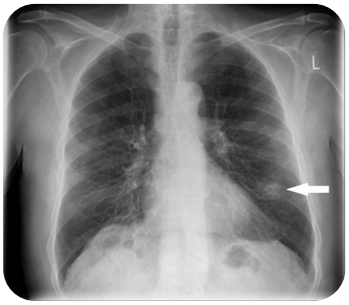
Lung Cancer

If you are thinking about taking part in a lung cancer screening program or have recently been diagnosed with lung cancer you likely have many questions about the disease or what treatment options will be available to you. Lung cancer is a disease that is best treated by a multi-disciplinary healthcare team. This fact sheet provides a general overview of lung cancer. For more about lung cancer prevention, screening, staging and treatment see other ATS fact sheets at www.thoracic.org/patients.



What is lung cancer?

A lung cancer develops when cells in the lung grow abnormally and form a tumor. This can be seen on chest x-rays or CT ('CAT') scans as a nodule or a mass. Lung cancer is far more common in people who have smoked tobacco products. However, it can occur in people who never smoked. Other risk factors for lung cancer include radon, asbestos and second-hand smoke exposure as well as air pollution and genetics (a history of lung cancer in your family).

A diagnosis of lung cancer is serious, but treatments have improved enormously in recent years. In general, people with lung cancer do better if diagnosed in early-stage disease, so recognizing lung cancer symptoms is important. However lung cancer can often be present without symptoms, so lung cancer screening is also an important tool to detect lung cancer early in people who are at high-risk.

What are the symptoms of lung cancer?

Symptoms of lung cancer can vary from person to person. You may have no symptoms at all or you may feel like you have bronchitis or a bad cold that does not get better. Symptoms which should alert you to see your healthcare provider are: a cough that gets worse or does not go away, more trouble breathing (shortness of breath) than usual, coughing up blood, chest pain, hoarse voice, frequent lung infections, feeling tired all the time, weight loss for no known reason, or swelling of your face or arms.

Lung cancer is most likely to be cured when detected at an early stage, when it often causes no lung cancer symptoms (asymptomatic). This is why lung cancer screening is important in people who are high risk. Sometimes lung cancer is found when a person has an imaging study done for an unrelated reason.

What is lung cancer screening?

This is when a healthcare provider looks for lung cancer in people who are at high-risk for lung cancer using a CT scan before symptoms arise. This is similar to programs like breast and bowel cancer screening. A CT scanner takes multiple x-ray pictures of your lungs to create a 3D image. It uses low doses of radiation and shows much more detail than a single chest x-ray. Many research studies have shown these scans detect lung cancer earlier and reduce deaths from lung cancer. Most organizations including the American Thoracic Society (ATS) and the United States Preventive Services Task Force (USPSTF) recommend lung cancer screening for eligible people. To see if you are eligible for lung cancer screening and to learn more see the ATS fact sheet at https://www.thoracic.org/patients/

What are the types of lung cancer?

It is important to know what type of lung cancer you have as it is a major factor in the type of treatment you receive. Lung cancers are divided into non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC). NSCLC is far more common and can be divided into subtypes like squamous cell carcinoma, adenocarcinoma and large cell carcinoma. The names reflect the different types of cells that can be seen in the lung cancer tissue under the microscope. Some patients with NSCLC will also have testing for specific immune markers and DNA changes or "biomarkers to further define the cancer type. SCLC can be divided into SCLC and combined SCLC. SCLC tends to grow more quickly and spreads earlier to other parts of the body.

What is lung cancer staging?

Lung cancer is staged using the TNM system, which stages the cancer by the size of the tumor in cm (T), whether or not the lymph nodes also have cancer cells (N), and whether or not there is spread of the tumor

beyond the lungs and lymph nodes, called metastasis (M). Each letter then has a number assigned to it, the larger the number the more advanced the cancer is. This is explained in more detail in the ATS Lung Cancer Staging fact sheet at https://www.thoracic.org/patients/

What does Stage I(1), II(2), III(3) and IV(4) mean?

The TNM system helps assign your lung cancer to one of these four stages. These stages are very complicated because they all have sub stages depending on how large the tumor is and where it has spread. Ask your healthcare team to describe your lung cancer in both the TNM and Stage I-IV. Read more about your cancer stage at https://www.thoracic.org/patients/

How is lung cancer treated?

