Treatment for lung cancer

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Treatment

Treatment for lung cancer will depend on the stage of the cancer, your breathing capacity and ongoing general health.

- **Non-small cell lung cancer** – is usually treated with surgery if possible. Otherwise radiotherapy and/or chemotherapy is used.

- **Small cell lung cancer** – is usually treated with chemotherapy. Radiotherapy to the chest, brain or other sites (known as preventive or prophylactic radiotherapy) may also be recommended as this type of cancer can spread early and surgery is not often used.

Surgery

People with early-stage cancer will generally have surgery to remove the tumour. The surgeon will determine if the cancer is confined to your lungs, assess your general well-being and fitness as well as your breathing capacity for the potential operation.
After surgery

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

You will have some pain and discomfort after your surgery. Discuss this with your doctor or nurse who can work with you to manage your pain. Good pain relief is important to aid your recovery. If your pain is managed properly, you will be more likely to move around and do your breathing exercises which will assist your recovery and reduce your risk of developing a chest infection. Pain relief may also help you clear phlegm from your chest.

You will probably go home three to seven days after your surgery. However the recovery process will take about six weeks and it might take up to three months to feel back to normal. The recovery time depends on the type of surgery and your fitness. Your doctor, nurses and physiotherapist will talk to you about how to manage at home. It is important to continue to exercise once you are home. Walking will improve your fitness, clear your lungs and facilitate a speedy recovery after surgery.

If you undergo video-assisted thoracoscopic surgery (VATS), you are likely to be discharged the next day. VATS is a type of thoracic surgery performed using a small video camera. The camera and operating instruments are inserted through separate holes in the chest wall, known as ports. These small ports allow for a faster recovery from the surgery and reduced risk of infection.

If you have had part of your lung removed you are likely to experience some breathlessness. If your lung function was poor before surgery, or if you have a whole lung removed (pneumonectomy), you are more likely to feel breathless. Exercising will help to reduce the breathlessness. A referral to pulmonary rehabilitation is advised especially if a complete lung is removed. This will help improve your breathing and increase your confidence living with one lung.

Call Cancer Council 13 11 20 for more information or you can download a copy of the booklet Understanding Surgery.
Chemotherapy

Chemotherapy is the use of drugs to kill or slow the growth of cancer cells. The aim of treatment is to destroy cancer cells and cause the least possible damage to healthy cells.

Chemotherapy is commonly given to people whose cancer is large or has spread outside the lungs. It may be given:

- before surgery to try to shrink the cancer and make the operation easier
- before radiotherapy or during radiotherapy (chemoradiation) to enhance the effectiveness of the radiotherapy
- after surgery to reduce the risk of the cancer returning
- as palliative treatment to reduce symptoms, improve your quality of life or extend your life.

Chemotherapy is generally administered into a vein through a drip (intravenously). Chemotherapy is given in cycles which means you will receive the drugs and then have a rest period of about 21 days before starting a new cycle. The number of treatments you have will depend on the type of lung cancer you have and how well your body is coping with the side effects. You will probably be able to have treatment as an outpatient.

Some types of chemotherapy are given orally in tablet form and are generally given on a continuous basis.

Chemotherapy side effects

Chemotherapy can affect the healthy fast-growing cells in your body, such as hair cells or cells lining the mouth and stomach, causing side effects.

Everyone reacts differently to chemotherapy so the side effects you experience will depend on the drugs you receive. Some people don't experience any side effects while others have a few.

Side effects are usually temporary, and medication can often help reduce your discomfort. Talk to your doctor about any side effects you have and ways to manage them.

- **Fatigue** – or feeling exhausted and lacking energy for day-to-day activities is the most common side effect of chemotherapy. Fatigue differs from normal tiredness as it often doesn't go away with rest or sleep.
- **Infections / low white blood cell count** – about a week after a treatment session your white blood cell levels may drop, making you more prone to infections. If you feel unwell or have a fever higher than 38°C call your doctor immediately or, if after hours, go to the hospital emergency department.
- **Mouth ulcers** – some chemotherapy drugs can cause mouth sores such as ulcers or infections. Contact your doctor if you notice any change in your mouth or throat such as sores, ulcers or thickened saliva, or if you find it difficult to swallow.
- **Skin and nail changes** – some chemotherapy drugs can affect your skin. It can darken, peel or become dry and itchy. It is also likely to be more sensitive to the sun, during and after treatment. Some people find their nails also change and become brittle and dry, develop ridges or have white lines across them.
- **Nausea and vomiting** – it is common to feel ill. However anti-nausea medication can prevent or reduce this. It is available in many forms including suppositories, oral tablets and wafers that dissolve on the tongue. Tell your medical team if you feel nauseated.
- **Constipation** – medication taken to prevent nausea and vomiting can cause constipation. Your medical team can give you laxatives for this.
- **Hair loss** – some chemotherapy drugs cause people to lose their body and head hair but your hair will grow back once treatment is over.
- **Neuropathy** – some drugs affect the nerves, causing numbness or tingling in fingers or toes. This is called peripheral neuropathy. It typically improves after treatment is finished.
- **Ringing in the ears** – ringing or buzzing in the ears, known as tinnitus, may occur as a short-term side effect.
• **Sex and fertility** – chemotherapy may impact on your desire or ability to have sex. It may also affect sexual organs and functioning in both women and men. This can lead to a temporary or permanent effect on your ability to have children (your fertility).

Call Cancer Council 13 11 20 for more information or you can download a copy of the booklet Understanding chemotherapy.

## Radiotherapy

Radiotherapy uses high energy rays to damage or kill cancer cells and can be used to treat all types of lung cancer. It can be offered on its own or in conjunction with surgery or chemotherapy. In early stage lung cancer it aims to kill off the cancer completely. For more advanced cancer the aim is to shrink the cancer and reduce symptoms.

Radiotherapy can be used:

- to treat an early stage small lung cancer that is in the outer portions of the lung rather than deep inside, if you are unable to have surgery
- after surgery to treat sites where lymph nodes were removed in an attempt to reduce the chances of the cancer coming back
- to treat cancer that has spread to other organs such as the brain or bones
- as palliative treatment, to reduce symptoms, improve your quality of life or extend your life.

Treatment is carefully planned to destroy as many cancer cells as possible while causing the least possible harm to your normal tissue. To plan your treatment your doctor will take an x-ray, CT or PET scan of the affected area. The radiation oncologist or radiation therapist may mark your skin with a special ink to make sure the radiation is directed at the same place on your body every time you receive treatment. Although the ink is permanent the mark is very small (the size of a freckle).

During treatment you will lie on a flat table under a machine called a linear accelerator, which directs the x-ray beams at the cancer. Radiotherapy treatment is painless and the person giving you the treatment will make you as comfortable as possible.

Treatments take only a few minutes but the initial appointment to see the radiation oncologist and set up the machine may take a few hours. Most people have outpatient treatment sessions at a radiotherapy centre from Monday to Friday for several weeks. Your doctor will advise you on the number of sessions you need.

## Radiotherapy side effects

The side effects from radiotherapy depend on the area of your body being treated and the dose of radiation. People who have radiotherapy to the chest for a primary lung cancer may experience tiredness and a mild reaction on the skin like sunburn. Some people who have a long course of radiotherapy (several weeks) may have temporary difficulty and pain in swallowing (oesophagitis).

- **Skin reaction** – the skin in the treatment area may become red or irritated. Moisturising cream, such as sorbolene, should be applied to the skin when treatment starts – talk to your medical team about any other products they recommend.
- **Fatigue** – tiredness can be a major challenge. Plan your activities during the day so you can rest regularly. It may also help to talk to your family, friends or employer about how they can help you.
- **Scarring** – any radiotherapy to the lungs will cause some scarring to the lungs which can be seen on x-rays or CT scans after treatment.
- **Breathlessness** – some people experience temporary shortness of breath for several weeks after the radiotherapy has finished. This usually improves by itself or may require treatment with cortisone tablets.
Your doctor will check in with you at least once a week to monitor and treat any side effects during the course of your treatment. If you are concerned about any side effects talk to your health care team.

Call Cancer Council 13 11 20 for more information or you can download a copy of the booklet Understanding radiotherapy.

**Targeted therapies**

These forms of therapy (often referred to as ‘personalised medicine’) target specific mutations within the cancer. Research has discovered that the growth of some lung cancers depends on the presence of specific damaged genes (mutations) in the cancer. These mutations are not inherited or passed on to your children, and some are more common in non-smokers.

