

# Lung Cancer

Information for people with cancer

**This information should not be used to diagnose yourself or in place of a doctor's care.**

This information is about primary lung cancer. This is cancer that starts in the lungs.

The lungs are a common site for secondary lung cancer. This is cancer that starts somewhere else in your body and then spreads (metastasizes) to the lungs.

Mesothelioma is a type of lung cancer. For information on this type of cancer:

[www.bccancer.bc.ca/health-info/types-of-cancer/lung/mesothelioma](http://www.bccancer.bc.ca/health-info/types-of-cancer/lung/mesothelioma)

Your lungs are in your chest. They wrap around your heart and the major blood vessels going to and from your heart and esophagus (swallowing tube).

The right lung has three lobes (sections) and the left lung has two lobes.

Other names for lung cancer are pulmonary cancer, bronchial cancer, small cell lung cancer (SCLC), oat cell carcinoma of the lung, non-small cell lung cancer (NSCLC), adenocarcinoma of the lung, and squamous cell lung carcinoma of the lung.

Lung cancer is the deadliest cancer. It causes about 26% (26 out of 100) of all cancer deaths.

B.C. has the lowest rate of lung cancer in Canada. B.C. also has the lowest mortality rate (death) from lung cancer.

## Diagnosis and Staging

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### What are the signs and symptoms of lung cancer?

There are often no symptoms with early stage lung cancer. Because of this, many people with lung cancer already have advanced disease when they are diagnosed.

More advanced lung cancer may have these symptoms:

- New, changing, or worsening cough, especially if the sputum (the stuff you cough up) has blood in it.

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- Change in how well you can exercise (for example, sudden shortness of breath when walking).
- Blood in sputum (thick type of mucus that is made in your lungs), even small amounts.
- Wheezing (not related to asthma or infection).
- Hoarse voice.
- Repeated cases of pneumonia and/or bronchitis.
- Fever.
- Weakness.
- Weight loss.
- Pain in your chest.
- Difficulty swallowing.
- Lymph nodes in your neck get bigger.
- A sudden urge to quit smoking (rare).
- Clubbing (broadening) of your fingernails (rare).

Advanced lung cancer often spreads to the brain, liver, bone and lymph nodes. People with lung cancer may have symptoms from the spread of the cancer before they have symptoms from the lung cancer.

If you have any signs or symptoms that you are worried about, please talk to your family doctor or nurse practitioner.

### How is lung cancer diagnosed?

Tests that may help diagnose lung cancer include:

- **Imaging:** to see the tumour and if the cancer has spread to other organs and tissues
  - Chest X-ray.
  - Computerized tomography (CT) scan.
  - Magnetic Resonance Imaging (MRI).
  - Positron Emission Tomography (PET) scan.

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- To diagnose lung cancer, a specialist doctor (pathologist) needs to look at cells under a microscope. Cells from the lungs can be collected in many ways:
  - **Sputum sample.**
  - **Thoracentesis:** a needle is put into the chest to take out fluid between the lungs and chest wall.
  - **Bronchoscopy:** a doctor puts a bronchoscope (thin, flexible tube with a light) down your throat to examine your lungs. The bronchoscope can also take small pieces of tissue for a biopsy. This sample can be called a brushing or a washing.
  - **Needle biopsy:** a doctor uses a CT scan or X-rays to help guide a needle to the tumour. The needle is put through the chest wall into the tumour to take out a tissues sample.
- **Mediastinoscopy:** a mediastinoscope (a type of endoscope) is put through a small cut made at the bottom of your neck, just above your breastbone. You will be given general anesthetic (put under) for this procedure. This procedure allows your doctor to look at the lymph nodes near your trachea (windpipe). The doctor may also take a biopsy to see if cancer has spread to the lymph nodes.
- **Mediastinotomy:** a doctor makes a cut near your second rib so they can examine or take a biopsy of the lymph nodes near the aorta (major blood vessel).
- **Diagnostic thoracotomy:** a surgeon opens your chest to look at your lungs. This may be necessary if other tests cannot make a diagnosis.

For more information on tests used to diagnose cancer, see our Screening and Diagnosis pathfinder: [bccancer.libguides.com/pathfinder-screening](http://bccancer.libguides.com/pathfinder-screening)

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## What are the types of lung cancer?