The treatment options for lung cancer are complex, in part due to how many effective treatments we have for this disease. In general, these options are refined based on the type and stage of your lung cancer, your preferences, and any other health conditions you may have. Many of the treatments are used in combination either at the same time or one after the other.

Lung surgery is offered in people who have early-stage disease where there is a high chance of removing all of the cancer. The cancer, some normal lung tissue and lymph glands (nodes) are removed. This reduces the risk the cancer will come back in the future (recurrence). Sometimes after surgery other treatments are also recommended to reduce this risk.

Radiation uses high energy x-rays to damage the cancer cells and cause the tumor to shrink. It is often used in combination with chemotherapy. A special type of highly focused radiation called stereotactic body radiotherapy (SBRT) can be offered instead of surgery in some people.

Chemotherapy (drugs that kill fast growing cells including the cancer cells) are commonly used in many different treatment plans. These drugs are usually given through the vein.

Immunotherapy (drugs that use your own immune system to kill the cancer) are increasingly being used in a variety of lung cancer subtypes and stages. Biomarker testing will help your healthcare team decide if you are a candidate for this therapy.

Targeted therapy (drugs that kill the cancer cells at the DNA level) can also be used to treat lung cancer. These drugs tend to be more selective for cancer cells and are used after biomarker testing. It is important to ask your healthcare provider if you are eligible for biomarker testing.

Is it too late to stop smoking?

Stopping smoking can improve cancer outcomes at any stage of disease. Stopping smoking may help you heal better if you need surgery, cut down on side effects from systemic therapies like chemotherapy and radiation, and allow these treatments to work better. Smoking cessation may also help you live longer, improve your quality of life, and lower the risk of cancer coming back or you getting a new cancer. See also the ATS fact sheet 'Smoking Cessation and Cancer' at www.thoracic.org/patients.

Speak to your healthcare provider about taking over the counter and/or prescription medications to help you stop smoking.

Helpful links to stop smoking:

https://www.cancer.org/healthy/stay-away-from-tobacco/guide-quitting-smoking/nicotine-replacement-therapy.html

https://quitnow.net/mve/quitnow

OR call 1-800-QUITNOW (1-800-784-8669)

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Reviewers: Hasmeena Kathuria MD, Marianna M. Sockrider MD, DrPH

Resources:

American Thoracic Society

- www.thoracic.org/patients
  - Lung Cancer Staging
  - Lung Cancer Screening
  - Treatment of Early-Stage Non-Small Cell Lung Cancer
  - Treatment of Advanced Stage Non-Small Cell Lung Cancer
  - Treatment of Small cell Lung Cancer
  - Smoking Cessation and Cancer
  - Palliative Care for People with Respiratory Disease or Critical Illness
  - Malignant Pleural Effusion

American Cancer Society

- https://www.cancer.org/cancer/lung-cancer.html

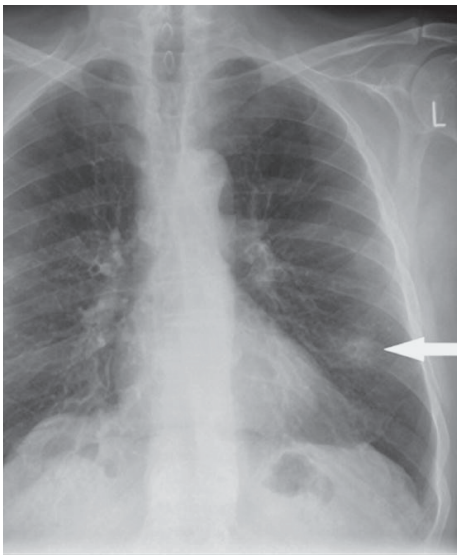
Go2 Foundation

- https://go2foundation.org/

American Lung Association

- https://www.lung.org/lung-health-diseases/lung-disease-lookup/lung-cancer

Staging of Lung Cancer



Once you are diagnosed with lung cancer, staging tells you and your healthcare provider about the size of your cancer (tumor) and whether it has spread. The stage of your cancer is based on the results from tests like a CT ("cat") scan, and biopsies. How your lung cancer stage is described also depends on what type of lung cancer you have.

