

LUNG CANCER MINI-SERIES #2

Staging of Lung Cancer

Once your lung cancer is diagnosed, staging tells you and your health care provider about the size of your cancer (tumor) and how far it has spread. The stage of your cancer is based on your symptoms, results from tests like a CT (“cat”) scan, and biopsies. A biopsy involves removing a piece of tissue (usually from your



lung or lymph node), and looking at it under a microscope. The stages of lung cancer are listed as I, II, III, and IV for non small cell lung cancer and “limited” or “extensive” for small cell lung cancer. The higher the number (or when the word “extensive” is used) means the bigger the tumor and/or the more the cancer has spread.

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

Finding out the stage of your lung cancer is important for two reasons. First, staging your lung cancer helps decide which therapy (or therapies) should be used. Second, lung cancer staging tells how much your cancer has spread. Knowing the stage of your cancer helps your health care team know the risks versus the benefits of different procedures and treatments. Treatments that are good for one stage may not be helpful for another stage, and in fact can be harmful to you. For example, if cancer has spread outside the lung, surgery to remove part of the lung may not improve your chance of living longer and may cause unnecessary harm. By knowing the stage of your cancer, you and your health care team can decide what is best for you.

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

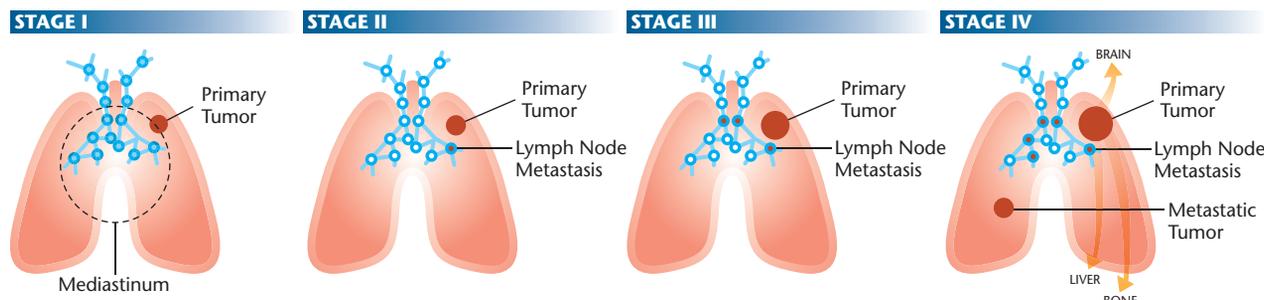
SCLC is divided into “limited” and “extensive” stages. Limited stage SCLC occurs when the lung cancer is limited to one side of the chest. Extensive stage occurs when the lung cancer has spread to the other side of the chest or to other organs such as the liver or brain.

NSCLC staging uses the TNM system. The initials TNM stand for the size and location of the **T**umor, the location

of cancer in the lymph **N**odes and if and where the cancer has spread (called **M**etastases). The staging system can be complicated but there are general rules that are used.

- The **T** number increases as the tumor gets bigger and how close it is to major structures in the chest like large airways in the lungs. The **T** number also increases if the cancer is growing into structures like the heart, major blood vessels, or tissues outside the lung.
- The **L** number says whether your cancer has spread to the lymph nodes. Lymph nodes are part of your immune system and cancer cells can spread into the lymph system. Usually, if the cancer has spread, it spreads to the nodes closest to the main tumor and then goes further away. Imaging studies (like a PET scan) are used to find possible lymph nodes affected by the cancer, but a biopsy is the best way to find out if the lymph nodes have cancer. The lymph node is rated as N1 if the cancer is found in the lymph nodes on the same side as the main tumor in the lung. A rating of N2 means cancer has spread to the middle part of the chest (called the mediastinum). A rating of N3 means the cancer has spread to the opposite lung or outside the chest. [A rating of N0 means the cancer has not been found in the lymph nodes.]
- The **M** says that metastases (spread of cancer) has happened throughout the body and is growing in other tissues or organs. Lung cancer often spreads to the brain, bones, adrenal glands, liver or other areas. The **M** stage is based on *if* the cancer has spread and *where* it has spread. Like the lymph node staging, imaging studies may help find out if a cancer has spread, but a biopsy is often a better way to find this out.