There are two main types of lung cancer: non-small cell and small cell.

### Non-small cell lung cancer (NSCLC)

- 80% (80 out of 100) of all lung cancers.
- This type of lung cancer includes different kinds of cancer.
  - **Squamous cell carcinoma (epidermoid):** About 30% (30 out of 100) of NSCLC cases.
  - **Adenocarcinoma:** About 40-50% (40-50 out of 100) of NSCLC cases. Most common lung cancer in women. Non-smokers often have this type of lung cancer.
  - **Large cell carcinoma:** About 10% (10 out of 100) of NSCLC cases.
  - **Adenosquamous carcinoma and carcinoid:** Less common.

### Small cell lung cancer (SCLC)

- 10-15% (10-15 out of 100) of all lung cancers.
- Most aggressive and fast-growing of all lung cancer.
- In many people, the cancer will have already spread to other areas of the body at the time they are diagnosed.
- If the tumour is only in the chest, this is called limited stage. A long-term cure is possible in about 20% (20 out of 100) of these people.
- These cancer cells are small and round, or oval, or shaped like oat grains. An older term for this type of lung cancer is oat cell cancer.

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## What are the stages of lung cancer?

Staging describes the cancer. Staging is based on how much cancer is in the body, where it was first diagnosed, if the cancer has spread and where it has spread to.

The stage of the cancer can help your health care team plan your treatment. It can also tell them how your cancer might respond to treatment and the chance that your cancer may come back (recur).

### Non-small cell lung cancer staging:

- **Stage 0:** Cancer cells are only in the lining of the airway or in the air sacs of the lung. Also called carcinoma in situ or adenocarcinoma in situ.
- **Stage 1A:** Tumour is only in the lung and is 3 cm or smaller.
- **Stage 1B:** Tumour in the lung is larger than 3 cm but not more than 4 cm. The tumour may also have:
  - Grown into the main airway but where the trachea divides into the left and right bronchi.
  - Grown into the inner membrane covering the lungs, called the visceral pleura.
  - Caused a lung to collapse or has blocked a bronchus and caused an inflammation of the lung tissues (obstructive pneumonitis)
- **Stage 2A:** Tumour in the lung is larger than 4 cm but not more than 5 cm or the tumour has:
  - Grown into the main airway but where the trachea divides into the left and right bronchi.
  - Grown into the inner membrane covering the lungs, called the visceral pleura.
  - Caused a lung to collapse or has blocked a bronchus and caused an inflammation of the lung tissues (obstructive pneumonitis)

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- **Stage 2B:** Tumour in the lung is 5 cm or smaller and it has spread to lymph nodes near the bronchi.

**OR**

One of the following:

- Tumour is larger than 5 cm but not more than 7 cm.
  - Tumour has grown into the outer membrane covering the lungs (called the parietal pleura), the chest wall, the main nerve that runs to the diaphragm (called the phrenic nerve) or the outer membrane covering the heart (called the parietal pericardium).
  - There are 2 or more tumours in the same lobe of the lung.
- **Stage 3A:** Tumour in the lung is 5 cm or smaller and it has spread to lymph nodes beside the trachea on the same side of the body as the tumour, or to lymph nodes below the area where the trachea divides into the left and right bronchi, or both.

**OR**

Tumour is larger than 5 cm and one of the following:

- Cancer has spread to lymph nodes near the bronchi.
  - Tumour has grown into any of the following: the diaphragm, the mediastinum, the heart or large blood vessels near the heart, the trachea, a main nerve that runs to the larynx, the esophagus, a bone in the spine (vertebra) or the area where the trachea divides into the left and right bronchi.
  - There are 1 or more other tumours in the same lung.
- **Stage 3B:** Tumour is 5 cm or smaller and the cancer has spread to the lymph nodes on the opposite side of the trachea or lung or to lymph nodes in the lower part of the neck.

**OR**

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Tumour is larger than 5 cm or there are 1 or more other tumours in the same lung. The cancer has also spread to lymph nodes beside the trachea on the same side of the body as the tumour, or to lymph nodes below the area where the trachea divides into the left and right bronchi, or both.