A biopsy involves removing a piece of tissue (usually from either your lung, lymph nodes or other tissue site), and looking at it under a microscope. The stages of lung cancer are listed as I, II, III, and IV for non small cell lung cancer (NSCLC) and "limited" or "extensive" for small cell lung cancer (SCLC). NSCLC may be further subdivided by letter designations, for example IIIA, IIIB or IIIC. The higher the number (or when the word "extensive" is used) means the bigger the tumor and/or the more the cancer has spread. All stages of lung cancer can be treated.

Once your lung cancer is diagnosed, staging tells you and your healthcare provider about the size of your cancer (tumor) and how far it has spread. The stage of your cancer is based on your symptoms, results from tests like a CT ("cat") scan, and biopsies. A biopsy involves removing a piece of tissue (usually from your lung or lymph node), and looking at it under a microscope. The stages of lung cancer are listed as I, II, III, and IV for non small cell lung cancer (NSCLC) and "limited" or "extensive" for small cell lung cancer (SCLC). NSCLC may be further subdivided by letter designations, for example IIIA, IIIB or IIIC. The higher the number (or when the word "extensive" is used) means the bigger the tumor and/or the more the cancer has spread.

Why is it important to know the stage of my lung cancer?

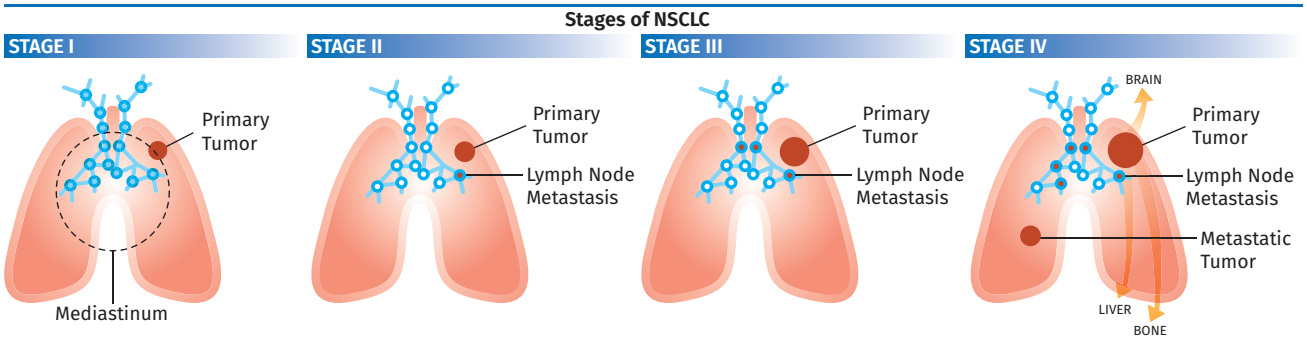
Finding out the stage of your lung cancer is important for two reasons. Staging your lung cancer:

- tells how much your cancer has spread.
- helps decide which therapy (or therapies) could be used.

Knowing the stage of your cancer helps your healthcare team know the risks versus the benefits of different procedures and treatments. Treatments that are good for one stage may not be helpful for another stage, and in fact can be harmful to you. For example, if cancer has spread outside the lung (called metastases), surgery to remove part of the lung may not improve your chance of living longer and may cause unnecessary harm.

How does staging differ between small cell lung cancer (SCLC) and non-small cell lung cancer (NSCLC)?

Both NSCLC and SCLC are staged by the TNM system. The initials TNM stand for the size and location of the **T**umor, the spread of cancer in the lymph **N**odes



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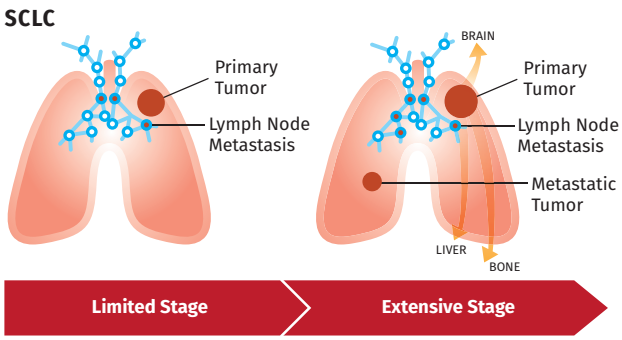
and if and where the cancer has spread (**M**etastases).