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How will my lung cancer be staged?

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

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

There are several tools that are used to reach the tissue that is to be biopsied. These include: a bronchoscopy, ultrasound, mediastinoscopy, surgery or other biopsy procedures. Some procedures are done under “light” anesthesia such as bronchoscopy, certain biopsies (such as from a bone), and some ultrasound-guided procedures. Other procedures are done in the operating room under general anesthesia such as for some ultrasound-guided procedures, a mediastinoscopy, thoracic surgery, and certain biopsies (such as of brain tissue). To follow is a description of some of these procedures.

- **Bronchoscopy:** A camera on a long skinny tube (a fiber optic bronchoscope) is put into your mouth or nose, goes into your trachea (windpipe), and into the breathing tubes of your lungs. The bronchoscope is used to look at the inside of your breathing tubes and can be used to biopsy small pieces of lung tissue or lymph nodes (see ATS Patient Information Series...“Bronchoscopy”). Bronchoscopy is good at finding cancer in the large breathing tubes but does not “get” to many parts of the lung. Other procedures (see below) are then used to biopsy the tumor.
- **Endoscopic Ultrasound (EUS) or Endobronchial Ultrasound (EBUS):** Like the bronchoscope, an EUS is a long tube that has an ultrasound device and a camera attached. This tube can be put through your mouth, into your trachea (windpipe) or esophagus (food tube). The ultrasound uses sound waves to “see” areas of your lung, mediastinum (the area between your lungs), or areas around your esophagus that are not visible from inside the trachea or esophagus. Seeing these areas helps to guide a needle into the likely cancer tissue, usually a lymph node, to obtain a small biopsy.
- **Mediastinoscopy:** Also like a bronchoscope, a tube with a camera is put into your mediastinum (area between your lungs). To get into this area, a small cut is made just above your sternum (breast bone). This is done so that groups of lymph nodes in the mediastinum can be biopsied.
- **Thoracic Surgery:** Sometimes, the best way to biopsy something in your chest area is to open your chest. Whether you have surgery or not will be decided by you and your surgeon. Usually, one or more incisions (cuts)

are made so that the surgeon can remove the cancerous part of the lung and/or lymph node tissue.

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

How good are these tests at staging lung cancer?

If your biopsy finds cancer cells, this is proof that you have cancer. If cancer is found in biopsies taken from different parts of your body, this means that the cancer has spread. On the other hand, not finding cancer cells (a negative result) can mean two things: #1 it can mean that the cancer has not spread or #2 the biopsy “missed” the cancer that was really there. Usually, the bigger the piece of tissue from biopsy, the better the chance to prove that cancer is not there. For example, if a lung biopsy is negative, but the sample was small, another biopsy may be needed to make sure that your cancer did not spread.

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Resources:

American Cancer Society 1-800-227-2345
http://www.cancer.org/docroot/ETO/content/ETO_1_2X_Staging.asp

National Cancer Institute 1-800-422-6237
<http://www.cancer.gov/cancertopics/wyntk/lung/page8>
<http://www.cancer.gov/cancertopics/pdq/treatment/non-small-cell-lung/Patient/page2>

National Lung Cancer Partnership 1-608-233-7905
<http://www.nationallungcancerpartnership.org/>

Rx Action Steps

1. If you smoke, it is never too late to get the help you need to quit. Ask your doctor or nurse, or call 1-800-QUITNOW.
2. If you notice any of your symptoms getting worse, or any new symptoms, contact your health care provider right away. New symptoms might include:
 - a cough that doesn’t go away
 - bone pain
 - coughing up blood
 - shortness of breath
 - difficulty swallowing
 - hoarseness that does not go away
 - weight loss that cannot be explained
 - increasing fatigue
3. Consider enrolling in a research study

Doctor’s Office Telephone:
