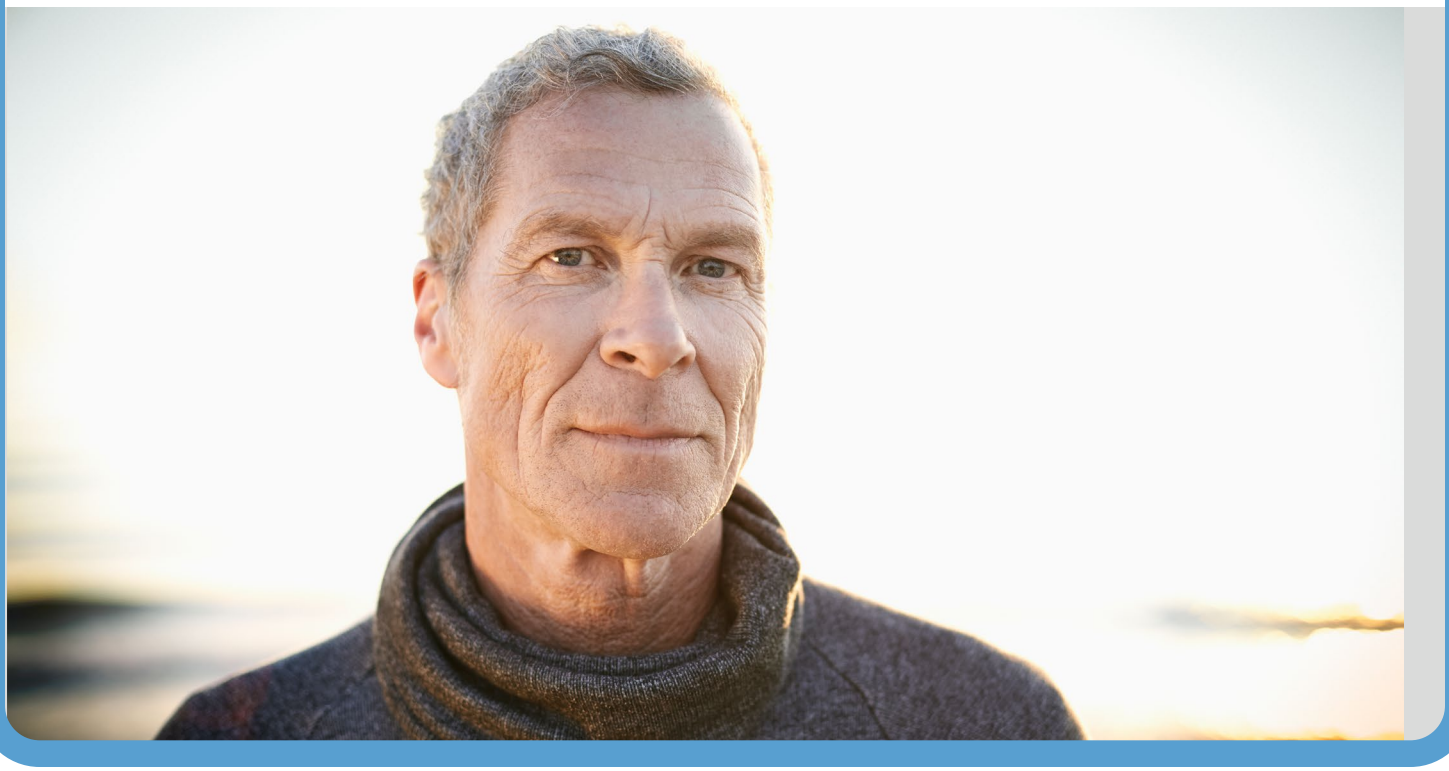
National Comprehensive Cancer Network®

2026

NCCN Guidelines for Patients®

Cancer care recommendations from leading experts at the National Comprehensive Cancer Network® (NCCN®)

Early and Locally Advanced Non-Small Cell Lung Cancer



Presented with support from NCCN FOUNDATION
NATIONAL COMPREHENSIVE CANCER NETWORK®
Guiding Treatment. Changing Lives.

Available online at
NCCN.org/patientguidelines



NCCN Guidelines for Patients®

The essential guide for people facing cancer.

Based on care recommendations from leading cancer experts.

Explains high-quality cancer care provided at state-of-the-art cancer centers.

Reviewed and revised every year.

Did you know that top cancer centers across the United States work together to improve cancer care? This alliance of leading cancer centers is called the National Comprehensive Cancer Network® (NCCN®).

Because cancer care is always evolving, NCCN develops and frequently updates evidence-based cancer care recommendations used by health care providers worldwide. These recommendations are known as the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®).

The NCCN Guidelines for Patients plainly explain these expert recommendations, so you can talk with your care team about the best care for you.

These NCCN Guidelines for Patients are based on the NCCN Guidelines® for Non-Small Cell Lung Cancer, Version 3.2026 — December 24, 2025.

View the NCCN Guidelines for Patients free online: NCCN.org/patientguidelines

Find an NCCN Cancer Center near you: NCCN.org/cancercenters

Learn how the NCCN Guidelines for Patients are developed: NCCN.org/patient-guidelines-process

Connect with us

@NCCNorg @NCCNVideo NCCN @NCCNorg

Supporters

NCCN NATIONAL COMPREHENSIVE CANCER NETWORK® FOUNDATION
Guiding Treatment. Changing Lives.

NCCN Guidelines for Patients are supported by funding from the NCCN Foundation®

NCCN Foundation gratefully acknowledges the following corporate supporters for helping to make available these NCCN Guidelines for Patients: AstraZeneca; Boehringer Ingelheim Pharmaceuticals, Inc.; Genentech, Inc.; Janssen Biotech, Inc.; Regeneron Pharmaceuticals, Inc.; and Taiho Oncology, Inc.

NCCN independently adapts, updates, and hosts the NCCN Guidelines for Patients. Our corporate supporters do not participate in the development of the NCCN Guidelines for Patients and are not responsible for the content and recommendations contained therein.

To make a gift, visit
NCCNFoundation.org/Donate

To learn more, visit online
NCCN.org/patientguidelines
or email
PatientGuidelines@NCCN.org

Contents

4 Chapter 1
About early and locally advanced NSCLC

9 Chapter 2
Testing lung nodules for cancer

19 Chapter 3
Testing for early and locally advanced NSCLC

27 Chapter 4
Improving life with supportive care

32 Chapter 5
Planning primary treatment

41 Chapter 6
Treating lung cancer with surgery

52 Chapter 7
Treating lung cancer with radiation therapy

57 Chapter 8
Treating lung cancer with chemoradiation

62 Chapter 9
Lifelong survivorship care

67 Chapter 10
Other resources

71 Words to know

75 NCCN Contributors

76 NCCN Cancer Centers

78 Index

©2026 National Comprehensive Cancer Network, Inc. All rights reserved.

NCCN Guidelines for Patients and illustrations herein may not be reproduced in any form for any purpose without the express written permission of NCCN. No one, including doctors or patients, may use the NCCN Guidelines for Patients for any commercial purpose and may not claim, represent, or imply that the NCCN Guidelines for Patients that have been modified in any manner are derived from, based on, related to, or arise out of the NCCN Guidelines for Patients. The NCCN Guidelines are a work in progress that may be redefined as often as new significant data become available. NCCN makes no warranties of any kind whatsoever regarding its content, use, or application and disclaims any responsibility for its application or use in any way.

NCCN Foundation seeks to support the millions of patients and their families affected by a cancer diagnosis by funding and distributing NCCN Guidelines for Patients. NCCN Foundation is also committed to advancing cancer treatment by funding the nation's promising doctors at the center of innovation in cancer research. For more details and the full library of patient and caregiver resources, visit NCCN.org/patients.

National Comprehensive Cancer Network (NCCN) and NCCN Foundation
3025 Chemical Road, Suite 100, Plymouth Meeting, PA 19462 USA

1

About early and locally advanced NSCLC

5 What are early and locally advanced NSCLCs?

7 How are early and locally advanced NSCLCs found?

7 How are early and locally advanced NSCLCs treated?

8 How can I get the best care?

Non-small cell lung cancer (NSCLC) is the most common type of lung cancer. Early and locally advanced cancers haven't spread far from the lung. This guide explains the treatments that may cure or control the growth of these cancers.

What are early and locally advanced NSCLCs?

Early and locally advanced non-small cell lung cancers (NSCLCs) affect certain types of lung cells that have grown from the airways into other lung tissue but haven't spread to other organs.

This description is important because treatment differs between lung cancer types and where lung cancer is in the body.

Types of NSCLC

NSCLC is a group of cancers. Each cancer in this group affects a different type of lung cell.

You have NSCLC if you have one of these cancers:

- Adenocarcinoma (A-deh-noh-KAR-sih-NOH-muh) of the lung affects cells in the airways that make mucus.
- Large cell carcinoma (kar-sin-OH-ma) of the lung forms from large cells in the airways.
- Squamous (squay-mous) cell carcinoma of the lung affects cells that form on airways in response to toxic exposure.

Airways of the lungs

The airways are tube-shaped passages that branch out like a tree in your lungs. Non-small cell lung cancer causes cells from the inner wall of the airways to grow out of control.



There are more types of NSCLC, but they are much less common. Some lung cancers are a mix of cell types.

Growth of early and locally advanced cancers

Lung cancer is a disease that causes lung cells to grow out of control and form a tumor on the wall of the airway.

Early and locally advanced lung cancers have grown through the wall of the airway and into other lung tissue. Some of these cancers have also grown into or through the wall of the lung and into other body tissue.

Some locally advanced NSCLCs have spread to small structures, called lymph nodes, inside of the lung or within the chest. But early and locally advanced cancers have not spread to the fluid within the lining around the lung or to other organs.



Confused about lung cancer?

People use the term lung cancer to describe many cancers. Sometimes, they misuse the term, so here's an explanation of what lung cancer is and what it isn't.

What lung cancer is

Simply, lung cancer is a disease that causes uncontrolled growth of lung cells. There are many types of lung cells, so there are many types of lung cancer.

Non-small cell lung cancer (NSCLC) is the most common type of lung cancer. So when people talk about lung cancer, they're likely talking about NSCLC.

What lung cancer isn't

Cancers that have spread to the lungs are not lung cancers. For example, stomach cancer that has spread to the lungs is still stomach cancer.

In addition to this guide, the library of NCCN Guidelines for Patients has guides for metastatic NSCLC, other types of lung cancer, and cancers that have spread to the lungs. The library can be found at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.

How are early and locally advanced NSCLCs found?

Many times, early and locally advanced NSCLCs are found by accident. A scan for another health issue may reveal a spot that could be cancer. Learn how a team of experts discovers if a spot is cancer in *Chapter 2: Testing lung nodules for cancer*.

How are early and locally advanced NSCLCs treated?

Surgery is often used to remove early and locally advanced NSCLCs but is not the only option. There's no single treatment plan that's best for everyone. This guide describes the information needed to plan cancer care and the options for treatment.

Testing is needed to plan treatment

Your care team will perform tests to learn the type of lung cancer you have and where the cancer is in your body. They will also test for important cancer features called biomarkers. Tests needed to plan treatment are described in *Chapter 3: Testing for early and locally advanced NSCLC*.

Supportive care addresses the challenges of cancer

Supportive care involves multiple types of aid that improve quality of life. It includes care to prevent and relieve symptoms. More information is in *Chapter 4: Improving life with supportive care*.

Cancer staging is essential for planning treatment

A cancer stage is a rating of the growth and spread of lung cancer. Learn about treatment options based on cancer staging in *Chapter 5: Planning primary treatment*.

Multiple treatments are often used to get the best results

Treatment results can be improved when other types of treatment are used with surgery. The types and order of treatments are explained in *Chapter 6: Treating lung cancer with surgery*.

If you can't have surgery, there are other good options. Some early cancers are cured with radiation therapy as discussed in *Chapter 7: Treating lung cancer with radiation therapy*. Other cancers are treated with 2 different types of therapies, which are described in *Chapter 8: Treating lung cancer with chemoradiation*.

How can I get the best care?

Advocate for yourself. You have an important role to play in your care. Many people feel more satisfied when they actively take part in planning their cancer care.

The NCCN Guidelines for Patients will help you play a larger role in your care. Discuss the recommendations in this guide with your care team. Ask questions about your options and share your goals and concerns.

Don't know what to ask? You're not alone. That's why we include suggested questions to ask at the end of chapters.

Keep reading to find the best care for you.

How this guide can help you

Making decisions about cancer care is stressful. There's a lot to learn, and you don't know what the future holds.

Use this guide to get the information and support you need.

Patients, doctors, and other health care professionals trust the NCCN Guidelines for Patients. This guide uses clear, everyday language to explain current cancer care recommendations made by respected experts in the field. Their recommendations are based on the latest research and practices at leading cancer centers.

Your health is unique to you, so your cancer care should be, too. As you read this guide, you'll learn which treatments are likely to provide the best results for you. And you'll be better prepared to talk with your care team.

2
Testing lung nodules for cancer

10 Decisions by lung nodule experts

11 Risk factors for lung cancer

12 Signs of lung cancer on imaging

13 Types of follow-up care

14 Follow-up care for solid nodules

15 Follow-up care for subsolid nodules

16 Planning cancer testing

17 Results of cancer testing

18 Key points

18 Questions to ask

Many people have small spots in their lungs, called nodules. Most lung nodules aren't cancer. Those that may be cancer will be assessed with scans or partially removed for cancer testing.

A lung nodule may have been found by chance on imaging you had for another health condition. This chapter explains the next steps of care when such nodules are found.

Decisions by lung nodule experts

Lung nodules are small growths inside of the lungs. Most lung nodules are not cancer and are harmless. These nodules may be caused by calcium, fat, infection, inflammation, or other health conditions.

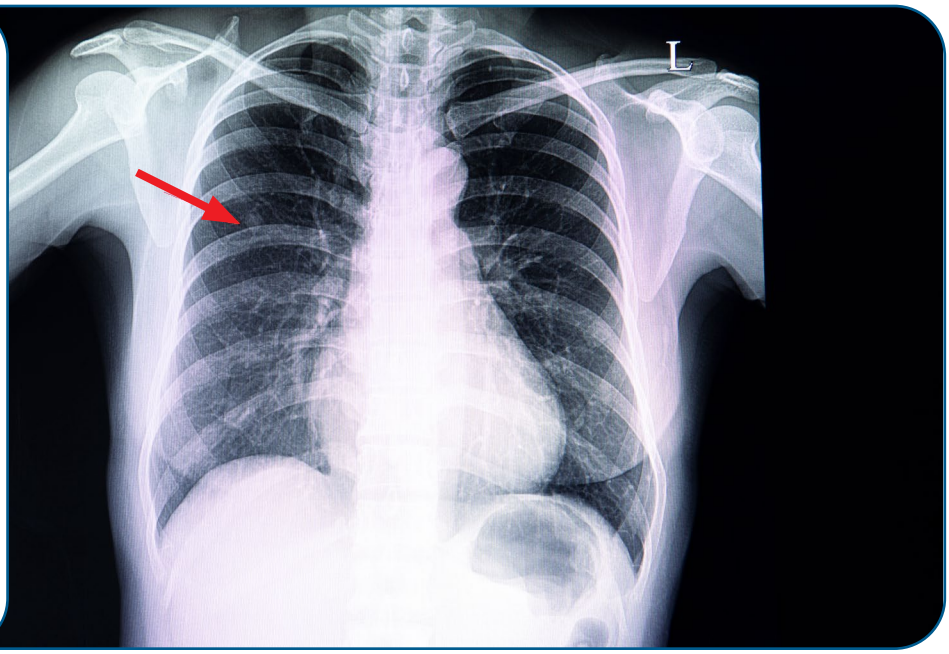
Lung cancer is also a cause of nodules. When an abnormal nodule seems to be cancer, it takes a team of experts to decide the best course of care.

Your care team should consist of members from different fields of medicine, including the following board-certified specialists:

- A pulmonologist, an expert in lung diseases
- A thoracic radiologist, an expert in images of inside the chest
- A thoracic surgeon, an expert in operations within the chest
- A pathologist, an expert in body tissue and cells and confirming cancer

Lung nodule

A lung nodule is a small growth of tissue in the lung. Many people have lung nodules. Most are not cancer. When nodules are found by imaging (shown), you may have another scan to assess if the nodule is cancer.



To decide if a nodule is cancer, your team will:

- Review your risk factors for lung cancer and the results of your imaging
- Request more imaging or perform a procedure, called a biopsy, to test the nodule for cancer

These decisions by your care team are explained in more detail in the following sections.

Risk factors for lung cancer

After a lung nodule is found, your care team will assess your risk for lung cancer by asking you about known risk factors:

Tobacco smoke

The biggest risk factor for lung cancer is smoking tobacco. The risk grows with the number of cigarette packs you've smoked a day and the years you've smoked. The risk decreases with the number of years since you've quit smoking.

Even if you don't smoke, exposure to second-hand smoke increases the risk for lung cancer. Second-hand smoke is smoke that has been breathed out by a person smoking tobacco. It's also smoke from the burning tip of cigarettes, cigars, or pipes.

Cancer-causing agents

You're more likely to get lung cancer after exposure to:

- Radon
- Arsenic, beryllium, cadmium, chromium, nickel, and uranium
- Asbestos
- Coal smoke, soot, silica, and diesel fumes

Age

As you age, you are more likely to get lung cancer. In recent years, half of the people diagnosed with lung cancer were over 71 years of age. Only 6 out of 100 people with lung cancer were under the age of 55 years at the time of diagnosis.

Who gets lung cancer?

Experts are still learning why one person gets lung cancer and another does not.

We know some of the risk factors that increase a person's chance for getting lung cancer.

Yet people with many risk factors may never get lung cancer, and people with no risk factors sometimes get lung cancer.

Despite smoking being the biggest risk factor, the number of people who do not smoke but are getting lung cancer is rising worldwide. More research is needed to learn what the risk factors for lung cancer are in this group.

Previous cancers and cancer treatment

The risk for lung cancer increases after having some types of cancer:

- Lymphoma
- Breast cancer
- Head and neck cancer
- Another tobacco-related cancer (like bladder, kidney, or liver cancer)

Some cancer treatments, such as radiation therapy to the chest, also increase the risk for getting lung cancer years after treatment.

Family history of lung cancer

Your risk for lung cancer is increased if a close blood (first-degree) relative has had lung cancer. Close blood relatives are birth parents, siblings, and children.

Other lung diseases

Some lung diseases can increase the risk for lung cancer. There's a strong link between lung cancer and these diseases:

- Chronic obstructive pulmonary disease (COPD), which causes lung damage or too much mucus
- Pulmonary fibrosis, which is major scarring of lung tissue

Signs of lung cancer on imaging

In addition to risk factors, your team will assess if the nodule may be cancer by reviewing your images. Important results are the features of the nodule, abnormal lung tissue, and hot spots.

Features of the nodule

Lung nodules caused by cancer have specific features. They may:

- Have rough edges and bumpy or spiky (not smooth) shapes
- Grow fast and be larger than nodules that aren't cancer
- Look dense on images

Nodule size is measured in millimeters (mm). A nodule is no larger than 30 mm in thickness, which is about the size of a green grape. Larger growths are called masses.

Most nodules found on imaging are small—no bigger than a garden pea.

Density is how solid a nodule is. Density is measured by a nodule's appearance on images. Nodules may be described as solid (high density), nonsolid (low density), or part-solid (mix of high and low density).

Abnormal lung tissue

Besides nodules, imaging may show other related findings in the lungs. It may show tissue inflammation and tissue scarring.

Hot spots

If you had a PET (positron emission tomography) scan, the radiologist will look for hot (or bright) spots.

Before the scan, a tracer was injected into one of your veins. Cancer cells take in more of injected tracer than normal cells and appear as hot spots on the images.

Cancer is not the only health condition to produce hots spots, so the cause often needs to be confirmed by other testing.

I wasn't eligible for lung cancer screening, but lung cancer was found on accident at an early stage. That finding saved my life."

Types of follow-up care

Based on your risk factors and imaging, your care team will make a follow-up plan specific to you. Over time, you may have one or more types of follow-up care for lung nodules:

- A CT (computed tomography) scan is a more detailed kind of x-ray that shows the density and size of nodules. Often, CT scans of the chest need to be repeated over time to find signs of lung cancer.
- A PET/CT scan with a fluorodeoxyglucose tracer can detect smaller amounts of cancer than CT and provides an image of most of the body. It's useful for finding lung cancer that has spread to other areas of the body.
- A biopsy is a procedure that removes a small amount of tissue for cancer testing. It's the only way to confirm, or diagnose, cancer.



Solid

Solid nodules are highly dense.



Nonsolid

Nonsolid nodules have low density. They look fuzzy or hazy on imaging and are sometimes called ground-glass nodules because of their appearance.



Part-solid

Part-solid nodules have both solid (highly dense) and nonsolid (low-density) areas.

You may get a scan rather than a biopsy because scans are less invasive. Your team wants to see clear signs of cancer on scans before doing a biopsy. On the other hand, if your team strongly suspects cancer, a biopsy may save time by allowing you to start cancer treatment earlier than if you had more scans.

NCCN recommendations for follow-up care are explained in the next sections. They are grouped by nodule density—solid nodules and subsolid nodules.

Follow-up care for solid nodules

Follow-up care is partly based on your risk for lung cancer. Your risk is low if you have minor or no risk factors. You must not have smoked or smoked very little.

NCCN recommendations for follow-up of solid nodules are listed in **Guide 1**.

Solid nodules smaller than 6 mm usually don't need routine follow-up care. NCCN doesn't recommend more procedures if your risk for lung cancer is low. If your risk is high, NCCN recommends that your team considers if a CT scan is needed in 1 year.

Guide 1
Follow-up care for solid lung nodules based on cancer risk and nodule size

Your risk for lung cancer is low	**Nodule is smaller than 6 mm**	No routine follow-up is needed for this nodule
	Nodule is between 6 and 8 mm	CT scan at 6 to 12 months and possibly another CT scan at 18 to 24 months after the first scan
	Nodule is larger than 8 mm	You will have one of the following: • CT scan in 3 months • FDG-PET/CT scan now • Biopsy now
Your risk for lung cancer is high	**Nodule is smaller than 6 mm**	Optional CT scan at 12 months after the first scan, and if nodule size and density don't increase, no further follow-up is needed
	Nodule is between 6 and 8 mm	CT scan at 6 to 12 months and again at 18 to 24 months after the first scan
	Nodule is larger than 8 mm	You will have one of the following: • CT scan in 3 months • PET/CT scan now • Biopsy now

Larger nodules need to be watched more closely.

Nodules between 6 mm and 8 mm should be checked in 6 to 12 months. If you have a high risk for lung cancer, the nodule should be checked a second time in 18 to 24 months after the first scan. If your risk is low, your team will decide if the nodule needs to be checked a second time.

Nodules bigger than 8 mm should be checked with CT in 3 months or with PET/CT now, or they may be biopsied.

Follow-up care for subsolid nodules

Subsolid nodules include nonsolid nodules and part-solid nodules. Many subsolid nodules go away in time without treatment. Those that remain are not likely to become a problem.

Follow-up care for subsolid nodules is based on the number of nodules and nodule size and density. Recommendations are listed in **Guide 2**.

Guide 2
Follow-up care for subsolid lung nodules based on nodule features

1 nonsolid nodule	**Nodule is smaller than 6 mm**	No routine follow-up is needed for this nodule
	Nodule is 6 mm or larger	CT scan at 6 to 12 months after the first scan • If there's no increase in nodule size or density, repeat CT scans every 2 years until 5 years after the first scan
1 part-solid nodule	**Nodule is smaller than 6 mm**	No routine follow-up is needed for this nodule
	Nodule is 6 mm or larger	CT scan at 3 to 6 months after the first scan • If there's no nodule growth and the solid part remains smaller than 6 mm, repeat CT scans every year for 5 years • If the solid part is 6 mm or larger, you may get a PET/CT scan or a biopsy
2 or more nonsolid or part-solid nodules	**Nodules are smaller than 6 mm**	CT scan at 3 to 6 months after the first scan • If there's no increase in nodule size or density, your team may want another CT scan at 2 and 4 years after the first scan
	Nodules are 6 mm or larger	CT scan at 3 to 6 months after the first scan, and the next follow-up test depends on the nodule that is the most likely to be cancer

One nonsolid or part-solid nodule smaller than 6 mm usually doesn't need routine follow-up care. If you have a part-solid nodule, NCCN recommends that your team considers a CT scan at 1 year after the first scan if your risk for lung cancer is high.

Larger or multiple nodules should be checked again.

A single nonsolid nodule larger than 6 mm should be checked with CT at 6 to 12 months after the first scan and again every 2 years for the next 5 years after the first scan.

A single part-solid nodule larger than 6 mm should be checked with CT at 3 to 6 months after the first scan and again every year for 5 years after the first scan. If the solid area increases to 6 mm or larger, your team will decide if an FDG-PET/CT scan or biopsy is needed.

Multiple subsolid nodules should be checked with CT at 3 to 6 months after the first scan.

- If the nodules are smaller than 6 mm, CT is needed again at 2 years and 4 years after the first scan.
- Additional procedures for nodules 6 mm or larger are based on the nodule most likely to be cancer.

Planning cancer testing

If a nodule is likely to be cancer, some of it needs to be removed and tested. There are several ways to remove samples for testing, and the best time to test differs among people.

Your team will decide the best method

Removing nodule tissue for cancer testing is not always easy. Your team will decide the best method to remove tissue. They will consider the risk and ease of methods and what method you prefer.

Your team will perform one of these procedures:

- **External needle biopsies** involve guiding a thin needle through your skin and into the nodule. These procedures include fine-needle aspiration, core needle biopsies, and thoracentesis.
- **Down-the-throat biopsies** involve guiding thin tools down your throat into your airways (bronchus) or food pipe (esophagus). These procedures include many types of bronchoscopy.
- **Keyhole surgeries** involve inserting thin tools through small cuts made into your chest. These surgeries include mediastinoscopy and thoracoscopy.
- **Open surgery** involves making a large cut through your chest wall to remove tissue. Open surgery is rarely needed for diagnosis.

Your team may diagnose and stage the cancer at the same time

Cancer staging is a rating of the extent of cancer in the body. If scans showed multiple areas of cancer, the body part farthest from the lung nodule will be sampled and tested.

Your team will decide the best time for cancer testing.

The timing of cancer testing depends on the expected type of cancer treatment and other factors. Your team knows the treatment options for lung cancer, and you'll make a treatment decision with your team.

Testing when surgery is not planned

Lung cancer that won't be treated with surgery is tested before cancer treatment starts. Surgery may not be a treatment option because of your overall health, location of a lung nodule, or advanced cancer.

Testing when surgery is planned

If surgery is planned, cancer testing may be done on the same day right before the surgery. But in some cases, testing is needed before the day of surgery because:

- Your team strongly suspects a disease other than lung cancer.
- Testing on the day of surgery would be hard to do or unsafe.
- You'll have another type of cancer treatment before surgery.

Results of cancer testing

A pathologist will prepare and then look at the tissue with a microscope. This takes a few days. The remaining tissue will be saved for possible future testing.

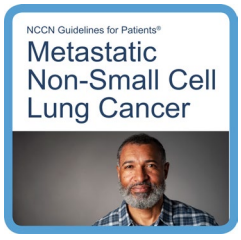
The nodule was cancer

If non-small cell lung cancer (NSCLC) is found, the pathologist will identify the type:

- Adenocarcinoma is a cancer of cells that often line the air sacs in the lungs and make mucus. This is the most common type of NSCLC.
- Large cell carcinoma is a cancer of cells that are larger than other cells in the airways.
- Squamous cell carcinoma is a cancer of thin, flat cells and often occurs in the central part of a lung.
- There are also rare and mixed types of NSCLC.

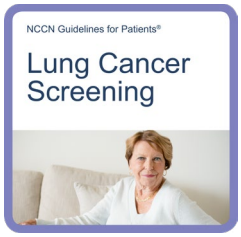
The results of lab tests used for diagnosis are recorded in a pathology report.

This guide focuses on early and locally advanced NSCLC. You can find the guide on metastatic NSCLC and guides for other cancers in the library of NCCN of Guidelines for Patients, available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.



The nodule was not cancer

Even if no cancer was found, your team may refer you for lung cancer screening. Lung cancer screening is for people at high risk for lung cancer. For more information, read the *NCCN Guidelines for Patients: Lung Cancer Screening.*



Researchers are studying ways to prevent lung cancer caused by smoking. Treatments to prevent cancer are called chemopreventive agents. There may be a clinical trial on preventing lung cancer that you could join.

