

SMALL  
CELL  
LUNG  
CANCER

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LUNG CANCER ALLIANCE

1-800-298-2436

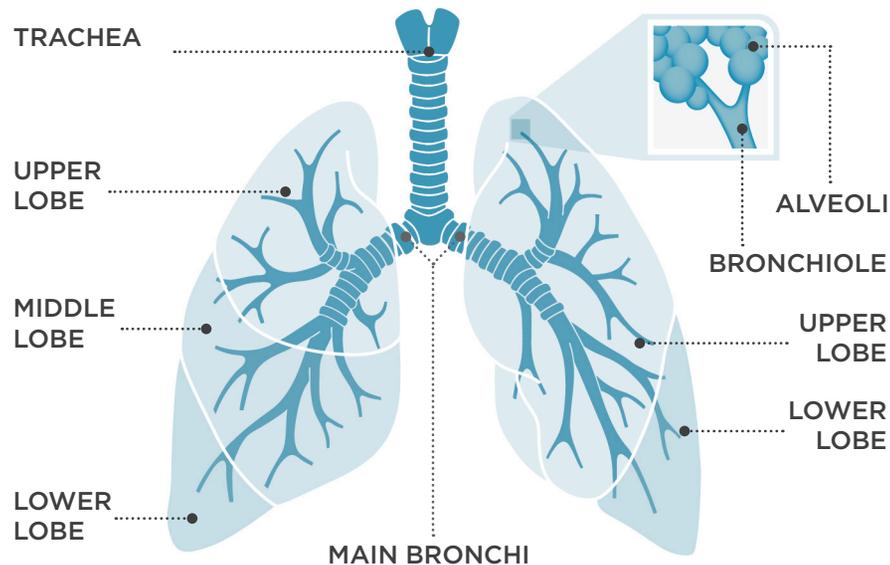
[LungCancerAlliance.org](http://LungCancerAlliance.org)

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# TABLE OF CONTENTS

# ANATOMY OF THE LUNGS

The following image shows different parts that make up the lungs. Please use this picture to help guide you through the topics discussed in our brochure.



Small Cell Lung Cancer (SCLC).....	2
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## DIAGNOSING SCLC

Imaging.....	3
Lymphatic System.....	4
Biopsies.....	5
Staging.....	6

## TREATMENT OPTIONS

Chemotherapy.....	8
Common Side Effects of Chemotherapy.....	9
Radiation.....	10
Combination Therapy.....	11
Surgery .....	11
Prophylactic Cranial Irradiation (PCI).....	12
Clinical Trials.....	13
Challenges.....	14
Your Treatment Team.....	15
For More Information.....	16

# SMALL CELL LUNG CANCER

Cancer is a group of diseases in which normal cells change, grow and divide out of control.

Cancer that begins in the lungs — lung cancer — is one of the most commonly diagnosed cancers in the United States. There are two main types: small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC). SCLC is the less common of the two, making up about 15% of lung cancer diagnoses. It is a type of cancer that spreads quickly.

## WHAT CAUSES LUNG CANCER?

There is so much we don't know. What we do know is that a history of smoking is the main risk factor for developing lung cancer. Cigarettes contain many carcinogens, which are substances that cause lung cancer.

Other risk factors include:



Exposure to secondhand smoke (or passive smoking)



Exposure to radon (an invisible, odorless, tasteless radioactive gas that occurs naturally in soil and rocks)



A family history of lung cancer



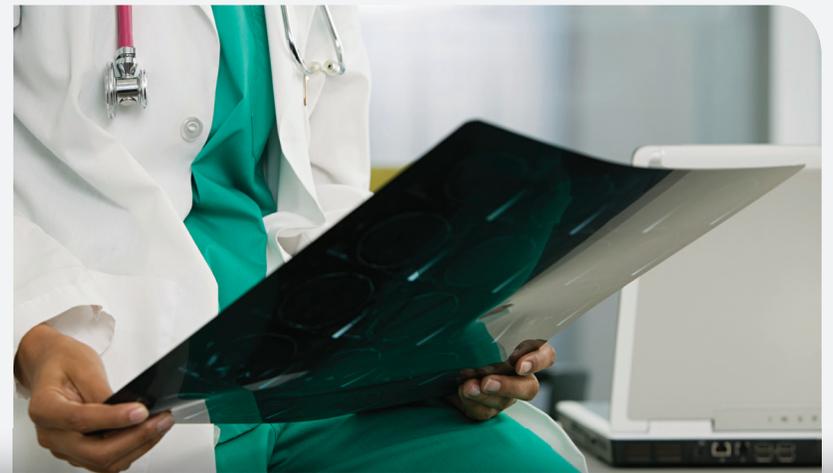
Radiation therapy to the chest area



Other lung illnesses (such as emphysema, chronic obstructive pulmonary disease [COPD] or tuberculosis)



Exposure to industrial chemicals including arsenic, asbestos, beryllium, uranium and Agent Orange



## DIAGNOSING SCLC: IMAGING

A number of tests provide information on areas of the lungs that do not appear normal. Doctors sometimes refer to these areas as tumors, spots, lesions, nodules or masses. Imaging can help doctors learn if a suspicious area is cancerous (malignant) or not (benign). Some imaging tools include the following:

**CT** (computed tomography) or “CAT” scans use a series of x-rays to make a detailed picture of the area being scanned. They can show tumors that may not be visible on a normal chest X-ray.

**PET** (positron emission tomography) scans show how areas of the body use glucose (also known as sugar). Since tumors typically use more glucose than surrounding tissue, they appear as “hot spots” (bright areas) in these images.

**BONE** scans use a radioactive substance to look for cancer in the bones. Areas where there may be cancer appear darker in these images.

**MRIs** (magnetic resonance imaging) create detailed images of the body using magnetic fields and radio waves. They can help determine whether a tumor has spread beyond its original location. It is used in SCLC to check for cancer in the brain.

The lymphatic system is a collection of organs, vessels and nodes that are found throughout the body. The two major functions of the lymphatic system are to: collect excess fluid and return it to the blood and fight infection.

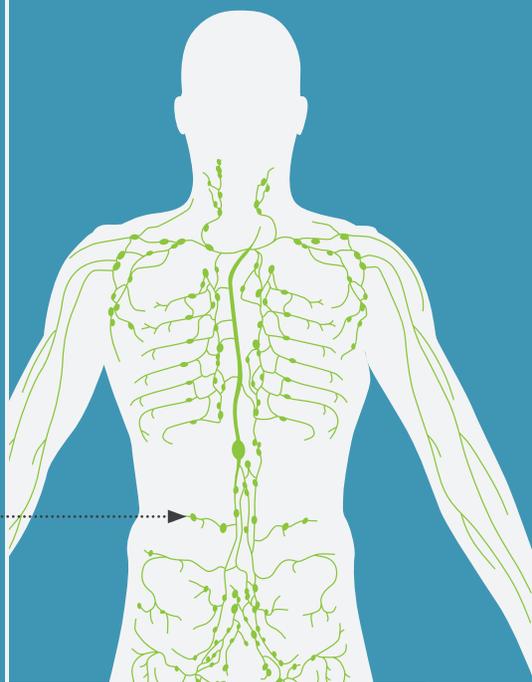
**LYMPH VESSELS** are similar to blood vessels and help to circulate lymph fluid throughout the body. Lymph fluid contains white blood cells, which help to fight infection.

**LYMPH NODES** are small, oval-shaped organs within the lymphatic system. The purpose of lymph nodes is to trap and collect invading organisms that can be destroyed by white blood cells. Lymph nodes are found throughout the body, but major clusters can be found behind the knee and elbow joints, and in the groin, armpits, neck and chest. A large group is found in the center of the chest (mediastinum) which drain lymph fluid from the lungs.

Cancer cells can break off from the main tumor and travel through the lymphatic system. Some of these cells can become trapped within a lymph node and start to grow. Determining whether there are cancer cells in lymph nodes can help a doctor estimate how far the cancer may have spread.

## THE LYMPHATIC SYSTEM

LYMPH NODE



## DIAGNOSING SCLC: BIOPSIES

A biopsy is a procedure in which tissue is removed from the body for testing. The tissue can help doctors diagnose cancer and provide specific information about the suspicious area.

