're having treatment away from home
- support and education groups.

The range of services offered differs in each region so contact your local centre to find out what is available in your area.

For information on practical support and the emotional impact of cancer, we suggest you read our booklet *Coping with Cancer: Your guide to support and practical help*. You can get a copy from your local Cancer Society, by phoning the nurses on the Cancer Information Helpline **0800 CANCER (226 237)** or by downloading it from our website ([www.cancernz.org.nz](http://www.cancernz.org.nz)).

## Talking with doctors

Before you see the doctor, it may help to write down your questions. See a useful list of questions on page 3. We suggest you have a support person with you at your appointment with the cancer doctor.

***“I wasn’t ready to hear much and I’d let them know when I wanted more information.”***

***- Syd***

## A second opinion

You may want to ask another doctor about your cancer or treatment. You can ask your cancer doctor or general practitioner (GP) to refer you to another cancer doctor. You are entitled to a second opinion if you want one.

## Questions you may wish to ask

When you hear you have lung cancer you and your family/whānau may feel understandably frightened and you may have many questions. Having your questions answered can help you feel in control of your situation. Here is a list of questions to help you make the most of your time with your doctor.

Let your doctor know if there are things you do not want to be told.

1. What type of lung cancer do I have?
2. How far has my cancer spread? What stage is it?
3. What scans do I need?
4. What treatment do you advise for my cancer and why?
5. Are there other treatment choices for me?
6. What are the risks and possible side effects of each treatment?
7. Will I have to stay in hospital, or will I be treated as an outpatient?
8. How long will the treatment take?
9. How much will it affect what I can do?
10. How much will the treatment cost?
11. If I need further treatment, what will it be like and when will it begin?

12. How often will my check-ups be and what will they involve?
13. Are there any problems I should watch out for?
14. If I choose not to have treatment either now or in the future, what services are available to help me?
15. When can I return to work?
16. When can I drive again?
17. Will the treatment affect my sexual relationships?
18. I would like to have a second opinion. Can you refer me to someone else?
19. Is my cancer hereditary (passed on by my parents)?
20. Is the treatment attempting to cure the disease or not?
21. What is my prognosis (future outlook)? Many people do not wish to know this if it's likely to be bad news.

If there are answers you do not understand, feel comfortable saying:

- “Can you explain that again?”
- “I am not sure what you mean” or
- “Could you draw a diagram or write it down?”

The Society has a booklet titled *Questions You May Wish To Ask* available that has general questions and spaces in which you or your doctor can write answers.

Call your local Cancer Society to receive a copy, call the nurses on the Cancer Information Helpline **0800 CANCER (226 237)** or view the booklet on the Society's website ([www.cancernz.org.nz](http://www.cancernz.org.nz)).



Following a cancer diagnosis, many people look for information about new types of treatment, the latest research findings and stories about how other people have coped. Contact your Cancer Society library or local library for some good quality resources.

## Suggested websites

You may be interested in looking for information about lung cancer on the internet. While there are very good websites, be aware that some websites may provide incorrect information.

We recommend that you begin with the Cancer Society's website ([www.cancernz.org.nz](http://www.cancernz.org.nz)) and use our links to other good cancer websites, or see the list of following websites.

### **Macmillan Cancer Support (UK)**

[www.macmillancancersupport.org.uk](http://www.macmillancancersupport.org.uk)

### **Cancer Council Victoria (Australia)**

[www.cancervic.org.au](http://www.cancervic.org.au)

### **National Cancer Institute (USA)**

[www.cancer.gov/cancerinfo](http://www.cancer.gov/cancerinfo)

### **Lung Foundation Australia**

[www.lungfoundation.com.au](http://www.lungfoundation.com.au)

The suggested websites are not maintained by the Cancer Society of New Zealand. We only suggest sites we believe offer credible and reliable information, but we cannot guarantee that the information on such websites is correct, up-to-date or evidence-based medical information.



For more information on searching the internet ask your local Cancer Society for a copy of the information sheet “Using the Internet for Cancer Information and Support”.

We suggest you discuss any information you find with your medical team.

***“After I was diagnosed with lung cancer our computers ran hot. The research and discussions went on day and night. Both kids took the time to become very knowledgeable about all aspects of lung cancer and its treatment.”***

***- Colleen***



## About this handbook

This handbook provides you with information about lung cancer, diagnosis, different types of treatment, practical support and the emotional impact of cancer.

The handbook is divided into sections. Some sections may not be about your present situation. You may like to ask your cancer doctor or cancer nurse which sections you'll find useful or you can phone a cancer information nurse on the Cancer Information Helpline **0800 CANCER (226 237)** to talk about this.

- Section One is about understanding lung cancer.
- Section Two is about diagnosing and staging lung cancer.
- Section Three is about lung cancer treatment.
- Section Four is about managing lung cancer symptoms.
- Section Five is about the impact of lung cancer.

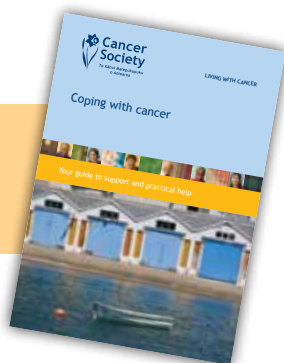
Read our appendix at the back of this handbook for information about your lungs, how they work, what cancer is and how it grows.

Information is summed up in Key Points at the end of each section of the handbook. We have translated our Key Points into te Reo Māori for those who prefer to read information in this official language of New Zealand.

**We suggest you also read our booklet**  
*Coping with Cancer: Your guide to  
support and practical help.*

If you find this handbook helpful you  
may like to pass it on to your family  
and friends to help them understand your lung  
cancer.

The words in **bold** are explained in the glossary at the  
back of the handbook.



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# Section One

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## Understanding lung cancer

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## What is lung cancer?

Lung cancer is cancer of some of the **cells** in part of your lung, usually beginning in the lining of the bronchus (see page 124) or **bronchioles**. The medical term for a cancer that starts in the cells lining an organ is **carcinoma**.

## Types of lung cancer

- **Non-small cell lung cancer (NSCLC)** is the most common and makes up about 80 percent of all lung cancers.
- **Small cell lung cancer (SCLC)** makes up about 20 percent of lung cancers.

The three main subtypes of NSCLC are **adenocarcinoma**, **squamous cell carcinoma** and **large cell carcinoma**.

There are several other less common types of lung cancer as well. The different types of lung cancer are grouped according to the type of cell affected, as outlined on the following page.

**Mesothelioma** is a rare cancer that occurs in the **pleura** but is not the same as lung cancer. (See page 16.)

Many other cancers can spread to cause cancer in the **lungs** (for example breast, bowel and kidney), but these are secondary cancers, or lung **metastases**. This handbook is only about cancers beginning in the lungs (**primary lung cancer**).



## Types of lung cancer

### Non-small cell (NSCLC)

#### **Adenocarcinoma**

Most common type of lung cancer with several subtypes.

#### **Squamous cell carcinoma**

More often found in major airways.

#### **Large cell carcinoma**

Least common type of NSCLC. Can be very large at time of diagnosis.

#### **Small cell (SCLC)**

This type grows quickly and can spread rapidly throughout the body.

Your specific type of lung cancer needs to be diagnosed to help decide on the best treatment for you.

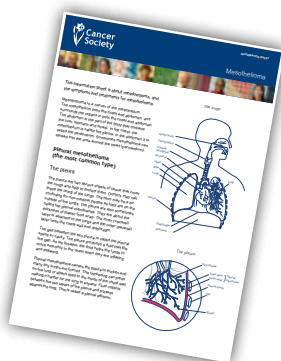
# What is mesothelioma?

Mesothelioma is a cancer of the mesothelium. The mesothelium lines the chest and **abdomen**, and covers the body organs in both the chest and abdomen. The abdomen contains the liver, stomach and bowel. In the chest, the mesothelium is called the pleura. In the abdomen it is called the peritoneum.

Sometimes mesothelioma can spread into the area around the heart (pericardium). It is the type of cancer most often linked with asbestos exposure.

For more information, see the Cancer Society's information sheet "Mesothelioma" on our website ([www.cancernz.org.nz](http://www.cancernz.org.nz)).

You can also get a copy by phoning the Cancer Information Helpline **0800 CANCER (226 237)** or from your local Cancer Society.



## Causes of lung cancer

Changes or mutations to lung cells cause lung cancer. These changes may allow cells to grow, divide and spread around the body in an uncontrolled way.

Like many types of cancer, we don't always know why people get lung cancer. However, there are some things that increase your risk of getting lung cancer.

Lung cancer is strongly linked to smoking (being an 'active smoker'). However, a number of people with lung cancer have never smoked. Lung Cancer Canada states that as many as 15 percent of people with lung cancer have never smoked.

**Source:** <http://www.lungcancercanada.ca>

A non-smoker who has been exposed to smoke (a 'passive smoker') can have a 20 to 30 percent higher risk of developing lung cancer than non-smokers who haven't been exposed.

People exposed to asbestos have a greater risk of getting mesothelioma. Asbestos may still be in some older buildings. Some people may breathe in asbestos at work or during home renovations (DIY).

Exposure to radiation and air pollution, such as diesel fumes, also increases the risk of lung cancer. Contact with the processing of steel, nickel, chrome and coal gas may increase a person's risk.

**A number of people without any of the known risk factors get lung cancer.**

## Symptoms of lung cancer

The symptoms of lung cancer can be different from person to person. Most people have some symptoms; a few people may get some or all of the following:

- a chest infection or cough that doesn't go away; a new or changed cough or wheeze or worsening of an existing wheeze
- increased breathlessness or a shortness of breath with movement
- pain around the upper back, shoulders, ribs or chest
- hoarseness or loss of voice
- weight loss (without dieting)
- low energy levels (feeling very tired for no reason)
- you may notice you've begun coughing up fresh blood or the **sputum** (phlegm) is streaked with blood
- a lump in the base of the neck above the collar bone
- neck and arm swelling and swollen veins.

You also may get symptoms such as problems swallowing, or abdominal or joint or back pain, or increasing weakness. Having any one of these symptoms does not necessarily mean you have cancer. Some of these symptoms may be caused by other conditions. It is important to have any of these symptoms checked by your doctor.

Some people with cancer have no hints or warnings (symptoms). They learn they have lung cancer when it is seen on a chest X-ray done for some other reason. Again, talk to your doctor if you have any of these symptoms.

## Key Points: Understanding lung cancer

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- Lung cancers fall into two main categories:  
non-small cell lung cancer (NSCLC) – which includes adenocarcinoma, squamous cell carcinoma and large cell carcinoma – and small cell lung cancer (SCLC).
- Active and passive smoking is the cause of most lung cancers.
- Lung cancer can affect anyone. Smokers are most at risk. Lung cancer is found in people who have never smoked.
- Other known risk factors include exposure to asbestos, radiation and air pollution; and contact with the processing of steel, nickel, chrome and coal gas.
- Symptoms for lung cancer vary and include:
  - a cough or chest infection that doesn't go away
  - pain around the chest, upper back or shoulders
  - shortness of breath
  - wheeze
  - hoarseness
  - weight loss and/or fatigue (extreme tiredness)
  - coughing up blood.

Other people have no symptoms at all.

## Ngā Tohu Matua: Te mōhio ki te matepukupuku pūkahukahu

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- Ka taka ngā matepukupuku pūkahukahu ki raro i ngā momo wāhanga e rua: ko te non-small cell lung cancer (NSCLC) - tae noa ki adenocarcinoma, squamous pūtau mate pukupuku o te kiri me te pūtau mate pukupuku o te kiri nui - me te small cell lung cancer (SCLC).
- Ko te momi auau me te mina auahi te take puta ai te nuinga o ngā matepukupuku pūkahukahu.
- Ka pā te matepukupuku pūkahukahu ki te tangata ahakoa ko wai. Ko te hunga momi hikareti te hunga kaha pā te mōrea. Kua kitea te matepukupuku pūkahukahu i roto i ngā tāngata kore momi hikareti hoki.
- Ko ētahi atu āhuatanga mōrea, ko te whai pānga ki te papa kiripaka, te iraruke, me te parahanga, me te whai pānga ki te mahi hanganga rino, hanga konukōreko, hanga rinokita me te haukino waro.
- He rerekē ngā tohumate mō tēnā, mō tēnā o ngā matepukupuku pūkahukahu, tae noa ki te puta o te whakapokenga maremare ki te poho, me tōna kore mutunga. Ka puta he mamae ki te poho, ki te tuarā whakarunga, ki ngā pakihwi rānei, ka puta te poto o te hā, te ngae, ka whango, ka heke te taumaha/te hūhi (tino hiamoe) rānei. Tērā pea ka puta he toto i roto i te maremare hūare. Ara ētahi atu tāngata, kāre e paku pā he tohumate ki a rātou.