Key points

- It takes a team of experts to assess lung nodules for cancer.
- Tobacco smoking is the biggest but not the only risk factor for lung cancer.
- Signs of lung cancer can be found with imaging of the chest.
- Lung nodule experts assess changes in a nodule with a series of CT scans over time. Nodules that quickly increase in size or density are more likely to be cancer.
- If the nodule is likely cancer, you may have a PET/CT scan, or nodule samples may be removed and tested for cancer.

Questions to ask

- How did you decide what type of follow-up care is needed for the lung nodule?
- What type of procedures will be done to remove and store tissue samples for future testing?
- Do I have cancer? What type?

What's next?

Your team will need to learn more about you and the cancer. We discuss what tests your care team needs in *Chapter 3: Testing for early and local*ly advanced *NSCLC*.

“You can join a support group before a definitive diagnosis. Advocate for yourself, and don't be afraid to get a second opinion."

3

Testing for early and locally advanced NSCLC

20 Planning treatment with a team evaluation

20 First tests for cancer staging

22 Additional scans for cancer staging

23 Assessing the health of your lungs

24 Testing lymph nodes for cancer

25 Profiling cancer with biomarker tests

26 Key points

26 Questions to ask

Your care team will make a treatment plan just for you. To make the plan, they'll assess where the cancer has grown. Your team may also test the cancer cells for unique markers.

After diagnosing non-small cell lung cancer (NSCLC), your care team will focus on treating the cancer. Tests are needed to learn more about the cancer and your overall health.

Planning treatment with a team evaluation

It takes a team to plan treatment of NSCLC. If more than one type of treatment is an option, your team will consist of members from different fields of medicine, such as:

- A thoracic surgical oncologist, an expert in removing cancer from the chest
- A medical oncologist, an expert in treating cancer with drugs
- A radiation oncologist, an expert in treating cancer with radiation

Many people also have team members who provide supportive care, which is discussed in *Chapter 4: Improving life with supportive care*.

You are an important part of the team. Your participation is as important as that of any specialist on your team.

First tests for cancer staging

Your team needs to assess the extent of the lung cancer in your body. This is called staging the cancer. They also need to assess your overall health.

There are 4 main stages of lung cancer. You may see them written with Roman numerals—stages I (1), II (2), III (3), and IV (4). Higher stages mean a greater extent of cancer.

The first tests used for cancer staging and to assess your overall health are described in this section and listed in **Guide 3**.

Medical history

Expect your team to ask a lot of questions about your health. This is known as taking a medical history.

Guide 3
First tests for early and locally advanced non-small cell lung cancers

- Medical history including weight loss
- Physical exam
- Performance status
- Complete blood count
- Chemistry profile
- CT scan with contrast of the chest and upper abdomen

Your team will want to know about your past and current health, such as:

- Illnesses and injuries
- Symptoms like unexplained weight loss, trouble breathing, chest pain, and cough
- Prescribed and over-the-counter medicines and supplements
- Previous surgeries
- Lifestyle choices, including your diet, how active you are, and whether you smoke or drink alcohol

Also be prepared to discuss the health of your close blood relatives. Such family members include siblings, parents, and grandparents related to you by birth.

Physical exam

A team member will also perform a thorough physical exam of your body. This exam may include:

- Checking your vital signs—blood pressure, heart rate, breathing rate, and body temperature
- Feeling or listening to organs, including your lungs, spleen, and liver
- Feeling for enlarged lymph nodes, which are small disease-fighting structures throughout your body
- Assessing your level of pain, if any, when you are touched

Performance status

Performance status is your ability to do day-to-day activities. It's based on your medical history and exam. Your team will use your

Physical exam

Your care team will gain important information from a physical exam of your body. The exam may reveal areas of cancer growth.



performance status to decide if your body can endure intense treatment.

Blood tests

Blood tests are commonly used to screen for disease. They are also used to assess if cancer is affecting organs. Samples of your blood will be needed for these blood tests:

- A **complete blood count** measures parts of the blood, including counts of white blood cells, red blood cells, and platelets.
- A **chemistry profile** assesses sugar and natural salts in your body and how well your liver and kidneys are working.

CT scan

A CT (computed tomography) scan is often the first scan done to stage lung cancer. If you had a CT scan more than 60 days ago, you should have the scan again so your team has current information.

A CT scan is a more detailed kind of x-ray. It takes many pictures from different angles. A computer combines the images to make 3D pictures.

You'll receive an injection of contrast if it's safe for you. Contrast is a substance that makes images clearer.

Your team will look for tumors in images of your chest and upper abdomen, including the adrenal glands.

Additional scans for cancer staging

Using the first set of tests, your team will start deciding what the stage of the cancer is. You'll likely have more tests to confirm the stage and your treatment options. A list of possible additional tests is in **Guide 4**.

Besides a CT scan, you may have one or more of the scans described next to further assess where the lung cancer may have spread.

FDG-PET/CT scan

A PET (positron emission tomography) scan combined with a CT scan is necessary for treatment planning. If you had a PET/CT scan more than 60 days ago, you should have the scan again so your team has current information.

Either your whole body will be scanned or the scan will extend from your neck to the middle of your thighs. Before the scan, you will be injected with a radiotracer called fluorodeoxyglucose, or FDG. The tracer makes even small amounts of cancer cells show up as hot (or bright) spots on the scan.

Multiple health problems can cause hot spots, so hot spots that suggest cancer often need to be confirmed by other tests.

Brain MRI

Lung cancer tends to spread to the brain. Most people with lung cancer need a brain scan, but a brain scan isn't always needed for early cancers.

An MRI (magnetic resonance imaging) scan may show small brain tumors that aren't

causing symptoms. MRI uses a safe magnetic field and radio waves to make images. Contrast will also be used unless it's not safe for you. If you can't have an MRI, you may get a CT scan of your head with contrast.

MRI of spine and thoracic inlet

Superior sulcus tumors are lung cancers that start at the top of the lung. They typically grow into the chest wall and may grow next to your spine, blood vessels, or nerves. If these tumors have grown through the chest wall, MRI of your spine and thoracic inlet is needed. The thoracic inlet is the center of a ring of bones at the top of the ribcage.

"I had a wheezing cough that wouldn't quit. A chest x-ray followed by CT started my journey of diagnosis and eventual treatment of early-stage lung cancer."

Assessing the health of your lungs

Imaging is one tool for assessing the health of your lungs. You may also need to have the procedures described in this section.

Bronchoscopy

Bronchoscopy is a procedure that allows your team to see inside of your airways. Your team will evaluate the lung tumor seen on scans, look for other lung tumors, and assess for other health issues.

Bronchoscopy is done with a medical device called a bronchoscope. A bronchoscope has a small, flexible tube that is gently guided down your throat and into your airways.

A bronchoscopy is needed if:

- You haven't already had a bronchoscopy for diagnosis or cancer staging, and
- The lung cancer will be treated with surgery.

Guide 4
Possible tests for early and locally advanced non-small cell lung cancers

Imaging	• FDG-PET/CT scan if not done before • Brain MRI with and without contrast • MRI of spine and thoracic inlet
Lung tests	• Bronchoscopy • Pulmonary function tests
Cancer cell tests	• Lymph node biopsy • Biomarker tests

Bronchoscopy is often done on the day of surgery to save time and reduce costs and risks. Sometimes, bronchoscopy is done before surgery for a tumor in the middle of a lung.

Pulmonary function tests

Pulmonary function tests are breathing activities used to assess how well your lungs work. Your team will use the results to decide if certain treatments are safe.

Testing lymph nodes for cancer

When lung cancer spreads, it typically spreads to lymph nodes in the lung and then to lymph nodes outside of the lung.

Your care team will use imaging to decide which, if any, lymph nodes to sample for cancer testing. Lymph nodes may not need testing if the lung tumor is very small and on the side of your body away from the center.

Removed tissue will be sent to the lab for testing. Test results will be used to stage the cancer.

Mediastinal lymph nodes

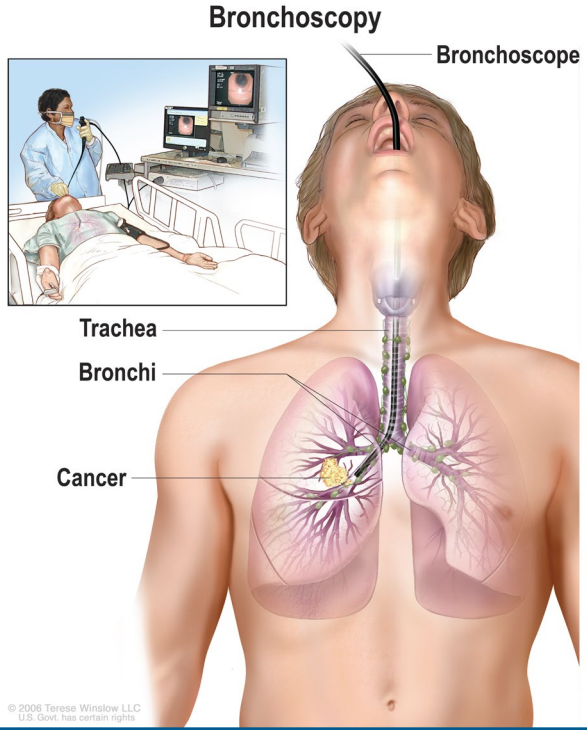
The space between your lungs, called the mediastinum, has many lymph nodes. Lung cancer is more likely to spread to these nodes when the tumor is larger and closer to this area.

Mediastinal lymph nodes can be reached by one of several procedures:

- Mediastinoscopy involves a medical device that is inserted through a small cut in the neck.

Lymph node testing

Lymph nodes are small structures throughout the body that help fight disease. It's very important for your care team to know which, if any, lymph nodes have cancer. There are a few methods for removing lymph nodes in and outside of the lungs. Bronchoscopy is one of those methods.



- Mediastinotomy is an open surgery of the middle of the chest done through a small cut near the breastbone.
- Endoscopic ultrasound (EUS)-guided biopsy involves a medical device that is guided down your body's food tube (esophagus).
- Endobronchial ultrasound (EBUS)-guided biopsy is performed using a bronchoscope.

EBUS- and EUS-guided lymph node biopsies are often done days ahead of surgical treatment.

Other lymph nodes

Some lung cancers have spread to lymph nodes in the other lung or near the collarbone. Methods to biopsy these nodes include:

- Excisional biopsy, which removes an entire node through a cut into the skin.
- Thoracoscopy, a surgery that makes small openings into your chest through which small tools are inserted to see and remove tissue (also called video-assisted thoracoscopic surgery, or VATS).
- An external needle biopsy, which involves guiding a thin needle through your skin and into a node.

Profiling cancer with biomarker tests

Biomarker tests look for biological clues, or markers, that are used to make decisions about cancer care. Biomarkers differ between types of cancer and among people with the same type of cancer.

Biomarker testing may be done if NSCLC will be treated with prescribed drugs. Your medical oncologist will select treatment based on which biomarkers the cancer has.

Biomarker tests are performed on tumor tissue removed during a biopsy or surgery. A blood sample also may be tested. The cancer will be tested for several biomarkers, including:

- Level of PD-L1, a protein on the surface of lung cancer cells
- *EGFR* exon 19 deletion, a missing part of the *EGFR* gene
- *EGFR* L858R mutation, a change in the *EGFR* gene
- *ALK* gene fusion, a hybrid gene made from a part of the *ALK* gene and a part of another gene

Key points

- Your care team will work together to plan treatment specific to you.
- A member of your team will ask about your health, examine your body, and test blood samples.
- Imaging can help show where the lung cancer may have grown and spread.
- Your lungs may be examined by bronchoscopy, and your ability to breathe may be tested with pulmonary function tests.
- To help stage the cancer, samples of lymph nodes inside or outside of the lungs may be removed and tested for cancer.
- Biomarker tests look for small yet important features of cancer that differ between people. There are treatments for some biomarkers.

Questions to ask

- Could the tests be wrong or cause health problems?
- Will I need to pay for any of the tests?
- What do I need to do to prepare for testing?
- What are the procedures for removing and storing tissue samples for future testing?
- How can I get a copy of the test results in case I want a second opinion?

What's next?

Your team will explain the test results to you and what they recommend for your cancer care.

A care plan usually includes treatment for cancer and support for you. NCCN experts recommend starting supportive care early. You'll find more information in *Chapter 4: Improving life with supportive care*.

To learn what NCCN experts recommend for the main treatment of lung cancer, read *Chapter 5: Planning primary treatment*.



Take our survey and help make the NCCN Guidelines for Patients better for everyone!

NCCN.org/patients/comments

4

Improving life with supportive care

28 What is supportive care?

28 Starting supportive care early

28 Help to quit smoking

29 Managing common cancer effects

30 Addressing social and financial needs

30 Key points

31 Questions to ask

Supportive care aims to improve your quality of life. A key part of care is reducing symptoms caused by cancer or treatment. Supportive care also provides help for social and financial needs.

The main concern for most people with cancer is to get treatment that works. But having cancer often involves additional challenges to one's health and life. This chapter discusses what help is available for these challenges.

What is supportive care?

Supportive care is an important part of cancer care. The goal is to improve your quality of life during and after cancer treatment. Supportive care is for everyone with cancer and their families, not just for those at the end of life. It's also known as palliative care.

Supportive care includes a wide range of services. Supportive care prevents or manages the symptoms of cancer and the side effects of cancer treatment, like pain and cancer-related fatigue. It also addresses the mental, social, emotional, and spiritual concerns faced by people with cancer.

Supportive care provides help with additional needs, such as:

- Making treatment decisions
- Coordinating your care
- Paying for care
- Planning for advance care and end of life

Starting supportive care early

NCCN experts recommend combining supportive care with treatment shortly after diagnosis of non-small cell lung cancer (NSCLC). Receiving supportive care early can be more helpful than starting supportive care later.

Specialists who may provide supportive care to you include a:

- Palliative care specialist
- Respiratory therapist
- Rehabilitation specialist
- Registered dietitian
- Social worker

Help to quit smoking

Smoking can limit how well cancer treatment works.

- If you don't smoke, it's important that you don't start now.
- If you do smoke, it's important to quit. It's never too late.

Nicotine addiction is one of the hardest addictions to stop. The stress of having cancer may make it even harder to quit.

The library of NCCN Guidelines for Patients has several guides that focus on supportive care. The *NCCN Guidelines for Patients: Quitting Smoking* provides critical support and guidance for people with cancer. This guide explains how best to use the tools that exist to help you quit for good.

If you tried to quit before, try again. Most people slip or relapse before quitting for good.

Managing common cancer effects

NCCN has guides that address physical and emotional symptoms that are commonly caused by cancer or cancer treatment. They are briefly described next so you can find the information you need.