There are several types of biopsy procedures:

**FINE NEEDLE ASPIRATION (FNA)** Tissue is removed using a thin hollow needle.

- Depending on the location of the tumor, FNA is done during bronchoscopy procedure (in which a camera-equipped tube is used to view the windpipe and other airways) or through skin.
- This procedure may be guided by a CT scan.

**CORE NEEDLE BIOPSY** Tissue is removed using a wider needle.

- More tissue can be removed with this procedure than with fine needle aspiration.

**SURGICAL BIOPSY** Tissue is removed during a surgical procedure.

- Smaller tissue samples may be removed surgically during a bronchoscopy procedure; larger samples may require traditional surgery.

**THORACENTESIS** Fluid is removed from the space around the lungs (also called the pleura) using a hollow needle inserted into the chest.

# STAGING

It is important to know the stage of the cancer. Staging can help doctors create a treatment plan that is best for you.

The term “limited stage” may be used to describe SCLC that is only found in one lung or nearby lymph nodes. The term “extensive stage” may be used to describe SCLC that has spread outside the lung in which it began to spread to other parts of the body. Ask your healthcare team for more details about tumor staging and how it may affect your choices for treatment.

SCLC can also be described in four stages, based on the TNM System. Stage is generally determined by the size of the cancer and whether or not it has spread from the place it started (including to lymph nodes).

**T** stands for **TUMOR**—where the tumor is and how big it is.

**N** stands for **LYMPH NODES**—whether the cancer has spread to lymph nodes and where the affected lymph nodes are located.

**M** stands for **METASTASIS**—whether the cancer has spread beyond the lung to the other lung, the pleura or other parts of the body.

## STAGE

I

The tumor is small and located only in one lobe of the lung.

## STAGE

II

The tumor or tumors are only in one lobe of a lung and may be larger than those in stage I. The cancer may have spread to nearby tissues or lymph nodes but not beyond.

## STAGE

III

The tumor or tumors are only in one lung and may have spread to the area around the lung and more lymph nodes.

## STAGE

IV

The tumor or tumors may be any size and the cancer has spread to the other lung, the lining of the lung, lymph nodes or organs outside the lungs.

# TREATMENT OPTIONS

## TREATMENT OPTIONS FOR SCLC INCLUDE ONE OR MORE OF THE FOLLOWING:

- Chemotherapy
- Radiation
- Surgery
- Prophylactic cranial irradiation (PCI)
- Clinical trials

## TREATMENT OPTIONS FOR SCLC WILL DEPEND UPON THE FOLLOWING:

- The stage of the cancer
- How well your lungs are working
- Other health concerns like the presence of diabetes, heart disease or high blood pressure
- Your ability to perform activities of daily living, like eating, bathing and dressing, without assistance

# CHEMOTHERAPY

Chemotherapy is a treatment that kills cancer's rapidly growing and dividing cells. It is typically a combination of drugs given at the same time.

Chemotherapy drugs are most often used to treat newly diagnosed SCLC are:

- **PLATINOL** (cisplatin) and **VP-16** (etoposide)
- **PARAPLATIN** (carboplatin) and **VP-16** (etoposide)

Other drugs sometimes used if SCLC returns within six months of initial treatment include the following:

- **HYCAMTIN** (topotecan), oral or by injection
- **TAXOL** (paclitaxel)
- **TAXOTERE** (docetaxel)
- **GEMZAR** (gemcitabine)
- **NAVELBINE** (vinorelbine tartrate)
- **ADRIAMYCIN** (doxorubicin)
- **ONCOVIN** (vincristine)

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# SIDE EFFECTS OF CHEMOTHERAPY

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The goal of chemotherapy is to kill cancer cells, which are fast growing. Because the cells that make up the hair and the lining of the digestive system are also rapidly growing, chemotherapy can damage them too and cause many common side effects. Not everyone experiences the same side effects and they may vary in severity. It is important to know that in most cases, side effects can be managed. You and your healthcare team should discuss any potential side effects you may experience.