- **Stage 3C:** The tumour is larger than 5 cm or there is more than 1 tumour in a different lobe of the lung. Cancer has also spread to the lymph nodes on the opposite side of the trachea or lung or to lymph nodes in the lower part of the neck.
- **Stage 4:** Cancer has spread to other parts of the body (distant metastasis). This is also called metastatic non-small cell lung cancer.

### Small cell lung cancer staging

This type of lung cancer is divided into two stages:

- **Limited stage:** Cancer is only on one side of the chest. This can include cancer that has spread to lymph nodes on the same side of the chest as the tumour.
- **Extensive stage:** Cancer has spread in the lung with the tumour, to the other lung, to the lymph nodes on the other side of the chest or to other parts of the body.

For more information on staging, see our About Cancer page:

[bccancer.bc.ca/health-info/types-of-cancer/about-cancer](http://bccancer.bc.ca/health-info/types-of-cancer/about-cancer)

### What are the grades of lung cancer?

Lung cancer is not given a grade. It is given a stage (see above).

## Treatment

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### What is the treatment for lung cancer?

Cancer treatment may be different for each person. It depends on your particular cancer. Your treatment may be different from what is listed here.

#### Surgery

- For people with small tumours that have not spread outside of the lung, this surgery may cure the cancer.
- Types of surgery:
  - **Segmented or wedge resection:** part of a lobe of one lung is removed.
  - **Lobectomy:** one lobe of one lung is removed.
  - **Pneumonectomy:** one whole lung is removed.
- Rarely, surgery may help with symptoms or remove metastases.

#### Radiation therapy (high energy x-rays that kill or shrink cancer cells)

- May be used for non-small cell lung cancer that cannot be removed with surgery or if you are not well enough to have surgery or do not want to have surgery.
- May be given after surgery, in some cases.
- May be given with systemic therapy.
- Can help with symptoms.
- For more information about radiation therapy go to:  
[bccancer.bc.ca/our-services/treatments/radiation-therapy](http://bccancer.bc.ca/our-services/treatments/radiation-therapy)



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## Systemic therapy (chemotherapy)

- Used to treat small cell (oat cell) carcinoma. In some cases, this is combined with radiation therapy.
- May be given after surgery for Stage 2 and 3A non-small cell lung cancer.
- May be given for later stage non-small cell lung cancer. May be combined with radiation therapy and surgery.
- Can help with symptoms, to improve the quality of life and may extend a person's life. Cannot cure cancer that has spread widely in the body.
- For more information about systemic therapy go to:  
[bccancer.bc.ca/our-services/treatments/systemic-therapy-\(chemotherapy\)](http://bccancer.bc.ca/our-services/treatments/systemic-therapy-(chemotherapy))

## Photodynamic Therapy

- Uses a drug to make the area sensitive to light. Then, a special red light from a laser is shined on the area to kill cancer cells.
- Very rarely used in B.C. as people who have had the treatment need to avoid the sun and bright lights for six weeks after treatment.

## What is the follow-up after treatment?

- Follow-up testing and appointments are based on your type of cancer.
- Guidelines for follow-up after treatment for lung cancer are on our website:  
[www.bccancer.bc.ca/health-professionals/clinical-resources/cancer-management-manual/lung/lung#Management](http://www.bccancer.bc.ca/health-professionals/clinical-resources/cancer-management-manual/lung/lung#Management)
- These are guidelines written for your doctor, nurse practitioner or specialist. You can look at them to see what appointments and tests you might need after treatment.

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- After treatment, you may return to the care of your family doctor or specialist for regular follow-up. If you do not have a family doctor, please talk to your BC Cancer health care team.
- The BC Cancer Life after Cancer page has information on issues that cancer survivors may face: [bccancer.bc.ca/lifeaftercancer](http://bccancer.bc.ca/lifeaftercancer)

## More Information

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### What causes lung cancer and who gets it?

These are some of the risk factors for this cancer. Not all of these risk factors may cause this cancer, but they may help the cancer start growing.