Palliative care

The *NCCN Guidelines for Patients: Palliative Care* describes care for physical and emotional symptoms, such as:

- Diarrhea, constipation, sleep issues
- Stress and grief

It also provides guidance on talking with your team about cancer treatment.

Distress

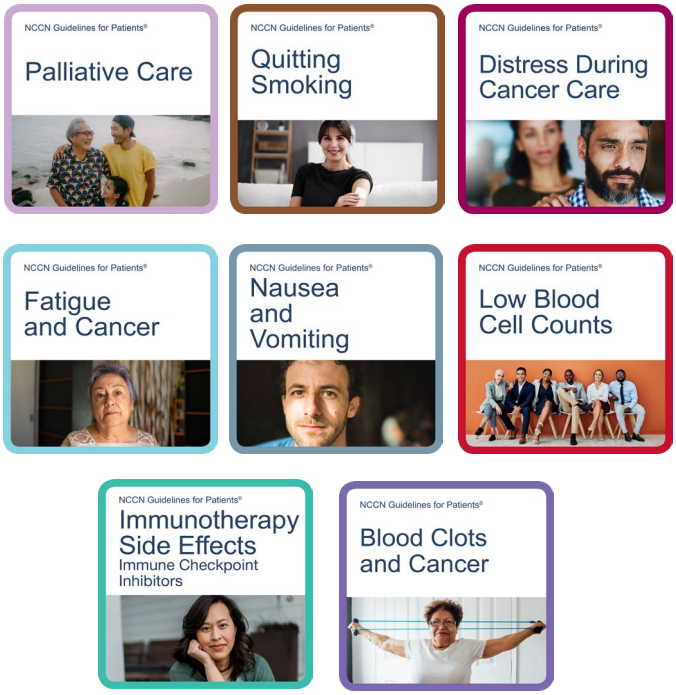
Everyone with cancer feels distressed at some point. It's normal to feel worried, sad, helpless, or angry. *NCCN Guidelines for Patients: Distress During Cancer Care* empowers people to get help for distress.

Fatigue

Cancer-related fatigue is not the typical tiredness that follows an active or long day. It's a lack of energy that is distressing, does not improve with normal rest or sleep, and disrupts life. *NCCN Guidelines for Patients: Fatigue and Cancer* explains the ways to reduce cancer-related fatigue.

Supportive care resources

The library of NCCN Guidelines for Patients has a series of guides on supportive care, available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.



Nausea and vomiting

Chemotherapy and radiation therapy are common cancer treatments that may cause nausea and vomiting. Nausea is the feeling that you are going to throw up. Vomiting is forcefully throwing up what's in your stomach. Treatments that prevent and manage both conditions are discussed in *NCCN Guidelines for Patients: Nausea and Vomiting*.

Low blood counts

Chemotherapy often causes a drop in blood cells. Depending on the type of blood cell affected, you may have fatigue, unusual bleeding, and more infections than usual. Recommendations on how to manage low counts are described in *NCCN Guidelines for Patients: Low Blood Counts*.

Immunotherapy side effects

Immune checkpoint inhibitors are used to treat many types of NSCLC. However, this treatment may cause your immune cells to attack your healthy cells. *NCCN Guidelines for Patients: Immunotherapy Side Effects: Immune Checkpoint Inhibitors* explains treatment for many types of side effects.

Blood clots

Some drug treatments for NSCLC increase the risk for blood clots. A thrombus is a type of blood clot that can dangerously block blood flow. *NCCN Guidelines for Patients: Blood Clots and Cancer* explains ways to prevent and treat thrombi.

"There's no concern that is too trivial or stupid for your oncologist to answer. Their job is so much easier if they know how and what you feeling."

Addressing social and financial needs

Many factors impact health outcomes. Your genes and the health care you receive are examples of important medical factors. But social factors are just as important. Social factors include:

- Transportation
- Housing and utility assistance
- Access to food
- Finances and work
- Health insurance
- Social support and safety

NCCN experts recommend that your team monitors the impact of social factors on your health. Your team will make referrals to other professionals as needed.

Key points

- Supportive care aims to improve your quality of life, including preventing and relieving symptoms.
- Starting supportive care early has more benefits than starting later.
- Quitting smoking may improve treatment results.
- Getting help for social and financial needs may improve your well-being and health.

Questions to ask

- When will we discuss a supportive care plan for me?
- What are the best methods to help me quit smoking?
- Who can assist me with getting help for social and financial needs?
- Should I tell my health care providers I'm getting supportive care? They may incorrectly think I'm getting hospice care.
- Who should I contact if my symptoms get worse?

What's next?

Additional information on receiving support is in *Chapter 9: Lifelong survivorship care*.

Survivorship care is related to supportive care but focuses more on the long-term and late effects of cancer.

Although survivorship care often begins after initial treatment ends, many care recommendations can be started during treatment to prevent or lessen cancer-related effects.

If you're looking for information on cancer treatment, a good place to start is *Chapter 5: Planning primary treatment*.

5
Planning primary treatment

33 Types of primary treatment

34 Staging lung cancer

36 Lung cancer stages

36 Treatment by clinical stage

38 Participating in a clinical trial

40 Key points

40 Questions to ask

Primary treatment is the main treatment used to rid your body of lung cancer. The options for primary treatment depend heavily on the cancer stage.

Surgery is a common treatment for early and locally advanced non-small cell lung cancers (NSCLCs), but it's often not the only option. Read on to learn what your options for primary treatment may be.

Types of primary treatment

Many people with NSCLC have multiple cancer treatments. The treatment that is most important is called primary treatment.

The type of primary treatment differs among people with early or locally advanced NSCLC. Primary treatment may be:

- Surgery to remove tumors or body tissue with cancer
- Radiation therapy, which most often uses high-energy x-rays to treat lung cancer
- Chemoradiation, a combined treatment of prescribed drugs and radiation therapy

Your care team will recommend a primary treatment for you. Which primary treatment you receive will depend largely on the cancer stage. A cancer stage is a rating of the growth and spread of cancer.

"When you are deciding your treatment, remember that even though some decisions need to be made fast, don't rush. Think through your options and get second, or even third, opinions. Have people you can trust to talk through your options so you feel comfortable in your decisions."



Staging lung cancer

Lung cancer is staged using the tumor, node, metastasis (TNM) system maintained by the American Joint Committee on Cancer. Each letter in the system represents an area of cancer growth and is assigned a score.

T = Tumor score

The T score describes the primary tumor. The primary tumor is the main group of cancer cells in the lung.

The T scores are based on:

- The biggest width of the primary tumor measured in centimeters (cm)
- Invasive growth of the primary tumor into nearby body parts, such as the chest wall
- The number of tumors in a lung

The T scores used in this guide are T1, T2a, T2b, T3, and T4. Higher numbers represent more growth. A brief description of the T scores is in **Guide 5**.

Guide 5
T (tumor) scores used to stage lung cancer

T1	A T1 tumor is 3 cm or smaller. It's no larger than a grape.
T2a	A T2a tumor has one of these features: • Tumor is wider than 3 cm but no larger than 4 cm • Invasive growth into the next lobe, inner lining of the lung, or main airway • The tumor caused the lung to collapse or swell
T2b	A T2b tumor is based on its width. It is larger than 4 cm but no larger than 5 cm. For comparison, a golf ball is 4.3 cm. It may be invasive or affect the lung as described for a T2a tumor.
T3	A T3 tumor has one of these features: • Tumor is wider than than 5 cm but no larger than 7 cm • Invasive growth into the outer lining of the lung, heart lining, chest wall, azygos vein, a phrenic or chest spinal nerve, or stellate ganglion nerves • Multiple related tumors in the same lobe of the lung
T4	A T4 tumor has one of these features: • Tumor is wider than than 7 cm • Invasive growth into the heart, a major blood vessel, windpipe, esophagus, diaphragm, thymus, spine, vagus nerve, or a spinal nerve in the throat • Related tumors in more than one lobe of the lung

N = Node score

The N score describes cancer growth in nearby lymph nodes. Lymph nodes are small, bean-shaped structures located throughout your body that help fight disease. The N score is based on the spread of lung cancer to:

- Lymph nodes in the lung
- Lymph nodes just outside of the lung
- Lymph nodes far from the lung

The N scores used in this guide are N0, N1, N2a, N2b, and N3. Higher numbers mean greater spread of the cancer. A brief description of the N scores is in **Guide 6**.

M = Metastasis score

The M score tells you if the cancer has spread to the lining around the lung or to other organs. The spread of cancer is called metastasis.

Lung cancer tends to travel to the brain, liver, adrenal glands, and bones and from one lung to the other.

M0 means the cancer has not spread far. M1 means the cancer has spread far. There are three M1 scores to describe where the cancer has spread:

- M1a means the cancer has spread far within the chest.
- M1b means the cancer has spread to one place beyond the chest.
- M1c means the cancer has spread to more than one place beyond the chest.

Guide 6
N (node) scores used to stage lung cancer

N0	The cancer has not spread to lymph nodes.
N1	The cancer has grown into or spread to lymph nodes in the lung.
N2a	The cancer has spread to 1 lymph node in either of these places: • The middle of the chest next to the lung with cancer • Below the windpipe
N2b	The cancer has spread to 2 or more lymph nodes in one or both of these places: • The middle of the chest next to the lung with cancer • Below the windpipe
N3	The cancer has spread to lymph nodes in one or more of these places: • The middle of the chest near the other lung • The other lung • Near the collarbone

Lung cancer stages

There are 4 main stages of lung cancer. The cancer stages are further divided into subgroups and labeled with a letter.

- Stage 1 consists of stages 1A and 1B
- Stage 2 consists of stages 2A and 2B
- Stage 3 consists of stages 3A, 3B, and 3C
- Stage 4 consists of stages 4A and 4B

The TNM scores are combined to assign a stage to the lung cancer. TNM scores with a better outlook have a lower cancer stage. Read which TNM scores correspond with a cancer stage in **Guide 7**.

All lung cancers are staged before treatment based on the tests described in prior chapters. The pretreatment stage is called the clinical stage.

If you have surgery, the cancer is staged again. The second stage is called the pathologic stage. It's based on tests of tissue removed from your body.

Treatment by clinical stage

The clinical stage is very important for planning primary treatment. It helps predict the course of the cancer and which treatment is best. Options for primary treatment by clinical stage are noted in **Guide 8**.

When possible, surgery is the primary treatment of NSCLC. However, surgery isn't an option if it's unlikely that all the cancer can be removed.

Guide 7
Stages of lung cancer with TNM scores

Stage 1A	T1, N0, M0
Stage 1B	T2a, N0, M0
Stage 2A	T2b, N0, M0 T1, N1, M0
Stage 2B	T3, N0, M0 T1, N2a, M0 T2, N1, M0
Stage 3A	T3, N1, M0 T4, N0, M0 T4, N1, M0 T1, N2b, M0 T2, N2a, M0 T3, N2a, M0
Stage 3B	T2, N2b, M0 T3, N2b, M0 T4, N2a, M0 T4, N2b, M0 T1, N3, M0 T2, N3, M0
Stage 3C	T3, N3, M0 T4, N3, M0
Stage 4A	Any T, any N, M1a Any T, any N, M1b
Stage 4B	Any T, any N, M1c

Instead of surgery, radiation therapy or chemoradiation may be the primary treatment. When the goal is to cure cancer, these treatments are called definitive radiation therapy and definitive chemoradiation. Radiation therapy is the option for stage 1 and stage 2 cancers that haven't grown outside of

Guide 8
Options for primary treatment of early and locally advanced NSCLC

Clinical stage	TNM score	Surgery	Definitive radiation therapy	Definitive chemoradiation
1A	T1, N0, M0	●	●	
1B	T2a, N0, M0	●	●	
2A	T2b, N0, M0	●	●	
2A	T1, N1, M0	●		●
2B	T3 (no invasive growth), N0, M0	●	●	
2B	T3 (invasive growth), N0, M0 T1, N2a, M0 T2, N1, M0	●		●
3A	T3, N1, M0 T4, N0, M0 T4, N1, M0 T1, N2b, M0 T2, N2a, M0 T3, N2a, M0	●		●
3B	T2, N2b, M0 T3, N2b, M0	●		●
3B	T4, N2a, M0 T4, N2b, M0 T1, N3, M0 T2, N3, M0			●
3C	T3, N3, M0 T4, N3, M0			●

the lung and haven't spread to lymph nodes. Other cancers are treated with chemoradiation.

Your team will make a final recommendation for treatment based on additional factors. These factors include any challenges to treatment, how well your lungs are working, and your overall health. Your team's recommendation will also reflect your values and preferences.

"I tell newly diagnosed lung patients that today there is HOPE and better treatments and outcomes to the disease. In the past decade, the survivor rate has been climbing every year."

Participating in a clinical trial

A clinical trial may be an option for you.

A clinical trial is a type of medical research study. After being developed and tested in a lab, potential new ways of fighting cancer need to be studied in people.

If found to be safe and effective in a clinical trial, a drug, device, or treatment approach may be approved by the U.S. FDA.

Everyone with cancer should carefully consider all of the treatment options available for their cancer type, including standard treatments and clinical trials. Talk to your doctor about whether a clinical trial may make sense for you.

Phases

Most cancer clinical trials focus on treatment and are done in phases.

- **Phase 1** trials study the safety and side effects of an investigational drug or treatment approach.
- **Phase 2** trials study how well the drug or approach works against a specific type of cancer.
- **Phase 3** trials test the drug or approach against a standard treatment. If the results are good, it may be approved by the FDA.
- **Phase 4** trials study the safety and benefit of an FDA-approved treatment.

Who can enroll?

It depends on the clinical trial's rules, called eligibility criteria. The rules may be about age, cancer type and stage, treatment history, or

general health. They ensure that participants are alike in specific ways and that the trial is as safe as possible for the participants.

Informed consent

Clinical trials are managed by a research team. This group of experts will review the study with you in detail, including its purpose and the risks and benefits of joining. All of this information is also provided in an informed consent form. Read the form carefully and ask questions before signing it. Take time to discuss it with people you trust. Keep in mind that you can leave and seek treatment outside of the clinical trial at any time.

Will I get a placebo?

Placebos (inactive versions of real medicines) are almost never used alone in cancer clinical trials. It's common to receive either a placebo with a standard treatment, or a new drug with a standard treatment. You will be informed, verbally and in writing, if a placebo is part of a clinical trial before you enroll.

Are clinical trials free?