A number of drugs have been developed that target and ‘switch off’ these mutations stopping the growth of the cancer. These therapies have fewer side effects compared with traditional chemotherapy as their effects are largely restricted to the cancer cells.

Two of the more common mutations for which targeted therapies are available are the EGFR (epidermal growth factor receptor) and ALK (anaplastic lymphoma kinase) mutations.

If your doctor suspects that your cancer may be due to one of these mutations they will ask the laboratory to analyse the cancer tissue. Identification of specific mutations will guide your doctor in the choice of targeted therapy.

Other examples of targeted therapies include drugs that attack the cancer’s blood supply and starve the cancer (antiangiogenesis drugs) and drugs that block the signals that make the cancer grow.

You may be asked if you want to participate in a clinical trial to receive a new targeted therapy. Talk to your doctor for more information about new drug trials.

**Targeted therapy side effects**

Side effects will vary depending on the type of targeted therapy you have. Some of the more common side effects include an acne-like rash and diarrhoea. It’s important to discuss any side effects with your medical team.

**Other therapies**

**Ablation**

Ablation treatment may be offered if you are unable to have surgery or radiotherapy. Ablation treatment can target and kill cancerous cells without damaging healthy surrounding tissues as the treatment is delivered directly into the tumour.

Ablation treatments include radiofrequency and microwave ablation. These treatments involve inserting needles or probes into the cancer to destroy the cancer cells using radiofrequency and microwave energies.

These are often outpatient treatments but you may need to stay in hospital overnight for observation. Usually a local anaesthetic is given and a CT scan is used to help insert the needles. You may experience slight discomfort at the needle site.

After the abnormal cells are killed they shrink and turn to scar tissue over time. It is important to have follow up CT scans to make sure that there is no further growth in the tumour.
Side effects of ablation

Side effects for ablation treatments can include lung collapse (pneumothorax) and damage to surrounding tissues.

Thoracentesis (pleural tap)

For some people fluid may build up in the area between the lung and the chest wall (pleural space) which can cause symptoms such as breathlessness, tiredness and pain. A procedure called thoracentesis (pleural tap) can be performed to relieve these symptoms.

In this procedure your doctor or radiologist will insert a hollow needle between your ribs into the pleural space to drain the fluid. This will take about 30–60 minutes. A pleural tap is usually performed on an outpatient basis under a local anaesthetic. Some of this fluid will be sent to pathology for examination.

Pleurodesis

A procedure called a pleurodesis may be required if the fluid accumulates again after you have had a pleural tap. This is usually done using less invasive key-hole type surgery called video-assisted thoracoscopic surgery (VATS).

In pleurodesis a thin instrument with a light is inserted, the fluid is drained off and talcum powder is introduced into the pleural space (between the lung and chest wall). The powder will inflame the membranes which makes them stick together. This closes the space between the pleura, preventing the fluid from coming back. This procedure is generally performed by a thoracic surgeon under a general anaesthetic and requires a hospital stay of two or three days. However this procedure can be performed by a doctor under local anaesthetic if you are unable to have surgery.

Indwelling pleural drains

An indwelling pleural catheter may be offered to people who are unable to have surgery and experience fluid build-up that is not adequately controlled with pleurodesis.

A specialist inserts the catheter into the pleural space to drain the fluid. This drain is small and can be left in place to be used again if the fluid comes back. The catheter can be managed at home with the help of a community nurse.

Palliative treatment

Palliative treatment seeks to improve quality of life by reducing cancer symptoms without aiming to cure the disease.

Treatment can assist with managing symptoms such as pain and nausea as well as slowing the spread of the cancer and may include radiotherapy, chemotherapy or other medication.

It is commonly assumed that palliative treatment is for people at the end of their life; however it may be beneficial for people at any stage of advanced disease.

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Information last reviewed December 2014 by: Prof Kwn Fong, Thoracic and Sleep Physician and Director, UQ Thoracic Research Center, The Prince Charles Hospital, QLD; Clare Brown, Case Manager for Thoracic Surgery, Royal Prince Alfred Hospital, NSW; Glenda Colburn, Director, Lung Cancer National Program, The Australian Lung Cancer Foundation; Prof David Ball, Chair, Lung Service, Peter MacCallum Cancer Centre; Dr Arman Hasani, Medical Oncologist, Sir Charles Gairdner Hospital, WA; Dr Paramita Dasgupta, Viertel Cancer Research Centre, Cancer Council