- The **T** number increases as the tumor gets bigger and how close it is to major structures in the chest like large airways in the lungs, heart, major blood vessels, or tissues outside the lung.
- The **L** number says whether your cancer has spread to the lymph nodes. Lymph nodes are part of your immune system and cancer cells can spread into the lymph system. Usually, if the cancer has spread, it spreads to the nodes closest to the main tumor and then goes further away. Imaging studies, such as CT or PET scans, are used to find possible lymph nodes affected by the cancer, but a biopsy is the best way to find out if the lymph nodes have cancer. The lymph node is rated as:
  - N0=no lymph node involvement
  - N1, N2, N3 = lymph nodes involved at different sites inside or outside the chest
- The **M** says that metastases (spread of cancer) has happened throughout the body and is growing in other tissues or organs. Lung cancer may spread to the brain, bones, adrenal glands, liver or other areas. The **M** stage is based on ***if*** the cancer has spread and ***where*** it has spread. Like the lymph node staging, imaging studies may help find out if a cancer has spread, but a biopsy is often a better way to find this out.



SCLC is staged by the TNM system, but treating physicians also commonly describe SCLC as "limited" and "extensive" stages. Limited stage SCLC occurs when the lung cancer is limited to one side of the chest. Extensive stage occurs when the lung cancer has spread to the other side of the chest or to other organs such as the liver or brain.

How will my lung cancer be staged?

Your healthcare provider will ask you about how you are feeling. Changes in how you are feeling may be a sign that your cancer has spread. You will also have tests that can tell if your cancer is bigger or has spread to other areas of your body. Some tests are *non-invasive* (you are not cut or poked with a needle for a biopsy) such as a CT scan (to identify anatomy), PET scan (to identify tissues with very active cells), MRI (often used to look at the brain or bones), and/or bone scan (to look at bones where the cancer may be). These tests may be able to give an idea of the stage of your lung cancer but these may not be accurate. Another test, a biopsy, is an invasive test where a piece of tissue is taken and examined. Biopsies of tissue are the best way to stage your cancer.

How do you get biopsies that are used to diagnose and stage lung cancer?

There are several tools that are used to reach the tissue that is to be biopsied. These include: bronchoscopy, CT-guided needle biopsy, mediastinoscopy, surgery or other biopsy procedures. Some of these procedures are done in the operating room under general anesthesia, while others only require medications that make you a little sleepy.

- **Bronchoscopy:** A camera on a long skinny tube (a fiber optic bronchoscope) is put into your mouth or nose, goes into your trachea (windpipe), and into the airways (breathing tubes) of your lungs. The bronchoscope can be used to look at the inside of your airways. Bronchoscopy can be done with or without ultrasound to biopsy the airways, the lung tissue, or lymph nodes. There are newer types of bronchoscopy that may also be offered to you if needed, that can reach further into your lungs.
- **Endoscopic Ultrasound (EUS) or Endobronchial Ultrasound (EBUS):** Like the bronchoscope, an EUS is a long tube that has an ultrasound device and a camera attached. This tube can be put through your mouth, into your trachea (windpipe) or esophagus (food tube). The ultrasound uses sound waves to "see" areas of your lung, mediastinum (the area between your lungs), or areas around your esophagus that are not visible from inside the trachea or esophagus. Seeing these areas helps to guide a needle into the likely cancer tissue, usually a lymph node, to obtain a small biopsy.
- **Mediastinoscopy:** Also like a bronchoscope, a tube with a camera is put into your mediastinum (area between your lungs). To get into this area, a small cut is made just above your sternum (breast bone). This is done so that groups of lymph nodes in the mediastinum can be biopsied.
- **Thoracic Surgery:** Sometimes, the best way to biopsy something in your chest area is to have surgery. Whether you have surgery or not will be

decided by you and your surgeon. Usually, one or more incisions (cuts) are made so that the surgeon can remove the cancerous part of the lung and/or lymph node tissue.

- **Other biopsy procedures:** Depending on your symptoms and test results, other biopsies may be done. Where the biopsy is done depends on where the cancer may be. Common places that are biopsied are your lungs, liver, bones, and brain. These types of biopsies can be done with a needle or through surgery by cutting a piece of tissue out of your body.

How good are these tests at staging lung cancer?