There is no fee to enroll in a clinical trial. The study sponsor pays for research-related costs, including the study drug. But you may need to pay for other services, like transportation or childcare, due to extra appointments. During the trial, you will continue to receive standard cancer care. This care is often covered by insurance.



Finding a clinical trial

In the United States

NCCN Cancer Centers
NCCN.org/cancercenters

The National Cancer Institute (NCI)
cancer.gov/about-cancer/treatment/clinical-trials/search

Worldwide

The U.S. National Library of Medicine (NLM)
clinicaltrials.gov

Need help finding a clinical trial?

NCI's Cancer Information Service (CIS)
1.800.4.CANCER (1.800.422.6237)
cancer.gov/contact

Key points

- The primary treatments of early and locally advanced non-small cell lung cancers (NSCLCs) are surgery, radiation therapy, and chemoradiation.
- Your treatment options are based on a rating of the growth and spread of the cancer before treatment. This rating is called the clinical stage. There are 4 stages.
- Surgery is a standard treatment for NSCLC. If surgery is not an option, radiation therapy or chemoradiation may be used for treatment instead.
- A clinical trial may be an option for you. Clinical trials test new ways of stopping cancer in people.

Questions to ask

- What is the clinical stage of the cancer?
- How did you decide what primary treatment I can have?
- Is there a clinical trial that's a good fit for me?

What's next?

Learn more about your primary treatment in the next chapters:

- Surgical procedures and treatments used with surgery are explained in *Chapter 6: Treating lung cancer with surgery*.
- The types of radiation therapy that are used to cure lung cancer are described in *Chapter 7: Treating lung cancer with radiation therapy*.
- Information on chemoradiation is in *Chapter 8: Treating lung cancer with chemoradiation.*

6

Treating lung cancer with surgery

42 Planning treatment

43 Treatment before surgery

45 Removing lung cancer

47 Results of surgery

48 Treatment after surgery

50 Additional therapy after chemotherapy

50 Key points

50 Questions to ask

Surgery is a standard treatment for lung cancer, but the treatment approach differs between people. Read this chapter to learn about the treatment you may have.

Planning treatment

Surgery is used to treat most early-stage and many locally advanced non-small cell lung cancers (NSCLCs). Your team will decide if surgery is an option for you and if you need additional treatment.

Evaluation for surgery

NCCN experts recommend finding a highly experienced, board-certified thoracic surgeon. Lung cancer surgery should be a major part of their practice.

Surgery may be an option for you if all of the cancer can be safely removed. To decide if you can safely undergo surgery, your surgeon will consider:

- Where the cancer is inside and outside of your lungs
- The health of your lungs
- Your overall health

Cancer that can be safely and completely removed is called resectable cancer.

Evaluation for additional treatment

Resectable NSCLC is often treated with more than one type of treatment.

Treatment in addition to surgery may include:

- A regimen of systemic therapy, which is one or more cancer drugs taken at a specific dose, schedule, and length of time (see **Guide 9**)
- Radiation therapy to treat cancer that may remain near the surgical site
- Sequential chemoradiation, treatment with chemotherapy then radiation therapy
- Concurrent chemoradiation, receiving both treatments during the same time frame

Additional treatment is based on several factors, including:

- The type and stage of NSCLC
- Your medical history, including medicines you take
- Biomarker tests, including those for PD-L1 level, *EGFR* mutations, and *ALK* gene fusions

Medical history and biomarkers tests are described in *Chapter 3: Testing for early and locally advanced NSCLC*.

Treatment before surgery

Preoperative therapy is treatment received before surgery. It's sometimes called neoadjuvant therapy or induction therapy.

Preoperative therapy isn't needed for stage 1A cancers because surgery alone has very good results. The 2 reasons that higher cancer stages have preoperative therapy as well as treatment options are explained next.

Reason 1: Preoperative instead of postoperative therapy

For years, systemic therapy was started after surgery for many cancers. More recently, it's become the first treatment because of less serious side effects.

Immune checkpoint inhibitors with chemotherapy

NCCN experts recommend that care teams strongly consider giving immune checkpoint inhibitors with chemotherapy. This treatment may be an option when the lung tumor is at least 4 centimeters (cm) wide or the cancer has spread to lymph nodes.

Guide 9
Types of systemic therapy used before or after surgery for NSCLC

Platinum-doublet chemotherapy Kills fast-growing cells including cancer cells	• Chemotherapy drugs that contain platinum include carboplatin and cisplatin. • Platinum-doublet chemotherapy combines a platinum drug with docetaxel (Beizray, Docivyx,Taxotere), etoposide (Etopophos), gemcitabine (Avgemsi), paclitaxel, pemetrexed (Axtle, Alimta, Pemfexy, Pemrydi RTU), or vinorelbine. • Chemotherapy is given by a slow drip into a vein, called an infusion, and occurs in cycles of treatment days followed by days of rest.
Immune checkpoint inhibitor Restores the ability of immune T cells to kill cancer cells	• Atezolizumab (Tecentriq), pembrolizumab (Keytruda), durvalumab (Imfinzi), and nivolumab (Opdivo) are given by infusion in cycles. • Atezolizumab with hyaluronidase-tqjs (Tecentriq hybreza), pembrolizumab with berahyaluronidase alfa-pmph (Keytruda qlex), and nivolumab with hyaluronidase-nvhy (Opdivo qvantig) are injected under the skin.
Targeted therapy Stops chemical signals that tell lung cancer cells to grow	• Alectinib (Alecensa) and osimertinib (Tagrisso) are pills that can be taken at home on treatment days of the cycle.

The immune checkpoint inhibitors used for preoperative therapy are:

- Nivolumab infusions or nivolumab and hyaluronidase-nvh injections for cancers without *EGFR* mutations and *ALK* gene fusions
- Pembrolizumab infusions or pembrolizumab and berahyaluronidase alfa-pmph injections
- Durvalumab for cancers without *EGFR* mutations and *ALK* gene fusions

Immune checkpoint inhibitors are combined with platinum-doublet chemotherapy. The chemotherapy drugs given depend on the checkpoint inhibitor and type of NSCLC. Options for adenocarcinoma, large cell carcinoma, and rare cell types are listed in **Guide 10**; those for squamous cell carcinoma are listed in **Guide 11**.

Targeted therapy

Except for stage 1B cancers, osimertinib is an option for adenocarcinomas, large cell carcinomas, and rare cell types with an *EGFR* exon 19 deletion or L858R mutation. Chemotherapy may be added. The options are either cisplatin and pemetrexed, or carboplatin and pemetrexed.

Guide 10
Immune checkpoint inhibitor regimens for adenocarcinoma, large cell carcinoma, and rare cell types

Nivolumab, or Nivolumab and Hyaluronidase-tqjs, with one of these chemotherapies:

- Carboplatin, Paclitaxel
- Cisplatin, Docetaxel
- Cisplatin, Pemetrexed
- Carboplatin, Pemetrexed

Pembrolizumab, or Pembrolizumab and Berahyaluronidase alfa-pmph, combined with Cisplatin, Pemetrexed

Durvalumab with one of these chemotherapies:

- Cisplatin, Pemetrexed
- Carboplatin, Pemetrexed

Guide 11
Immune checkpoint inhibitor regimens for squamous cell carcinoma

Nivolumab, or Nivolumab and Hyaluronidase-tqjs, with one of these chemotherapies:

- Carboplatin, Paclitaxel
- Cisplatin, Docetaxel
- Cisplatin, Gemcitabine
- Carboplatin, Gemcitabine

Pembrolizumab, or Pembrolizumab and Berahyaluronidase alfa-pmph, with Cisplatin, Gemcitabine

Durvalumab with one of these chemotherapies:

- Cisplatin, Gemcitabine
- Carboplatin, Gemcitabine
- Carboplatin, Paclitaxel

Platinum-doublet chemotherapy

Some cancers can't be treated with immune checkpoint inhibitors or targeted therapy. Instead, platinum-doublet chemotherapy may be an option for stage 1B and 2A cancers that are more likely to return, stage 2B cancers, and stage 3 cancers. Platinum-doublet chemotherapy has been used for years in the postoperative setting and is explained further in *Treatment after surgery*.

Reason 2: Making surgery easier

Preoperative therapy may make surgery easier for some stage 2 and stage 3 cancers.

Superior sulcus tumors

Superior sulcus tumors are a distinct subset of invasive lung cancers. They start at the top of the lung and typically grow into the chest wall.

Concurrent chemoradiation is the first treatment of superior sulcus tumors. The full course of chemotherapy may be completed after surgery. Learn more about this treatment in *Chapter 8: Treating lung cancer with chemoradiation*.

Invasive or large tumors

Starting with either concurrent chemoradiation or systemic therapy is an option for:

- Stage 2B and stage 3A cancers with T3 tumors that invaded the chest wall, windpipe, or the middle of the chest
- Stage 3A cancers with T4 tumors that are invasive or larger than 7 centimeters

Cancer in N2 nodes

NSCLC with an N2 stage is sometimes treated with surgery. Systemic therapy or chemoradiation is given first to stop cancer growth before surgery.

Removing lung cancer

Your surgeon will schedule surgery if there is a way to remove all the cancer. This section explains the different ways surgery is performed and the types of surgery used to remove the cancer.

Methods to perform surgery

Your surgeon will remove tissue by one of two methods. The classic or open method is called thoracotomy. The newer method is a less invasive surgery called thoracoscopy.

- **Thoracotomy** is performed through one large cut between the ribs. Surgical tools are inserted through the cut to remove the cancer. Sometimes, part of the rib needs to be removed, too.
- **Thoracoscopy** is performed through several small cuts between the ribs. This surgery is sometimes called video-assisted thoracoscopic surgery because it's performed using a small video camera inserted through a cut.

Your surgeon may perform thoracoscopy using robotic arms to control the surgical tools. This approach is called robotic-assisted thoracoscopic surgery.

Types of lung surgery

There are 5 types of lung surgery. To understand them, it's important to know that the lungs have sections called lobes. The right lung has 3 lobes, and the left lung has 2 lobes.

- **Wedge resection** removes a small part of a lobe.
- **Segmentectomy** removes a large part of a lobe.

- **Lobectomy** removes an entire lobe and is preferred for most lung cancers.
- **Sleeve lobectomy** removes an entire lobe and part of the main airway.
- **Pneumonectomy** removes an entire lung.

Lung tumors that have grown through the lung wall into other tissue are removed in one piece. This surgery is called an en-bloc resection.

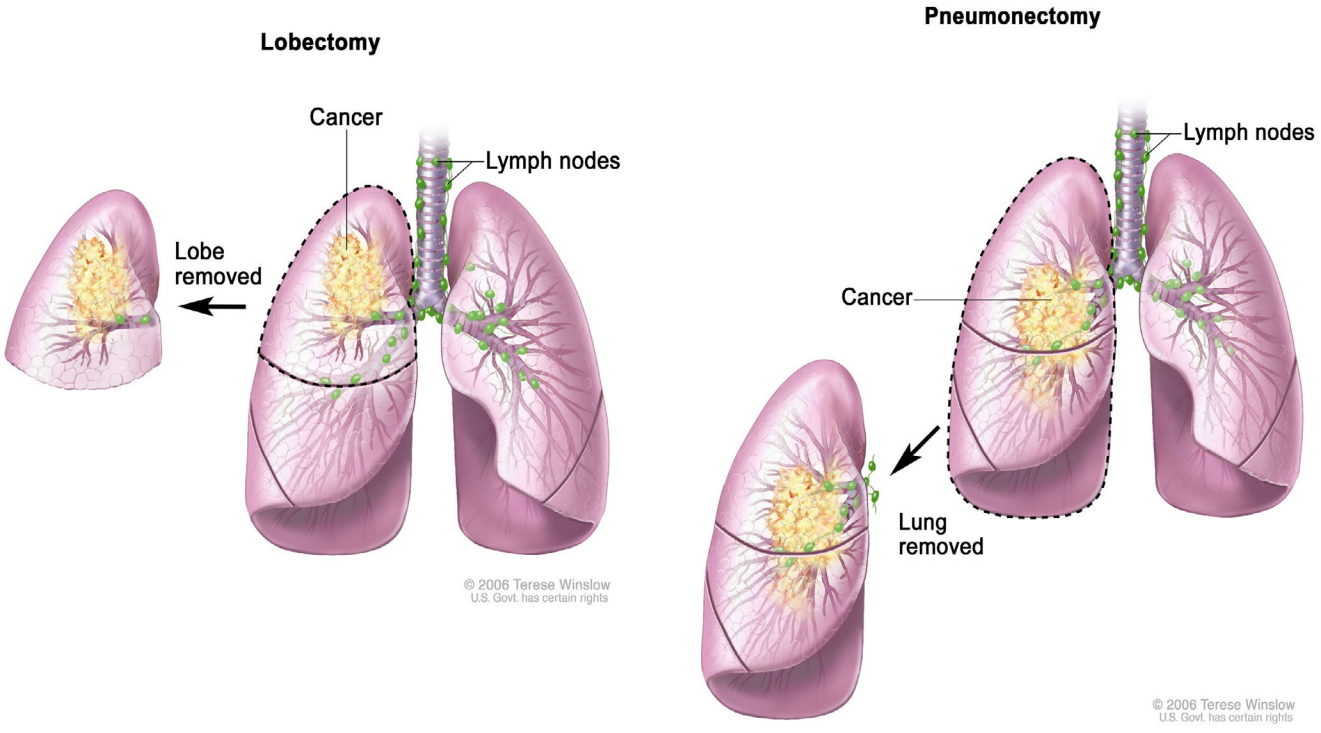
Your surgeon will remove the lung tumor with enough normal-looking tissue at its edge. This normal-looking tissue is called the surgical margin. The goal is to have no cancer cells in the margin so a cure is likely.

Types of lymph node surgery

During surgery, your surgeon will also remove lymph nodes that have or may have cancer. To remove nodes, some organs may need to be moved or cut.

Lung cancer surgery

There are 5 common lung cancer surgeries. The most common are lobectomy and pneumonectomy and are shown below. Sleeve lobectomy removes a lobe and part of the main airway called the bronchus. Wedge resection and segmentectomy remove only part of a lobe.



There are 2 types of lymph node surgery:

- A systematic lymph node sampling removes some nodes in the lung and between the lungs.
- A lymph node dissection removes as many nodes as possible from the lung and between the lungs.

Side effects of surgery

Your care team will help you recover from surgery. They will provide care to prevent or relieve side effects.

Common side effects of any surgery are pain, swelling, and scars. Pain can be intense after lung surgery. Pain and swelling often fade away in the weeks after surgery.