Common side effects of drug therapy may include:

- Hair loss
  - Nausea and vomiting
  - Loss of appetite (anorexia)
  - Constipation
  - Diarrhea
  - Shortness of breath (dyspnea)
  - Tiredness (fatigue)
  - Numbness or tingling in the hands or feet (neuropathy)
  - Low platelets
  - Low red/white blood cell count
-

# RADIATION THERAPY

Radiation therapy is a treatment that uses high energy x-rays or gamma rays to kill or shrink cancer cells, to manage pain or to prevent cancer from spreading to the brain, as in the case of prophylactic cranial irradiation (PCI, see box on page 13).

SCLC is usually treated with general external beam radiation, which uses carefully aimed doses of radiation to specific sections of the lungs or surrounding areas.

## COMMON SIDE EFFECTS OF RADIATION THERAPY TO THE CHEST INCLUDE:

- Tiredness (fatigue)
- Loss of appetite (anorexia)
- Inflammation of the esophagus (esophagitis)
- Inflammation of the lung (pneumonitis)
- Skin irritation
  - Redness
  - Itching
  - Dryness
  - Infection

When SCLC has spread to the brain, whole brain radiation therapy (WBRT) is typically used as treatment. Tiredness and skin irritation are common. Additional side effects may include:

- Hair loss
- Nausea
- Vomiting
- Headache
- Fever
- Short term memory changes

**Be sure to talk with your healthcare team about ways to manage any side effects you may experience.**

# COMBINATION THERAPY

A combination approach of chemotherapy and radiation at the same time is often used to treat SCLC. Your healthcare team will decide if combination therapy is best for your situation.

# SURGERY

Surgery is not commonly used to treat SCLC. For a small number of patients, if the cancer is found very early, is small and has not spread to lymph nodes; or the tumor is a mixture of SCLC and NSCLC (non-small cell lung cancer), surgery may be an option.

When surgery is considered for SCLC, learning as much as possible about the size and location of the cancer is especially important.

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## IF YOU SMOKE, QUITTING IS ONE OF THE SINGLE MOST IMPORTANT LIFESTYLE CHANGES YOU CAN MAKE TO IMPROVE YOUR HEALTH.

Even if you have lung cancer, quitting may help improve how you respond to treatment. If you want to quit, help is available. Ask your doctor or other healthcare provider for information.

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# PCI PROPHYLACTIC CRANIAL IRRADIATION

## WHAT IS PCI AND WHY SHOULD I CONSIDER IT?

PCI is radiation to the brain. The goal is to prevent cancer from growing in the brain by killing any cells too small to see on imaging tests.

SCLC often spreads (metastasizes) to the brain. Studies show that after successful treatment with chemotherapy, PCI can reduce the chance that SCLC will spread to the brain by 30 to 50%.

PCI usually starts three to four weeks after chemotherapy ends. It is given five times a week for two to three weeks (10 to 15 sessions). The procedure only lasts three to four minutes but a visit can take 30 to 40 minutes.

## WHAT CAN I EXPECT?

During PCI, the head must stay still so the radiation is given the same way each time. To help, a plastic mask is made before treatment starts. It takes 15 to 20 minutes to make the mask and do a test ("dry run" or simulation) so that the radiation beams are properly aimed.

The doses of radiation used in PCI are smaller than those used to treat the cancer if it spreads to the brain. Anxiety or fear of being closed in can be helped by medication. Some centers have ways to help patients stay calm during PCI, such as playing music.

## WHAT ABOUT SHORT-TERM SIDE EFFECTS?

Due to the low dose of radiation used, side effects are usually mild. Tiredness and hair loss are the most common. Unless tiredness is an issue, or anti-anxiety medications are used, a patient may drive home after PCI. Many people are able to work while in PCI treatments.

## WHAT ABOUT LONG-TERM EFFECTS?

Some people worry that PCI will affect their memory and how they think later in life. Major long-term effects are unlikely. Similar to the normal aging process, concentration and short-term memory seem to be the most affected.

*The idea of radiation to the brain can be scary, especially when no cancer has been found there. Your doctor should talk with you about the risks and benefits of PCI. Be sure to ask questions and discuss any concerns you have.*

# CLINICAL TRIALS

Clinical trials are available for people diagnosed with SCLC and should be considered as a option every time a treatment decision is made. Clinical trials allow patients to receive promising new treatments or combinations of treatment that are still being evaluated by doctors and researchers.