## Section Two

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## How lung cancer is diagnosed

Lung cancer is a difficult disease to find early and there is no routine **screening programme** anywhere in the world. For most people, their lung cancer is found after having symptoms for many months while others may have it discovered during a medical check-up.

Often, your GP arranges the first tests to assess your symptoms. It is important to talk about all of your symptoms with your doctor. Then they can work with you to choose the most useful tests to give you a diagnosis and help develop a treatment plan. The most important test is usually a chest X-ray which is quick and simple.

It can be a worrying and tiring time waiting for results, especially if you need several tests. If these tests don't rule out cancer, it's usual to be referred to a lung specialist who will arrange further tests and advise you about treatment options.

The purpose of these tests is to find out the type of lung cancer you have (non-small cell lung cancer or small cell lung cancer) and if the cancer has spread to other parts of your body. Sometimes, you may need to travel to another hospital for some tests. Tests – X-rays, **CT scans** or **PET scans** and **MRI** – are used to make images of the inside of your body to see if you have a lump and if it has spread.

## Diagnostic imaging

*(creating pictures of the inside of your body)*

Diagnostic imaging methods are painless tests that create pictures of the inside of your body. This will help your medical team plan the best treatment for you.

### *Chest X-ray (CXR)*

An X-ray of the chest may show cancers one centimetre wide or larger. Small or hidden **tumours** do not always show up on X-rays, so you may have further tests.

### *CT scan (previously called a CAT scan)*

CT (computerised tomography) scans use X-rays to take 3D (three-dimensional) pictures of the inside of your body. CT scans are usually done at a hospital or radiology service and can be used to find smaller cancers than those found by X-rays. CT scans can also show enlarged **lymph nodes** or may show cancer in other parts of the body.

You may be asked not to eat or drink for a few hours before the CT scan. A dye (iodine contrast) may be injected into your arm to make the scan pictures clearer. Before the scan, tell your medical team if you're **allergic** to iodine, fish or dyes, or if you have kidney problems.

A CT scan may take 10 to 30 minutes. You will lie flat on a hard bench which will move you through the centre hole in the CT scanner, a machine shaped like a doughnut.

## *MRI (Magnetic Resonance Imaging)*

This is a scan using magnetic fields and radiowaves to build a picture of the organs inside the body.

The MRI machine is similar to a CT scanner but has a longer central hole more like a cylinder (tube). Scanning is very noisy. Earphones (with or without music) will be offered to reduce the noise.

Some people feel claustrophobic (closed-in) when they are having a scan. If you think this may happen to you, let your doctor know when they book your appointment so you can get medication to help you relax before the scan.

## *PET scan (Positron Emission Tomography)*

PET scans are only available in a few New Zealand cities. A PET scan can be used to help stage lung cancer (see page 36) and look for cancer that may have spread to other parts of the body.

To begin this, a radioactive glucose solution is injected into your arm. It takes 30 to 90 minutes for the body to absorb the radioactive solution. Then you will have two types of scan. One scan looks for where in the body the radioactive glucose solution has built up and the other is a CT scan to match these areas to the different parts within the body. This combination of scans is sensitive and will find areas of the body affected by lung cancer.

If you are a diabetic it is important to have good diabetic control before this test. Talk to your doctor or nurse if your sugar levels are high.

## Diagnostic tests

As well as using scans to diagnose cancer, a **biopsy** to sample cells is also needed.

### *Pathology*

A pathologist (see page 74) can examine tissue samples to identify the type of lung cancer. Their first aim is to confirm, using a microscope, whether they can see cancer cells.

## Sputum cytology

If you're coughing up sputum (phlegm), your doctor may ask you to collect sputum samples at home. You will get a container to collect the sample, which you can then store in your fridge until you take it to your doctor or a laboratory.

The sample of your sputum is tested for cancer cells. Cancer cells are only occasionally found in sputum.

## Biopsy

If radiologists (see page 74) find anything abnormal in the lung using diagnostic imaging, a sample of the tissue may be needed to check if it is cancerous. Your doctor will ask you to have a biopsy. A biopsy takes a small sample of tissue from the abnormal area.

There are a few ways to take a biopsy. Your doctor will explain which one is right for you, which will depend on whether the abnormal area is in a lymph gland, in the lung or somewhere else. Exactly how it is done will depend on where it is and what the risks of biopsy are.

For abnormal areas in the lung that cannot be reached by **bronchoscopy** (see next page), doctors often use a ‘core biopsy’ because it can give a very clear diagnosis.

A radiologist uses an ultrasound or CT scan to find the area and puts a small needle through the skin and through the lung to take a core biopsy sample. Before they do the biopsy, you will have a local anaesthetic.

## *Bronchoscopy*

During a bronchoscopy the doctor looks into the airways (bronchi) and biopsies any abnormal areas seen.

Doctors use a flexible tube called a bronchoscope, which is put into your nose or mouth and down your windpipe (**trachea**). The bronchoscope may feel uncomfortable, but it should not be painful. You will have a light sedation or a general anaesthetic and the back of your throat is numbed with a local anaesthetic spray.

During the bronchoscopy, the doctor may take a tissue sample. Tissue samples may be taken by a biopsy or by 'washing' or 'brushing'.

In washing, salt water is put through the bronchoscope which removes cells from the lung's lining and the water is sucked back out for testing. Another way uses a soft, brush-like tool put into the bronchoscope to get cells from the bronchi by brushing the airway.

An EBUS (endobronchial ultrasound) is a special type of bronchoscopy. The bronchoscope has a small ultrasound probe on the end. This can measure the size and position of a tumour or lymph nodes and helps the doctor taking a biopsy from any abnormal areas. It is only available in a few centres in New Zealand.

After a bronchoscopy, people often have a sore throat or cough up a small amount of blood. Tell your medical team if this happens. The sedation used for bronchoscopy (midazolam) can sometimes make it difficult to remember what happened during it, or even that you had one.



## Mediastinoscopy

A surgeon uses a mediastinoscope to examine and sample the lymph nodes at the centre of your chest. A mediastinoscopy is done under general anaesthetic. A tube is put into a small cut in the front of your neck above the breast bone, and passed down the outside of your windpipe (trachea). The surgeon checks the area between the lungs (**mediastinum**) and removes some lymph nodes.

Often you will be home the same day, but you may need to stay the night in hospital. The scar on your neck is usually small.

## Thoracotomy

Doctors only do a thoracotomy if other tests cannot give a diagnosis. Surgeons do this operation under general anaesthetic (you'll be asleep). They will take a sample (biopsy) of an abnormal area or remove all of the abnormal area.

The surgery can be done in two ways; either:

- the surgeon makes some small cuts in your chest and inserts a surgical tool called a thoracoscope (a tube with a video camera) or
- the surgeon opens the chest cavity through a larger cut on your back or side.

After surgery, you will probably stay in hospital for a few days while you recover.

## *Mutation testing*

Each type of lung cancer has subtypes. Several lung cancer subtypes are grouped by changes or mutations to certain **genes**, such as adenocarcinoma.

The pathologist tests for these gene mutations that can provide information about treatment options so you can have the best outcome. A small number of people may have a cancer with a mutation that can be better treated with newer targeted drugs (usually tablets) rather than standard **chemotherapy**. For more information, read page 52 about targeted therapy and chemotherapy.

## **Further tests**

You may have other tests such as blood and breathing tests, kidney tests and bone, brain or liver scans.

If your medical team suggests surgery to treat your cancer, you may need to have more tests to make sure your heart and lungs can cope with the operation. If you have any questions, please ask your doctors or nurse.



## Key Points: How lung cancer is diagnosed

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- Doctors use tests to diagnose lung cancer and help develop a treatment plan.
- Tests - X-rays, CT scans or PET scans, and MRI - are used to make images of the inside of your body to see if you have a lump and if it has spread.
- A piece of the cancer may need to be sampled (a biopsy) to determine which type it is. There are many different ways a biopsy can be taken.
- Your cancer may also be tested for changes to specific genes (mutations) which will help cancer doctors offer the best treatment options for you.
- When the results are all available, your doctor will talk to you about your **prognosis** (the expected outcome for you) or what may happen in your future. This will be based on the type of cancer and how fast it's growing and its stage.
- You will probably see many doctors, nurses and health care professionals who will work together as a multi-disciplinary team to diagnose and treat you. For more information, see page 74 "Multidisciplinary Care Team (MDT)".

## Ngā Tohu Matua: Pēhea tātarihia ai te matepukupuku pūkahukahu

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- Whakamahi ai ngā rata i ētahi whakamātautau hei tātari i te matepukupuku pūkahukahu, hei āwhina hoki i a rātau ki te whakarite mahere maimoa.
- Ka whakamahia ngā whakamātautau whakaata roto, ngā matawai roro CT me ngā matawai PET me te MRI - hei whakamahi whakaaturanga o roto o tō tinana ki te titiro mēnā he puku kei roto, ā, mehemea kua hōrapa haere.
- Tērā pea ka hiahiatia he wāhanga o te matepukupuku hei whakamātau (biopsy) ki te whakatau momo matepukupuku. He maha ngā huarahi mō te tango biopsy.
- Tērā pea ka whakamātauria anō tō matepukupuku ki te titiro mēnā kua puta he rerekētanga ki ngā ira hāngai, mei kore ka āwhina i ngā rata whakarite mahere pai rawa mōu.
- Ka pai ake ngā huanga o te maimoatanga matepukupuku pūkahukahu mēnā ka tere kitea, ka tere te maimoa hoki, pērā anō ki te nuinga o ngā matepukupuku.
- Kāore e kore, ka nui ngā rata, ngā tapuhi, ngā ngaio atawhai hauora ka mahi tahi hei kapa atawhai pūkengamaha ki te whakatau me te maimoa i a koe. Mō te roanga ake o ngā kōrero, titiro ki te whārangi - "Kapa Atawhai Pūkengamaha".

## Staging lung cancer

Your doctor will ‘stage’ your cancer based on the diagnostic test results. **Staging** the cancer helps your medical team decide on the best treatment to offer you.

Staging is based on how much cancer is in the body and where it is. To decide on a stage, doctors need to know:

- the size of the cancer in the lung
- whether it’s in other organs in the chest
- if it has spread to lymph nodes (glands) in the chest or neck
- if it has spread to other parts of the body.

The most common tests to stage lung cancer include X-rays, CT scans, PET scans, bone scans, MRI scans and, sometimes, more biopsies to test for cancer cells. Your doctor will work out the appropriate tests for you.

This table is a simplified version of how lung cancer is staged.

Non-small cell and small cell lung cancer	
<b>Stage 1</b>	Only one <b>lobe</b> of the lung is affected.
<b>Stage 2</b>	The tumour has spread to nearby lymph nodes or the tumour has grown into the chest wall.
<b>Stage 3A</b>	The tumour has spread to lymph nodes in the centre of the chest (mediastinum).
<b>Stage 3B</b>	Tumours have spread more extensively to lymph nodes in the mediastinum or neck, or have become attached to major blood vessels or the trachea.
<b>Stage 4</b>	The cancer cells have spread to distant parts of the body, such as the bones or liver.

## Key Points: Staging lung cancer

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- Staging tells you the size of the cancer in your lungs and if it has spread to other parts of your body.
- After studying your test results, your doctor will 'stage' your cancer between 1 and 4.
- Staging helps your doctor decide on the best treatment for your lung cancer.



## Ngā Tohu Matua: Te whakawāhanga i te matepukupuku pūkahukahu

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- Ko tā te mahi whakawāhanga, he whakamōhio i a koe mō te momo rahi o te matepukupuku kei roto i ō pūkahukahu, ā, mehemea hoki kua hōrapa ki wāhi kē o tō tinana.
- Whai muri i te mahi āta mātai i ō huanga whakamātautau, ka ‘whakawāhanga’ tō rata i tō mate, ki waenganui i te tahi me te whā.
- Mā te mahi whakawāhanga e āwhina tō rata whakatau ko tēwhea te maimoa pai rawa atu mō tō matepukupuku pūkahukahu.



# Section Three:

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## Lung cancer treatment

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## Making decisions about treatment

If you are given a choice of treatment, including no treatment for now, you will need to think about your options.

You may want to ask your doctor questions, such as:

- What is the goal of the treatment?
- Can I expect to live longer if I have treatment?
- If I have treatment, is there a risk that my quality of life could be affected by the treatment?
- Are there other treatments for me?
- What is the chance of the treatment working?

