A Patient's Guide

Advanced Lung Cancer Treatment

Recommendations of
the American Society
of Clinical Oncology

The American Society of Clinical Oncology (ASCO) is a nonprofit organization which represents more than 10,000 cancer professionals worldwide; the Society offers scientific and educational programs and a wide range of other initiatives intended to foster the exchange of information about cancer.

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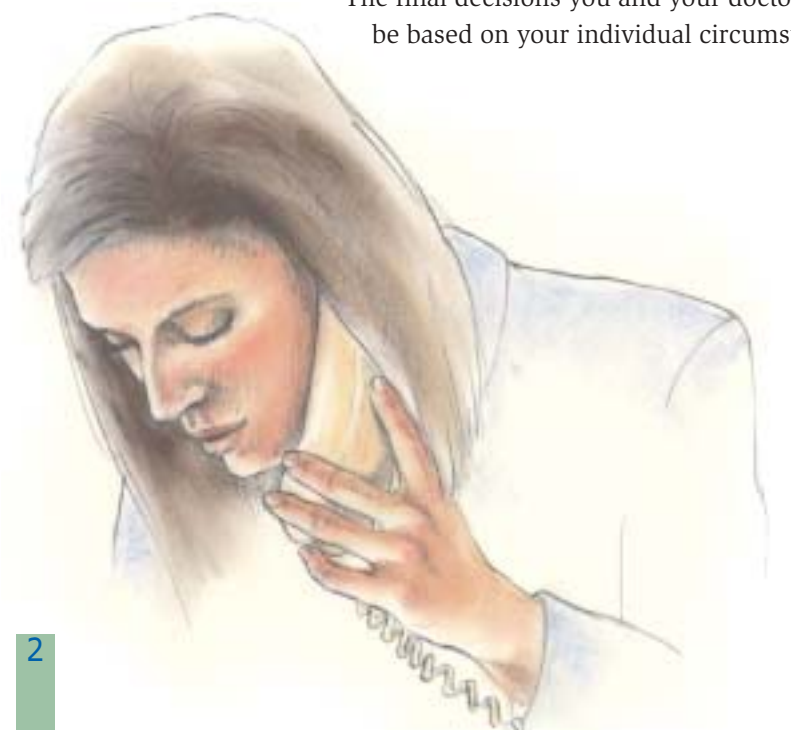
The information in this booklet will help you understand what unresectable non-small-cell lung cancer is and how it can be treated. Words that appear in **bold** throughout the text are defined in the Glossary that begins on page 14.

You may have been referred to an **oncologist** or you may have chosen to seek the help of one on your own. When you know what treatments are available, you can talk with your oncologist and other members of your healthcare team about your treatment options and work with them to decide which treatments are best for you.

The American Society of Clinical Oncology (ASCO) developed the following guidelines to help you and your doctors make decisions about your continuing health care. It's important to remember, however, that every person with lung cancer is different, and these guidelines are not meant to replace your or your doctor's judgment. The final decisions you and your doctor make will be based on your individual circumstances.



About Lung Cancer

Lung cancer occurs when cells develop abnormally in the lungs and reproduce out of control, dividing over and over to form a mass of cells called a **tumor**. Tumors interfere with normal lung function. Cells can break off from the tumor and can be carried to other parts of the body by the blood stream. This is called **metastasis** (me·tas'ta·sis, *pl.* me·tas'ta·ses').

There are two major types of lung cancer: **small-cell** and **non-small-cell**. The terms small-cell and non-small-cell refer to how the cells look when seen through a microscope. Only non-small-cell lung cancer is discussed in this booklet.

Non-Small-Cell Lung Cancer

Non-small-cell lung cancer makes up over 75% of all lung cancer cases. There are three subtypes of non-small-cell lung cancer:

- Epidermoid carcinoma (ep·i·der'moid' car'ci·no'ma), also called squamous (squa'mous) cell carcinoma, generally begins in one of the larger breathing tubes, grows relatively slowly, and varies in size from very small to quite large.

- Adenocarcinoma (ad'e·no·car'ci·no'ma) begins near the outside surface of the lung and can vary in both its size and how fast it grows.

- Large cell carcinoma begins near the surface of the lung and is usually large at the time of diagnosis.

Unresectable Non-Small-Cell Lung Cancer

Though some less advanced non-small-cell lung cancers can be treated by surgically removing all or part of the affected lung, more advanced lung cancers cannot usually be treated this way. This is because of the location or the size of the tumor, or because tests show that the cancer has spread to **lymph nodes** or to other organs in the body. If this is the case, the tumor is **unresectable**. Lymph nodes are small bean-shaped structures clustered throughout the body, mostly in the head and neck region, throughout the chest and abdominal region, and in the groin area. The function of lymph nodes is to filter out and remove bacteria, viruses, and other foreign substances and to supply **lymphocytes** (white blood cells) to the bloodstream.