## LUNG CANCER CLINICAL TRIAL MATCHING SERVICE

Our goal is to make finding a clinical trial as easy as possible. With information about your diagnosis, such as the stage and type of lung cancer and your treatment history, our Clinical Trial Navigator can help you understand the clinical trial process and find trials that you may be eligible for. Having that information to discuss with your treatment team can help you decide if joining a trial is right for you.

**1-800-298-2436**

[WWW.LUNGCANCERALLIANCE.ORG/CLINICALTRIALS](http://WWW.LUNGCANCERALLIANCE.ORG/CLINICALTRIALS)

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# CHALLENGES OF SCLC TREATMENT

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While SCLC can be more challenging to treat than some other cancers, it is important to note that it often responds well to initial treatment.

Unfortunately, sometimes SCLC does not respond to treatment, or responds at first and then stops responding. In other cases, the treatment works, but the cancer comes back later. If any of these things happens, your treatment options will vary depending on whether your cancer responded to initial treatment or if it stopped working and when. Chemotherapy drugs that you received in the past may be used again or you may receive treatment with drugs you haven't had before.

Long-term SCLC survivors should be aware that, in addition to possible recurrence of SCLC, there is an increased risk for second primary tumors which are commonly NSCLC (non-small cell lung cancer). This risk increases over time. It is important to know that if lung cancer is detected at a later time, it may not be SCLC.

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## YOUR TREATMENT TEAM

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A multidisciplinary team approach is when members of the healthcare team discuss your situation and work together to make treatment recommendations. It is thought that this team approach improves coordination of care and communication amongst the team.

**MEDICAL ONCOLOGIST** A doctor who specializes in diagnosing and treating cancer.

**PATHOLOGIST** A doctor who specializes in diagnosing and classifying cancer by studying tissue, fluid, or blood samples.

**RADIATION ONCOLOGIST** A doctor who specializes in treating cancer using various forms of radiation by focusing it on the tumor site in the body.

**PULMONOLOGIST** A doctor who specializes in treating diseases and conditions involving the lungs.

**PULMONARY REHABILITATION SPECIALIST** A specialist who works to reduce symptoms and side effects from diseases of the lung—including lung cancer—and their treatments.

**ONCOLOGY NURSE** A nurse who specializes in helping people with cancer and who may further specialize in the surgical or medical management of a patient's care.

**ONCOLOGY SOCIAL WORKER OR COUNSELOR** A social worker or counselor who specializes in helping patients and loved ones cope with the emotional impact of cancer and who may help identify other needed resources.

**PATIENT NAVIGATOR** A nurse, social worker, or trained lay person who assists patients and loved ones on their journey through the healthcare system

**THORACIC SURGEON** A doctor who performs surgeries in the chest region. Some thoracic surgeons specialize in lung cancer.

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# WHERE CAN I GO FOR MORE INFORMATION?

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For more information about lung cancer, treatments and clinical trials, to discuss support options or for referral to other resources, please contact us.

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**HELPLINE** | 1-800-298-2436

**CLINICAL TRIAL  
MATCHING SERVICE** | [lungcanceralliance.org/clinicaltrials](https://lungcanceralliance.org/clinicaltrials)

**WEBSITE** | [lungcanceralliance.org](https://lungcanceralliance.org)

**E-MAIL** | [support@lungcanceralliance.org](mailto:support@lungcanceralliance.org)

**MAIL** | 1700 K Street, Suite 660, Washington, DC 20006

## WHAT WE DO

- Offer personalized support, information and referral services at no cost through a team of trained, dedicated staff members to help patients, their loved ones and those at risk.
- Advocate for increased lung cancer research funding and equitable access, coverage and reimbursement for screening, treatment, diagnostics and testing.
- Conduct nationwide education campaigns about the disease, risk and early detection.



**LUNG CANCER ALLIANCE**

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SAVING LIVES AND ADVANCING RESEARCH  
BY EMPOWERING THOSE LIVING WITH AND  
AT RISK FOR LUNG CANCER

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## LUNG CANCER ALLIANCE

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The content of this brochure has been reviewed by members of our Medical and Professional Advisory Board.

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