*“At first I wondered if ignorance was bliss, but after a week I thought ‘No’. It’s my body and I want to know what is going to happen, and I want to know if I make a decision what will happen.”*

*- Silei*

For more information on this subject you can read the Cancer Society’s information sheet titled *“Making decisions about your cancer treatment”*. You can receive a copy by phoning the Cancer Information Helpline **0800 CANCER (226 237)**, or contacting your local Cancer Society office. You can read or print a copy of this information sheet from the Society’s website ([www.cancernz.org.nz](http://www.cancernz.org.nz)).

## Treatment options

There is a variety of lung cancer treatments. Your treatment options will depend on your type of cancer and its stage, your general health, how well you can breathe and your personal wishes.

Early stage non-small cell lung cancer is usually best treated with surgery if possible, otherwise a combination of **radiation treatment** and chemotherapy is recommended most of the time.

Small cell lung cancer that hasn't spread to other parts of the body is usually treated with chemotherapy in combination with radiation treatment to the primary lung tumour. Treatment will often involve radiation treatment to the brain as well, as a preventative treatment (known as prophylactic cranial irradiation - **PCI**). Surgery is not often used for this type of cancer because it has usually spread by the time you are diagnosed.

**Research shows that if you quit smoking your treatment is more effective. If you smoke, your medical team will advise you to stop smoking before you have any treatment.**

## Surgery

Surgical removal of a tumour offers the best chance of a cure for patients who have early-stage cancer. The surgeon, with the Multidisciplinary Care Team, will determine if the cancer is only in your lung, assess your general wellbeing and fitness for an operation and will discuss with you what the surgery involves.

How you recover from lung surgery will depend on many factors. However, there are two things you can do to help your recovery from surgery:

- Increase your physical activity (walking short distances) before the surgery if you can.
- Current smokers should stop smoking for a minimum of four weeks before any surgery is performed.

When planning for your hospital stay, consider the following:

- How you'll get to hospital and home from hospital.
- Arrange to have someone at home with you for at least two or three days after you leave hospital. They can help with shopping, laundry and housework.
- Request medical certificates from your doctor, if needed.

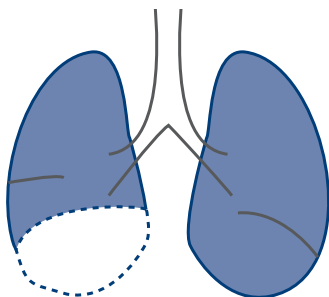
There are a number of things the surgeon and anaesthetist need to know about you before surgery. A few days before surgery you will be asked to go to the hospital for an appointment. At this appointment the following things will be asked:

- If you have had problems with a general anaesthetic before.
- If you have diabetes. Make sure you tell your doctor. Your blood sugar levels will need to be checked during your stay in hospital.
- What medications you are taking (name, dose and time of day that they are taken).

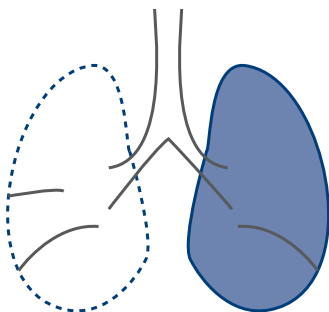
You will be told what day and time you need to stop eating or drinking before surgery.

## ***Types of lung surgery***

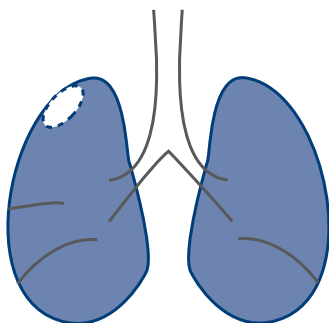
There are several types of lung surgery.



**Lobectomy:** a lobe of the lung is removed.



**Pneumonectomy:** one whole lung is removed.



**Wedge resection:** only part of the lung, not a lobe, is removed.



## After an operation

After major lung surgery you will have an intravenous (IV) drip for at least a few days (though you will be able to eat and drink the day after the operation). There will be one or two temporary tubes in your chest to drain fluid or air from inside your chest.

At first, moving around will be difficult because of the chest tubes. However, with the help of the physiotherapist your movement will improve.

You'll be encouraged to start moving around as soon as possible. Even if you have to stay in bed it's important to keep up regular leg movements to help your circulation and prevent blood clots. You may be given a special support stocking to wear before and after your operation which will help stop blood clots developing in your legs.

A nurse or a physiotherapist will help you with breathing exercises to prevent chest infections or other complications. You will have regular chest X-rays to check on your lung.

The aim is to have you walking independently when you leave hospital, though you may be slower than usual and tire more quickly.

***“The physio came regularly to help me get out of bed after my surgery. Eventually the physio walked me around the room. By the end of the last day in hospital, I could walk around the room myself.”***

***- Ted***

You will have some pain and discomfort but your medical team will work with you to reduce these effects. Tell your doctor or nurse if you are in pain, where it is and how it's affecting you. This is important because if you are not in pain you are more likely to move around and do exercises with the physiotherapist. Pain relief may also help you clear sputum from your chest and reduce your chances of developing a chest infection.

After a thoracotomy, your rib cage may feel stiff or tight on the side of the operation. A physiotherapist will help you do simple arm exercises to help relieve the tightness. You should keep doing these exercises until you no longer feel tightness.

## *Going home*

You will probably go home four to 10 days after the operation but you will still be recovering for about six weeks. The recovery time depends on the type of operation and your fitness. Many patients who have had part of their lung removed feel some breathlessness.

If your lung function was poor before surgery, or if you have one whole lung removed (pneumonectomy), you will feel breathless. Exercising will help to reduce the breathlessness. Your doctor, nurses and physiotherapist will talk to you about how to manage at home. You will be expected to do regular exercises like walking or swimming to speed your recovery.

Your doctor will tell you when it is safe to start driving after your surgery. It can take four to six weeks for you to be well enough after surgery to start driving again.

Some insurance policies give specific time periods for not driving after chest surgery. You may need to check this with your insurance company.

## Chemotherapy

Chemotherapy is the treatment of cancer with anti-cancer (cytotoxic) drugs. The aim of chemotherapy is to kill cancer cells while doing the least possible damage to healthy cells. There are many different types of chemotherapy drugs and different combinations can be used.

Chemotherapy may be given in a number of situations:

- before surgery, to try to shrink the cancer and make the operation easier (rarely done)
- before radiation treatment (done occasionally)
- during radiation treatment (chemoradiation) to increase the effectiveness of the radiation treatment (often done)
- after surgery to reduce the chances of the cancer coming back (often done)
- as palliative treatment for a large cancer in the lung or for cancer that has spread beyond the lung to reduce symptoms and improve your quality of life or extend your life (commonly done)
- as the standard first treatment for most people with small cell lung cancer (often done).

Generally, chemotherapy is given through an intravenous (IV) drip or a plastic catheter (tube) inserted into a vein in your arm, hand or chest. Some types of chemotherapy are given orally (in tablet form).

Chemotherapy may be given every three to four weeks, depending on the type or combination of chemotherapy you are having. The number of treatments you have will depend on the type of lung cancer you have and how well your body is handling the side effects. If you have tablet chemotherapy you will probably take it every day.

### *Side effects of chemotherapy*

Most of the side effects are usually temporary and go away after treatment or within a few months of finishing treatment. A few people manage to continue with their normal life at home and work throughout their chemotherapy.

Side effects of chemotherapy may include:

- infections - the drugs can lower your immune system's ability to suppress infection
- easy bruising or bleeding
- mouth ulcers
- diarrhoea or constipation
- feeling sick (nausea) or vomiting
- tiredness
- loss of appetite or taste changes
- hair loss
- hearing loss
- pins and needles or numbness
- skin rash.

**If fever develops (if your temperature is 38 degrees or over) or you feel unwell, even with a normal temperature, don't wait to see what happens - take action quickly. Contact your local hospital and follow the advice given.**

For more information on chemotherapy and its side effects, phone the nurses on the Cancer Information Helpline **0800 CANCER (226 237)**.

For a copy of *Chemotherapy/Hahau*, contact your local Cancer Society or read it online on the Society's website ([www.cancernz.org.nz](http://www.cancernz.org.nz)).

## Targeted therapies

Recent research has discovered that the growth of some lung cancers depends on the presence of damaged genes (mutations) in the cancer cells. These mutations are not inherited or passed on to your children. The causes of these mutations are unknown.

Some drugs ‘switch off’ mutations and stop cancer cells from growing and ‘communicating’ with each other.

These are called ‘targeted’ or biological therapies because these drugs target specific mutations or specific proteins (cell growth receptors that talk with other cancer cells) within the cancer cell. These therapies target cancer cells, but some normal healthy cells can also be affected.

Targeted therapies are available for EGFR and ALK mutations. If your doctor suspects that your cancer may be due to a mutation, the doctor will ask the laboratory to analyse the cancer tissue to see if you have a mutated gene. Finding a mutated gene will guide your doctor’s choice of targeted therapy. This is often referred to as ‘personalised medicine’.

Examples of targeted therapies are drugs that attack the cancer’s blood supply (anti-angiogenesis drugs), and drugs that block the signals that make the cancer grow. Talk to your doctor about whether targeted therapies are suitable for you.

## *Side effects of targeted therapies*

The most common side effects include:

- loss of appetite (not wanting to eat)
- shortness of breath
- fatigue/extreme tiredness
- skin rash (acne, irritable skin)
- nail changes
- diarrhoea
- nausea
- mouth ulcers.

## Radiation treatment

Radiation treatment treats cancer by using X-ray beams to kill cancer cells. Radiation treatment can be offered when lung cancer cannot be managed by surgery and has not spread outside the chest. Radiation treatment can also be used to treat cancer that has spread to the lymph nodes within the chest. It is often given together with chemotherapy if the aim of treatment is to try to cure the cancer.

It can also be used:

- to treat a small, early stage lung cancer, where the patient is not able to have an operation
- after surgery to treat sites where cancer was unexpectedly found and, possibly, not completely removed to reduce the chances of the cancer coming back
- as palliative treatment to treat cancer that has spread to other organs such as the brain or bones
- as palliative treatment to the chest, to reduce symptoms, improve your quality of life or extend your life (see page 68)
- to the brain as part of the treatment plan for small cell lung cancer - PCI.

To plan radiation treatment, the radiation therapist will take a CT scan of the treatment area. To ensure that the same area is treated each time, the radiation therapist will make a few small marks (tattoos) on your skin that will be aimed at during each treatment session.



During treatment, you will lie on a treatment bench (very similar to a CT bench). A machine delivering radiation will be positioned around you. The treatment session itself will take about 10 to 15 minutes. Radiation treatment is painless and there is no sensation of heat. The radiation therapist giving you the treatment will make you as comfortable as possible.

For more information, call the nurses on the Cancer Information Helpline **0800 CANCER (226 237)**.

For a copy of *Radiation Treatment/Haumanu Iraruke* read the booklet on the Society's website ([www.cancernz.org.nz](http://www.cancernz.org.nz)) or contact your local Cancer Society for a copy.



## *Side effects of radiation treatment*

Radiation treatment is not painful. There are possible side effects, which may gradually develop during a long course of treatment or soon after a short course.

These can be temporary or permanent. It is important to discuss any side effects with your cancer treatment team who can advise you on what to expect and how to manage these effects.

Side effects may include:

- tiredness
- skin irritation
- not wanting to eat
- nausea (feeling sick) or vomiting
- sore throat
- difficulty swallowing
- breathlessness
- chest pain.

Radiation treatment may be used to treat many areas of the body as well as the chest. It is particularly useful for relieving pain if lung cancer has spread to affect the bones.

# Summary of managing treatment side effects

Lung cancer treatment can cause temporary and permanent side effects.

Common side effects when you have radiation, chemotherapy and targeted therapy treatments include effects on the blood and immune system (such as anaemia (low red blood cells) and infections), fatigue (extreme tiredness), nausea and vomiting, constipation, diarrhoea, and itchy and dry skin.

Radiation treatment side effects can vary. You may develop hot, dry skin (similar to sunburn) where you were given treatment. Scarring of the lungs with shortness of breath can occur later after treatment finishes.

Most chemotherapy drugs cause side effects, with the most common including nausea (feeling sick), fatigue, hair loss, skin rashes and mouth sores.

Targeted therapy can cause diarrhoea, skin rash and changes to your nails.

