

Lung Cancer Fact Sheet

What is lung cancer? Lung cancer is a disease that begins in the cells of the lung. There are two main types of lung cancer: non-small cell lung cancer (NSCLC) and small cell lung cancer (SCLC).

NSCLC is the more common of the two, representing about 85 percent of all lung cancer cases and resulting in more than 186,000 new cases in the United States each year.¹

Who does lung cancer affect? Lung cancer affects men and women, smokers and nonsmokers. The chance that a man will develop lung cancer is 1 in 13 and for a woman, it is 1 in 16.² Nearly 70 percent of people diagnosed with lung cancer are older than 65; fewer than three percent of all cases are found in people under the age of 45.³

Smoking is the leading cause of lung cancer.⁴ Lung cancer is more common among African-American men than Caucasian men, partly due to a higher prevalence of smoking. However, lung cancer rates have been decreasing among African-American men since 1984, though rates continue to rise among African-American women.⁵

Nonsmokers who are constantly exposed to secondhand smoke can also be susceptible to lung cancer. When exposed to smoking, a nonsmoker absorbs nicotine and other toxic chemicals, just as a smoker does. The more frequent the exposure to secondhand smoke, the more vulnerable the body becomes to toxic chemicals.⁶

Other people highly susceptible to lung cancer are workers who have been exposed to industrial pollutants such as asbestos and radon. A previous lung cancer diagnosis also puts one at high risk for recurrence. Scientists have not yet identified a gene or genes linked directly to lung cancer.²

What are the symptoms of lung cancer? In the early stages of the disease, many people have vague or no symptoms. Persistent cough along with blood in the phlegm and shortness of breath are common symptoms of lung cancer. Sometimes, symptoms may seem unrelated to the lungs or breathing. As lung cancer is largely diagnosed in later stages, the primary cancer may have already spread to other parts of the body. Depending upon where the cancer spreads and which organs are affected, symptoms may also include headaches, weakness of a limb, bone pain, weight loss and loss of appetite.³

How is lung cancer diagnosed? Diagnosing lung cancer is a multi-step process. In addition to a physical exam, a healthcare provider may order CT, MRI and PET scans to diagnose lung cancer. However, a definitive diagnosis is only possible with the evaluation of tissue taken via a biopsy.⁷ In patients with NSCLC, histology classifications help physicians determine whether patients have squamous carcinoma, large cell carcinoma, adenocarcinoma, or another type of NSCLC.¹

What is NSCLC histology and why is it important? There are different subtypes of NSCLC: squamous cell histology and nonsquamous histology. Nonsquamous NSCLC includes

adenocarcinoma and large cell carcinoma, which account for more than half of all NSCLC diagnoses, as well as histologies classified as “other.”

Histologic NSCLC Subtypes Frequency of Type ^{8,9}	
Squamous carcinoma	25 - 30 percent
Adenocarcinoma	40 percent
Large cell carcinoma	10 - 15 percent

Historically, histology has not been important in treatment decisions for advanced NSCLC. However, recent studies have suggested histology may better predict which patients are more likely to benefit from certain chemotherapies.^{10,11}

How does lung cancer progress? Progression is best determined by identifying the cancer’s stage — the characteristics of the tumor — and assessing whether the cancer is localized, or whether it has spread to regional lymph nodes or to other parts of the body.¹²

SCLC is a fast-moving cancer and has an “extensive stage,” which is when it has spread from one lung to the other or into organs such as the liver or brain, or into bone. Conversely, “limited stage” means the cancer is in one lung and in the lymph nodes on the same side of the chest.¹³

For all NSCLC histology subtypes, progression is measured in five stages, starting at 0 and rising in severity to stage IV.¹⁴ NSCLC can spread (metastasize) through the lymphatic system, penetrating the chest lining, ribs and the nerves and blood vessels that lead to the arm. The liver, bones and brain are the most common sites of metastasis.^{9,14}

What is the prognosis for patients with lung cancer? When lung cancer is diagnosed at the early stages, there is a 50 percent chance of five-year survival. However, only 16 percent of cases are diagnosed at an early stage. Unfortunately, as the disease is often diagnosed at later stages, approximately 59 percent of those with lung cancer will die within the first year of diagnosis.¹⁵

How is lung cancer treated? The type of, and stage at which, lung cancer is diagnosed will primarily direct the course of treatment.

Chemotherapy is typically used to treat SCLC. In limited stage disease, radiation and surgery are also options for treatment.¹⁶

Early stage NSCLC treatment likely involves surgical removal of the tumor. In some cases, an entire lung must be removed in a procedure called pneumonectomy. Chemotherapy may also be given to patients treated surgically. Surgery is often performed with minimally invasive techniques, limiting the amount of pain a patient may experience following the procedure. If a tumor cannot be surgically removed initially, physicians may use radiation and/or chemotherapy to shrink a tumor to the point that it can then be removed surgically.¹⁷

Radiation therapy can also be used to kill cancer that was not removed during surgery as well as to relieve symptoms of the disease.¹⁸

Oral or intravenous chemotherapy may also be used if the cancer is more extensive. Treatment for advanced lung cancer typically uses a combination of two chemotherapy drugs. The most common combinations include either cisplatin or carboplatin plus one other drug. Chemotherapy is administered in cycles, and initial treatment lasts for four to six cycles. Patients in poor health are often treated with single-agent chemotherapy. After receiving initial therapy, patients are often treated with additional lines of single-agent therapy.¹⁹

What does the future of lung cancer treatment look like? Because symptoms often appear in the late stages of the disease, early detection techniques are a vital component to effective treatment of lung cancer. Some new screening methods, such as CT scans, may lead to improved early detection of lung cancer, providing a better opportunity for treatment and improved survival.²⁰

Extensive research is being conducted to develop improved drug treatments for lung cancer. This includes the development of targeted therapies, novel drug combinations and the study of the best sequence of chemotherapies for advanced disease.