Results of surgery

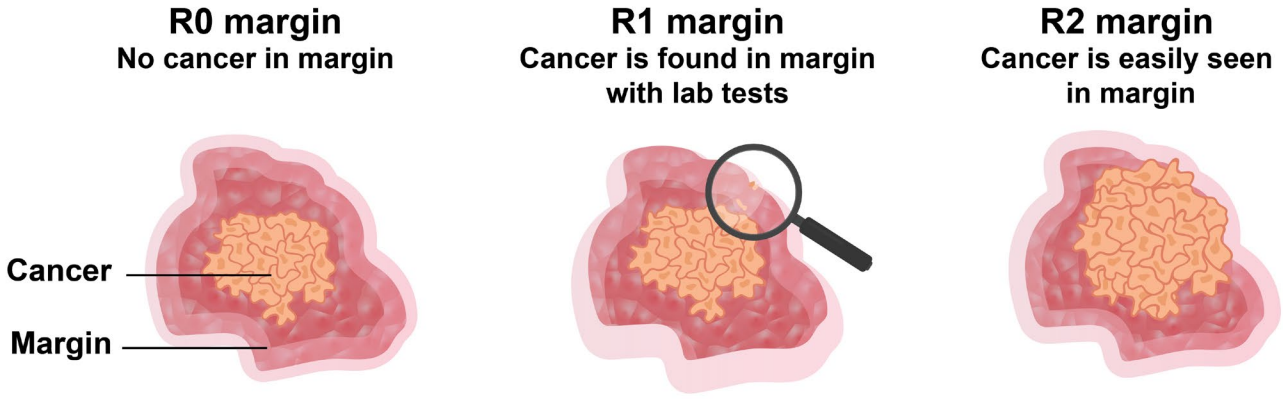
After surgery, your surgeon and pathologist will rate the surgical margin around the removed tumor:

- **R0** means no cancer was found in the margin.
- **R1** means cancer was found in the margin with a microscope.
- **R2** means some of the visible cancer wasn't removed.

The pathologist will also assess fluid samples and the removed lymph nodes for cancer. When lymph nodes farthest from the tumor don't have cancer, it's likely that all nodes with cancer were removed.

Surgical margin

The tumor will be removed, along with some normal-looking tissue around its rim. The normal-looking tissue is called the surgical margin. The surgical margin will be tested for cancer. Postoperative therapy is based on if there is cancer in the margins.



Treatment after surgery

Postoperative therapy (also called adjuvant therapy) treats any cancer that wasn't removed during surgery. It lowers the chance of cancer returning.

In this section, you'll learn NCCN recommendations for which cancers need postoperative therapy and the types of postoperative therapy.

Treatment if there's no cancer in surgical margins

You may receive postoperative therapy even if margins are cancer-free, which is a rating of R0.

Some cancer may remain in your body because it wasn't found with scans or seen during surgery and removed.

Systemic therapy is an option for stage 1B and stage 2A cancers but is needed for stage 2B and stage 3 cancers.

After systemic therapy, stage 3 cancers may be treated with radiation therapy.

Treatment if there's cancer in surgical margins

Postoperative therapy is needed when cancer is in the surgical margins. Surgical margins with cancer are rated either R1 or R2.

Second surgery

A second surgery to remove all the cancer is an option for stage 1 and stage 2 cancers. After the second surgery, some stage 1B and stage 2A cancers and all stage 2B cancers are treated with systemic therapy.

Radiation therapy

For stage 1 and stage 2A cancers, radiation therapy is an option when a second surgery is likely to cause serious health issues. Systemic therapy may be part of treatment for stage 1B and stage 2A cancers.

Chemoradiation

For stage 2B cancers, chemoradiation is an option when a second surgery isn't. For stage 3 cancers, chemoradiation is the only option for postoperative therapy.

- Either sequential or concurrent chemoradiation is recommended for R1 margins.
- Concurrent chemoradiation is recommended for R2 margins.

Options for systemic therapy

Chemotherapy or targeted therapy is used for postoperative systemic therapy. If you had chemotherapy before surgery, you won't have it again. However, other types of systemic therapy may be restarted after surgery.

Platinum-doublet chemotherapy

NCCN experts recommend postoperative platinum-doublet chemotherapy for:

- Stage 1B and stage 2A cancers that are highly likely to return
- Stage 2B and stage 3 cancers

The regimen you'll receive is based on the type of NSCLC and if treatment will include radiation. Regimens used with concurrent chemoradiation are listed in *Chapter 8: Treating lung cancer with chemoradiation*.

If you had chemotherapy before surgery, you will not have it again.

Options for chemotherapy given by itself or before radiation therapy are listed in **Guide 12** and **Guide 13**.

All treatments listed in this guide are recommended and appropriate. When helpful, NCCN experts also assign a level of preference to their recommendations for systemic therapies:

- **Preferred therapies** have the most evidence they may work better and be safer than other therapies.
- **Other recommended therapies** can provide effective results but may have less evidence, more side effects, or may not work quite as well as preferred therapies.
- **Therapies used in certain cases** work best for individuals with specific cancer features or health circumstances. For NSCLC, carboplatin regimens are used when people can't take cisplatin.

Targeted therapy

Your team may recommend targeted therapy:

- Osimertinib treats cancers with *EGFR* mutations. It's an option if you can't have chemotherapy.
- Alectinib treats cancers with *ALK* gene fusions. It's an option if the lung tumor was at least 4 centimeters wide or the cancer had spread to lymph nodes.

Guide 12
Platinum-doublet chemotherapy for adenocarcinoma, large cell carcinoma, and rare cell types

Preferred therapy
- Cisplatin, Pemetrexed

Other recommended therapies
- Cisplatin, Vinorelbine
- Cisplatin, Etoposide

Therapies used in certain cases
- Carboplatin, Paclitaxel
- Carboplatin, Pemetrexed

Guide 13
Platinum-doublet chemotherapy for squamous cell carcinoma

Preferred therapies
- Cisplatin, Gemcitabine
- Cisplatin, Docetaxel

Other recommended therapies
- Cisplatin, Vinorelbine
- Cisplatin, Etoposide

Therapies used in certain cases
- Carboplatin, Paclitaxel
- Carboplatin, Gemcitabine

Additional therapy after chemotherapy

NCCN experts recommend that care teams assess the need for additional treatment after postoperative chemotherapy.

Targeted therapy

Cancers with *EGFR* mutations may be treated with osimertinib.

Immune checkpoint inhibitors

Cancers without *EGFR* mutations or *ALK* gene fusions may be treated with immune checkpoint inhibitors. The cancer must have been at least 4 centimeters wide or had spread to lymph nodes.

- Atezolizumab infusions or atezolizumab and hyaluronidase-tqjs injections are an option if the PD-L1 level is 1 percent or higher.
- Pembrolizumab infusions or pembrolizumab with berahyaluronidase alfa-pmph injections are another option.

Key points

- Choose a highly experienced, board-certified thoracic surgeon who can remove all of the cancer safely.
- Depending on the cancer stage and other factors, you may have systemic therapy or chemoradiation before surgery.
- Lung cancer surgery can be performed by one of two methods. During open surgery, body tissue is removed through one large cut. Less invasive surgery is performed through a few small cuts.
- There are several types of lung surgery, ranging from removing a piece of a lobe to removing the entire lung. Lymph nodes that have or may have cancer are removed, too.
- Postoperative therapy helps stop the cancer from returning. You may receive a different type of treatment, or one of your prior treatments may be restarted.
- Targeted therapy or an immune checkpoint inhibitor is sometimes given after postoperative chemotherapy to stop high-risk cancers from returning.

Questions to ask

- How many lung cancer surgeries have you done in the past year?
- What type of surgery do I need?
- Will I have other treatments before or after surgery?
- What are the common and serious side effects of my treatments?
- How will you prevent side effects and relieve the side effects I have?

What's next?

Once there are no signs of cancer, you'll have ongoing testing to watch out for the return of cancer. This is called surveillance, and it's a part of survivorship care.

Survivorship care also focuses on the management of long-term and late effects of cancer. To learn more, read *Chapter 9: Lifelong survivorship care*.

"As a lung cancer survivor, I've learned the importance of my voice and advocating on my own behalf. There is power and profound healing in telling our stories out loud AND in our own voices."



We want your feedback!

Our goal is to provide helpful and easy-to-understand information on cancer. Take our survey to let us know what we got right and what we could do better.
NCCN.org/patients/feedback

7

Treating lung cancer with radiation therapy

53 Uses of radiation therapy

54 Types of radiation therapy

54 Curing lung cancer with radiation

55 Side effects of radiation

55 Key points

56 Questions to ask

Radiation therapy is a common treatment for lung cancer. It may be used by itself to treat lung cancer or it can be combined with other treatments. This chapter explains when radiation therapy is used and how it works.

Uses of radiation therapy

Radiation therapy uses high-energy x-rays or particles to treat lung cancer. The x-rays or particles damage cancer cells, which either die or stop making new cancer cells.

Radiation therapy is used in many ways to treat early and locally advanced non-small cell lung cancers (NSCLCs):

- It's used as the main (also called primary) treatment of stage 1 and some stage 2 lung cancers. When the goal is to cure cancer, it's called definitive radiation therapy.
- It's used with surgery as described in *Chapter 6: Treating lung cancer with surgery*.
- It's combined with chemotherapy as described in *Chapter 8: Treating lung cancer with chemoradiation*.

A radiation oncologist is an expert in treating cancer with radiation. Your doctor will lead a team that designs your treatment plan and provides treatment.

Radiation therapy

Radiation therapy is often delivered from a large machine. The x-rays or particles pass through skin and travel to the tumor. Modern treatments are able to protect healthy tissue.



Types of radiation therapy

External beam radiation therapy (EBRT) is the most common method used for lung cancer. A large machine makes radiation beams that are shaped to the form of the tumor. The machine aims the highest radiation dose at the tumor. A much lower dose is given to the nearby normal-looking tissue.

There are several common techniques of EBRT:

- **Intensity-modulated radiation therapy (IMRT)** delivers x-ray (photon) beams that very closely match the shape of the target and spares more normal tissue.
- **Stereotactic ablative radiotherapy (SABR)** treats cancer with very precise, high-dose x-ray (photon) beams. It delivers a very high dose of radiation per treatment, so it's only given for a few treatments. Treatment is finished in 1 to 1½ weeks.
- **Proton therapy** treats cancer with proton beams. Proton beams deliver radiation mostly within the tumor.
- **Three-dimensional conformal radiation therapy (3D-CRT)** delivers an x-ray (photon) beam that matches the shape of the target but may not be as focused as IMRT. It's an older technique.

Radiation therapy is typically delivered daily Monday through Friday. Treatment visits are about 15 minutes for IMRT and 3D-CRT and 30 to 45 minutes for SABR and proton therapy. Some radiation oncologists deliver SABR treatment 2 to 3 times per week rather than every day.

Curing lung cancer with radiation

Definitive EBRT is used when trying to cure stage 1 and stage 2 NSCLC. Any of the EBRT techniques described may be used, though NCCN experts prefer SABR for smaller tumors. SABR may be an option for some stage 2 cancers with large T3 tumors.

Overcoming treatment challenges

A lung tumor is harder to target than some other tumors in the body. Lung tumors often move when you breathe. To account for these challenges, advanced methods may be used:

- Four-dimensional computed tomography (4D-CT) may be used for treatment planning. It's like a video, so your radiation oncologist will see how the tumor moves when you breathe.
- Motion control methods may be used to keep the tumor still during treatment.
- At times, your radiation oncologist may ask you to hold your breath for 15 to 20 seconds at a time to better target the tumor.

Adjuvant chemotherapy

Adjuvant chemotherapy may be received after definitive radiation therapy. It treats cancer that radiation did not. For example, large tumors and very abnormal-looking cancer cells may have spread to places outside of the radiation field.

NCCN experts recommend that care teams consider chemotherapy for stage 2 cancers, especially for T2b and T3 tumors.

The options for chemotherapy after surgery are also options for after radiation therapy. See **Guide 12** and **Guide 13** in Chapter 6.

Side effects of radiation

Radiation therapy does not cause pain during a treatment session—you'll feel nothing at all. It also does not make you radioactive. But radiation therapy may cause health issues called side effects.

Facts about side effects

Here are some important things to know:

- Side effects differ by the type of radiation therapy. Most people have no side effects from SABR. Proton therapy may cause skin changes, but IMRT rarely does.
- Side effects of radiation therapy are cumulative. This means they build up slowly and are worse at the end of treatment.
- Adding chemotherapy to radiation therapy often causes more side effects.
- Side effects that start during radiation therapy typically improve 2 to 4 weeks after treatment is finished.

Types of side effects

During treatment, your radiation oncologist will see you about once a week to assess for possible side effects:

- Fatigue is a common side effect of radiation therapy.
- Skin changes in the treatment area may occur. Often, people describe skin changes as like a sunburn. For people with darker skin, radiation can cause the skin to darken and be painful.
- Near the end of treatment, you may have pain when swallowing due to irritation to your esophagus.
- Although not common, your lung may become inflamed after treatment, causing sudden shortness of breath or cough. These are symptoms of radiation pneumonitis. Call your radiation oncologist immediately if you have these symptoms.

Key points

- Radiation therapy uses high-energy x-rays or particles to treat lung cancer.
- Radiation therapy is used in several ways to treat lung cancer. When used to cure cancer, it's called definitive radiation therapy.
- Radiation therapy is most often delivered from outside of the body using a large machine.
- Several techniques are available to cure lung cancer, but stereotactic ablative radiotherapy (SABR) is preferred for smaller tumors.
- You may receive systemic therapy to treat any cancer that radiation therapy did not.
- Side effects from radiation build up over the course of treatment and typically improve 2 to 4 weeks after treatment is done.

Questions to ask

- Why is radiation therapy being used to treat my cancer?
- Explain how you chose the type of radiation therapy to use?
- Do I need chemotherapy after radiation therapy?
- How will you prevent side effects and relieve the side effects I have?

What's next?

Once there are no signs of cancer, you'll have ongoing testing to watch out for the return of cancer. This is called surveillance and it's a part of survivorship care.

Survivorship care also focuses on the management of long-term and late effects of cancer. To learn more, read *Chapter 9: Lifelong Survivorship care.*

"Adapt your lifestyle to a better one. Don't be ashamed to be a long sleeper. Take days of rest. Living slower is a luxury. I take it as a gift."