If your biopsy finds cancer cells, this is proof that you have cancer. If cancer is found in biopsies taken from different parts of your body, this means that the cancer has spread. On the other hand, not finding cancer cells (a negative result) can mean two things:

- it can mean that the cancer has not spread or
- the biopsy "missed" the cancer that was really there.

Usually, the bigger the piece of tissue from biopsy, the better the chance to prove that cancer is not there. For example, if a lung biopsy is negative, but the sample was small, another biopsy may be needed to make sure that your cancer did not spread.

Action Steps:

1. If you smoke, it is never too late to get the help you need to quit. Ask your healthcare provider, or call 1-800-QUITNOW.
2. If you notice any of your symptoms getting worse, or any new symptoms, contact your healthcare clinician right away. New symptoms might include:
   - a cough that doesn't go away
   - coughing up blood
   - difficulty swallowing
   - weight loss that cannot be explained
   - bone pain
   - shortness of breath
   - hoarseness that does not go away
   - increasing fatigue
3. Talk to your healthcare provider about what the plan is to stage your cancer and watch for any new spread.

Healthcare Provider's Contact Number:

Resources:

American Thoracic Society

- www.thoracic.org/patients
  - Flexible Bronchoscopy
  - Lung Cancer
  - Screening for Lung Cancer
  - Treatment of Lung Cancer (SCLC, Early NSCLC, Advanced NSCLC)

American Cancer Society 1-800-227-2345

- http://www.cancer.org/docroot/ETO/content/ETO_1_2X_Staging.asp

National Cancer Institute 1-800-422-6237

- https://www.cancer.gov/types/lung
- http://www.cancer.gov/cancertopics/pdq/treatment/non-small-cell-lung/Patient/page2
- https://www.cancer.gov/types/lung/patient/small-cell-lung-treatment-pdq

National Lung Cancer Partnership 1-608-233-7905

- http://www.nationallungcancerpartnership.org/

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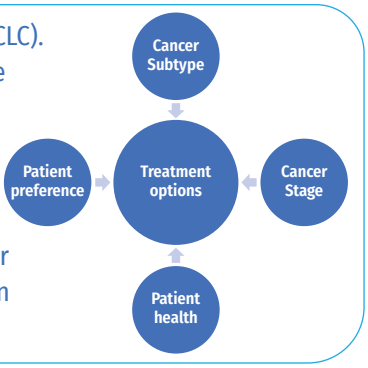
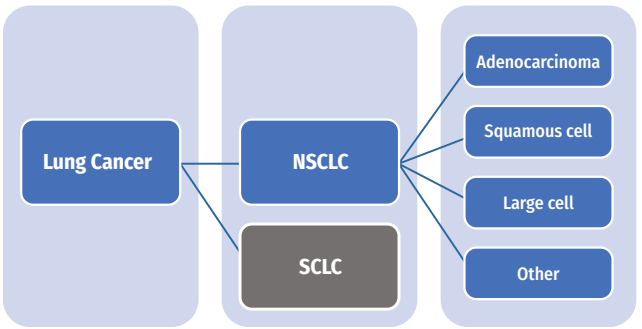
Treatment of Early-Stage Non–Small Cell Lung Cancer

There are several types of treatment for early-stage non–small cell lung cancer (NSCLC). You and your healthcare team will discuss which choice is best for you based on the type and stage of lung cancer you have, symptoms, your preferences and any other health problems you may have. Lung cancer treatments continue to improve as new discoveries are being made so it is important to discuss all your possible options with your healthcare team. This fact sheet focuses on the treatment of early-stage non–small cell lung cancer. For additional information about lung cancer including treatment of advanced-stage NSCLC, see our other ATS Patient Information Series fact sheets in the 'For More Information' section at the end of this leaflet.



There are two main types of lung cancer: Non–Small Cell Lung Cancer (NSCLC) and Small Cell Lung Cancer (SCLC) (see ATS Patient Information Series Fact Sheet Lung Cancer at www.thoracic.org/patients). NSCLC is the most common and the main sub-types of NSCLC are adenocarcinoma, squamous cell, and large cell lung cancer. Treatment is different depending on the type or sub-type of lung cancer you have.