How a Lung Cancer Diagnosis is Made

The determination that you have non-small-cell lung cancer was made either by a **biopsy** or a **bronchoscopy** (bron·chos'co·py). A biopsy (bi'op·sy) is the removal of tissue either by surgery or **needle aspiration** and examination through a microscope. A bronchoscopy is the examination of the branches (**bronchi**) of the windpipe (trachea) that lead to the lungs using a slender instrument with a small light at its end. If you have symptoms that indicate that cancer may have spread to other organs, your doctors may want you to have other tests done, such as a **bone scan** or **computed tomography (CT scan)** — also called computerized axial tomography (CAT scan) — of the brain or other part of your body.

Staging of Lung Cancer

One of the first things your doctor did after diagnosing lung cancer was to determine its **stage**. Doctors use staging to determine if the cancer is in the lung only, or if it has spread to other parts of the body. Staging helps doctors decide which treatment options might work best for you and to evaluate the results of those treatments. Staging also tells the doctor if surgery to remove the tumor or the lung is a treatment option.

Your doctor probably did various tests to find out what stage of lung cancer you have. These tests may include: chest x-ray, CT scan, **magnetic resonance imaging (MRI)**, or **positron-emission tomography (PET scan)**. He or she may have also done tests to find out if there are any cancer cells in your lymph nodes or in other organs of your body. Sometimes, staging is accomplished by opening the chest to physically examine the lungs and the lymph nodes. Once your doctor had the results of these tests, he or she assigns a "stage" to your cancer.

Lung cancer is considered to be in the less advanced stages (0, 1A, 1B, IIA, IIB, and sometimes IIIA) if the tumor is small and **resectable** (able to be removed surgically). In these stages, cancer cells may be found in the lymph nodes in the chest area, but cancer has not spread outside the chest area. Often in later stages of lung cancer (most IIIA, IIIB and IV), many lymph nodes are involved and/or the cancer may have spread to other parts of the body such as the bones or the brain.

The Stages of Non-Small-Cell Lung Cancer

Occult Stage

- cancer cells are found in **sputum**, but no tumor can be found in the lung

Stage 0 (also called carcinoma ***in situ***)

- cancer is only found in a local area and only in a few layers of cells
- cancer has not grown through the top lining of the lung

Stage I

- cancer is only in the lung; the tissue around it is normal

Stage II

- cancer has spread to nearby lymph nodes

Stage III

- cancer has spread to the chest wall or diaphragm near the lung
- or, cancer has spread to the lymph nodes in the area that separates the two lungs (the mediastinum)
- or, cancer has spread to the lymph nodes on the other side of the chest or to the neck
- stage III is further divided into:
  - stage IIIA (which can usually be surgically removed)
  - stage IIIB (which cannot usually be surgically removed)

Stage IV

- cancer has spread to other parts of the body

Recurrent

- cancer has returned (**recurred**) after previous treatment

ASCO Treatment Guidelines for Unresectable Non-Small-Cell Lung Cancer

There is no one treatment that works for every person who has unresectable non-small-cell lung cancer. Because of this, it is important that you discuss all of your treatment options with your doctors so that, together, you can choose the one that is best for you.

Your doctor may recommend that you receive either **chemotherapy** alone or chemotherapy and **radiation therapy** (radiotherapy) together. The use of chemotherapy and radiation to treat lung cancer has been well studied. These studies show that you may live longer if you receive one or both of these types of therapy than if you don't. This is because these treatments can affect the growth of the tumors. Because these treatments may be effective in controlling the growth of the tumors, your quality of life may also improve.

It's important to remember that the treatment options your doctors suggest are only recommendations, and that the decision about what therapy you receive is yours to make in consultation with your family and your doctors. The goals of treatment for your cancer are to extend your life *and* to provide you with good quality of life.

Chemotherapy

Chemotherapy is the use of chemicals (drugs) to kill cancer cells by stopping them from growing or multiplying. Chemotherapy has been shown to prolong life for patients with advanced (stage III and stage IV) lung cancer. Because cancer cells grow and multiply faster than normal cells, they are more susceptible to being killed by drugs than are normal cells.

In most cases, chemotherapy is given in an **outpatient setting** and in regular cycles (that is, at regular intervals and at the same doses) for several months. Chemotherapy is rarely given for more than eight cycles.