8

Treating lung cancer with chemoradiation

58 Uses of chemoradiation

58 About chemotherapy

59 Curing lung cancer with chemoradiation

60 Consolidation treatment

61 Treatment side effects

61 Key points

61 Questions to ask

Chemoradiation uses the power of 2 different cancer treatments. It may be used to cure lung cancer. Read this chapter to learn about chemoradiation options.

Uses of chemoradiation

Chemoradiation is a cancer treatment that combines chemotherapy and radiation therapy:

- **Chemotherapy** uses drugs that stop the process by which cells make more cells, so it affects fast-growing cells like cancer cells.
- **Radiation therapy** uses high-energy x-rays or particles to damage cancer cells. The cancer cells either die or can't make more cancer cells.

Chemoradiation is sometimes received before or after surgery as described in *Chapter 6: Treating lung cancer with surgery*.

Chemoradiation may also be the main (also called primary) treatment of locally advanced lung cancer when surgery is not an option. When the goal is to cure cancer, it's called definitive chemoradiation.

About chemotherapy

This section provides some important information about chemotherapy. Details about receiving radiation therapy are described in *Chapter 7: Treating lung cancer with radiation therapy*.

Doctors called medical oncologists prescribe chemotherapy. A chemotherapy regimen consists of one or more drugs that are taken at a specific dose, schedule, and length of time.

Chemotherapy

Chemotherapy for lung cancer is a liquid that is injected into a vein. Some injections are done in the arm or hand while others are done though an implanted device called a port. An infusion is a slow drip controlled by a pump that may take hours.



For non-small cell lung cancer (NSCLC), more than one type of chemotherapy is often received. Most commonly, cisplatin or carboplatin is used with another drug. This is called platinum-doublet chemotherapy.

You will not receive chemotherapy every day. Instead, it will be given in cycles of treatment days followed by days of rest. These cycles give your body a chance to recover after receiving chemotherapy.

You will need to go to a treatment center to get chemotherapy. The chemotherapy will be slowly injected into your vein. This is called an infusion. Chemotherapy travels in your bloodstream to treat cancer throughout your body.

Curing lung cancer with chemoradiation

Definitive chemoradiation is a treatment option for some stage 2B and stage 3 cancers.

There are 2 scheduling approaches to deliver chemoradiation:

- **Concurrent chemoradiation** means that chemotherapy and radiation therapy are given at the same time.
- **Sequential chemoradiation** means you will first complete chemotherapy and then receive radiation therapy. This schedule may be followed if concurrent treatment is likely too harmful for you.

Chemotherapy options for chemoradiation

Chemotherapy regimens used for chemoradiation are listed in **Guide 14**.

All treatments listed in this guide are recommended and appropriate. When helpful, NCCN experts also assign a level of preference to their recommendations for systemic therapies:

- **Preferred therapies** have the most evidence they may work better and be safer than other therapies.
- **Other recommended therapies** can provide effective results but may have less evidence, more side effects, or may not work quite as well as preferred therapies.
- **Therapies used in certain cases** work best for individuals with specific cancer features or health circumstances. For NSCLC, carboplatin regimens are used when people can't take cisplatin.

Schedule of radiation therapy

Radiation therapy is typically delivered in 30 to 35 small doses, called fractions, over 6 to 7 weeks. For sequential chemoradiation, some people are treated with around 15 higher-dose fractions.

Consolidation treatment

Treatment given after chemoradiation is called consolidation treatment. The goals of consolidation are to bolster the results of treatment and improve the chance of a cure.

There are 2 options for consolidation treatment after definitive concurrent chemoradiation:

- Osimertinib (Tagrisso) for lung cancers **with** an *EGFR* exon 19 deletion or L858R mutation
- Durvalumab (Imfinzi) for lung cancers **without** an *EGFR* exon 19 deletion or L858R mutation

Osimertinib is a cancer drug called an EGFR kinase inhibitor. EGFR is a cell protein that helps start cell growth. Osimertinib stops the activity of EGFR and, in turn, lowers the number of new cancer cells being made. It's a pill that can be taken at home.

Durvalumab is a cancer drug called an immune checkpoint inhibitor. It works by enabling immune T cells to attack cancer cells. It's given by infusion.

Guide 14
Regimens for chemoradiation to treat non-small cell lung cancer

	Sequential chemoradiation	Concurrent chemoradiation
Adenocarcinoma, large cell carcinoma, and rare cell types	Preferred therapies: • Cisplatin, Pemetrexed Other recommended therapies: • Cisplatin, Vinorelbine • Cisplatin, Etoposide Therapies used in certain cases: • Carboplatin, Paclitaxel • Carboplatin, Pemetrexed	Preferred therapies: • Carboplatin, Pemetrexed • Cisplatin, Pemetrexed • Carboplatin, Paclitaxel • Cisplatin, Etoposide
Squamous cell carcinoma	Preferred therapies: • Cisplatin, Gemcitabine • Cisplatin, Docetaxel Other recommended therapies: • Cisplatin, Vinorelbine • Cisplatin, Etoposide Therapies used in certain cases: • Carboplatin, Paclitaxel • Carboplatin, Gemcitabine	Preferred therapies: • Carboplatin, Paclitaxel • Cisplatin, Etoposide

Treatment side effects

Side effects are unwanted health issues caused by treatment. They differ between people based on the type and length of treatment as well as the person.

Side effects from chemotherapy are caused by the death of fast-growing normal cells. Examples include nausea and vomiting, anemia, and hair loss. Side effects are typically worse with concurrent chemoradiation than with sequential chemoradiation.

Immune checkpoint inhibitors can cause your immune cells to attack healthy cells in your body. Side effects include rash, mouth pain, and fatigue.

Management of side effects is discussed in *Chapter 4: Improving life with supportive care*.

Key points

- Chemoradiation is a treatment with both chemotherapy and radiation therapy. It may be used to try to cure lung cancer.
- Chemotherapy for lung cancer often consists of a drug made with platinum and one other drug. It's slowly infused into a vein.
- For chemoradiation, chemotherapy and radiation therapy are typically given at the same time, but sometimes chemotherapy is given first.
- More treatment may be received after chemoradiation to improve the chance of a cure. This is called consolidation.

Questions to ask

- How did you decide what type of chemoradiation is best for me?
- What is the schedule, or cycles, of the chemotherapy?
- Do I need consolidation treatment?
- What are the common and serious side effects of my treatments?
- How will you prevent side effects and relieve the side effects I have?

What's next?

Once there are no signs of cancer, surveillance is started. Surveillance is ongoing testing for the return of cancer. It is a part of survivorship care. Survivorship care also focuses on the management of long-term and late effects of cancer. To learn more, read *Chapter 9: Lifelong survivorship care*.

9
Lifelong survivorship care

63 Coordinated health care

63 Ongoing testing to find cancer early

65 Managing physical and mental effects

65 Addressing social and financial needs

65 Preventing disease

66 Key points

66 Questions to ask

Survivorship care often begins after initial cancer treatment ends. Its focus is on the wide and lasting impact of cancer and its treatment. Survivorship care will help you recover from cancer and prevent disease.

Coordinated health care

When survivorship care starts, it's very important that your health care providers work together to give you ongoing, coordinated care. At this stage, you'll see your primary care provider more often and see non-cancer specialists as well.

As part of survivorship care, NCCN recommends:

- Routine blood pressure, cholesterol, and glucose monitoring
- Routine dental exams
- Bone density testing if needed
- Pulmonary rehabilitation if needed

You will also have follow-up visits with your cancer care team. They will test for cancer and assess for side effects as explained next.

Ongoing testing to find cancer early

While non-small cell lung cancer (NSCLC) can sometimes be cured, it's very important to watch for the return of the cancer. The return of cancer is called a recurrence. It's also important to be checked for other types of cancer.

Surveillance for recurrence

Survivorship care includes a schedule of health visits and tests to check for recurrence.

Pulmonary rehabilitation

As part of survivorship care, you may see more health specialists. People who have chronic obstructive pulmonary disease (COPD) or pulmonary hypertension commonly receive pulmonary rehabilitation. If you had lung surgery, your team may refer you to pulmonary rehabilitation.



These ongoing checkups for recurrence are called surveillance. Surveillance is started when there are no signs of cancer after treatment.

If your care team detects a recurrence early, it will allow for timely treatment. At follow-up visits, you will need to update your medical history, get physical exams, and undergo CT (computed tomography) scans. Some people may have a MRI (magnetic resonance imaging) scan of their brain. A schedule of surveillance tests is listed in **Guide 15**.

Screening for second cancers

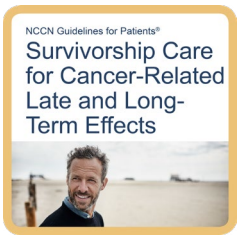
You are at risk for a second cancer. Anyone who has been treated and cured of one lung cancer is at risk for a new lung cancer. Also, a second cancer is a possible late effect of some cancer treatments.

More information on second cancers is in *NCCN Guidelines for Patients: Survivorship*

Guide 15
Surveillance after treatment of non-small cell lung cancer

Stage 1 or stage 2 cancers that were not treated with radiation therapy	Every 6 months for 2 to 3 years, see your care team for a: • Medical history • Physical exam • CT scan of the chest with or without contrast If results are normal, then repeat every year: • Medical history • Physical exam • Low-dose CT scan of the chest
Stage 1 or stage 2 cancers that were treated with radiation therapy **and** **All stage 3 cancers**	Every 3 to 6 months for 3 years, see your care team for a: • Medical history • Physical exam • CT of the chest with or without contrast If results are normal, then repeat every 6 months for 2 years: • Medical history • Physical exam • CT scan of the chest with or without contrast If results remain normal, then repeat every year: • Medical history • Physical exam • Low-dose CT scan of the chest

Care for Cancer-Related Late and Long-Term Effects, available at NCCN.org/patientguidelines and on the NCCN Patient Guides for Cancer app.



Cancer screening involves routine testing for cancer before its symptoms start. You may enroll in a screening program if you have an average risk for prostate, breast, cervical, colorectal, and skin cancers.

Managing physical and mental effects

Cancer and its treatment can cause unwanted health issues. These issues are called complications, adverse events, or side effects.

Many side effects of treatment quickly resolve after treatment ends. But during survivorship care, your team will continue to assess for side effects.

Long-term effects start during treatment and persist after treatment is done. Less often, late effects from the cancer or treatment start long after treatment has ended.

NCCN Guidelines for Patients: Survivorship Care for Cancer-Related Late and Long-Term Effects discuss management of many effects, including:

- Heart disease
- Lymphedema
- Chemobrain
- Fatigue and sleep-wake disorders
- Pain
- Distress and mental health

Addressing social and financial needs

You may have social and financial needs during or after lung cancer treatment. As part of survivorship care, your team will continue to ask you about food, housing, health insurance, and other needs.

A common issue during survivorship is deciding on whether to return to work. Your health care providers can help you. Information on returning to work is in *NCCN Guidelines for Patients: Survivorship Care for Cancer-Related Late and Long-Term Effects*.

Preventing disease

Another part of survivorship care is preventing diseases. This section conveys recommendations from NCCN lung cancer experts.

Vaccinations

Many vaccines safely prevent infections in people with a history of lung cancer. You may get the following vaccines as needed:

- Flu shot every year
- COVID-19 vaccine
- Shingles vaccine
- Pneumococcal vaccine with revaccination
- Hepatitis vaccine

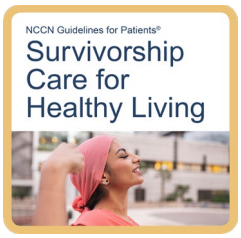
Healthy living

It's important for everyone to start or keep a healthy lifestyle—but it's even more important for people who've had cancer. Healthy living may improve your health and well-being. It may also help prevent cancer from returning.

Common goals for healthy living include:

- No smoking
- Being physically active and avoiding inactivity
- Eating healthful foods and drinking little or no alcohol
- Managing body weight to maintain or improve health
- Routine sun protection

More information on preventing poor health can be found in *NCCN Guidelines for Patients: Survivorship Care for Healthy Living*.



Key points

- It's important that your health care providers work together to address all of your needs.
- You'll have regular tests to check for a return of lung cancer and for new cancers.
- Your team will assess ongoing side effects as well as new ones at follow-up visits. They will also ask if you have social and financial challenges.
- Healthy living and vaccines may improve your health and prevent disease.

Questions to ask

- How will you coordinate care with my other health care providers?
- How can late side effects be prevented or treated?
- Who can I talk to about help with paying bills, returning to work, and other needs?
- Which vaccines do I need?
- What goals for healthy living do you recommend for me?

What's next?

It's common to have many concerns about cancer. Your care team will help you. More sources of support are listed in *Chapter 10: Other resources*.

10
Other resources

68 What else to know

68 What else to do

68 Where to get help

69 Questions to ask

Want to learn more? Here's how you can get additional help.

What else to know

This guide helps you know your options so you can make informed decisions and improve your cancer care. But it's not the only resource that you have.

Ask for as much information and help as you need. Many people are interested in learning more about:

- The details of their cancer and treatment
- Finding a care provider who is an expert in lung cancer
- Getting a second opinion
- Being a part of a care team
- Support groups in the community and online

"I learned that getting a second opinion had nothing to do with trusting my doctor. It was the process of getting all the information I needed to make the best decision for my treatment."

What else to do

Your health care center can help you with next steps. It often has on-site resources to help meet your needs and find answers to your questions. Health care centers can also inform you of resources in your community.

In addition to help from your providers, the resources listed in the next section provide support for many people like yourself.

Where to get help

Look through the list below and visit the provided websites to learn more about these organizations.

A Breath of Hope Lung Cancer Foundation
abreathofhope.org

American Lung Association
lung.org

Bag It
bagitcancer.org

Cancer*Care*
cancercare.org

Cancer Hope Network
cancerhopenetwork.org

Cancer Survivor Care
cancersurvivorcare.org

Caring Ambassadors Program
lungcancercap.org

Free Me from Lung Cancer
freemefromlungcancer.org

GO2 Foundation for Lung Cancer
go2foundation.org

GRACE
cancergrace.org

Imerman Angels
imermanangels.org

LiveLung (Dusty Joy Foundation)
dustyjoy.org

LUNGevity
lungevity.org

Lung Cancer Action Network (LungCAN)
lungcan.org

Lung Cancer Foundation of America
lcfamerica.org

Lung Cancer Research Foundation
lungcancerresearchfoundation.org

PAN Foundation
panfoundation.org

Triage Cancer
triagecancer.org

Questions to ask

- How do I find a health care provider who's an expert in lung cancer?
- What are the steps in getting a second opinion?
- What's my role in making decisions on the best cancer care for me?
- How can I connect with others and build a support system?



