Treating Small Cell Lung Cancer

If you've been diagnosed with small cell lung cancer (SCLC), your cancer care team will discuss your treatment options with you. It's important to weigh the benefits of each treatment option against the possible risks and side effects.

How is small cell lung cancer treated?

Treatments for SCLC can include:

- Chemotherapy for Small Cell Lung Cancer
- Radiation Therapy for Small Cell Lung Cancer
- Surgery for Small Cell Lung Cancer
- Palliative Procedures for Small Cell Lung Cancer

Common treatment approaches

The treatment options for SCLC are based mainly on the stage (extent) of the cancer, but other factors, such as a person’s overall health and lung function are also important. Sometimes, more than one type of treatment is used. If you have SCLC, you will probably get chemotherapy if you are healthy enough. If you have limited stage disease, radiation therapy and – rarely – surgery may be options as well.

- Treatment Choices by Stage of Small Cell Lung Cancer

Who treats small cell lung cancer?

You may have different types of doctors on your treatment team, depending on the stage of your cancer and your treatment options. These doctors could include:

- A medical oncologist: a doctor who treats cancer with medicines such as chemotherapy
• A **pulmonologist**: a doctor who specializes in medical treatment of diseases of the lungs

• A **radiation oncologist**: a doctor who treats cancer with radiation therapy

• A **thoracic surgeon**: a doctor who treats diseases in the lungs and chest with surgery

Many other specialists may be involved in your care as well, including nurse practitioners, nurses, psychologists, social workers, rehabilitation specialists, and other health professionals.

• **Health Professionals Associated With Cancer Care**

**Making treatment decisions**

It’s important to discuss all of your treatment options as well as their possible side effects with your family and your treatment team to make the choice that best fits your needs. If there’s anything you don’t understand, ask to have it explained.

If time permits, it is often a good idea to seek a second opinion. A second opinion can give you more information and help you feel more confident about the treatment plan you choose.

• **What Should You Ask Your Health Care Team About Small Cell Lung Cancer?**
• **Seeking a Second Opinion**

**Thinking about taking part in a clinical trial**

Clinical trials are carefully controlled research studies that are done to get a closer look at promising new treatments or procedures. Clinical trials are one way to get state-of-the art cancer treatment. In some cases they may be the only way to get access to newer treatments. They are also the best way for doctors to learn better methods to treat cancer. Still, they’re not right for everyone.

If you would like to learn more about clinical trials that might be right for you, start by asking your doctor if your clinic or hospital conducts clinical trials.

• **Clinical Trials**

**Considering complementary and alternative methods**

You may hear about alternative or complementary methods that your doctor hasn’t mentioned to treat your cancer or relieve symptoms. These methods can include vitamins, herbs, and special diets, or other methods such as acupuncture or massage,
Complementary methods refer to treatments that are used along with your regular medical care. Alternative treatments are used instead of a doctor's medical treatment. Although some of these methods might be helpful in relieving symptoms or helping you feel better, many have not been proven to work. Some might even be dangerous.

Be sure to talk to your cancer care team about any method you are thinking about using. They can help you learn what is known (or not known) about the method, which can help you make an informed decision.

- Complementary and Alternative Medicine

Help getting through cancer treatment

Your cancer care team will be your first source of information and support, but there are other resources for help when you need it. Hospital- or clinic-based support services are an important part of your care. These might include nursing or social work services, financial aid, nutritional advice, rehab, or spiritual help.

The American Cancer Society also has programs and services – including rides to treatment, lodging, and more – to help you get through treatment. Call our National Cancer Information Center at 1-800-227-2345 and speak with one of our trained specialists.

- Find Support Programs and Services in Your Area

Choosing to stop treatment or choosing no treatment at all

For some people, when treatments have been tried and are no longer controlling the cancer, it could be time to weigh the benefits and risks of continuing to try new treatments. Whether or not you continue treatment, there are still things you can do to help maintain or improve your quality of life.

Some people, especially if the cancer is advanced, might not want to be treated at all. There are many reasons you might decide not to get cancer treatment, but it’s important to talk to your doctors and you make that decision. Remember that even if you choose not to treat the cancer, you can still get supportive care to help with pain or other symptoms.

- If Cancer Treatments Stop Working
- Palliative or Supportive Care
Chemotherapy for Small Cell Lung Cancer

Chemotherapy (chemo) is treatment with anti-cancer drugs injected into a vein or taken by mouth. These drugs enter the bloodstream and go throughout the body, making this treatment useful for cancer anywhere in the body.

When might chemotherapy be used?

Chemo is typically part of the treatment for small cell lung cancer (SCLC). This is because SCLC has usually already spread by the time it is found (even if the spread can’t be seen on imaging tests), so other treatments such as surgery or radiation therapy would not reach all areas of cancer.

- For people with limited stage SCLC, chemo is often given along with radiation therapy. This is known as chemoradiation.
- For people with extensive stage SCLC, chemo alone is usually the main treatment (although sometimes radiation therapy is given as well).

Some patients in poor health might not be able to tolerate intense doses of chemo. But older age by itself is not a reason to not get chemo.

Drugs used to treat SCLC

SCLC is generally treated with combinations of chemotherapy drugs. The combinations most often used are:

- Cisplatin and etoposide
- Carboplatin and etoposide
- Cisplatin and irinotecan
• Carboplatin and irinotecan
Doctors give chemo in cycles, with a period of treatment (usually 1 to 3 days) followed by a rest period to allow your body time to recover. Each cycle generally lasts about 3 to 4 weeks, and initial treatment is typically 4 to 6 cycles.

If the cancer progresses (get worse) during treatment or returns after treatment is finished, other chemo drugs may be tried. The choice of drugs depends to some extent on how soon the cancer begins to grow again. (The longer it takes for the cancer to return, the more likely it is to respond to further treatment.)

• If cancer returns more than 6 months after treatment, it might respond again to the same chemo drugs that were given the first time, so these can be tried again.
• If the cancer comes back sooner, or if it keeps growing during treatment, further treatment with the same drugs isn’t likely to be helpful. If further chemo is given, most doctors prefer treatment with a single, different drug to help limit side effects. Topotecan, which can either be given into a vein (IV) or taken as pills, is the drug most often used, although others might also be tried.
SCLC that progresses or comes back can be hard to treat, so taking part in a clinical trial of newer treatments might be a good option for some people.

Possible side effects of chemotherapy

Chemo drugs can cause side effects. These depend on the type and dose of drugs given and how long they are taken. Some of the more common side effects of chemo include:

• Hair loss
• Mouth sores
• Loss of appetite
  • Nausea and vomiting
• Diarrhea or constipation
• Increased chance of infections (from having too few white blood cells)
• Easy bruising or bleeding (from having too few blood platelets)
• Fatigue (from having too few red blood cells)
These side effects usually go away after treatment. There are often ways to lessen these side effects. For example, drugs can help prevent or reduce nausea and vomiting.

Some drugs can have specific side effects. For example:
Drugs such as cisplatin and carboplatin can damage nerve endings. This is called *peripheral neuropathy*. It can sometimes lead to symptoms (mainly in the hands and feet) such as pain, burning or tingling sensations, sensitivity to cold or heat, or weakness. In most people this goes away or gets better after treatment is stopped, but it may last a long time in some people.

Cisplatin can also cause kidney damage. To help prevent this, doctors give lots of IV fluids before and after each dose of the drug is given.

To learn more about chemo, see [Chemotherapy](#).

**References**

[See all references for Small Cell Lung Cancer](#)

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## Radiation Therapy for Small Cell Lung Cancer

Radiation therapy uses high-energy rays (such as x-rays) or particles to kill cancer cells.

### When is radiation therapy used?

Depending on the *stage* of small cell lung cancer (SCLC) and other factors, radiation therapy might be used in several situations:

- In limited stage SCLC, radiation therapy can be given at the same time as *chemotherapy* (chemo) to treat the tumor and lymph nodes in the chest. Giving chemo and radiation together is called *concurrent chemoradiation*. The radiation may be started with the first or second cycle of chemo.
- Radiation can also be given after the chemo is finished. This is sometimes done for patients with extensive stage disease, or it can be used for people with limited stage disease who have trouble getting chemotherapy and radiation at the same
time (as an alternative to chemoradiation).

- SCLC often spreads to the brain. Radiation can be given to the brain to help lower the chances of problems from cancer spread there. This is called prophylactic cranial irradiation. This is most often used to treat people with limited stage SCLC, but it can also help some people with extensive stage SCLC.
- Radiation can be used to shrink tumors to relieve (palliate) symptoms of lung cancer such as pain, bleeding, trouble swallowing, cough, shortness of breath, and problems caused by spread to other organs such as the brain.

Types of radiation therapy

The type of radiation therapy most often used to treat SCLC is called external beam radiation therapy (EBRT). It delivers radiation from outside the body and focuses it on the cancer.

Before treatments start, your radiation team will take careful measurements to find the correct angles for aiming the radiation beams and the proper dose of radiation. This planning session, called simulation, usually includes getting imaging tests such as CT scans.

Treatment is much like getting an x-ray, but the radiation is more intense. The procedure itself is painless. Each treatment lasts only a few minutes, although the setup time – getting you into place for treatment – usually takes longer.

Most often, radiation as part of the initial treatment for SCLC is given once or twice daily, 5 days a week, for 3 to 7 weeks. Radiation to relieve symptoms and prophylactic cranial radiation are given for shorter periods of time, typically less than 3 weeks.

In recent years, newer EBRT techniques have been shown to help doctors treat lung cancers more accurately while lowering the radiation exposure to nearby healthy tissues. These include:

**Three-dimensional conformal radiation therapy (3D-CRT):** 3D-CRT uses special computer programs to precisely map the location of the tumor(s). Radiation beams are shaped and aimed at the tumor(s) from several directions, which makes it less likely to damage normal tissues.

**Intensity modulated radiation therapy (IMRT):** IMRT is an advanced form of 3D therapy. It uses a computer-driven machine that moves around the patient as it delivers radiation. Along with shaping the beams and aiming them at the tumor from several
angles, the intensity (strength) of the beams can be adjusted to limit the dose reaching nearby normal tissues. This technique is used most often if tumors are near important structures such as the spinal cord. Many major cancer centers now use IMRT.

A variation of IMRT is called *volumetric modulated arc therapy* (VMAT). It uses a machine that delivers radiation quickly as it rotates once around the body. Each treatment is given over just a few minutes.

**Possible side effects of radiation therapy**

If you are going to get radiation therapy, it’s important to ask your doctor beforehand about the possible side effects so that you know what to expect. Common side effects of radiation therapy can include:

- Skin changes in the area being treated, which can range from mild redness to blistering and peeling
- Hair loss (in the area where the radiation enters the body)
- Fatigue (tiredness)
- Nausea and vomiting
- Loss of appetite and weight loss

Most of these side effects go away after treatment, but some can last a long time. When chemotherapy is given with radiation, the side effects are often worse.

Radiation therapy to the chest may damage your lungs, which might cause a cough, problems breathing, and shortness of breath. These usually improve after treatment is over, although sometimes they may not go away completely.

Your esophagus, which is in the middle of your chest, may be exposed to radiation, which could cause a sore throat and trouble swallowing during or shortly after treatment. This might make it hard to eat anything other than soft foods or liquids for a while.

Radiation therapy to large areas of the brain can sometimes cause memory loss, fatigue, headaches, trouble thinking, or reduced sexual desire. Usually these symptoms are minor compared with those caused by cancer that has spread to the brain, but they can affect your quality of life.

For more information, see [Radiation Therapy](#).

- References
- See all references for Small Cell Lung Cancer
Surgery for Small Cell Lung Cancer

Surgery is rarely used as part of the main treatment for small cell lung cancer (SCLC), as the cancer has usually already spread by the time it is found.

Occasionally (in fewer than 1 out of 20 patients), the cancer is found as only a single lung tumor, with no spread to lymph nodes or other organs. Surgery may be an option for these early-stage cancers, usually followed by additional treatment (chemotherapy, often with radiation therapy).

If your doctor thinks the lung cancer can be treated with surgery, pulmonary function tests will be done first to see if you would still have enough healthy lung tissue left after surgery. Other tests will check the function of your heart and other organs to be sure you’re healthy enough for surgery.

Because surgery isn’t helpful for more advanced stage lung cancers, your doctor will also want to make sure the cancer hasn’t already spread to the lymph nodes between the lungs. This is often done just before surgery with mediastinoscopy or with some of the other techniques described in Tests for Small Cell Lung Cancer. If cancer cells are in the lymph nodes, then surgery is not likely to be helpful.

Types of lung surgery

Different operations can be used to treat SCLC:

- **Pneumonectomy**: An entire lung is removed in this surgery.
- **Lobectomy**: The lungs have 5 lobes (3 in the right lung and 2 in the left). In this surgery, the entire lobe containing the tumor is removed.
- **Segmentectomy or wedge resection**: In these operations, only the part of the lobe with the tumor is removed.
- **Sleeve resection**: A section of a large airway is removed, and the lung is reattached.
In general, lobectomy is the preferred operation for SCLC if it can be done, because it offers a better chance of removing all of the cancer than segmentectomy or wedge resection.

With any of these operations, nearby lymph nodes are also removed to look for possible spread of the cancer. These operations require general anesthesia (where you are in a deep sleep) and are usually done through a surgical incision between the ribs in the side of the chest (called a thoracotomy).

When you wake up from surgery, you will have a tube (or tubes) coming out of your chest and attached to a special canister to allow excess fluid and air to drain out. The tube(s) will be removed once the fluid drainage and air leak stop. Most people will spend about a week in the hospital after the surgery.

**Possible risks and side effects of lung surgery**

Surgery for lung cancer is a major operation and can have serious side effects, which is why surgery isn’t a good idea for everyone. While all surgeries carry some risks, they depend to some degree on the extent of the surgery and a person’s health beforehand.

Possible complications during and soon after surgery can include reactions to anesthesia, excess bleeding, blood clots in the legs or lungs, wound infections, and pneumonia. While it is rare, in some cases people may not survive the surgery.

Recovering from lung cancer surgery typically takes weeks to months. When the surgery is done through a thoracotomy, the surgeon must spread the ribs to get to the lung, so the area near the incision will hurt for some time after surgery. Your activity will be limited for at least a month.

If your lungs are in good condition (other than the presence of the cancer) you can usually return to normal activities after some time if a lobe or even an entire lung has been removed.

If you also have another lung disease such as emphysema or chronic bronchitis (which are common among heavy smokers), you might become short of breath with activity after surgery.

For more general information about surgery, see [Cancer Surgery](#).

- [References](#)

[See all references for Small Cell Lung Cancer](#)
Palliative Procedures for Small Cell Lung Cancer

Palliative, or supportive care, is aimed at relieving symptoms and improving a person’s quality of life.

People with small cell lung cancer (SCLC) often benefit from procedures to help with problems caused by the cancer. For example, people with advanced lung cancer can be short of breath. This can be caused by many things, including fluid around the lung or an airway that is blocked by a tumor. Although treating the cancer with chemotherapy or other drugs may help with this over time, other treatments may be needed as well.

Treating an airway blocked by a tumor

Tumors can sometimes grow into the lung airways, blocking them and causing problems such as pneumonia or shortness of breath. Sometimes this is treated with radiation therapy (described in Radiation Therapy for Small Cell Lung Cancer), but other techniques can also be used.

Photodynamic therapy (PDT)

Photodynamic therapy is sometimes used to help open up airways blocked by tumors to help people breathe better.

For this technique, a light-activated drug called porfimer sodium (Photofrin) is injected into a vein. This drug collects more in cancer cells than in normal cells. After a couple of days (to give the drug time to build up in the cancer cells), a bronchoscope is passed down the throat and into the lung. This can be done with either local anesthesia (numbing the throat) and sedation, or with general anesthesia (which puts you in a deep sleep). A special laser light on the end of the bronchoscope is aimed at the tumor, which activates the drug and kills the cells. The dead cells are then removed a few days later.
during a bronchoscopy. This process can be repeated if needed.

PDT can cause swelling in the airway for a few days, which may lead to some shortness of breath, as well as coughing up blood or thick mucus. Some of this drug also collects in normal cells in the body, such as skin and eye cells. This can make you very sensitive to sunlight or strong indoor lights. Too much exposure can cause serious skin reactions (like a severe sunburn), so doctors recommend staying out of any strong light for several weeks after the injection.