A wide variety of chemotherapy drugs are used for the treatment of lung cancer. Normally, more than one drug is used. ASCO recommends that at least one of the drugs be either carboplatin (Paraplatin) or cisplatin (Platinol). The other most commonly used drugs are docetaxel (Taxotere) and paclitaxel (Taxol), vinorelbine tartrate (Navelbine) and vinblastine, and gemcitabine (Gemzar). These drugs and others are used in a variety of combinations.

No one therapy or combination of therapies works for everyone. A physical exam, chest x-ray, CT scan, MRI, or PET scan may need to be done to determine whether the treatment is working. If, after several months, the treatment you begin with appears not to be working, your doctor may recommend a change to something else (**second-line therapy**), possibly a drug that is being investigated in a **clinical trial** (See *Clinical Trials,* page 11). However, it's important to remember that second-line therapy may or may not help.

Currently, the use of chemotherapy to treat lung cancer is controversial. There is not enough evidence to prove whether chemotherapy treatment for **recurrent disease** is helpful or not.

Radiation Therapy (Radiotherapy)

Radiation is a standard treatment doctors use to kill cancer cells in the lungs and to eliminate small tumors. Radiation of the tumor (or tumors) in your lungs or elsewhere in your body may be recommended in addition to chemotherapy. Like chemotherapy, radiation therapy is given daily for several weeks, or sometimes several times a day, in an outpatient setting.

A **radiation oncologist** makes the recommendations about what radiation treatment will be best for you.

Combination Therapy

Depending on your ability to carry out normal activities (your performance status), your doctor may recommend a combination of radiation therapy and chemotherapy. These therapies may be given during the same time period, or the chemotherapy may be given before or after radiation therapy is complete. Combination therapy has been shown to extend life for patients with unresectable stage IIIB disease whose physical condition has not been greatly affected by the cancer.

Disease and Treatment Side Effects and Their Management

You may experience disease-related symptoms such as coughing, pain, shortness of breath (**dyspnea**), or **fatigue** that are caused by the tumor (or tumors) in your lungs. Talk to your doctor about any symptoms that you may be experiencing. There are ways to control these symptoms. It's important to be aware that there may be side effects that result from the management of disease-related symptoms, which can also be controlled; for example, constipation may be a side effect of some pain medications.

Normal cells can also be damaged by the chemotherapy and by the high doses of radiation used to kill cancer cells. This damage can result in side effects such as **nausea**, fatigue, and hair loss. These side effects can last for weeks, sometimes longer. However, there are many methods available to control or even eliminate some of these undesirable side effects. If these side effects are too severe, or cannot be sufficiently controlled, therapy may be delayed or stopped.

Clinical Trials

Scientists are always looking for new and better ways to treat lung cancer. A very important way to find new information on cancer treatments is through clinical trials. Clinical trials are conducted to determine how well a new treatment works, what side effects occur, and how the new treatment compares with other available treatments.

Clinical trials are scientific studies that rely on **volunteer** patients. Only those patients who want to do so take part in clinical trials and do so for many reasons. Usually, they hope for benefits for themselves. They may hope for a cure of the disease, a longer time to live, or a way to feel better. Often they want to contribute to a research effort that may help others. Patients in clinical trials are among the first to receive new research treatments before they are widely available. How well a trial will work can't be known ahead of time. Even standard treatments, although effective in many patients, are not guaranteed to be effective for everyone.

The diagnosis of cancer and deciding what to do about it can be overwhelming, and you may be confused and upset. It is important to discuss your options for standard treatment or participation in a clinical trial with your doctor and cancer specialists.

The best way for researchers to discover effective new treatments is through clinical trials. The progress that has been made thus far in cancer research is due, in large part, to the information gained in these trials. For more information on clinical trials, call the National Cancer Institute (NCI) at (800) 4-CANCER. Ask to receive a free copy of "What are Clinical Trials All About?" The information in this booklet will help you make a decision that is right for you.

After Treatment Ends

You will need to continue to have medical check-ups after your treatment has ended. If the goal of your treatment is to extend your life and you have no symptoms, your doctor should examine you every 3 months for 2 years, then every 6 months for 3 years, then once a year.

It may be recommended that you have a CT scan, an MRI test, or a PET scan done after treatment ends. Your doctor can compare the results of this test with tests done earlier and with tests that will be done during your medical check-ups in order to evaluate your condition. Chest x-rays and other tests, such as bronchoscopy, **complete blood cell count**, and other routine tests may be done as part of these follow-up examinations, depending on the symptoms you may be having. Extensive testing is not done on a routine basis for patients who have no symptoms.