Cancer Type



The treatment approach for SCLC is different and is not included here. See ATS Patient Information Series fact sheet "Treatment of Small Cell Lung Cancer" for more information on this topic.

Cancer Stages for NSCLC

How does the stage of my cancer determine the treatment I receive?

Staging is a process for defining how much cancer is within your body (see ATS Patient Information Series fact sheet "What is Lung Cancer Staging?" at www.thoracic.org/patients). Usually, cancers that are limited to a small area of the chest are best treated with a local treatment to remove or kill the entire tumor. Surgery and stereotactic body radiation therapy (SBRT) also known as stereotactic ablative radiotherapy (SABR) are forms of local treatment. Surgery is generally more effective than SBRT in removing all the cancer, but as discussed below, not everyone can safely tolerate surgery, *or some individuals may opt for a non-surgical approach*.

Other options include chemotherapy (drugs that kill fast growing cells including the cancer cells), radiation therapy (high energy x-rays), immunotherapy (drugs that use your own immune system to kill the cancer) and targeted therapies (drugs that kill the cancer cells at the DNA level). These treatments, also known as systemic therapies, can be used to reduce the chance of the cancer returning after surgery (known as adjuvant therapies) or as the main treatment in patients *who don't have surgery*. If systemic therapies are given before surgery this is known as "neo-adjuvant".

Which treatments are used for early-stage NSCLC?

The following table lists the *range of possible treatment options* for the early-stages of NSCLC. Each person with lung cancer has different factors that need to be considered for a treatment plan, so what may be the best for one person may not be best for you.

NSCLC Early-Stage	Treatment
IA1,IA2,IA3	Surgery SBRT (if a person ***doesn't*** have surgery)
IB	Surgery SBRT (if a person ***doesn't*** have surgery)
IIA or IIB	Surgery SBRT (if a person ***doesn't*** have surgery) Chemotherapy Radiation Targeted therapy
IIIA	Surgery when possible Chemotherapy Radiation Immunotherapy Targeted therapy

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How will my healthcare team decide if I should have surgery for early-stage NSCLC?

The stage and location of your cancer helps determine if surgery may be useful. Next, your healthcare team will help you decide if you are "fit" enough for surgery. Surgery is stressful on the body and can be risky for some people, such as those who have poor nutrition, or other lung and/or heart diseases. This might make lung cancer surgery impossible to perform safely for you. You and your healthcare team will need to discuss the risks and the benefits of having surgery.

For those being considered for surgery, other tests may be needed to check your lungs and heart to find out if you can safely tolerate the surgery. These tests often include breathing and/or exercise tests, a study looking at blood flow to the lungs known as a ventilation-perfusion scan (V/Q scan), and a stress test of the heart and/or an ultrasound of your heart (echocardiogram).

Are there side effects of lung cancer treatments, how can I manage them?

Your healthcare team will discuss the specific side effects of each therapy you receive. In general, the complications of surgery include infections, damage to areas near the surgical site, bleeding, and shortness of breath. Other risks include heart attack, stroke or a blood clot to the lungs.

Many of the side effects of systemic therapies depend on the individual patient and the doses used. Be sure to talk to your healthcare providers about what to expect and medications that can help to alleviate your symptoms.

Palliative care is an important approach for patients with lung cancer. The goal of palliative care is to improve your quality of life and help you and your family deal with the challenges of a serious illness. Palliative care attempts to minimize side effects and any related psychological, social, and spiritual problems you may be experiencing

For more detailed information on these topics please see helpful links in our 'For More Information' section.

What about research centers or clinical trials?

Many of the treatments available for lung cancer patients today are the direct result of studies in which other people with cancer volunteered to take part in clinical trials. These research studies assess new treatments or new ways to deliver treatments. They allow healthcare providers to learn the very best treatment options for people and at times can benefit the people taking part in the studies. Often, many of the newest treatment options are available only by taking part in a clinical trial. Speak with your healthcare team about what research is being done to treat your type of cancer and whether you would be a good candidate to enroll in a clinical trial. The National Cancer Institute also allows you to search for clinical trials in your area through its website (http://www.cancer.gov/clinicaltrials).

How does stopping smoking improve lung cancer outcomes?