For more information on PDT, see Photodynamic Therapy.

**Laser therapy**

Lasers can sometimes be used to help open up airways blocked by tumors to help people breathe better.

You are usually asleep (under general anesthesia) for this type of treatment. The laser is on the end of a bronchoscope, which is passed down the throat and next to the tumor. The doctor then aims the laser beam at the tumor to burn it away. This treatment can usually be repeated, if needed.

**Stent placement**

If a lung tumor has grown into an airway and is causing problems, sometimes a bronchoscope is used to put a hard silicone or metal tube called a stent in the airway to help keep it open. This is often done after other treatments such as PDT or laser therapy.

**Treating fluid buildup in the area around the lung**

Sometimes fluid can build up in the chest outside of the lungs. This is called a pleural effusion. It can press on the lungs and cause trouble breathing.

**Thoracentesis**

This is done to drain the fluid. For this procedure, the doctor will numb an area in the chest, and then place a hollow needle into the space between the lungs and the ribs to drain the fluid. This is often done using ultrasound to guide the needle into the fluid.
**Pleurodesis**

This procedure might be done to remove the fluid and keep it from coming back.

One way to do this is to make a small cut in the skin of chest wall, and place a hollow tube (called a chest tube) into the chest to remove the fluid. Then a substance is instilled into the chest through the tube that causes the linings of the lung (visceral pleura) and chest wall (parietal pleura) to stick together, sealing the space and limiting further fluid buildup. A number of substances can be used for this, such as talc, the antibiotic doxycycline, or a chemotherapy drug like bleomycin. The tube is often left in for a couple of days to drain any new fluid that might collect.

Another way to do this is to blow talc into the space around the lungs during an operation. This is done through a small incision using thoracoscopy.

**Catheter placement**

This is another way to control the buildup of fluid. One end of the catheter (a thin, flexible tube) is placed in the chest through a small cut in the skin, and the other end is left outside the body. This is done in a doctor’s office or hospital. Once in place, the catheter can be attached to a special bottle or other device to allow the fluid to drain out on a regular basis.

**Treating fluid buildup around the heart**

Lung cancer can sometimes spread to the area around the heart. This can lead to fluid buildup inside the sac around the heart (called a pericardial effusion), which can press on the heart and affect how well it works.

**Pericardiocentesis**

In this procedure, the fluid is drained with a needle placed into the space around the heart. This is usually done using an echocardiogram (an ultrasound of the heart) to guide the needle.

**Creating a pericardial window**

This procedure can be done to keep the fluid from building up again. During surgery, a piece of the sac around the heart (the pericardium) is removed to allow the fluid to drain.
Treatment Choices by Stage of Small Cell Lung Cancer

For practical reasons, small cell lung cancer (SCLC) is usually staged as either limited or extensive. In most cases, SCLC has already spread by the time it is found (even if the spread is not seen on imaging tests), so chemotherapy (chemo) is usually part of treatment if a person is healthy enough.

If you smoke, one of the most important things you can do to be ready for treatment is to try to quit. Studies have shown that patients who stop smoking after a diagnosis of lung cancer tend to have better outcomes than those who don't.

Treating limited stage SCLC

Stage I cancers

If you only have one small tumor in your lung and there is no evidence of cancer in lymph nodes or elsewhere, your doctors may recommend surgery to remove the tumor and the nearby lymph nodes.

Very few patients with SCLC are treated this way. This is only an option if you are in fairly good health and can withstand having all or part of a lung removed.

Before the operation, the lymph nodes in your chest will be checked for cancer spread with mediastinoscopy or other tests, because surgery is unlikely to be a good option if the cancer has spread.
Surgery is generally followed by chemotherapy. If cancer is found in the lymph nodes that were removed, radiation therapy to the chest is usually advised as well. The radiation is often given at the same time as the chemo. Although this increases the side effects of treatment, it appears to be more effective than giving one treatment after the other. You might not be given radiation therapy if you already have severe lung disease (in addition to your cancer) or other serious health problems.