Palliative Therapy

When it is determined that it is not possible to cure the cancer, **palliative therapy** is often recommended. Palliative therapy is the use of medications, chemotherapy, radiation therapy, and/or other means to relieve the physical symptoms caused by the disease, such as pain and shortness of breath. When radiation is used as palliative therapy, it is usually given in small enough doses that it doesn't cause the undesirable treatment side effects that can result at the dosage levels used in **curative therapy**. If you and your doctor decide together that therapy is no longer advisable for you, **hospice care** for comfort may be suggested.

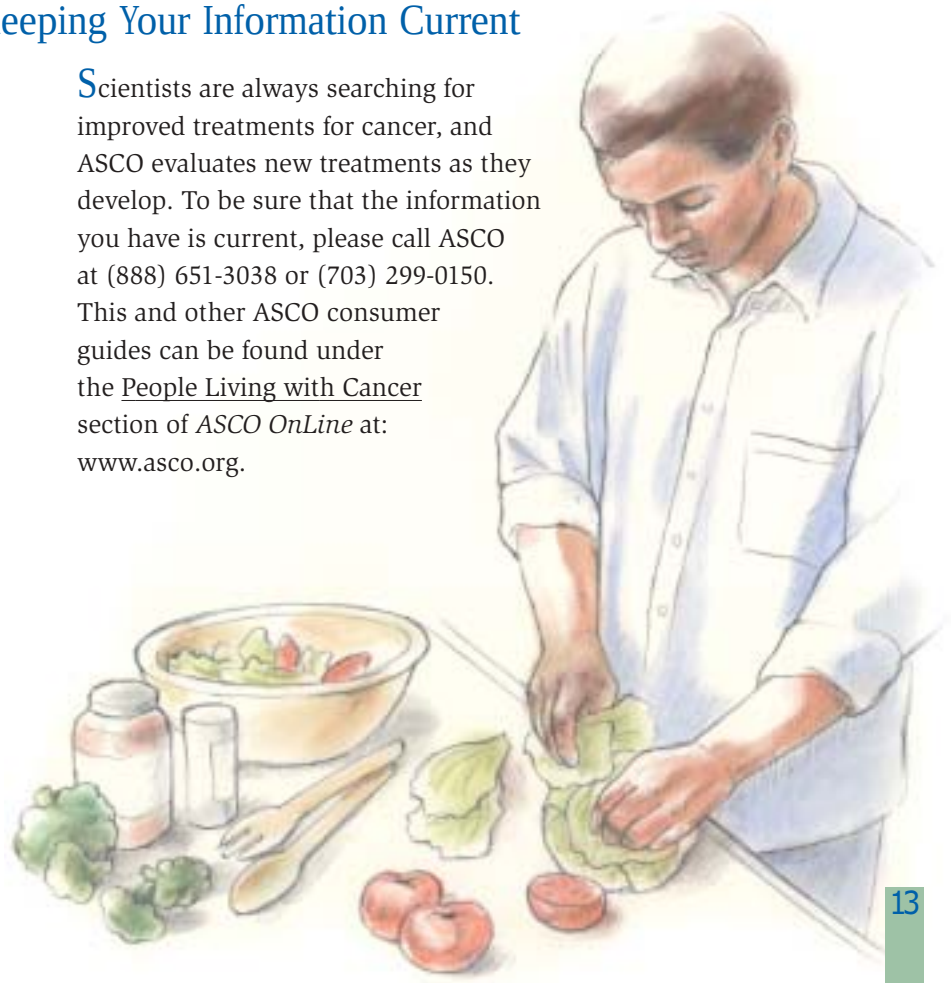
Advanced Lung Cancer and Your Lifestyle

Because you have lung cancer, it is very important that you do not smoke, and it is helpful if you avoid being around people who are smoking. Smoking can cause more cancer to develop. Exposure to smoke can also increase the lung damage you have already suffered. Eating right is also very important. Adding lots of fresh fruits and vegetables is recommended. And, rest is very important to help your body to heal.

It has been shown that vitamins A and E in excess of the recommended daily requirements do not help and, in fact, may be harmful. If you are taking these supplements, consult your doctor.

Keeping Your Information Current

Scientists are always searching for improved treatments for cancer, and ASCO evaluates new treatments as they develop. To be sure that the information you have is current, please call ASCO at (888) 651-3038 or (703) 299-0150. This and other ASCO consumer guides can be found under the People Living with Cancer section of *ASCO OnLine* at: www.asco.org.