Let us know what you think!

Please take a moment to complete an online survey about the NCCN Guidelines for Patients.
NCCN.org/patients/response



Words to know

adenocarcinoma
A cancer of cells that line organs and make fluids or hormones.

biopsy
A procedure that removes fluid or tissue samples to be tested for a disease.

board certified
A status for doctors who finished training and passed exams in a specialized field of medicine.

bronchoscope
A device guided down the throat to look inside of the airways.

bronchoscopy
A procedure to look inside of the airways with a device guided down the throat.

cancer screening
Routine testing for cancer in people without symptoms.

cancer stage
A rating of the outlook of a cancer based on its growth and spread.

carcinoma
A cancer of cells that line the inner or outer surfaces of the body.

chemistry profile
A lab test of the amount of 8 chemicals in a sample of blood. Also called metabolic panel.

chemoradiation
A cancer treatment with both cell-killing drugs and high-energy rays.

chemotherapy
Treatment with cancer drugs that kill fast-growing cells.

chest wall
The layer of muscle, bone, and fat that protects the vital organs.

chronic obstructive pulmonary disease (COPD)
Lung damage or too much mucus that makes breathing hard.

clinical stage
The rating of the extent of cancer before treatment is started.

clinical trial
A type of research that assesses how well health tests or treatments work in people.

complete blood count (CBC)
A lab test that measures the parts of the blood.

contrast
A substance put into the body to make clearer pictures during imaging.

CT (computed tomography)
A test that uses x-rays from many angles to make a picture of the insides of the body.

diagnosis
An identification of an illness based on tests.

endobronchial ultrasound (EBUS)
A procedure that takes detailed pictures inside of the body with a device guided down the windpipe.

endoscopic ultrasound (EUS)
A procedure that takes detailed pictures of inside the body with a device guided down the throat.

esophagus
The tube-shaped organ between the mouth and stomach.

external beam radiation therapy (EBRT)
Radiation therapy received from a machine outside of the body.

four-dimensional computed tomography (4D-CT)
A test that makes a video of the inside of the body.

intensity-modulated radiation therapy (IMRT)
Treatment with radiation that uses small beams of different strengths.

invasive
The growth of cancer from where it started into another type of tissue.

large cell lung carcinoma
A cancer of lung cells that lack features to classify as another type of lung cancer.

lobe
A clearly seen division in an organ.

lobectomy
An operation that removes a whole lobe of an organ.

lymph node
A small, bean-shaped structure containing disease-fighting cells.

mediastinoscopy
A chest procedure in which a device is passed through a small cut in the skin.

mediastinum
The area of the chest between the lungs.

medical history
A report of all your health events and medications.

medical oncologist
A doctor who prescribes drugs to treat cancer.

metastasis
The spread of cancer from the first tumor to a new site.

MRI (magnetic resonance imaging)
A test that uses radio waves and powerful magnets to make pictures of the insides of the body.

nodule
A small growth of body tissue.

non-small cell lung cancer (NSCLC)
A cancer that starts in lung cells that are not small.

nonsolid nodule
A small growth of low-density tissue.

part-solid nodule
A small growth of tissue with areas of low and high density.

pathologic stage
A rating of the extent of cancer based on tests given after treatment.

pathologist
A doctor who's an expert in testing cells to find disease.

PET (positron emission tomography)
A test that uses radioactive material to see the shape and function of body parts.

PET/CT (positron emission tomography/ computed tomography)
A test that uses 2 picture-making methods to show the shape and function of tissue.

physical exam
A review of the body by a health expert for signs of disease.

pneumonectomy
An operation that removes the entire lung.

postoperative therapy
Treatment given after the main treatment to prevent the cancer from returning. Also called adjuvant therapy.

preoperative therapy
A cancer treatment given before the main treatment. Also called neoadjuvant therapy.

primary tumor
The main mass of a certain type of cancer cell.

proton therapy
Radiation therapy that uses protons to treat a disease. Also called hadron therapy.

pulmonary function tests
A set of breathing tests to test the strength of the lungs.

pulmonologist
A doctor who's an expert in lung diseases.

radiation oncologist
A doctor who's an expert in treating cancer with radiation.

radiation therapy
A treatment that uses intense energy to kill cancer cells.

risk factor
Anything that increases the chance of an event.

robotic-assisted thoracoscopic surgery
A method to perform a surgery called thoracoscopy.

segmentectomy
An operation that removes a large part of a lobe.

side effect
An unhealthy or unpleasant physical or emotional response to treatment.

sleeve lobectomy
An operation to remove an entire lobe of the lung and part of the bronchus.

solid nodule
A small growth of high-density tissue.

squamous cell carcinoma
A type of cancer of thin and flat cells that line the surface of organs.

stereotactic ablative radiotherapy (SABR)
Treatment with high-dose radiation in one or a few sessions. Also called stereotactic body radiation therapy.

superior sulcus tumor
A mass of cancer cells that starts at the top of the lung and easily grows into the chest wall.

supportive care
Cancer care that includes symptom relief but not cancer treatment. Also called palliative care.

surgery
An operation to remove or repair a part of the body.

surgical margin
The normal-looking tissue around a tumor removed during an operation.

survivorship care
Interventions to improve the health and well-being of people who have or had cancer.

systemic therapy
A whole-body drug treatment.

targeted therapy
A drug treatment that impedes the growth process specific to cancer cells.

thoracic radiologist
A doctor who's an expert in reading imaging tests of the chest.

thoracic surgical oncologist
A doctor who's an expert in operating on organs inside of the chest.

thoracoscopy
A procedure to do work in the chest with a device passed through a small cut in the skin.

three-dimensional conformal radiation therapy (3D-CRT)
A treatment with radiation that uses beams matched to the shape of the tumor.

video-assisted thoracoscopic surgery (VATS)
A method to perform a surgery called thoracoscopy.

wedge resection
An operation that removes a small part of a lobe.

NCCN Contributors

This patient guide is based on the NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Non-Small Cell Lung Cancer, Version 3.2026. It was adapted, reviewed, and published with help from the following people:

Dorothy A. Shead, MS
Senior Director
Patient Information Operations

Laura J. Hanisch, PsyD
Patient Information Program Manager

Lisa Diehl
Production Layout Artist

The NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) for Non-Small Cell Lung Cancer, Version 3.2026 were developed by the following NCCN Panel Members:

Gregory J. Riely, MD, PhD/Chair
Memorial Sloan Kettering Cancer Center

Douglas E. Wood, MD/Vice Chair
Fred Hutchinson Cancer Center

Dara L. Aisner, MD, PhD
University of Colorado Cancer Center

Andrea L. Axtell, MD, MPH
University of Wisconsin Carbone Cancer Center

Jessica R. Bauman, MD
Fox Chase Cancer Center

Ankit Bharat, MD
Robert H. Lurie Comprehensive Cancer Center of Northwestern University

Joe Y. Chang, MD, PhD
The University of Texas MD Anderson Cancer Center

Aakash Desai, MD, MPH
O'Neal Comprehensive Cancer Center at UAB

Thomas J. Dilling, MD, MS
Moffitt Cancer Center

Jonathan Dowell, MD
UT Southwestern Simmons Comprehensive Cancer Center

Gregory A. Durm, MD, MS
Indiana University Melvin and Bren Simon Comprehensive Cancer Center

Scott Gettinger, MD
Yale Cancer Center/Smilow Cancer Hospital

Travis E. Grotz, MD
Mayo Clinic Comprehensive Cancer Center

Matthew A. Gubens, MD, MS
UCSF Helen Diller Family Comprehensive Cancer Center

Aditya Juloori, MD
The UChicago Medicine Comprehensive Cancer Center

*Rudy P. Lackner, MD
Fred & Pamela Buffett Cancer Center

Michael Lanuti, MD
Mass General Cancer Center

Benjamin Levy, MD
Johns Hopkins Kimmel Cancer Center

Jules Lin, MD
University of Michigan Rogel Cancer Center

Billy W. Loo, Jr, MD, PhD
Stanford Cancer Institute

Christine M. Lovly, MD, PhD
Vanderbilt-Ingram Cancer Center

Fabien Maldonado, MD
Vanderbilt-Ingram Cancer Center

Daniel Morgensztern, MD
Siteman Cancer Center at Barnes-Jewish Hospital and Washington University School of Medicine

*Trey C. Mullikin, MD
Duke Cancer Institute

Thomas Ng, MD
The University of Tennessee Health Science Center

*Dawn Owen, MD, PhD
Mayo Clinic Comprehensive Cancer Center

Dwight H. Owen, MD, MSc
The Ohio State University Comprehensive Cancer Center - James Cancer Hospital and Solove Research Institute

Tejas Patil, MD
University of Colorado Cancer Center

Patricio M. Polanco, MD
UT Southwestern Simmons Comprehensive Cancer Center

Jonathan Riess, MD, MS
UC Davis Comprehensive Cancer Center

Ana Lucia Ruano Mendez
Huntsman Cancer Institute at the University of Utah

*Theresa A. Shapiro, MD, PhD
Johns Hopkins Kimmel Cancer Center

Aditi P. Singh, MD
Abramson Cancer Center at the University of Pennsylvania

James Stevenson, MD
Case Comprehensive Cancer Center/ University Hospitals Seidman Cancer Center and Cleveland Clinic Taussig Cancer Institute

Alda Tam, MD
The University of Texas MD Anderson Cancer Center

Tawee Tanvetyanon, MD, MPH
Moffitt Cancer Center

Jane Yanagawa, MD
UCLA Jonsson Comprehensive Cancer Center

Edwin Yau, MD, PhD
Roswell Park Comprehensive Cancer Center

Karen Yun, MD
UC San Diego Moores Cancer Center

NCCN

Kristina Gregory, RN, MSN
Senior Vice President, Clinical Information Programs

Lisa Hang, PhD
Oncology Scientist/Senior Medical Writer

* Reviewed this patient guide. For disclosures, visit NCCN.org/disclosures.

NCCN Cancer Centers

For contact information visit NCCN.org/cancercenters.

Abramson Cancer Center
at the University of Pennsylvania
Philadelphia, Pennsylvania

Case Comprehensive Cancer Center/
University Hospitals Seidman Cancer Center and
Cleveland Clinic Taussig Cancer Institute
Cleveland, Ohio

City of Hope National Medical Center
Duarte, California

Dana-Farber/Brigham and Women's Cancer Center |
Mass General Cancer Center
Boston, Massachusetts

Duke Cancer Institute
Durham, North Carolina

Fox Chase Cancer Center
Philadelphia, Pennsylvania

Fred & Pamela Buffett Cancer Center
Omaha, Nebraska

Fred Hutchinson Cancer Center
Seattle, Washington

Huntsman Cancer Institute at the University of Utah
Salt Lake City, Utah

Indiana University Melvin and Bren Simon
Comprehensive Cancer Center
Indianapolis, Indiana

Johns Hopkins Kimmel Cancer Center
Baltimore, Maryland

Mayo Clinic Comprehensive Cancer Center
Phoenix/Scottsdale, Arizona
Jacksonville, Florida
Rochester, Minnesota

Memorial Sloan Kettering Cancer Center
New York, New York

Moffitt Cancer Center
Tampa, Florida

O'Neal Comprehensive Cancer Center at UAB
Birmingham, Alabama

Robert H. Lurie Comprehensive Cancer Center
of Northwestern University
Chicago, Illinois

Roswell Park Comprehensive Cancer Center
Buffalo, New York

Siteman Cancer Center at Barnes-Jewish Hospital
and Washington University School of Medicine
St. Louis, Missouri

St. Jude Children's Research Hospital/
The University of Tennessee Health Science Center
Memphis, Tennessee

Stanford Cancer Institute
Stanford, California

The Ohio State University Comprehensive Cancer Center -
James Cancer Hospital and Solove Research Institute
Columbus, Ohio

The UChicago Medicine Comprehensive Cancer Center
Chicago, Illinois

The University of Texas MD Anderson Cancer Center
Houston, Texas

UC Davis Comprehensive Cancer Center
Sacramento, California

UC San Diego Moores Cancer Center
La Jolla, California

UCLA Jonsson Comprehensive Cancer Center
Los Angeles, California

UCSF Helen Diller Family Comprehensive Cancer Center
San Francisco, California

University of Colorado Cancer Center
Aurora, Colorado

University of Michigan Rogel Cancer Center
Ann Arbor, Michigan

University of Wisconsin Carbone Cancer Center
Madison, Wisconsin

UT Southwestern Simmons
Comprehensive Cancer Center
Dallas, Texas

Vanderbilt-Ingram Cancer Center
Nashville, Tennessee

Yale Cancer Center/Smilow Cancer Hospital
New Haven, Connecticut

Notes

Index

advance care planning 28

biopsy 11, 13–14, 16, 25

bronchoscopy 16, 23–24

cancer stage 7, 33, 36, 43

chemoradiation 33, 37–38, 42, 45, 48, 58–61

chemotherapy 29–30, 42–45, 48–50, 58–59, 61

clinical trial 18, 38–39

immune checkpoint inhibitor 30, 43–45, 50, 60–61

CT (computed tomography) scan 13–16, 22–23, 64

medical history 20–21, 42, 64

MRI (magnetic resonance imaging) scan 22–23, 64

pathology report 17

PET/CT (positron emission tomography/ computed tomography) scan 13, 15–16, 22

physical exam 21, 64

postoperative therapy 48

preoperative therapy 43–45

radiation therapy 7, 12, 29, 33, 37, 42, 48–49, 53–55, 58–59

risk factor 11–12

second opinion 68

side effect 28, 30, 38, 43, 47, 49, 55, 59, 61, 63, 65

superior sulcus tumor 23, 45

supportive care 7, 28–29

surgery 7, 16–17, 23–25, 33, 36–37, 42–43, 45–48

survivorship care 63–66

targeted therapy 44–45, 48–49, 50



NCCN Guidelines for Patients®

Cancer care recommendations from leading experts at the
National Comprehensive Cancer Network® (NCCN®)

Early and Locally Advanced Non-Small Cell Lung Cancer

To support the NCCN Guidelines for Patients, visit

NCCNFoundation.org/Donate

National Comprehensive Cancer Network®

3025 Chemical Road, Suite 100
Plymouth Meeting, PA 19462
215.690.0300

NCCN.org/patients – For Patients | NCCN.org – For Clinicians

PAT-N-1939-0726