In about half of people with SCLC, the cancer will eventually spread to the brain if no preventive measures are taken. For this reason, you may be given radiation therapy to the head (called prophylactic cranial irradiation, or PCI) to try to prevent this. The radiation is usually given in low doses. Still, some patients may have side effects from the radiation.

**Other limited stage cancers**

For most people with limited stage SCLC, surgery is not an option because the tumor is too large, it’s in a place that can’t be removed easily, or it has spread to nearby lymph nodes or other places in the lung. If you are in good health, the standard treatment is chemo plus radiation to the chest given at the same time (called concurrent chemoradiation). The chemo drugs used are usually etoposide plus either cisplatin or carboplatin.

Concurrent chemoradiation can help people with limited stage SCLC live longer and give them a better chance at cure than giving one treatment (or one treatment at a time). The downside is that this combination has more side effects than either chemo or radiation alone, and it can be hard to take.

People who aren’t healthy enough for chemoradiation are usually treated with chemo by itself. This may be followed by radiation to the chest.

If no measures are taken to prevent it, about half of people with SCLC will have cancer spread to their brain. If your cancer has responded well to initial treatment, you may be given radiation therapy to the head (called prophylactic cranial irradiation, or PCI) to try to prevent this. The radiation is usually given in lower doses than what is used if the cancer had already spread to brain, but some patients may still have side effects from the radiation.

Most people treated with chemo (with or without radiation) for limited stage SCLC will have their tumors shrink significantly. In many, the cancer will shrink to the point where it can no longer be seen on imaging tests. Unfortunately, for most people, the cancer will return at some point.
Because these cancers are hard to cure, clinical trials of newer treatments may be a good option for some people. If you think you might want to take part in a clinical trial, talk to your doctor.

**Treating extensive stage SCLC**

Extensive stage SCLC has spread too far for surgery or radiation therapy to be useful as the initial treatment. If you have extensive SCLC and are in fairly good health, chemotherapy (chemo) can often shrink the cancer, treat your symptoms, and help you live longer.

The most common chemo combination is etoposide plus either cisplatin or carboplatin. Most people will have their cancer shrink significantly with chemo, and in some the cancer may no longer be seen on imaging tests. Unfortunately, the cancer will still return at some point in almost all people with extensive stage SCLC.

If the cancer responds well to chemo, radiation treatments to the chest may be given. This can help people with extensive stage SCLC live longer. Radiation to the brain (known as prophylactic cranial irradiation, or PCI) may also be considered to help prevent cancer progression in the brain.

Because these cancers are hard to treat, clinical trials of chemotherapy drugs and combinations, as well as other new treatments, may be a good option for some people. If you think you might be interested in taking part in a clinical trial, talk to your doctor.

If cancer growth within the lungs is causing symptoms such as shortness of breath or bleeding, radiation therapy or other types of treatment, such as laser surgery, can sometimes be helpful. Radiation therapy can also be used to relieve symptoms if the cancer has spread to the bones or brain.

If your overall health is poor, you might not be able to withstand the side effects of standard doses of chemo. If this is the case, your doctor may treat you with lower doses of chemo or palliative/supportive care alone. This would include treatment of any pain, breathing problems, or other symptoms you might have.

**Cancer that progresses or recurs after treatment**

If the cancer continues to grow during treatment or comes back, any further treatment will depend on the location and extent of the cancer, what treatments you’ve had, and on your health and desire for further treatment. It’s always important to understand the
goal of any further treatment before it starts – if it’s to try to cure the cancer, to slow its
growth, or to help relieve symptoms – as well as the likelihood of benefits and risks.

If a cancer continues to grow during chemotherapy, another type of chemo may be
tried, although it may be less likely to be effective. For cancers that come back after
initial treatment is finished, the choice of chemo drugs depends on how long the cancer
was in remission (see Chemotherapy for Small Cell Lung Cancer).

For more on dealing with a recurrence, see Coping With Cancer.

The treatment information in this document is not official policy of the American Cancer
Society and is not intended as medical advice to replace the expertise and judgment of
your cancer care team. It is intended to help you and your family make informed
decisions, together with your doctor. Your doctor may have reasons for suggesting a
treatment plan different from these general treatment options. Don’t hesitate to ask him
or her questions about your treatment options.

- References

See all references for Small Cell Lung Cancer

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