**If fever develops (if your temperature is 38 degrees or over) or you feel unwell, even with a normal temperature, don't wait to see what happens - take action quickly. Contact your local hospital and follow the advice given.**

Talk to your medical team if you have side effects. In most cases, there are ways to make these easier to manage.

For more information on managing side effects, read the Society's booklet *Coping with Cancer* which is available from your local Cancer Society, from our website ([www.cancernz.org.nz](http://www.cancernz.org.nz)) or the nurses on the Cancer Information Helpline **0800 CANCER (226 237)**.



## He whakarāpopotonga o te mahi whakahaere pānga puta nā te maimoatanga

Tērā pea ka puta he pānga kino mō te wā poto, mō te wā roa rānei nā runga i ngā maimoatanga mō te matepukupuku pūkahukahu.

Ko ētahi o ngā pānga puta hāngai ki ngā maimoatanga iraruke, ki te hahau me ngā haumanu hāngai pū, ko te raruraru ka pā ki te pūnaha toto me te pūnaha ārai mate. (pērā ki te anaemia (iti o ngā pūtau toto whero) me ngā mate urutā), te hūhi (tino hiamoe), te hiaruaki me te ruaki hoki, te kiri māeneene me te maroke.

He rerekē ngā pānga ka puta nā runga i ngā maimoatanga iraruke, Tērā pea, ka wera, ka maroke rānei tō kiri (rite ki te tīkākā) i te wāhi i whiwhi koe i te maimoa. Tērā pea, ka puta he nawe ki ngā pūkahukahu me te poto o te mahi hā whai muri i ngā maimoatanga.

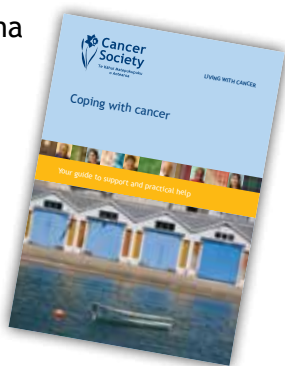
Whai pānga puta anō ai te nuinga o ngā whakapōauau hahau, ā, ko ngā mea kitea whānuitia ana, ko te hiaruaki, te hūhi, te kore makawe, ngā kōpukupuku kiri me ngā harehare o te waha.

Ka puta pea he mate korere (tikotiko), he mate kōpukupuku ki te kiri, me te rerekē o ngā matikara nā runga i te haumanu hāngai pūkahukahu.

Ki te puta te kirikā (ki te piki tō mahana ki te 38 tohura, nui ake rānei), kei te māuiui rānei koe, ahakoa te pai o tō ine mahana, kaua e tatari - kia kakama te whai āwhina. Whakapā atu ki tō hōhipera ā-rohe, ka whai i ō ratou tohutohu ki a koe.

Kōrero ki tō kapa hauora mēnā ka puta he pānga kino. I te nuinga o ngā wā, ka kitea he huarahi hei whakamāmā ake i te mahi whakahaerenga.

Mō te nuinga ake o ngā kōrero e pā ana ki te mahi whakahaere i ngā pānga ka puta, pānuitia te pukapuka a te Kāhui Matepukupuku, *Coping with Cancer*, e wātea ana mai tō Kāhui Matepukupuku ā-Rohe, mai rānei i tō mātou paetukutuku ([www.cancernz.org.nz](http://www.cancernz.org.nz)), mai ngā tapuhi rānei i runga i te Cancer Information Helpline **0800 CANCER (226 237)**.



## Taking part in a clinical trial

Your doctor may suggest that you consider taking part in a clinical trial. You could also ask if there is a clinical trial for your particular kind of cancer.

Clinical trials are a vital part of the search to find better treatments for cancer, to test new or modified treatments and to see if they are better than existing treatments.

Many people all over the world have taken part in clinical trials that have improved cancer treatments. However, the decision to take part in a clinical trial is yours.

If you are asked to take part in a clinical trial, make sure that you fully understand the reasons for the trial and what it means for your treatment.

For more information, contact your local Cancer Society for a copy of our booklet *Taking Part in Cancer Clinical Trials: A guide for people considering taking part in a clinical trial.*



You can read this booklet on the Society's website ([www.cancernz.org.nz](http://www.cancernz.org.nz)) or get a copy by phoning the Cancer Information Helpline **0800 CANCER (226 237)**.

## Other treatments

Often, people with cancer think about using complementary therapy, alternative therapies or traditional healing. Many people feel it gives them a greater sense of control over their illness, and that it's 'natural' and low-risk. They just want to try everything that seems promising. For many it is their usual cultural practice (for example, rongoā).

It is important to talk to your doctor about any other therapies you're using or thinking about because they may interfere with hospital treatment.

### *Complementary therapies*

Complementary therapies include massage, meditation, acupuncture and other relaxation methods, which are used alongside medical treatments used by your cancer doctor. They may help you feel better and cope better with your cancer treatment.



## *Alternative therapies*

Alternative therapies include some herbal and dietary therapies, which are used instead of medical treatment. Most have not been tested scientifically. Most that have been tested have not worked, or have been harmful, especially:

- when used instead of medical treatment
- if the herbs or other therapies make your medical treatment less effective.

Many unproven therapies are advertised on the internet and elsewhere without any control or regulation.

For more information, we recommend you read the Cancer Society's booklet:

- *Complementary and Alternative Cancer Medicines:  
For people with cancer, their family and friends*

Before using a complementary or alternative remedy or traditional healing, it is recommended you discuss it with your doctor.

## *Traditional healing*

Traditional healing includes rongoā, Pacific medicine, Ayurveda and Chinese medicine.

## *Traditional Māori healing*

Traditional healing has been an integral part of Māori culture since time began. Values, belief systems and teachings from kaumātua and tohunga alike have seen Māori focus on total wellbeing encompassing taha tinana, taha hinengaro, taha wairua and taha whānau (the physical domain, the domain of mind and behaviour, the spiritual domain and the family or social domain).

When Māori are faced with tough decisions on health care or treatment, some opt for traditional healing methods. These can include rongoā Māori, romiromi or mirimiri to name a few customary remedies based on native plants, massage therapy and spiritual healing. If you are thinking about using these treatments, please talk about them with your clinical treatment team. Both parties aim to provide you with the best possible care which has minimal side effects.

If you have difficulty expressing your needs to your treatment providers, find someone to advocate on your behalf so both traditional Māori healers and hospital treatment specialists are able to work together to support you on your lung cancer journey.

## *Whakaoranga Māori taketake*

He wāhanga taketake te whakaoranga Māori o ngā tikanga tuku iho a te Māori, nō mai rā anō. E kitea ana, nā runga i ngā uara, te pūnaha whakapono hoki, me ngā whakaakoranga a ngā kaumātua tae noa ki ngā tohunga hoki, kei te aro te Māori ki tēnei mea te orange, e whakaemi ana i te taha tinana, te taha hinengaro, te taha wairua me te taha whānau hoki (te wāhanga kikokiko, te wāhanga o te hinengaro me te whanonga, te wāhanga o te wairua, me te wāhanga o te whānau, arā te wāhanga pāpori)

Ka puta ake ana he raruraru ki te Māori mō te whakatau i te huarahi pai hei whai mō te atawhai hauora, te maimoatanga rānei, arā ētahi ka huri ki ngā āhuatanga hauora taketake. Ko ētahi o ēnei mahi, ko te rongoā Māori, te mahi romiromi, ko te mirimiri rānei ā, ko ngā rongoā tuku iho e hāngai ana ki ngā tarutaru otaota whenua, te haumanu mirimiri me te whakaoranga ā-wairua.

Mehemea e whakaaro ana koe ki te whai i tētahi o ēnei maimoatanga, tēnā koa kōrero ki tō kapa maimoa haumanu. Ka aro ngā hunga e rua nei ki te hoatu i te atawhai pai rawa atu mōu, me te atawhai iti ake ngā pānga ki te taha.

Mehemea he uaua māu ki te whakaputa i ōu hiahia ki ngā kaiwhakarato maimoa, kimihia tētahi tangata hei kaitaunaki mōu kia āhei ai ngā kaiwhakaora Māori taketake me ngā mātanga maimoa o ngā hōhipera ki te mahi ngātahi ki te tautoko i a koe i runga i tō ara roa, te matepukupuku pūkahu.

## *Pacific traditional healing*

Traditional healing has long been used by Pacific people to help in their recovery. It involves taking a holistic approach to treating the person, where their mental, emotional, physical and spiritual wellbeing are looked after together, rather than as separate parts. The treatment offered to each person can vary, depending on their needs.

Medicinal plants and herbs may be used during the treatment process, as well as stones and massage. Pacific people may choose to complement Western treatment with traditional healing.

If you choose to include traditional healing as part of your treatment, please make sure you let your doctors know. They may ask questions about the types of treatments your traditional healer is using. This can be difficult to explain sometimes, especially if it is tricky to work out which English words to use to translate certain Pacific concepts.

If you find it hard to tell your doctor or nurses about the traditional healing methods being used by your healer, it may be helpful for your doctor or nurses to talk directly to your healer or even a close family member who knows what treatments you are receiving.

It may sometimes feel like the doctor and the traditional healer don't need to know about what each other is doing. But it is important they do to make sure the medicines you're taking are working well together and not causing side effects. Traditional plant medicines can sometimes react with Western drugs. Your doctor may also want to make sure that traditional massages are okay to use, particularly around the chest area if you have just had your operation.

It is possible to use both Western and traditional medicine as part of your healing journey. Both have their place and benefits.



## *Palliative care*

**Palliative care** is caring for people with advanced cancer that focuses on improving quality of life. It is not just about care at the end of life. Palliative care can be offered in a hospital, rest home, at home or in a hospice.

Palliative care is coordinated care provided by specialist doctors, nurses, social workers, spiritual care workers and whānau and Pacific health care.

Palliative care will:

- help you enjoy the best quality of life you can for as long as possible
- make sure your physical, practical, emotional and spiritual needs are looked after as well as possible
- help manage symptoms of lung cancer or treatment
- help you feel in control of your situation
- make the time you have as positive as it can be for you and your family.

It is a good idea to ask for palliative care early – being able to deal with problems or issues early rather than waiting until they become difficult to manage can help reduce stress for both you and your family.

You may also be faced with decisions and choices that are confusing or difficult to make during your illness. The palliative care team may be able to explain things to you, and help you find answers.

In general, palliative care services are free. There may be a charge for hire of some equipment for home care.

Palliative care and hospice services are funded by both the government and voluntary donation.

## Key Points: Treatment options

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You may be offered these, or a combination of these treatments:

- Surgery to remove a cancer gives the best chance of a cure for most people with early-stage lung cancer.
- Radiation treats cancer by killing cancer cells. It can effectively treat lung cancer that has not spread outside the chest. It is often used in combination with chemotherapy. It can also be used to treat symptoms such as pain if your lung cancer has spread to other parts of your body such as the bones.
- Chemotherapy is the treatment of cancer with anti-cancer (cytotoxic) medicine. It may be used on its own or in combination with surgery, radiation or targeted therapies.
- Targeted therapy is a new form of cancer treatment also known as biological therapy. Each targeted therapy works by interfering with how cancer cells grow, multiply, repair and/or communicate with other cancer cells. Targeted therapy is available for a small number of types of lung cancer.
- Complementary therapies are used alongside hospital treatments. They may help you feel better and cope better with hospital treatments.



- Traditional healing includes rongoā, Pacific medicine, Ayurveda and Chinese medicine. Talk to your doctor if you wish to use them with your other treatments.
- You could ask if there is a clinical trial for your particular kind of cancer. Your doctor may suggest that you consider taking part in a clinical trial.
- Palliative and supportive care is treatment that helps improve quality of life throughout your lung cancer experience when you're unlikely to be cured. Your GP, hospital doctor or nurse can refer you to a palliative care service. The palliative care specialist team plans your care with you and talks with your GP and Multidisciplinary Care Team.

## Ngā Tohu Matua: Ngā kōwhiringa maimoatanga

---

Ka taea ēnei momo maimoatanga te whakamahi takitahi, te whakamahi ngātahi rānei.