Stopping smoking can improve cancer outcomes at any stage of disease. Stopping smoking may help you heal better if you need surgery, cut down on side effects from systemic therapies like chemotherapy and radiation, and allow these treatments to work better. Smoking cessation may also help you live longer, improve your quality of life, and lower the risk of cancer coming back or you getting a new cancer.

Speak to your healthcare provider about taking over the counter and/or prescription medications to help you stop smoking.

Helpful links to stop smoking:

https://www.cancer.org/healthy/stay-away-from-tobacco/guide-quitting-smoking/nicotine-replacement-therapy.html

https://quitnow.net/mve/quitnow

OR call 1-800-QUITNOW (1-800-784-8669)

Healthcare Provider's Contact Number:

Authors: Yaron Gesthalter MD, Robert Smyth MD, MSc, Donald Sullivan, MD, MA, MCR
Reviewers: Hasmeena Kathuria MD, Marianna Sockrider MD, DrPH

Resources:

American Thoracic Society
- www.thoracic.org/patients
  - Lung Cancer
  - Treatment of Advanced-Stage Non–Small Cell Lung Cancer
  - Smoking Cessation and Cancer 2021
  - Palliative Care for People with Respiratory Disease or Critical Illness

American College of Surgeons
- https://www.sts.org/sites/default/files/lungbooklet.pdf

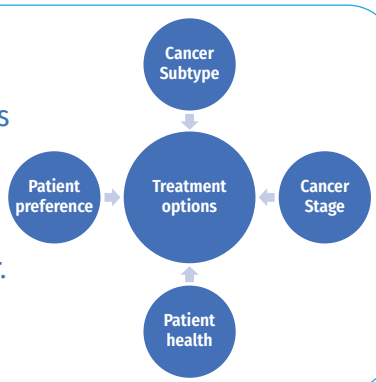
American Society of Clinical Oncology
- https://www.cancer.net/sites/cancer.net/files/asco_answers_guide_nsclc.pdf

American Society for Radiation Oncology
- https://www.rtanswers.org/Cancer-Types/Lung-Cancer/Treatment-Types

Go2 Foundation
- https://go2foundation.org/treatments-and-side-effects/side-effect-management/

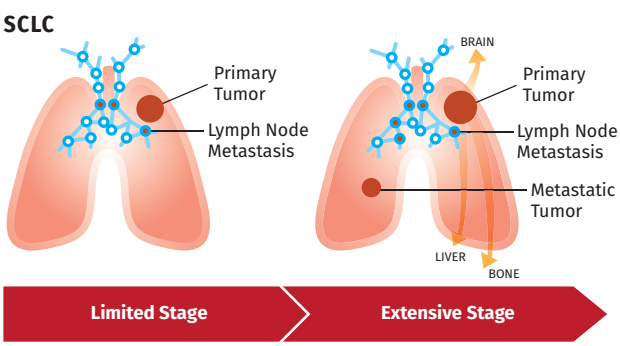
Treatment of Small Cell Lung Cancer

There are several types of treatment for Small Cell Lung Cancer (SCLC). You and your healthcare team will discuss which choice is best for you based on the stage of lung cancer you have, symptoms, your preferences and any other health problems you may have. Lung cancer treatments continue to improve as new discoveries are being made, so it is important to discuss all your possible options with your healthcare team. This fact sheet focuses on the treatment of small cell lung cancer. For additional information about lung cancer, see our other ATS Patient Information Series fact sheets listed under the 'Resources' section.



There are two main types of lung cancer: Non-Small Cell Lung Cancer (NSCLC) and Small Cell Lung Cancer (SCLC). NSCLC is more common than SCLC. Treatment is different depending on the type or sub-type of lung cancer you have.

The treatment approach for SCLC is discussed here. For more information on NSCLC see ATS Patient Information Series fact sheets on the treatment of early and advanced stage NSCLC (ATS Patient Information Series at www.thoracic.org/patients).



How does the stage of my cancer determine the treatment I receive?

Staging is a process for defining how much cancer is within your body (see ATS Patient Information Series fact Sheet What is Lung Cancer Staging? at www.thoracic.org/patients). SCLC is divided into "limited" and "extensive" stages. Limited stage SCLC occurs when the lung cancer is limited to one lung with or without spread to nearby lymph nodes. Extensive stage occurs when the cancer has spread to the other side of the chest or to other organs such as the liver, bone, and/or brain. In addition to other scans of the body, a CT or MRI of your brain is performed to help your healthcare team determine the stage of your cancer.