¹ National Cancer Institute, "Non-Small Cell Lung Cancer Treatment (PDQ®)," www.cancer.gov/cancertopics/pdq/treatment/non-small-cell-lung/HealthProfessional/page2, (October 8, 2009).

² American Cancer Society, "What Are the Risk Factors for Non-Small Cell Lung Cancer?" www.cancer.org/docroot/CRI/content/CRI_2_4_2x_What_Are_the_Risk_Factors_for_Non-Small_Cell_Lung_Cancer.asp?rnav=cri, (October 8, 2009).

³ American Cancer Society, "What Are the Key Statistics for Small Cell Lung Cancer?" www.cancer.org/docroot/CRI/content/CRI_2_4_1x_What_Are_the_Key_Statistics_for_Small_Cell_Lung_Cancer.asp?sitearea, (September 1, 2009).

⁴ American Cancer Society, "What Causes Small Cell Lung Cancer?" www.cancer.org/docroot/CRI/content/CRI_2_2_2x_What_Causes_Small_Cell_Lung_Cancer.asp?rnav=cri, (September 1, 2009).

⁵ American Cancer Society, "Cancer Rates Dropping Among African Americans but Survival Rate are Still Low." www.cancer.org/docroot/MED/content/MED_2_1x_Cancer_Death_Rates_Dropping_among_African_Americans_but_Survival_Rates_Still_Low.asp?sitearea=MED, (September 1, 2009).

⁶ American Cancer Society, "Secondhand Smoke," www.cancer.org/docroot/PED/content/PED_10_2X_Secondhand_Smoke-Clean_Indoor_Air.asp, (September 1, 2009).

⁷ American Cancer Society, "How Is Non-Small Cell Lung Cancer Diagnosed?" www.cancer.org/docroot/CRI/content/CRI_2_4_3x_How_Is_Non-Small_Cell_Lung_Cancer_Diagnosed.asp?rnav=cri, (October 8, 2009).

⁸ American Cancer Society, "Cancer Statistics, 2009," <http://www.cancer.org/downloads/STT/500809web.pdf>, (October 13, 2009).

⁹ American Cancer Society, American Cancer Society, "What is non-small cell lung cancer?" http://www.cancer.org/docroot/CRI/content/CRI_2_2_1x_, (October 13, 2009).

¹⁰ Scagliotti G, et al. "The Differential Efficacy of Pemetrexed According to NSCLC Histology: A Review of Two Phase III Studies," *The Oncologist*, Vol. 14, No. 3, 253-263, March 2009.

¹¹ Ciuleanu, T, et al. "Maintenance pemetrexed plus best supportive care versus placebo plus best supportive care for non-small-cell lung cancer: a randomised, double-blind, phase 3 study," *The Lancet Online*, September 18, 2009.

¹² American Cancer Society, "Treatment Choices by Stage for Non-Small Cell Lung Cancer," www.cancer.org/docroot/CRI/content/CRI_2_4_4x_Treatment_Choices_by_Stage_for_Non-Small_Cell_Lung_Cancer.asp?rnav=cri, (October 13, 2009).

¹³ American Cancer Society, "After The Tests: Staging," www.cancer.org/docroot/CRI/content/CRI_2_2_3x_After_The_Tests_Staging_16.asp?rnav=cri, (October 13, 2009).

¹⁴ American Cancer Society, "How Is Non-Small Cell Lung Cancer Staged?" www.cancer.org/docroot/CRI/content/CRI_2_4_3x_How_Is_Non-Small_Cell_Lung_Cancer_Staged.asp?rnav=cri, (September 1, 2009).

¹⁵ American Cancer Society, "Cancer Facts & Figures 2009," Atlanta: 2009, www.cancer.org/docroot/STT/STT_0.asp, (October 8, 2009).

¹⁶ American Cancer Society, "How is Small Cell Lung Cancer Treated?" www.cancer.org/docroot/CRI/content/CRI_2_4_4x_Introduction_to_Treatment_for_Small_Cell_Lung_Cancer.asp?rnav=cri, (October 8, 2009).

¹⁷ American Cancer Society, "Detailed Guide: Lung Cancer - Non-Small Cell Surgery," www.cancer.org/docroot/CRI/content/CRI_2_4_4x_Surgery_15.asp?rnav=cri, (October 8, 2009).

¹⁸ American Cancer Society, "Detailed Guide: Lung Cancer - Non-Small Cell Radiation Therapy," www.cancer.org/docroot/CRI/content/CRI_2_4_4x_Radiation_Therapy_15.asp?rnav=cri, (October 8, 2009).

¹⁹ American Cancer Society, "Detailed Guide: Lung Cancer - Non-Small Cell Chemotherapy," www.cancer.org/docroot/CRI/content/CRI_2_4_4x_Chemotherapy_15.asp?rnav=cri, (October 8, 2009).

²⁰ Lung Cancer Alliance, "Lung Cancer Screening and Early Detection," www.lungcanceralliance.org/facing/screening.html, (September 1, 2009).