- Ko te Hāparapara ki te tango i te matepukupuku te huarahi pai rawa atu hei whakaora i te nuinga e whai ana i te wāhanga-tōmua o te matepukupuku pūkahunahau.
- He maimoa matepukupuku te Iraruke mā te patu i ngā pūtau matepukupuku pūkahunahau. He pai tonu mō te maimoa i te matepukupuku pūkahunahau kāore anō i puta ki waho o te poho. He nui tonu ngā wā ka whakamahia ngātahi me te mahi hahau. Ka taea hoki te whakamahi hei maimoa i ngā tohumate pērā ki ngā mamae ka pā ki ētahi atu wāhi o te tinana nā te matepukupuku pūkahunahau.
- Ko te mahi Hahau, he maimoa matepukupuku mā te whakamahi i ngā rongoā patu matepukupuku (cytotoxic). Ka taea te whakamahi takitahi, te mahi ngātahi me te hāparapara, te iraruke me ngā Haumanu hāngai pū.
- Ko te Haumanu Hāngai Pū tētahi momo maimoatanga hou, mōhiotia anō hoki hei haumanu koiora. He whāinga hāngai te mahi a ia o ngā haumanu hāngai pū, ka whakararu i te āheinga o ngā pūtau matepukupuku ki te tipu, ki te whakarau, ki te whakatikatika, ki te hono rānei ki ētahi pūtau matepukupuku. E wātea ana te haumanu hāngai pū mō te iti noa iho o ētahi momo matepukupuku pūkahunahau.

- Whakamahia ai ngā Haumanu Tautoko i te taha o ngā maimoatanga hōhipera (pērā ki te romiromi me te whakamanatu).
- Tērā pea ka kōrero tō rata ki a koe mō te whakauru ki tētahi whakamātautau haumanu. Tērā pea māu tonu e pātai mehemea he whakamātautau haumanu mō tōu ake momo matepukupuku.
- He maimoa āwhina i te kounga oranga i te wā katoa o tō matepukupuku pūkahukahu te Atawhai Taurima me te Atawhai Tautoko, i te wā kua kore pea e ora anō.
- Ka taea e tō rata kāinga, tō rata hōhipera, tō tapuhi rānei, te tohu i a koe ki te ratonga atawhai taurima, a, mā ngā kapa mātanga atawhai taurima e whakamahere tō atawhai ki te taha i a koe, me te kōrero ki tō rata kāinga me te ka pa atawhai pūkengamaha.

## Multidisciplinary Care Team (MDT)

You will be cared for by a range of health professionals, known as a Multidisciplinary Care Team (MDT). Each focuses on a different part of your treatment. Working with you, the team will develop a treatment plan that offers you the best care. You may have different types of doctors on your Multidisciplinary Care Team, depending on the stage of your cancer and your treatment options.

Your Multidisciplinary Care Team is likely to include:

- **a respiratory physician** - a doctor who focuses on diseases of the lungs and respiratory tract. They help to diagnose and stage cancer and improve breathing.
- **a cardiothoracic (chest) surgeon** - does some diagnostic tests and does any surgery to remove cancer from the lung.
- **a pathologist** - analyses samples of body tissue or fluids to help with diagnosing and staging lung cancer.
- **a medical oncologist** - a doctor who specialises in cancer treatment using medications (drugs). They are responsible for prescribing any chemotherapy and other treatment options such as targeted therapies.
- **a radiation oncologist** - a doctor specialising in cancer treatment who arranges, prescribes, plans and supervises any course of radiation treatment.
- **a radiologist** - uses diagnostic imaging methods to see inside the body (for example, CT scans).

- **cancer nurses and care coordinators** - give nursing care and information to support you throughout your treatment.
- **palliative care doctors and nurses** - work closely with your GP and cancer doctors to provide supportive and palliative care so you can cope better with the effects of cancer at home and in hospital.
- **a physiotherapist** - helps treat your body so you can cope with the physical effects caused by lung cancer, surgery and treatment side effects.
- **an occupational therapist** - helps you with everyday tasks like bathing, dressing and cooking.
- **a social worker** - provides support and information about emotional and practical problems such as employment issues, money problems, home help and childcare.
- **a pharmacist** - gives advice on medication.
- **a dietitian** - gives advice on nutrition.
- **GP** - responsible for your general health and referral for specialist treatment.

As well as the Multidisciplinary Care Team, hospitals also have pastoral care/spiritual care workers and whānau and Pacific health care workers who are available on request to talk to you throughout your treatment.

If you are a smoker, you can increase your chances of responding to treatment if you stop; however, as smoking is an addiction you are more likely to succeed with help. You can ask for support from any member of your Multidisciplinary Care Team. They will put you in contact with a quit smoking service in your local area.



## Key Points: Multidisciplinary Care Team (MDT)

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Correctly diagnosing lung cancer and choosing the best treatment plan can be a long process and needs a team of health professionals working together. They're your Multidisciplinary Care Team.

Your Multidisciplinary Care Team may include:

- a respiratory physician
- a cardiothoracic (chest) surgeon
- a pathologist
- a medical oncologist
- a radiation oncologist
- a radiologist
- cancer nurses and care coordinators
- palliative care doctors and nurses
- a physiotherapist
- an occupational therapist
- a pharmacist
- a social worker
- a dietitian
- a General Practitioner (GP)
- a pastoral/spiritual advisor or whanāu and Pacific health care may also be available.

You will also be able to get help to quit smoking if you are a smoker. (Quitting smoking improves your outlook.)



# Ngā Tohu Matua: Kapa Atawhai Pūkengamaha

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He wā roa tonu te hātepe mō te tātari tika i te matepukupuku pūkahukahu me te kōwhiri i te mahere maimoatanga pai rawa, me te aha, me whai kapa kaimahi ngaio hauora ka taea te mahi ngātahi. Koinā tō kapa atawhai pūkenga-maha.

Tērā pea, ko ēnei ngā tāngata kei roto i te kapa atawhai pūkengamaha:

- tētahi rata matehā
- tētahi mātanga cardiothoracic (poho)
- tētahi pathologist
- tētahi rata mātai matepukupuku
- tētahi kaimātai matepukupuku iraruke
- he mātanga iraruke
- ētahi tapuhi matepukupuku me ngā kairuruku manaaki
- ētahi rata me ngā tapuhi atawhai taurima
- tētahi kairomiromi
- tētahi kaihaumanu mahi
- He kaiwhakaipurangi rongoā
- He tauwhiro
- He mātanga nohopuku
- He Rata Hāpori

*haere tonu*

- Tērā pea ka wātea mai anō he kaitohotoho ā-hāhi, a wairua, he āwhina hauora, ā whānau, ā-Te moana-nui-ā-kiwa hoki.

Ka taea hoki te whai āwhina ki te whakamutu i tō momi hikareti mehemea he tangata momi hikareti koe. (Ki te mutu koe, ka pai ake tō oranga.)

# Section Four

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## Managing lung cancer symptoms

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Breathlessness (being short of breath) .....83

Pleural effusion .....90

Cough .....92

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Fatigue (no energy).....94

Trouble sleeping.....95

Nausea (feeling sick) .....96

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**Key Points:** Ways of managing lung cancer symptoms .....98



## Ways of managing lung cancer symptoms

Lung cancer can affect the tissue around the lung, and cause symptoms like coughing, bloodstained sputum (phlegm), breathlessness and chest pain. The cancer can also make you less hungry, cause weight loss, leave you feeling tired and, sometimes, you may not be able to sleep at night. Most of the time, the best way to improve lung cancer-related symptoms is to have treatment to treat or shrink the cancer.

Speak to your doctor or nurse about any symptoms you have. As well as cancer treatments, your doctor may be able to refer you to a palliative care service to help you manage your cancer symptoms (see page 68).

## Breathlessness (being short of breath)

Ways of managing breathlessness include:

- medication
- breathing techniques
- relaxation exercises
- other treatments for breathlessness - chemotherapy or radiation to shrink a cancer, and oxygen therapy
- pleural effusion
  - **thoracentesis** (plural tap)
  - pleurodesis
  - indwelling pleural drains.

If you're feeling breathless, try the Action Plan for Breathlessness on the inside back cover of this handbook. (You may like to cut off and stick this Action Plan on your refrigerator or somewhere you can find it easily.)

Managing lung cancer-related breathlessness will depend on the cause of your shortness of breath. There are several ways to ease your discomfort. Your doctor may do some tests to investigate your breathlessness, including a chest X-ray or measuring how much oxygen is making it into your bloodstream. It is important to work out what is causing your breathlessness and to help you manage this.

## *Medication*

Your doctor may give you medication (drugs) to help with breathlessness caused by lung cancer. These may treat pneumonia (chest infection), wheezing, fluid build-up in the lungs or anxiety.

## *Breathing techniques*

Although breathlessness can be a difficult symptom to live with, there are things you can do to prevent or reduce its impact on your life. In this section, we explain some breathing techniques that can help.

Get into a comfortable position.

When you feel breathless, it helps being in a comfortable position that supports your upper chest muscles and allows your **diaphragm** and tummy to expand. In the following pages, we describe four comfortable positions.

## ***Position 1***

Sit in a chair in an upright position, with your back supported, legs uncrossed and feet resting comfortably on the floor. Let your shoulders drop and feel heavy, with your arms resting softly in your lap. Keep your head upright.



## ***Position 2***

Sit in a chair and lean forward with your upper body. Have your legs uncrossed, feet on the floor and shoulders relaxed. Slowly move forward a little so that your elbows and lower arms are resting on your thighs, supporting your upper body. Keep your knees shoulder-width apart and let your chest relax when you lean forward.





### ***Position 3***

Stand and lean forward onto a secure surface. Let your arms and elbows rest on the surface so that you're supporting the weight of your upper body. Keep your shoulders and chest relaxed by letting your forearms remain shoulder-width apart.



## ***Position 4***

Stand in an upright position and lean back against a secure surface. Let your arms drop to your sides and make your shoulders heavy and relaxed.

**Source:** Macmillan Cancer Support UK accessed on the internet 30/10/2013: <http://www.macmillan.org.uk/Cancerinformation/Livingwithandaftercancer/Symptomssideeffects/Breathlessness/Breathingmoreeasily.aspx>



## *Relaxation exercises*

There are relaxation exercises you can do to help when feeling short of breath. A member of your Multidisciplinary Care Team will teach you and your family exercises so that you can practise them at home.

## *Other treatments for breathlessness*

Your doctor may suggest more treatment to improve your breathing. This could include:

- chemotherapy or radiation to shrink a cancer
- oxygen therapy (in hospital and/or at home).

## Pleural effusion

Sometimes, fluid builds up in the chest because the cancer has spread. Lung cancer can spread to the pleura. The cancer irritates the pleura and they then make too much fluid which is called a pleural effusion.

You may be treated with:

- thoracentesis (pleural tap)
- pleurodesis
- indwelling pleural drains.

### *Thoracentesis (pleural tap)*

When fluid builds up in the area between the lung and the chest wall (**pleural cavity**) you may experience shortness of breath, tiredness or pain. Your doctor can try to relieve the symptoms by removing the fluid, performing a procedure called thoracentesis (pleural tap). Fluid is sucked out or drained out from around the lungs through a plastic tube inserted under local anaesthetic.

## *Pleurodesis*

If the fluid returns after you have had a pleural tap, your doctor may consider doing a procedure called pleurodesis which involves draining fluid and inserting talcum powder into the pleural cavity (between the lung and the chest wall). The powder inflames the membranes and makes them stick together, which reduces the risk of the fluid coming back. This can be done at the patient's bedside.

## *Indwelling pleural drains*

Some patients cannot have surgery, or built-up fluid isn't controlled with pleurodesis. They're offered a long-term (permanent) indwelling pleural catheter, which is a drainage tube that is put into the pleural cavity to drain fluid when the fluid returns and causes symptoms like shortness of breath.

The tube remains in the space around the lung and is fixed to the skin under a dressing. The tube is connected to a small bottle that collects the fluid. The drain can be managed by the patient, a confident carer or the community nurse service.

## Cough

Coughing is a common symptom of lung cancer which can be upsetting if you find it hard to stop.

Usually, the best way to treat coughing is to treat the lung cancer. If it's not possible to remove the cancer with surgery, using chemotherapy or radiation treatment to try to shrink the cancer can help.

Some medications can be very helpful to reduce the effects of your cough. They may be given in tablet or liquid form. Sometimes breathing in steam or having saline through a nebuliser (a fine spray) is helpful.

If you're coughing up green or dark yellow sputum (phlegm) you may have an infection and need to see your doctor about antibiotics.

# Pain

There is a range of prescription medications and complementary therapies to help with pain caused by lung cancer.

Radiation treatment or chemotherapy, medications and other medical treatments are also used to treat cancer pain. Many people find a combination of more than one treatment helps, but everyone is different, so it might take time to find the right pain relief for you.

Sometimes, it is not possible to control all pain. You may still feel some discomfort. However, your health professionals, particularly your palliative care nurse and GP, will help make you feel as pain-free as possible.

Morphine is a medication very commonly prescribed to reduce pain. It has the added advantage of reducing breathlessness and cough.