- Smoking tobacco is the number one cause of lung cancer.
  - About 85 - 90% (85-90 out of 100) of people with lung cancer are smokers, used to smoke or people exposed to long-term second-hand smoke. Exposure to other people's smoking is also called passive smoking.
  - Tobacco smoke has many toxic chemicals that can cause cancer. There are about 4,000 chemicals in cigarette smoke. More than 50 can cause cancer.
  - The average smoker will die about eight years earlier than a non-smoker.
  - Each year tobacco smoke kills about 45,000 people in Canada.
  - People exposed to second-hand smoke over many years are also at risk. Babies and children are particularly at risk from second-hand smoke because their lungs are developing.
  - Visit the BC Cancer Tobacco and Cancer Prevention page: [www.bccancer.bc.ca/health-info/prevention/tobacco](http://www.bccancer.bc.ca/health-info/prevention/tobacco)

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- Long-term exposure to high amounts of radon.
  - Visit the BC Cancer Radon and Cancer Prevention page:  
[www.bccancer.bc.ca/health-info/prevention/radon](http://www.bccancer.bc.ca/health-info/prevention/radon)
- Exposure to uranium or other radiation sources.
- Exposure to heavy metals such as chromates, arsenic, and nickel.
- History of chronic bronchitis or emphysema.
- Exposure to asbestos dust.
- Taking beta-carotene supplements if you are also a smoker.
- History of mouth or throat cancer.
- Being between the ages of 55 and 70 years old. People 40-44 years and 60-64 years old are also at a higher risk.

## Statistics on lung cancer

- B.C. statistics: [www.bccancer.bc.ca/health-info/disease-system-statistics/statistics-by-cancer-type](http://www.bccancer.bc.ca/health-info/disease-system-statistics/statistics-by-cancer-type)
- Canada statistics: [www.cancer.ca/en/cancer-information/cancer-type/lung/statistics/?region=bc](http://www.cancer.ca/en/cancer-information/cancer-type/lung/statistics/?region=bc)

**Note:** Available statistics do not have information about the inclusion of transgender and gender diverse participants. It is unknown how these statistics apply to transgender and gender diverse people. Patients are advised to speak with their primary care provider or specialists about their individual considerations and recommendations.

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## Can I help prevent lung cancer?

### Here are some things you can do to lower your risk of lung cancer:

- **Do not smoke:** If you smoke, stop. Also, try to avoid breathing in cigarette smoke. Even if you have been using tobacco for many years, quitting will lower your cancer risk. Support is available to help you successfully quit.
  - Visit the BC Cancer Tobacco and Cancer Prevention page: [www.bccancer.bc.ca/health-info/prevention/tobacco](http://www.bccancer.bc.ca/health-info/prevention/tobacco)
- **Lower your exposure to radon gas:** If you live in an area where your exposure to radon gas is higher, look for ways to lower the radon build-up in your home.
  - Visit the BC Cancer Radon and Cancer Prevention page: [www.bccancer.bc.ca/health-info/prevention/radon](http://www.bccancer.bc.ca/health-info/prevention/radon)
  - Visit the BC Centre for Disease Control website: [www.bccdc.ca/health-professionals/professional-resources/radon-testing](http://www.bccdc.ca/health-professionals/professional-resources/radon-testing)
  - Visit our Recommended Radon websites: [www.bccancer.bc.ca/our-services/services/library/recommended-websites/causes-and-prevention-websites/radon-websites](http://www.bccancer.bc.ca/our-services/services/library/recommended-websites/causes-and-prevention-websites/radon-websites)

## Is there screening for lung cancer?

Lung cancer screening using low-dose CT scans is currently recommended by the Canadian Task Force on Preventive Health Care. However, the only organized lung cancer screening in the B.C. is through the BC Lung Screen Trial, an ongoing clinical trial at BC Cancer and Vancouver General Hospital.

For more information: [www.bccancer.bc.ca/our-research/participate/lung-health](http://www.bccancer.bc.ca/our-research/participate/lung-health)



Provincial Health Services Authority

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## Where can I find more information?

- If you have questions about lung cancer, please talk to your health care team.
- Our librarians can help you find the information you need. Visit our Library page: [bccancer.bc.ca/our-services/services/library](http://bccancer.bc.ca/our-services/services/library)
- BC Cancer Library Lung Cancer pathfinder: [bccancer.libguides.com/pathfinder-lung](http://bccancer.libguides.com/pathfinder-lung)
- Managing Your Symptoms: [www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects](http://www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects)
- Emotional Support: [www.bccancer.bc.ca/health-info/coping-with-cancer/emotional-support](http://www.bccancer.bc.ca/health-info/coping-with-cancer/emotional-support)