Glossary

biopsy: is the removal of tissue either by surgery or needle aspiration and examination through a microscope

bone scan: picture of all the bones in the body which helps indicate abnormalities in the bones which may indicate the presence of tumors

bronchi: breathing tubes

bronchoscopy: examination of breathing passages with a thin viewing instrument (bronchoscope), which may be inserted into the throat and larger breathing passages to examine them for the presence of cancer

chemotherapy: drug or combination of drugs used to fight cancer

clinical trial: evaluation of possible new treatments carried out with human subjects under strictly controlled conditions

complete blood cell count: measurement of the number of red blood cells, white blood cells, and platelets in a sample of blood

computed tomography (CT scan) or computer assisted tomography (CAT scan): diagnostic test that uses a combination of x-ray and computers to create three-dimensional internal views of the body

curative therapy: therapy aimed at achieving five years of cancer-free survival

dyspnea: abnormally difficult breathing or "air hunger"

fatigue: tiredness, weakness

***in situ*:** in the natural or normal place; confined to the place of origin without invasion into surrounding tissues

hospice care: supportive, comfort care provided to patients when disease cure is no longer an option

lymph nodes: small, bean-shaped structure that acts as a filter to collect bacteria and other foreign substances; lymph nodes are connected by lymphatic vessels throughout the body

lymphocytes: white blood cells (help the body fight infection)

metastasis: spread of cancer cells from the original site to other parts of the body

magnetic resonance imaging (MRI): test similar to a CT scan that uses a magnetic field instead of x-rays to create three-dimensional images of the body

nausea: symptom indicating the inclination to vomit

needle aspiration: withdrawal of fluid from a part of the body for study

non-small-cell lung cancer: one of the two main categories of lung cancer; includes three major subtypes: adenocarcinoma, squamous or epidermoid carcinoma, and large cell carcinoma

oncologist: doctor who specializes in treating people who have cancer

outpatient setting: hospital or clinic that provides treatment not requiring an overnight stay

palliative treatment: treatment designed to reduce the symptoms of a disease rather than to cure it

positron emission tomography (PET) scan: scanning mechanism that produces detailed images of the inside of the human body and its metabolic functions

radiation oncologist: physician who specializes in radiation therapy for treatment of cancer

radiation therapy (radiotherapy): x-ray treatment that damages or kills cancer cells

recurred (recurrent): reappearance of a disease and its symptoms after it has been in remission

recurrent disease: cancer that has become active after successful treatment of the primary cancer

resectable: able to be removed surgically

second-line therapy: treatment or combination of treatments used when the first choice for treatment (first-line therapy) is ineffective or fails

small-cell lung cancer: one of the two main categories of lung cancer; may also be called oat cell lung cancer

sputum: mucus coughed up from the lungs

stage: determination of how much a newly diagnosed cancer has spread

tumor: abnormal growth of tissue that may be either benign (non-cancerous) or malignant (cancerous)

unresectable: unable to be removed surgically

volunteer: someone who does something of his or her own free will

Resources

American Cancer Society (ACS)
National Office
1599 Clifton Road, NE
Atlanta, GA 30329
(800) ACS-2345
www.cancer.org

American Society of Clinical Oncology (ASCO)
225 Reinekers Lane, Suite 650
Alexandria, VA 22314
(888) 651-3038 or (703) 299-0150
www.asco.org

Alliance for Lung Cancer Advocacy, Support, and Education (ALCASE)
1601 Lincoln Avenue
Vancouver, WA 98660
(800) 298-2436
www.alcase.org

American Lung Association (ALA)
1740 Broadway, 14th Floor
New York, NY 10019
(800) LUNG USA
www.lungusa.org

Cancer Care, Inc.
1180 Avenue of the Americas
New York, NY 10036
(800) 813-HOPE
www.cancercareinc.org

National Cancer Institute (NCI)
National Institutes of Health
Office of Cancer Communication
Building 31, Room 10A24
9000 Rockville Pike
Bethesda, MD 20892
(800) 4-CANCER
www.nci.nih.gov

The ASCO Foundation

Supporting Clinical Cancer Research and Education Around the World

The ASCO Foundation is a not-for-profit corporation based in Alexandria, Virginia, dedicated to furthering clinical cancer research and education. The Foundation works to advance careers in clinical cancer research through its fellowship grant program and to communicate important advances in clinical cancer, science and treatment to oncologists via a broad range of educational programs. The Foundation's ultimate goal is to produce the next generation's leaders in the field of clinical oncology.

The ASCO Foundation has received a generous contribution from its charter sponsor, Ortho Biotech Inc., but still needs your help to fund these important research and education programs.

For more information, or to make a contribution to the ASCO Foundation, please contact:

American Society of Clinical Oncology
ASCO Foundation
225 Reinekers Lane
Suite 650
Alexandria, Virginia 22314
Phone: (888) 651-3038 or (703) 299-0150

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