Pain cannot be seen or tested for by your doctor or nurse so it's important to tell them if you are in pain.

## Fatigue (no energy)

Fatigue can be described in many ways, including feeling exhausted, extremely tired, sleepy, drowsy or finding it difficult to concentrate. Fatigue can appear suddenly and rest may not help. Here are some ideas to help cope with fatigue:

- Let people help you. Family, friends and neighbours may offer to help with tasks, such as shopping, childcare, housework and driving.
- Take a few weeks off work during or after having treatment or work fewer hours. You may be able to work from home.
- Do light exercise, such as walking, and keep up your normal exercise routine if approved by your doctor. Don't start any new exercise routine until you feel better after treatment.
- Try to eat a healthy, well-balanced diet. Some people find small, frequent snacks more appealing than trying to eat a meal. If you have nausea, have your meals when you feel like eating.
- Fatigue may be caused by some specific things that can be found in blood tests and may be improved by treatment.



## Trouble sleeping

Some people with lung cancer have trouble sleeping or have a problem falling asleep with long periods where they lie awake or don't get enough sleep which can affect how well they feel during the day. If you are in pain this may affect your sleep.

### Ways to cope with not being able to sleep (insomnia) are:

- Unless you are very unwell, try to wake up at the same time each day.
- Try to go to bed at the same time each night.
- Try to spend time in bright light during the day.
- Create a quiet, dark and restful place for sleeping.
- Be careful with caffeine - caffeinated drinks like tea, coffee and soft drinks. These may give you energy but may leave you feeling anxious.
- If you're not sleeping well, talk with your health care team.
- Take your pain medication.

You may like to read our information sheet "*Cancer-related fatigue*" on our website ([www.cancernz.org.nz](http://www.cancernz.org.nz)).

# Nausea (feeling sick)

Nausea (feeling sick) is a common symptom of lung cancer. Even if you do not feel sick (nauseous) you may not feel hungry or enjoy foods you used to like.

For more information, contact your local Cancer Society for a copy of the information sheet “Coping with the Side Effects of Chemotherapy and Radiation Treatment: Fever, Nausea (feeling sick) and Vomiting”, read it on the Society’s website ([www.cancernz.org.nz](http://www.cancernz.org.nz)) or phone the nurses on the Cancer Information Helpline **0800 CANCER (226 237)**.



## Weight loss

Weight loss is a common symptom of lung cancer. If you're underweight or losing weight, try to eat good sources of protein and include foods high in calories in your diet.

For extra protein, eat meat, fish or poultry at least once a day; preferably more.

Good sources of protein and energy include:

- meat, fish or poultry
- milk and dairy products
- legumes (for example, baked beans, kidney beans, chick peas, lentils) and nuts.

If weight loss is a problem for you, talk to a dietitian for more information. They may recommend adding supplements to your diet.

The Cancer Society has a booklet titled *Eating Well During Cancer Treatment* to read or listen to on our website ([www.cancernz.org.nz](http://www.cancernz.org.nz)). You can also get a copy from your local Cancer Society or by phoning the nurses on the Cancer Information Helpline **0800 CANCER (226 237)**.

## Key Points: Ways of managing lung cancer symptoms

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- You can get a variety of symptoms caused by lung cancer, from pain and breathlessness (being short of breath) to weight loss and trouble sleeping. Your doctor can help with pain relief.
- Manage your fatigue (extreme tiredness) with the help of family/whānau and friends as well as through exercise and diet.
- If you are underweight or losing weight you will need to have more protein and energy in your diet. Your doctor, nurse or dietitian can provide advice on your diet.
- Talk to your doctor if you have any breathing problems, if you are coughing up any green, yellow or blood stained sputum (phlegm) or your breathlessness is getting worse.

We suggest you also read our booklet *Coping with Cancer: Your guide to support and practical help*.

## Ngā Tohu Matua: Te whakarite i a koe mō ngā tohumate matepukupuku pūkahukahu

---

- He maha ngā momo tohumate ka puta nā runga i te matepukupuku pūkahukahu, mai i te mamae me te hēmanawa (te poto o te whakahā), ā, tae noa ki te hekenga taumaha me te uaua ki te moe. Ka taea e tō rata tō mamae te āwhina.
- Whakahaeretia tō hiamoe (hūhi) mā te huri ki ngā āwhina a tō whānau me ngā hoa, mā ngā mahi korikori tinana me te nohopuku hoki.
- Mēnā kei te iti rawa tō taumaha, kei te heke rānei tō taumaha, me nui ake te kai pūmua me te pūngao i roto i tō nohopuku. Mā tō rata, tō tapuhi, tō mātanga nohopuku rānei e hoatu tohutohu/whakaaro ki a koe mō te mahi nohopuku.
- Kōrero ki tō rata mēnā kei te raruraru tō whakahā, kei te maremare hūare kākāriki, hūare kōwhai, hūare whai toto rānei koe, mēnā kei te hēmanawa rawa koe.



# Section Five

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## The impact of lung cancer

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Looking after yourself..... 103

Psychological, social and counselling support.... 103

Cultural and spiritual support..... 106

Interpreting Services ..... 106

For families/whānau ..... 107

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**Key Points:** The impact of lung cancer ..... 110



## Dealing with negative attitudes to lung cancer

Many people with lung cancer, whether they smoked or not, can experience negative attitudes from others or in the media because lung cancer is so strongly linked to smoking. You may feel judged and blamed by others for your cancer. This can be hard to cope with especially if you're feeling unwell. It may increase stress and you may be less likely to talk about your diagnosis. Some people say they feel guilty and ashamed. This can lead to depression or anxiety and affect your quality of life.

If you're feeling this way, talk with people around you about how you're feeling or talk to a counsellor.

Phone the Cancer Information Helpline  
**(0800 CANCER 226 237)** for services in your area.

It may be helpful to read the following information:

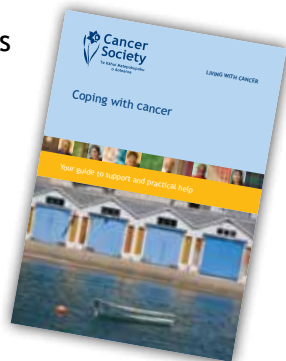
- Smoking is one of the most difficult addictions to conquer.
- Some people are more at risk of getting lung cancer due to a faulty gene passed down through their family.
- Other factors may cause lung cancer including air pollution, asbestos and second-hand smoke.
- As many as 15 percent of people with lung cancer have never smoked.



## Looking after yourself

Cancer can cause physical and emotional strain. Eating well, exercising and relaxing may help reduce stress and improve wellbeing. Addressing changes in your emotions and relationships early on is also very important.

For more information, read the Cancer Society's booklet *Coping with Cancer*, which is available from your local Cancer Society or from the nurses by phoning the Cancer Information Helpline **0800 CANCER (226 237)**.



## Psychological, social and counselling support

When you're diagnosed with lung cancer, suddenly you're faced with decisions and emotions you never thought you would have to deal with. The thought of lung cancer is frightening in different ways. Your first thoughts may be:

- How serious is this?
- Am I going to die?
- Will it be cured?
- Will I be able to do the things I usually do?

In the time after diagnosis, you may experience many different feelings. Common reactions are anxiety or fear,

sadness and, sometimes, anger. Such strong emotions can make you feel as if you're losing control of your emotions or your life. You may never have felt this way before and it can be overwhelming.

When you have lung cancer, you will have to deal with many things for the first time. No matter how you're feeling, support services are available to you. If you speak to your GP or medical team, they can refer you to someone such as a counsellor or psychologist who can help you manage these feelings.

### *A counsellor or psychologist:*

- encourages you to talk about any fears, worries or emotions you may be feeling
- helps you to work through feelings of loss or grief
- can help you and your partner with relationship issues
- helps you resolve problems so that you can find more pleasure in your life
- teaches you ways to handle any anxiety you have
- may show you meditation or relaxation exercises to help ease physical and emotional pain
- can help you to communicate better with your family.

To find a counsellor, contact your GP, your local Cancer Society or phone the nurses at the Cancer Information Helpline **0800 CANCER (226 237)**.

## *Social workers*

Social workers are available to help support you and your family/whānau through the social and emotional changes a cancer diagnosis brings. If you don't already have a social worker, your hospital doctor or nurse can arrange a referral.

Social workers:

- provide information and support to help you manage the impact your cancer may have on you and your family
- help set up support services, including help at home (domestic assistance) and help with personal care, so you can stay independent at home
- help with accommodation for you and your family/whānau if you need to travel away from home for treatment
- help make travel arrangements if you are having treatment out of town
- offer advice and information about financial support available
- make referrals to other support agencies
- take part in multidisciplinary meetings.

## Cultural and spiritual support

Hospitals throughout New Zealand have trained health workers available to support your spiritual, cultural and advocacy needs and may include Māori and Pacific health workers who will work with you and your family/whānau. Hospital chaplains are available to people of all faiths and no faith and offer support through prayer and quiet reflection.

Community health workers based at your local marae or a community-based Pacific health service may be a good source of support. Talk with your health care team about services available to you and your family/whānau.

## Interpreting Services

If you do not speak English as your first language or you are deaf, you may find it helpful to use an interpreter when you have your hospital appointments. Speak to a member of your health care team about arranging interpreters in your local area.

## For families/whānau

Lung cancer can affect your whole family. When a friend or family/whānau member is diagnosed with lung cancer you are also learning to cope with your own feelings and emotions. You may want to help but don't know what to do.

Here are some suggestions that may be useful:

- Learn about lung cancer and its treatment. This will help you understand what the person you are supporting is facing. But be careful about offering advice.
- Talk about your feelings together and be honest about what worries you.
- Try not to worry about what to say. Often listening while they talk or just being there with them are good ways to show you care.
- Offer to go to appointments with them as a support person. You can take part in the discussion, take notes or simply listen.
- Respect that your family/whānau member or friend may want to talk to their doctor alone.
- Don't try to do too much. Give the person the opportunity to do things for themselves - they will probably appreciate the chance to be useful.
- Look after yourself and give yourself time to rest. Taking care of yourself will help you to take good care of them.

- You may find that many people want to know about the health of your loved one. It may be useful to ask one person to be a spokesperson for your family, who will share this information with others. Or you may like to use email or text messaging, rather than talking to everyone yourself.
- Accept that, sometimes, you will need help from others. Consider joining a local support group and don't be afraid to ask for help from other friends or relatives, or from the services available in your community.

## Advance care planning

While your health care professionals will do everything they can to cure your lung cancer, factors such as the stage of the cancer at diagnosis sometimes mean that their best efforts cannot cure you.

Advance care planning is about helping you think and talk about the end of life, and about what treatments and care you might want.

You and your health care providers should be working together to ensure that your future care choices make sense. This will then guide your family/whānau and doctors when you can no longer tell them yourself.

Advance care planning is voluntary - no one can force you to do it.

For more information on advance care planning, visit:

### **Advance Care Planning**

<http://www.advancecareplanning.org.nz/>

Following a cancer diagnosis, many people look for information about new types of treatment, the latest research findings and stories about how other people have coped. Contact your Cancer Society library or local library for some good quality resources.

## Key Points: The impact of lung cancer

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- Lung cancer is strongly linked with smoking. As a result many people feel blamed or judged by others when they are diagnosed. If this is affecting you, talk to someone (for example, a counsellor or trusted friend).
- When you are diagnosed with lung cancer you may have many different things to deal with - emotional changes, family reactions and practical and financial challenges.
- Talk to your doctor or your local Cancer Society about the support services available for you and your family.



## Ngā Tohu Matua: Te papātang o te matepukupuku

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- He kaha te hononga o te matepukupuku pūkahukahu ki te mahi kai hikareti. Nā runga i tēnei, he tokomaha te hunga ka whakamā i te wā kua puta ai te whakatau kua pāngia rātou ki te matepukupuku pūkahukahu. Mēnā kei te pēnei ō whakaaro, tērā pea, he mea āwhina te kōrero ki tētahi atu (pērā ki tētahi mātanga kōrerorero, tētahi hoa pūmau rānei).
- Kāre e kore, ka nui ngā mahi māu i te wā ka whakatauhia tō matepukupuku pūkahukahu - ngā rerekētanga kare ā-roto, ngā whakaaro a tō whānau, me ngā matataki ā-kiko, ā-pūtea hoki.
- Kōrero ki tō rata, ki to Kāhui Matepukupuku ā-rohe rānei mō ngā ratonga tautoko a wātea ana ki a koe me tō whānau.



# Appendix A

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## Understanding cancer

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How cancer spreads ..... 116

**Key Points:** Understanding cancer ..... 118

How your lungs work ..... 120

How you breathe..... 124

**Key Points:** How your lungs work ..... 126



# Understanding cancer

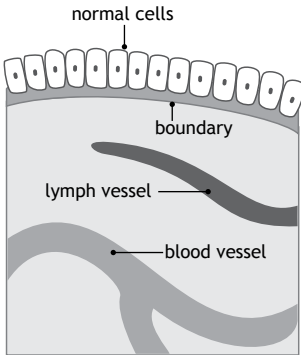
## *What is cancer?*

Cancer is a disease of the body's cells. It starts in our genes. Our bodies are constantly making new cells to allow us to grow, replace worn-out cells or heal damaged cells after an injury.

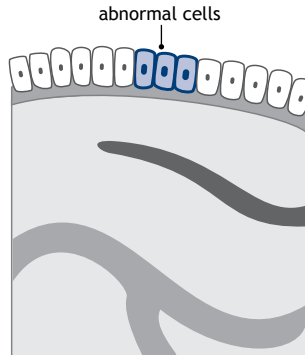
The process of making new cells is controlled by certain genes: the codes that tell our cells how to grow and behave. Cancers are caused by damage to these genes. These changes usually happen during our lifetime.

In a very small number of families, damaged genes may be passed through the generations. While these people will have an increased risk of developing cancer, it does not mean they will definitely get cancer.

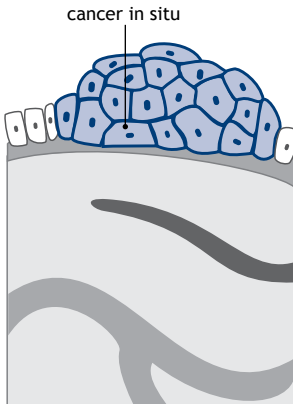
## *How cancer starts*



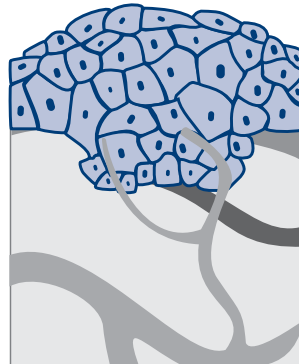
1. Normal cells



2. Abnormal cells



3. Abnormal cells multiply



4. Malignant or invasive cancer

Tumours can be **benign** (not cancerous) or **malignant** (cancerous). Benign tumours do not spread to other parts of the body.

## How cancer spreads

A malignant tumour is made up of cancer cells. When it first develops, a malignant tumour is usually confined to its original site. This is known as the primary site. Some tumours can become quite large within their organ of origin: for example, the lung or breast. With growth, the tumour may spread beyond the original organ boundaries and into surrounding tissues. This is called locally advanced cancer.

Sometimes, cells move away from the original (primary) cancer through the blood stream or lymphatic systems and start to grow in other body organs. When these cells reach a new site they may form another lump or mass. This is called a secondary cancer or metastasis. For example, if lung cancer spreads to the bone, it is called a bone secondary (or metastasis).

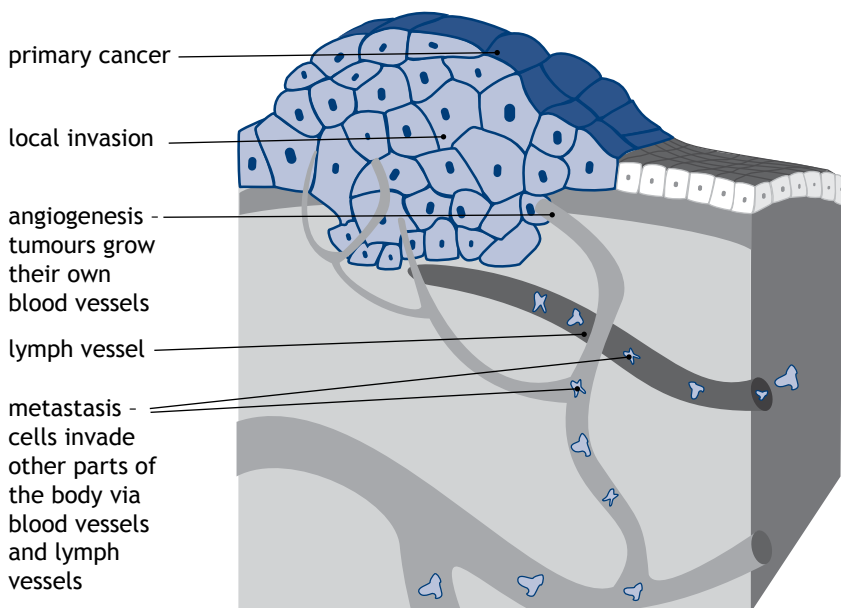
If the only place of spread is to nearby lymph nodes this is called regional nodal spread. Your cancer doctor will still refer to it as lung cancer even though it has spread to another part of your body.

The sort of treatment you are offered for cancer depends on the type of cancer, where it began and whether it has spread. Your cancer doctor will also take into account other things about you, such as your age and general health.

Treatment for cancer includes surgery, radiation treatment or chemotherapy (drug treatment). Immune therapy or targeted treatments, which are now used to treat some cancers, will become more important in the future.

Sometimes only one of these models of treatment is used for a cancer. Sometimes more than one is used.

### *How cancer spreads*



## Key Points: Understanding cancer

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- Cancer is a disease of the cells. It can grow into a tumour or spread (metastasise) to different parts of the body.
- A metastasis (secondary cancer) keeps the name of the original cancer (for example, lung cancer that has spread to the bones is still called lung cancer).



## Ngā Tohu Matua: Te mōhio mārama ki te matepukupuku

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- Ko te pā o te tahumaero ki ngā pūtau tēnei mea te matepukupuku. Tērā pea ka tipu hei pukupuku, ka hōrapa (metastasise) rānei ki wāhi kē o te tinana.
- Ka puta ana te metastasis (matepukupuku tuarua), ka mau tonu te ingoa taketake o te matepukupuku. Hei tauira atu, kīia tonu ai, he matepukupuku pūkahukahu te matepukupuku pūkahukahu kua hōrapa ki ngā kōiwi.

## How your lungs work

The lungs are the organs in the body's system for breathing called the respiratory system. The respiratory system also includes the nose, mouth, windpipe (trachea) and airways to each lung – known as the large airways (bronchi) and small airways (bronchioles).

### *The respiratory system*

The respiratory system includes the upper and lower respiratory tract.

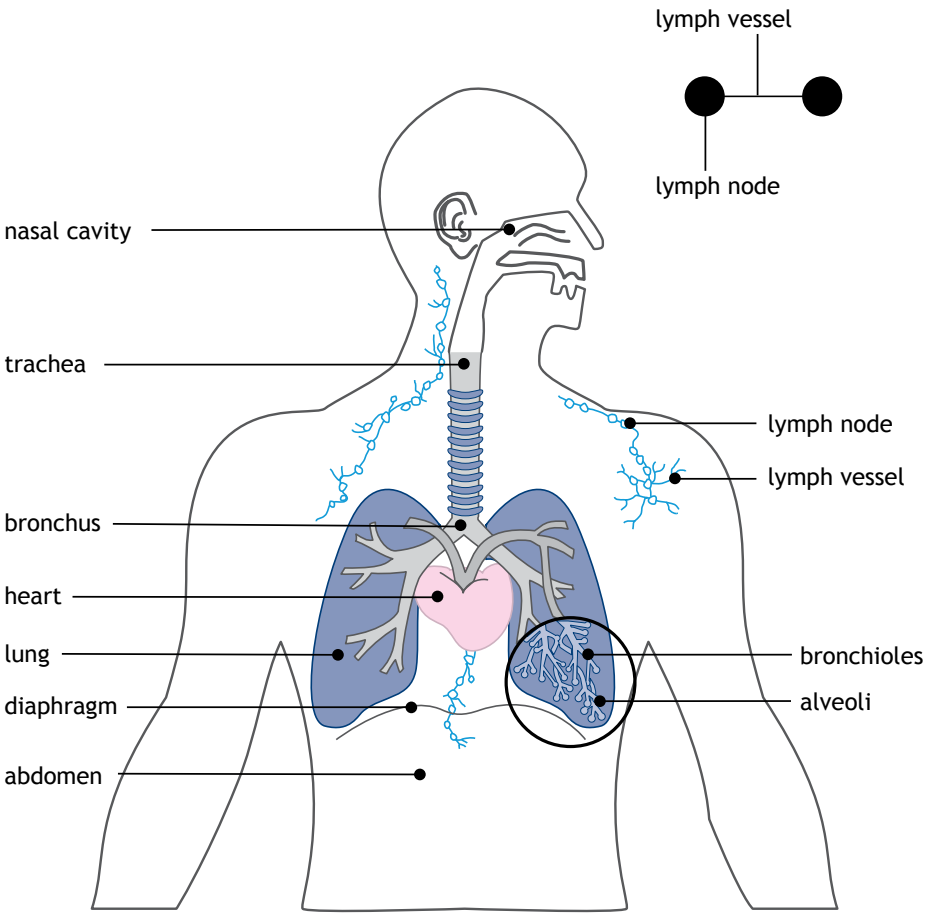
The upper respiratory tract has:

- the nose and nasal cavity
- the throat (pharynx)
- the voice box (larynx).

The lower respiratory tract has:

- the windpipe (trachea)
- breathing tubes (bronchi and bronchioles)
- air sacs (**alveoli**).

*The respiratory system*



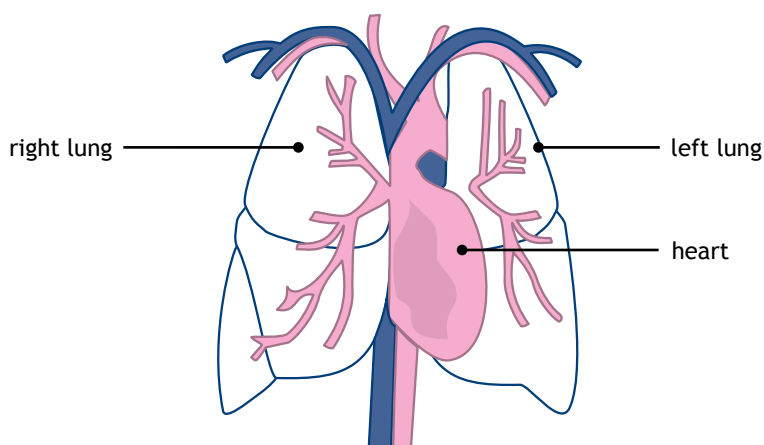
## *The lungs*

The two lungs are inside the chest, protected by the ribcage. The lungs are soft and look like two large, spongy cones.

Lungs have sections called lobes. The left lung has two lobes and the right lung has three. The lungs are separated from the stomach and liver by the diaphragm – a wide, thin muscle that helps with breathing.

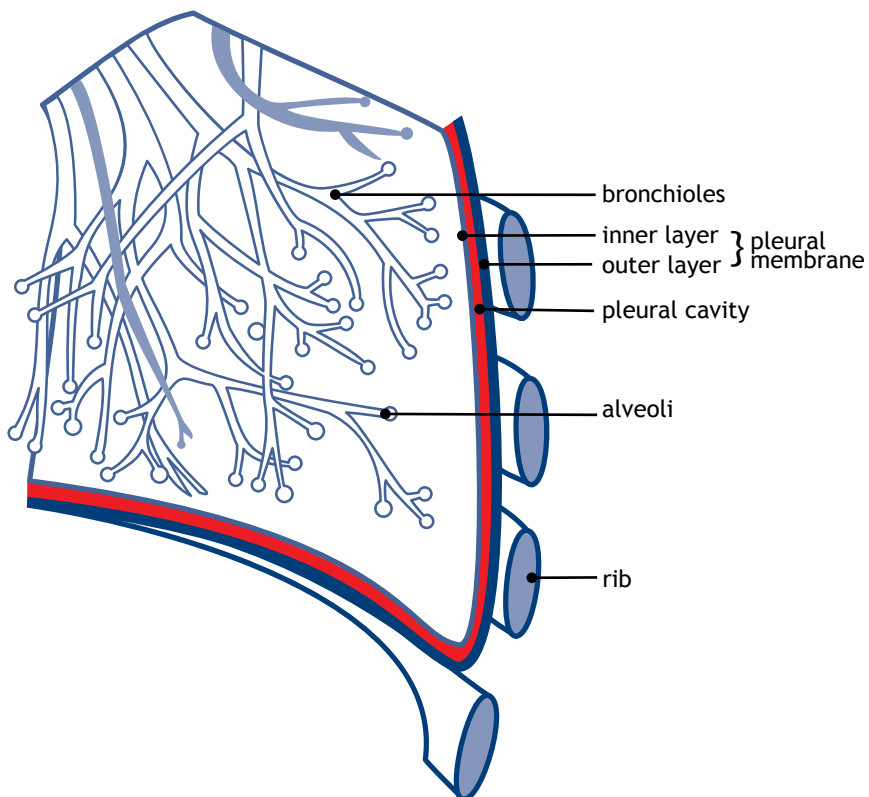
Several parts of the body lie in the space between the lungs, called the mediastinum, including:

- the heart and large blood vessels
- the windpipe (trachea)
- lymph glands (also known as lymph nodes).



A thin, double layer of membrane called the pleura sits around the lungs. The pleura are about as thick as plastic food wrap. Its inner layer (the visceral layer) is joined to the lungs and its outer layer (the parietal layer) lines the chest wall and diaphragm. Between the two layers is the pleural cavity, which normally holds a thin fluid. This fluid allows the two layers of pleura to slide against each other so your lungs can move smoothly against the chest wall as you breathe.

## ***Pleura***



## How you breathe

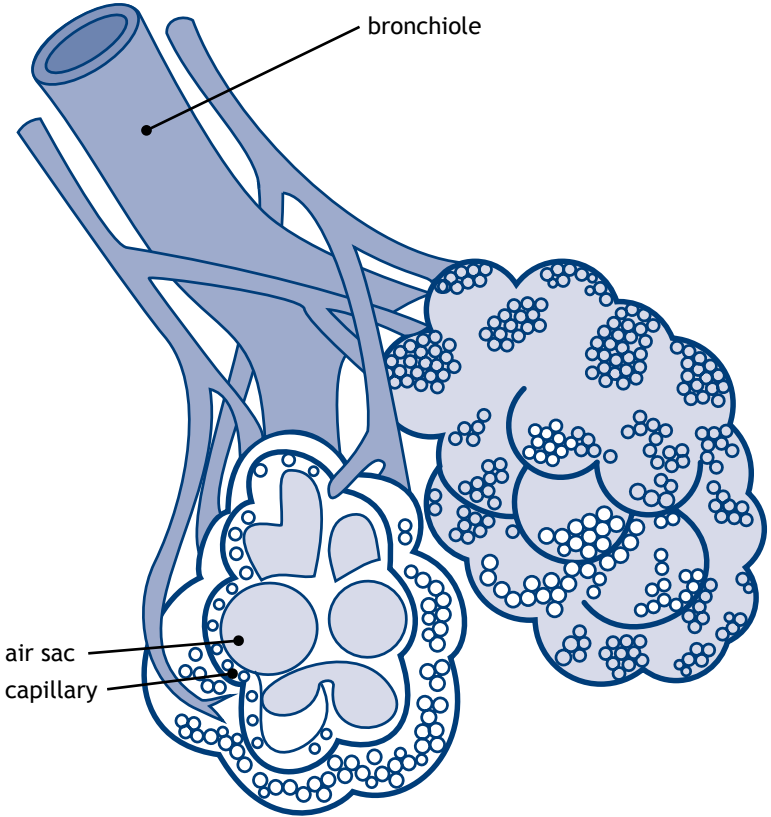
The lungs do not move on their own. The muscles between the ribs and the diaphragm make the chest expand and contract pulling and pushing air into and out of the lungs.

The windpipe divides into two airways. These are called the right main bronchus and left main bronchus. One goes to each lung. Within the lungs, each bronchus divides into smaller tubes called the secondary bronchus.

Each secondary bronchus divides into smaller tubes called bronchioles. Each bronchiole ends up in a tiny, bubble-like air sac. It's these air sacs (alveoli) that make the lungs spongy. When we breathe in air goes through the nose or mouth and into the throat and down the windpipe and bronchus until it reaches the alveoli.

Blood flows through very small blood vessels (capillaries) in the thin walls of the alveoli. This allows oxygen to move from the air into the blood, and carbon dioxide (a waste product) to move from blood to air to be breathed out.

# *Alveoli*



## Key Points: How your lungs work

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- The lungs are the body's organs for getting oxygen into the body.
- Two lungs sit inside the chest, protected by the ribcage.
- The left lung has two lobes and the right lung has three lobes.
- A thin, double-layer membrane called the pleura sits around the lungs.



## Ngā Tohu Matua: Pēhea e mahi ai ō pūkahukahu

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- Ko ngā pūkahukahu ngā whēkau o te tinana mō te tuku i te hā ki roto i te tinana.
- E rua ngā pūkahukahu ka noho ki roto i te poho, ā, āraitia ai e te rarapaekati.
- E rua ngā pokapoka o te pūkahukahu kei te taha mauī, e toru kei te pūkahukahu i te taha katau.
- Karapoti ai tētahi kiriuhi aparua me te angiangi, i ngā pūkahukahu, ā, kīia ai ko te kiripūkahu.

## Glossary (What does that word mean?)

**abdomen** - the part of the body between the chest and hips, which contains the stomach, liver, intestines, bladder and kidneys.

**adenocarcinoma** - a type of lung cancer that starts in the bronchial glands, which are found in the mucous membrane lining the airways.

**allergic** - an abnormal reaction to a substance, medication or a food.

**alveoli** - the tiny air sacs in the lungs: an adult has about 300 million. When air is breathed in, it goes through the airways to the alveoli where oxygen is taken from them into the bloodstream.

**benign** - a tumour that is not malignant, not cancerous and won't spread to another part of your body.

**biopsy** - the removal of a small sample of tissue from the body for examination under a microscope to help diagnose a disease.

**bronchi/bronchioles** - bronchi are the larger tubes that carry air in the lungs. Bronchioles are the tiny tubes that carry air to the outer parts of the lungs.

**bronchoscopy** - an examination in which a tube is passed through the nose or the mouth into the lungs so that they can be examined for disease and some tissue sampled, if necessary.

**carcinoma** - a cancer that begins in the tissue that lines the skin and internal organs of the body.

**cells** - the ‘building blocks’ of the body. A human is made of millions of cells, which are adapted for different functions. Cells are able to reproduce themselves exactly, unless they are abnormal or damaged, as are cancer cells.

**chemotherapy** - the use of special (cytotoxic) drugs to treat cancer by killing cancer cells or slowing their growth.

**computerised tomography (CT) scan** - once known as a CAT scan. A series of X-rays that are built up to give a picture of the part X-rayed.

**diaphragm** - a dome-like sheet of muscle that divides the chest cavity from the abdomen.

**genes** - the codes contained in DNA in each cell that control the way the body’s cells grow and behave. Each person has a set of many thousands of genes inherited from both parents. Genes are found in every cell of the body.

**large cell carcinoma** - a type of lung cancer that usually develops in the airways and is characterised by large rounded cells.

**lobectomy** - a surgical operation to remove a lobe of a lung.

**lobes** - the sections that make up the lungs. The left lung has two lobes and the right lung has three.

**lungs** - the two spongy organs within the chest cavity made up of very large numbers of tiny air sacs.

**lymph glands or nodes** - are small, round lumps of special cells scattered along the lymphatic system. The lymph nodes process lymph fluid as part of the immune system trying to protect against bacteria and other harmful agents, such as cancer cells. There are lymph nodes in your chest, abdomen, neck, armpit and groin. Lymph nodes are often the first place cancers spread to and grow in.

**malignant** - a tumour that is cancerous and likely to spread.

**mediastinum** - the area in the chest cavity between the lungs. It contains the heart and large blood vessels, the oesophagus, the trachea and many lymph nodes.

**mesothelioma** - a rare cancer of the membranes around the lungs. Exposure to asbestos can cause mesothelioma.

**metastasis (plural = metastases)** - when a cancer has spread from the original site to another part of the body. It can also be called a 'secondary cancer'.

**MRI** - a scan that uses magnetic resonance to find abnormalities particularly in the brain and other parts of the body. It is not used much to look at lungs.

**non-small cell lung cancer** - one of the two main groups of lung cancers. This group includes squamous cell carcinoma, adenocarcinoma and large cell carcinoma.

**palliative care** - treatment aimed at providing relief for symptoms without attempting to cure the disease.

**PCI** - (prophylactic cranial irradiation) - radiation treatment to the whole brain used to minimise the risk of a tumour growing there in patients with small cell lung cancer.

**pleura** - membranes that line the chest wall and cover the lungs.

**pleural cavity** - a space, normally empty, that lies between the two layers of the pleura.

**pneumonectomy** - a surgical operation to remove a whole lung.

**positron emission tomography (PET) scan** - a technique that is used to build up 3D (three dimensional) images of the body.

**primary cancer** - the original cancer. At some stage, cells from the primary cancer may break away and be carried to other parts of the body where secondary cancers (metastases) may form.

**prognosis** - an assessment of the course and likely outcome of a person's disease.

**radiation treatment** - the use of radiation, usually X-rays, to kill cancer cells or injure them so that they cannot grow and multiply. Radiation treatment can also harm normal cells, but they are better able to repair themselves.

**screening programme** - is where well, healthy people are invited to undergo some kind of test that will identify those people who may have, or may be at risk of developing, a specific disease.

**small cell lung cancer** - a type of lung cancer which grows rapidly and spreads early and causes few initial symptoms.

**sputum** - liquid coughed up from the lungs which is also known as phlegm.

**sputum cytology test** - examination of sputum under a microscope to look for cancer cells.

**squamous cell carcinoma** - one of the non-small cell types of lung cancer. It has the same name as a common skin cancer but behaves differently.

**staging** - investigations to find out how far a cancer has progressed. This is important in planning the best treatment.

**thoracentesis** - a medical procedure to draw fluid or air from the chest using a hollow needle.

**trachea (windpipe)** - the pipe through which air passes to reach the lungs. The trachea starts in the neck, immediately below the voice box (larynx), and descends a few centimetres into the chest before branching to form the two bronchi, one of which goes into each lung.

**tumour** - a new or abnormal growth of tissue on or in the body.

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### **Cancer Information Helpline**

0800 CANCER (226 237)

[www.cancernz.org.nz](http://www.cancernz.org.nz)



## Notes

You may wish to use this space to write down any questions you want to ask your doctor, nurses or health providers at your next appointment.

## Information, support and research

The Cancer Society of New Zealand offers information and support services to people with cancer and their families. Printed materials are available on specific cancers and treatments. Information for living with cancer is also available.

The Cancer Society is a major funder of cancer research in New Zealand. The aim of research is to determine the causes, prevention and effective methods of treating various types of cancer.

The Society also undertakes health promotion through programmes such as those encouraging SunSmart behaviour, healthy eating, physical activity and discouraging smoking.

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National Information Manager

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### *Photography*

The Cancer Society would like to thank **Tio Leota, Louise Goossens, Lindsay Keats** and **Nicole Freeman** for their photography.

**Cover photo:** The cover photo of a New Zealand native kowhai flower was taken by Rob Suisted.

# Action plan for breathlessness

## When you are aware of your breathlessness:

1. Tell yourself to stop and respond by pausing, breathe out slowly through your mouth.
2. Use positive, reassuring self-talk. (For example, *“This will pass, slow down...calm down... I can slow my breathing.”*)
3. Sigh slowly and gently...letting out a soft sound while you flop and drop your shoulders.
4. Focus on your slow and gentle out breath making your out breath twice as long as your in breath. Don't think about breathing in...it will happen naturally.
5. Put yourself in a position that supports your head and shoulders to relax comfortably (elbows resting on knees or sit/recline well-supported).
6. Remind yourself *“Slow down...calm, relax...it will be okay”* because you can slow your breathing and get enough air. Allow yourself to feel comfortable and at ease.
7. Breathe out slowly through ‘pursed’ lips in the shape of an ‘O’ (as if you were going to blow gently through a straw). This helps you breathe out the old air from your lungs making room for fresh air.
8. Continue to breathe slowly and gently.
9. Your breathing is slowing...allow your mind to focus on a feeling or place that helps you feel comfortable and relaxed. Take yourself there while you continue to breathe out slowly in a position that is comfortable for you. Let your body become heavy and loose.

## When your breathing has settled:

- Think about breathing in ‘smelling the flowers’ through your nose.
- Breathe out slowly and softly through your nose or breathe out slowly and softly through your mouth - enough to lightly flicker a candle flame.
- Feel your breathing deep and low in your body.

# ANY CANCER, ANY QUESTION 0800 CANCER (226 237) Cancer Information Helpline