Only rarely is surgery an option for people who have limited stage disease. Surgery is only recommended for people where the cancer is found to be in a small area of the lung. If the person does not have surgery with limited stage disease in a small area, then a special type of radiotherapy, stereotactic body radiation therapy (SBRT) may be an option.

A combination of chemotherapy (drugs that kill fast growing cells including the cancer cells) and radiation therapy (high energy x-rays) are used in both limited and extensive stage disease. Immunotherapy (drugs that use your own immune system to kill the cancer) can also be used in extensive stage disease.

Which treatments are used for SCLC?

The following table lists the range of possible treatment options for SCLC. Each person with lung cancer has different factors that need to be considered for a treatment plan, so what may be the best for one person may not be best for you.

SCLC	Treatment
Limited Stage	Surgery or SBRT (only rarely) Chemotherapy Radiation Palliative care
Extensive Stage	Chemotherapy Radiation (for symptom relief) Immunotherapy Palliative care

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How will my healthcare team decide what treatments to recommend for SCLC?

The treatment approach to small cell lung cancer is gradually changing as we learn more about the disease. Your healthcare team will mostly focus on the stage of the cancer to determine treatment recommendations. They will also review your other symptoms and health problems to make sure you can safely tolerate the treatments they offer. Often these different treatments are offered in combination. You and your healthcare team should discuss the risks and benefits of all the options presented to you.

Are there side effects of lung cancer treatments, how can I manage them?

Your healthcare team will discuss the specific side effects of each therapy you receive. Many of the side effects of systemic therapies depend on the type of therapy, the individual patient and the doses used. Be sure to talk to your healthcare providers about what to expect and medications that can help to alleviate your symptoms. Palliative care is an important approach for patients with lung cancer. The goal of palliative care is to improve your quality of life and help you and your family deal with the challenges of a serious illness. Palliative care can help minimize side effects and any related psychological, social, and spiritual problems you may be experiencing. For more detailed information on these topics please see helpful links in the 'Resources' section.

What about research centers or clinical trials?

Many of the treatments available for lung cancer patients today are the direct result of studies in which other people with cancer volunteered to take part in clinical trials. These research studies assess new treatments or new ways to deliver treatments. They allow healthcare providers to learn the very best treatment options for people and at times can benefit the people taking part in the studies. Often, many of the newest treatment options are available only by taking part in a clinical trial. Speak with your healthcare team about what research is being done to treat your type of cancer and whether you would be a good candidate to enroll in a clinical trial. You can search for clinical trials in your area through the National Cancer Institute website (http://www.cancer.gov/clinicaltrials).

How does stopping smoking improve lung cancer outcomes?

Stopping smoking can improve cancer outcomes at any stage of disease. Stopping smoking may help you heal better if you need surgery, cut down on side effects from systemic therapies like chemotherapy and radiation, and allow these treatments to work better. Smoking cessation may also help you live longer, improve your quality of life, and lower the risk of cancer coming back or you getting a new cancer.

Speak to your healthcare provider about taking over-the-counter and/or prescription medications to help you stop smoking.

Helpful links to stop smoking:

https://www.cancer.org/healthy/stay-away-from-tobacco/guide-quitting-smoking/nicotine-replacement-therapy.html

https://quitnow.net/mve/quitnow

OR call 1-800-QUITNOW (1-800-784-8669)

Healthcare Provider's Contact Number:

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Resources:

American Thoracic Society

- www.thoracic.org/patients
  - Lung Cancer
  - Lung Cancer Staging
  - Non-Small Cell Lung Cancer Treatment (Early)
  - Non-Small Cell Lung Cancer Treatment (Advanced)
  - Smoking Cessation and Cancer
  - Palliative Care for People with Respiratory Disease or Critical Illness

American Society of Clinical Oncology

- https://www.cancer.net/sites/cancer.net/files/asco_answers_guide_sclc.pdf

American Society for Radiation Oncology

- https://www.rtanswers.org/Cancer-Types/Lung-Cancer

Go2 Foundation

- https://go2foundation.org/treatments-and-side-effects/side-effect-management/

National Cancer Institute

- https://www.cancer.gov/types/lung/patient/small-cell-lung-treatment-pdq